Something-to-Do, Boys!

Something to Do,—Boys!

All children do like to work at whatever is of real benefit to them,—until they have learned to be idle!

P. P. CLAXTON,
Commissioner of Education for the United States.

YES

Always Something to do—
With crayons or brushes,
With pencil and rule
At home with my own folk,
Or daily in school.
Things to do in the Garden,
Or to make in the shop;
To name them all here,—
One never could stop!

BUT

With Nothing to do—
O, how slow life would be!
Surely Nothing To Do
Would ne'er content me,
For I'm eager to work
As well as to play;
To know how to make things
The very best way;
And how can I learn
All these things, old and new,
Unless I read carefully
SOMETHING TO DO?

—*Frederic A. Whiting*

WHAT HAPPENED TO THE IDLE BOY

Something to Do,—Boys!

A Book for Wide-Awake Boys

Edited by

EDNA A. FOSTER

W. A. WILDE COMPANY

BOSTON AND CHICAGO

GETTING READY FOR THE DAY'S WORK

Foreword

DO you like to watch a great piece of machinery? Whir-r-r sings the big wheel and whir-r-r sing all the smaller wheels! Each lever, shaft and axle moves with perfect accuracy and power. It is always on time.

As you stand and watch the machine, you have no desire to interfere with its movement. It seems to say to you, "Stand back! I am busy! I am doing my work and I am producing something. Hands off!"

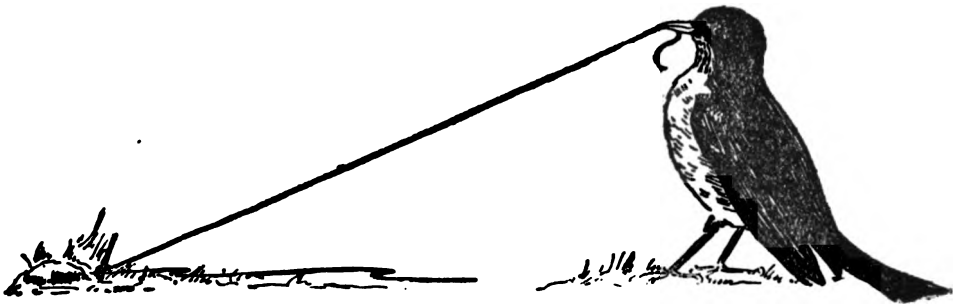
It is only when the machine is idle and the wheels are silent that curious hands can come near it.

Did you ever think that your mind is a machine that loves work? Give your mind plenty to do and it will seem to say, "I am happy because I am at work! I have no time to be discontented. Do not bother me. I love my work. Keep away!"

Something to do! That is what gives the greatest happiness. All boys like to create something or to work out problems of work or play. And accuracy is the thing that puts a value upon the

work! If plans for lighthouses, aqueducts or aeroplanes are made by you in one country and every part of the work is correct, the plans may be worked out by some one else in another country—even by some one who does not speak the same language.

If the simplest article shown in the pages of this book is worked out perfectly something has been gained and learned. There is work here for every kind of boy,—boys of all ages and tastes, and there is an infinite variety of things to do.



BUSY MR. ROBIN FINDS SOMETHING-TO-DO

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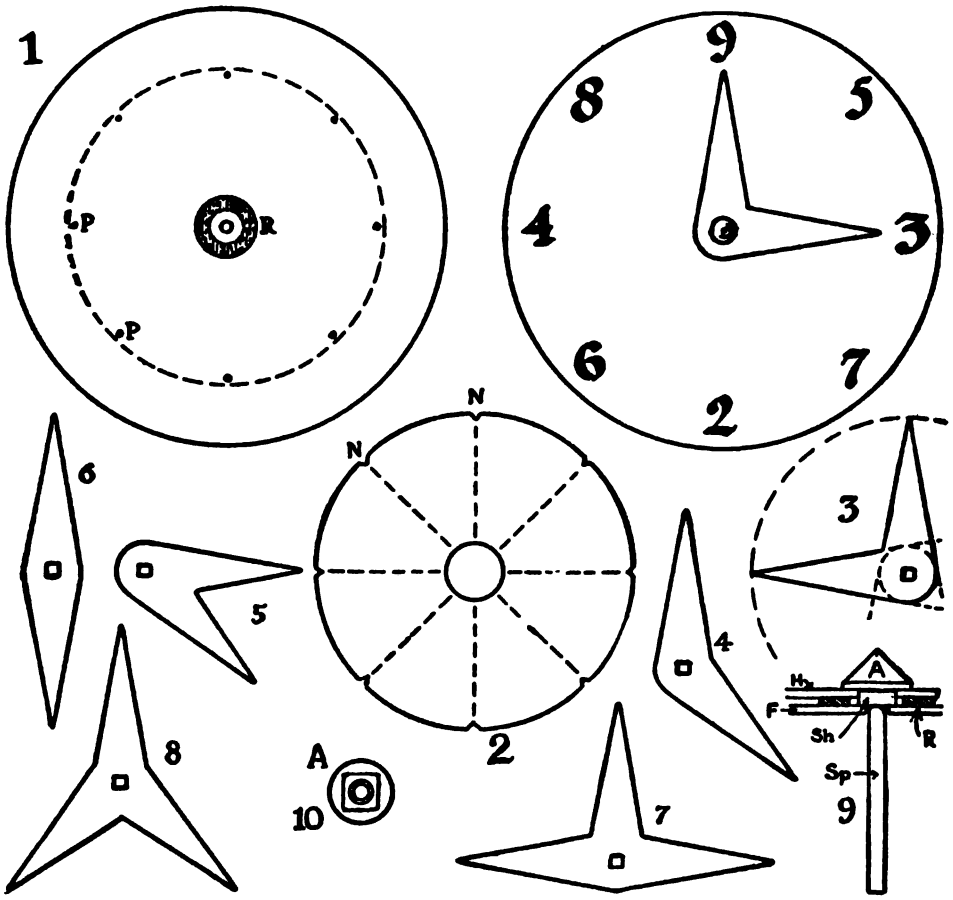
Something to Do, Boys

Things that a Handy Boy Can Make



A Number Dial

If your small brother or sister should have trouble with number work at school make a Number Dial like this, of cardboard, with a wooden spindle. The double hands, 3, 4, 5, 6, 7, and 8, revolved, will give you all the combinations. It is a wonderful help to use such a dial for practice. It does not seem like hard work because it lends a new interest to the study.

A Push Cart

Here are the directions for making a very useful cart for boys who have work to do after school, such as carrying papers, groceries, or dairy products.

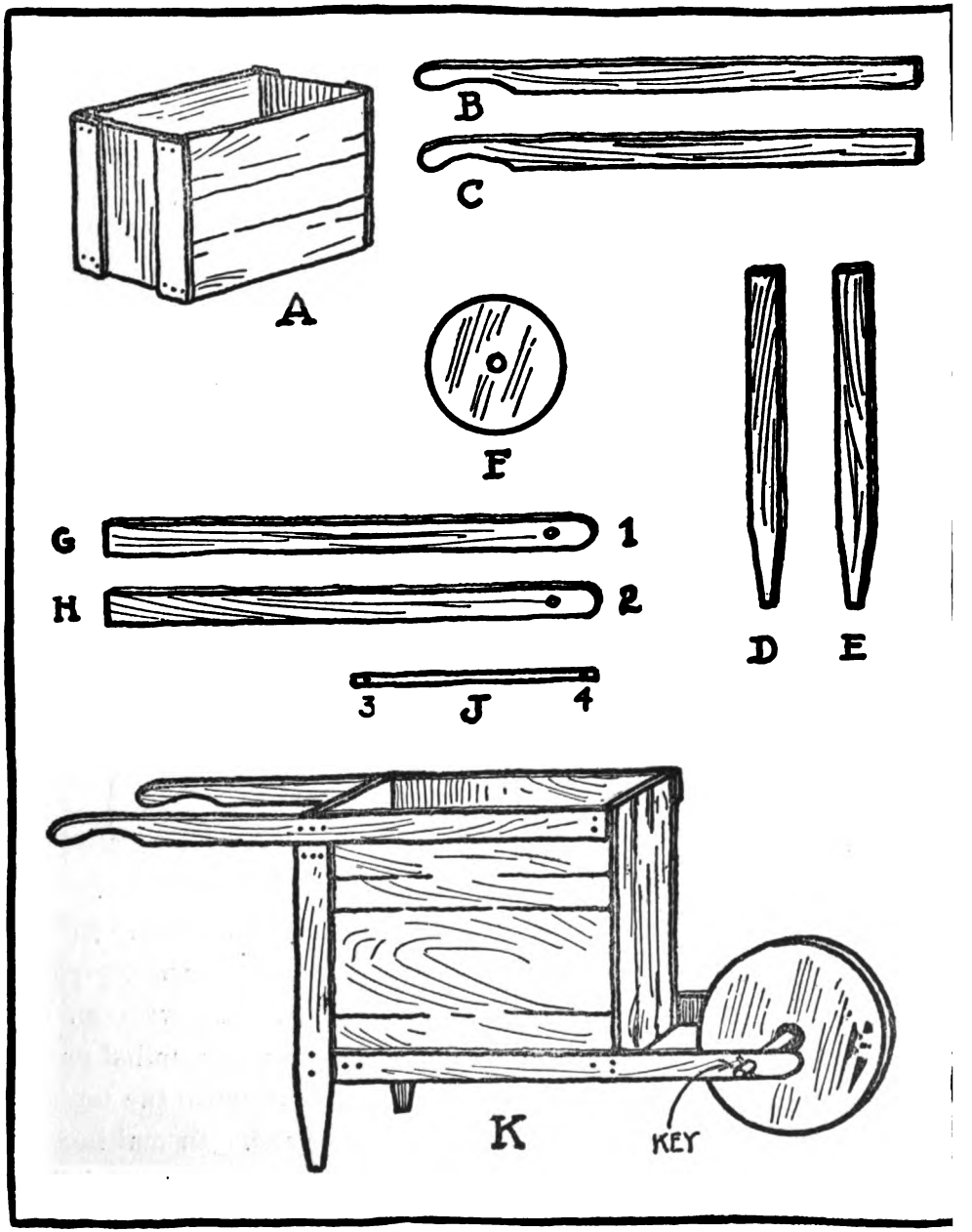
First, get an old empty wooden box from the dry-goods shop or the grocery store. The box should be of the depth to bring the handles into a convenient position. It would be awkward to push the cart if the handles were too high.

Such a cart as the one shown on the opposite page is lighter and easier to handle than a wheelbarrow,—besides being more attractive. It also holds as much if not more than the usual barrow. A seat can be set inside and small brother or sister can be given a ride.

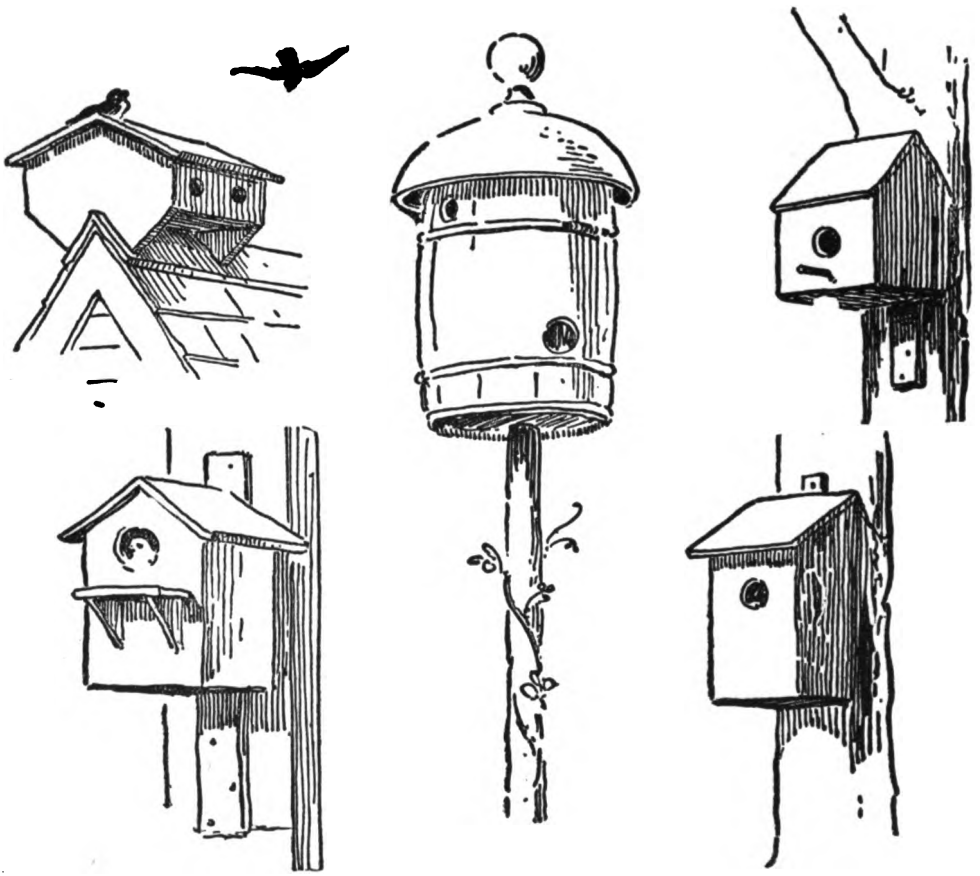
When a boy owns a cart like this he is often asked to do odd jobs and errands and so the cart becomes a means of profit as well as of pleasure.

A cart is of good service in the garden or dooryard; clippings of grass and cuttings from shrubs and everything in general that litters the grounds can be gathered up and carted away. Where there is no garden hose pails of water can be more easily carried to plants with a cart like this and there is less danger of slopping the water. Make such a cart and see how many ways there are of helping mother.

One shaped like Fig. A on the next page is best. Take two strips of wood one-half or three-quarters of an inch wide and cut them the desired length, whittling a handle as in Figs. B and C. Nail these to the top edges of the long sides of the box as shown in the picture K. Next make two pieces like D and E for the box to stand on, nail these so that the pointed part will extend below about 5 or 6 inches. Now find an old 2-inch plank and cut a wheel out so that it measures 10 or 12 inches across. Bore a hole as in Fig. F. Make two pieces like G and H, so that when they are nailed to the box they extend out front about 12 inches. Bore holes in these pieces (as shown in 1 and 2) large enough for a metal rod like J. Perhaps you can get an old rod in the blacksmith shop. It will need two small holes in it, 3 and 4, so that when the wheel is fitted on a little key pin may be placed to keep the rod from sliding back and forth. This may also be done on each side of the wheel to keep it in place.



A PUSH CART MADE FROM A BOX



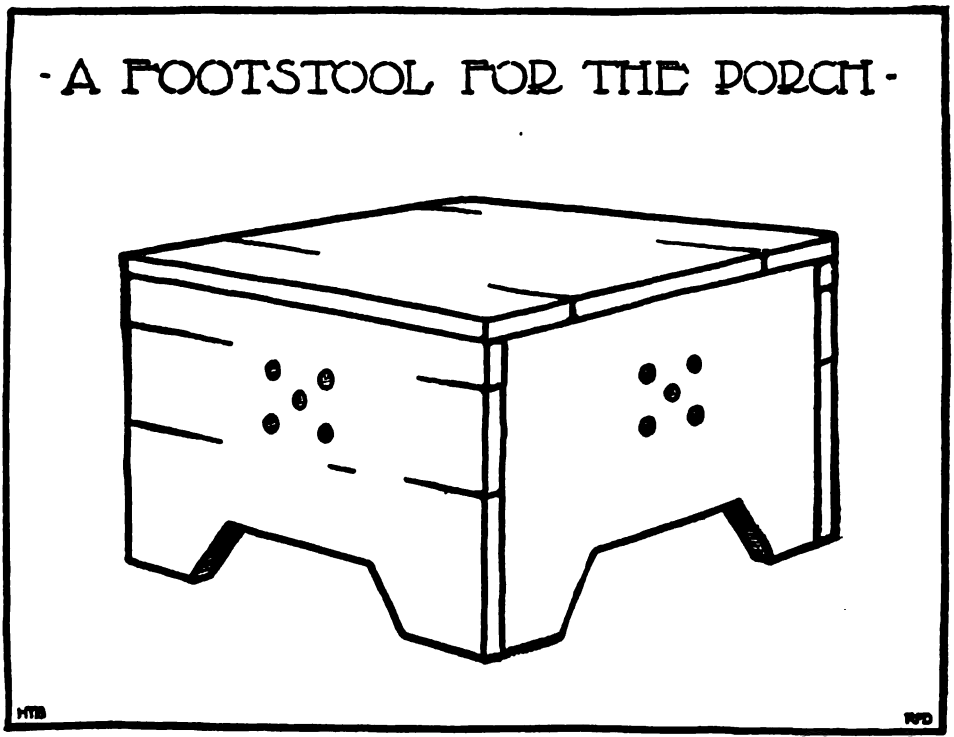
Some Birdhouses that Boys Can Make and that Birds Will Like

These birdhouses are all drawn from birdhouses that are in use. All but the central one were made from weather-worn dry-goods boxes. The central one was made from a nail keg with an old chopping tray for the roof and the top of a piazza post nailed on for the ornament. The post goes up through the bottom to the top and the interior is divided into several compartments. In making the other boxes make the end pieces and bottoms of thicker wood than the sides and roofs. The birds are not very particular about the carpentry work but they are a little timid at first; they just want the houses to look old.

Useful Things That Can be Made from Wood

Every day you use wood in some way; have you ever thought much about its value?

How many different kinds of wood are to be found near your home? Is it hard wood or soft,—and why? Can you tell the different names of trees and fifty uses of their wood? Do you know the kind of wood used in the making of your house, your lead pencil, your desk? What kind of wood is used in the case of a violin and what kind is used in the mast of a vessel? These are things that you can look up in your encyclopædia and when you are whittling wood you will stop to think where it came from and what was done with it before it came to your hand.



A Box Footstool

Select a good stout box made of thick wood. Drive additional nails to hold all the parts together securely. Cut out a piece from each side, as shown in the picture. Bore holes to make the rosettes. Smooth the whole with coarse sandpaper. Stain or paint it the color you want.

To cover the stool with burlap, cut a piece the size of the top and hem it, a half inch, all around. Put two or three pieces of an old bedquilt under it, and tack the edges down carefully, with 8 oz. tacks, an inch apart. Brass-headed tacks such as upholsterers use would make it handsomer.

A Barrel-Stave Hammock

There are numberless things that can be made from wood and material found at home. Every boy will like to make a hammock for the piazza or summer camp. A barrel-stave hammock costs practically nothing but a little hard work and may mean the making of a shady spot into a place of comfort.

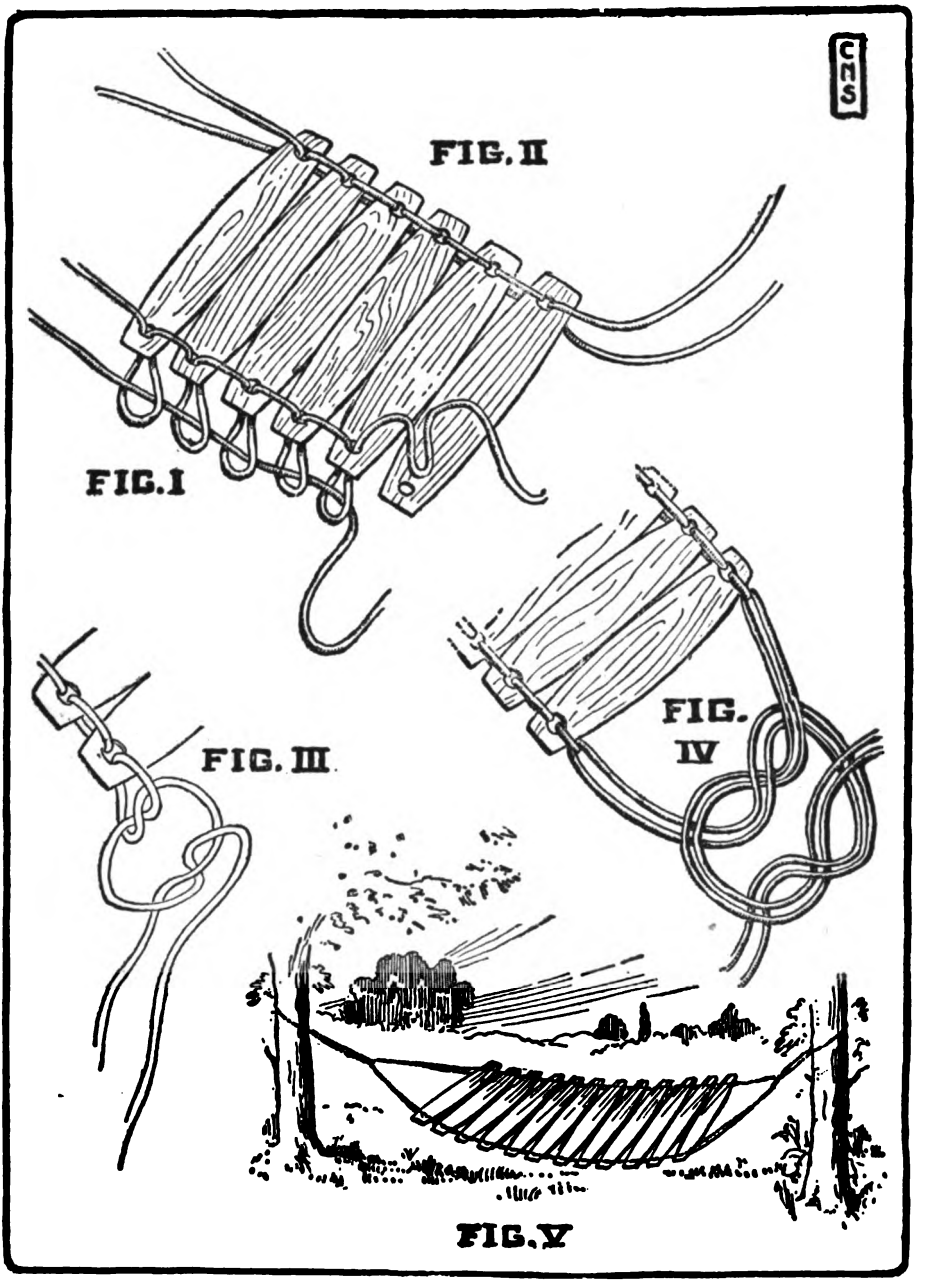
First take off the hoops from a barrel and select the best staves. Be careful to pull out all the nails so your clothes won't get torn. Lay these staves side by side till you have the length you want your hammock to be. Bore a hole in both ends of each stave.

Each side of the hammock is "stitched" with a pair of strong ropes. The top rope is looped and thrust through the holes. The bottom rope is run through these loops. See Fig. 1.

After you have done this "stitching" pull the pair of ropes tight, as in Fig. 2, and tie them with a square knot as in Fig. 3. "Stitch," tighten, and tie the other side of the hammock in the same way.

Now tie the two pairs of ropes together, as shown in Fig. 4, leaving plenty of slack, or else the hammock will not hang well. Do this at both ends. You are now ready to swing the hammock between two trees, or two posts, whichever is most handy. Fig. 5 suggests how this is done.

If the hammock seems to tip too easily, this is because you did not leave a long enough loop when you tied Fig. 4.

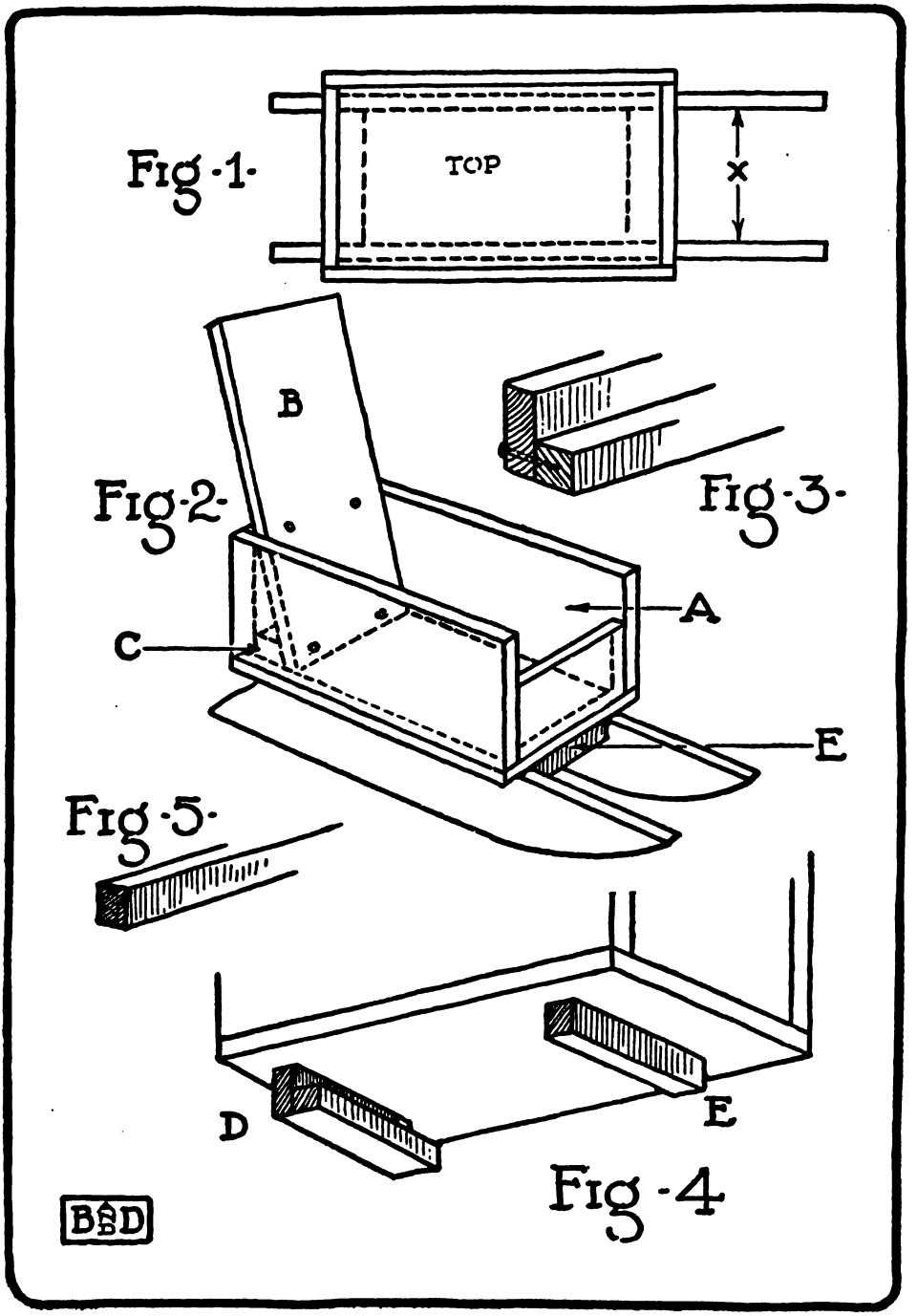


VARIOUS STAGES IN THE PROCESS OF MAKING AND SLINGING A BARREL-STAVE HAMMOCK

A Hand Sleigh

Every wide-awake boy and girl who lives where it snows in the winter has a sled. He can use that sled for himself or he can give pleasure to another child. To change your sled into a Hand Sleigh, first find a wooden box a little longer than the board that makes the top of your sled, and as wide, or wider, as shown in Fig. 1. The cover of the box will make the back-board or handle, Fig. 2. The piece you take out at A will make the cleats, D and E, for the bottom of the box, as shown in Fig. 4. Cleat E just fits in between the runners, X, and against the front end of the board, as shown at E, Fig. 2. Cleat D must be made of two pieces screwed together as shown in Fig. 3, and fastened with screws to the under part of the box, so

YOU WILL BE A BETTER BOY TO HAVE AROUND WHEN YOU CAN USE YOUR SLED THIS WAY



that it will be just right to fit between the runners and *under the back edge* of the top board. Put on the back cleat first. Put the front one on where it will fit snug over the front end of the board, when the box is pushed as far forward as it will go. Nail a block, C, in behind the base of the back-board, and fasten the back-board to it and to the upper part of the end.

This sled can be used to carry parcels from the store and would be of great service.

Toys and Models

An Esquimau Sledge

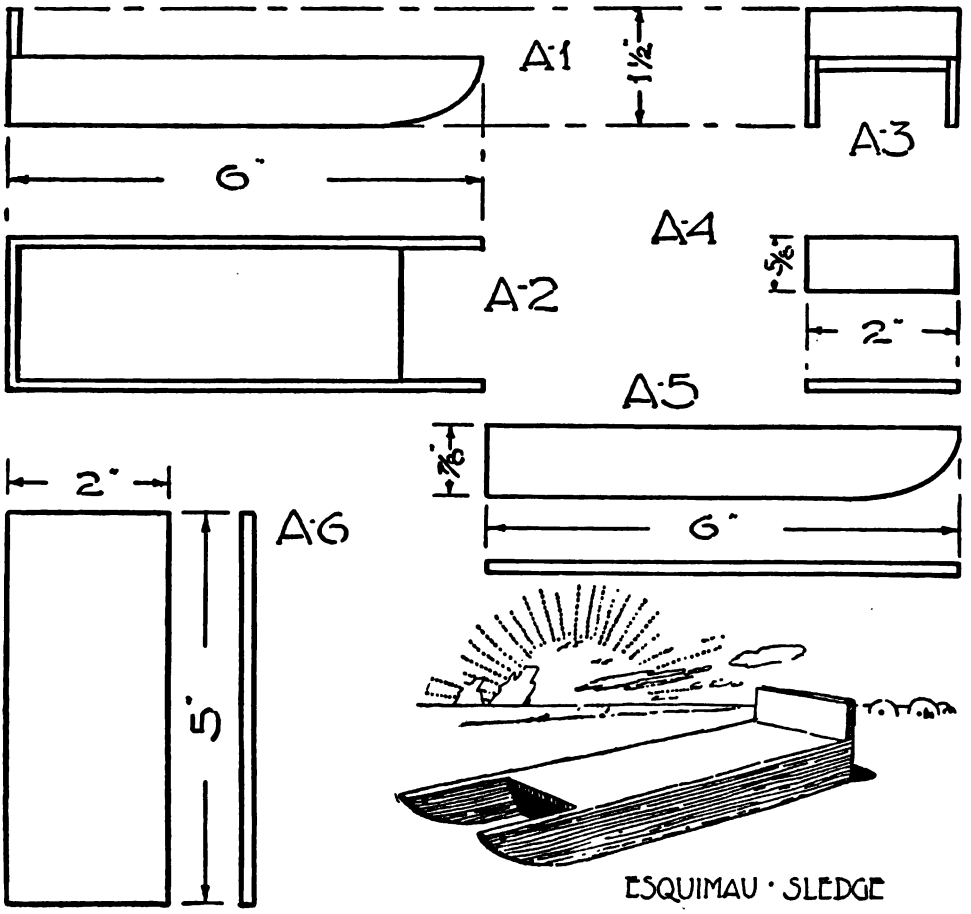
When the white men first traveled through the northern or Arctic section of America, they found the Esquimaux using a kind of sled, which they called a sledge. To the sledges they harnessed the native dogs and were able to journey over the ice and snow at great speed. This was, without doubt, the first form of sled ever used in America. The construction of this primitive sledge was so well adapted to the condition of the country and the climate, that it has been used ever since. To-day every Arctic and Antarctic explorer finds them a very necessary part of their equipment and Mr. Peary in his discovery of the North Pole certainly owes something of his success to his faithful dogs and sledges.

Any boy who can construct these toys can use the articles for models and so make something useful. The same diagram can be used. There is no better practice in the use of tools than that of making small wooden objects or toys of any description. The lines and proportions given in the illustration can be applied to the making of a larger object.

Draw each part carefully on paper and in cutting the wood cut all the edges as clean as possible. Straight sharp lines show the perfect workman.

Directions. Out of ¼″ wood make a floor 5″ long, 2″ wide. Make also out of ¼″ wood two runners, each 6″ long, ⅛″ wide; round one end of each, as in A-5; nail the runners to the floor with

½" brads, driven through the sides of runners into the floor. Construct out of ¼" wood a back, 2" long, ⅝" wide. Secure with two ½" brads, driven up through the floor. Sandpaper all parts.



MODEL OF AN ESQUIMAU SLEDGE

Key to Drawing.

A-1 Side view of sledge.
A-2 Top view of sledge.
A-3 End view of sledge.
A-4 Side view and top of back.
A-5 Side and top view of runner.
A-6 Top and side view of floor.

Boy and Girl Contractors

The benefit of learning to make useful articles for the home is twofold. It may lead to making things for profit.

"Billy Smith, Contractor," would seem to be a big title for a boy who was only ten or twelve years old. The other day, however, a card was displayed which read somewhat as follows:

BILLY SMITH
Errands on Call
1417 Chester Avenue

TELEPHONE
Main 1636
Terms Reasonable

HOURS
School Days—4.00 to 8.00
Saturdays—8 A. M. to 6 P. M.

A boy in a small town distributed such cards last fall indicating that he was ready, when asked, to run errands or carry messages. His telephone brought him within reach of his patrons. A boy of about this age wrote the other day as follows: "Four years ago next summer I started a half-time delivery and have earned over $50 doing errands. People 'phone for me and I have many errands to do out of school. I have now over $80 in the bank."

This is not the only young contractor. Down in Georgia a lad started up a "back yard workshop." He began by doing odd jobs for his own family, mending chair legs, door knobs, making screens for the windows, flower boxes and such things. There was always something getting out of order about the house. The boy set up window boxes at every window and some simple seats about the trees in the yard. It wasn't long before the neighbors awakened to what he was doing and very soon hired him to mend broken furniture and make them some window boxes.

Picture Frames

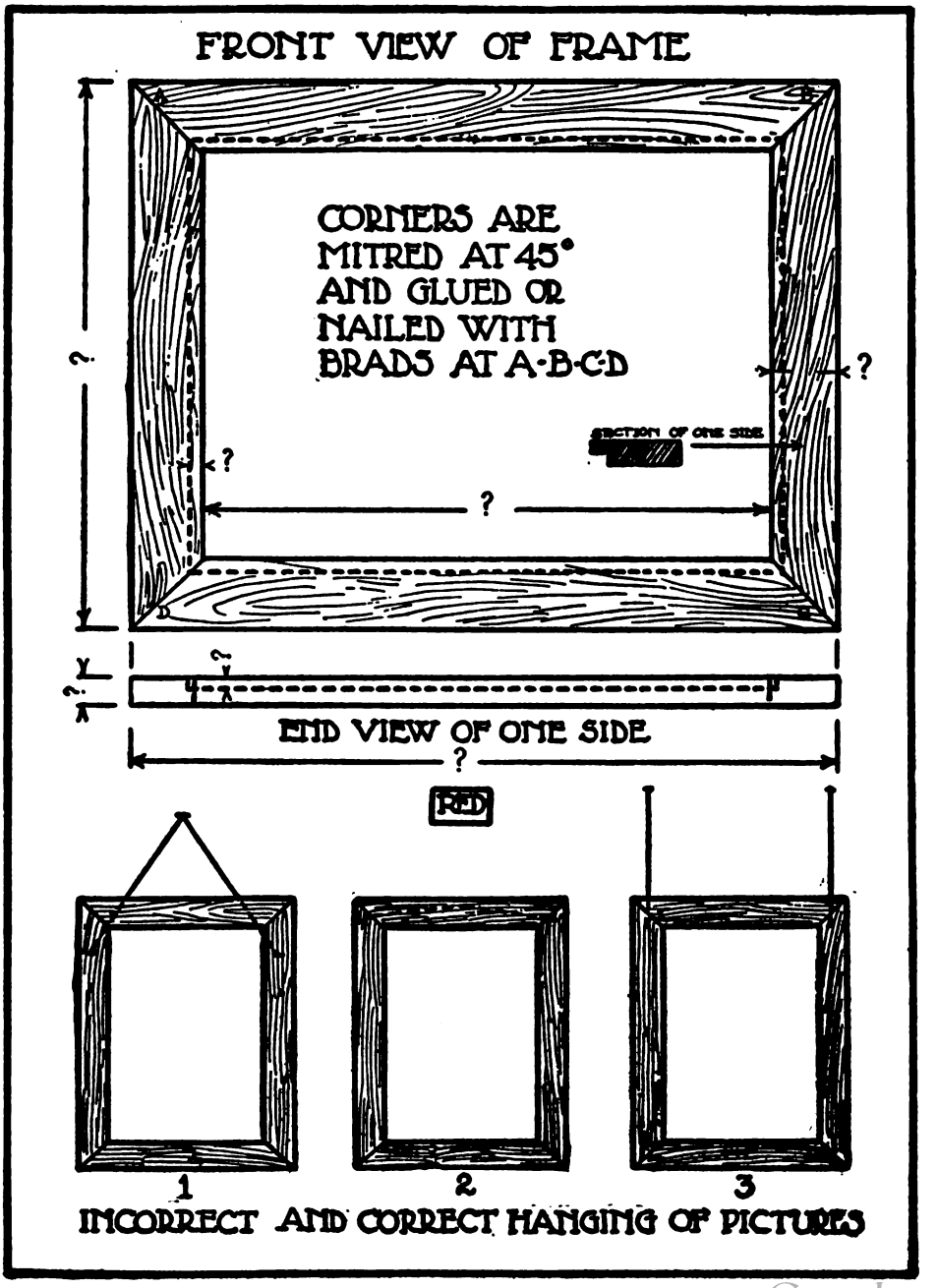
The making of a common picture frame is not only an interesting problem for either the country or the city boy, but it is a problem which often comes in handy when father or mother needs to fix up the walls a bit, rearranging old pictures, discarding old ones for new, and in general getting ready to make the home look as attractive as is possible.

Here are some suggestions and helps for the making of a simple wooden frame with no whirligig or leaves in the corners, no grooves to catch the dust, no scalloped edges, just a plain ordinary frame. On the next page you will notice that the drawings which show the front and end views of the frame are made with *question marks* in place of figures which tell you how long, how wide, or how thick to cut your stock. This is done so that you can each design your own frame on a piece of drawing paper first, figuring the desired length, width, and thickness. The top view shows the width of moulding, length of frame, height of frame, and the size of the inside. Notice the little sketch of the section. This shows the shape of the moulding when sawed through. After you have cut each of the four pieces the right length, measure off the angles at A-B-C-D by drawing a square at the end of each piece in the mitre-box and cut it at 45°. Before mitering the corners, the rabbeting or cutting of the inside of each piece should be done. Rabbet out on the under side to allow for placing the picture, glass, and backing. Hold the pieces securely in a vise and glue or nail together. The finish of your frame depends upon the kind of wood used. Sandpaper thoroughly and after staining the desired color use some wood filler and then shellac it and rub it down.

Hanging

Not many realize the importance of hanging a picture correctly. In the drawing on the next page you will notice three views of frames hung incorrectly and correctly. Fig. 1 shows the worst type of picture hanging. The wire runs at ugly angles from the sides of the picture. A picture should be (if light weight) hung like Fig. 2 having the wire invisible, or like Fig. 3 when the direction of the picture cord runs in the same vertical manner as the sides of the

frame. This rule will always hold good. Try hanging your picture this way and see how much better your walls will appear.



Paper Cutters

Boys all like to draw faces. Faces with smiles, faces with bulging eyes and funny noses, faces with mustaches and beards and faces with frowns and tears.

Sketch an oval and divide it into spaces to form a face. First draw a vertical line (AB in Fig. V) through the center of the oval so that the face will look the same on both sides. Next locate the position of the eyes, on a horizontal line (CD) across the oval from side to side. Place the nose half-way between the eyebrows and chin, and the mouth half-way between the nose and chin. Use very simple round spots for the eyes and nose and a small ring for the mouth. After you have practised several of the funny faces, draw some paper cutters or knives on a sheet of paper. Make six or eight having different shapes.

Get some thin soft white wood (basswood is good) and ask yourself these three questions before you begin:

1. What is the knife to be used for?
2. What kind of a handle is needed?
3. How must the blade be made?

Draw the shape of the handle and the blade on a piece of paper first. Notice how the handles are joined to the blades in the drawings on the next page. Paste your drawing on the thin piece of wood and with a scroll or coping saw cut the wood, following your outlines. If you haven't one of these saws handy, use a sharp jack-knife. Bevel the edges of the blade and sandpaper the whole very smooth.

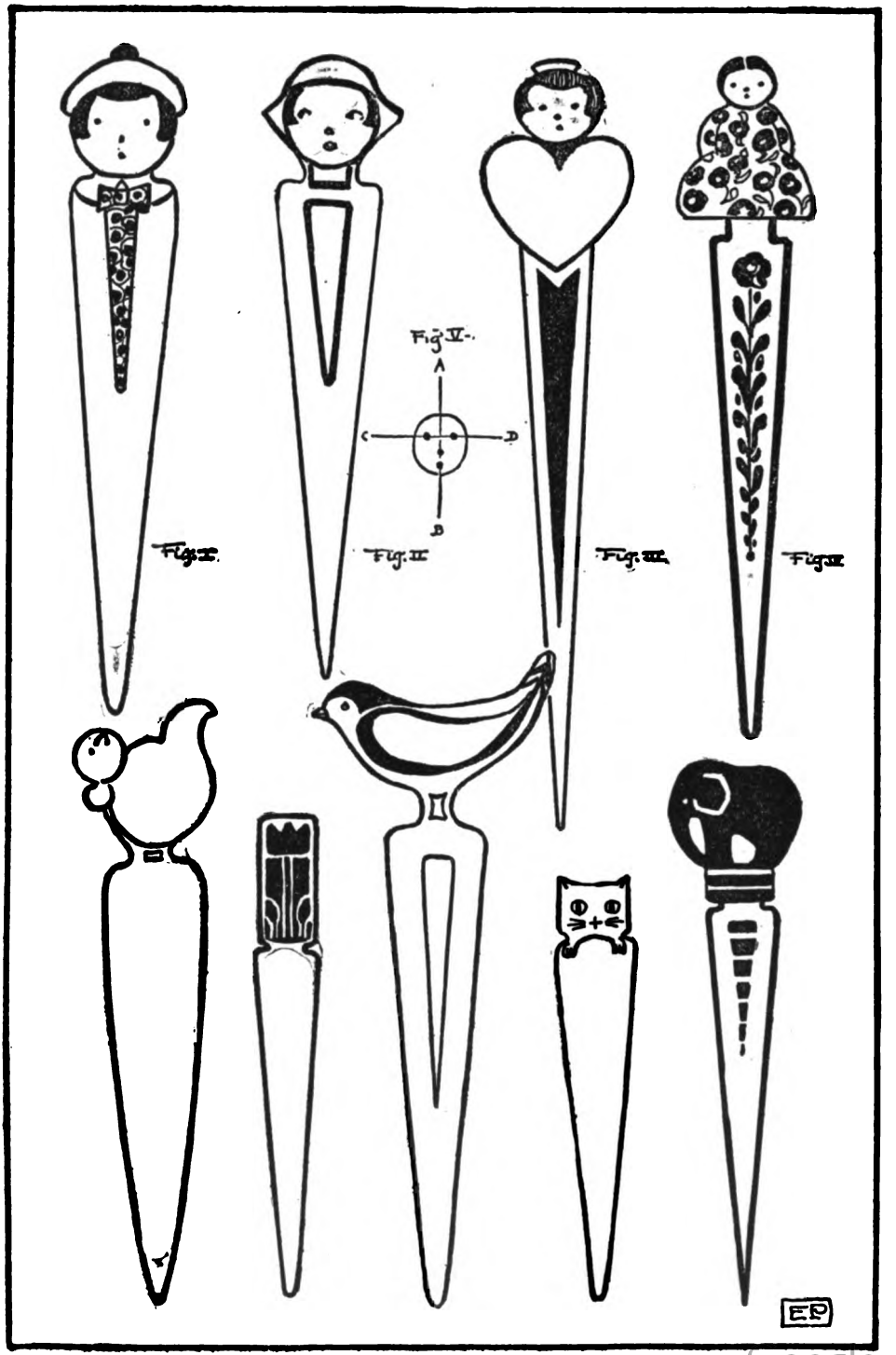
Fig. I is painted flesh color with black hair, white collar, orange and black and white tie, orange cap, and a light gray blade.

Fig. II is a flesh colored face, blade and cap white with bands of dark blue.

Fig. III. A Valentine Knife. Face flesh color, hair black with orange ribbon, heart red, blade orange with black center.

Fig. IV. The Chinese knife. Here is a chance to use many bright colors, red, yellow, green, orange, with a background of black.

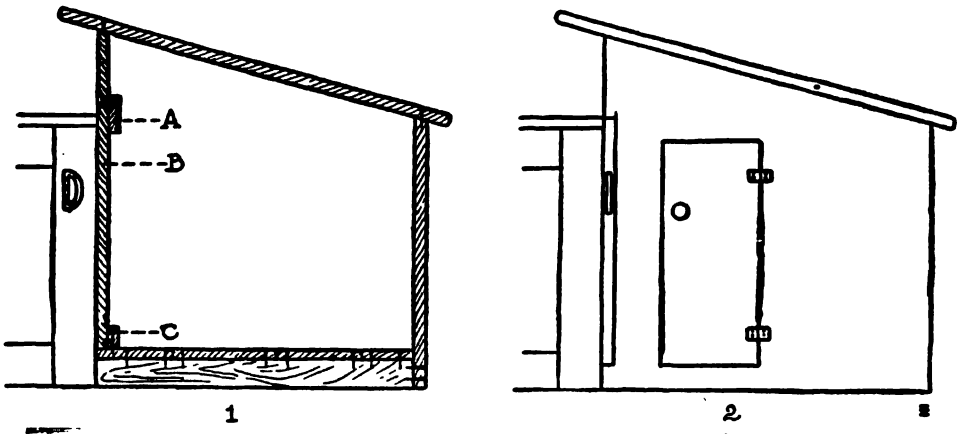
After coloring your knives, cover them with either a coat of varnish or shellac. Good knives may be made, using animals on the handles instead of faces.



A Good Home for Your Rabbits

Here is the pattern of a very good rabbit house. The house is about four feet square, and is entirely covered with heavy building paper. It faces south and has a narrow door on the east side. The front was left open and fitted with a sliding screen, as you see in the picture.

If you want to make a house and yard like it, these diagrams will show you how to do it. This house was made by constructing a frame of 2 x 3 joist, four feet square, and nailing the floor, sides, and back to this. The roof was nailed to the edges of the upright boards. The door (Fig. B in the diagram) slides between two low cleats (A and C) and the frame of the yard (D). The yard is made



A SECTION DRAWING SHOWING DETAILS OF THE RABBIT'S HOME, AND A DRAWING SHOWING THE OUTSIDE DOOR AND THE SLIDING DOOR TO THE YARD

in four sections—two sides, an outer end, and the top. These were nailed together as shown in the photograph. Just underneath each of the four sides of the yard (this is an important point to remember) is a screen, two feet wide, *buried* in the earth. This prevents the rabbits from escaping if they should burrow in the yard.

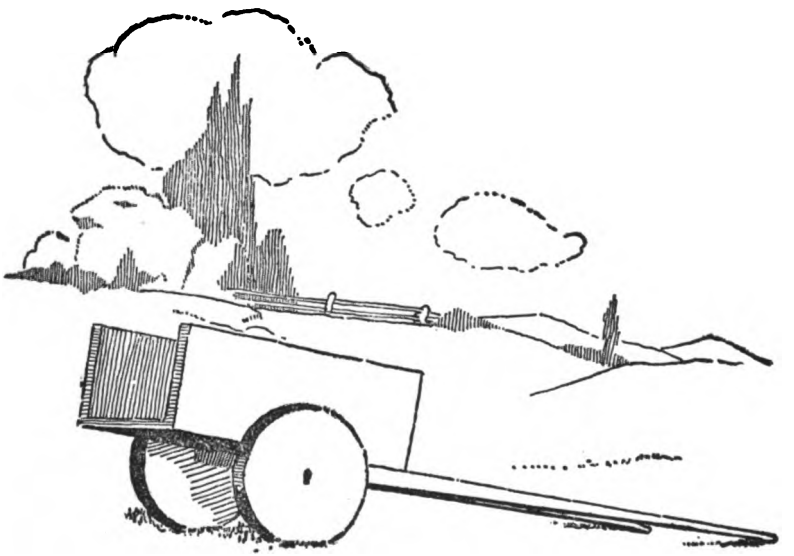
When the real cold weather comes on, the screen is taken out, and a solid sliding door is used in its place. With this door the house can be completely closed on cold nights or stormy days. The floor of the house is always covered with clean, dry hay. The hay should be changed frequently and the house kept perfectly clean; all food that is left uneaten should be swept out. The rabbits like to be clean and they will show their care.

A Tip Cart

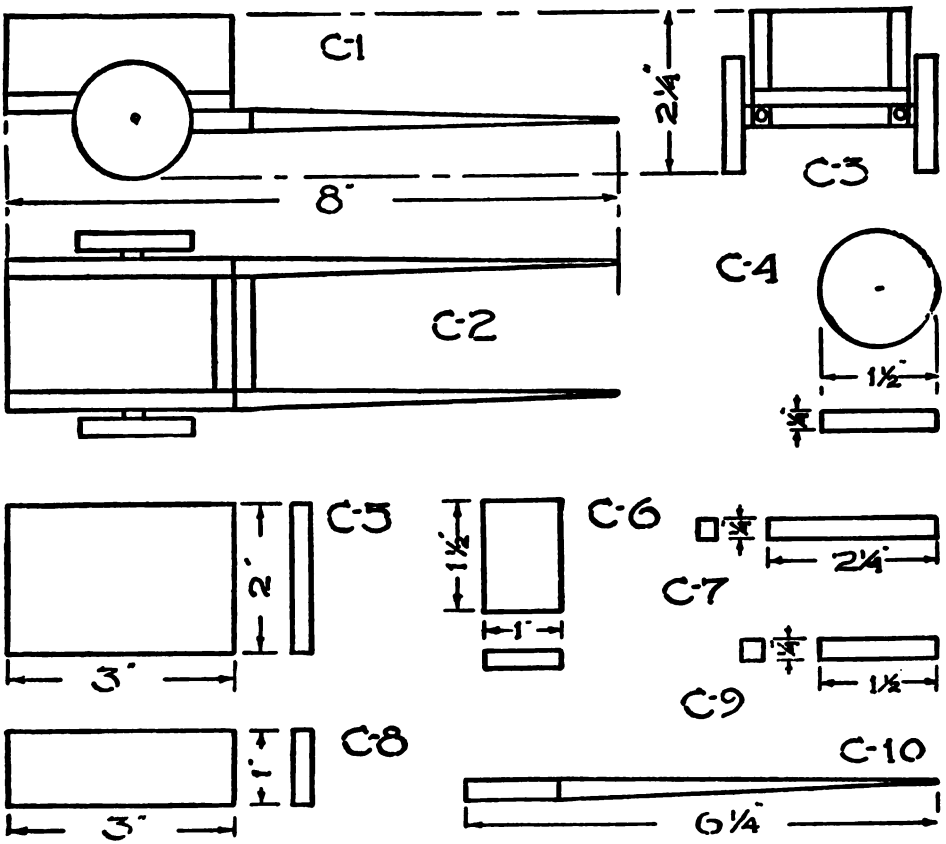
Here is another useful cart; it is built on such simple lines that any boy can easily work from the directions given. The body of the cart can be built of wood and attached to an old pair of wheels that you may have on hand.

A two-wheeled wagon, the body of which can be tipped over to allow everything that is in it to slide out, is called a tip cart. Tip carts are very useful on the farms, in the country villages, and even in the large cities, where by means of them certain kinds of work can be done more easily and more quickly than by any other wagon. Ashes, dirt, coal, building materials, and various other things are carried in them from one place to another.

Directions. Cut out of ¼″ wood two sides 3″ long, 1″ wide. Cut also out of ¼″ wood, the end 1½″ long and 1″ wide. With four brads, nail the two sides to the end. From ¼″ wood cut a floor 3″ long, 2″ wide; nail the floor to the sides and end. Out of ¼″ wood cut two pieces 6¼″ long, ¼″ wide for the shafts; measure 5″ on each shaft from the end and taper and round as in C-10. Make a cross-bar 1½″ long, ¼″ wide, ¼″ thick; secure to the shafts by driving one



TIP-CART



DRAWING · for · a · TIP-CART ·

C-1 Side view of tip cart.
C 2 Top view of tip cart.
C-3 End view of tip cart.
C-4 End and side view of wheel.
C-5 Top and end view of floor.
C-6 Top and end view of end of body.
C-7 Top and end view of axle.
C-8 Top and end view of side of body.
C-9 End and top view of cross-bar.
C-10 Top view of pole.

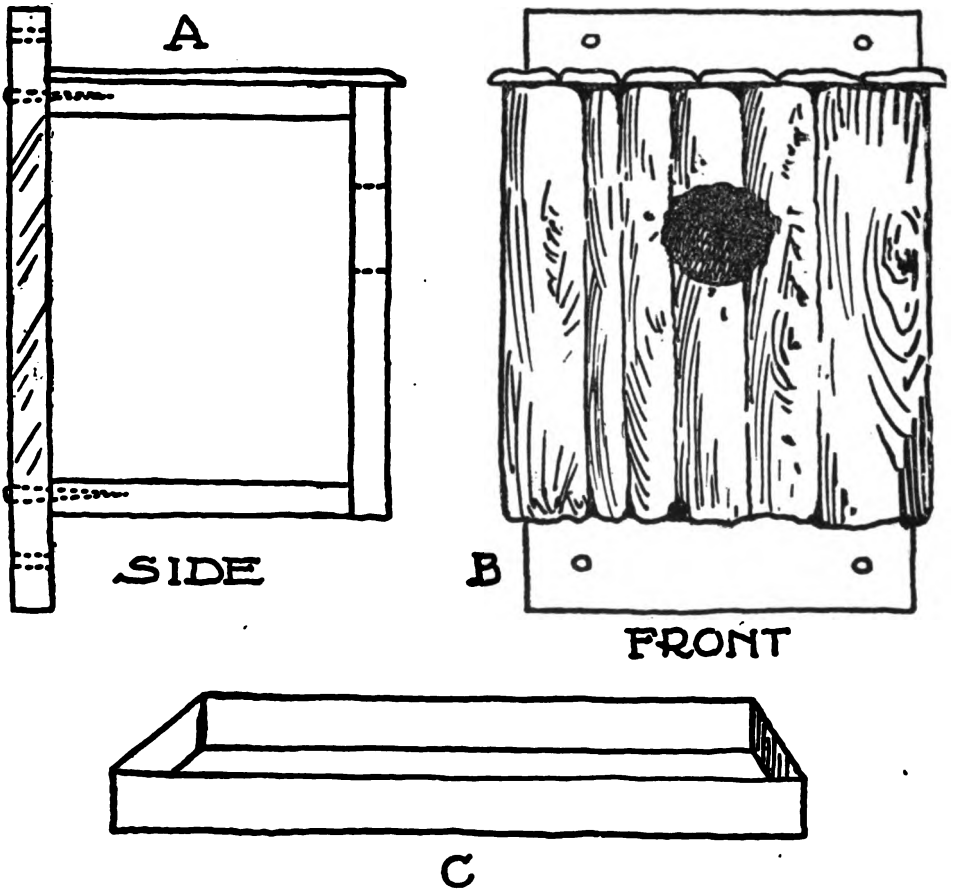
brad through the side of each cart 1¼" from their rear end, into the cross-bar. Make an axle 2¼" long, ¼" wide, ¼" thick; nail this to the square ends of the shafts. Take a piece of cloth ½" wide, fold it lengthwise and glue one half of it to the under side of the floor, 1½" from the rear end; glue the other half to the axle. The body of the cart can then be tipped. Whittle out of ¼" wood two wheels 1½" in diameter; with an awl bore a hole in the center of each, going but one-half the way through; turn over and bore through the center to meet the other hole; fasten with ¾" brads to the axle. Sandpaper all parts.

A Home for a Tame Squirrel

The directions given below are easily followed and a neat-handed boy can carry out the design.

Nail a box about eight or ten inches square to a board a little longer than the box (Fig. A) making a hole three inches in diameter in the front or side, and covering it all with bark, as in Fig. B.

Nail this shelter box high up on the trunk of some tree, with the entrance facing south, and put some leaves or cotton in it. Then fasten a shallow box, Fig. C, on some lower limb near the ground where you can reach it. This will be his food box, in which you will always keep a supply of nuts, acorns, bread crusts, and occasionally a little hard-boiled egg or a meat bone.



THE ABOVE DRAWING SHOWS THE CONSTRUCTION OF THE SQUIRREL HOUSE AND THE FOOD BOX

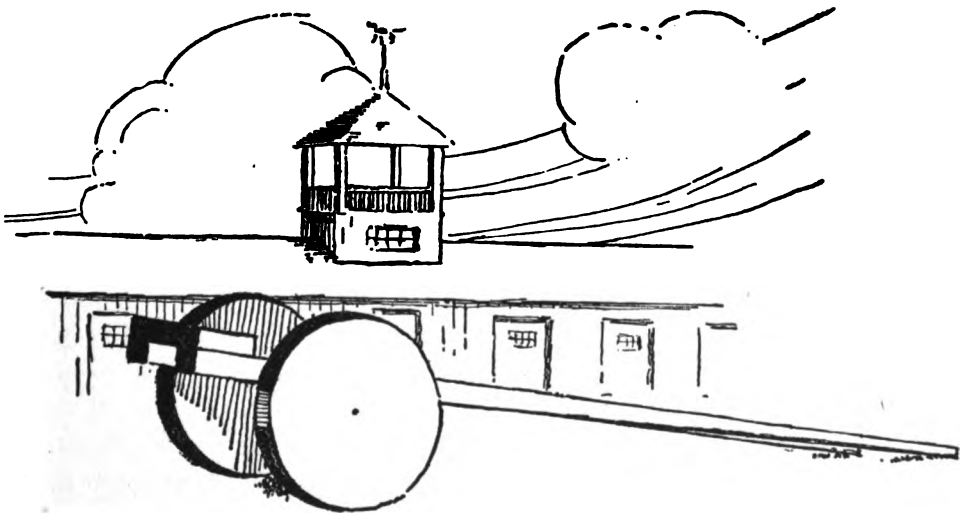
A Racing Sulky

While the morning hours at a county fair are usually given to a study of the farmer's produce exhibited there, the display made by the merchants, and a comparison of the live stock, the afternoon finds, at least, most of the men and boys on the grandstand waiting eagerly the start of the horse-races. These form a main part of every county fair and hundreds of people flock each year to watch with eager eyes and tense nerves for the close finish of each race.

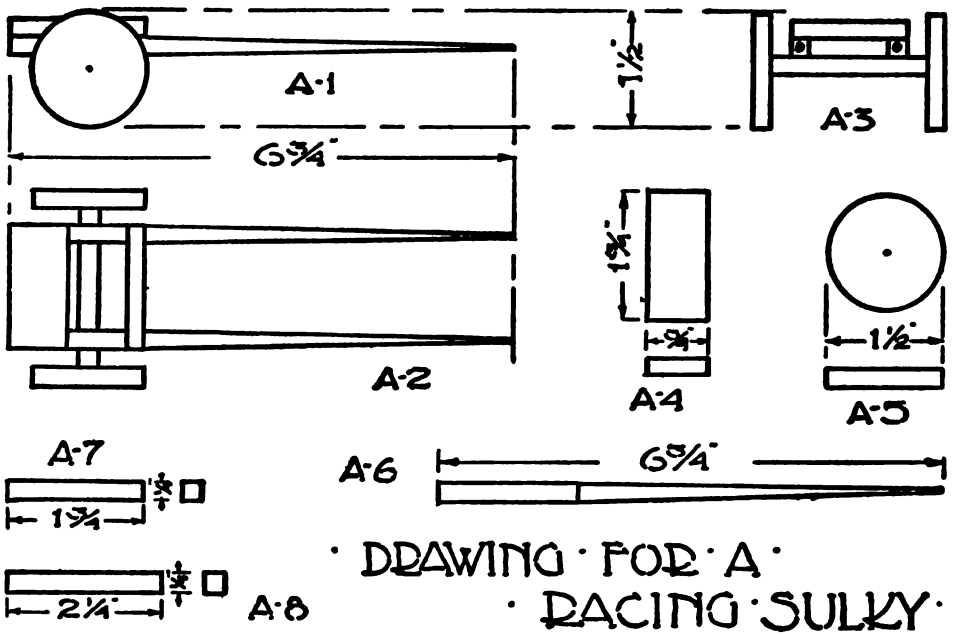
The old-fashioned racing sulky was built with high wheels, wooden spokes, and an iron rim, but the modern one is a very light structure made low in height and the wheels constructed of wire spokes and rubber tires.

A little play sulky will take only a short time to fashion. A real sulky can be made from odd bits of lumber and it can be used for a jolly plaything by a crowd of lively boys.

Directions. Take two pieces of ½″ wood, 6¼″ long, ½″ wide for the shafts. From one end of each measure up 5″, taper and round these ends as in A-6. To the square ends of the shafts nail with four



RACING SULKY

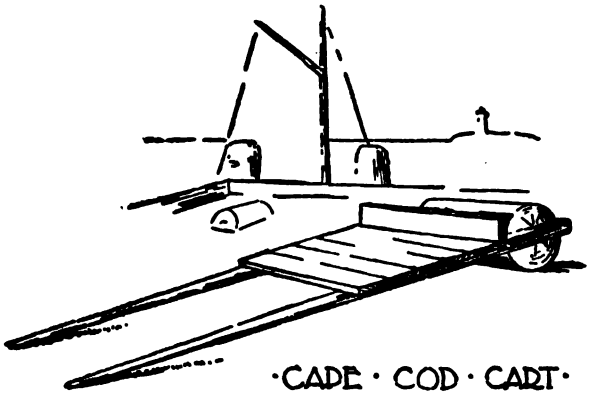


Key to Drawing.

A-1 Side view of sulky.
A-2 Top view of sulky.
A-3 End view of sulky.
A-4 Top and end view of seat.
A-5 Top and side view of wheel.
A-6 Top view of pole.
A-7 Top and end view of whiffle-tree.
A-8 Top and end view of axle.

brads a piece of wood ¼″ thick, 1¾″ long, and ¾″ wide. This is the seat. For the whiffle-tree cut out of ¼″ wood a piece 1¾″ long, and ¼″ wide, nail to the shafts 1¾″ from the square ends, as in A-2. An axle is cut from ¼″ wood, 2¼″ long, and ¼″ wide; fasten to the under part of shafts 1″ from the rear ends. Whittle two wheels out of ¼″ wood, making them 1½″ in diameter; nail to axle with two ¾″ brads but before doing so bore a hole with an awl in the center of each, going one half the way through; turn over and bore in the center of the other side to meet the other hole. Just at this point you must be careful in your measurements. This hole will prevent splitting the wood when you drive the nails in. Sandpaper all parts.

Old-Time Cape Cod Cart

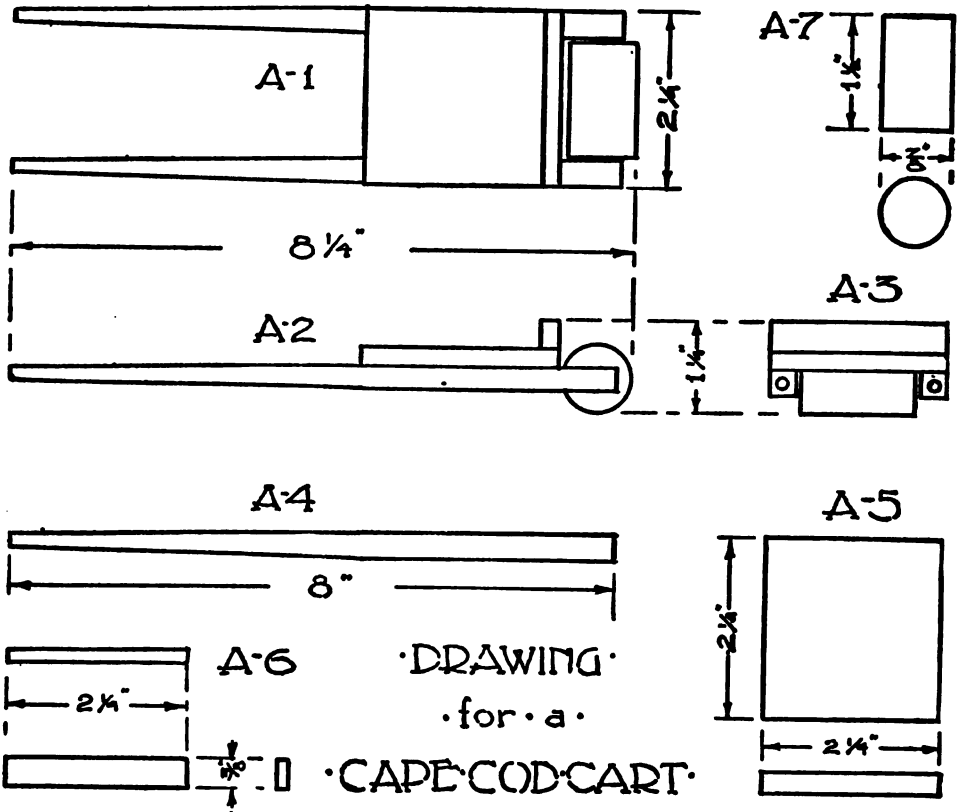


Probably the first wagon ever used in the United States was the crude affair in which the farmers and fishermen of Nantucket and Cape Cod hauled their fish and farm products. This wagon was very simple in construction and easy to build. All requirements were a trip to the woods, a tree, an axe, a saw, and a strong pair of arms. From the best part of the tree was sawed the roller, and from the remainder hewn the shafts and boards for the floor and end.

It would be interesting to make a collection of models showing the kind of articles that were used by the early settlers and to see how much they have been improved. The spinning wheels, the cradles, the beds and chairs are all quaint but the fishing and sail-boats are the most interesting of all. Have you found such pictures in the books at the library?

Directions. For the shafts, take two pieces of soft wood, $\frac{1}{4}$″ thick, 8″ long, $\frac{3}{8}$″ wide,—from one end of each shaft measure down $4\frac{1}{2}$″—round these parts, slightly tapering them toward the end. Now for the floor, take a piece of $\frac{1}{4}$″ soft wood, $2\frac{1}{4}$″ wide x $2\frac{3}{4}$″ long. Fasten this with $\frac{1}{2}$″ brads to the shafts, placing it $\frac{3}{4}$″ from the square ends. Take a piece of $\frac{1}{4}$″ wood, $\frac{3}{8}$″ wide and $2\frac{1}{4}$″ long: secure to the back of the floor board with two $\frac{1}{2}$″ brads driven up through the bottom. For the roller take a piece of soft wood $\frac{3}{8}$″ wide, $\frac{3}{8}$″ thick, $1\frac{1}{2}$″ long. With a knife whittle this into a cylinder. Smooth it with sand-paper and fasten to short end of shaft, as shown in drawing A-2

with two 1″ brads. With a pencil draw on the floor of the wagon, widthwise, several lines, continuing them down the sides of floor. These lines show that the floor of the wagon is made of boards.



Key to the Drawing.

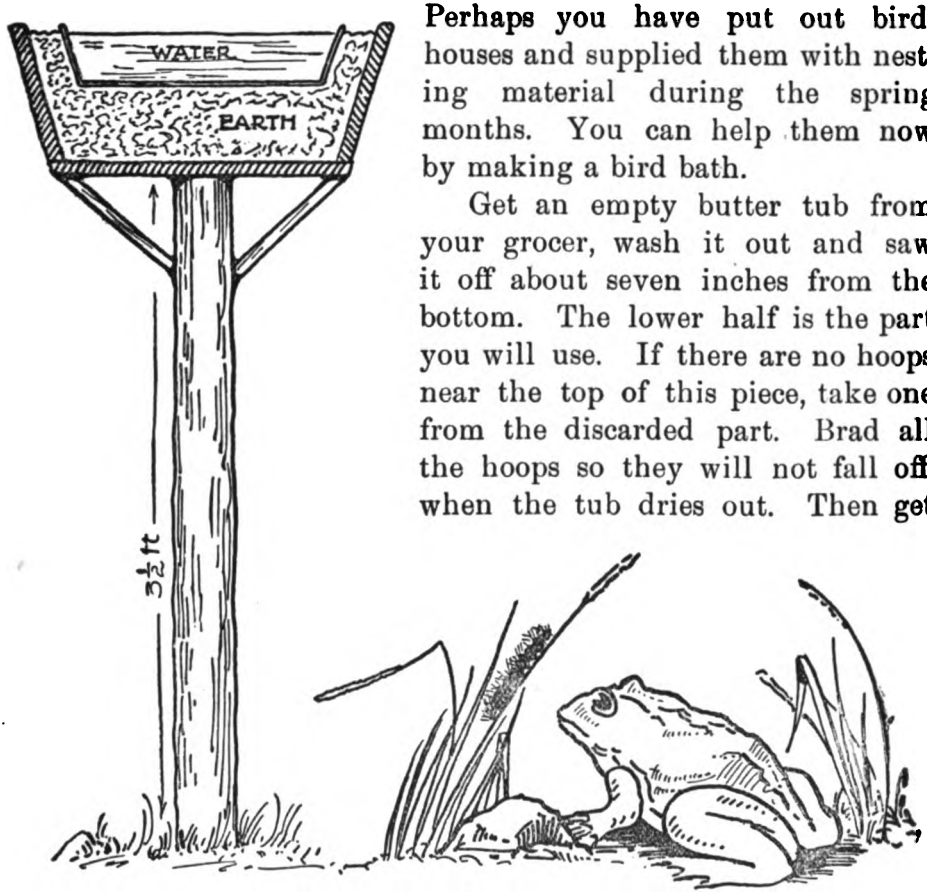
A-1 Top view of wagon.
A-2 Side view of wagon.
A-3 End view of wagon.
A-4 Top view of shaft.
A-5 Top and end view of floor.
A-6 Top, side, and end view of end.
A-7 Top and end view of roller.

If the diagrams that are shown above are to be used for the making of a large cart, make the model first,—complete in every part. It will be comparatively easy to enlarge the drawings, but the workman must keep closely to the scale that he chooses.

An Easily Made Bird Bath

One of the best ways to keep the birds about your place through the summer is to supply water for them to drink and to bathe in. Perhaps you have put out bird-houses and supplied them with nesting material during the spring months. You can help them now by making a bird bath.

Get an empty butter tub from your grocer, wash it out and saw it off about seven inches from the bottom. The lower half is the part you will use. If there are no hoops near the top of this piece, take one from the discarded part. Brad all the hoops so they will not fall off when the tub dries out. Then get



THE BIRD BATH AND THE PET TOAD THAT YOU OUGHT TO HAVE IN YOUR YARD THIS SUMMER

a post about three inches in diameter and about four and a half feet long (a round post looks better, and if you can get a round *cedar* post it will be best of all). Put the post into the ground about a foot, and nail the tub on top. Put three or four braces underneath from the tub to the post, and then paint it.

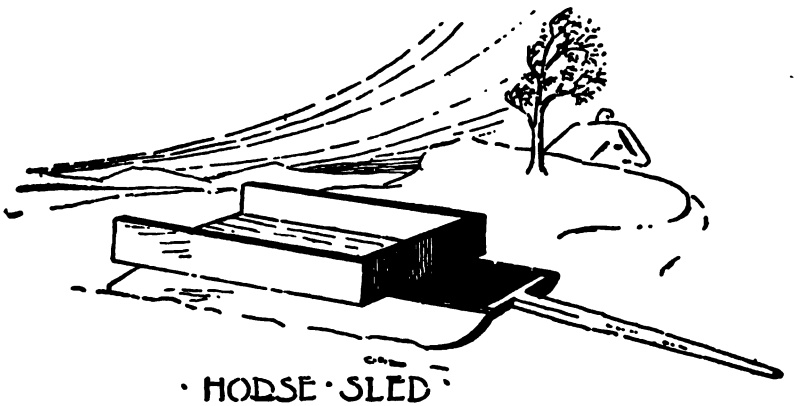
When the paint is dry, fill the tub with earth and set in it a round shallow pan or earthen dish about eight or ten inches in diameter and two inches deep. If your pan doesn't come to the edge of the tub, plant nasturtiums or a vine around.

The Early Two-Horse Sled

Farmers, merchants, and manufacturers of the New England Colonies, needing some kind of vehicle with which to carry on their team-work in the winter time, constructed a sled very similar to the Esquimau sledge. They enlarged it, however, putting a front and sides to it, which held the freight in place. This, like the Esquimau sledge, was so well designed and so well fitted for its use, that some exactly like it are used by farmers of to-day.

The Sled

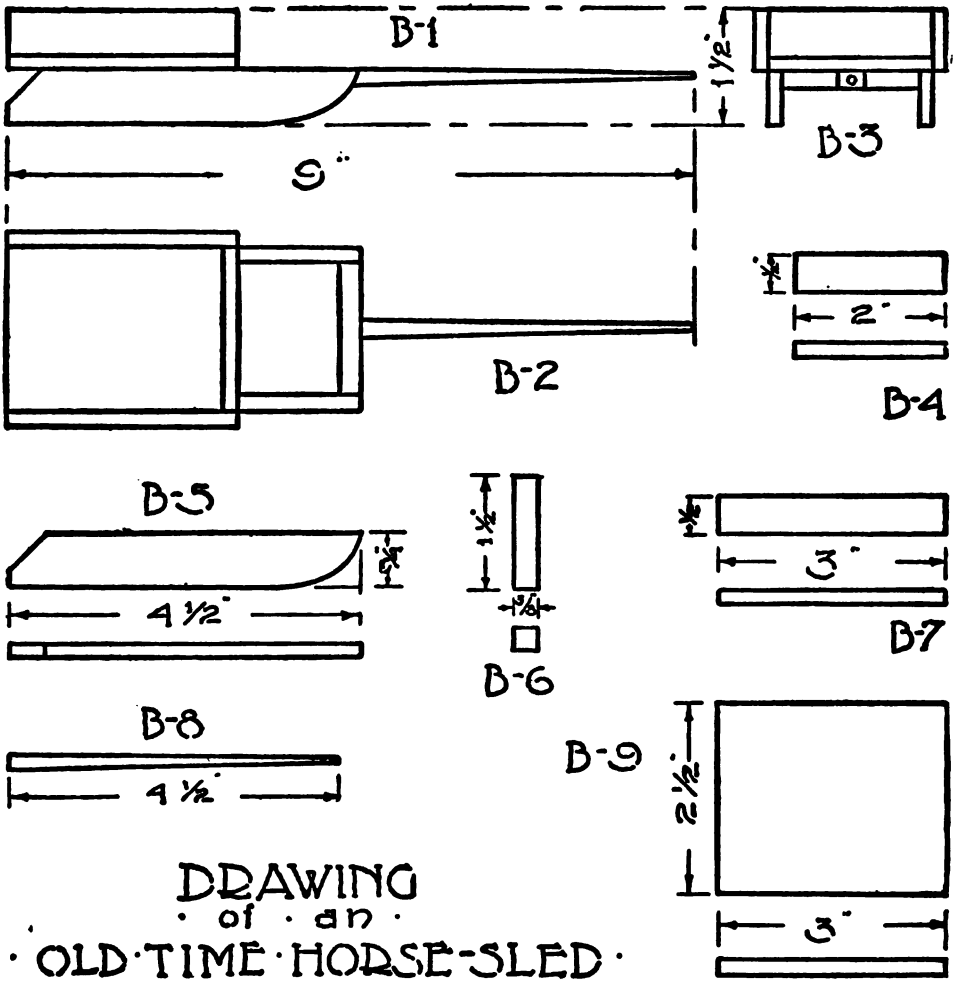
Directions. From ¼″ wood cut a floor 3″ long, 2½″ wide. Again from ¼″ wood cut two sides each 3″ long, ½″ wide. Cut the end ¼″ thick, 2″ long, ½″ wide. Nail the sides and end in position using ½″ brads, driven up through the floor. Whittle out two runners each 4½″ long, ⅜″ wide, ¼″ thick; nail to the body with ½″ brads driven down through the floor into the runners, which should be 1½″ apart. Cut out of ¼″ wood the forward brace 1½″ long, ⅜″ wide, as in B-6. Place in position with two ½″ brads driven through forward part of runner. Whittle pole out of ¼″ wood making it 4⅜″ long, ⅜″ wide; taper and round one end. Place in position by putting a ¾″ brad through the brace into the pole. Sandpaper all parts.



The Horses

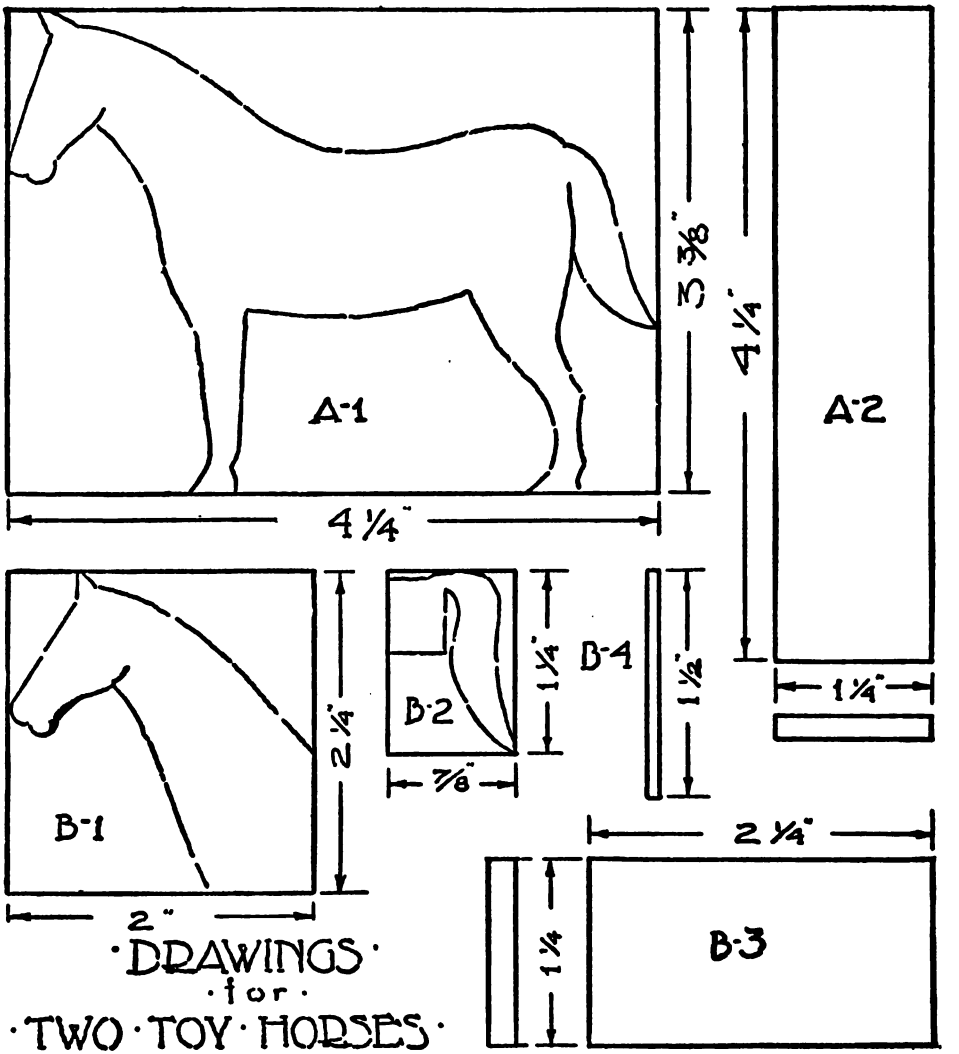
A wagon by itself isn't of very much use. One must have a horse to drive in it to make it really a thing of value. Now here are two simple plans for the construction of a horse; the first one is

very easily made; the second, however, is a little more difficult and is for those who are more advanced in their woodwork and are familiar with the use of the jig-saw.



Key to Drawing.

B-1 Side view of sled.
B-2 Top view of sled.
B-3 End view of sled.
B-4 Side and top view of front end of body.
B-5 Side and top view of runner.
B-6 Top and end view of forward brace.
B-7 Side and top view of side of body.
B-8 Pole.
B-9 Top and end view of floor.



Key to Drawing.

B-1 Showing the method of cutting head.
A-1 Showing the method of marking out horse.
A-2 Top and end view of base of horse.
B-4 Match sticks for legs.
B-2 Showing the method of cutting tail.
B-3 Top and end view of one board used in body.

(1) Take a piece of heavy paper or cardboard 2¼″ long, 2″ wide; trace outline of horse's head, as in B-1. Cut out. Draw on it with pencil nose, eyes, mouth, ears and hair. Take another piece 1¼″ long, ⅜″ wide; trace outline of tail, as in B-2. Cut out. Draw with pencil the hair. Next take two pieces of soft wood ½″ thick, 1¼″

wide, 2¼″ long. Place the head and tail on one of these pieces at the proper places; nail other piece to this one using ½″ brads, putting two brads through the head and tail—make four small holes in the bottom of the body and insert four match-sticks for the legs.

(2) Take a piece of paper 4¼″ long, 3⅜″ wide; draw outline of horse, as in A-1. Cut out. Lay this pattern on a piece of ¼″ soft wood; trace outline of horse. Cut out with a jig-saw. Smooth with sandpaper. Draw, with a pencil, nose, mouth, ear, hair, and hoofs. Take another piece of soft wood 4¼″ long, 1¼″ wide and ¼″ thick; with two ½″ brads secure this to legs of horse. Bore small holes to avoid splitting.

Pieces of string are used for the harness for both of them, the traces of which can be secured to the shafts of the sled with small brads.

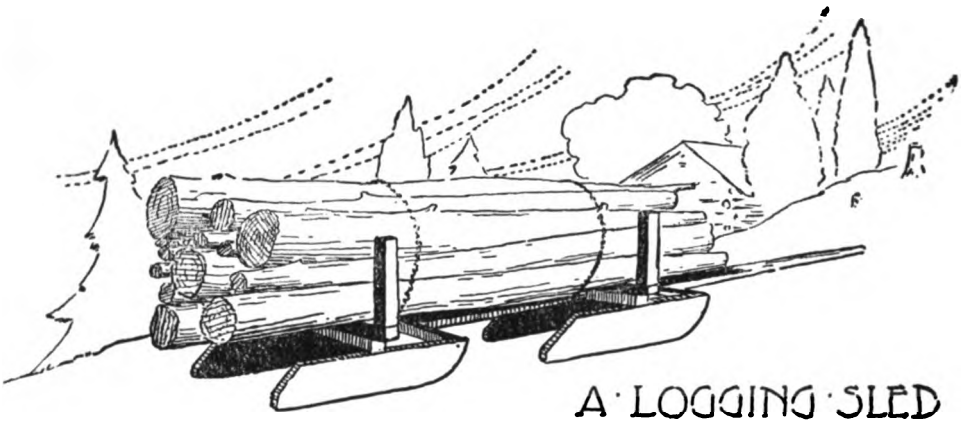
A Logging Sled

If any of our boys or girls have visited Maine, New Hampshire or Vermont, or some of the Western states that are in the lumber district, they have possibly gone to see the large lumber camps situated there. They were interested in the sawmills, the bunk-houses and the mess-rooms, but perhaps the most exciting part of the camp work to them was the loading of the lumber sleds. It is wonderful how many logs can be piled on such a simple and rather frail-looking sled without hurting it, and how well the sleds can withstand the rough usage they must necessarily get. Logging is usually done during the winter months, for the sleds are easier to load and unload and glide over the snow and ice much better than a wagon can be pulled through.

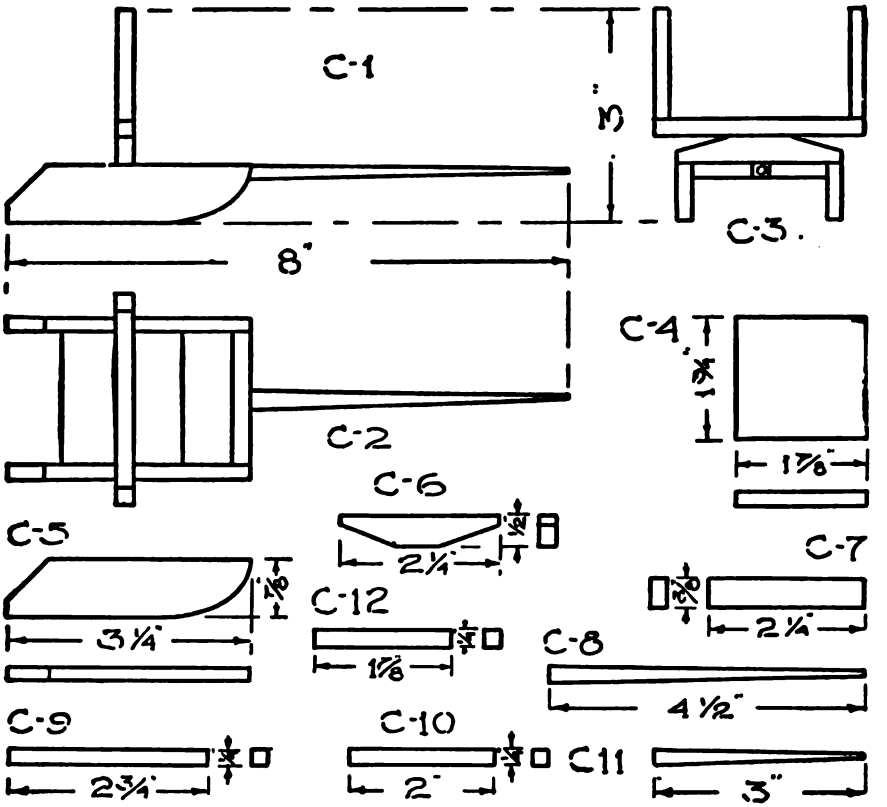
Key to Drawing.

C-1 Side view of front half of logging sled.
C-2 Top view of front half of logging sled.
C-3 End view of logging sled.
C-4 Top and end view of center brace.
C-5 Side and top view of runner.
C-6 Side and end view of forward rocker.
C-7 End and side view of rear rocker.
C-8 Forward pole.
C-9 Top and end view of cross-bar.
C-10 Top and end view of stake.
C-11 Rear pole.
C-12 Top and end view of forward brace.

Directions. Out of soft wood ¼″ thick cut four runners 3¼″ long, ⅞″ wide, as in C-5. Out of ¼″ wood make two center braces each 1⅞″ long, 1¼″ wide, as in C-4; nail the runners to the braces with ½″ brads. Whittle out two forward braces, as in C-12, each ¼″ thick, 1⅛″ long, ½″ wide; place at the points of the sleds, as in C-2, and se-

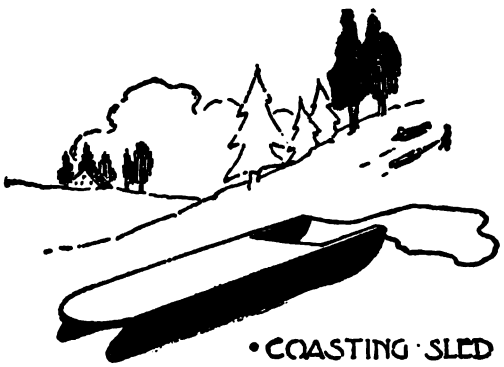


A · LOGGING · SLED



· DETAIL · DRAWING · of · the · LOGGING · SLED ·

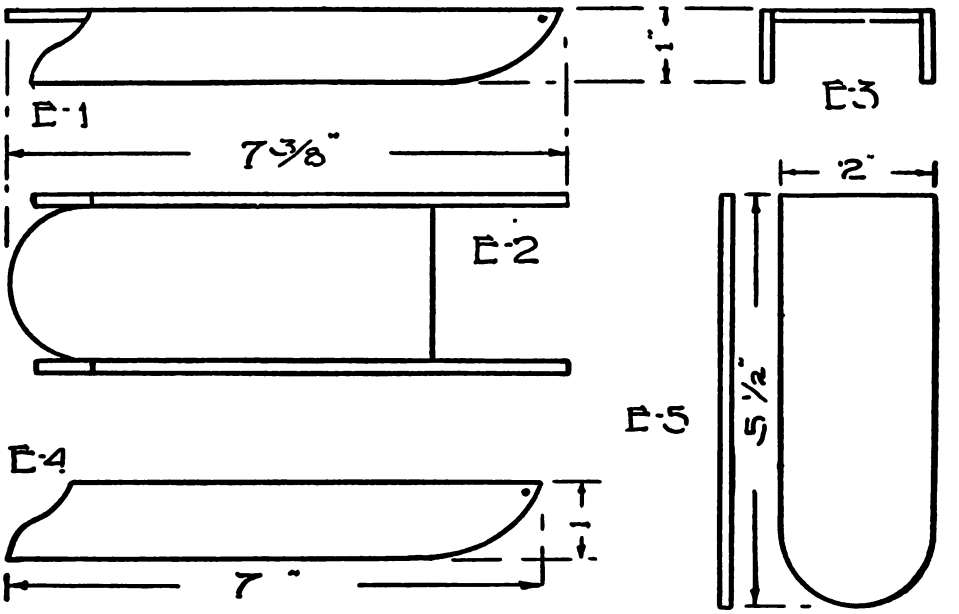
cure with one ½″ brad in each side. Out of ¼″ wood construct 2 rockers, one as in C-6, which is 2¼″ long, ⅜″ wide; another as in C-7, which is also 2¼″ long, ⅜″ wide, but of a little different shape. The first rocker is for the forward sled, the second for the rear one; secure the rockers in place with ½″ brads driven up through the center brace of each sled. Construct two poles out of ¼″ wood; the forward one, as in C-8, should be 4½″ long, ⅜″ wide, tapered and rounded; the rear one, as in C-11, should be 3″ long, ¾″ wide, also tapered and rounded; secure poles in place with ¾″ brads, driven through the forward braces into the pole. Make out of ¼″ wood two cross-bars, as in C-9, each 2¾″ long, ¼″ wide; secure to rockers of each sled, the rear one with two ½″ brads and the forward one with one ½″ brad driven through the center of cross-bar into the center of rocker. Make four stakes 2″ long, ¼″ wide, ¼″ thick; place in position on the end of each cross-bar with ½″ brad in each. Sandpaper all parts. Secure the two sleds together with a piece of thread tied to the pole and to a brad driven in the center of forward rocker.



Model for a Coasting Sled

The most interesting of all the sleds and the one that will appeal more than any other to our boys and girls is the one that is shown on the following page. The coasting sled has made hundreds and hundreds of children happy, for coasting is one of the amusements they like best; at Christmas time when Santa Claus opens his letters he finds very few that do not ask for a coaster. Some day, when it

is too stormy or too cold to go out-of-doors, take your soft wood, knife and brads and make a small one according to the drawing; use an inclined board for a hill and then slide to your heart's content.



DRAWING for a COASTING SLED

Key to Drawing.

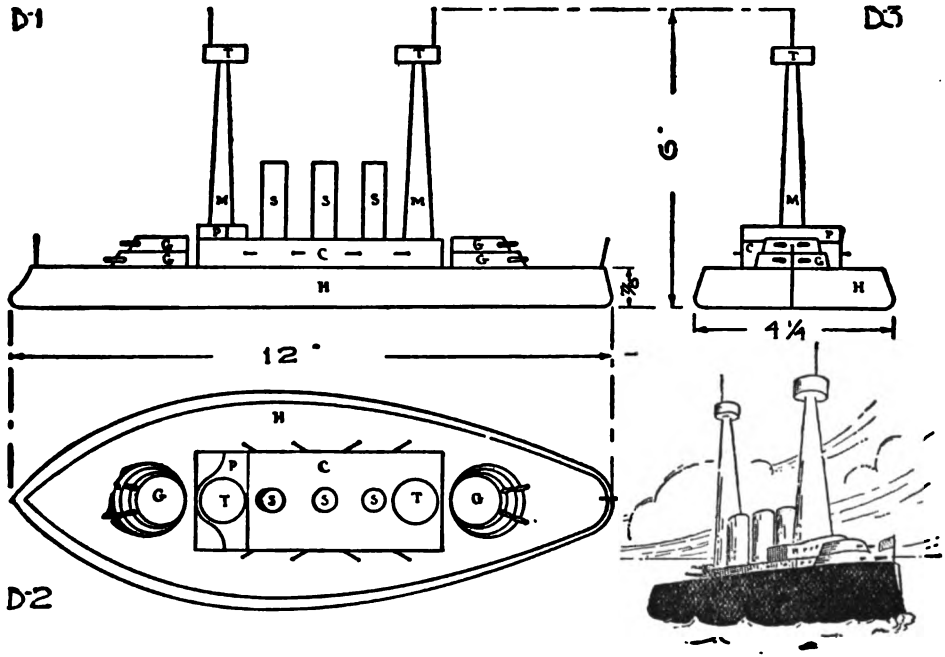
E-1 Side view of sled.
E-2 Top view of sled.
E-3 End view of sled.
E-4 Side and end view of runner.
E-5 Top and side view of floor.

Directions. Out of ¼″ wood cut two runners 7″ long, 1″ wide, as in E-4. Out of ¼″ wood whittle the floor 5½″ long, 2″ wide. Nail the sides to the top with ½″ brads. Sandpaper all parts.

With these drawings a sled of any size can be constructed if the proportions are maintained throughout. Perhaps some one of the older members of your family will be willing to help you work out the problem. The lumber would not be expensive and the sled could be brightly painted in any desired color.

A Toy Dreadnought

A dreadnought is the most powerful kind of battle-ship yet invented. The sides of the hull, H, slant "the other way," compared with other ships. Why is this? Get out the hull first. Next make the cabin, C, from half-inch wood. Before nailing this down drive five slim 1¼" brads up through it to hold the smokestacks, S, and masts, M, in place. The pilot house, P, is made of ½ inch stock. The gun turrets, G, are of ½ inch stock. The larger guns may be



THREE WORKING DRAWINGS AND A SKETCH OF A TOY DREADNOUGHT

of wood, the smaller of brads. Whittle out the masts, M, and add a piece cut from a spool to make the fighting tops, T. The masts and the smokestacks are to be forced down upon the brads of the cabin to hold them in place. If you look in the front or the back of a big dictionary you will find the flags of all nations in full colors. Many of these are signal flags used by war-ships.

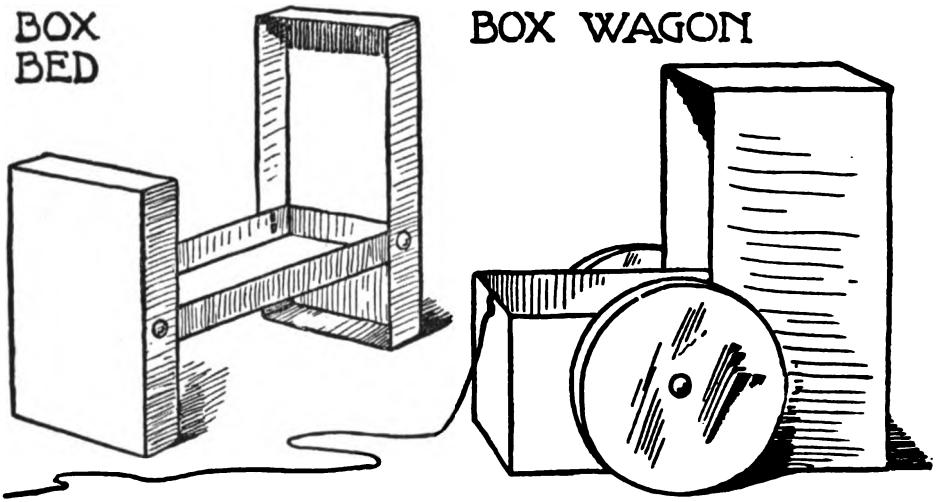
Notice the difference in the hulls of the different ships. Flags may be made of paper, colored with crayon. Paint this leader of the bath-tub fleet a dull gray all over. Name your ship and print the letters carefully on the bow.

How to Make Toys from Boxes

The size of the bed and wagon depends wholly upon the size of the boxes you can find. You may make a *tiny* bed from a jeweller's box or a big bed from a shoe box or you may make beds for a whole family of dolls. Whichever size you make it will be made like the one in the picture. So also with the wagon.

A Box Bed

Materials: 1 half pound candy box, 2 covers, 1 cover cut a third off—to make footboard.



Make: Lay the box on the table. Stand the covers and fit them to the ends of box. Slide the box up a distance about equal to its height and fasten it to the covers on both sides with brass fasteners or glue.

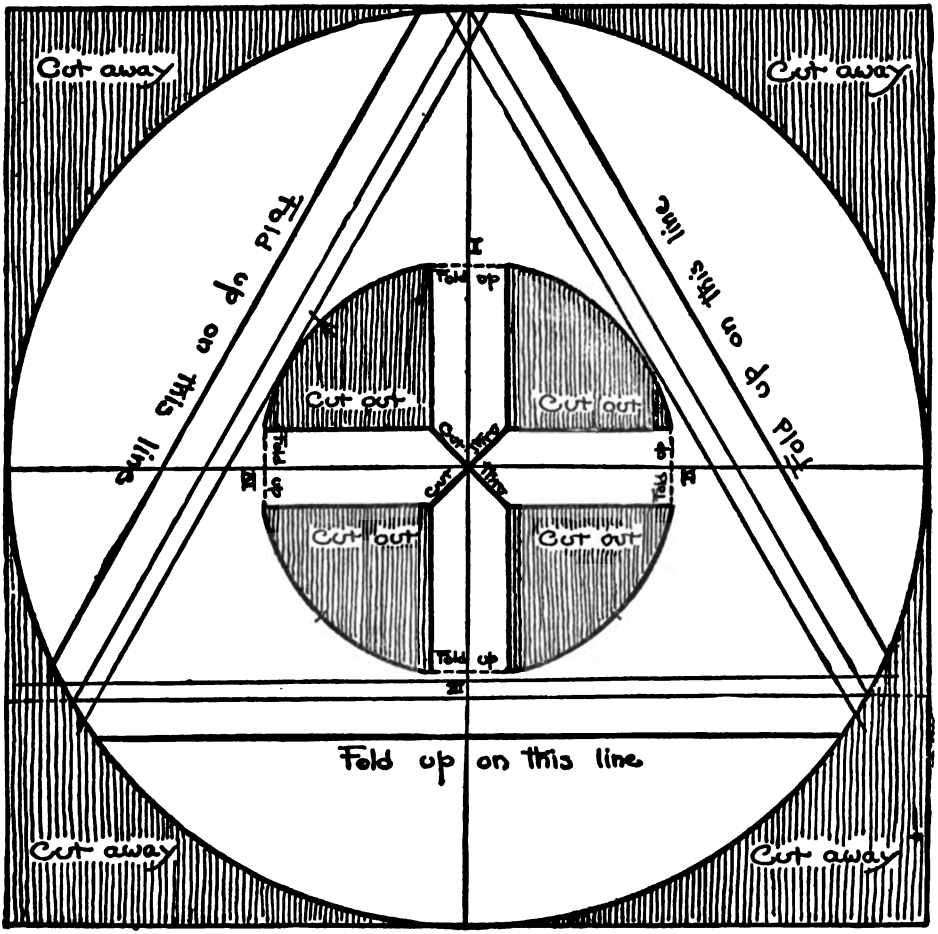
A Box Wagon

Materials: 2 match boxes, 2 ribbon bolts, 2 1-inch brass fasteners.

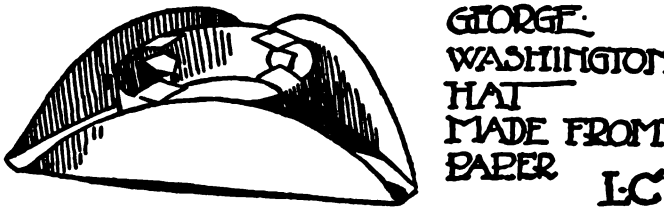
Make: Slip the box lying on the table into the box standing and glue them together. Make a hole through the bolts in the middle and inside the box, with sharp scissors, then twist the scissors in the hole to make it round. Push in a fastener and open and press it inside the wagon. This little wagon rolls nicely when fastened if not pressed too flat.

A George Washington Hat

The George Washington hat may be used for a doll's hat or for a table favor and made in all sorts of lovely colors. The pattern may be traced as it appears. The pattern may be enlarged, however, so that the hat will fit real heads of any size. This means that measurements must be doubled for kindergarten sized heads, or must be increased about once-and-a-half-again for older children. Find a piece of heavy brown paper. Begin by drawing a square



A DIAGRAM SHOWING HOW TO MAKE THE FRAME OF A GEORGE WASHINGTON HAT

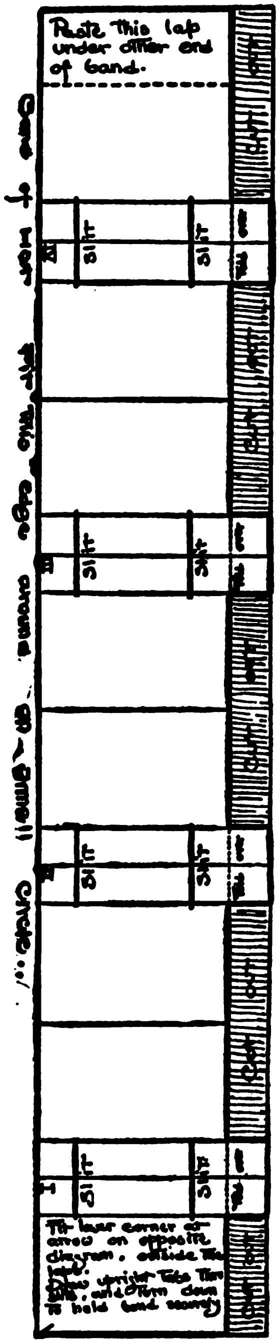


THE FINISHED HAT

twice as large (or once-and-a-half-again as large) as the one in the pattern. Find the centers, up and down, and across and draw lines through them. Draw a circle to fill the square. A quarter of the distance up from the bottom of the square draw another line across. From the points where this line crosses the circle draw two lines up to the center at the top. Measure a little distance outside and repeat the lines of the triangle. Draw a smaller circle which just touches the inside triangle. When this "hardest" part is accomplished it will be simple to finish from the pattern, doubling or "once-and-half-againing" as the case may be. One thing, however, does not appear on the diagram. The *top* of the hat. Cut another circle the size of the smaller one and paste it over the laps at top of the band.

Of course if you are very ambitious and very skilful you could cover these patterns with cloth, and bind the edges of the brim with gold braid, and put a rosette on one side, and make it a dress-parade hat so handsome that all your little friends who call would just *have* to try it on and wear it for a little while.

As a small favor for a party to be given on Washington's birthday these hats would be attractive.



THE CROWN

Intelligent Workers

The First Builders of Dams

Did you ever see a Beaver? You may have seen a "beaver" hat, and you must have heard about "working like a beaver." A beaver is an intelligent little animal. He seems to be a good deal like Kipling's Shipwrecked Mariner,—"of infinite resource and sagacity."

The beavers show instinct and reason, and their work belongs to the profession of the engineer. They live in small clear rivers and creeks. They build dams to bring the water to the required depth. The dams are built of tree-branches, mud and stones. Before using the logs for their structure, the beavers remove the bark and carry it away for the winter's store of food.

If you will look carefully at the picture shown you can learn a good deal about Beavers and what they do. Every part of the drawing has something true to tell you about this wonderful little animal, who gave his name to a hat.

Wonders of the Circle

Two Different Objects in Circular Form

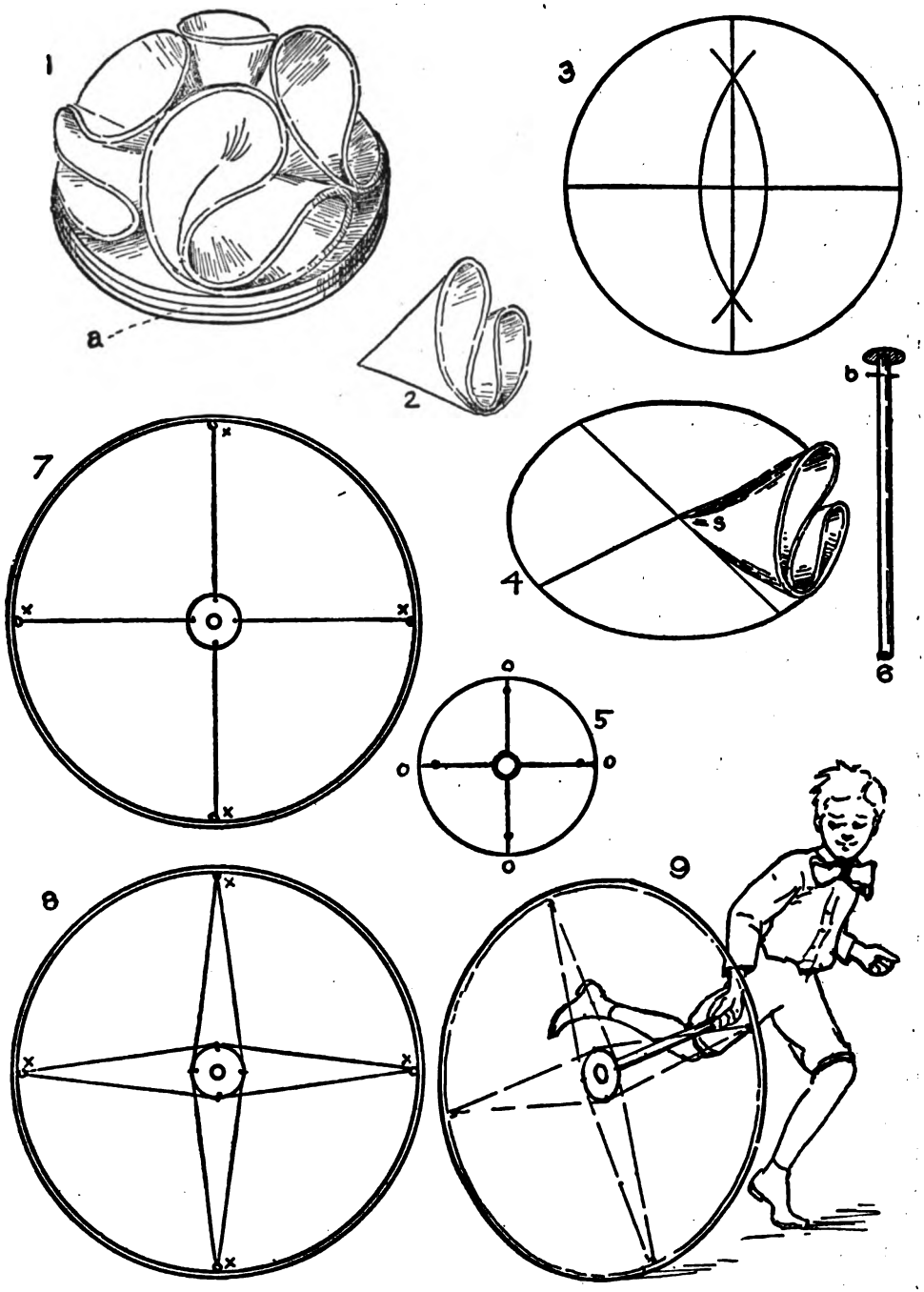
The successful construction of the two objects here shown depends upon the accurate division of the circle by two diameters at right angles. The exact center must be kept in each or the pen-wiper will not be symmetrical and the hoop will not run smoothly.

The *Pen-wiper* (1) is made from six three-inch circles of felt, flannel, or other firm woolen goods and one or more of chamois skin. The chamois is the "business" part of the article. Place it between two of the cloth circles for the base as at a in 1.

The upper part is composed of four circles each folded as in 2. Do not fold them sharply except at the center. If the cloth is quite heavy and has plenty of "spunk" the outline of the circle so folded will form a graceful curve. The points of these folded circles must meet exactly over the center of the base. To accomplish this, draw with the compass on thin paper a three-inch circle divided as shown in 3. Cut out this circle, baste it onto the base as a guide and into each of the four spaces fasten one of the folded circles by strong stitches near the point. See 4. Now tear away the paper. If carefully made this is a beauty!

The *Controller for a Hoop* (9) works well. Try it. The circular disc at the center is made as at 5, of stout bookbinder's board or, better, of sole leather. Make it four or five inches in diameter and draw two diameters as in 3. The points marked o are holes made with an awl on the diameters one-half inch from the circumference. By means of small nails driven through two of these holes, fasten the disc to a board to hold it firmly and with a bit bore the hole at the center large enough to let it turn freely on the hoop stick, then remove it from the board.

Fasten a small disc an inch and a half in diameter to the end of the hoop stick, put the stick through the center disc, then drive a wire "finish nail" into the stick (see 6) to keep the hoop in place while rolling. Hold the central disc in place as shown in 7 or 8 by wire or strong cord fastened through the small holes and into small screw-eyes in the inside of the hoop. By this arrangement a small boy or girl can run a large hoop.



DIAGRAMS AND PICTURES TO HELP IN WORKING OUT THE PEN-WIPER AND THE HOOP

A Whirligig

A good whirligig can be made from a circle of sole leather. Odd bits of leather can be bought at a shoemaker's shop.

Heavy binder's-board, wood from ¼″ to ½″ in thickness, or heavy tin makes a better wheel than light weight cardboard as it can be made to whirl with more force.

In drawing the pattern, 2, make the larger of the circles heavy with a radius of 1¼″ and the smaller light, with ⅜″ radius. Draw the diameter lightly. Where it cuts the small circle at a and b are the points for holes equally distant from the center.

Keep the wheel in place on the string by knots close to it on each side. See 3.

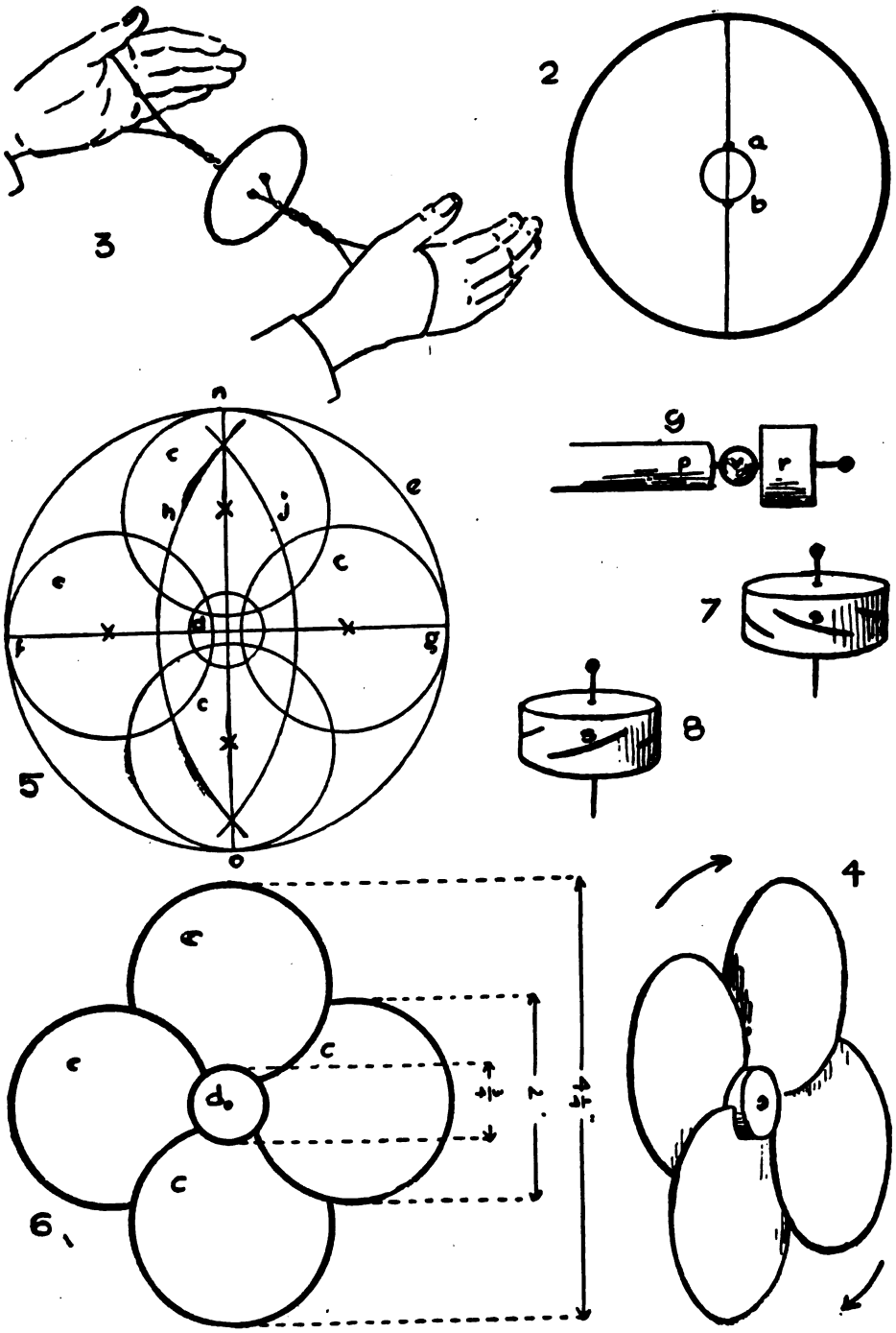
A Wind Wheel

Here is a good pin wheel, 4, easily made if you are careful. The face view, 6, shows the overlapping of the fans or wings, c, and the way they go into the hub, d. This view is figured to show the diameter of the whole, the diameter of a fan, the diameter of the hub.

Draw the view as shown in 5. First, circle e with 2⅛″ radius, then circle d with a radius of ⅜″. Draw the diameter f g. Use f and g as centers to draw curves h and j, and through the intersection of these arcs draw n o. This line is at right angles with f g. On these diameters with centers x and a radius of 1″ make circles c. Do all this work in light line. Finish in heavy line the parts shown in 6 and add the dimensions to make it a working drawing.

To make the wheel: Cut the wings from thin strong cardboard. Make the hub of cork—a slice ⅜″ thick cut from bottle stopple. With an awl bore a hole through this large enough to allow it to turn easily on a stout pin or wire nail. With a sharp knife make four cuts in the curved surface as at s in 7. Into these cuts fasten the wings c with a little glue. If the cuts slant as in 7 the wheel will go round to the right as shown by the arrows in 4. If they slant as in 8 the wheel will turn in the other way.

In fastening the wheel in place slip a good sized glass bead over the pin between the hub r and the stick p. See 9. This will help the wheel to move more freely.



A WHIRLIGIG AND A WIND WHEEL

Balancing Figures

The performers, Tom and Ted, will not fall, for the rest on which they stand is fastened to a "loaded" base.

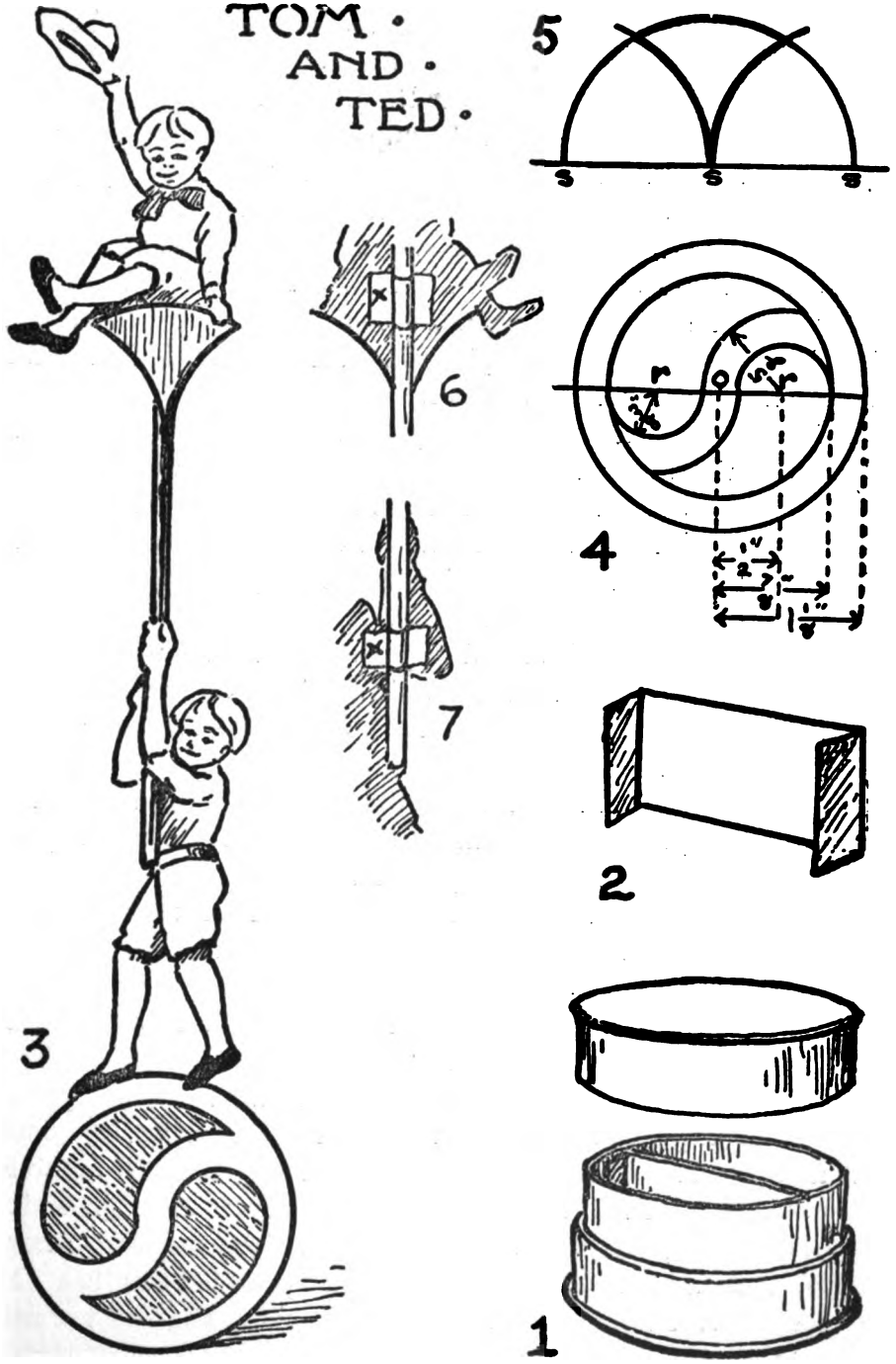
To make the balancing figures a delicate touch and careful workmanship are necessary but if the work is properly done, a great deal is learned about the science of the circle and about equilibrium.

Make this base from a druggist's pill-box. The one shown in 1 is two inches in diameter and three-quarters of an inch deep. The partition in the box is a piece of card the length of which is equal to the diameter and the width is equal to the depth of the box. In cutting this strip of card, leave on laps and bend them as in 2, that the strip may be glued securely in place. See 1. Fill one of the compartments thus formed with bird shot, then glue on the cover. Stand the box on its curved side and roll it or rock it. It will come to rest with its heavy side down.

This same idea can be applied to the making of other articles.

The disc on which Tom stands is made of cardboard. Draw it in light line as in 4. First the large circle with a radius of 1⅛" then the next smaller with ⅛" radius using the same center, o. Next the diameter, and then set off on this centers r. r. each ½" from o. Using these centers draw the remaining curves. First the smaller with a radius of ⅛" then the larger, radius ⅛". Finish in heavy line as in 3. The spaces shown dark may be filled with a wash of color. The rest on which Ted sits is also of cardboard. Draw it as in 5. The straight line first and on this centers s. s. s. 1⅛" apart. Then make the semicircle, afterward you can make the shorter curves.

The pole is a "straw" such as is given you at the soda fountain. This is reasonably strong and adds but little to the weight. Cut it to a length that suits your artistic eye. Fasten this straw to the backs of the figures as shown in 6 and 7. The spots marked x. x. are strips of paper glued to the straw and figures to hold them together. Fasten the lower figure to the disc as we have done before. Glue the disc to the cover of the box while this stands at rest, being careful that the lower edges of the two come evenly together and that the straw is vertical. All ready! Tom and Ted have become real acrobats!



With the Compass and Ruler

In drafting things that are to be made, the compass and ruler are most important tools. To do good work they must be used right.

When drawing circles go over the line twice, forward and back, before lifting the compass from the paper and so get an even result.

A decorative ornament is shown (1) on the opposite page. The disc, a, is made of strong cardboard and b is one of the colored glass balls so much used for Christmas decoration. Fasten them together with strong thread or small twine, allowing the ball to swing freely.

A pendant much smaller in size may be made in the same way, using instead of the ball a spherical button. Such buttons can be obtained in quite a variety of colors.

This makes a cute "favor" for parties and such jollifications.

Cut out the disc with a sharp knife. Paint it with water color or with one of the various colored bronze powders used for painting steam pipes and radiators. The liquid called "banana oil" is most satisfactory to mix with the powder in bronzing.

The Pen-wiper is made with circles that are *eccentric.*

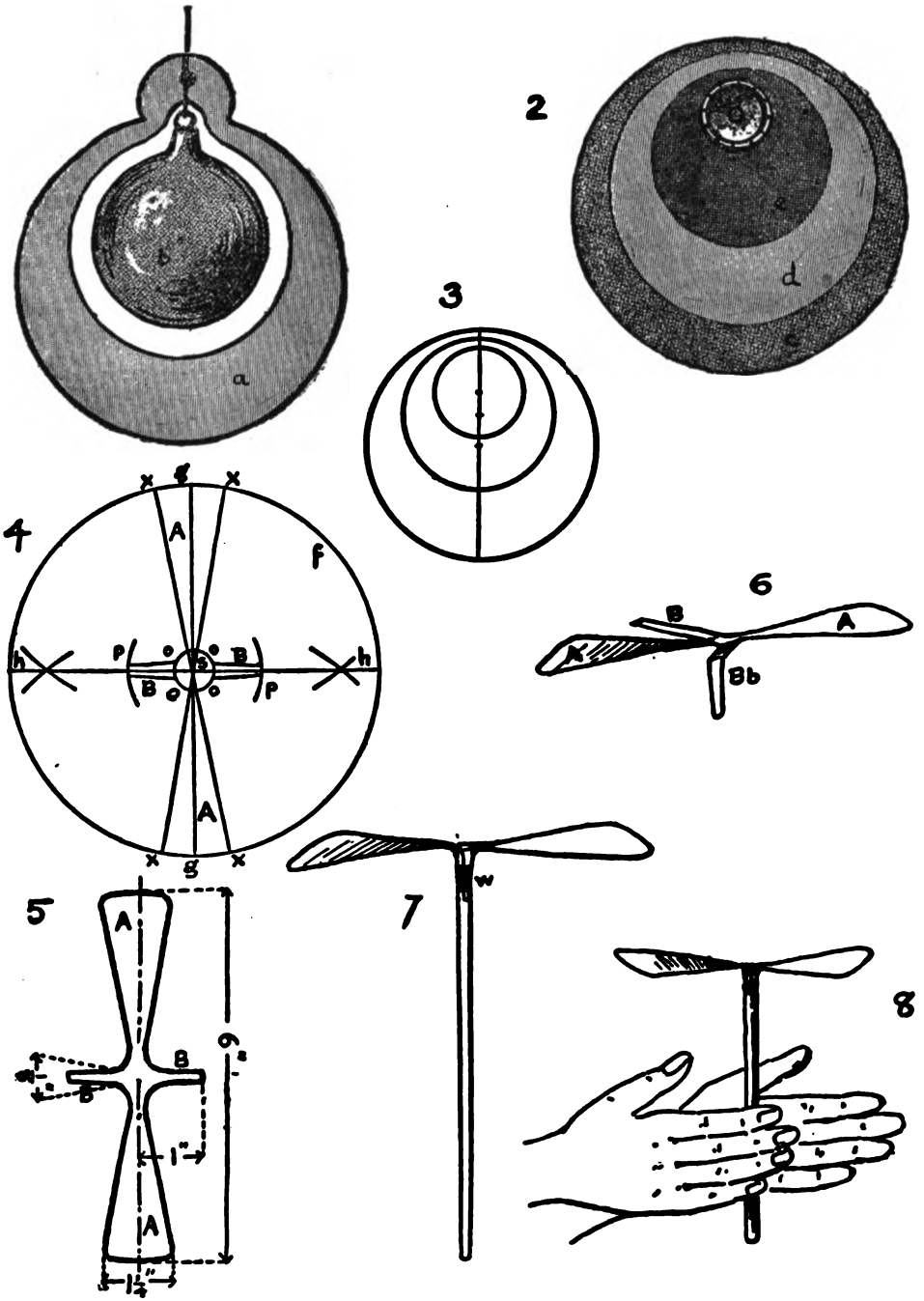
Make c and e of cloth or kid of pleasing colors. "Ooze" leather is excellent. Make d of chamois skin; three or four thicknesses. Fasten all with a button as shown. You'll like this better than the old kind. Try it.

Before making either of these objects make eccentric arrangements of circles, as 3. Experiment with different sizes and spacings until you get the most pleasing proportions.

A Flying Machine. This machine should be made light and strong. The wings are cut from thin sheet metal.

Aluminum is best because it is lightest but German silver or a piece of tin from a "Nabisco Wafer" or other similar box will do. The spread of the wings is 6″ and their greatest width 1¼″. The shaft is a piece of pine dowel $\frac{3}{16}$″ in diameter and 7″ long.

The drawing of the pattern is shown in 4. Draw the circle F with a radius of 3″, then the diameter gg. Bisect this, making hh perpendicular to it. These diameters are center lines on which to make the wings, AA and the laps, BB at right angles. Draw the circle S with a radius of ¼″ and the arcs pp with 1″ radius. Make the laps ⅛″ wide near the center and taper them slightly toward pp. Curve the corners at xxxx and 0000, so avoiding all sharp angles.



A DISC, PEN-WIPER AND A FLYING MACHINE

Do all this work in light line and finish the result in full line as in 5.

Cut out this pattern and trace around it on the metal for the wings. Cut these out with a pair of stout shears.

Bend the wings AA in opposite directions being careful to give each the same slant and bend the laps BB as in Bb to fasten to the shaft. See 6.

Fasten the wings to the shaft by winding with strong thread as in 7 w. A little shellac spread over the thread after winding will fasten it securely to the stick and prevent its slipping.

Hold it between the hands as in 8, push the right hand forward and let go, and the thing will fly.

It can be made to fly several feet, returning to you in a circular path.

Fly it upside down and see it spin like a top on the ceiling.

Find by experiment the desired force with which to spin it and the wide variety of stunts it may be made to perform.

With Compasses and a Visiting Card

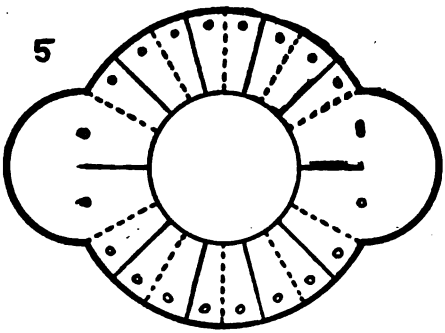
Here are three things that will be acceptable Christmas gifts. Making the pattern for each involves the right angle, and accurate drawing of lines through points where one line crosses another.

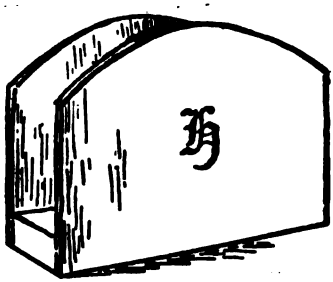
The simplest way to draw a right angle or "square corner," 1, is as follows: Place one edge of a card to follow a straight line and put the ruler evenly against the adjoining edge of the card. Remove the card without disturbing the ruler, rule a line where the edge of the card was and the result is a perpendicular to the first line.

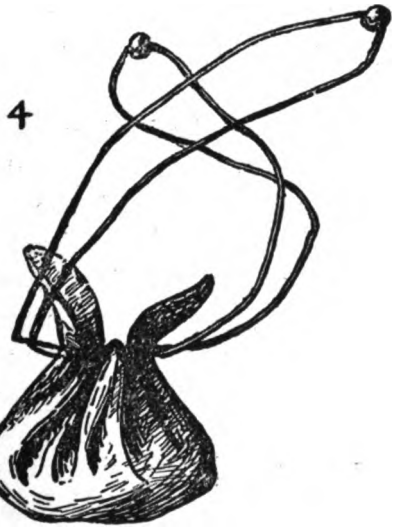
To draw a straight line through a point of intersection, stand the pencil point on the point of intersection. Place the edge of the ruler up against it, rule a line and it will pass through the point.

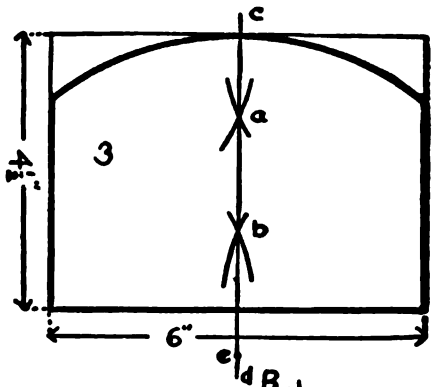
A Correspondence Holder. The base of the correspondence holder, 2, is made of wood $\frac{1}{8}$″ thick, 6″ long and $1\frac{1}{4}$″ wide. The sides are of heavy cardboard or thin wood glued to the base. To make the pattern, 3, draw first, in light line, the rectangle. Then with each of the upper corners as a center and a radius of more than half the length of one side, draw with the compass the arcs intersecting at *a*. With the lower corners as centers do the same to obtain *b*.

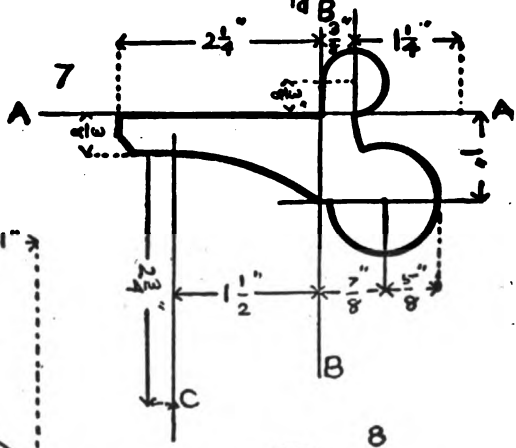
Draw the line *c*, *d*, through these points to find the middle of the

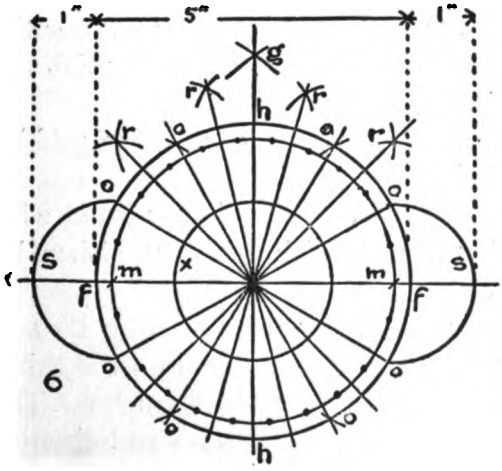


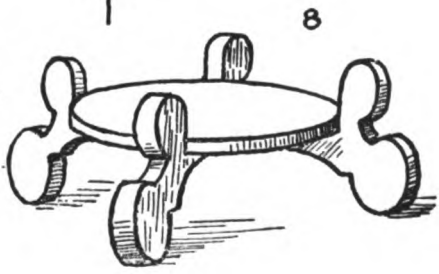












A LETTER HOLDER, A PURSE AND A STAND

space. Point *e* on this line is the center used for making the curve at the top. By placing this point higher or lower on the line, the top can be given a greater or less degree of curvature. Experiment till you find the curve that pleases you best. Outline the pattern in heavy line and in making the holder decorate one side with a simple ornament or an initial as in 2.

A Purse. The purse, 4, is just the thing for holding car fares. It may be cut from a piece of ooze leather 7 x 5 inches. The pattern is given in 5. Lines running from the outer to the inner circle show where the leather is to be creased. Full lines represent outward, and dotted lines inward folds. The very small circles are $\frac{1}{8}$" holes through which to pass the drawing strings.

Lay out the pattern as shown in 6. First the horizontal line, then the largest circle with a radius of $2\frac{1}{2}$". With centers at *f*, *f*, make arcs intersecting at *g*, and from this point through the center of the circle draw *h*, *h*. Using *f*, *f* and *h*, *h* as centers and the radius of the circle, set off the points marked *o*, dividing the circumference into twelve equal parts. With the upper points as centers, make the arcs which intersect at points marked *r*. Now draw the diameters dividing the circle into sixteen smaller and four larger spaces as shown.

Take a radius of $2\frac{1}{4}$" and describe a second circle inside the first. On this circumference place points in the middle of each space so locating the holes for the drawing strings. With centers *m*, *m*, and the distance to the nearest points *o*, as radius make curves *s*, *s* for the top of the bag; and with the same radius make circle *x*. Finish the result lines as in 5 and erase construction lines.

The drawing strings are each 15" long with a knot at the middle or passed through a large bead as shown in 4.

The top of the bag may be colored inside with dye or lined with silk. Have strings and beads harmonize with the rest, either by contrast or close relation of color.

A Flower-Pot Stand. Make the stand of wood: the top $\frac{1}{4}$", and the legs $\frac{1}{2}$" thick. The size, of course, should depend on the thing to be held. The one shown in 8 has a top 5" in diameter. The pattern of the leg shown in 7 is made of straight lines and circular curves and can be readily understood from the drawing. Draw all straight lines first, beginning with A, A, and B, B. *Be careful* about

right angles and parallels. Point C is the center from which the large curve is struck. Fasten this stand together with screws.

Spherical Triangles and Articles That Can Be Made in That Form

Here are simple articles that can easily be made and will serve for Christmas presents; they are all based on the lines of the spherical triangle.

Ever hear of a spherical triangle? Quite a name! It's an easy figure to draw with the compasses. See Fig. A in the Plate.

Take any radius and with *a* as a center draw the arc *b c*. With the same radius use *b* as a center to draw *a c*. And with *c* as center draw *a b*. *a b c* is a spherical triangle.

To find its center, work as in B. With *d* and *e* as centers draw arcs crossing at *g* and with *c* and *f* as centers do the same at *h*. Draw *d h* and *f g*. They cross at the center *x*.

The *Transparency*, 1, has a frame, *j*, of strong cardboard and the circular opening *k* is covered with colored tissue paper pasted to the back to give a stained glass effect.

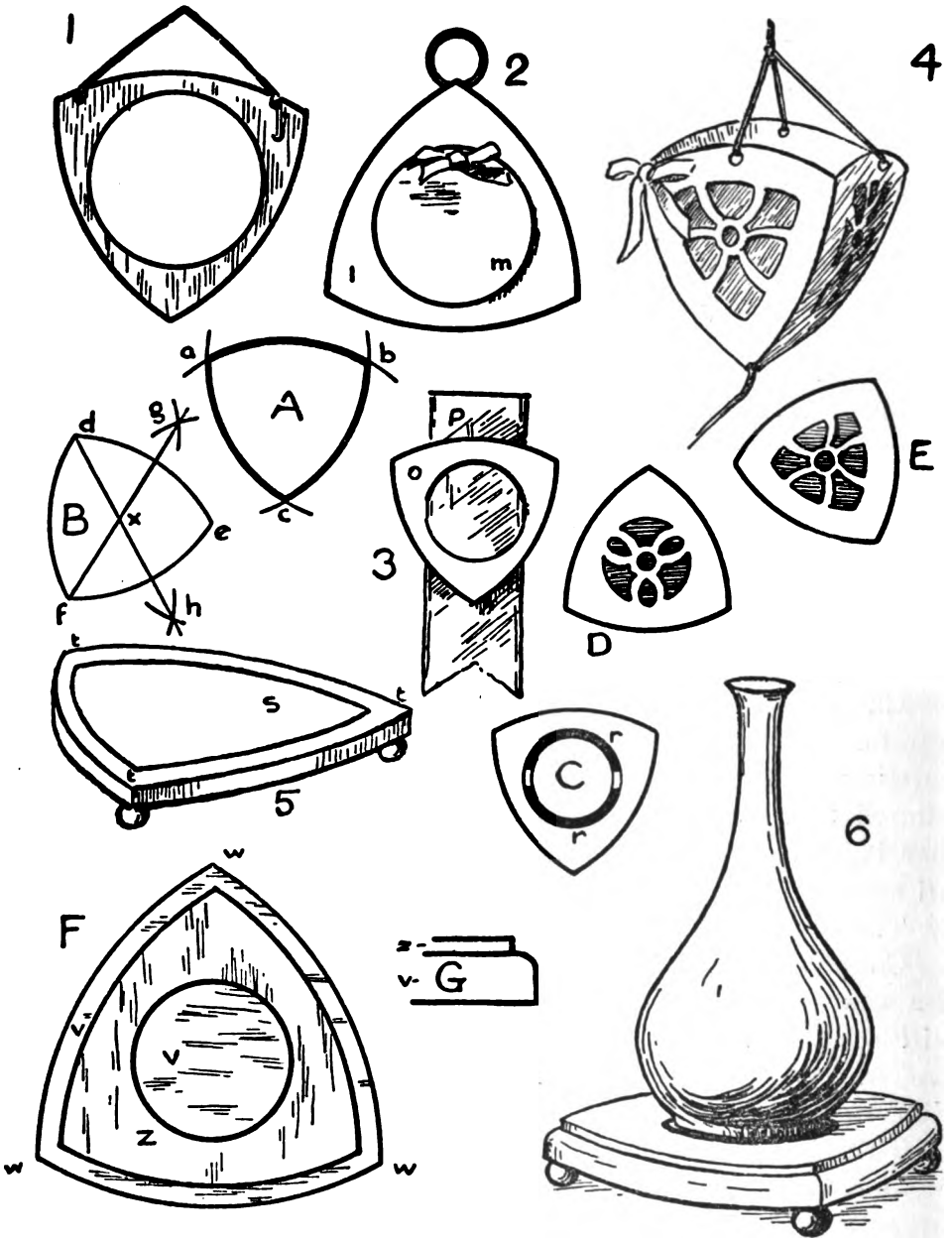
Cut out the circle with a sharp knife and punch holes near the top for hanging; or attach to the back rings like those used in hanging passe-partouts. Try different color effects by placing one colored tissue over another. Of course the tissue will fade! Then tear it off and try another combination. You can get some beautiful results.

The *Needle Book*, 2, has a back *l* and front *m* made of cardboard.

Cover it with colored silk or other fabric and make the leaves the same size as *m* of any soft cloth, as flannel or cashmere. Fasten with a bow of ribbon and attach a loop or ring to the top.

The *Badge*, 3, is made of a cardboard triangle and a piece of ribbon.

Two circles are drawn on the triangle and two openings *r r* cut between these as shown in C. Be sure that the diameter of the larger circle is just equal to the width of the ribbon so that when the ribbon is drawn through the openings as in 3 the triangle will keep in place. Before putting it on the ribbon, paint or bronze the triangle. This is another good favor for one of your glad times.



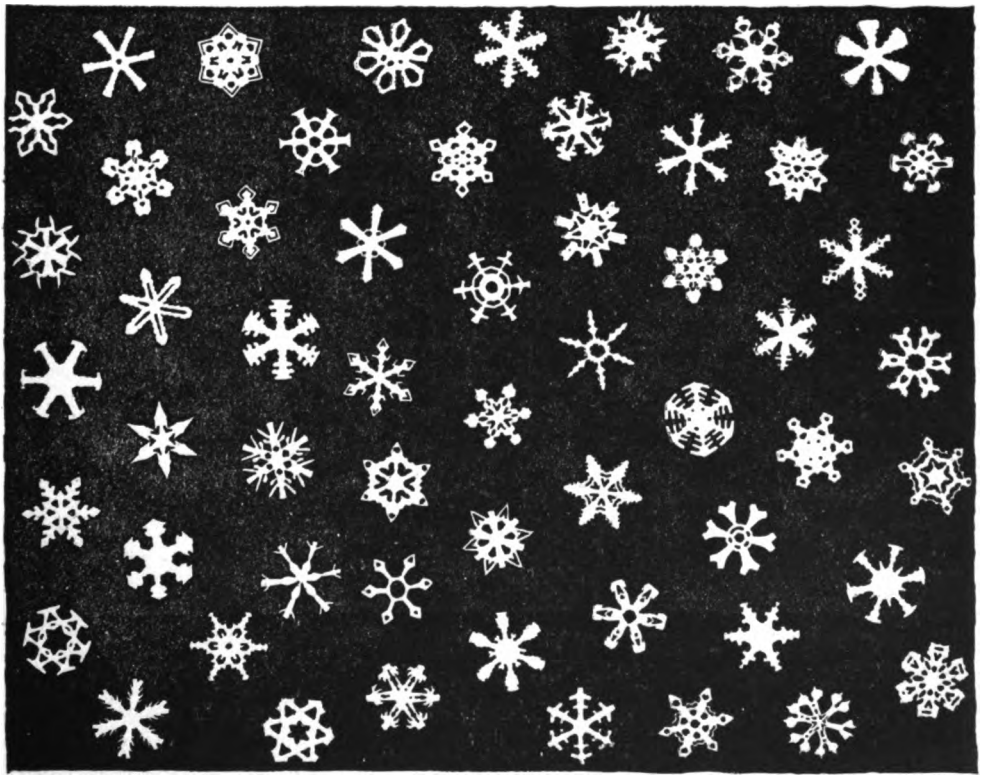
THINGS BASED ON THE SPHERICAL TRIANGLE

In all this work find by experiment what size circle will look best with the triangle used.

Make the *Cord Pocket*, 4, of leather, with or without a cover and hang by cord or ribbon through holes at the middle of the top on each side.

With a knife cut out an ornament in each of the three sides that the cord may be seen through the opening. Draw the ornament on paper to fill a circle or triangle; see D and E. Cut this out and use as a pattern by which to trace on the leather. If a cover is used, fasten it at two corners and tie the third by a ribbon bow as shown. The cover to be the same in size and shape as the sides but without ornament. Stitch the corner seams with silk the same in color as the ribbon or cord. Line it, if desirable, with the same color. Cut a small opening at the bottom through which to pull the cord.

The *Stand*, 5, is made of wood ½″ thick. The legs are large beads or spherical buttons.



SNOWFLAKES FOR PATTERNS

To fasten a bead to the wood use a wire nail. If a button is used force the eye into an awl hole into which it fits tightly. A drop of thick shellac placed where the leg joins the wood will help to hold it securely. Draw the margin lines on the top using the same centers *t t t* as were used for the larger triangle. The panel *s* may be stained, or a piece of thin tin or German silver fastened in place by small nails.

The *Pedestal*, 6, is made in the same manner as 5. On top of this, *v* is glued a smaller triangle of thin wood, 2. See the top view, F. In drawing this smaller triangle use centers, *w w w*. A circular opening is cut just large enough to receive the vase as in 6. "Round off" the upper edge of the larger triangle so that when the smaller is placed upon it the edge of the whole will look as in G. In fastening them together have the grain of the two pieces at right angles to each other. See F. This will help to prevent warping. Use thin, hot glue and keep the work in a flat place under weight for five or six hours before handling.

How Busy is a Bee?

Did you know that the worker bees in every hive work themselves to death? In the summer time one of these bees lives only about forty days. Think what she has to do. She gathers the sweet nectar from the flowers and the pollen or "bee bread" as it is called. Then she makes the wonderful wax cells of her hive and keeps them in order. By some unknown method she transforms the flower nectar into honey and stores it carefully away. She feeds all the baby bees that hatch from the eggs laid in separate cells by the queen bee. The only thing she does not do is to lay eggs.

No wonder she gets angry at the drones who do not work at all. After she has endured them as long as she can she drives them out of the hive and sometimes kills them.

Do any of my readers have beehives at their homes? I am sure they will know many more interesting things about one of the most wonderful creatures in this "wonder world."

The bee is small but to learn all about the busy creature it is necessary to study many pages. No small insect is more interesting.

Trefoils and Three Related Things

The trefoil is a good ornament and easy to draw. The simplest way is shown in No. 2 on the following page. With any radius, say 1", draw with the compass, circle A. With the same radius and center b anywhere on the circumference, draw circle B. Where the two circles cut at c is the center for circle C with the same radius. The outline of the whole is a trefoil. The figure a b c at the center is a spherical triangle.

An Interlaced Ornament. The interlaced circles in 3 make a good ornament for a circular space. Draw it as in 1. Points d e f are centers for both the larger and smaller circles; and the interlacing effect is given by erasing those parts of the lines marked x.

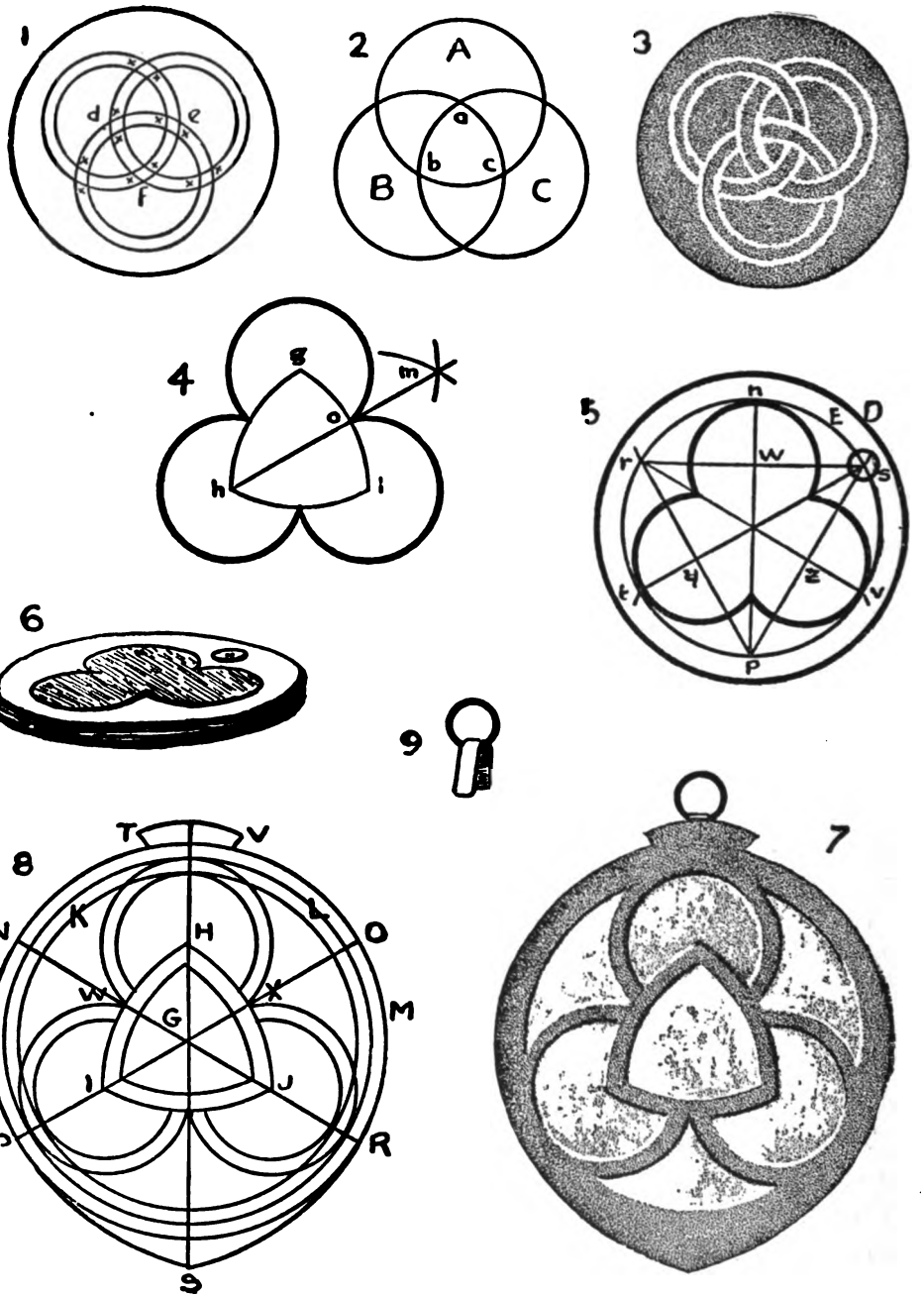
To draw 4 make first the spherical triangle using h l as a radius and g h l as centers. With g and l as centers and a radius greater than half the distance between them, draw the curves crossing at m. Draw the line h m and o in the middle of g l. With radius g o and centers g h l draw the curves. Do all this in light line, then finish the trefoil in heavy line.

The Needlebook, Fig. 6, has covers of firm goods and leaves of flannel. These are stitched strongly together through a small button and the trefoil of contrasting color is stitched onto the cover. Draw the top view, 5. First the large circles D and E, then the diameter n p. With the radius used for E and centers n p set off points r, s, t, v. Join these points by straight lines as shown. Centers for the curves are at w, y, z. Place the button at s. See that this trefoil is more deeply cut than 4.

A Window Transparency. Cut the framework of the transparency from heavy cardboard with a sharp knife and paste colored tissue on the back for a colored glass effect. It may be made beautiful. Put a strip of tape through a ring, see 9, and glue to the back.

To make the pattern 8, draw first the trefoil as in 4 with straight lines through the middle of each side. Centers for smaller curves are at H I J, and G is the center for circles. K, L, M, W and X, are centers for curves PS and SR, and H is center for TV.

Make the needlebook twice the size and the transparency twice or three times the size of the illustrations.



OBJECTS IN WHICH THE TREFOIL PLAYS AN IMPORTANT PART. THE TREFOIL IS ONE OF THE MOST PROMINENT FIGURES IN GOTHIC DECORATION

Quarterfoils

The Quarterfoil is another form much used in ornament. Those shown in 1 and 2, on the page following, differ in proportion but are made upon squares of the same size and the curves in each have a radius equal to one side of the square. To draw these figures, first make sure that the square is *square*. Find the middle of one side by using *a* and *b* as centers to draw the curves cutting each other at *d* and *e*. Draw *d e* cutting *a b* at *c*. With radius *a c* and centers *a b f g* set off points *h i k*. Use these points as centers and the same radius to draw the semicircles.

To draw 2, find the middle of each side of the square as in 1. Use the same radius with the corners of the square as centers. This change of centers changes the character of the foil.

Draw the four-leaf clover form, 3, in light line in the same manner as 2. With radius *p r* and centers *l m o p* draw the curves which point the leaves. Use *r* as center to draw the curves of the stem.

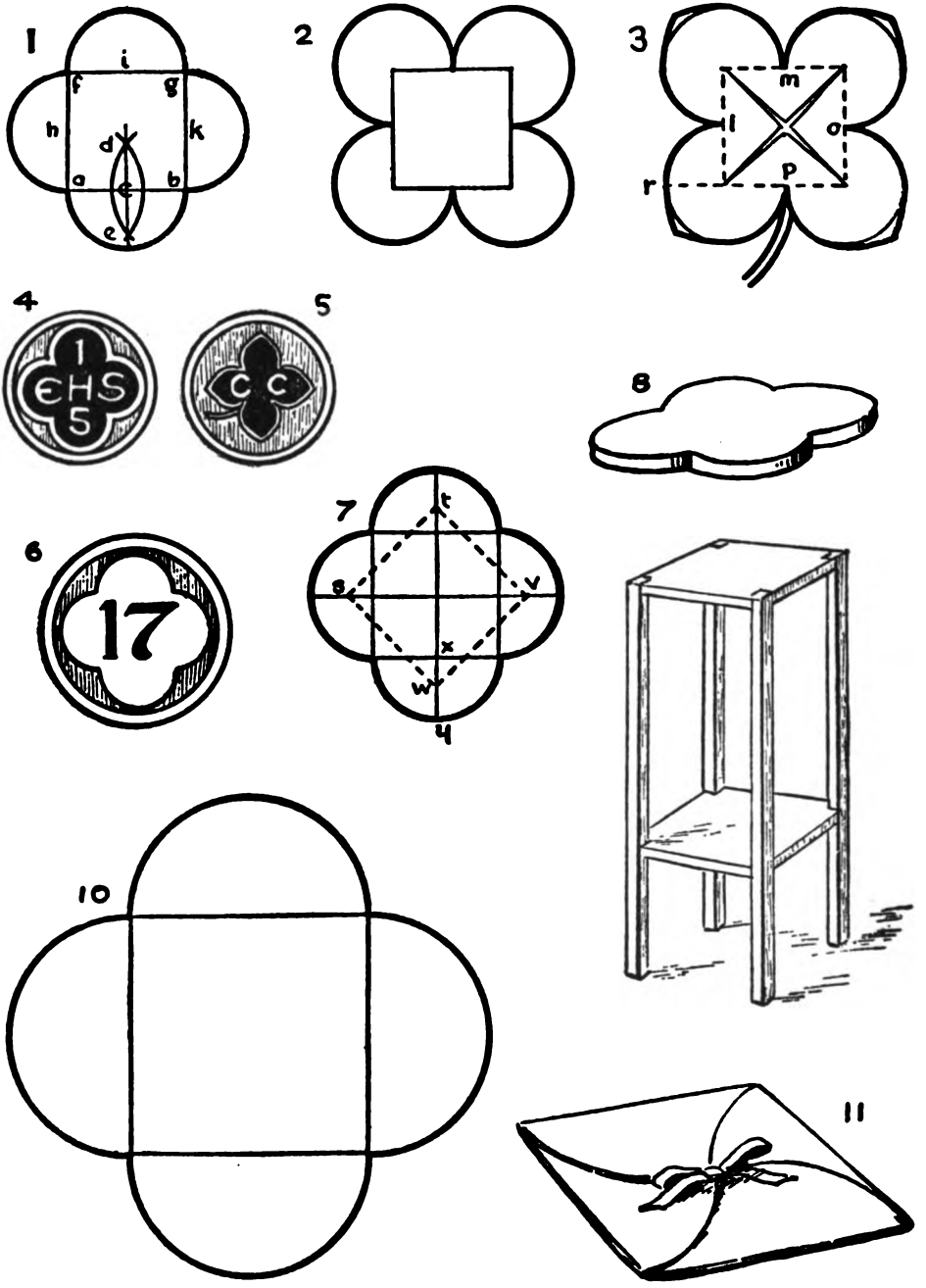
See that 2 is the ornament in the class pin 4 and the badge of the Clover Club, 5, contains 3.

You can find markers for cabinets, drawers, doors, like 6, and often badges of officials and attendants.

A pattern of a sachet is given in 10. Cut it from oak-tag, bristol-board, or heavy paper and fold it on the light lines. Cover it with any light fabric, place an envelope of perfume within and fasten with a ribbon as in 11.

The corner table 9 is just right to hold a single object: a vase, fern, or globe of goldfish. The top 8 and the two squares in 9 are of board ⅛″ thick. The legs are 1¼″ thick. Make the top like 1, and draw on the under side as in 7. Place point W half-way between X and Y, and the points s t and v in the same manner. Make both squares in o of the same size and "let in" the legs as shown. Fit the upper square into the dotted square *s t v x* and fasten to the top with screws.

A doll's table may be made of thin wood. Spanish cedar, of which cigar boxes are made, is easy to work, but splits easily and must be handled carefully.



SOME DAY YOU WILL SEE A GOTHIC CHURCH. THEN YOU WILL DISCOVER OTHER USES OF THE QUARTERFOIL

An Ornamental Figure in a Square

A Holder, A Standard for a Vase

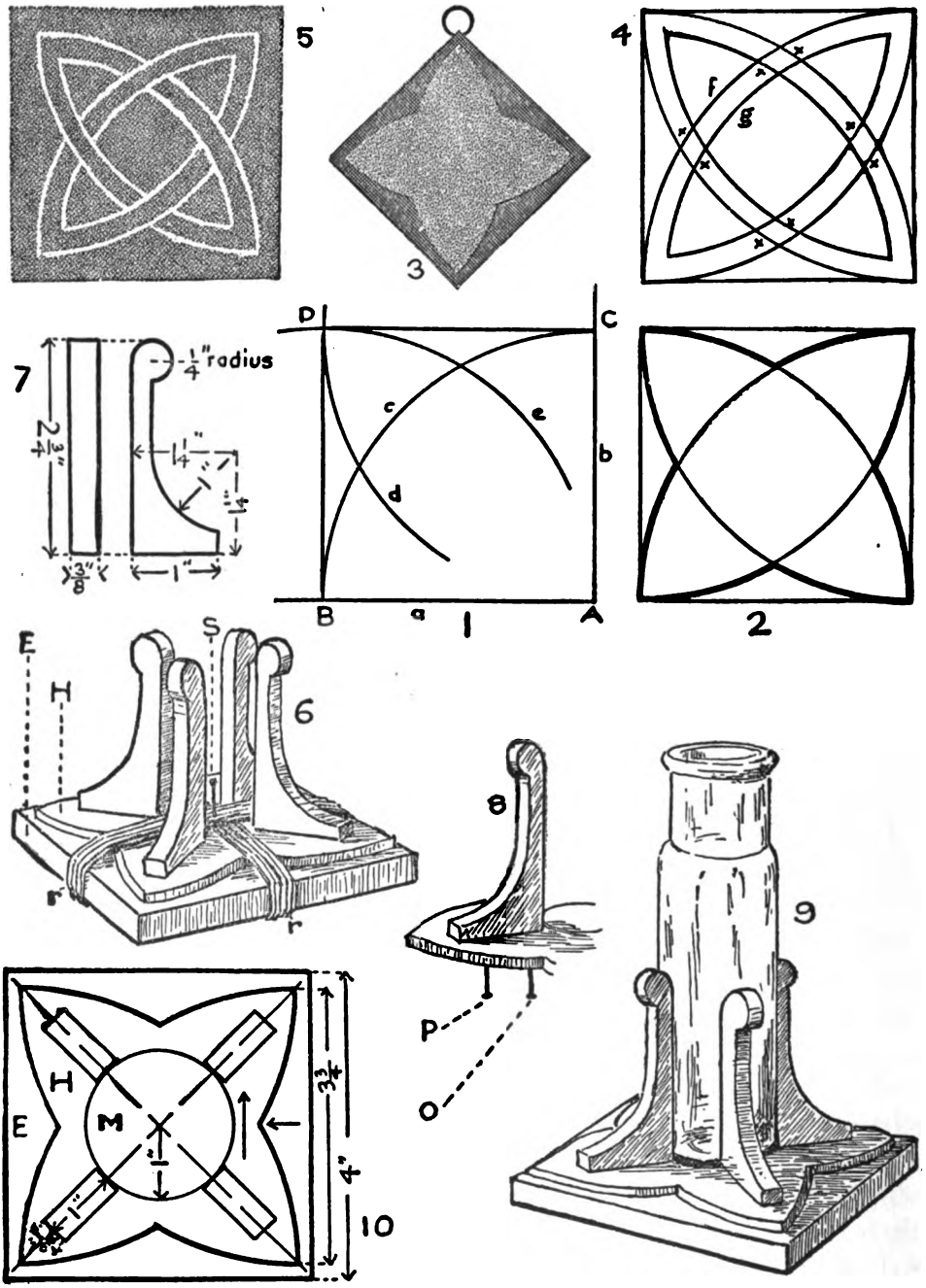
The ornament is made up of circular curves, and easy to draw. A good way to make a square is shown in 1. Draw lines *a* and *b* using the corner of a card to get the right angle *A* which is one corner of the square. With *A* as a center and a radius equal to one side of the desired square make with the compass, curve *c*. This gives two more corners, *B* and *C*. With each of these as a center and the same radius draw *d* and *e* crossing at *D*, which is the fourth corner. Draw *B D* and *C D*. Use each corner as a center to make the curves, then draw the figure in heavy outline as in 2.

To use this for ornamenting a Holder, make the upper squares and the decorative piece of two pleasing tones of cloth, stitching the figure onto the background. Decide on the margin between the ornament and the outer edge before drawing the square for the figure.

To draw the ornament for a Sofa Pillow, as shown at 5, use the same centers for parallel curves with a little space between them. See *f* and *g* in 4. Get the effect of interlacing by erasing the parts of the lines marked *X*.

A Home Made Vase

Some people who were camping out needed a slender vase for a large bunch of flowers. The only thing at hand was a small olive bottle and the flowers made it top heavy. To hold the vase they designed the standard shown at 9. The bottle is 6¾″ high and slightly less than 2″ in diameter at the base. A figured plan is given in 10. The base, *E*, is whitewood ½″ thick. *H*, $\frac{5}{16}$″ thick, was cut from the cover of a cigar box. Four uprights hold the bottle in place. Those on the next page are 2″ apart which makes an "easy" fit, allowing the bottle to be removed for cleaning. Two views of one of these supports are shown in 7. To make such a standard, glue each upright to H as shown in 8 and drive a small wire nail *not* at *P*, but at *O*. Let the glue harden four or five hours then glue *H*, containing the uprights, to *E* and drive a small wire nail at *S*. See 6. Tie a string tightly about both as at *rr* and leave until the glue is hard. Paint this standard with some soft color having a dull rather than a glossy finish.



HOW TO MAKE SOME COMMON THINGS MORE ATTRACTIVE

Things to Play Store With

The problem to work out this time is a balance. In the old days this kind of scale was used everywhere. You can use it in your play store and every boy has a play store either in the barn or under some big tree.

You will need one piece of wood, A, 1½″ x ¾″ x 14″ for the upright; one piece of wood, B, 1½″ x ½″ x 16″ for the beam; and one piece of wood, E, 7″ x 7″ x ⅝″ for the base. You will also need two pieces of heavy pasteboard or tin, C and D, 6″ across, for the pans, six pieces of strong cord each 8″ long, and one round wire nail about 2″ in length.

The upright, B, would better be of hard wood. Turn it with one end toward you and mark on that end the lines shown in the upper part of B. The big notch should be ¾″ across and 1½″ deep. The small notches should be just wide enough and just deep enough to let your round nail rest in them easily.

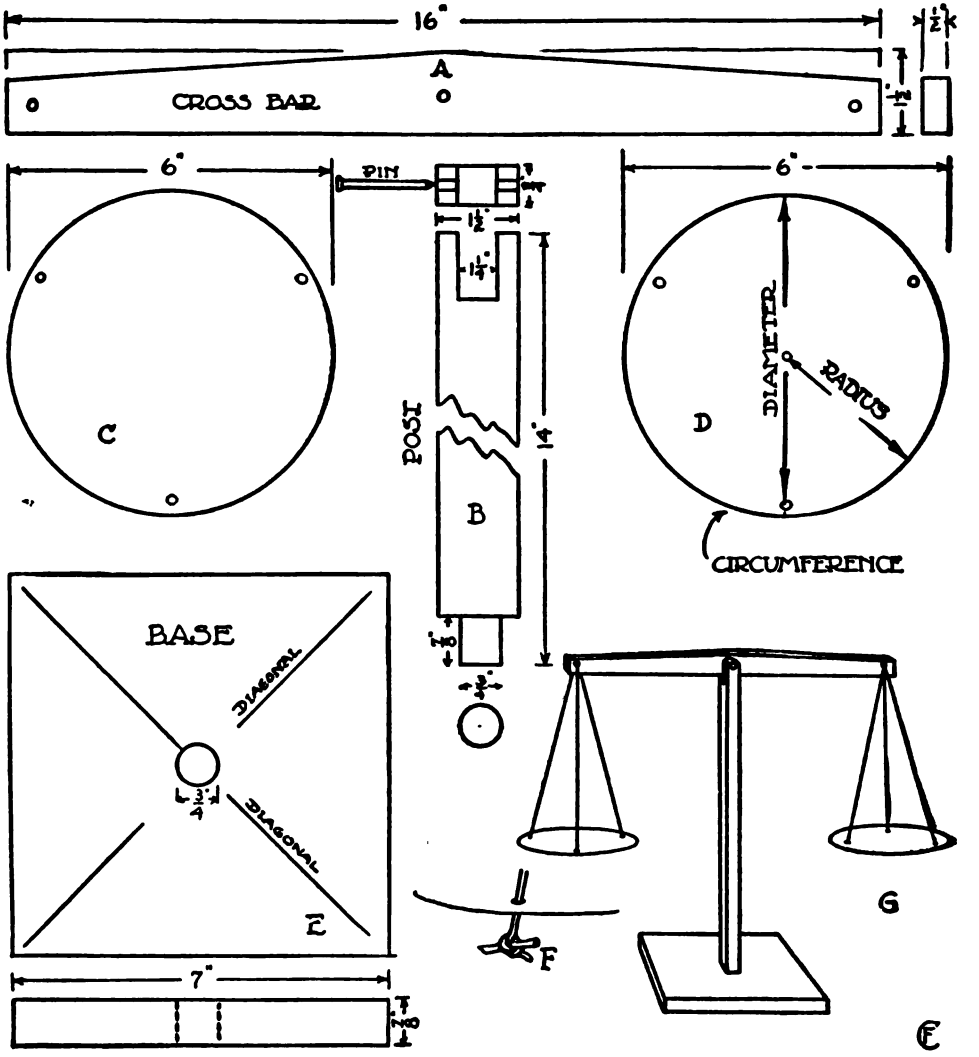
Saw and whittle a tenon on the lower end, as shown at B. Work it carefully and try it in the hole, as you go along, until it fits tight. At this point you should be very careful.

Take your beam, A. Through the exact center of this strip of wood bore a hole the size of your nail. Slope the top to left and right, as shown in the drawing. Bore another hole in each end of the beam. Put your nail through the middle hole and rest it on the two small notches in the upright. The cross beam ought to balance exactly on the upright.

Take the piece of wood you selected for the base, E. Find the center by diagonals. Bore a ¾″ hole through it and push the tenon of your upright into the hole. The lower end of your upright may be fastened in very securely with a little glue or some small brads.

For your pans (C, D) choose very heavy pasteboard or light weight tin, and with a radius of 3″ draw two circles. Cut out the circles, and with the radius divide the circumference into six equal parts. If you do not know exactly what "radius" and "circumference" mean, glance at the diagram D. Perhaps you know already that the radius of a circle is contained just six times in its circumference. Leave out every other one of your dividing marks, and your circles will be divided into three equal parts. Punch holes at these three points about ¼ of an inch inside the circle. Bring your strings

through these holes, and tie them fast around a little stick, as shown at F. Pull one of them through the hole in one end of the beam and knot the three strings together, being sure that you have them all exactly the same length from the pan to the knot. Now force this knot into the hole in the cross beam, so that no loose ends will show.



DIAGRAMS WHICH SHOW HOW TO MAKE BALANCES FOR YOUR TOY STORE

Two strings will be on one side of the beam and one on the other. If your strings are equal, the pan will hang level. Fasten the other pan the same way, but with the two strings on the other side of the

beam. When you have nothing on either pan, the cross beam should hang level. If it does not, whittle off a little more slope on the heavy end. When you put a weight on one side, the beam should tip easily to that side. When you add goods in the other pan so that the beam is level again, goods and weight are the same in weight.

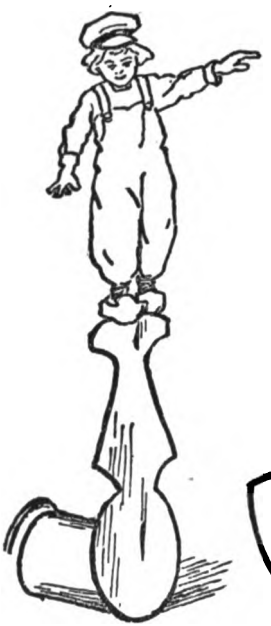
Now for your toy money. Get father to loan you a silver dollar, a half dollar, a quarter, a dime, a nickel and a penny. Select the newest, best coins he has. Take some thin, smooth wrapping paper or some white writing paper, and a pencil not too soft. Sharpen the pencil to a long, flat point.

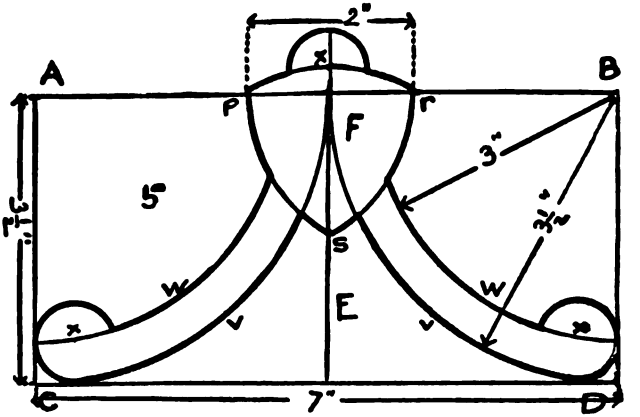
Put your money under the paper, hold it very firmly, and rub the flat side of the pencil point softly across it, until you have a clean print of the coin beneath. Get rubbings of both sides of each coin, and as many of them as you can. Paste a rubbing which shows one side of a coin on this cardboard, cut it out, cardboard and all, and on the back, paste the rubbing which shows the other side of the same piece of money.

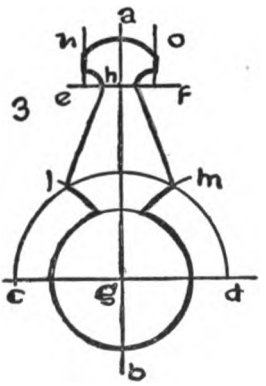
Repeat this until you have a whole drawer full of dollars, quarters, dimes, etc. You could buy out all of the town, if your money would only pass.

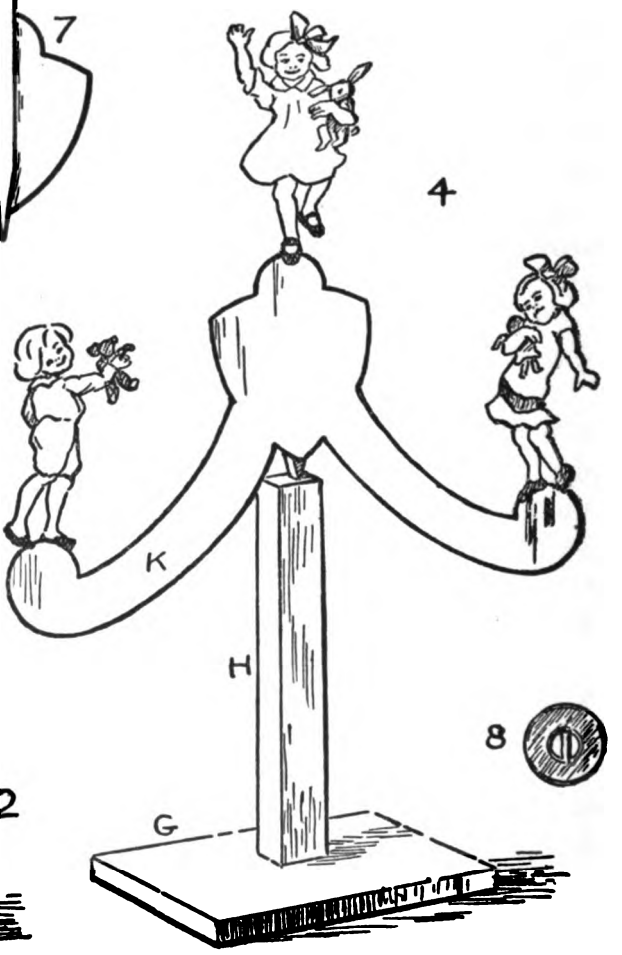
If you wish to make weights for your balances, you can use clay. Your clay must be wet,—not sloppy.

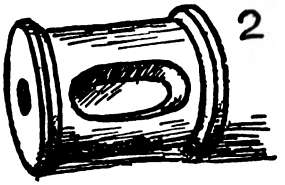
Take a little at a time and knead it as mother kneads bread. Take out all the little stones. Break the lump apart, and slap it together again. Pound it on a piece of board. Work it until it is smooth and even, soft enough to be shaped easily by a touch of your finger, but firm enough to hold shape. Make a circle on a piece of paper by tracing around the bottom of a baking powder can. Now take some clay and roll it between your hand and a smooth piece of board. It will make a round bar, like a broom-handle. Roll it out until it is as thick as your finger, and then flatten it to make an even, square-edged strip about an inch wide. Lay this piece around the circle you have drawn, and fill in the center with clay packed hard. Build up the clay until it is about an inch thick, keeping the circular edges true and smooth. Draw the edge of a ruler across the top to smooth it off. On top of the clay draw, with a little sharp stick, the letters, 1 LB. Make other weights large and small, and they must be baked to make them hard.











Little Acrobats

It is not difficult to work out this problem of balance. The figures on the opposite page come right end up as in 1, if the spool is properly "loaded."

With an awl or gimlet and a knife make a cavity in a spool as shown in 2. Fill this hole with bird-shot and glue a piece of strong paper over it to prevent the shot falling out. If this spool is laid on its curved surface and made to roll or rock it is sure to come to rest with the shot side at the bottom. So, any figure of thin cardboard mounted as in 1 is bound to return to the position shown however much the spool may be rocked.

The front of the standard on which the figure rests is made of strong cardboard and glued to the end of the spool. The pattern is shown in 3.

Draw a. b. more than four inches long and make c. d. and e. f. at right angles to this line. From g. to h. is two and one-fourth inches. With g. as a center and a radius of three-quarters of an inch describe a circle. With the same center and a radius of an inch and a quarter, draw a semicircle. Use this same radius and with centers c. and d. draw the short curves from the circle through l. and m. Lines n. and o. are each one-half inch from the center line. Where these lines cross e. f. are the centers from which the quarter circles are drawn. These quarter circles have a radius of a quarter of an inch. The curve at the top has a radius of three-quarters of an inch and is drawn from h. as a center. Finish the pattern in heavy line as shown and cut it out with a sharp knife.

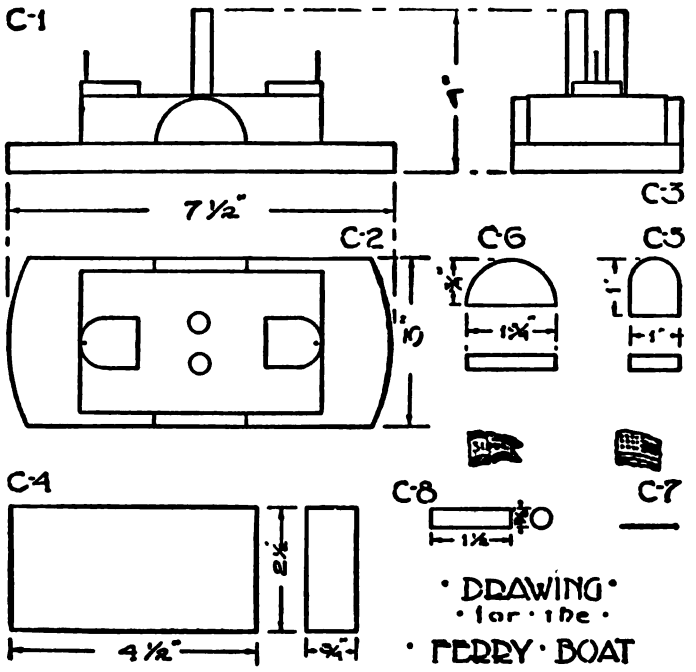
While the spool is at rest glue on the front and be sure to keep the line a. b. in an upright position. When this is done fasten the figure to the standard.

With water color paints the little acrobats can be colored. The Dutch boy should have yellow hair, dutch blue trowsers and brown wooden shoes.

The other figures may be colored as desired, but the little girls should wear contrasting colors.

In this work, as in all the other "things to do," sharp lines, clean edges and a nice finish,—all combine to make the work worth while.

A Toy Ferry Boat



KEY TO DRAWING

C-1 Side view of boat.
C-2 Top view of boat.
C-3 End view of boat.
C-4 Top and end view of cabin.
C-5 Top and end view of pilot house.
C-6 Wide and top view of paddle wheel.
C-7 1" brad for flagstaff.
C-8 Top and side view of smoke-stack.

When rivers are wide and deep and swift, like the Mississippi at Memphis or New Orleans, and where the distance is great from one shore of a harbor to another as at New York and San Francisco, bridges for foot passengers and teams and automobiles are impossible, and ferry boats have to be used.

Ferry boats are built exactly alike at both ends in order to travel both ways without turning around.

Directions. Cut a piece of paper 7½" long and 3" wide, draw the curved ends as in C-2 and cut to line. Fold the paper both lengthwise and widthwise, trim edges to match. Unfold and lay on a piece of soft wood ½" or ⅝" thick, and mark outline. Whittle to shape. Take a piece of wood ⅛" or ¼" thick and construct cabin. Drive two 1" brads through the cabin to hold the two smoke-stacks; these brads should be ⅜" on each side of the center as in C-2. Secure

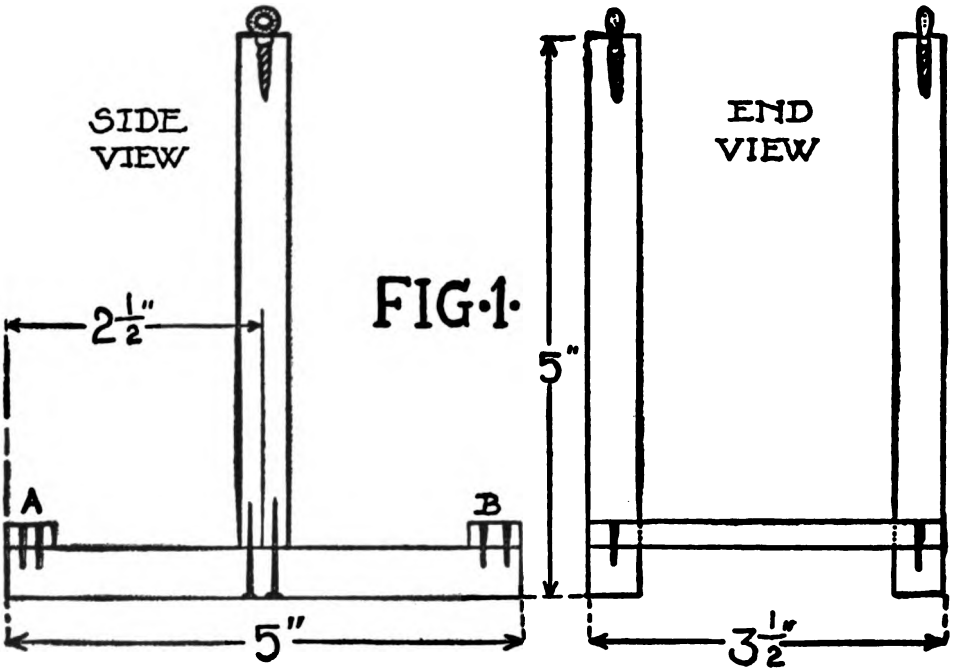
the cabin in place with two brads driven up through the hull. Out of wood ¼″ thick make pilot house. Secure in place with two ½″ brads. Using ¼″ wood, cut out paddle wheels and fasten to sides of cabin with two ½″ brads. Whittle two smoke-stacks and press in position. Sandpapering all woodwork will improve the finish. Use 1″ brads for flagstaffs. Make flags out of paper, and color with crayon. Draw windows on cabin and pilot house with a pencil.

An Overshot Water Wheel

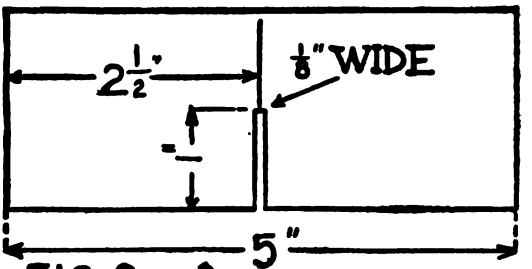
Water wheels are used all over the world. They get their power from flowing water—brooks, rivers and waterfalls. When the water flows under them they are called undershot wheels. When it flows down upon them they are called overshot wheels. The directions given below and the drawing on the next page will help any boy to make a very good overshot water wheel that will work with power derived from the kitchen sink.

Directions. Cut out of ½″ wood four pieces, ½″ wide and 5″ long. With 1″ wire nails fasten two of these pieces to the other two, so as to form two T's upside down. Be sure to drive the nails down into the wood so that their heads will be even with the surface. See Fig. 1. From ¼″ wood cut two pieces ½″ wide and 3½″ long. Stand the two T's on the bench, so that they are exactly opposite, and nail these pieces to them with brads. See A and B. Put a small brass screw eye into the top of each of the upright sticks. See Fig. 1. Out of ⅛″ wood cut two pieces, 2″ wide and 5″ long. With a saw and a jack-knife make two cuts in these pieces. See Fig. 2. Fit them together as you would the cardboard partitions of an egg box. See Fig. 3. Mount the paddle wheel thus formed on the stand, using the screw eyes for bearings, and wire nails, driven into each side of the paddle wheel, for an axle. Be sure that the heads of the nails are close to the screw eyes, to prevent the wheel from slipping on its axle. See Fig. 4.

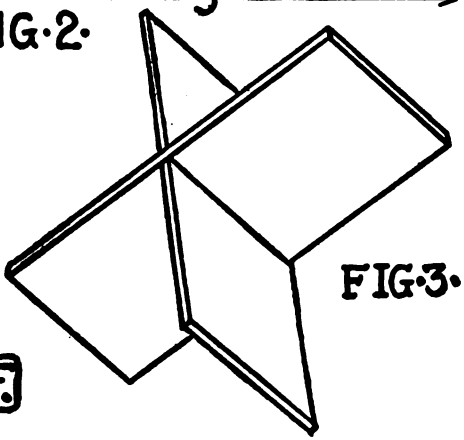
Operation. Place the water motor in the sink, so that the tip of one of the paddles when level or horizontal is directly under the water faucet. Turn on the water, and Whir-r-r-r-r! Away your motor will go!



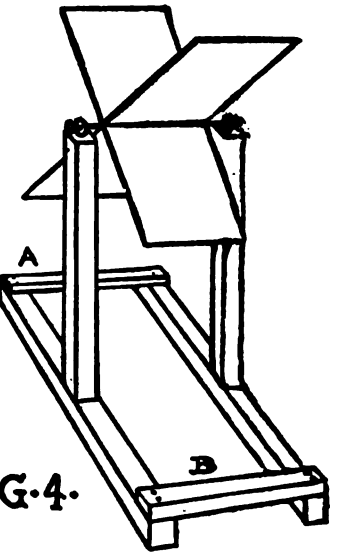
FIG·1·



FIG·2·



FIG·3·

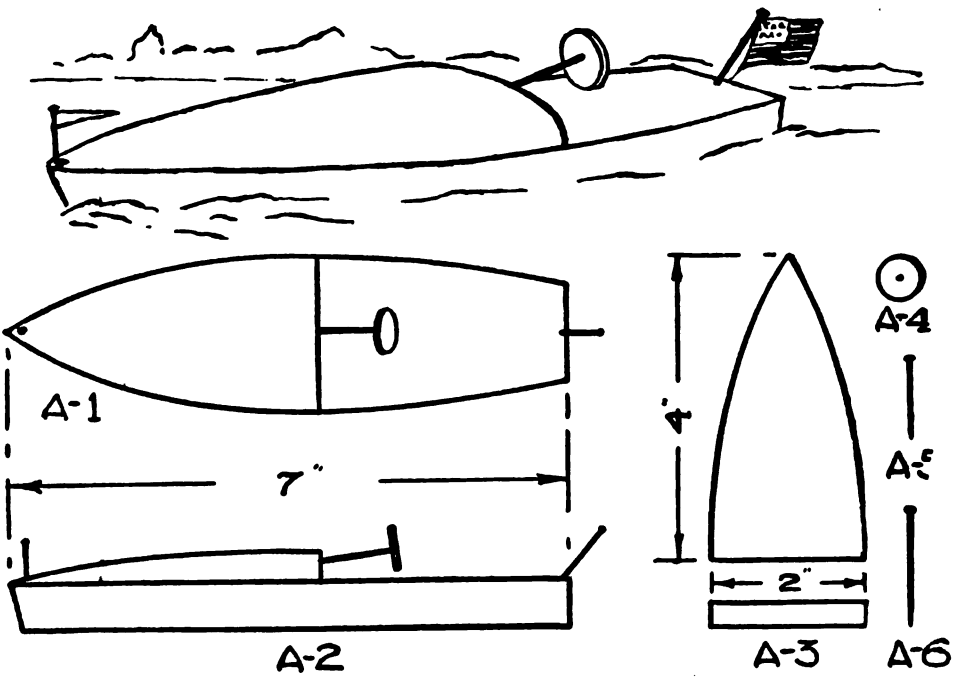


FIG·4·

COMPLETED WATER·MOTOR·

Three Modern Boats

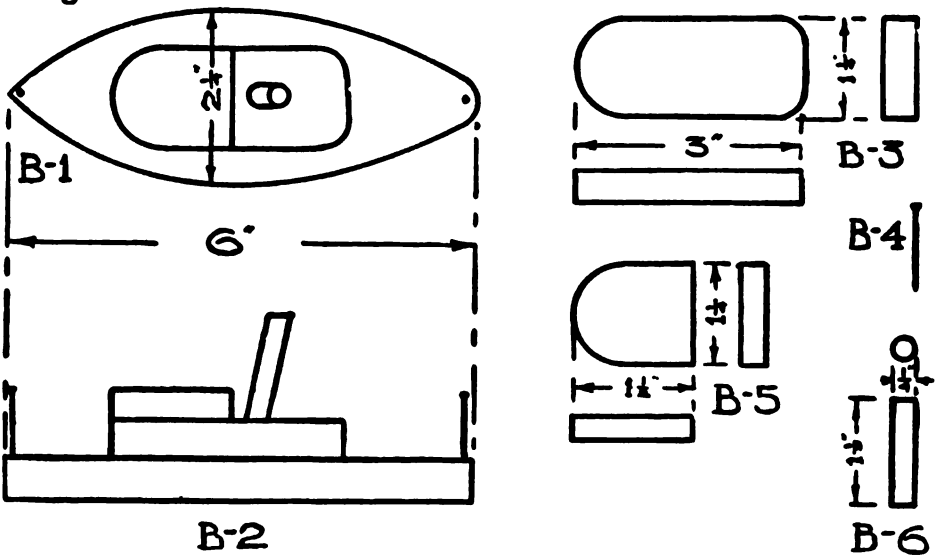
MOTOR BOAT. Any boy can make a motor boat with but two pieces of wood, some brads, and a wooden button. Of course not a real motor boat with a "chug," but just a model of one.



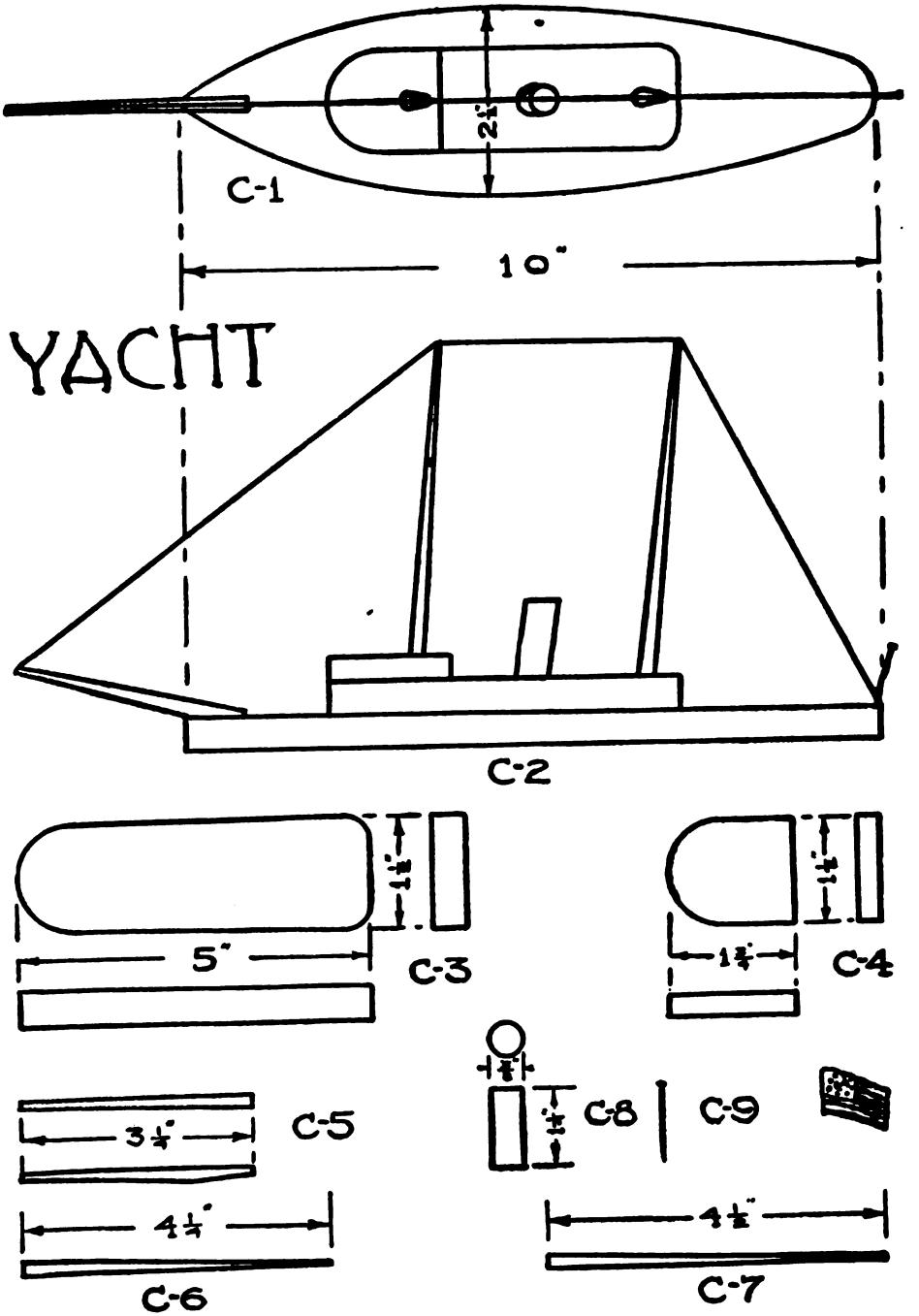
Directions. Take a piece of paper 7" long and 2" wide, draw outline of boat as in A-1, cut out, fold in center lengthwise, trim edges to match. Lay this pattern on a piece of soft wood, ½" or ⅝" thick, mark outline and whittle to shape, cutting front part of hull a little slanting as is shown in drawing A-2. Measure on the first paper pattern 4" from front and cut off at this mark. This gives the pattern for the hood as A-3. Lay this second pattern on a piece of ¼" wood, mark outline and whittle to shape. Secure the hood to the front of the boat with two ½" brads. With a knife round the edges of the hood, smooth with sandpaper. Use a 1½" brad (A-5) to hold the steering wheel, which can either be a ⅝" wooden button mold or a piece of cardboard cut to size (A-4). Flagstaffs are 1" brads (A-6) and the flags can be made of paper and colored with crayons.

Using this as a guide, you can then make other models of speed and pleasure launches, getting your ideas from those you have seen.

Tug Boat. Have you ever watched the busy little tugs pulling the great ocean liners, coal barges, four masted schooners, and various other boats into the harbors and out again? Did you not wonder at their strength when you compared their size with that of the boats they were drawing? These tugs, though small in size, are driven by powerful steam engines and are very strong and sturdy. They are among the most useful of all our boats.

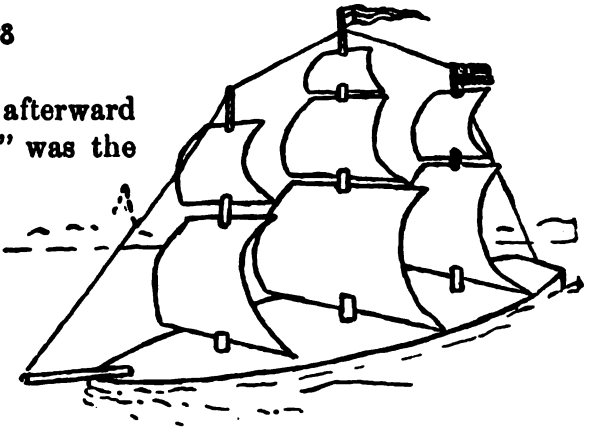


Directions. Take a piece of paper 6″ long and 2½″ wide, draw outline of boat as shown in B-1, cut out, fold in center lengthwise, and trim edges to match. Lay this pattern on a piece of soft wood ½″ thick, draw outline and whittle to shape. Take another piece of paper 3″ long and 1½″ wide and make pattern of cabin as shown in B-3; mark outline and cut out of ½″ wood. Insert in bottom of cabin a ¼″ brad (B-4) to hold smoke-stack in place. Now cut the cabin paper pattern in half and use the forward half as a pattern for the pilot house. Trace this outline on a piece of ½″ wood and whittle to size and shape (B-5). Secure the pilot house to the cabin with two ½″ brads. With two ¼″ brads nail this part of the tug to the hull, driving the brads up through the bottom of the hull into the cabin. Make the smoke-stack (B-6). This is shown in the drawing (B-2) as slanting toward the stern of the boat, so cut the ends of the stack a little slanting. Place the stack in position. Two 1″ brads are used as flagstaffs. Use sandpaper to smooth the parts.



DESIGN FOR THE MODEL OF A YACHT

Two Historical Boats and How to Make Them



The Constitution, 1798
The Clermont, 1807

The "Constitution," afterward known as "Old Ironsides," was the first American war-ship to make an English frigate haul down her colors, the "Guerriere," after a terrible battle of twenty minutes on August 19, 1812, having surrendered to her.

Boys, it's great fun to build models of these old boats, hoist their flags, float them, and then get your bean-blowers and fight this famous battle all over again.

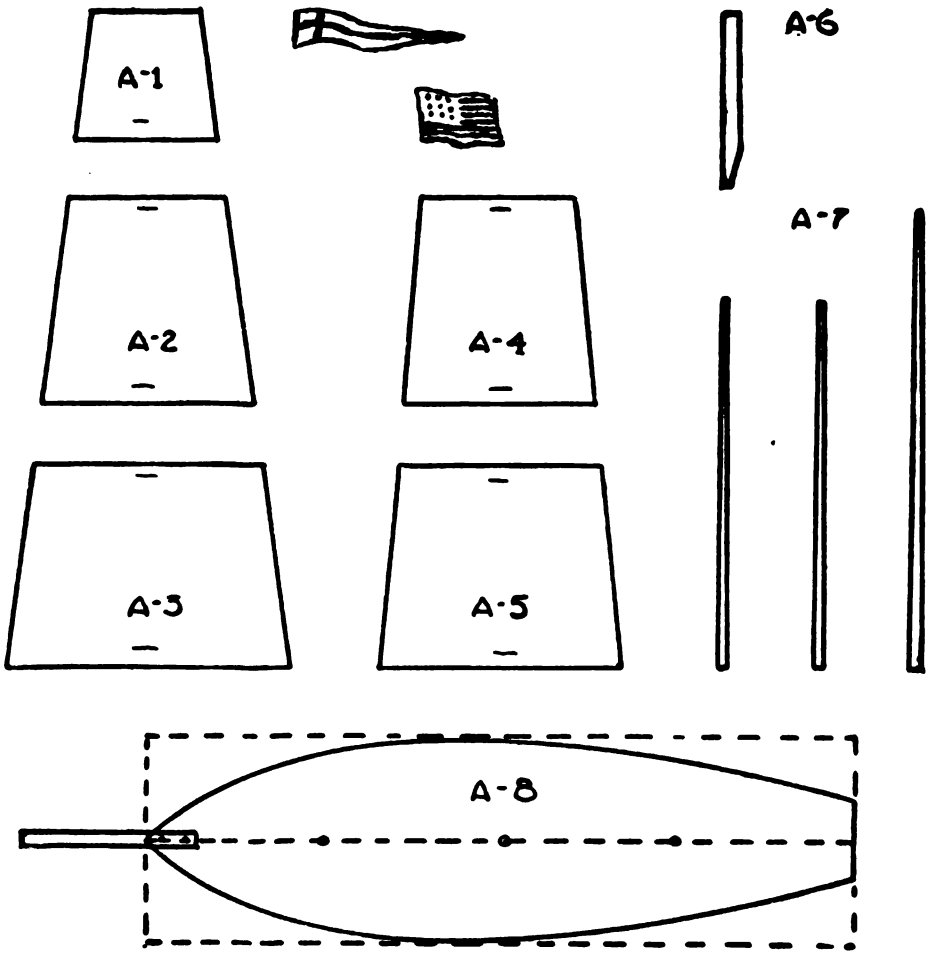
The boats are very easy to construct. The directions below and drawings, together with a knife, a bit of thin wood, paper, string, small nails, and twenty minutes of your time will be all you need.

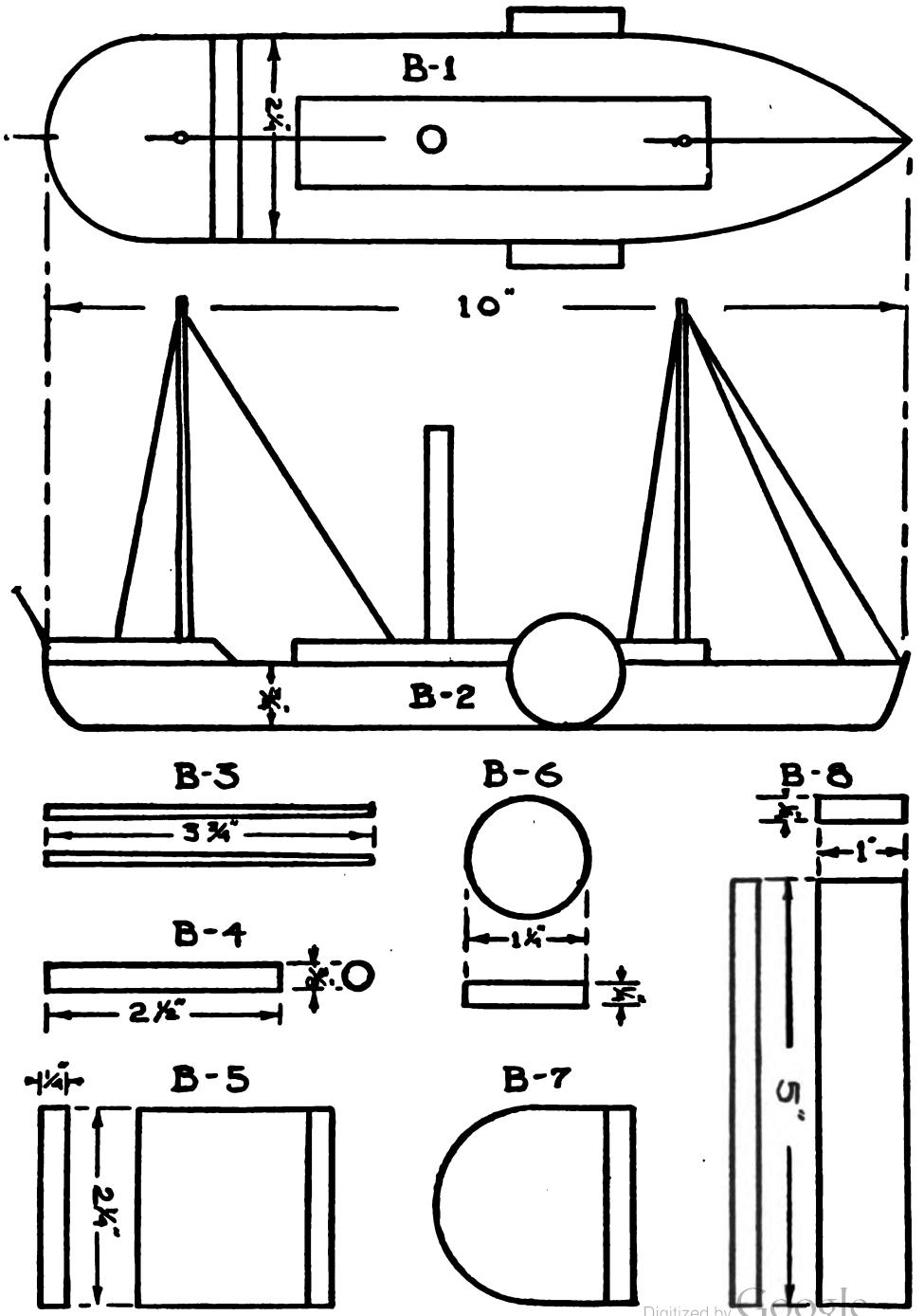
Directions for the "Constitution." Take a piece of paper, draw a pattern similar to A-8, cut out, fold lengthwise, trim edges until exactly alike. Lay pattern on a thin soft board, draw around it, whittle to this mark with knife. Draw a line through the center lengthwise, divide into quarters, marking each one with a dot, at which places drive a ¾ inch brad, used to hold the masts in place. Whittle masts out of strips of wood and press ends into brads. Cut from stiff paper seven sails, similar to drawing. Cut a small slit at top and bottom of each and insert masts. Whittle bowsprit and attach with two small brads. Take a piece of ordinary string and beginning at the bowsprit, place according to the drawing through the three masts, finishing at the stern. This is done by putting a small cut in each place, the one on the middle mast being a little below the top. Cut out of paper two flags and color them with crayon.

The "Clermont," the first successful steamboat, was invented by Robert Fulton in 1807. This is the boat that revolutionized the mode of travel all over the world. It is interesting to make a model of this to see its construction, and to compare it with the wonderful

boats of to-day, to note the rapid progress made in the development of the steamboat.

Directions for the "Clermont." With a piece of paper, make pattern like B-1. Take a piece of soft wood about ¾" thick, mark outline and proceed to whittle out hull. Take wood ¼" thick and cut to dimensions and shape of back cabin. Insert a ¾" brad to extend up to hold the mast in place, then with the two other brads nail the cabin in place. Cut another piece of ¼" wood to size and shape of long cabin, insert two ¾" brads to hold smoke-stack and forward mast, then nail cabin in place with two brads. Whittle both masts





and smoke-stack and place in position. Whittle out of ¼" wood two paddle-wheels. Secure to hull with one brad in each. For rigging place string in small cuts, put in masts and fasten to small brads in the deck. A 1¼" brad serves as a flagstaff.

THE CONSTITUTION. *Key to Drawing.* A-1, A-2, A-3, Shape of top, middle, and bottom sails of middle mast. A-4, A-5, Shape of top, and bottom sails of forward and rear masts. A-6, Bowsprit. A-7, Masts. A-8, Hull of boat.

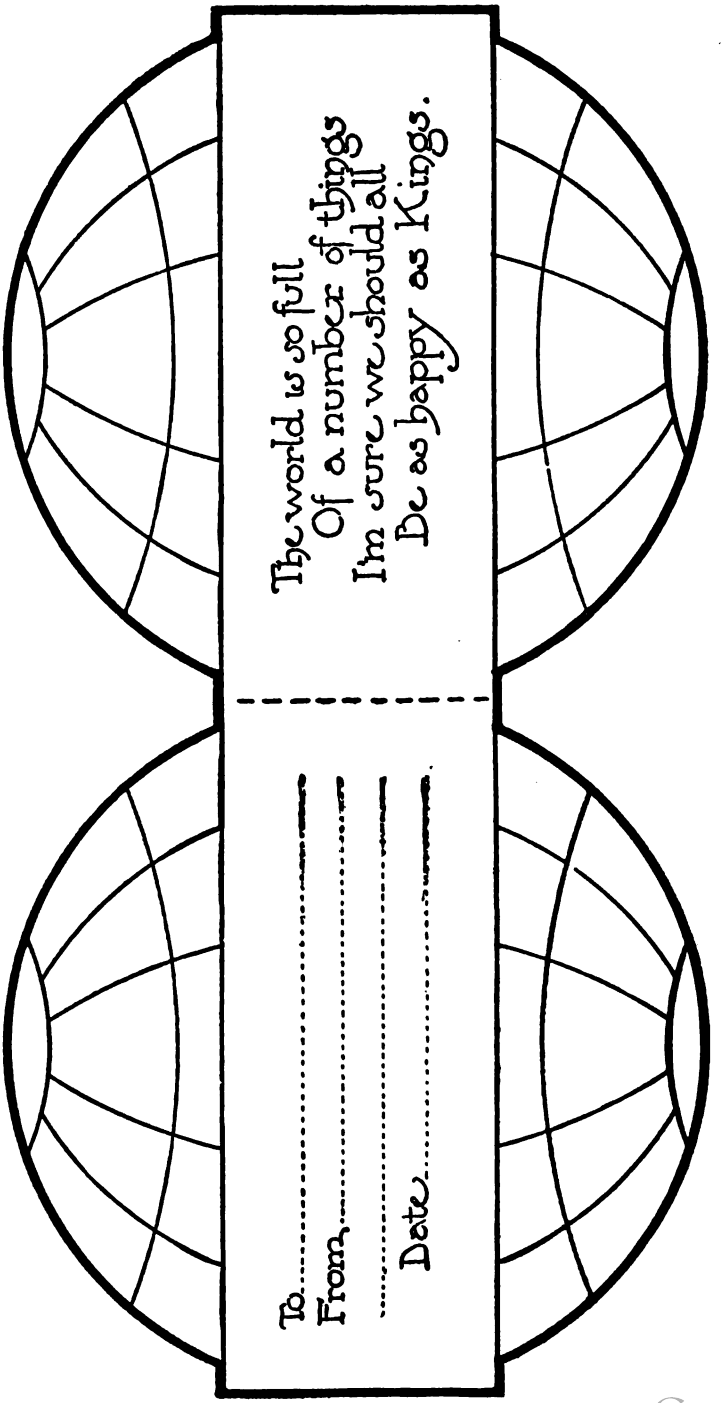
THE CLERMONT. *Key to Drawing.* B-1, Top view of boat. B-2, Side view of boat. B-3, Masts. B-4, Smoke-stack. B-5, Top and end views of back cabin. B-6, Top and side views of paddle-wheel. B-7, Same as B-5 only cut to shape. B-8, Top, end, and side views of long cabin.

A Crowded World

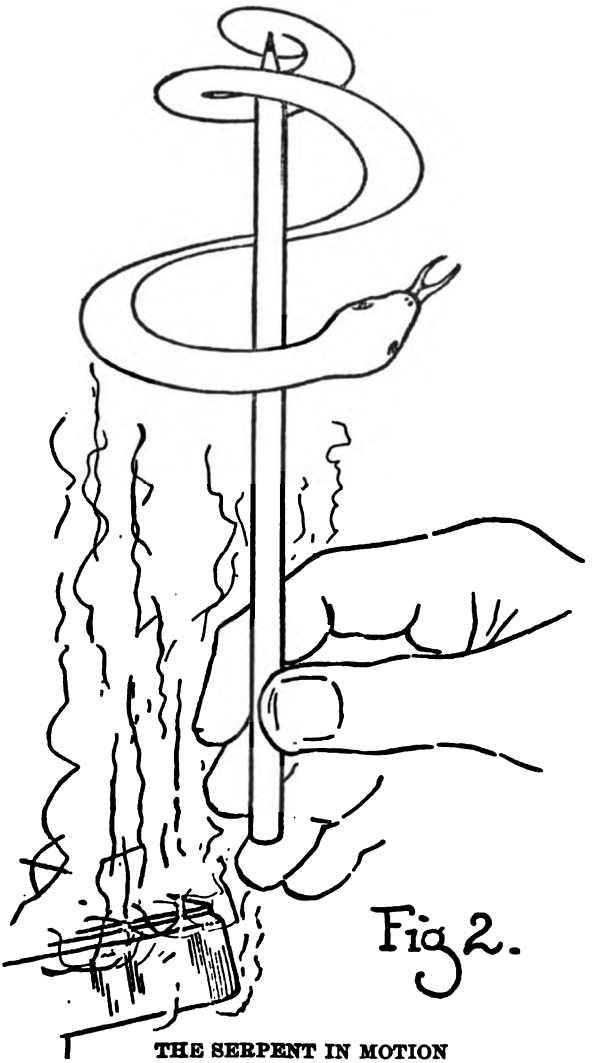
On the following page you will find a drawing that represents the world. Cut out the world pattern in any desired size. Paste it on a sheet of thick paper, and cut that to the same shape. Fold on the dotted line. Cut from the advertisements in newspapers and magazines, catalogues, etc., little pictures of all sorts of things, and paste them on the inside pages of the world to fill them full.

Go to see some friend of yours who would like your Crowded World as a gift, and leave it. You will leave a lot of sunshine there too, and have more in your heart.

'Tis not the weight of jewel or plate,
Or the fondle of silk or fur;
'Tis the spirit in which the gift is rich,
As the gifts of the wise ones were,—
And we are not told whose gift was gold,
Or whose was the gift of myrrh.



A Serpent that Writhes



THE SERPENT IN MOTION

Take a sheet of good stiff white or colored paper about 6″ square. Near the middle of it draw very carefully a little square only one-eighth of an inch on a side, like 2, 3, 4, 5, in the drawing, Fig. 1.

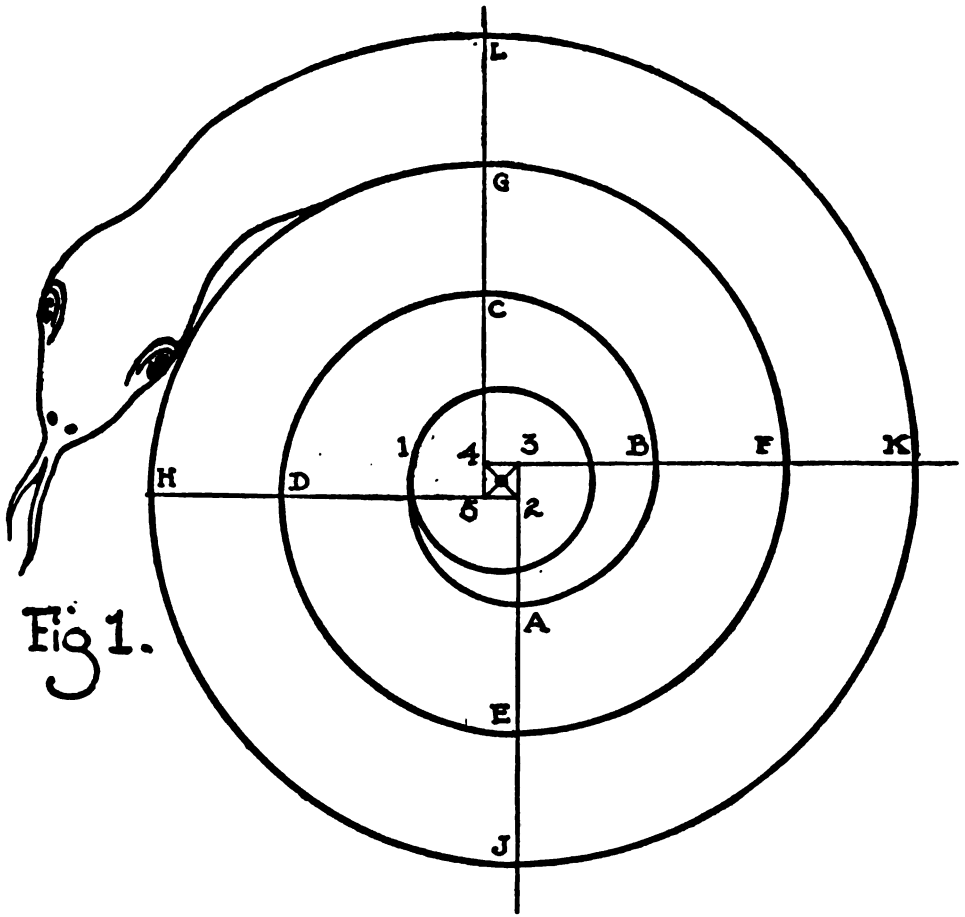
With the exact center and a radius of about a half inch, draw the central circle.

Now number the corners of the square as in the drawing, and extend the four sides, as in the drawing.

With needle-point on 2 and a radius 2-1, the pencil point just touching the circle, draw from 1 to A. Now move the needle point to 3 and with a radius 3-A, extend the curved line to B. Change the center to 4, and with a radius 4-B, extend the curve to C. Keep right on backing around the square from corner to corner, lengthening the radius to extend the curve from one light line to the next.

When you have your *regular spiral*, for that is what you have drawn, as large as you need it, draw the head of the serpent as shown in the illustration. Then beginning at the tip of the tongue cut out the serpent by following the heavy lines, cutting toward the center until you come to 1.

Now by turning your serpent wrong side up on a folded newspaper, you can make, with the rather blunt point of a lead pencil, a little black hollow under the point 2. Do not make it so deep as to break the paper.



THE PLAN FOR MAKING A SERPENT. SEE TEXT

Turning the serpent over you can now hang it on the point of your pencil as shown in Fig. 2.

Holding this above the edge of the kitchen stove, or over a lamp, or anywhere that heat is going up, you will find that the serpent will turn round and round on his pole. He will writhe also if you hold him high above your head and blow him gently.

A Wind Wheel

Did you ever perform the trick shown in 5? Can you do it with the compass? Look at the drawings on the next page. Make first the central circle A; then with the same radius and any point, a, as center draw circle B. Now, with b as center, draw circle C. Next draw D using center c. So draw circles E, F, and G, using centers d, e, and f.

These seven circles have the same radius. The inner circle A, cuts or intersects each of the others. The six outer circles should all meet *exactly* at the center of A, and if you have worked *accurately* the circumferences of two outer circles will cross that of circle A *exactly* at each of the points a, b, c, d, e, f, dividing this circumference into six equal parts. Try it.

This division of the circle is necessary in making the wind wheel 2.

Draw the pattern as in 3. First, circle H, with a radius of 3″, then I with a radius of 2⅛″ and J with ⅜″ radius. See that in dividing H into six equal parts you need not draw whole circles. Simply space off the radius of the circle six times at g, h, i, m, p, r, making the short curves or arcs which cut circle I at the points marked x. Draw the three diameters shown in dash lines cutting circle J at points o. Then draw the lines marked o, x.

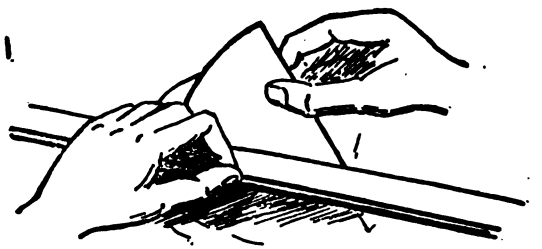
Finish the pattern as in 6 making heavy the lines to be cut, and dotted, those to be folded or creased in making the fans of the wheel. See 2.

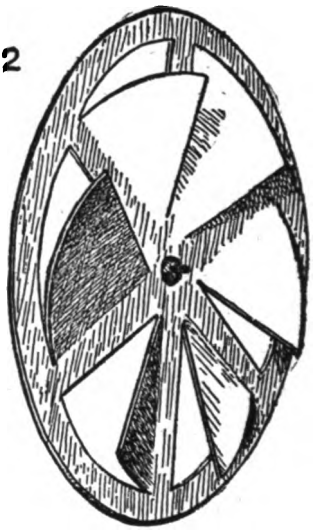
To bend these fans evenly and sharply, hold a ruler firmly with the edge following the line to be creased and bend up the fan as shown in 1.

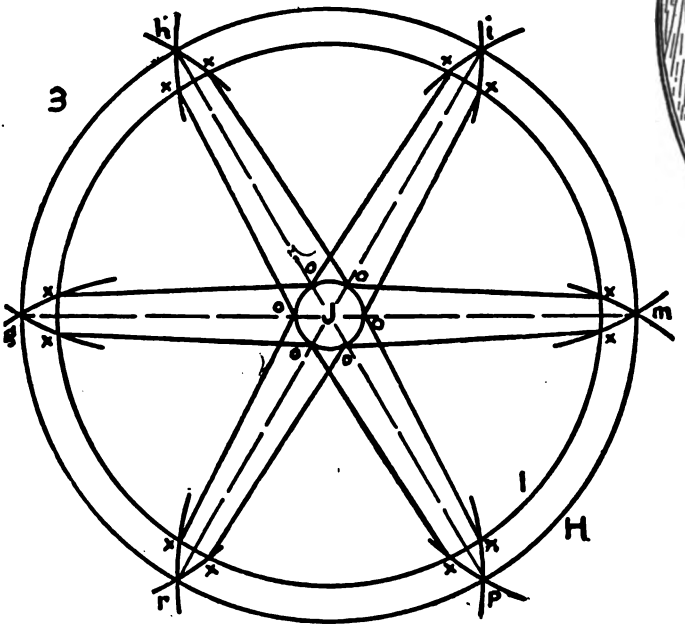
Cut the wheel with a sharp knife from strong cardboard or heavy oak tag. Put through the center a wire nail; or better, a glass-headed pin running through a glass bead on each side of the wheel. This will make it run more freely.

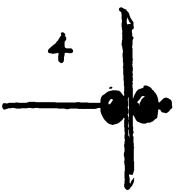
The speed with which it can be made to turn will vary with the angle at which the fans are bent. By experimenting you can soon tell what their position should be.

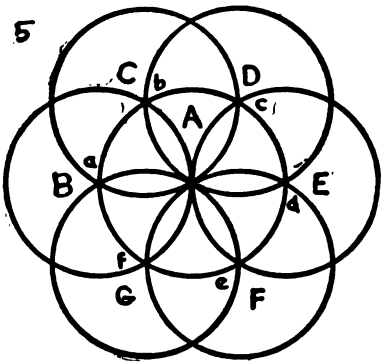
It will run well placed horizontally over rising heat as from a range, lamp, or furnace register and placed upright out-of-doors it ought to "go some" in the March winds.

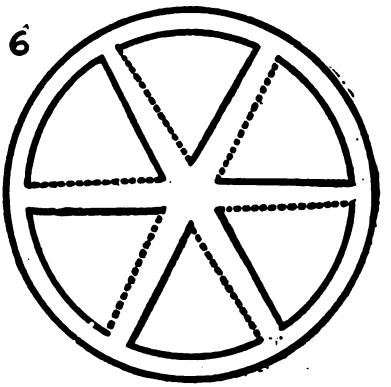












HOW TO MAKE A WHEEL RUN BY HOT AIR

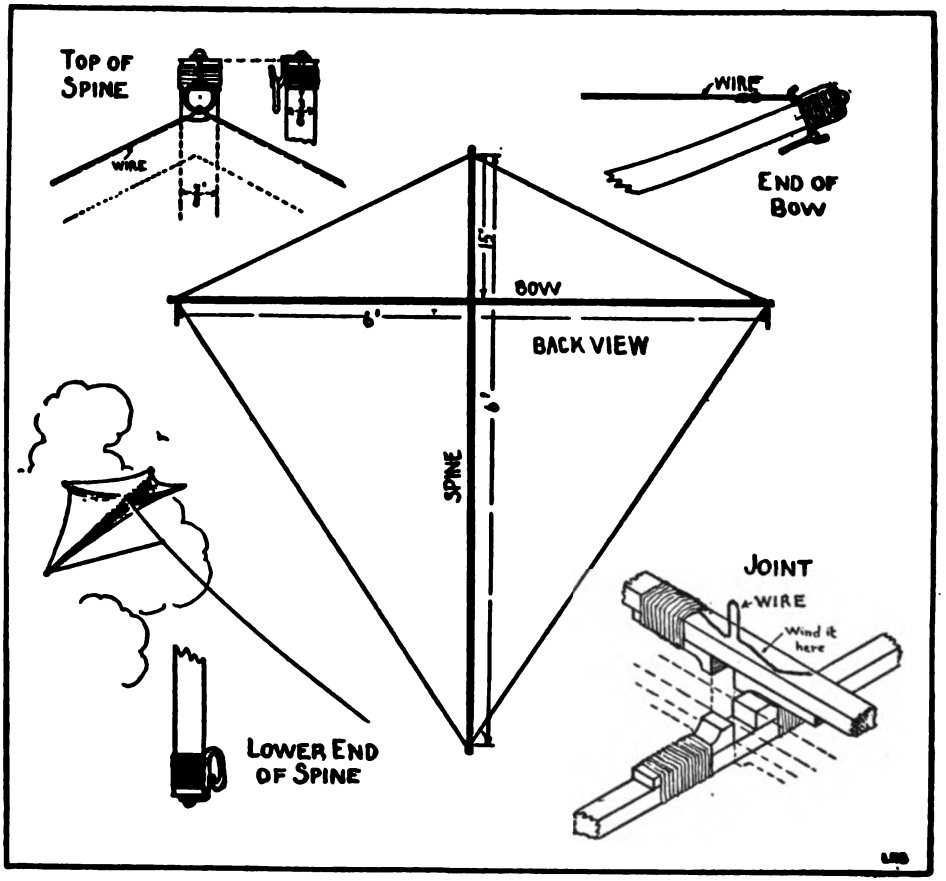
The Big Red Kite

Would you like to make a kite?

We will make the cloth cover first and fit the sticks to it afterward. We need four yards of cloth one yard wide. "Percaline" is the best, but "cambric" is cheaper and almost as good. Cut this in two and sew the pieces together so as to make a square, then draw the outline of the kite on it. The picture will tell you just what to do. When you cut the cloth, leave about an inch extra all around to turn in for a hem. Into the hem we will thread a piece of picture wire. How long a piece do we need? When you are threading the wire in, put a little brass ring into each corner of the cover. These will hold the cover to the sticks. One more thing and the cover is finished. Make a little buttonhole fifteen inches from the upper corner. Guess what it is for?

Now for the sticks. Any strong straight-grained wood that is not too brittle will do. Make a "spine" and a "bow," each one inch longer than the distance between the outside edges of two opposite rings, three-eighths of an inch thick and five-eighths of an inch wide. We must make a good strong joint where the sticks cross. If we make it like the one shown in the picture, we can take our kite apart and roll it up so that it can be carried around easily. Glue the little blocks in place and then bind them with soft string. Do you remember the buttonhole? The joint must come exactly the same place as the buttonhole, and when you are binding the blocks on the spine, bind on also a piece of stout wire bent crooked, as shown in the picture, to keep it from turning. This goes through the buttonhole and later we will tie the "harness" to it. On each end of the spine we want a little hook to hold the rings at the top and bottom of the cover. On each end of the bow we want a double hook, one side holds the cover and the other side holds one end of the bow string which is a strong piece of wire a little shorter than the bow, with a ring attached to each end of it. When the string is in place, the distance between the bow and the string should be about eight inches. If the wind blows hard, we will have to bend the bow a little more.

Next comes the harness. This is made of two pieces of string, one three feet long and the other a little longer than one of the long



WORKING DRAWINGS FOR THE MAKING OF A REAL KITE

edges of the kite, that is, about five feet and nine inches. The short one is hooked to the loop of wire that comes through the button-hole, and the long one is tied to a ring which is slipped on to the hook at the lower end of the spine after the cover ring is in place. The other ends and the end of the string from the reel are all tied together. Look at the little sketch of the finished kite.

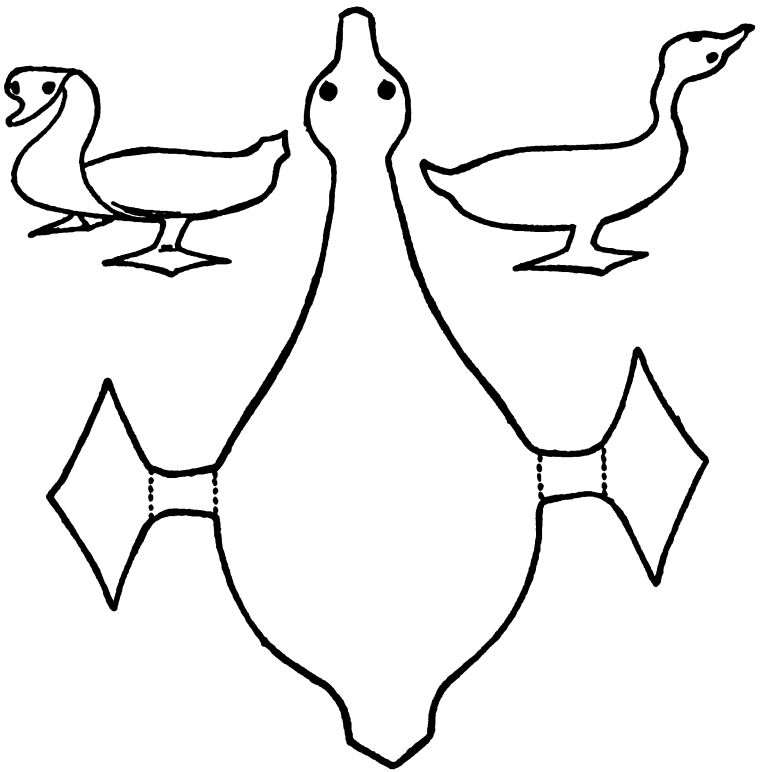
This big kite will fly in almost any kind of a breeze. A kite two-thirds as big would perhaps be better for small boys, but it wouldn't fly quite as well. One built half as big won't fly at all unless the wind is very steady and not too strong. The big one is best if you can manage it.

With Shears and Paste Pot

How to Make a Duck

Cut out a paper pattern with the scissors. Lay it on any kind of fairly stiff paper. Trace around it with fine pencil point. Cut out the flat and fold it on the dotted lines. Lay Duckie on his back.

First, fold the legs upward toward center of body. Second, fold them at the ankles, outward.

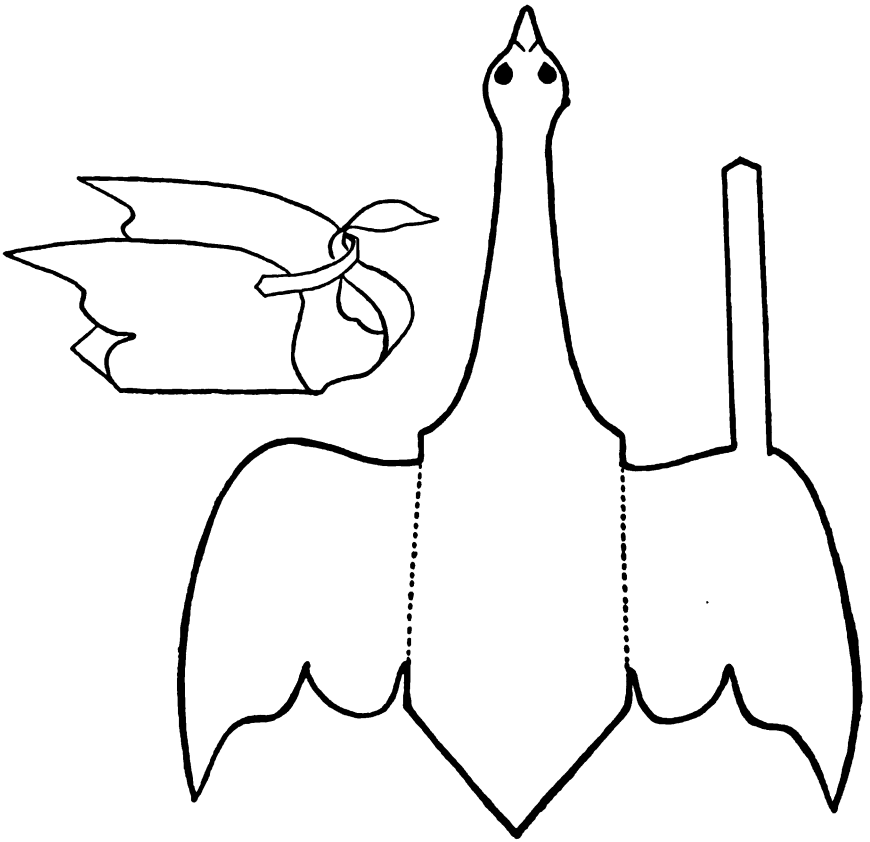


THE FLAT OF A PAPER DUCK THAT MAY BE COLORED AND MADE TO DO EVERYTHING BUT QUACK

With the scissors, curl the neck backward, forward and then upward.

How to Make a Swan Boat

All little children like to ride in the swan boats. You sit between the great beautiful white wings and away you sail over the water, in and out the little bays shaded by the great trees. You can make a swan boat for your doll.



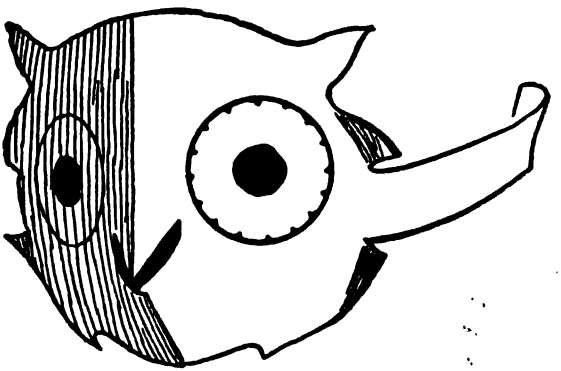
Cut out the flat figure by tracing a tissue pattern from the illustration. Place the pattern on a sheet of white paper and trace it with pencil. Cut out the flat from the white paper, and fold on the dotted lines. Carry the band across in front of the head. With the scissors curl the neck as shown in the illustration.

If you want your swans to sail on land only, take a little thicker white paper and omit the band.

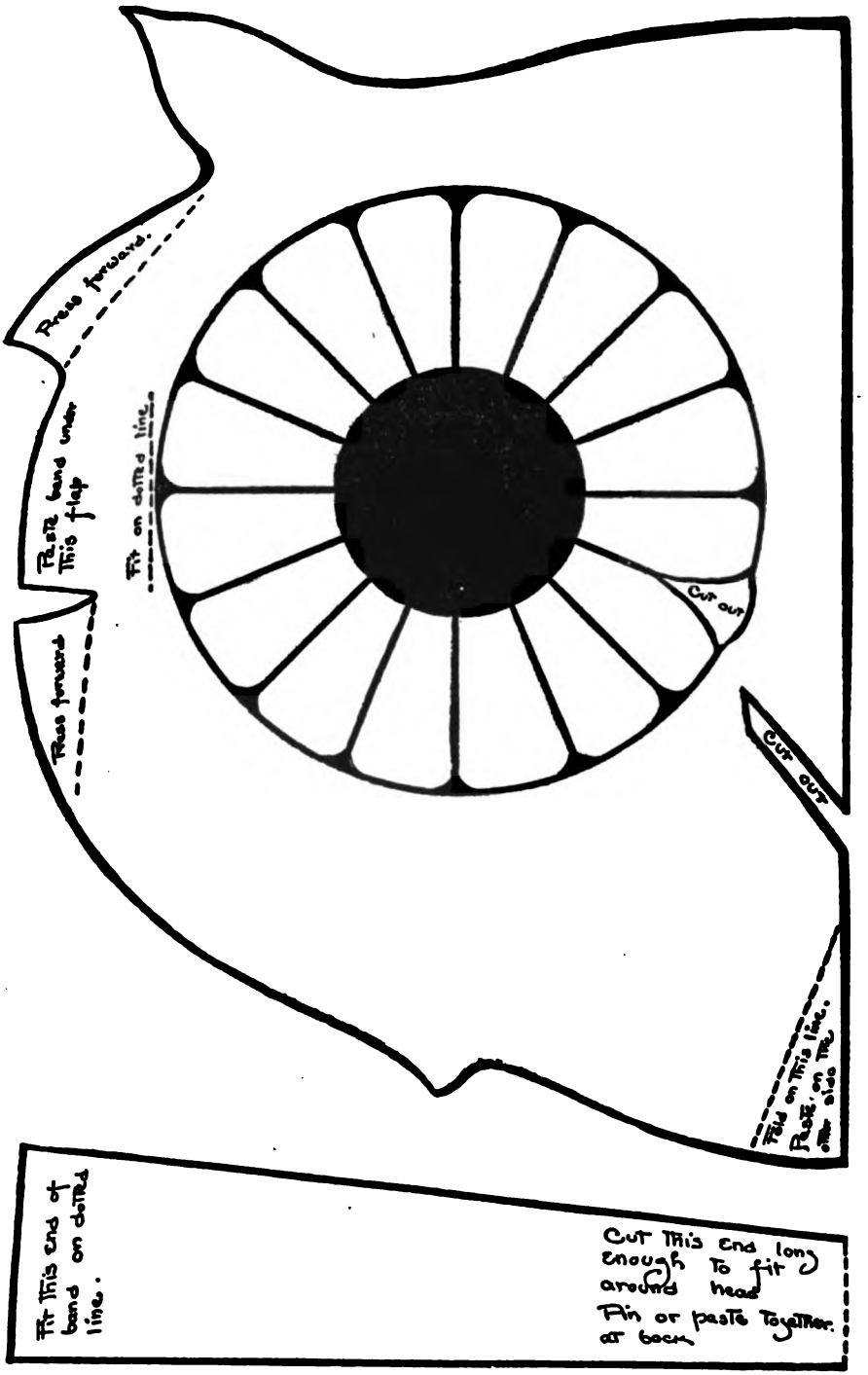
The Old Snip Witch

Did you ever read a Fairy story in which an old witch changed a little boy or girl into the form of some animal or bird? Did you ever hear of a magic cap or cloak, which when put on made a person invisible so that he could go anywhere and no one could see him? Would *you* like to become partly invisible by changing into the form of a bird or animal? There is an old Snip witch who lives in scissors. She will help you. She is invisible herself, but she will help to change you into the form of an Owl, so that by day or by night it may be quite impossible for any one to recognize you.

First you need a piece of heavy wrapping paper (if it is brown, all the better) and a soft lead pencil. Next you need a piece of very thin paper, so that when you put it on the drawing on the next page the lines will all show through. Trace onto this thin paper the half pattern of the owl. Hold it so it *can't* slip. Use a soft lead pencil. Trace over all the lines. Take the paper off. Turn it over. Mark over all the lines on the other side. Place this on the heavy brown paper and trace one-half owl at a time. Be sure you fit the two halves together exactly. When the masque is ready, fit it on your head so that your nose comes just under the beak and your eyes back of the peek holes just above. Could you not make some big paper wings and fit them on your arms to make you look exactly like a whole owl?



AN OWL'S HEAD MASK



PLAN FOR DRAWING AND CUTTING THE OWL'S HEAD MASK

An Indian Mask or False Face

Be a wild Indian and surprise the Puritans on Thanksgiving Day! Here is the rule for doing it.

A MASKED HEAD

Hunt up a good sized piece of very brown and very tough wrapping paper. Fold it once and trace on it the half pattern of the face, fitting the center line along the folded edge and making it just like the printed diagram on the next page. Above it draw the half of the head-dress, as shown in the diagram, making its lower edge come to line A.

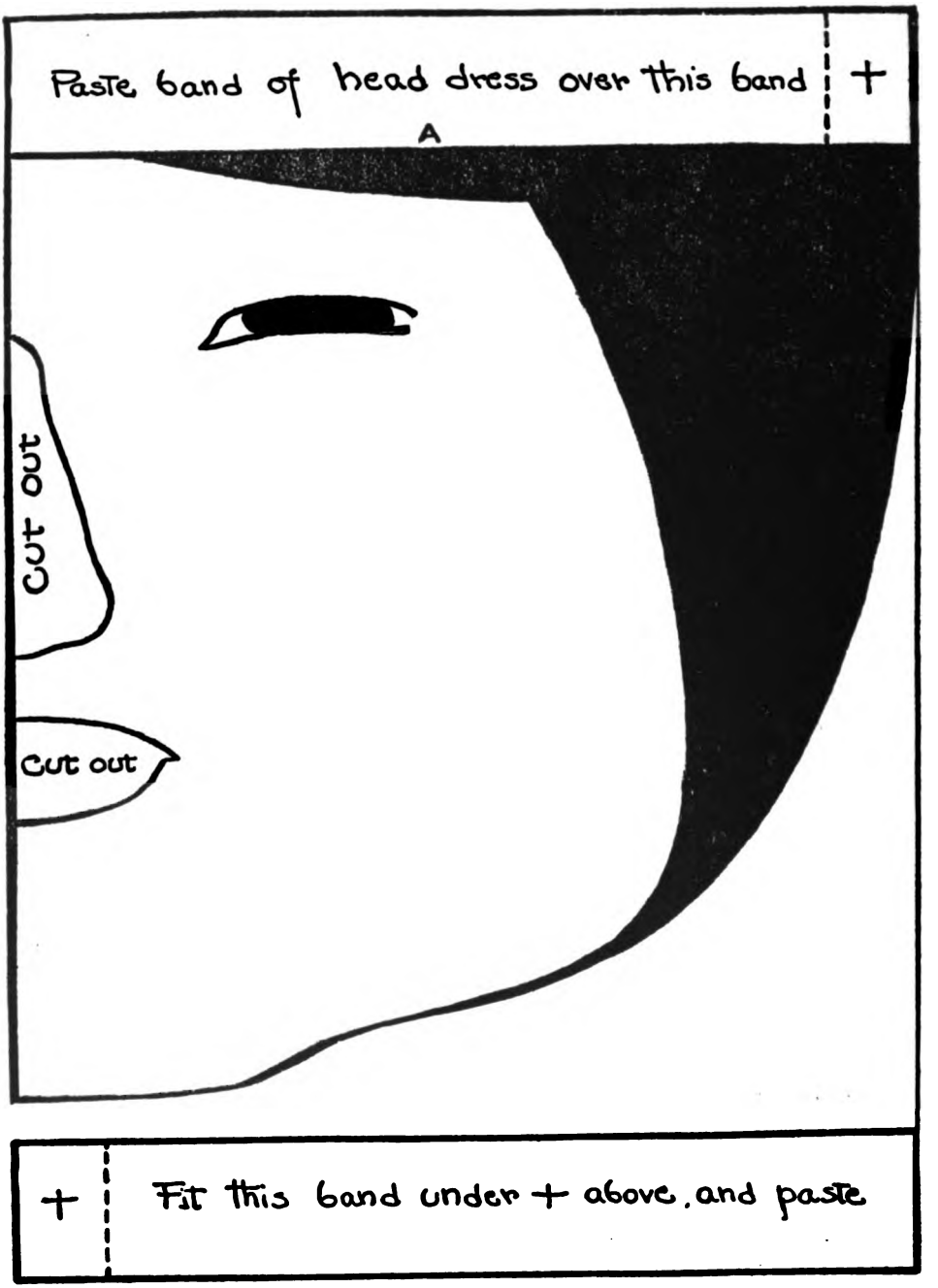
Cut through the folded line to make the nose and mouth opening. Cut out the shape of the head crowned with feathers. Cut out the nose and mouth openings. Cut out just enough of the dark pupil of the eye to enable you to peep through it.

Open the mask and draw on the blank half the other feathers, eye, hair, and ornament, filling in the darks with an even lead pencil tone or with water color or crayon.

Cut out two bands like that shown at the bottom of the next page. These will furnish laps on either side of the face with which to fasten the mask around your head.

A little zigzag of red war paint across the cheeks will make quite a beautiful and terrible Indian of you!

Only do not frighten the baby, or any other timid person.



ONE-HALF OF THE FACE FOR AN INDIAN MASK

ONE-HALF THE HEAD-DRESS FOR AN INDIAN MASK

The Santa Mask or False Face

You must do a little careful drawing with a soft lead pencil, if you have one, a little careful cutting with the scissors, and a little careful pasting before you can masquerade as Santa Claus on Christmas day.

You must also find a good sized piece of white wrapping paper (a very light manila would do). Fold the paper evenly, then trace the half pattern of the face and the cap. Fit the tracings at the center lines along the fold in the papers. Make a solid dark pencil tone over the iris of the eye but cut out the eyeball itself, also the nose-shape and mouth opening. When the cutting is finished open the two parts and draw each side alike. With a light tone of water color or crayon tint the face pink, leaving the beard and mustache white. Leave the band on the cap white also. Color the holly leaf green, the berries and whole cap bright orange-red. You know just what color they ought to be. Cut out and paste the cap band over the band left at the forehead on the Santa face, fitting at center.

I know a little boy in Ohio who did not know how to get the pattern off the printed page and onto a piece of paper. He did not know how tracing was done and thought he had to cut up his book, which he was not allowed to do.

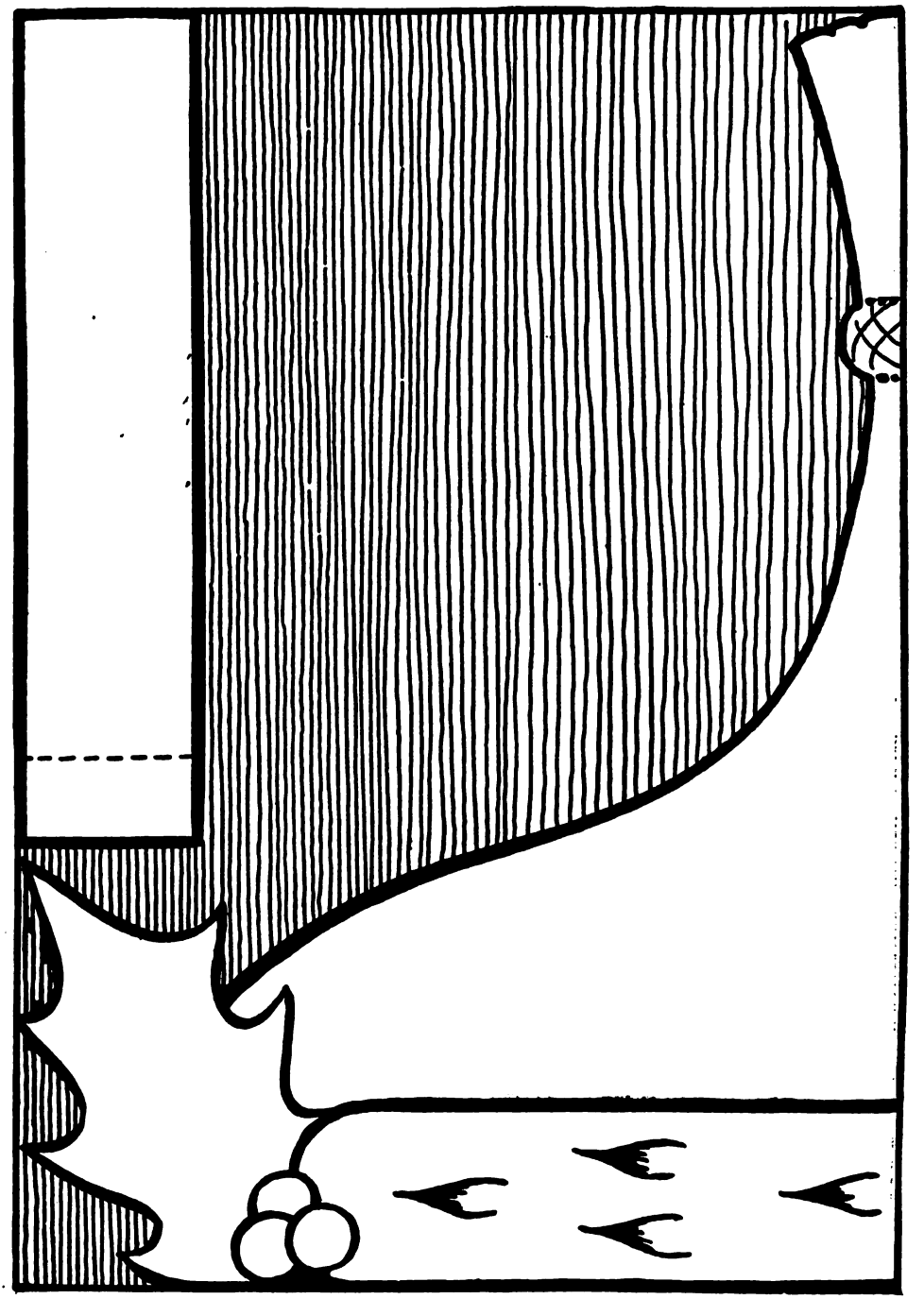
There are many ways of getting a pattern off. Here are two of the easiest:

The very easiest way is to place the paper you have found for the mask over the pattern on the page. With one hand hold the two firmly together against the window pane while you trace the pattern with the other.

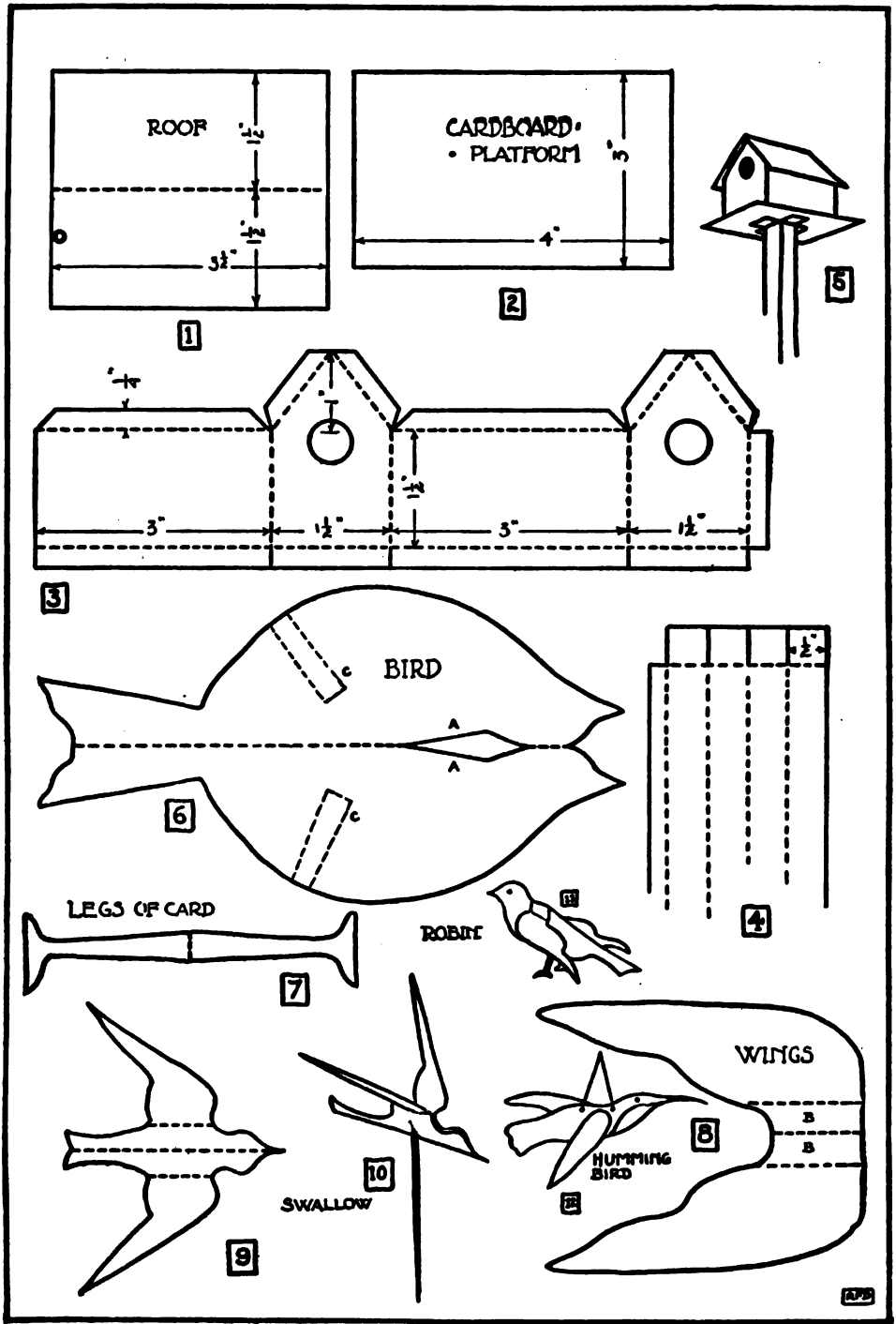
The next easiest way is to get some very thin paper. (Any kind will do but real tracing paper may be bought at a stationer's or a shop where artist's materials are sold.) Place the thin paper over the pattern. With a soft lead pencil draw all the lines on the thin paper. Turn this paper over. Place it on the paper ready for the mask. Hold it firmly (or pin it at the corners) and again go over the lines with the pencil. When this is finished remove the thin paper and you will find that the lines have come off lightly on the mask paper. Turn the paper over again to trace the other side.

Now the lines must be strengthened until they look like the picture.

THIS SHOWS HALF THE FLAT OF THE FACE OF THE MASK



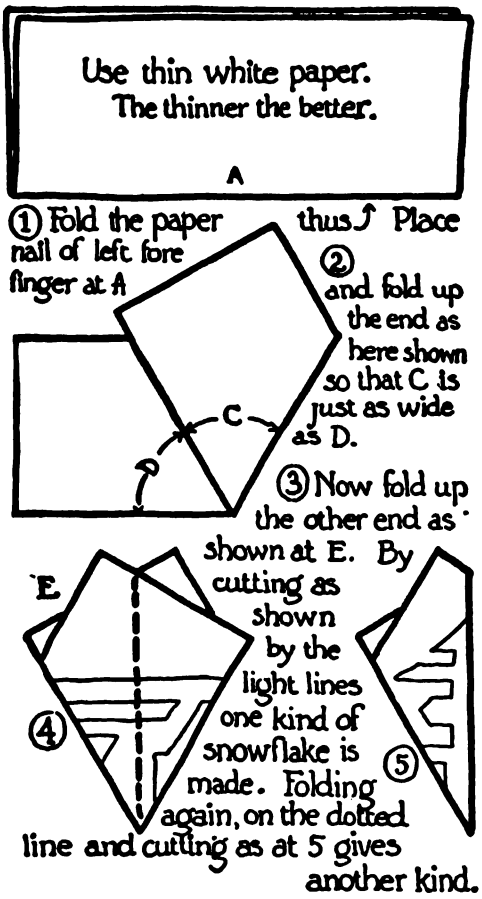
THIS SHOWS HALF THE FLAT OF THE CAP FOR THE MASK



SOME MORE GOOD PAPER CUTTING. THIS IS FOR THE RAPID WORKERS WHO NEED MORE TO DO

A Thanksgiving Snow-drift

When Thanksgiving comes, try to count the many things that you have to be thankful for! The first snowfall comes about this time, too. Why not have a Thanksgiving snow-storm? First, we'll make the snowflakes. That's not hard. The pictures show you just how to do it, and you can make lots of different kinds. Now write on each snowflake a thing you're thankful for, and every time you think of another thing, make another snowflake. Before long you will have a big snow-drift. I wonder how big a one you can make. Throw the flakes up in the air and see them all sail down again just like real snowflakes.



Doesn't it make you feel better to think of all the things you have to be thankful for? Food, and nice clothes, and a brother or sister, and mother? Of course it does. And the more things you think of, the better you will feel. Lots of times when some little friend is "mad" with you, or you think teacher is "mean," or anything goes wrong, just have a little Thanksgiving snow-storm all by yourself and see how much better you feel!

Just one thing more—*be sure and pick up the pieces!*

British Soldier Hat of 1776

The English Colonial Soldier Hat is easier to make than one of the American Colonial Hats. Trace the patterns of the front and back parts of the hat on a heavy piece of white paper. Cut out the shapes and fold up the laps at the bottom of each part.

Draw a line inside the front lap about a quarter of an inch from the edge to form a band.

Before beginning to shape the hat, color the band, the star and the design of the crown, orange, yellow, or gold. Color the rest of the hat bright red orange, with water colors or crayons.

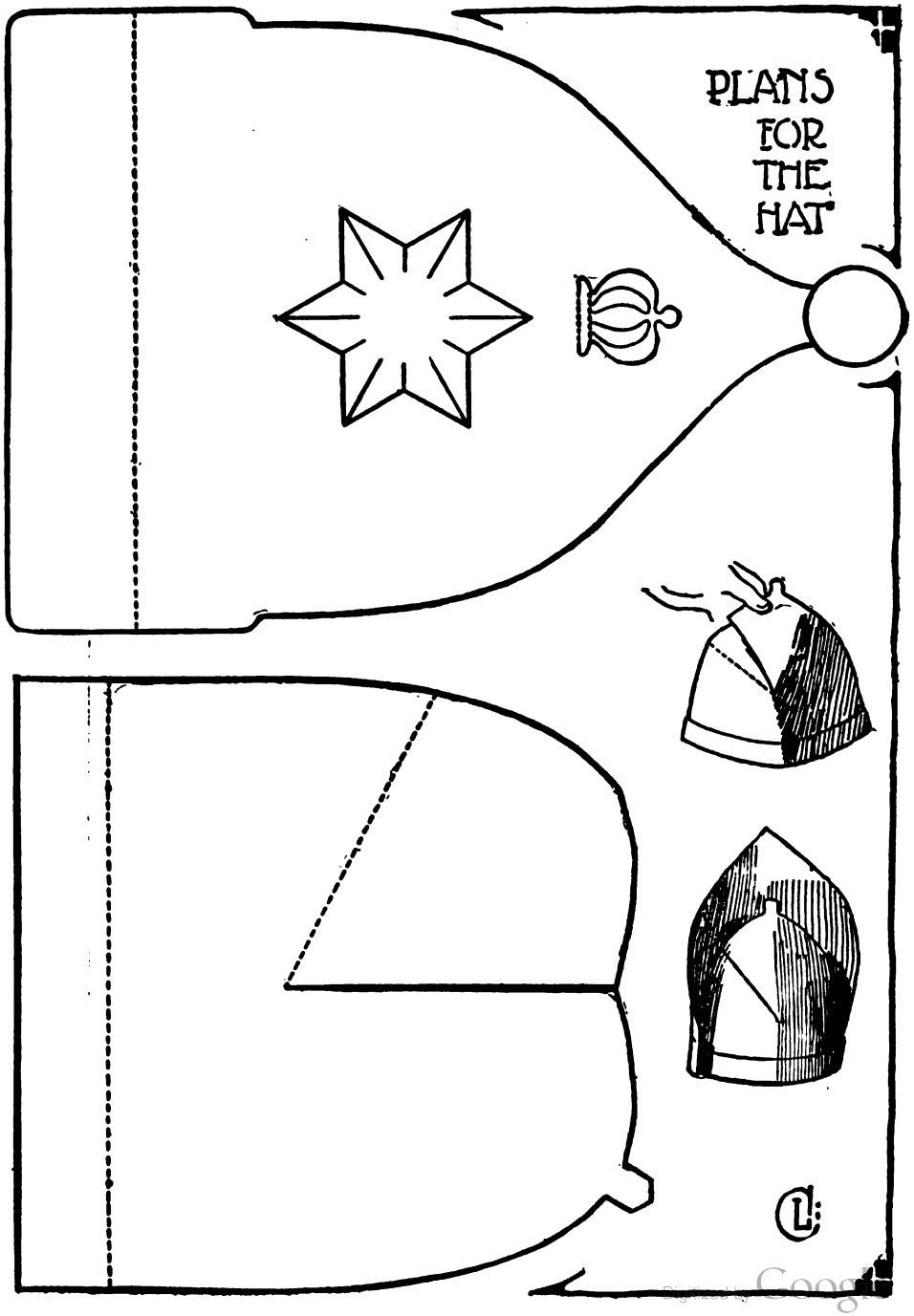
Make a pinhole through the small dots on either side of each part. Cut two little slits on dotted lines on the crown design. Cut on the black line into the center of the back part of the hat. Fold the right part over the left and paste on dotted line.

Bring the front part of the hat around over the back and fit together at pinholes. Hold together with pins while pasting securely. Thread the small lap at the top of the back through the lower, then back through the upper slit in the crown design. Fold down or paste.

SEE HOW HANDSOME YOU WILL LOOK WITH SUCH HATS ON

This hat will fit the head of a good sized doll. It may be enlarged by doubling all the measurements or by multiplying all the

measurements in proportion you can make it fit the heads of small and medium sized girls and boys.



A May Basket

Here are directions for making a May basket that is "different." It is made from one piece of cardboard or oak tag and folded into shape. The folds are held in place by tying with cord or narrow ribbon.

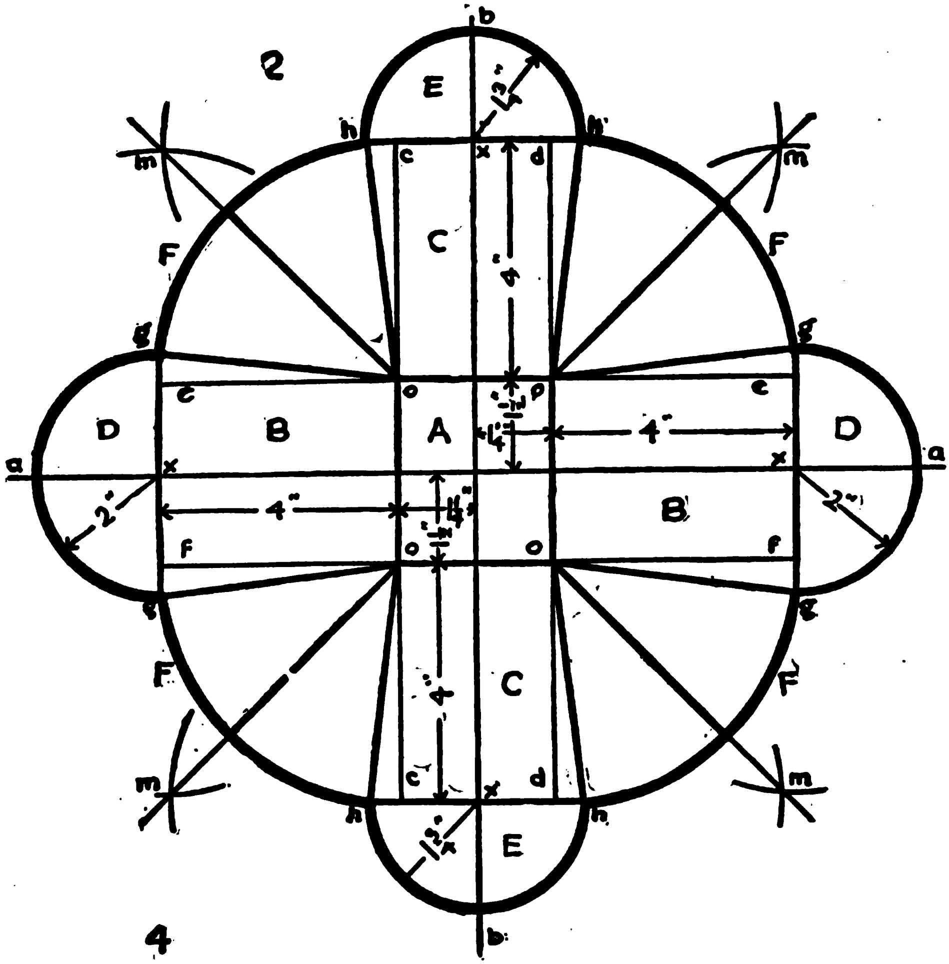
A figured pattern is given in 2 on the page following. Draw first the light lines a. a. and b. b. at right angles and on these center lines construct the flat which is not nearly so complicated as you may think. Draw the lines c. c., d. d. and the two lines g. g. parallel to B. B. Then draw e. e., f. f. and the two lines h. h. parallel to a. a.

To draw a line parallel to a given line work as in 3. Take the distance between the two lines as a radius, and any two points on the line, as p. p. on G as centers, and draw the short curves or arcs r. r. Draw H. just touching these arcs r. r. It is parallel to G. With points marked o. as centers draw the curves F. joining g. and h. and with x as centers draw the semicircles D. and E. Find the center of F. by taking g. and h. as centers to draw the curves, cutting at m. and using a radius greater than half of F.

Draw the lines o. m. Cut the pattern on the very heavy lines, fold on those next lighter and erase the light lines used in construction. Fold lines o. o. *out* to make the edges of the bottom of the basket, o. h. *out* to make edges of the narrow side, C., and o. m. *out* to make the folding laps. Fold lines o. g. *in* for the edges of the wide sides B. and turn the semicircles outward at the top by folding g. g. and h. h. *in*. See 4. Put cord or narrow ribbon through the holes marked z. to hold in place and to attach the handle. Attach larger bows of ribbon to the sides if desired, and line the basket with crepe paper. Tape, ribbon or braided cord will make a good handle. A good choice of contrasted or closely related color in materials used will make this basket beautiful.

Half the fun in making May baskets is in choosing the filling. Sometimes a bit of moss can be placed in the bottom, and little blossoms placed in it will keep fresh a long time. Sometimes it is hard to find flowers, and so a bit of home-made candy can be placed under a covering of tissue. Fancy cookies or goodies of any kind, however, will generally prove acceptable.

2



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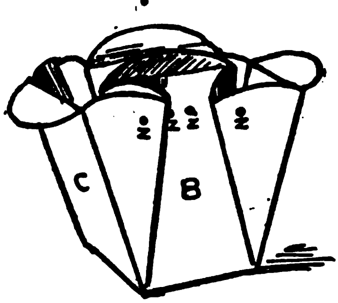

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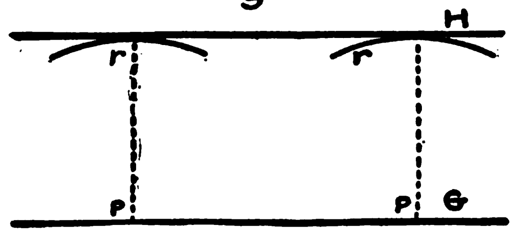


PLANS FOR MAKING A MAY BASKET

Working With Metal—Useful Articles That a Boy Can Make

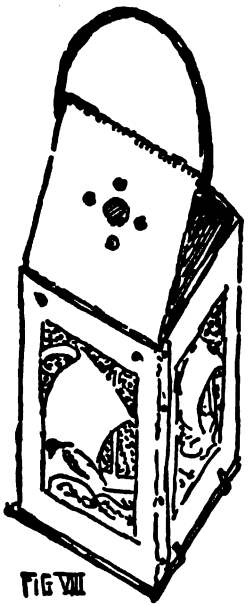


FIG VII

A Lantern

We are going to try and make a lantern. One that you will like to carry with you on summer evenings when you want to be out and about.

Make all the patterns out of paper first and then you can see how it is going together. That is always a good way to do, for you are really saving time and not wasting material. After you have made the lantern of paper, and find that it will work, and that you can really do it, you can copy it in thin brass, or thin copper, or tin. I think that thin brass is the best.

Of course you may find it too hard for you, but I think that any boy or girl who has done metal work in simple designs will be able to make this lantern,—with a little advice from father or mother.

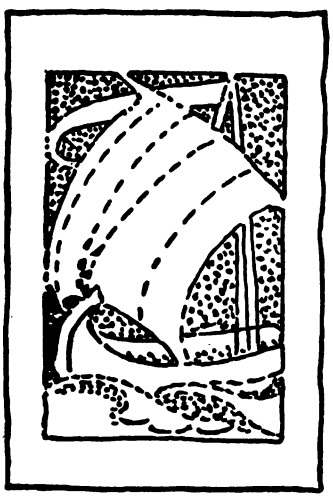
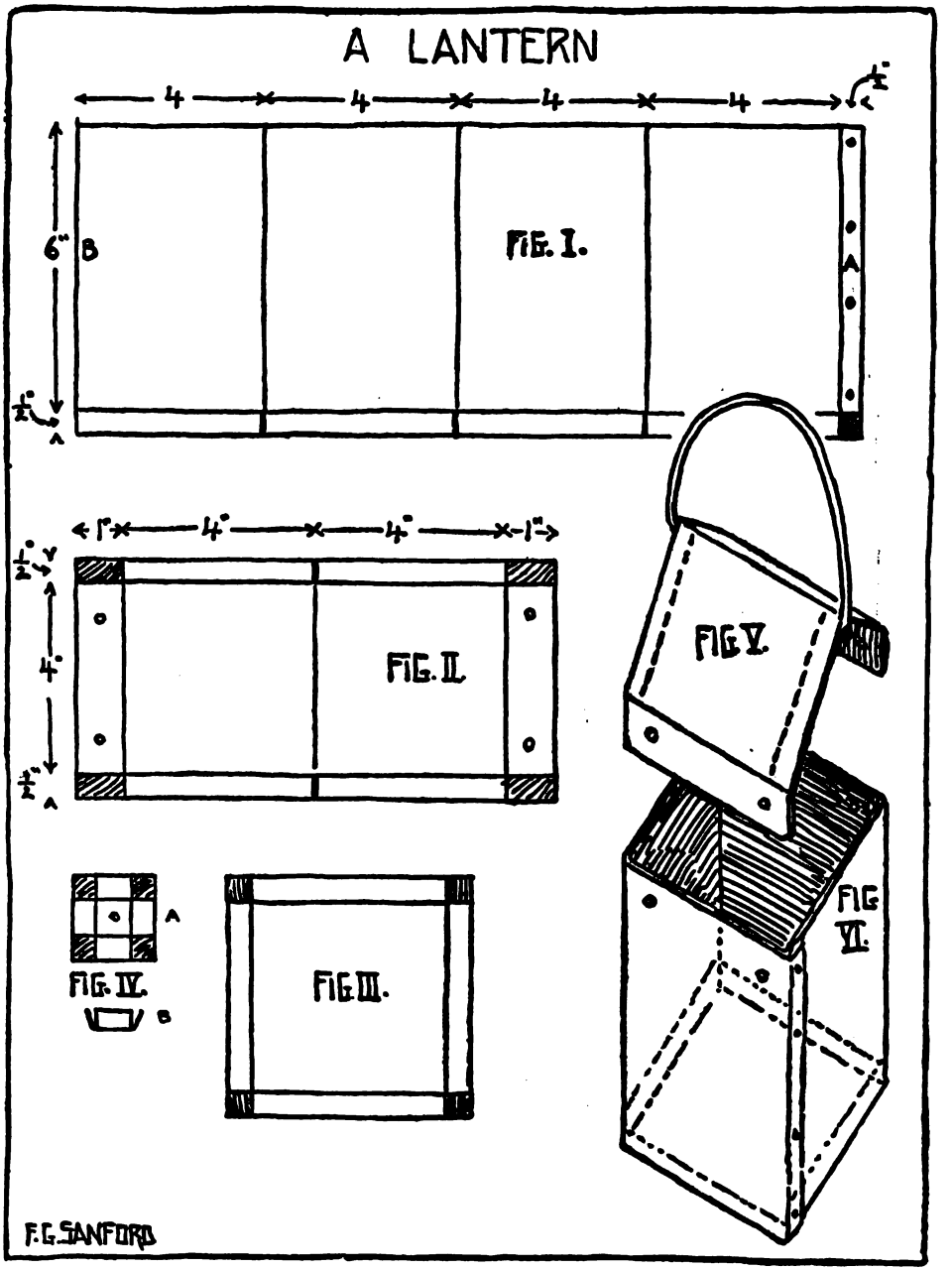


FIG VII

Get some rather stiff wrapping paper that won't tear easily, and rule and cut out Fig. I. You see, it is 16½ inches long and 6½ inches wide and that it is marked in four 4-inch spaces, and a ½ inch space along one side. Then there is a ½ inch space along the bottom. Now with scissors cut out the corner that is marked black. Then make slits on the heavy black lines and mark in the dots, and fold on all other lines. Draw and cut out Fig. II, and cut away black corners, slit on the heavy lines, and fold on the others. Then draw and cut out Fig. III in the same way. Fig. IV A is cut and then folded like B. It is to hold



the candle and must be cut to the right size for whatever candle you may use. Now when the pieces are all cut out, take the pattern, Fig. I, and bring the fold A around and pin it to the fold B with the bottom flaps folded up inside, like Fig. VI.

Take the pattern Fig. II and fold it to look like Fig. V and you have the roof which fits down into the body. Fig. III is folded over to make the bottom and Fig. IV is fastened by a hole in its center. Take the roof and set the flaps down inside the body and pin them, and loop a wire in through for a handle, and you will have the lantern put together except for the bottom. The little piece, Fig. IV, is fastened by little wire hinges to one side and a wire catch made for the opposite side.

Now you see how it goes together and you will want to know how the light is to get out. There may be holes in the bottom, and a design can be punched in the sides by using the kind of a tool that I have told you about before made out of a nail filed to a point. Punch the holes carefully and not too close together. To do this the metal is laid on a rather thick piece of soft wood. Such a design is shown in Fig. VII.

Another good way to cut out the design is to use a narrow carpenter's chisel for the background spaces.

In putting the metal together we use those little brass fasteners such as are used in offices to hold papers together.

Figure VIII shows the whole lantern put together, and I think that with these drawings and the paper pattern you will be able to make the lantern.

The handle is any soft piece of strong wire bent so as to catch in the peak of the roof.

A Real Cruiser

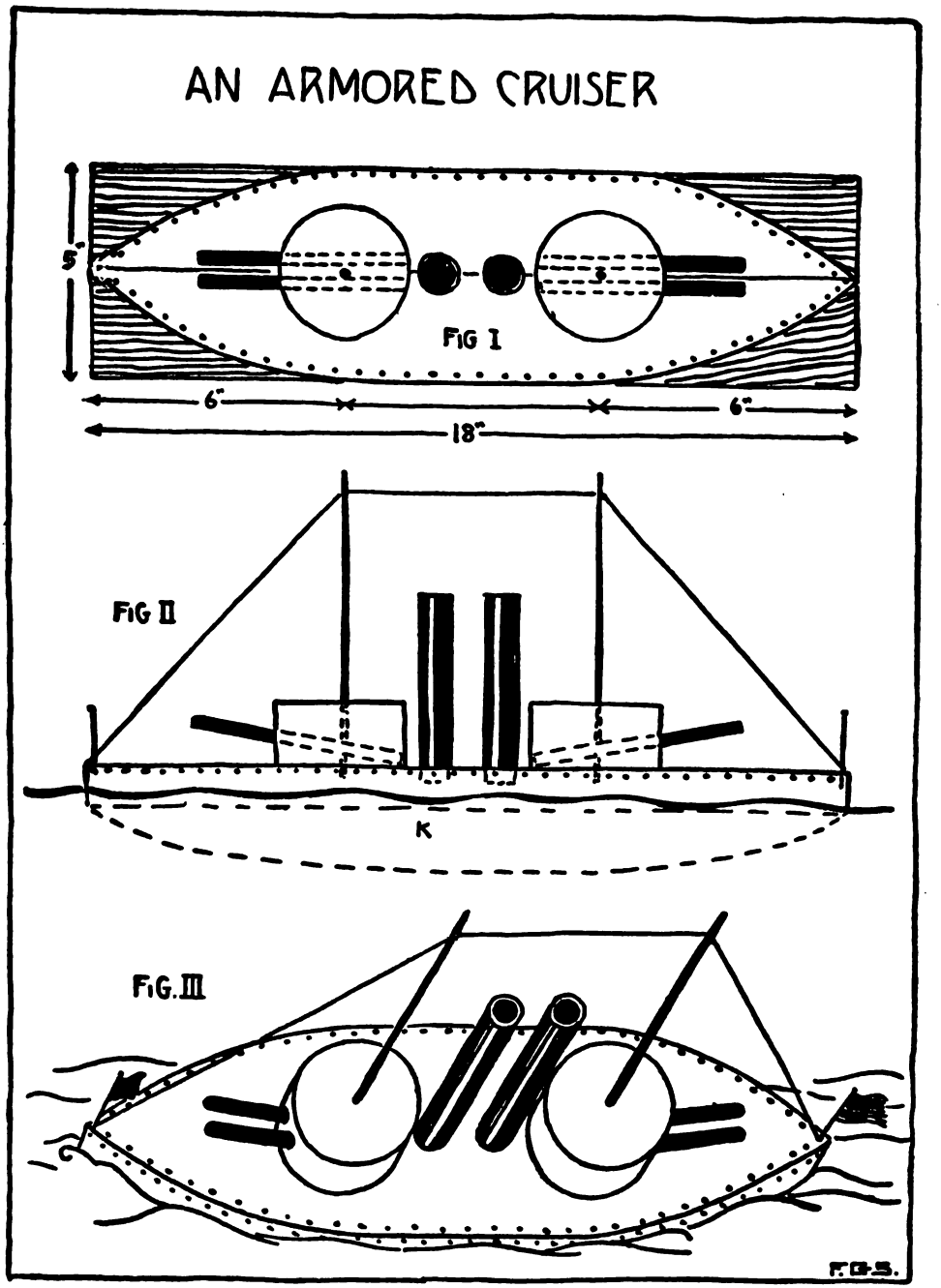
You will be interested in constructing a small cruiser.

This model has real revolving turrets, and guns of metal, and it is all metal except the hull which is made of wood.

Holes for these are punched and worked out with a round file until the pipe can be driven in lightly, or they can be fastened by driving a large nail down inside the pipe.

Near the mastheads file a little groove to hold the wire rigging.

Assemble the parts as follows:



DIAGRAMS SHOWING HOW THE PARTS OF THE CRUISER ARE PUT TOGETHER

After the wooden hull is made, cut the tin, punch the holes, and tack onto the wood. Measure and bore holes for masts and funnels and set these in place. Set the guns in place in the turrets and then drop the turrets on over the masts, the open end to the deck. Drive in wire nails at bow and stern for flagstaffs and attach wire to these and to the masts. You can paint the whole a war gray, and name her after your state or city.

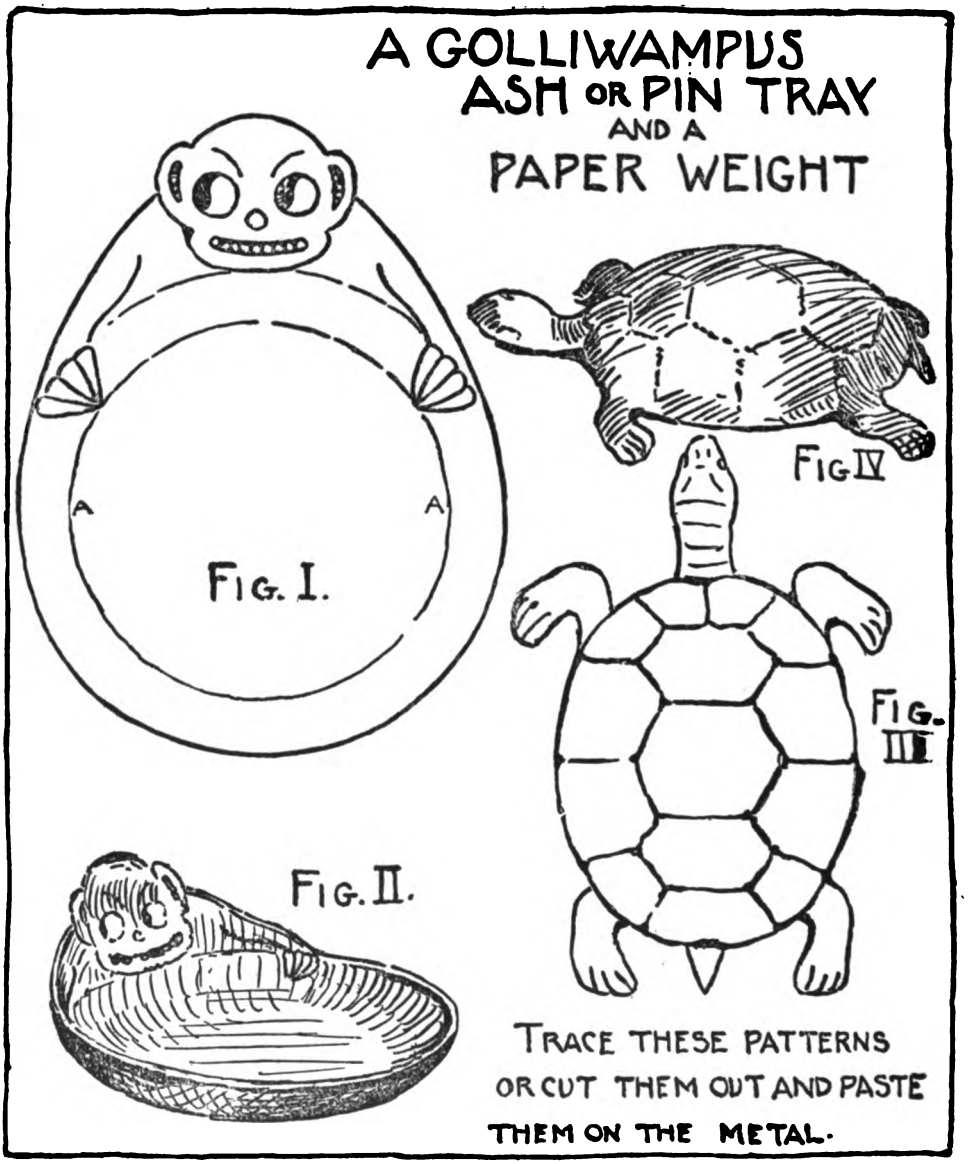
Get a piece of soft wood 5″ wide, 18″ long and about 1″ thick and draw the center line on which the masts and smoke-stacks are set. A good way to get the shape true is to fold a paper 18″ x 5″ and cut a pattern from that, then laying this on the wood mark around it with a pencil. The shaded parts at both ends are cut away with a saw, draw knife, or jack-knife. Fig. I.

Saw, or cut, a slit in the bottom the whole length of the boat and drive into this a piece of sheet iron or any heavy metal for a keel. See K, Fig. II. The keel can be left off if you wish. Notice in Fig. I that the mast, which is also the center of the turret, is 6″ from each end, and the smoke funnels are about 2″ from center to center. They are all placed on the center line of the boat.

You can cover the deck with tin, nailing it on with small tacks. It will be necessary to punch holes with a nail for the tacks because otherwise they will bend over. Also you can nail strips of tin around the edge of the hull, forming the armored sides. See the dots, Figs. I and II.

The masts are made from a knitting needle filed in two. Turrets are made of small cans; these are condensed milk cans 3″ wide and 1½″ high. File the edges smooth and punch a small hole in the center of the bottom for the masts. Punch two holes in one side of each can for the double guns. These guns are small pipe and are 5″ long. They may be gas pipe, or any small tubing. Figs. I and II show how they are placed in the turret, going right through it and bracing against the other side. These may be fastened in by plugging the end of the gun with wood, and then driving a tack in through the tin to hold it in place, or they may be left loose. The funnels are 4″ lengths of larger gas pipe. File them off with the edge of a file.

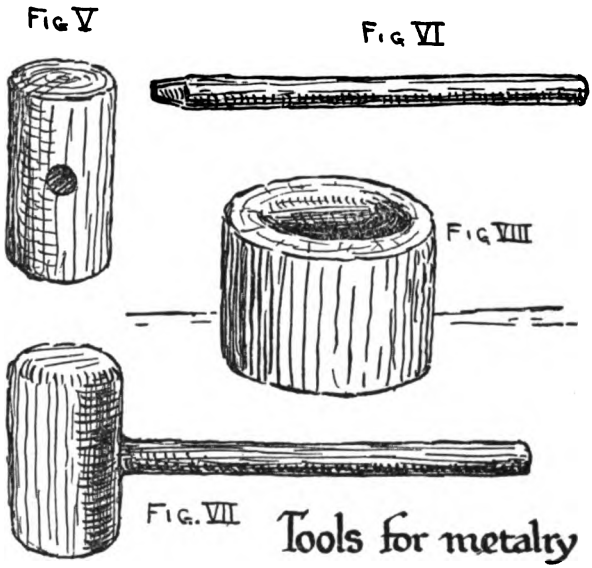
To Furnish Father's Desk



The Golliwampus and the Turtle live on the top of desks and are both useful and ornamental. They get along very well together but you must not turn them back to back as they are both very

sensitive. They can be made from medium thick copper or brass. The brass is easier to pound into shape. A roofing copper will do but some a little thicker is better for these animals.

The Golliwampus and the Turtle



Tools for metalry

Cut out the patterns from the measurements or trace them off on any thin paper and cut around carefully Fig. I and Fig. III. Flatten the copper and paste the pattern on it. Now cut out the copper carefully to the edge of the paper with the shears. Little places like the curves back of the turtle's feet and around the Golliwampus' ears must be filed. A small round file, and a half-round file are the most useful.

You will now need several nails. A small thin one is filed off a little at the point and used to stamp in all lines except the line AA, Fig. I. That is put on to help in the pounding. The way to do this stamping is with rather light but sharp blows. A little larger nail filed off square will make the nose, and a larger one the eyes. The lines of the mouth, arms, chin, hands, and eyebrows on the Golliwampus are stamped with a very fine stamp, or they may be engraved (or scratched in deeply) with a sharp nail, needle, or knife point.

If you live near the woods go out and cut a stick of hard wood about 1½" thick and another about ½" thick. Cut square off about 3 inches with a saw. Bore a hole in the middle one-half way through, Fig. V. Cut off 8 or 9 inches of the small stick and fit it into this hole, Figs. VI and VII. Round one end of the mallet with knife and file, Fig. VII. Or you can buy a small mallet. Now get a block of wood, either round fire-wood, or a square piece of builder's

wood, and hollow one end of it, Fig. VIII. This is hard to do with a knife but easy with a gouge. Perhaps you can get some help.

Hold the tray over the shaping block and beat it in with the mallet using a number of light strokes and turning the metal round and round. If you keep at it and think a little you will get the tray like Fig. II.

Beat up the back of the turtle in the same way and hollow in his head and feet a little. You can bend his feet until he stands even. All edges should be nicely smoothed with emery cloth.

If you do not think the turtle is heavy enough, get a tinner to fill him with solder or lead. Perhaps you can do it yourself over the kitchen fire.

Now if you want to color these animals nicely, get 2 oz. of liver of sulphur and dilute it in 2 quarts of water. You will not like the smell. Clean the copper bright (soap and water) and dip both pieces. Let them dry thoroughly and then rub hard with a cloth.

For Those Who Like to Wear a Badge

Most every boy likes to belong to some kind of a club or secret society. Here are some plans for badges for different clubs.

They can be made from small pieces of copper or brass.

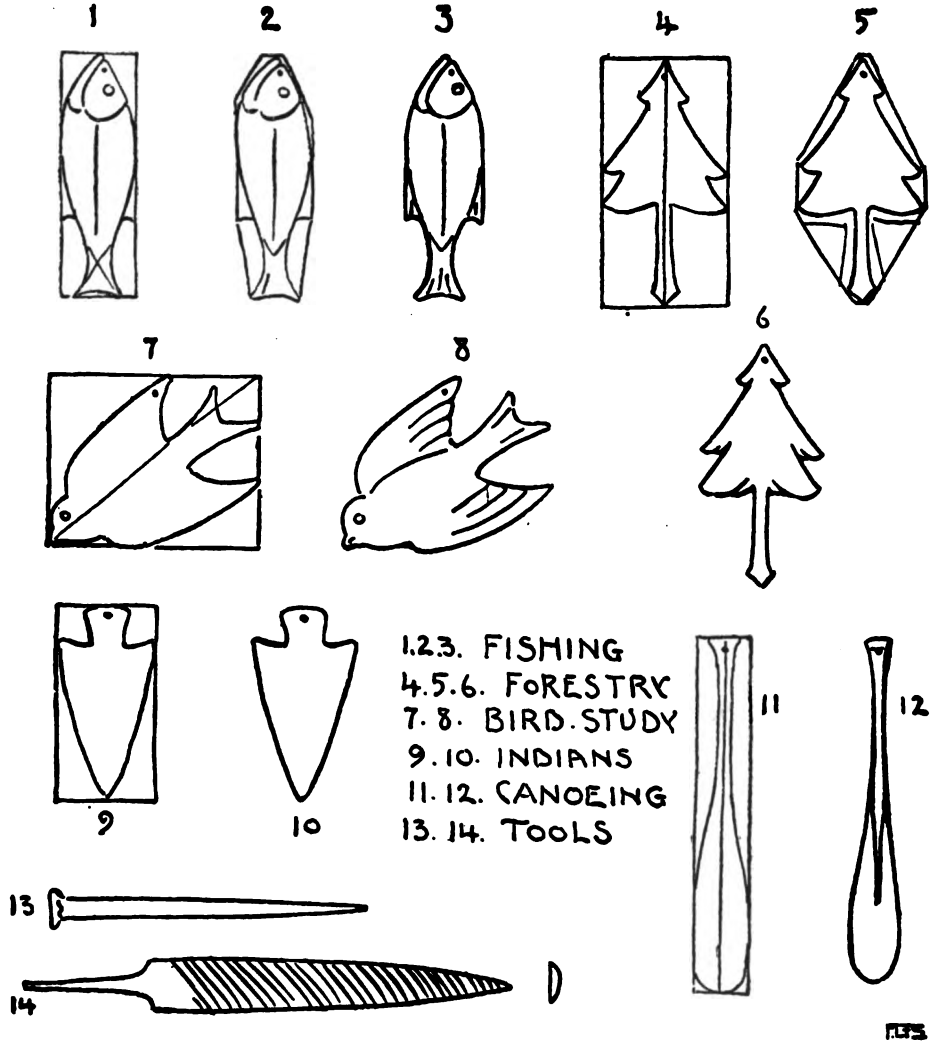
Besides the tinner's shears, which we have used in other things, you will need a small half round file, that is, flat on one side and round on the other (Fig. 14) and a long nail filed to a sharp point.

Figs. 1, 2, 3 show different stages of the fish badge. Fig. 1 shows the drawing; 2 the extra metal cut away roughly; and 3 the finished badge. In filing, hold the metal firmly over the edge of some solid table or shelf, or over a hole large enough for the file to work through. The file will work out all the spaces to the lines. It looks better if the edges of all pieces are slanted a little, or bevelled, with the file.

The lines inside may be scratched in deeply with the sharp nail, and the small holes at the top punched with the nail. On the tree (Fig. 6), arrow-head (Fig. 10) and paddle blade (Fig. 12), initials may be engraved. A bit of emery cloth finishes all off smoothly.

The badge may be hung by a piece of silk or a small chain from the little hole at the top and fastened to a button or buttonhole. Or you can get a stick pin soldered on the back for a small sum.

SOME CLUB BADGES



Any jeweller will do this for you. Or you can buy the stick pin and solder it on yourself. After the badges are made, scrape the back bright and clean, and also the back of the stick pin, and brush the two surfaces with a little strong solution of borax and water. Put a flake of soft solder between the two and bind them together with fine wire. Then heat over a gas flame until the solder melts.

Metal Gifts that Mother Will Like

The stand is made of thin brass or copper that will bend readily. You will need a piece 7″ square. Flatten it out smoothly and then mark a line ¼″ from the edge on all four sides. Get a piece of soft wood a little larger than the metal, say 8″ square, and make points with the pencil like the large black spots in Fig. II, one in each corner, one half way, and others quarter way. These points come in the center of the ¼″ margin that you have marked on the metal. Laying the metal on the wooden block, punch holes on these points with a small nail, E, on the Plate. Then tack the metal to the block with medium sized carpet tacks, D, see Fig. I. Tack the middle first, then work toward the corners. Now draw another line ½″ inside the border line, Fig. II, and mark and punch the small holes for the brass tacks ½″ apart, starting from the center and working toward each corner so that we shall come out even on both sides.

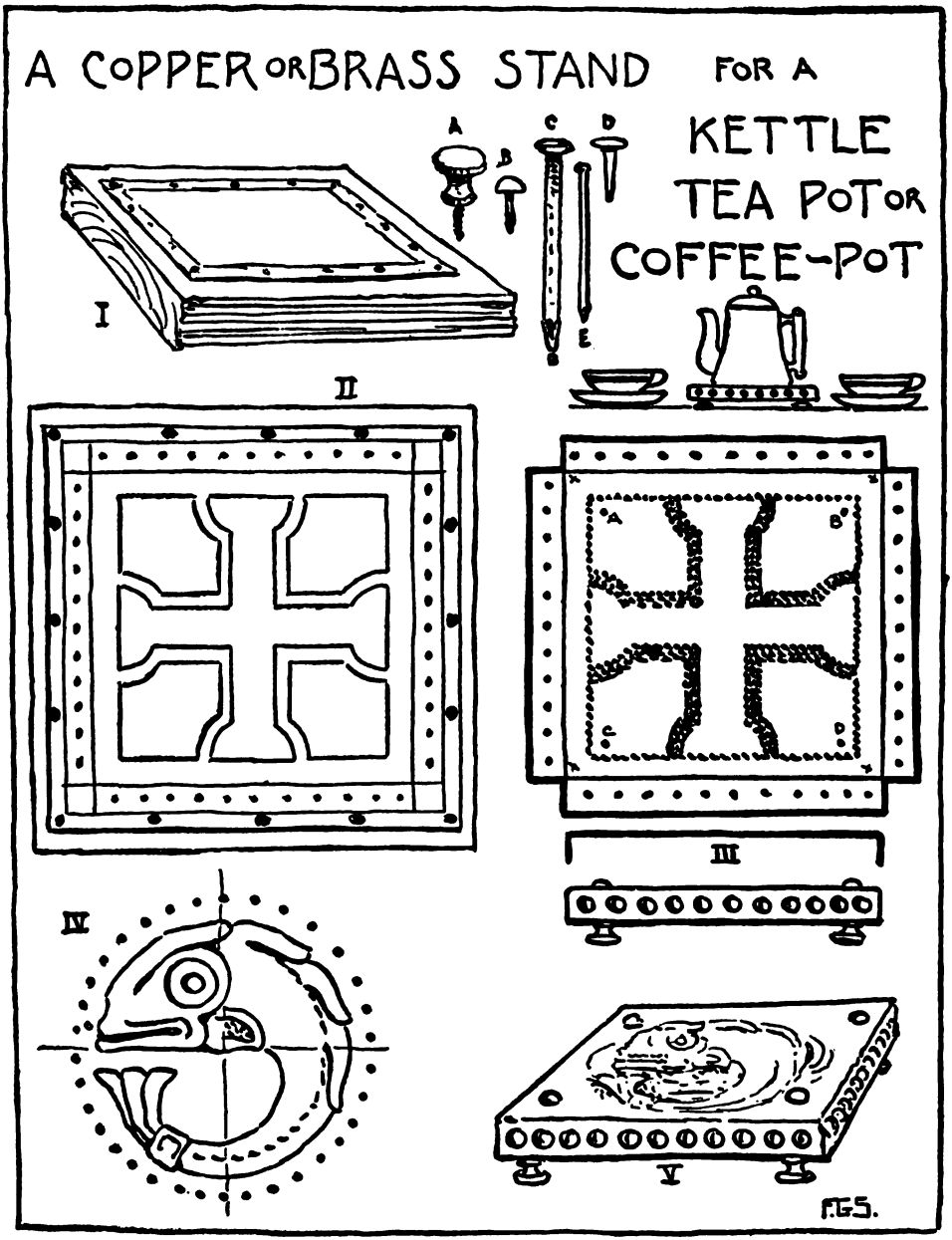
Make a design that will fit inside this inner line leaving a little margin. An easy way to design is to cut a square of paper the size that you want, fold it in four patterns until you get one that fits or looks well. Then you can mark around this pattern either holding or gluing it to the metal. The designs in Figs. II and III are cut this way. The design of the fish in Fig. IV is made by first drawing three circles. One circle is for the row of dots, the next for the outer line of the fish, the smaller one for the backbone and fins. Draw the diameters and then sketch the eye, mouth, tail, etc., freehand.

Take a medium sized wire-nail, C, file off the point a little, making a square stamp. Hold this quite upright in the left hand and stamp in the lines as in Figs. II and III, using a hammer to pound with. Fig. III shows the effect with the background set in too.

Take the metal from the block and cut out the corners square, Fig. III. Cut out, with a saw or knife, a block of soft wood ½″ thick and just large enough to fit into the square, x-x, Fig. III. It is better to paint or stain this block. It should just fit.

Buy fifty small round-headed upholstery tacks (brass). Punch the small holes A, B, C, D, Fig. III, and fasten the copper to the stained block with four of the brass headed tacks. These will hold the metal while you bend down the sides over the wood and tack on the edges.

Buy four small brass knobs like A with screw points. Fasten



them into the bottom near the corners for legs. Fig. V shows the finished stand, and the little sketch above, under the word coffee-pot, how it may be used. Clean it brightly and either color with heat or let the air take care of it. Try it; it's not as hard as it looks.

What Old Tins Are Good For

Doesn't it seem a pity that so many good tin boxes and bright new tin cans are wasted every day? Think of the number your grocery man sells each week. And most of them are thrown away when they are empty. Let's see if we can't use some of them.

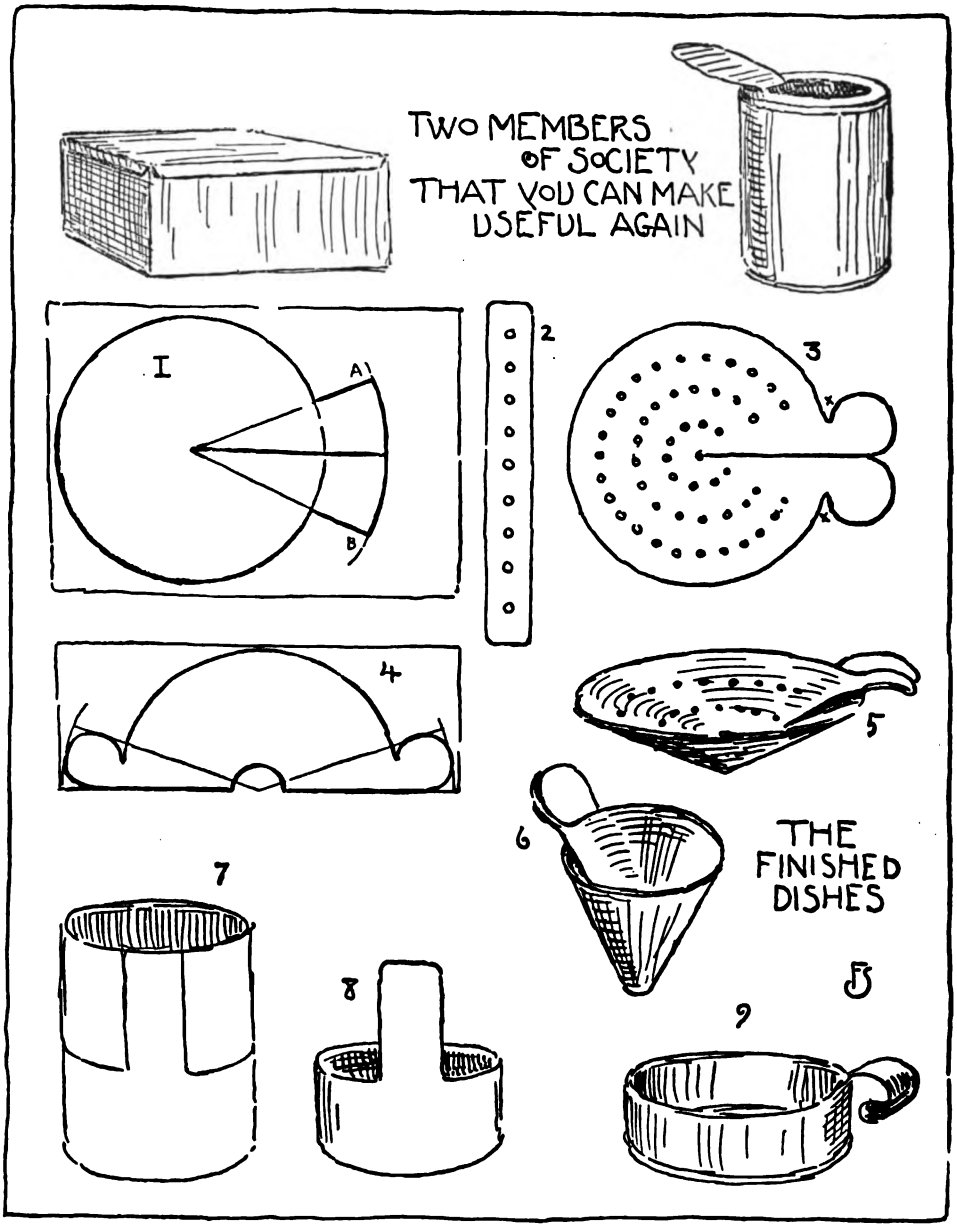
Here's a good sized biscuit box. The tin is thin and easy to cut so it makes a good one to start with.

We will take the cover and draw a circle about 4 inches wide upon it. We can do this by using dividers or compasses, or we can make a little strip out of cardboard or tin like Fig. 2, with holes at ½ inches. Then by putting a nail or strong pin through one hole and another nail or pencil through another we can draw or scratch a circle as large as we need. If you tap the nail with a hammer so as to make a dent at the center of the circle it will not slip around on the smooth tin. Draw a circle 4 inches wide and then a short curve 1 inch outside this circle for the handles, A-B, Fig. 1. And the line to the center. With a strong pair of shears cut this out on the heavy lines, Fig. 1. Trim the handles around and cut in the notches xx, Fig. 3. Lay the tin flat on a piece of board, or, better still, the smooth end of a piece of fire-wood, and with a nail punch holes in neat rows as shown in Fig. 3. Bring one handle over the other and hook the notches together and you have a useful strainer for the kitchen, Fig. 5.

You see if we can show the folks what you can make for them it will be easier to get some little things that we want later to help us make some toys for you.

If your tin box is narrow, draw Fig. 4 and cut it out and bend up in the same way and you have a small funnel or bottle filler, Fig. 6.

Get a good sized tin like the one your canned peas came out of. You see his picture at the top of the opposite page. This will be harder to cut because the tin is thicker and the can has a tough rim at the top. You can get rid of this rim with the can opener. Then draw a line all around the can about 2 inches from the bottom. An easy way to do this is to cut a paper strip and wind it around the can, then draw along the edge. Draw the vertical lines for the handle about 1 inch and a quarter wide. Fig. 7. Cut out in the shape Fig. 8. You may spoil several cans, but it will be done in a good cause. Curl the handle over a curved stick, tapping it with



a hammer to stiffen it, and you have a drinking cup for the garden pump or the camp. Shorten the handle and add another opposite and you will have a tin porringer.

Save several tin cans and try to think how they can be used to make some other interesting things.

A Sand or Water Wheel

I know a number of people who have not been boys for a great many years who still like to see wheels go round. Here's a wheel that will run with either water or sand.

We shall have to use some wood and a few nails to make the framework that holds up the cans and wheel. This framework could be made of metal but it is much easier to get some bits of board or parts of a box.

First get two cans, say tomato or fruit cans of fair size, and the same size or nearly so. Or any size that you like. Now build the frame to fit these cans. Look carefully at the drawings and you will see that Fig. 1 shows the front view of the whole problem and Fig. 2 shows the side view. C represents the cans.

Now notice that the bottom and top shelves are just about right for the cans to fit in, but that the lower shelf, Fig. 2, is extended so that the whole thing will set steady. The distance between the bottom and the upper shelf is a little more than twice the height of the can, and notice that the side pieces extend up above the upper shelf to hold the top can more steady.

Nail the frame together, two nails into each shelf on each side.

Now get a piece of tin or sheet iron as square as the can is wide, and draw the diameters, diagonals, and circles, A, Fig. 3. The inside circle is one-third the distance from the edge to the center. Now draw little curves from the points marked with a cross, B, Fig. 3, and then cut out the whole on the heavy black lines, C, Fig. 3.

Bend out these little paddles at a square angle all on the same side, Fig. 4.

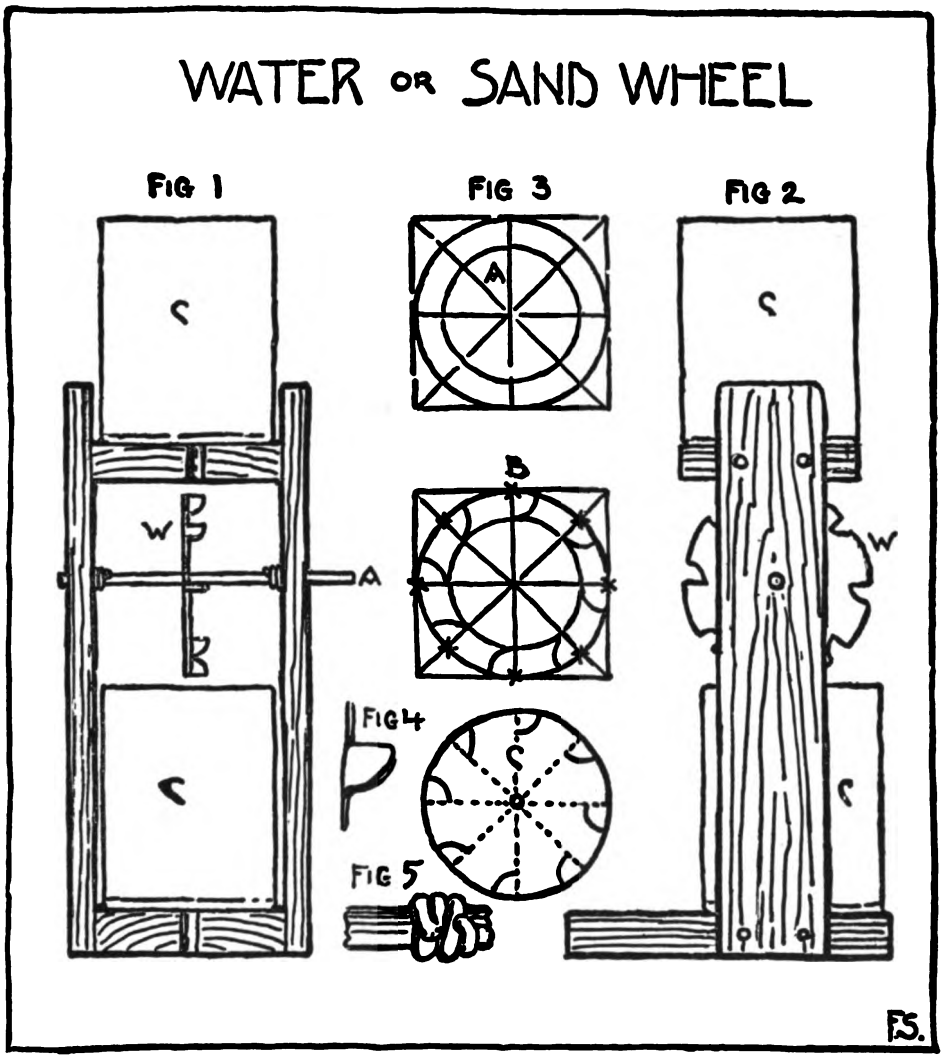
Get a piece of wire long enough and heavy enough to make a good axle for the wheel, Fig. 1, A.

Bore holes through the wooden sides a little larger than the axle so that it will turn quite freely, for remember that the wood will swell when wet.

The two drawings, Figs. 1-2, show where this hole must come.

Punch a hole in the center of the wheel so that the axle will fit tightly. Now this should be soldered to the wheel and you would better get some one to do this for you.

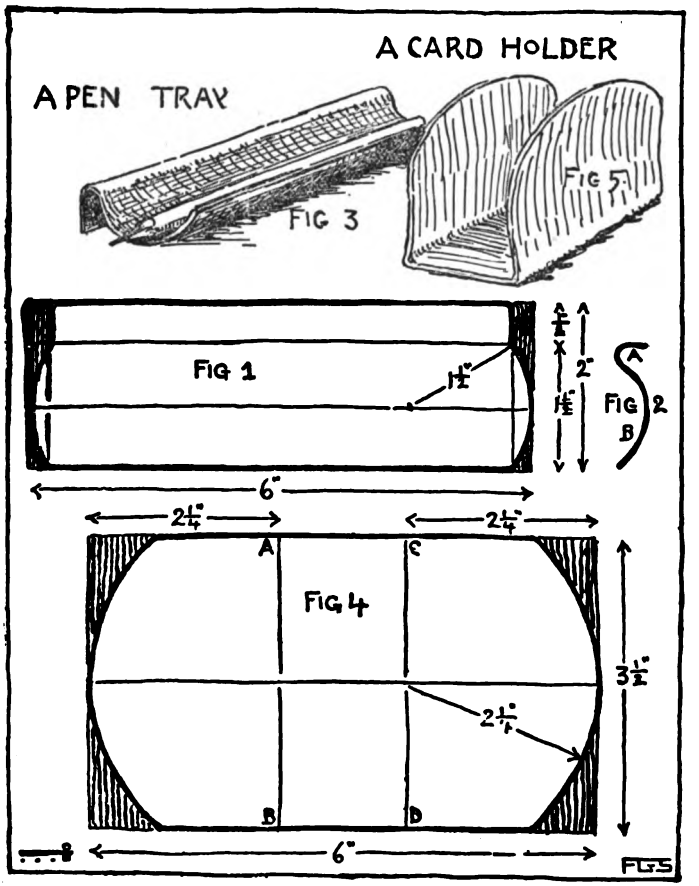
Place the axle in through the holes so that the wheel is in the



center of the space. To keep it from slipping out, wind some small wire around inside or outside the frame. Fig. 5 shows how. The axle is made longer so that a small wheel can be fastened on if you have one. Punch a small hole in the bottom of each can very near the side. Cut two grooves in the shelves, the upper one right over the wheel paddles. Fill the upper can with water or sand and try it on the wheel. If the wheel does not turn fast enough, punch a larger hole. Then whittle short plugs to fit these holes. The groove in the lower shelf is to make room for this plug. Place the full can on top, pull out the plug, the water or sand as it runs out turns the

wheel and falls into the lower can—when the upper can is empty, change the cans. Try it and see how it works.

For the Desk



This article is made of copper. For this work, besides the tinner's shears, you will need a medium file, flat on one side, round on the other, and some fine emery cloth. Also a round pencil, and a larger round stick like a broom handle, a towel roller.

Go to the largest and best hardware shop in your town and ask for a piece of roofing copper or medium thick copper, say, 6½" square. A piece 5½" x 6" would be just right but you may have to true it a bit so as to get square corners. It is safer to buy a bit larger piece. Perhaps the hardware man will cut it perfectly square and perhaps he will cut the piece in two. You will need one piece 3½" x 6" and the other 2" x 6". Tell him to cut it perfectly square-cornered.

Get the pieces of copper perfectly flat by ironing, or by tapping gently with a hammer or, better still, a wooden mallet. Don't get dents in the metal.

Put the drawing, Fig. 1, on the smaller piece, Fig. 4, on the

larger. Cut away the shaded parts and then smooth the cut edges with a file and afterward with the emery cloth.

Fig. 3 shows the finished pen tray, Fig. 5 the card holder, and Fig. 2 how the tray is bent.

With your fingers bend curve A, Fig. 2, over the pencil and tap the metal evenly with the hammer. Now bend curve B over the larger round stick and tap that down smoothly.

In Fig. 4 the lines A, B, and C, D are where the bends come. Bend the flat over a square shelf, or table, and make a sharp, straight corner by tapping with the mallet or hammer. The slight inward curve shown on the sides, Fig. 5, can be done with the fingers or over the curved stick.

You can color bright copper very prettily over a flame, best over a gas flame, but also over a coal fire. Hold the article with pliers, or wire, or even a pair of scissors if nothing else is at hand. Do not let the flame touch it, but hold it near and move it over the flame so that all parts are heated.

After a little, beautiful colors will begin to come. You can then take it away and let it cool in the air.

This color will fade in time but the metal can always be recleaned and recolored.

Things for Camping Out

Clear October days with plenty of dry wood and cool evenings suggest picnic suppers on the hills, something cooked in the open, and a blaze to gather about for story telling.

No doubt you have been saving some good cans and boxes and I hope some lard pails with good covers and strong handles. Every one knows that a camp calls for plain and home-made articles that are not valuable and will stand knocking about.

For our Camp Cook Kit we need two good pails with covers and an extra cover and a can.

Figs. I and III on page 125 are the pails. Fig. III should be small enough to fit into I and leave some space around it for knife, fork, spoon and pot hooks. First thing, we will melt off the round piece that holds the bale or handle because when the pail is hung over an open fire this piece is sure to melt off at the wrong time and drop your pail with everything in it into the fire. As these pieces

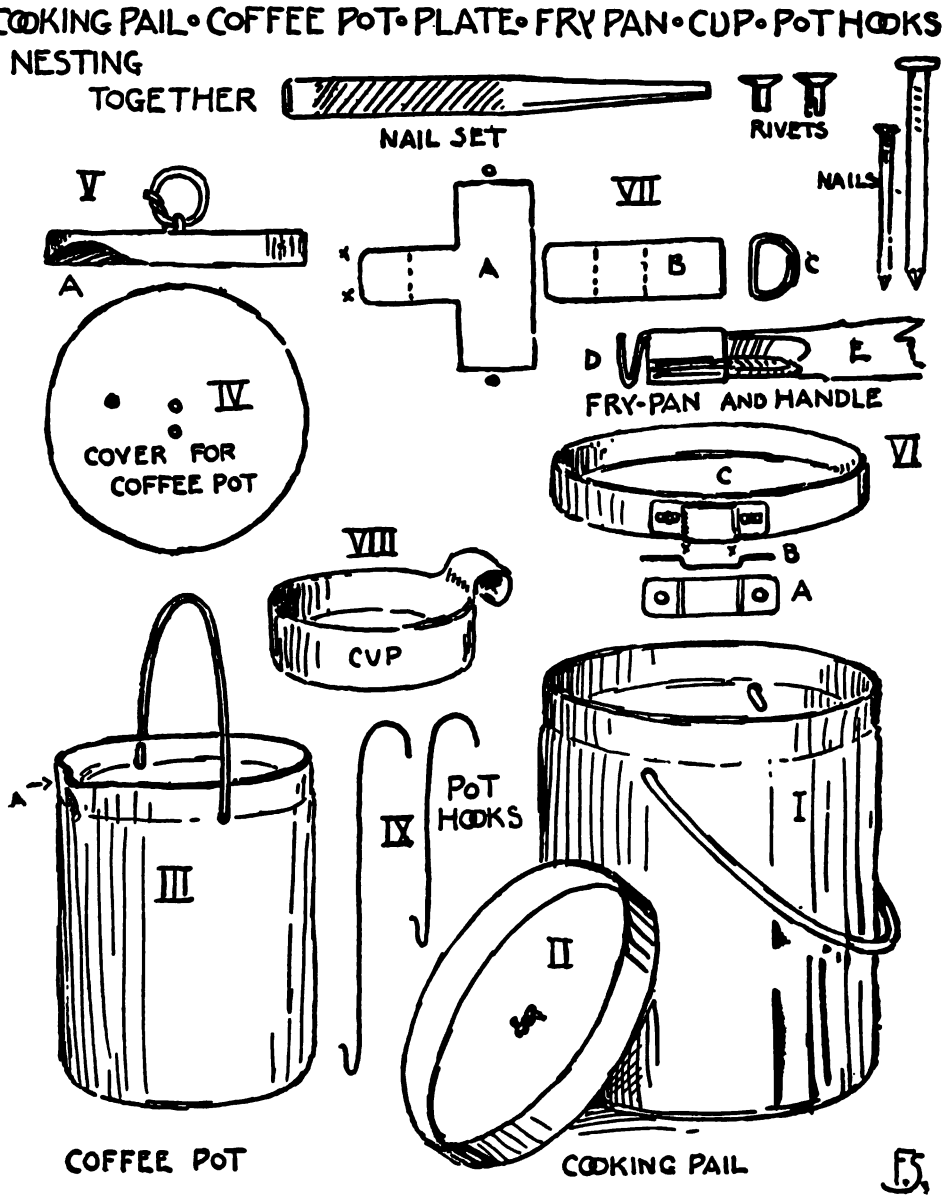
are usually soldered onto the pail they can be easily melted off over a blaze. Should they be riveted, leave them on. Punch holes at about the same places where the round pieces were, and hook the handle through the hole. Tighten it by beating with the hammer if necessary.

For punching these, and other holes, you can get good results by using a nail set (see drawing) which takes out a clean piece of metal. (Cost of nail set, about 10 cents.) You can use a nail but it leaves a ragged hole. On the coffee pot, Fig. III, the pouring lip, A, is made by beating out the edge with a hammer, or bending with pliers. Figs. IV and V are a top and edge view of the cover of the coffee pot. Notice the cut, A, Fig. V. It is to fit over the pouring lip. On both covers two holes are punched close together at the center. Get some medium sized wire (sure to find some around the house or barn) and make two rings. By a study of Figs. II and V and a little head work you will see how these are fastened. The cover for the coffee pot should be shallow so that it will not stick when putting on or off. It is also convenient to put one of the rings on the back of the coffee pot nearly up to where the cover fits down.

The fry pan is made from another cover small enough to drop inside the larger pail. For making the adjustable handle cut a piece of metal like Fig. VII A.[1] This should be sheet iron for tin is not strong enough. No measurements can be given for this as it depends on the size of the cover, etc. Round up the part A so that it will resemble B, top view, and C, end view.

This rounding and also the forming of rings, cup handle, pot hooks, etc., can be done very nicely over a round iron rod or large bolt, or even a hard wood stick, or tool handle. You will notice that the parts 00, Fig. VII, A, are rolled under and lapped, the part xx is bent on the dotted lines. At D we have the profile showing bend and handle with stick inserted. Cut a piece like A, Fig. VI. Punch two rivet holes and then bend like B. Mark on the rim of the fry pan two points through the holes in A and punch these holes. Rivets may be bought in small packages or by weight, shaped with a split like a clothes-pin, or solid (see drawing). The split ones are easier to handle, for you simply bend down the points, and hammer. With the solid rivets you beat down the end, flattening it on all sides.

[1] A small pair of tinner's shears is a great help in doing this work.



It is a good plan to make such things as Figs. VII and Fig. VI A in paper first to see exactly how they form up.

Now put the cup inside the coffee pot and that, the fry pan, and the pot hooks into the larger pail, and you have a fairly good one-boy outfit. Use the cover of the larger pail for a plate.

A New Kind of Metal Work

How to Cast an Anchor

Every boy loves a sailboat, whether it be a flat piece of wood that is drawn by a string or a good model of a ship. For his sailboat he will like to make a toy anchor according to the following directions.

This is a new kind of metal work. Here are plans for casting a toy anchor. It will be made of lead and the mould is soft pine.

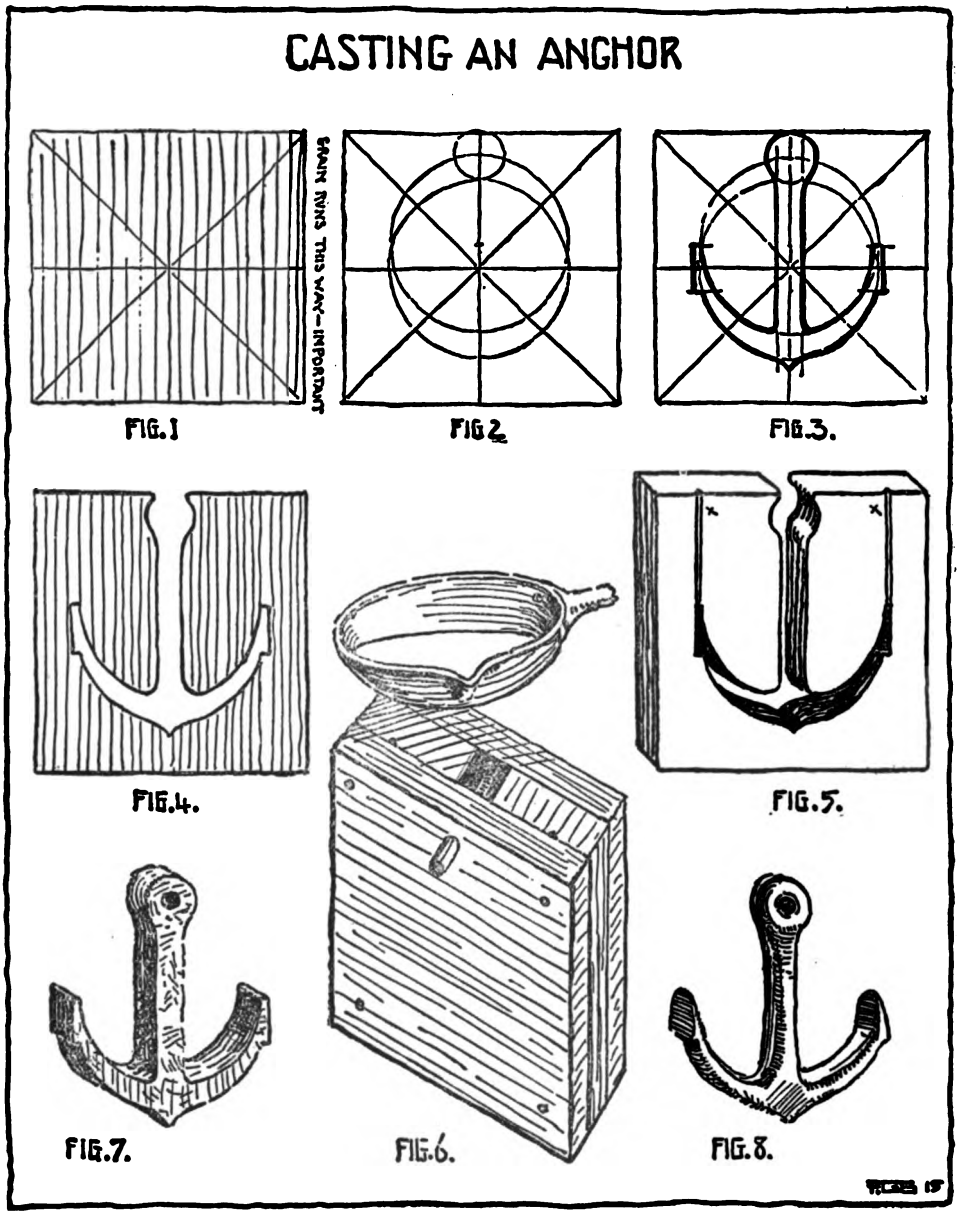
You will need three pieces of wood for the mould, 3″ square and ¼″ or ⅜″ thick.

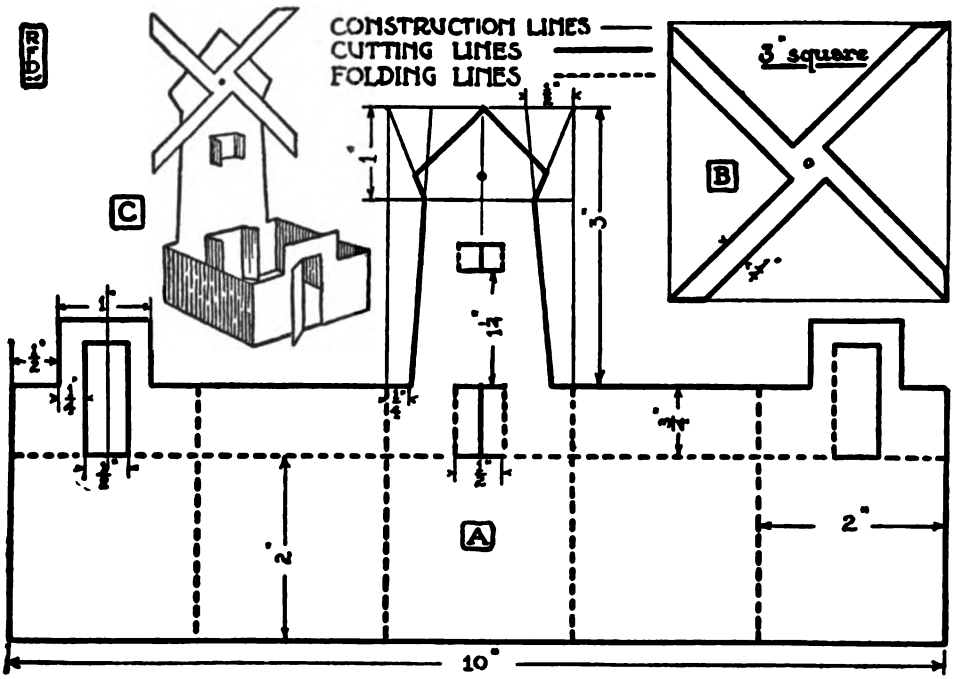
On one piece draw Fig. 1 and please notice which way the grain lines run. Now draw the two large circles as in Fig. 2, one from the center, the other from a point ¼″ above the center. They are drawn with the compass set at 1″ so as to make a 2″ circle. Next draw the little circle at the top. Now it will be quite easy to draw the rest of the anchor (shown in black lines, Fig. 3) after you have these three circles. Take a coping saw and saw out the shape of the anchor, Fig. 4, and sandpaper it smoothly. Then cut two tiny grooves, or channels, XX, Fig. 5. These are to let the air out when the lead is poured in. Fig. 5 shows the mould block ready to place between the other two.

The two plain 3″ square pieces are nailed on with small wire nails, or brads, being very careful not to drive the nails where they will go into any part of the anchor.

Now bore a small hole so that it will go through the center of the upper round part of the anchor, and drive a plug into this. You can see the plug in Fig. 6.

Get an iron ladle, or very large spoon and melt your lead pipe, or sheet lead until it is thoroughly liquid; skim off the dirt and pour the melted lead into the mould until it overflows at the top. It will take some time to cool. Then you can pry off the two sides and with a little care get the anchor out without splitting the mould. Then you will have a rough casting like Fig. 7. Now a little careful filing finishes it like Fig. 8.





A Toy Wind Mill

When a boy makes a perfect toy he makes a model. It teaches him something about the construction of real things.

In the above diagram, the young workman can learn the principle of the wind mill. The toy can be made of thin metal or heavy paper. Take a square of material about 9 x 12 inches in size. With ruler and pencil draw the "flat" A, as shown by the diagram. Follow the measurements given. Get a little piece of cork to hold the pin in place that serves as an axle for the whirling arms.

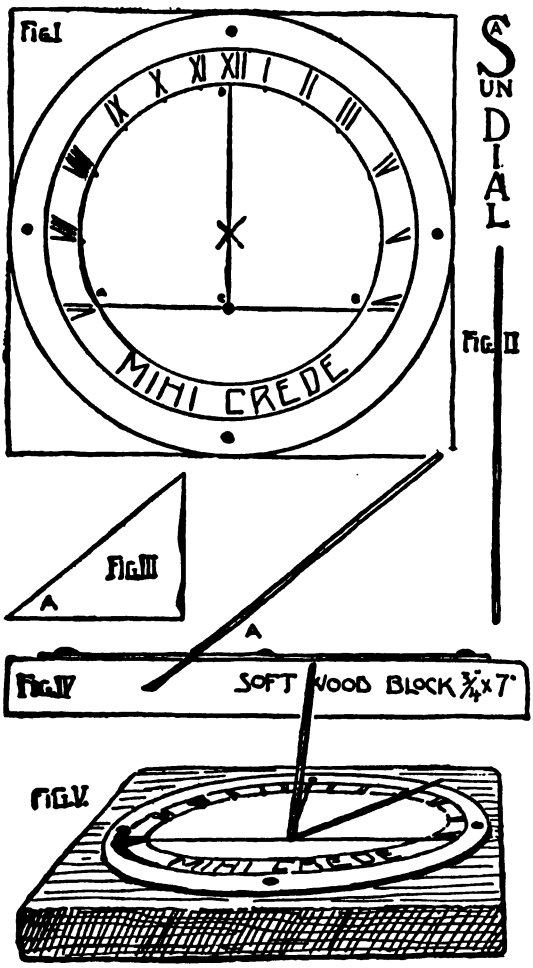
A Sun Dial

I think that you will find this little sun dial quite interesting to make, and not nearly as hard to make as it looks, if you go at it in the right way. And it will tell time quite well, as well as any sun dial. In the old days, years and years ago, long before you and I were born, the people did not have any clocks and the only way they could tell time was by dials.

And in England over the sea there are still a great many dials

made of stone and metal; in our own country, too, in private gardens there are a number of these sun clocks.

You can make this one out of heavy tin, but it will not look nearly as well, nor last as long as if it were made of brass.



Get a piece of medium thick soft sheet brass six inches square. Find the center of the square by drawing just the cross of the diagonals. See Fig. 1. Make a slight dent at the center so that the leg of the compass will not slip and draw a 6 inch circle just touching the sides. Inside of that draw another circle ½ inch, and still another ½ inch inside that.

If these circles are drawn with a pair of steel dividers they can be scratched in quite deeply. Draw the horizontal line A-B, Fig. 1, parallel with the lower edge of the brass, and two inches from it. Draw the vertical line C-D, just half-way or through the center of the brass. Punch four holes in the outer border as shown by the black dots, Fig. 1. These are to fasten the plate to its base.

For the piece that throws the shadow you would best get a steel knitting needle, and these can be bought for a small sum at a ten cent store. You can file off 5 inches of this and then punch a hole at the point C large enough to take in this needle. Figure 2 shows the length of needle, and Figs. 4 and 5 show how the needle is set and the shadow thrown.

It is intended that the corners of the brass be cut off to the outside circle so as to make a round dial but if that is too hard leave them on and punch your fastening holes in these outer corners.

The line A-B is the six o'clock line and the line C-D is the twelve o'clock, noon line. Draw in the Roman figures six and twelve in their right places. They can then be scratched deeply with the compass point, or a better way is to make a stamp from a nail by filing it down on two sides to a sharp edge. Then with this little tool the numerals can be set in as deeply as you like. The other hour lines are put in later.

Now the dial is fastened to a piece of soft pine wood which should be seven inches square. Use copper tacks for this, or else brass pins, and be very sure that you get the plate on with the six o'clock line running straight; see Fig. 5.

Fig. 4 shows the needle put in place, and driven down into the wood at the correct angle for Boston, 42 degrees.

This angle must be the same as the latitude of the place where the dial is to go. Make a little piece of thin wood or heavy cardboard with the angle A just right, Fig. 3, and use this to guide you in setting the shadow piece. This will be the hardest part of the work, and you will probably need the help of an older person. A little instrument called a protractor will give the degrees. Of course the needle should be placed so that it comes directly over the twelve o'clock line.

Place the dial on some level surface, like a wall, post, or porch, where the sun will strike it all day. The line C-D should be north and south with D toward the north. You can set it by a compass but a quite satisfactory way is to set it at twelve o'clock noon by a good watch or clock standard time.

Now we come to the marking of the other hours. That can be done by rule, but it is a difficult way and too hard for most people, so I think that we will do this one by watching the clock time and marking each hour on the face of the dial as the shadow comes around. This will be good fun for some Saturday morning or afternoon. Of course you must be very careful and not be five minutes late. When you get the morning hours marked the afternoon hours will come exactly opposite, so you won't have to watch all day.

Fig. 5 shows the dial set up with the shadow resting on the three o'clock line.

In a pretty garden there is nothing that will add an artistic touch so surely as a sun dial. It gives a suggestion of olden times and to complete the picture there should be box bordered paths leading across the garden and tall hollyhocks, fragrant flox and golden calendula growing near by.

See if you can find out what the Latin motto *Mihi Crede* means.

An Easel to Hold a Photograph

Do you see photographs loafing around in your house, leaning against the wall or lounging in the picture frames? They look as if nobody cared for them, like loafers around a street corner.

If you can find a piece of sheet metal, tin, copper, or brass, you can easily make a little stand to hold each one of them, or, at least, the one you most like to have in sight.

In fact you can make several and include them in your Christmas gifts.

The diagram on the next page will help you to go at the problem the right way.

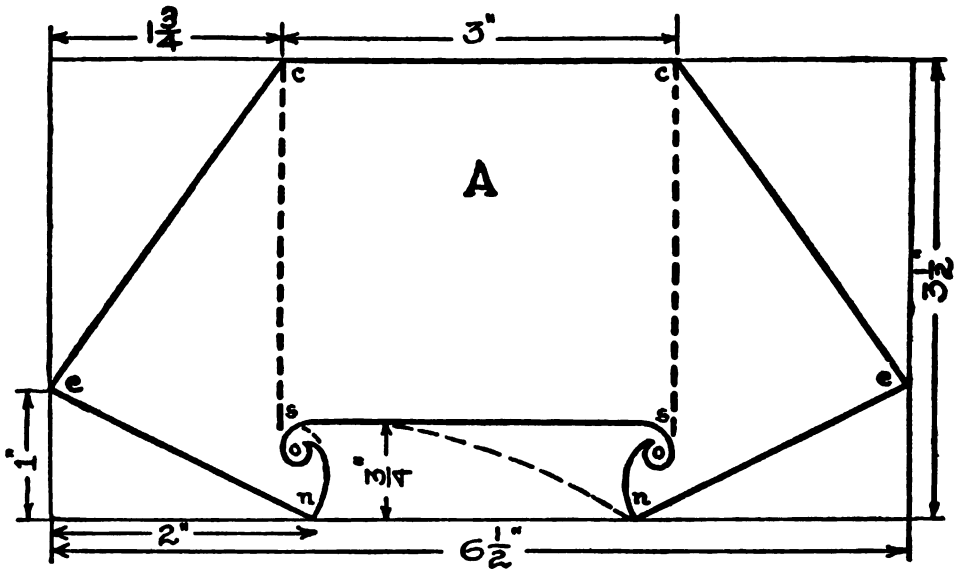
Take a sheet of metal A, 3½" x 6½". Measure from the corners to fix the points, *c*, *c*, *e*, *e*, *n*, and *n*, as shown in the drawing. Cut on the heavy straight lines from point to point, using old scissors.

Now locate *o* and *o*, centers for the little circles. These may be punched with a wire nail and then filed large and round with a rat-tail file.

To cut out the lower part, begin at *n* and *n* and cut toward *s* as suggested by the dotted lines. Now cut in the opposite direction to take out the piece with its point at the other *s*. The little triangular piece left in the middle may now be cut out, and the corners at the circles filed out.

Now when the whole is smoothed with a fine file, or emery cloth, bend back the three-cornered pieces on the heavy dotted lines, to make the square corners with A. The easel will now stand and hold the photograph as shown at B.

The best way to bend the metal is to clamp a three-cornered end between two pieces of board in a vise, so that the edges of the board



A·PICTURE·STAND·
FOR·THE·PHOTOGRAPH·
OF·THE·ONE·YOU·
LOVE·BEST·

MAY BE MADE FROM ONE·
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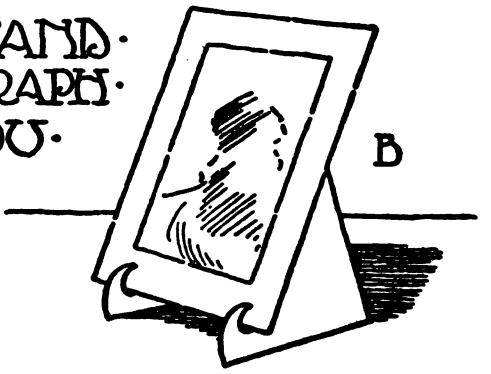
OR COPPER·

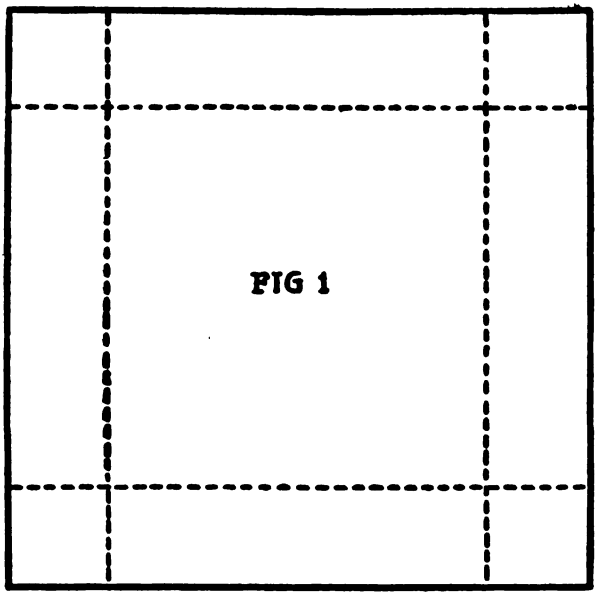


come just to the dotted line. Then with another piece of board and a hammer the square piece, A, may be bent smoothly and quickly into place.

A Pin Tray

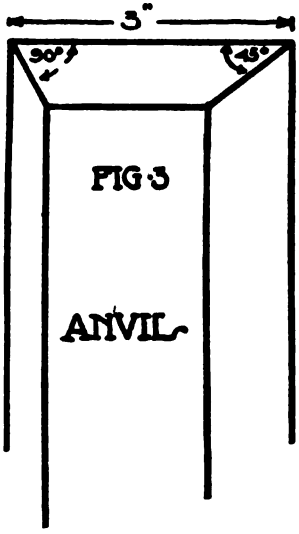
A useful and inexpensive gift is a metal tray.

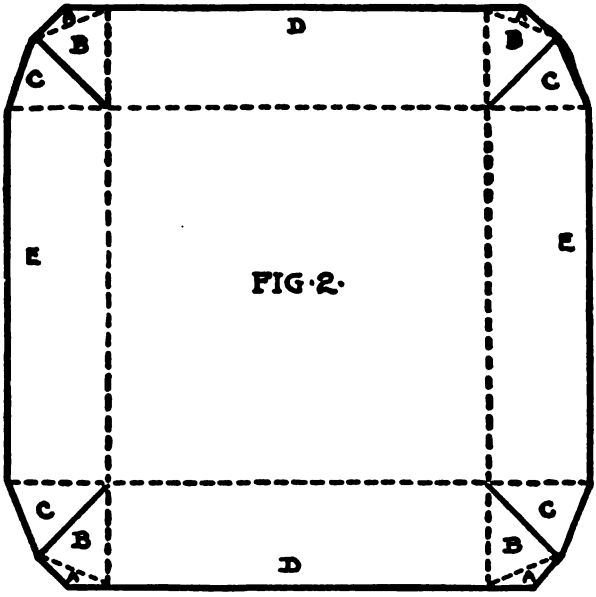
Transfer the flat, Fig. 1, on the next page, to the sheet of brass, tin, or zinc, by redrawing it upon the brass, by tracing from a full size drawing, or by pasting a full size drawing upon the metal. Cut on the heavy lines as shown in Fig. 2. Make a wooden anvil from a ⅛" board 3" wide, as shown in the little sketch. Fig. 3.



PIN-TRAY for the bureau

A useful and attractive object that a child can easily make from tin or sheet brass. All in one piece. No soldering. Good also for





Put this anvil in a vise or nail it to a bench, or hold it securely upright by any other means. Bend down the small laps A on the dotted lines, until they are at right angles to B. Bend up the tri-

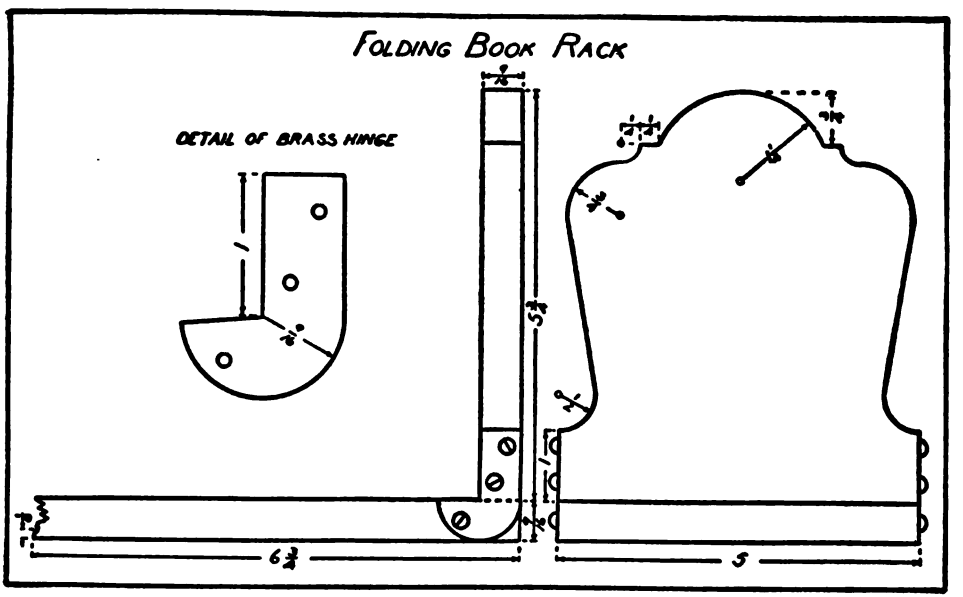
angles B at about 45° to the sides D, by turning the tray bottom up and hammering them into position upon the wooden anvil. Bend up the triangles C at the same angle. Bend up the sides D at about 60° with the bottom. Bend up the sides E at the same angle or until the triangles C are covered by the triangles B. Bend down the laps A to clamp the triangles together.

A Folding Book Rack

Boys and girls who have to go away from home to a private school (and some others) like to have a book rack for table, desk, or shelf, that will fold up to travel in a suit case. Such a book rack is shown in the cut.

Use ⅝″ stock. Make the base board as long as you wish, provided it will go into your suit case. It should be at least 13½″ long. The hinges, two, exactly alike, should be made of sheet brass.

The whole should be smoothed and stained or painted to bring it into harmony with the room in which it is to be used.



SOMETHING FOR THOSE WHO HAVE TO MOVE FREQUENTLY

Picnic Goodies and Candies that a Boy Can Learn to Make

A Jolly Camp-Fire Supper

There are always chances to have out-of-door meals and picnics; every one loves to have a spread in the open air and the nicest outing of this kind is a camp-fire supper.

For provisions you will need for each person two potatoes scrubbed clean, three ears of corn, four or five slices of thin bacon, four sandwiches and two good sized baking-powder biscuits. Don't forget the safety matches.

For the "Something to drink" take some cocoa syrup and cream or milk enough for all the people.

If you are going to serve supper at six, some of the party must go to the camping place early in the afternoon to start a bonfire. The rocky bed of a creek is the best place for the bonfire; but wherever you go be very careful that it is perfectly safe to build a fire, and absolutely sure that when the supper is over the fire is put out and that some one's big brother or uncle or father goes with you as fire warden.

The first thing to do is to find a sheltered place for the fire and the next to gather ever so much more wood than you think you'll need. Then light the fire and let it burn briskly until you have a fine bed of red-hot coals. While the fire is flaming find some long sticks and whittle them to a sharp point all ready to use for the bacon.

For the potatoes and corn which will take about an hour to cook, scoop out a hole under the hot coals, lay in the vegetables in rows, cover with a heap of hot ashes, and then with a layer of hot coals to keep in all the heat you can. In about forty minutes try the potatoes with a long sharp stick and if it passes through them easily they are done and should be raked out at once, broken open and eaten hot with butter and salt to taste.

Before you put the corn in to roast, remove the outer husk, strip

off the silk, break off about an inch of the silk end and twist the ends of the husks tightly down over the broken end. Try the ears of corn when you try the potatoes and when they taste cooked rake them out and eat.

The bacon will only take a few minutes. Run a stick through the slices, hold them over a hot bed of coals, turning as the fat drips. Cook until crisp, being careful not to get spattered with the hot fat.

I am sure that you are wondering why you brought the biscuits. When you select your cooking ground think of a place where it will be possible for some of the party to pick berries for we want to make fresh, wild berry shortcakes. When you have enough berries for each hungry person crush them slightly with a clean stone, split and butter the biscuits, which you may leave near the fire to keep warm, and spread the berries between the halves, adding sugar to taste. Then eat!

When there is nothing more to eat, burn up all the corn husks, potato skins, etc., and leave the picnic place in good order.

There are four "Dont's" to remember when you build a bonfire.

1. *Don't* build a fire when the wind is blowing hard.
2. *Don't* wear cotton clothing.
3. *Don't* leave the fire until you are certain that there are no smouldering ashes which might start a forest fire.
4. *Don't* forget to take a heavy shawl or rug with you to smother the flames should some one's clothing catch on fire.

Cakes

Every boy and certainly every good Scout would like to learn to cook. When vacation comes it is fun to learn to do things that are out of the regular routine.

Here is a recipe that is easy. Try it.

Have as many marshmallows as you have crackers. Place one in the center of each biscuit and put them on a tin pan in the oven just long enough for the marshmallows to puff up and brown. If you have no marshmallows, beat up the white of an egg with a teaspoonful of sugar and a tablespoonful of shredded cocoanut, and spread this on the crackers. Let them bake until light brown.

Candy For Christmas

Every one likes to have candy given them at Christmas. Even Grandma likes her little bag of peppermints, doesn't she? My grandma always felt disappointed if she didn't get any. Why don't you boys and girls make the candy this year yourselves? Every child can help and it's great fun! Here are some easy ways to make it.

Three Kinds of Candy That Need no Cooking

(1) *Creamed Walnuts.* First of all be sure your hands are very clean, because you will have to handle the candy more or less. You will need the white of an egg, about a pound of *confectioner's* sugar and a tablespoonful of cream (if you haven't any cream, water will do). Put the white of the egg and the tablespoonful of cream or water into a bowl and beat it until it begins to bubble, then beat in confectioner's sugar, a little at a time, being sure there are no lumps in it. Put in a teaspoonful of vanilla. When it is about as thick as putty, take a small teaspoonful and mould it into a tiny flat "biscuit." Get little brother to crack some English walnuts for you and put half of a walnut meat on top of your little "biscuit." If you live in the country and cannot get English walnuts, hickory nuts will be just as good. This will make about 25 candies.

(2) *Cocoanut Candy.* Make this with the white of an egg, confectioner's sugar, cream, and cocoanut. Make it exactly as you did the creamed walnuts only leave out the vanilla and roll your little "biscuits" in shredded cocoanut. Don't put any walnuts on them.

(3) *Peppermints.* Make these exactly as you did the "biscuits" for the creamed walnuts only instead of vanilla put in one drop of oil of peppermint. Don't make these candies so fat as you made the others. You ought to make about 35 peppermints out of the white of one egg.

Popcorn Balls, Etc.

1 cup maple syrup or molasses	1 tablespoonful of butter
1 cup sugar	½ teaspoonful of vinegar.

Cook until the mixture hardens when dropped into cold water. Then add ½ teaspoonful baking soda dissolved in a teaspoonful of

hot water. Pour the hot syrup over two quarts of freshly popped corn, stirring until each kernel is well covered. Then it can be moulded into balls.

If the corn is chopped or put through a meat grinder before you add the syrup you can press it into cakes.

Try mixing some shelled peanuts with the popcorn when you make it into balls. You can call them *Pop-nut-balls.*

Salted Peanuts and Almonds

Besides the cranberries and celery, we often have salted nuts with the Thanksgiving dinner. These are not hard to prepare but take some time to shell.

If possible buy the peanuts unroasted, but if you buy them roasted be careful not to brown them very much. Shell the peanuts and spread them on a tin pan, over them dot bits of butter and put in the oven to brown. Stir occasionally so the butter will be evenly distributed and when they are a light brown take them out. Drain on brown paper and sprinkle them with salt.

These should be prepared the day before using and left in a dry place until needed in a covered tin box or pan.

If you wish salted almonds instead of peanuts prepare them in the same way, but the inner brown skin which slips off the peanuts so easily must be removed from the almonds. This is called "blanching" and this is the way to do it.

Shell the almonds, being careful not to break the nuts. Cover them with boiling water and let them stand two minutes, drain, put into cold water and the skins will slip off easily with a little rubbing.

How to Make Lemonade

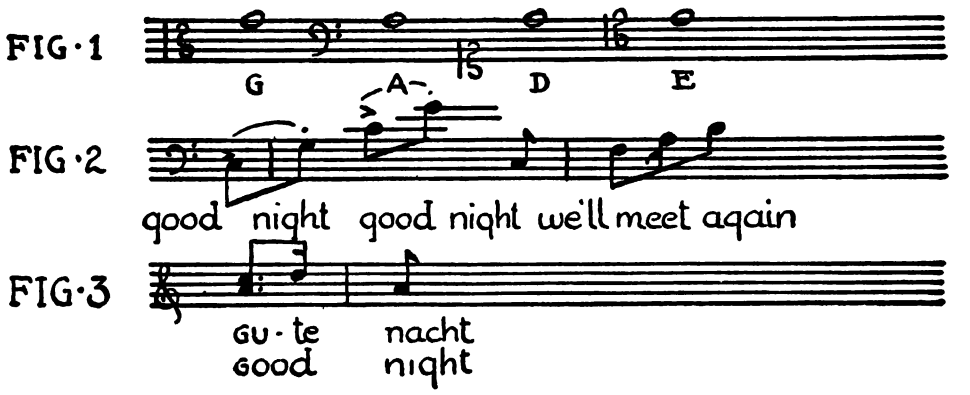
One lemon and three tablespoonfuls of sugar will be needed for each two glasses of lemonade you wish to make. Wash the lemons until you are sure they are clean, then cut each lemon into halves and squeeze the juice out with a lemon squeezer. Cut a few slices off of one piece to put into the lemonade; it will add to the flavor. Mix the lemon juice and sugar thoroughly and add cold water, and ice if you have it.

If you like you can put in a few cherries, or raspberries, or add sliced bananas and make a punch instead of plain lemonade.

For the Listening Ear

What Good Composers Have Given Us

Here is a composition written by a man born in Copenhagen, Denmark, a friend of Mendelssohn, Schumann and Reinecke, whose name Schumann wrote in the following mysterious way :



You can spell out the composer's name when you know the signs called the C and F clefs. The C clef first occurs on the third line (Fig. 1) and that line is C. If you start there and say the alphabet upwards, the fourth line will be G, the first letter of the composer's name. The other sign locates the line F to start from. Can you figure it all out?

Gade wrote a group of pieces called Christmas Night. This bit of music is the Good Night song of the Christmas gathering. You have, as in the Reinecke music on the following pages, the Good Night and the We'll Meet Again motives. They are not quite so easily discovered, however. Sometimes Gade has said Gute, in place of Gut'.

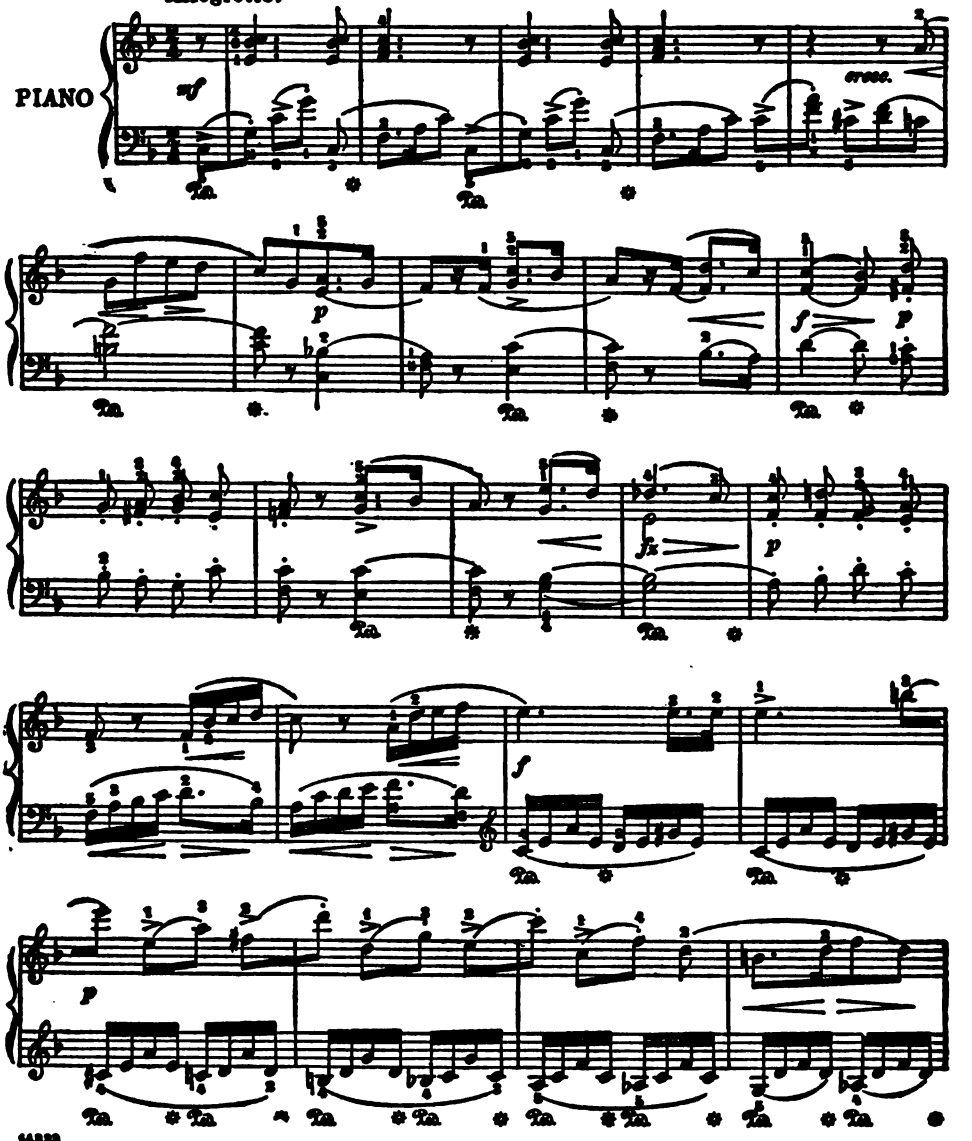
This piece also differs from the Good Night written by Reinecke because the "Good Nights" are not only said by the children, but by the older people, too. See if you can tell the difference. Toward the close it sounds as though quite a number of children, and grown-

GOOD NIGHT.

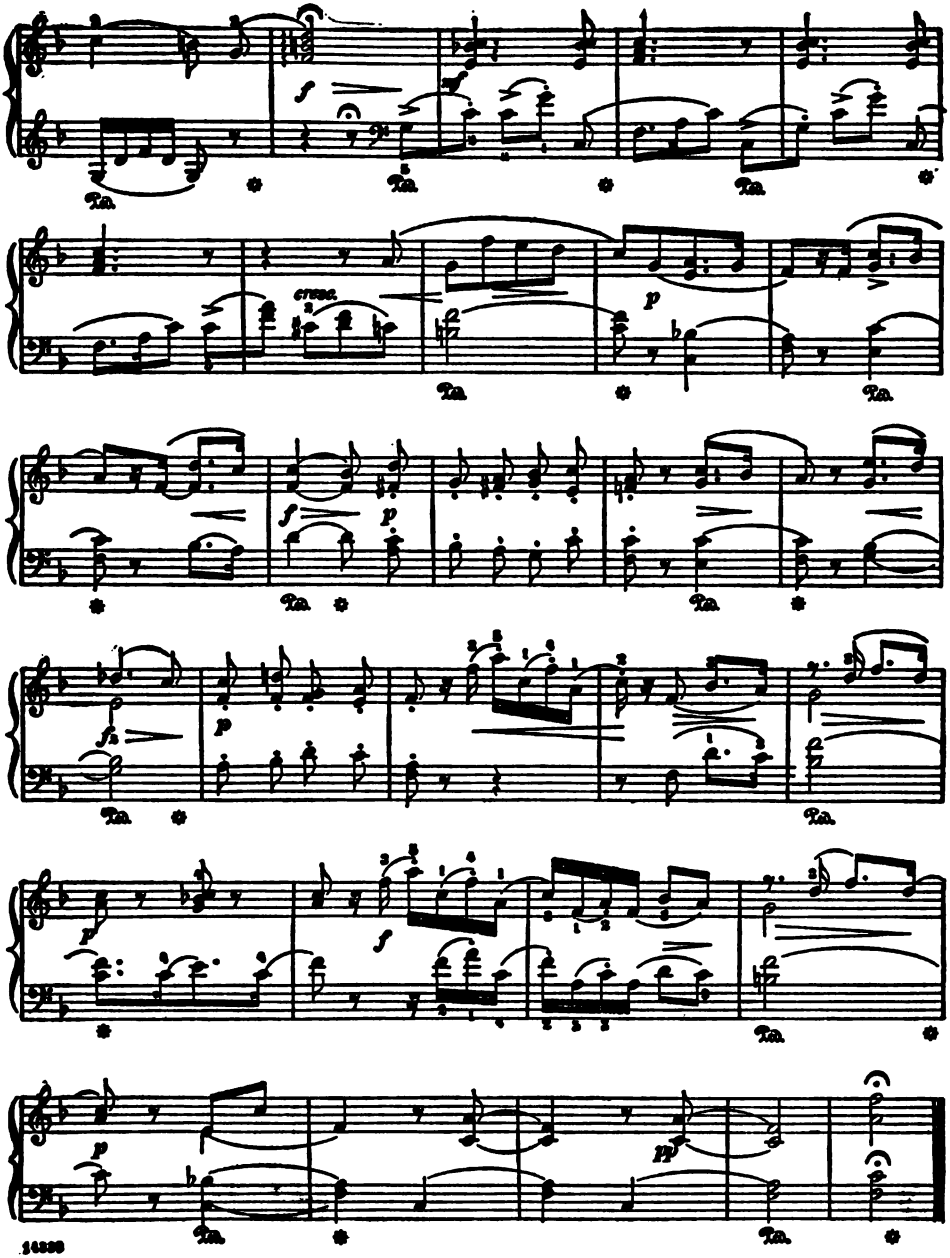
Revised and fingered by
WS *Scharfenberg.*

Allegretto.

NIELS W. GADE.

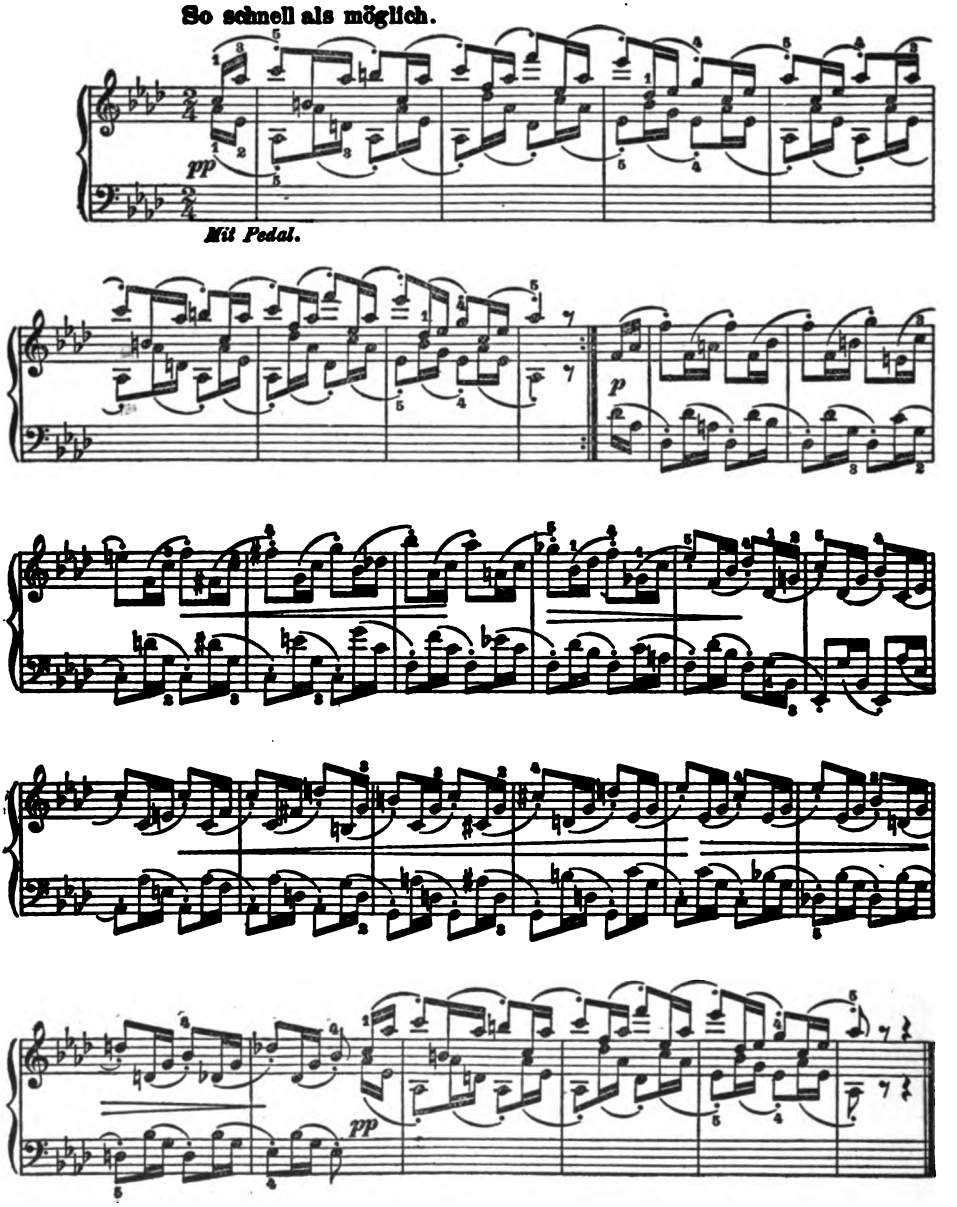


ups as well, were hurrying away, saying, "Good Night," "Good Night," "Good Night," so close together as to be almost at the same time.

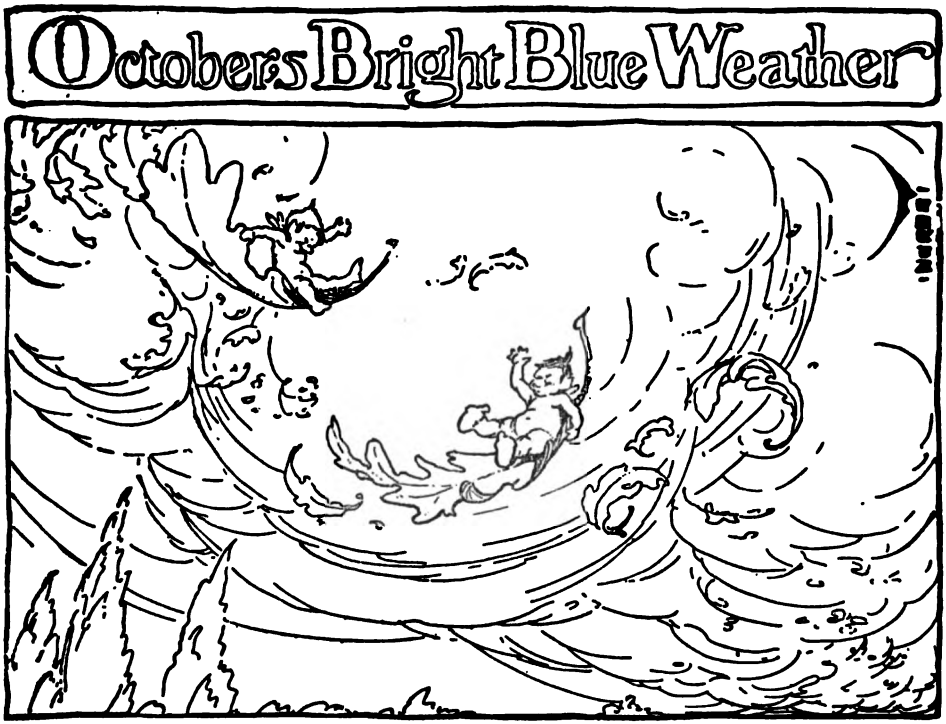


When you have memorized this composition you have a valuable possession.

A Bit of Good Music by Schumann



Pictures to Copy



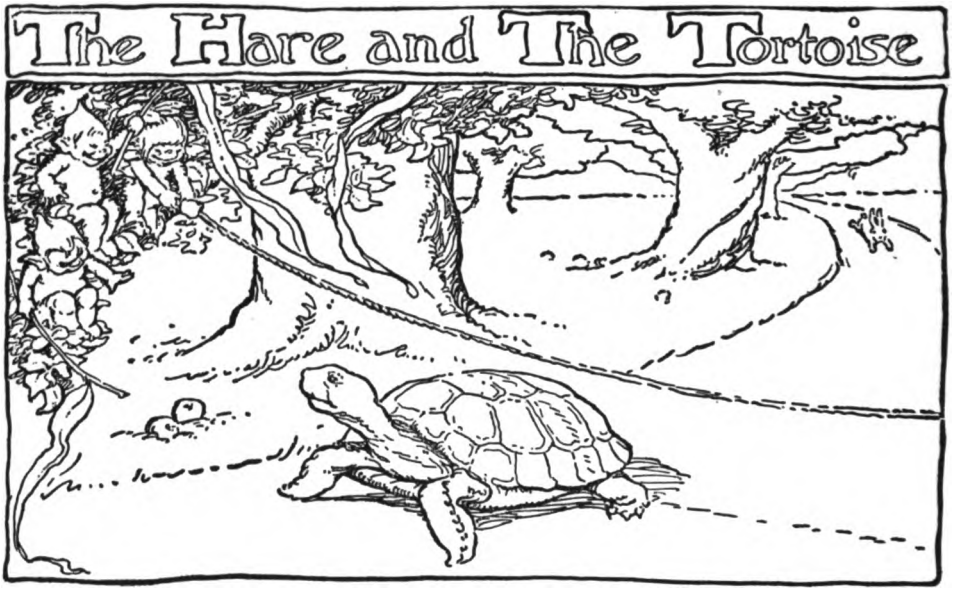
Did you ever see any elves? It is easy to imagine them.

To help you find them here is a picture by Florence Pretz Smalley, to show you how they look. 'Twould be a pity not to know one when you saw him. Aren't they jolly little busters?

What sort of leaves are they riding on? They can ride forwards or backwards without being car sick! How the wind blows! The harder it blows the better they like it. It sways the tops of even the old stiff cedars way down below.

Sometimes the elves ride the leaves round and round in a ring near the corner of a house. Ever catch them at it? It's fun to watch them.

Do you ever imagine that you see elves riding on the flakes when they fall so gently, gently down from the sky?



Old Man Slow-Sure

Ever since you could run alone you have known about the race that the artist has drawn for us here. But did you ever know before who got it up, and who were the judges?

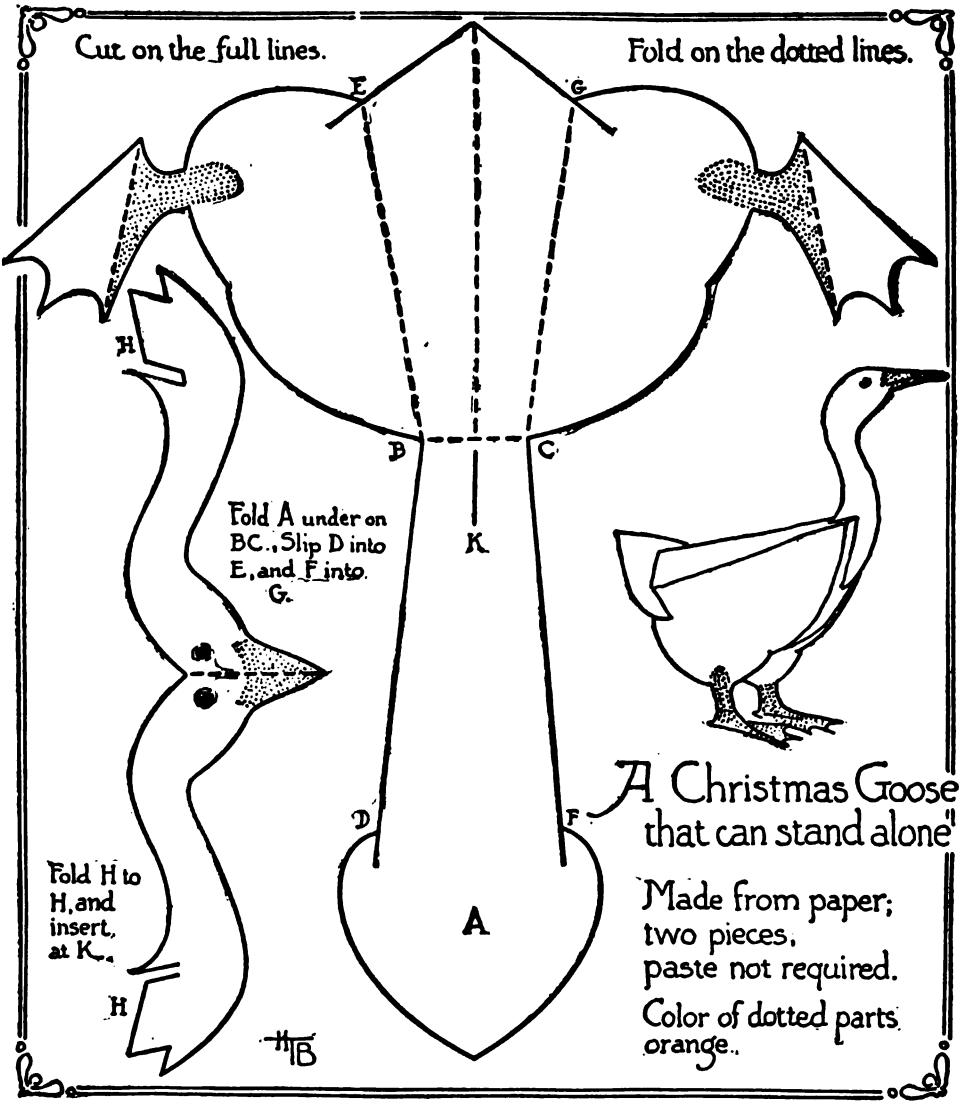
The elves did it. The artist caught one once, and modeled his portrait in clay, and made him tell his name. His name was Billikin. Ever see him? Billikin introduced the artist to a lot of the elves, and she has learned to speak their language. They told her all about this race.

How many elves can you see in the tree? What fine flags they have! Don't they look happy! Old man Slow-sure looks happy too. He has won the prize—two ripe apples. See them in the grass?

When I was a boy we used to try to catch mud turtles by baiting a hook with an apple. We never caught one!

Did you ever hear of any one else who ran a race and lost it (as the Hare did) but in losing got the apples?

The picture is not difficult to copy, but you will need a sharp pencil or fine pen when you draw the elves.



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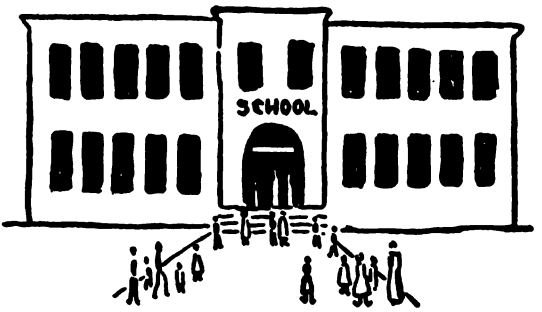
Two Christmas Characters

Copy the flats for the goose *very* carefully. Perhaps you would better trace them. Follow the directions for cutting and folding into shape. It is a good way to study all the directions first so that the finished work is clear to your mind. After that each step is easy.

School Day



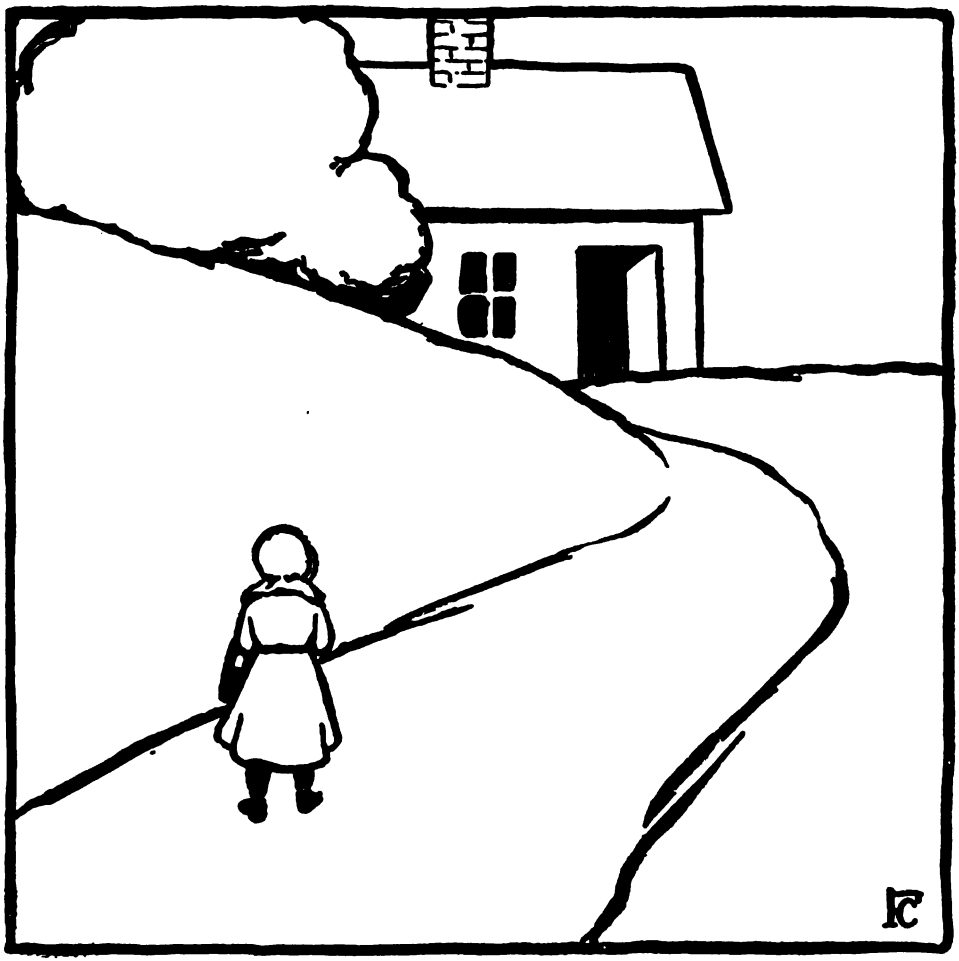
Now is the time for School on week days, and for picnics on Saturdays.

Do you go all alone along a country road like this little girl in the sunbonnet, with your bag of books on your arm, until you reach the open door of the little village school, or are you one of a hundred or more children who crowd up the broad walk of a big, city school, with its big door, and its many, many windows, and the entrance like a face that scares you dreadfully if you have been bad, but calls "Welcome," if you are good? Did you ever notice how wide the walk looks near you, and how much narrower it looks far away? And have you noticed how big the teachers and children appeared close to you, but how they looked standing in the distant doorway?

If you learn to study such small matters you will find that you can have good amusement with your eyes alone. When you are traveling along a country road, or when you are in a rail train, your eyes can measure distances, detect lights and shades and color that will help you in your drawing, and also will help the time pass in a pleasanter way.

And when you went picnicking did you go with just your brother, as little Mary Jane did, or had you all the children in your school along? And did you build a good stone fireplace like this, close by the brook, so that you could put out the fire when you wished? Did you use forked sticks for the pole that held your pail of eggs and potatoes? Did you see how the blue smoke drifted up across the edge of the hill? And how when, with a wire hook or a stick, you lifted the lid of the pail (standing carefully at a safe distance away from the fire) the steam from the water came up and hid a little of the back of the pail just as the smoke hid the hill? There is a lot to study even in a simple picture.

Copy these drawings, if you like, and then make others all your own, showing how *your* school looks, and what *you* do on a Saturday.



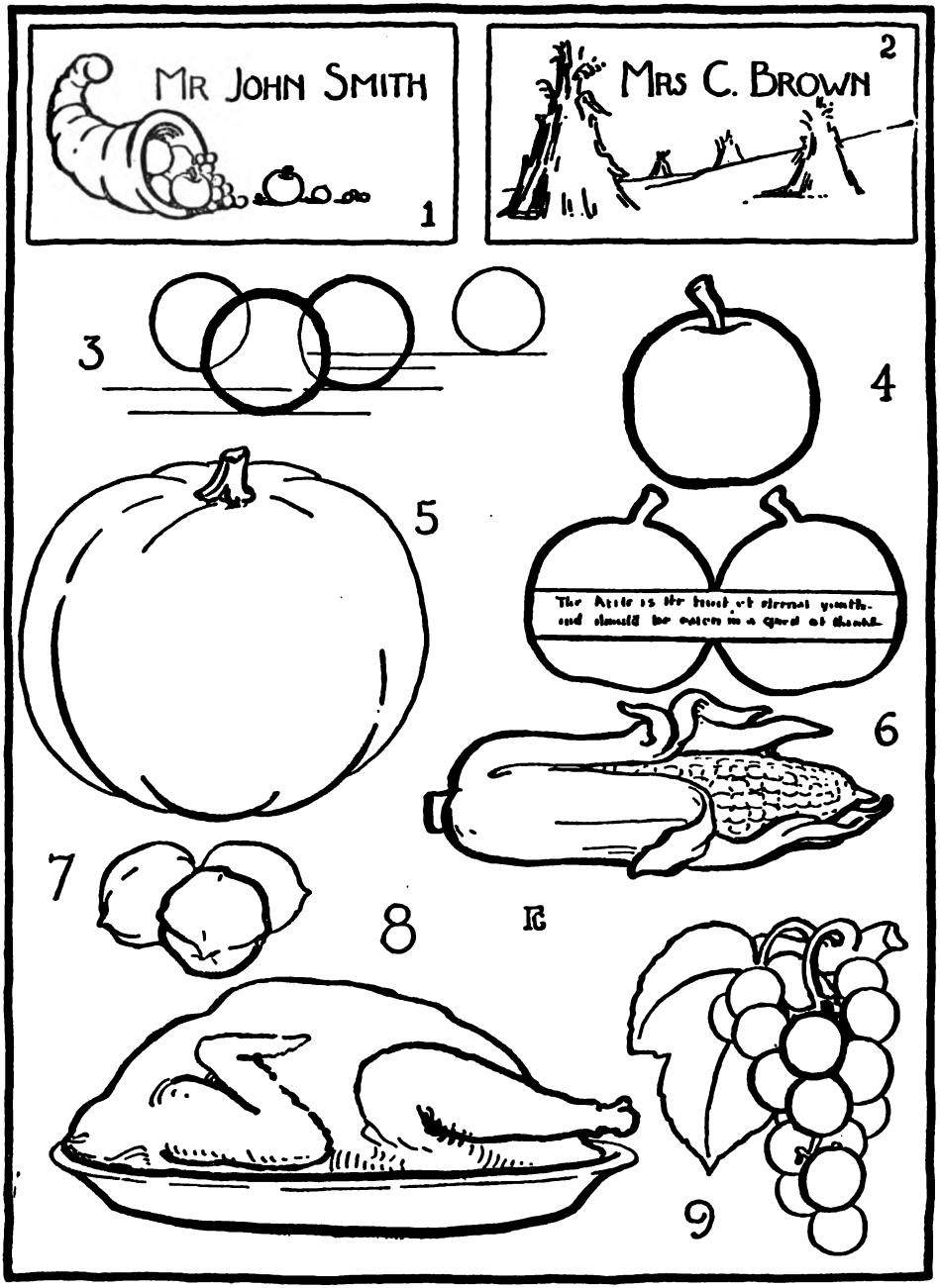
THE FIRST DAY OF SCHOOL

This picture is easier to copy than the one on the next page. Begin by drawing the square. Draw next the line from the door to the frame. Think how near the top of the square it is, and how far it runs into the square. Draw next the lines of the hill and path; then the tree; then the schoolhouse, and lastly the little girl. If you draw very, very lightly at first, you can draw several lines if you have to until you are sure of the right one. Then you can make that one heavy and leave all the others. Notice the curve in the road; do not make it too sharp.

PICNICKING

To copy this picture successfully will require your very best effort. Begin with the frame; then follow this order: tree; line of hill; nearer post of fireplace; stones below it; line of shore; girl; rest of fireplace, fire, etc.; boy; reflections. Copy every line and dot faithfully.

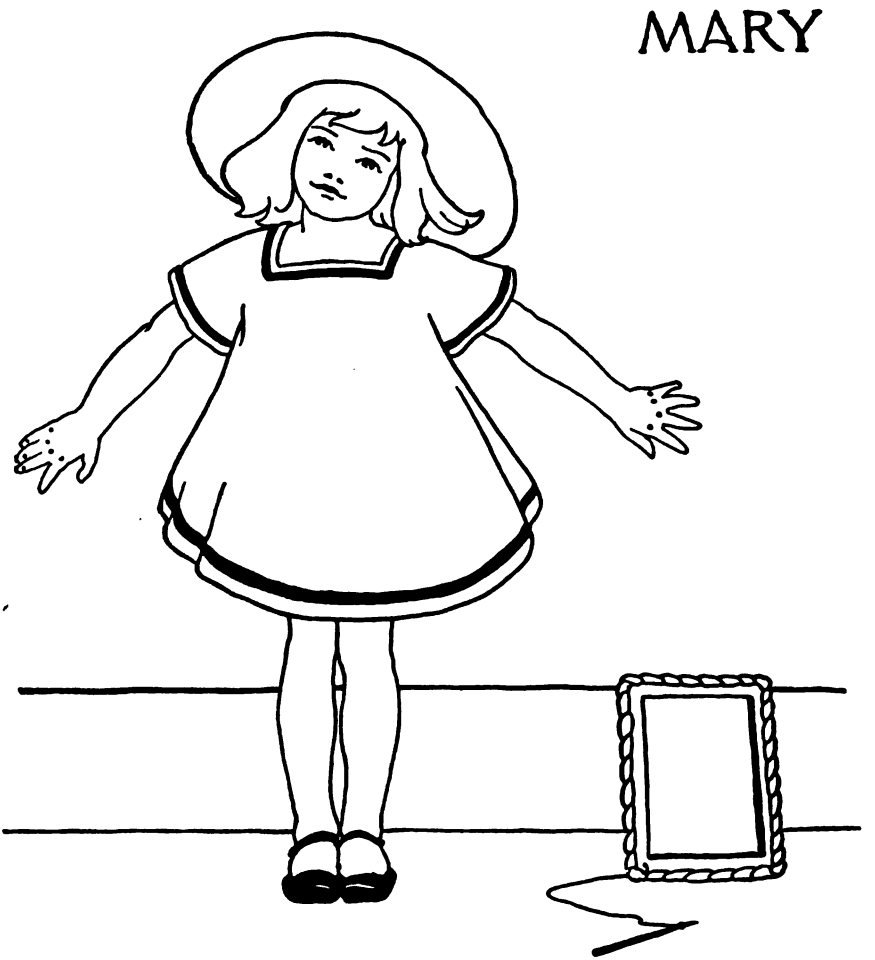
Some lines are light,—the flame of the fire for instance.

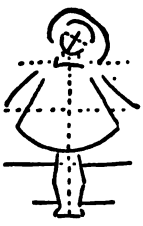


SOME THANKSGIVING SYMBOLS THAT CAN BE COPIED AND USED FOR PLACE CARDS

Mary

Here is something more difficult to copy. It is Mary ready for school. She has a new dress and a new slate. She is showing you how pretty her new dress is.



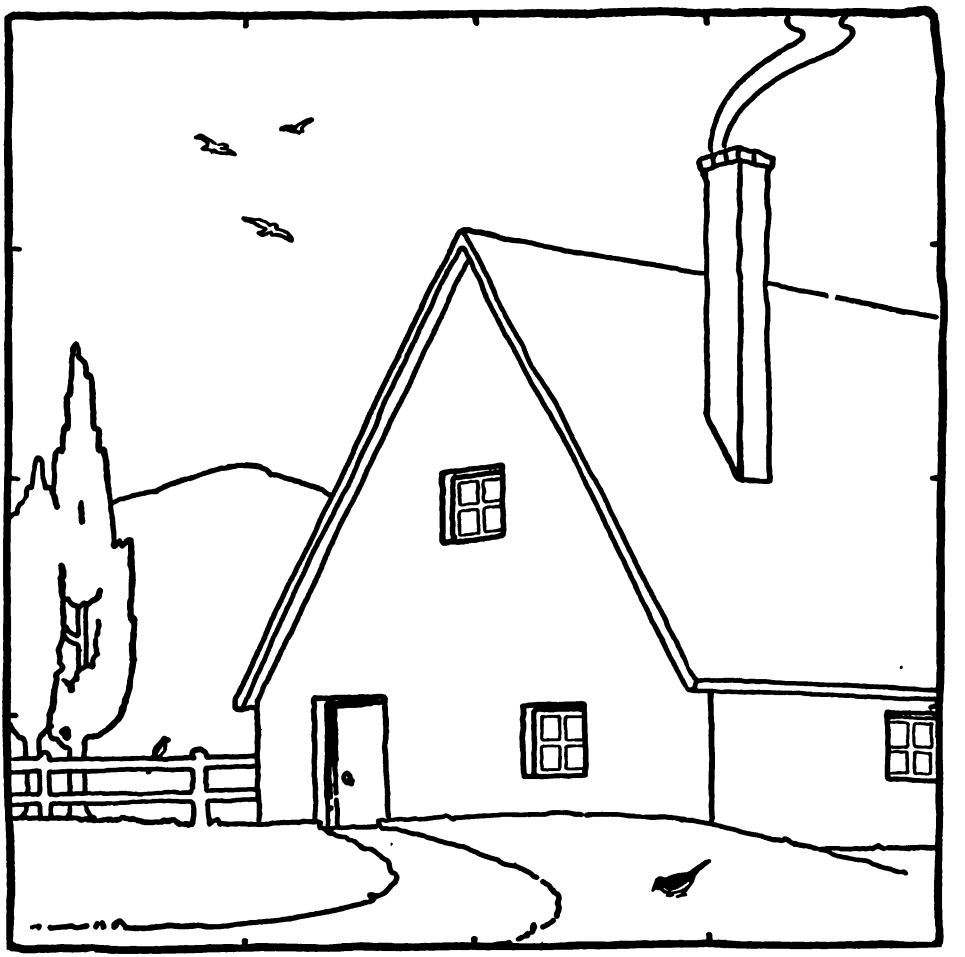


In copying her, use a sheet of good white paper about 6 x 9 inches in size. Think first where she is to stand. Sketch a light vertical line to show where that will be on the sheet. Then locate the level of her feet, shoulder, and hands. Sketch a line to show how much her head tips and locate the line of her eyes. Now sketch lightly all the parts. When that is done rub out the wrong lines and go over carefully every line and dot necessary to finish the drawing.

THE ENCHANTED FAWN

For Your Picture Book

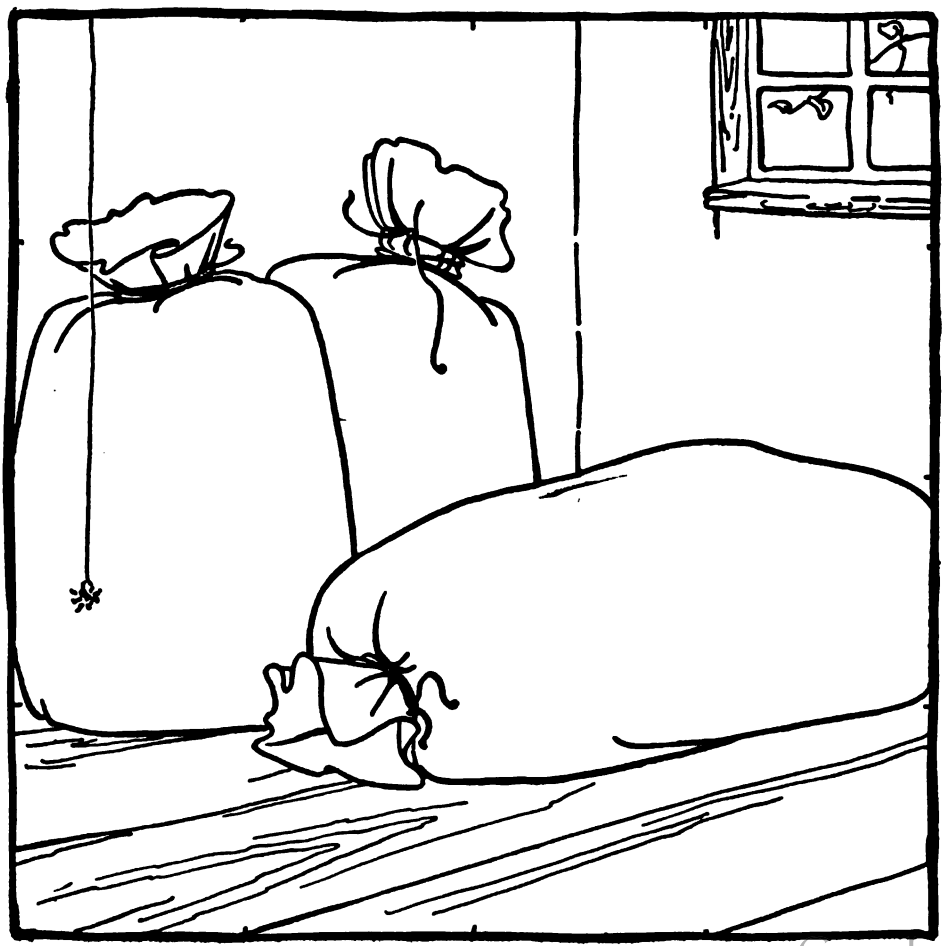
This is the House that Jack Built



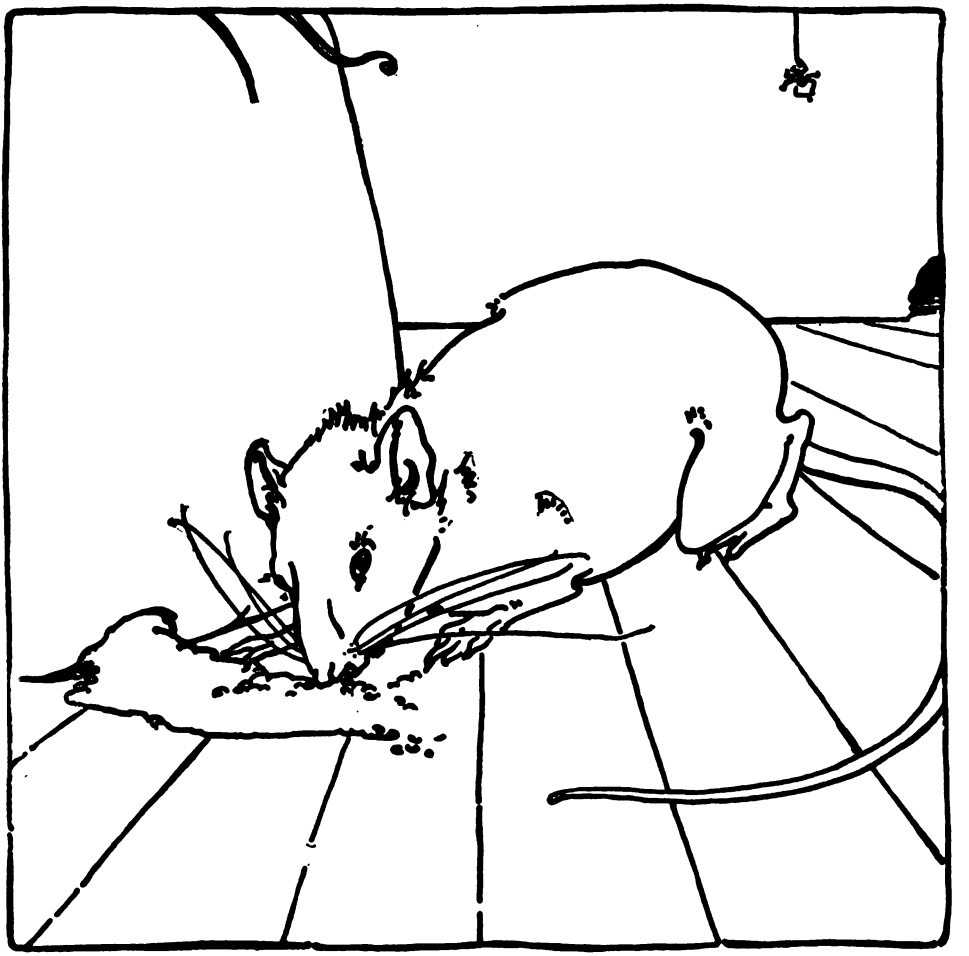
Isn't this a fine drawing? Can you copy it? Of course you can. Get a piece of paper, draw a square on it. Make a little mark in the middle of each side. Make the other marks half-way to the corners, like those you see on the square of the picture. Now rule light pencil lines from the marks at the top of the square straight down to the marks at the bottom; and from the marks at

the left straight across to the marks at the right. The picture is now divided into twelve little squares. Divide your square in the same way. These lines will help you to see where to draw. Now you are ready to copy the picture. Begin with the line that shows where the front yard stops and the house begins. Draw the corners of the house, and the front end of the roof. Next draw the chimney. Notice the direction of each line, no matter how short it is. Draw next the fence and the trees and the top of the hill. Now draw the door, the windows, the path, the smoke, and the little birds. Keep your lines of the roof as straight as possible.

This is the Malt that Lay in the House that Jack Built



This is the Rat that Ate the Malt that Lay in the House that Jack Built



Make a little picture book for the story of "The House that Jack Built." Choose heavy paper and when you have copied the pictures in the series you can color them.

Your small brother or sister will like such a book,—just because you made it. You can make holes in the left hand side of your paper and tie the leaves together. Print your titles carefully.

This Is The Cat
That caught the rat
That ate the malt
That lay in the house that
Jack built.

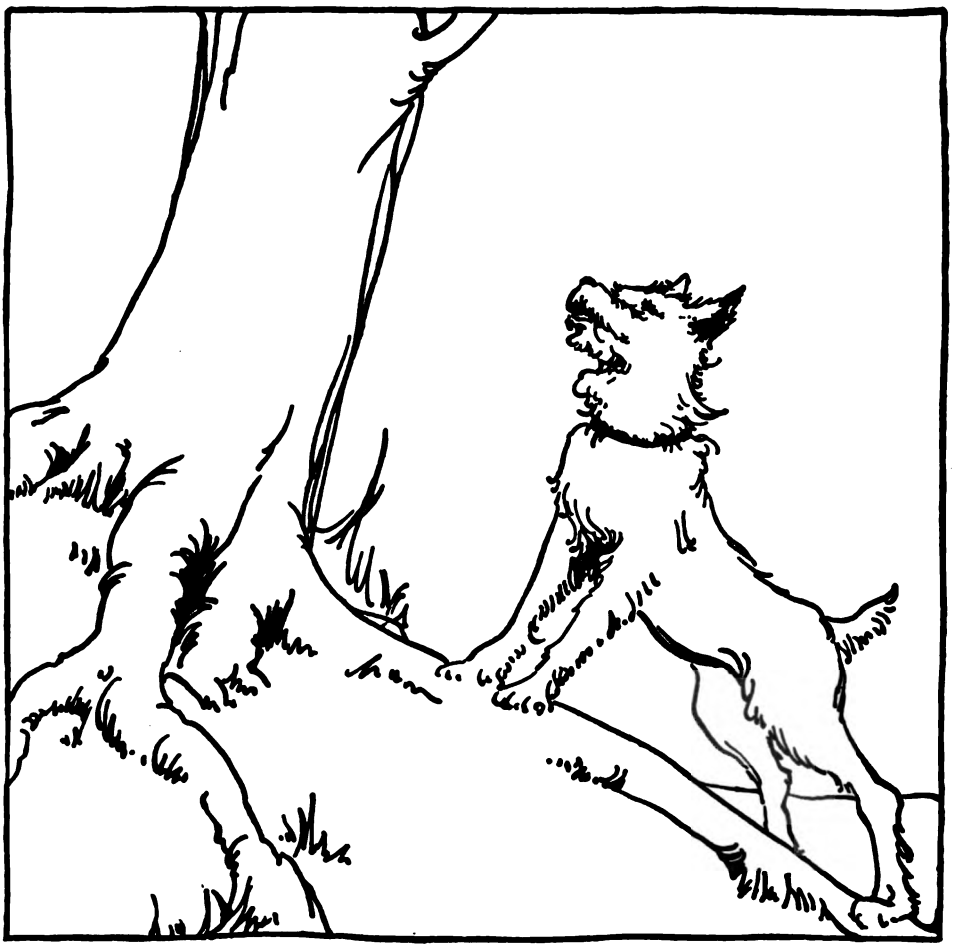
What a fierce old cat! Copy it on a white page for contrast. Make it smaller than the other drawings, so that it will have a wider margin all around the page. Draw it in pencil. Then go over it with ink, using a brush. To make the whiskers, skip the pencil lines where the whiskers are white, and ink them where the whiskers are black.

Books that you buy are beautiful, but you will like a book that you make yourself. Take stout white paper about nine inches long and seven inches wide. You can take as many sheets as you wish. Lay the sheets one on top of the other, and down through the center, —lengthwise of the paper, take a few long stitches with strong thread. Tie in a secure knot. Now fold over the sheets into the form of a book. Some of the outside sheets or leaves will seem shorter than the others if you use a good many, and so you can cut them even by laying a straight rule on the pages. Remember that all books open at the right. Now across the top of the outside leaf print the title of your book.

Copy the little story—"The House that Jack Built," and rule the squares in which the picture is drawn.

You will find other pictures in this book that you can copy, and if your paper is of the right kind you can color your pictures. A little book with Easter rabbits, stars and bells for decoration would make a gift for mother. You could find a pretty verse to copy under the pictures.

This is the Dog that worried the Cat that caught the Rat that Ate the Malt that Lay in the House that Jack Built

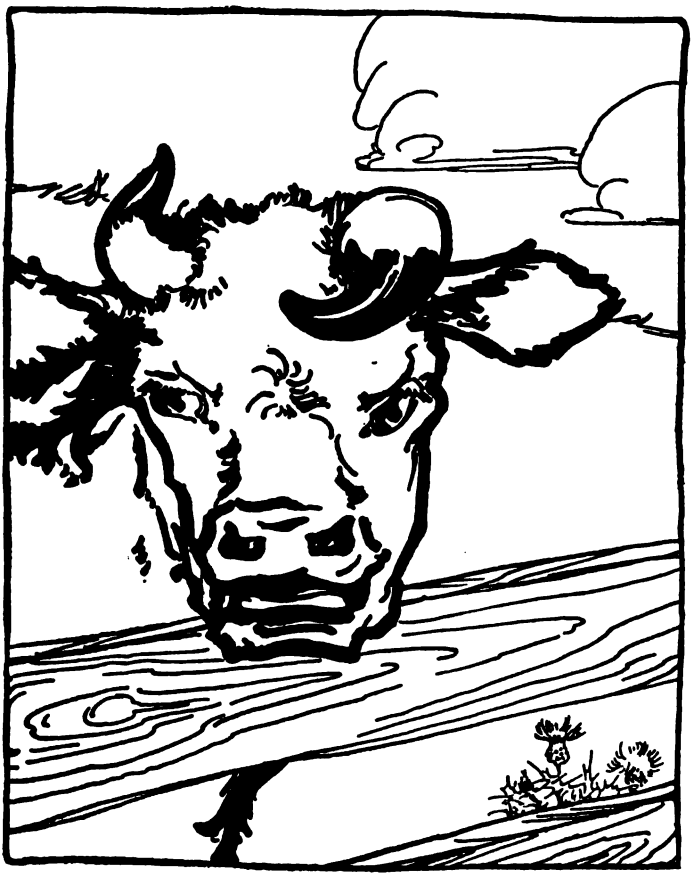


This dog is standing in a natural position. You cannot see the cat but you know that it is up there in the tree looking down with frightened eyes.

The picture tells a story, and that is a wonderful thing for an artist to do,—to draw a picture that makes you imagine something, and one that tells you even more than the lines represent.

This is the Cow with the Crumpled Horn

That tossed the dog, that worried the cat, that caught the rat, that ate the malt, that lay in the house that Jack built.



Make a copy of this picture for the next page of your booklet. Draw it in pencil, then go over all the light lines with pen and ink. Use a brush with ink for the heavy lines.

Have you ever seen a cow with a crumpled horn? In fact, did you ever notice the horns of a cow? Do you know whether they are in front or behind the ears? Little country boys and girls may know but the city children will have to look in their picture books before they can answer. There are many, many simple things that it is hard to tell the truth about.

This Is The Maiden All Forlorn

That milked the cow with the crumpled horn,
That tossed the dog, that worried the cat,
That caught the rat, that ate the malt
That lay in the house that Jack built.

It is always a temptation to trace a picture like this. That is an easy way to draw, but in the end it is the hardest way because you do not learn anything about drawing. Divide the picture into squares and work carefully.

This is the Man All Tattered and Torn

That kissed the maiden all forlorn, that milked the cow with the crumpled horn, that tossed the dog, that worried the cat, that caught the rat, that ate the malt that lay in the house that Jack built.

Here is given a small diagram that shows how the squares help to place the figures in the right position The picture square is divided into sixteen parts. You can thus see how many parts the man occupies. Draw the clouds with long but light sweeping lines.

This is the Cock That Crowed in the Morn
That waked the priest all shaven and shorn,
That married the man all tattered and torn,
That kissed the maiden all forlorn,
That milked the cow with the crumpled horn,
That tossed the dog, that worried the cat,
That caught the rat, that ate the malt,
That lay in the house that Jack built.

Did you ever read "Heidi" by Johanna Spyri? This might do as an illustration of that beautiful story

In this picture the rays of the sun will help you to place your picture of the rooster in the right position. Nothing is harder to draw from nature than fowl. They move so constantly that it is impossible to catch them easily in any position. There is a great difference in barnyard folk—as much difference as there is in the human family. In making a silhouette it is difficult to keep the edges clean and sharp, but in that quality lies their attractiveness. Do not let your ink run from the pen too freely.

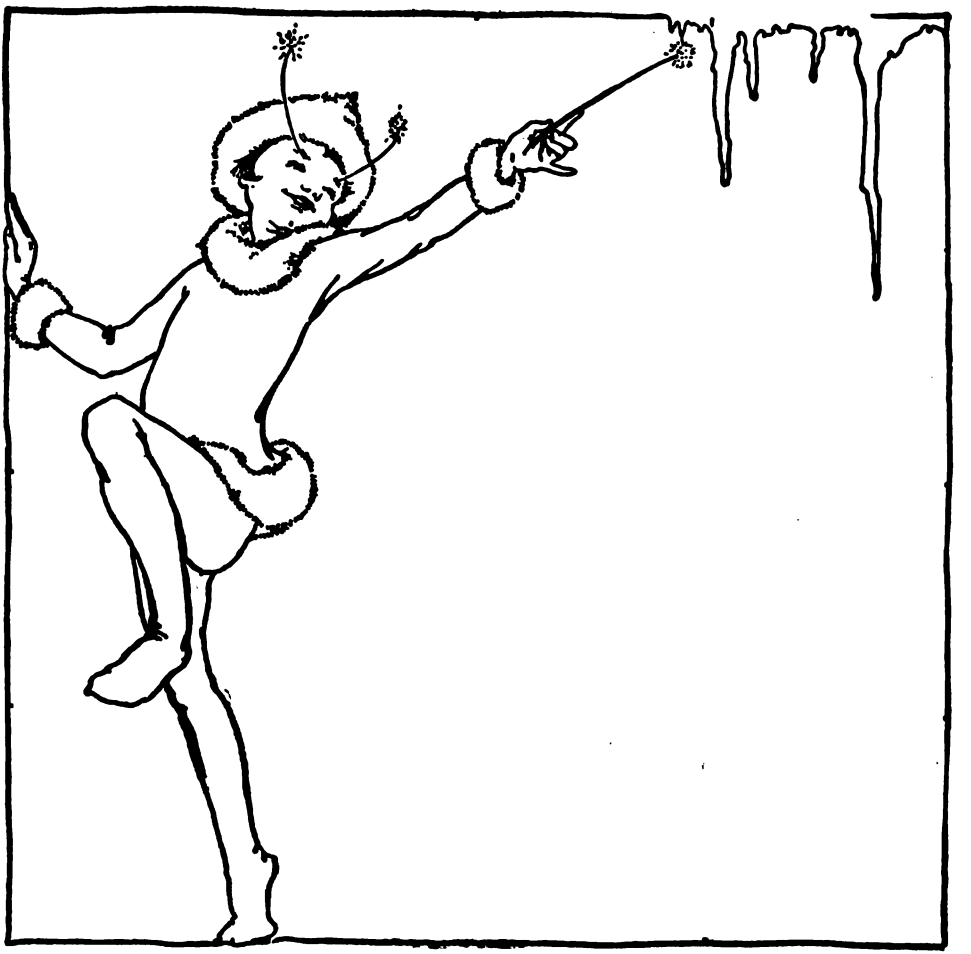
This Is the Priest All Shaven and Shorn

That married the man all tattered and torn, that kissed the maiden all forlorn, that milked the cow with the crumpled horn, that tossed the dog that worried the cat, that caught the rat, that ate the malt, that lay in the house that Jack built.

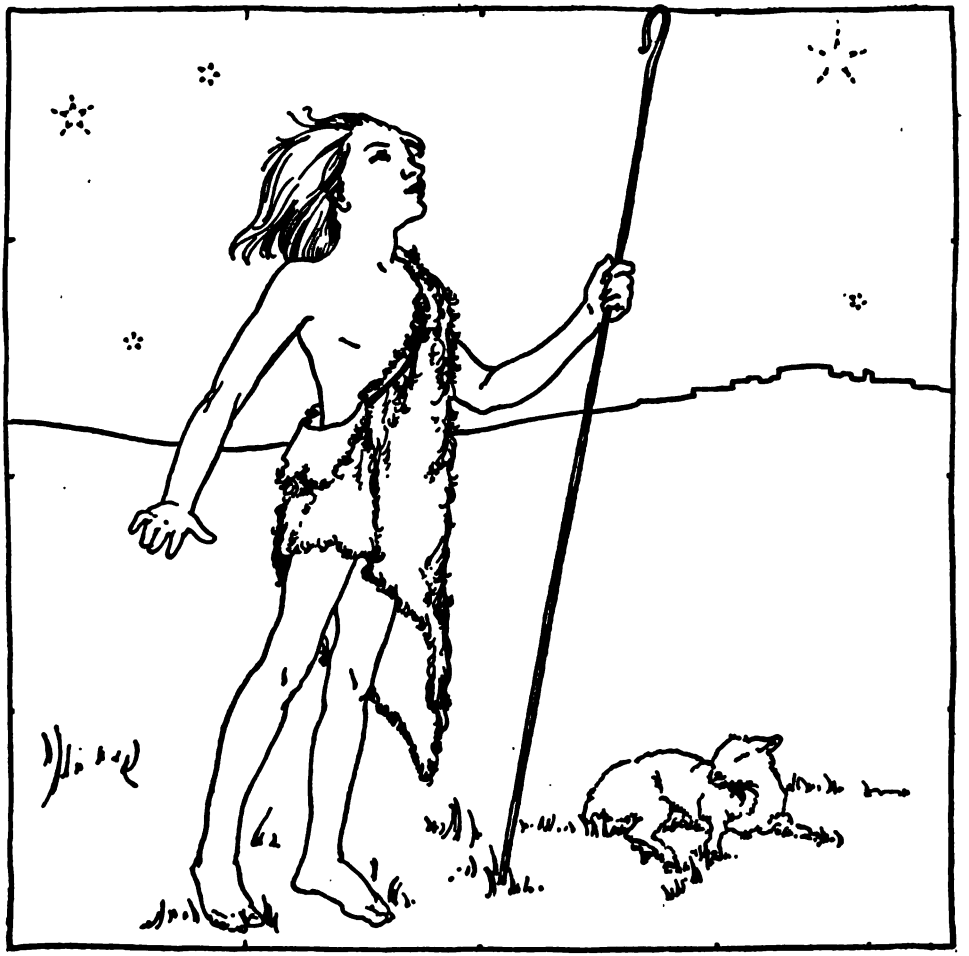
Notice the movement that is indicated in this good drawing. You can catch the spirit of the figure and seem to see it going forward along the road.

That Old Rogue, Jack Frost

Older than the hills is Jack Frost, but he plays such tricks every winter that he must be young at heart,—as young as I have drawn him. You would better use the squares when you copy him, freezing the drip with his magic wand. Don't you like his "feelers"? He touches the two ears of boys and girls with these to make them tingle, and their two cheeks to make them rosy.



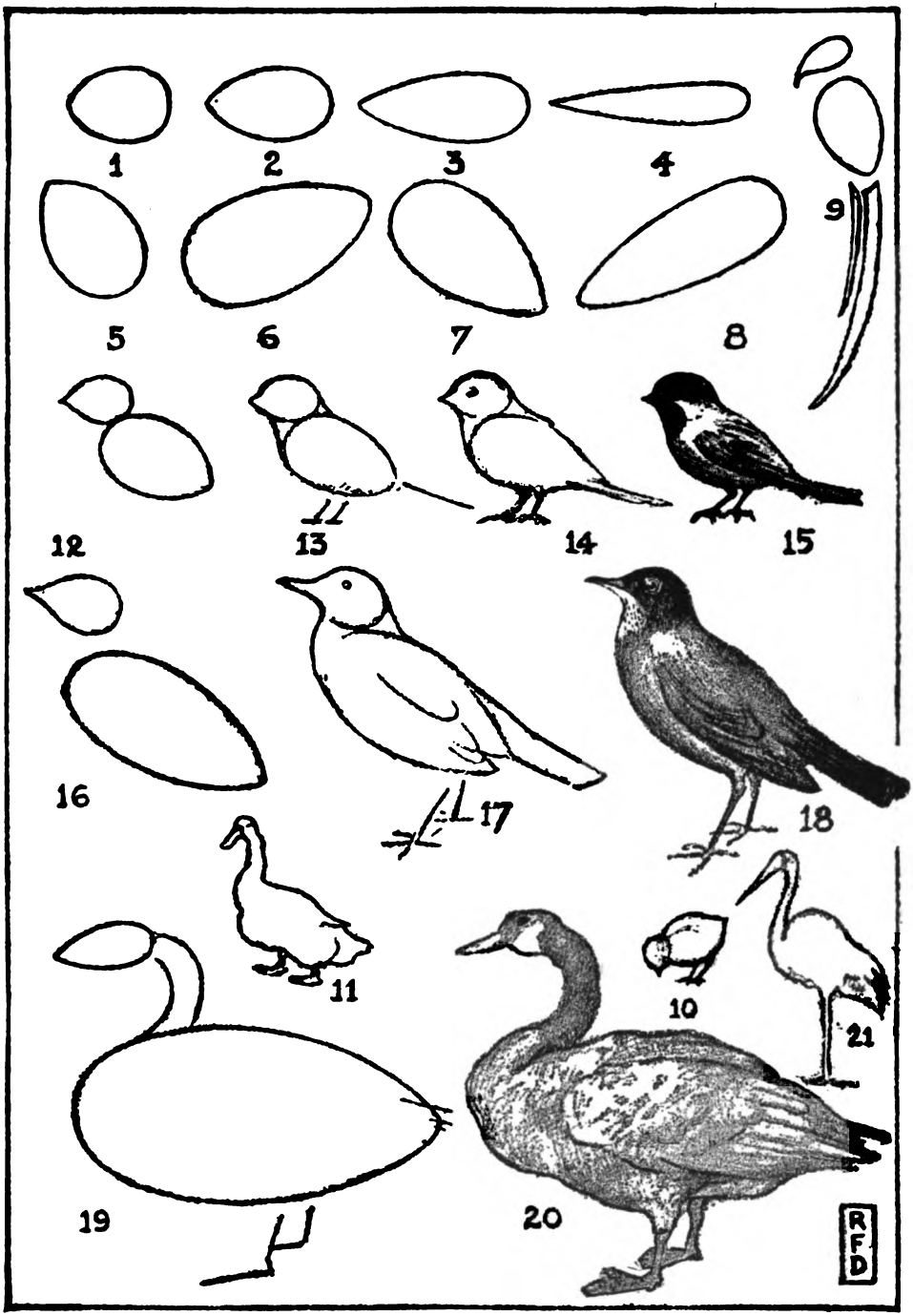
Have you ever noticed the drawings that he makes for you upon a window pane? He loves to draw fern patterns to make you think of summer while it is still cold. No one ever sees him at work, and so he is called "sly."



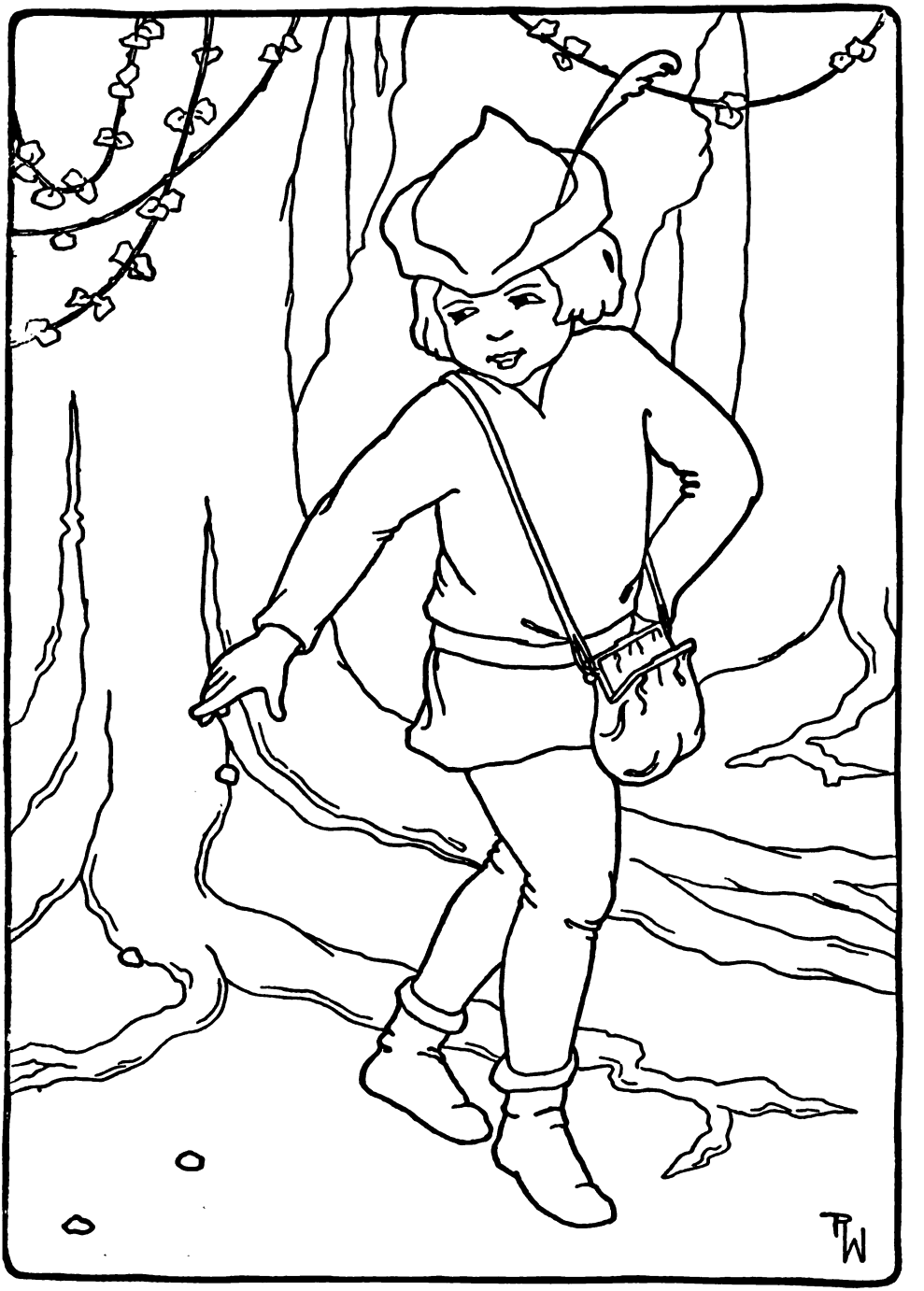
Amos, the Shepherd Boy

This little fellow was in the fields of Bethlehem with his father the night they saw the great light and heard the angels singing. A little lamb is asleep in the foreground. The walls of the little town show in the distance under the largest star. In copying use a sheet of good white paper about 6 x 6 inches. With a sharp pencil rule the straight lines to make the net. Draw the square on your paper and divide the sides; first, in the middle; then in middle of each half. Rule the net. Now copy each part of the picture, line for line.

LITTLE RED RIDING HOOD. BY RACHEL WESTON. A PICTURE FOR ORIGINAL COLORING



Can you put two pointed egg-shapes together and from them hatch any kind of a bird you want to?

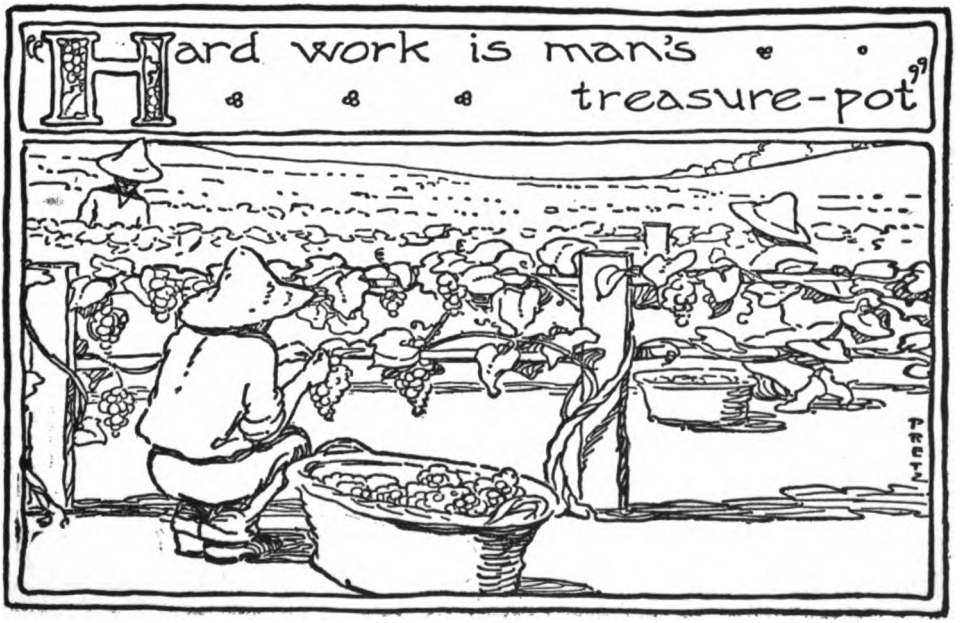


HOP-O'-MY THUMB ; THE LITTLE BOY WHO WOULDN'T GET LOST

Pictures to Color

Practise making a graded wash. Begin with pure water in your pan. Paint a strip across near the top of your paper, using this pure water. Add a little color to your pan and paint over the *lower* part of your wet strip, while it is still wet, and bring the color down a half inch. Add a little more color to your pan, and bring the wash down another half inch. Add more color and bring the wash down another half inch, and so on. The secret of making a smoothly graded wash is to keep it all equally wet, as you come down, so that, holding your paper like the side of a hill, the wash will drain down hill slowly, drying at the top first. Keep your paper always at the same slope until it is dry.

Now, make a graded wash from the top of the picture (beginning with pure water) to the bottom, adding *brown* until at the lower edge it is light brown. If you want the color to dry smoothly you must be sure to have the drawing tipped a little so that the paint will run down toward the bottom of the paper. In laying this wash omit the men and the baskets. When the sheet is dry begin a



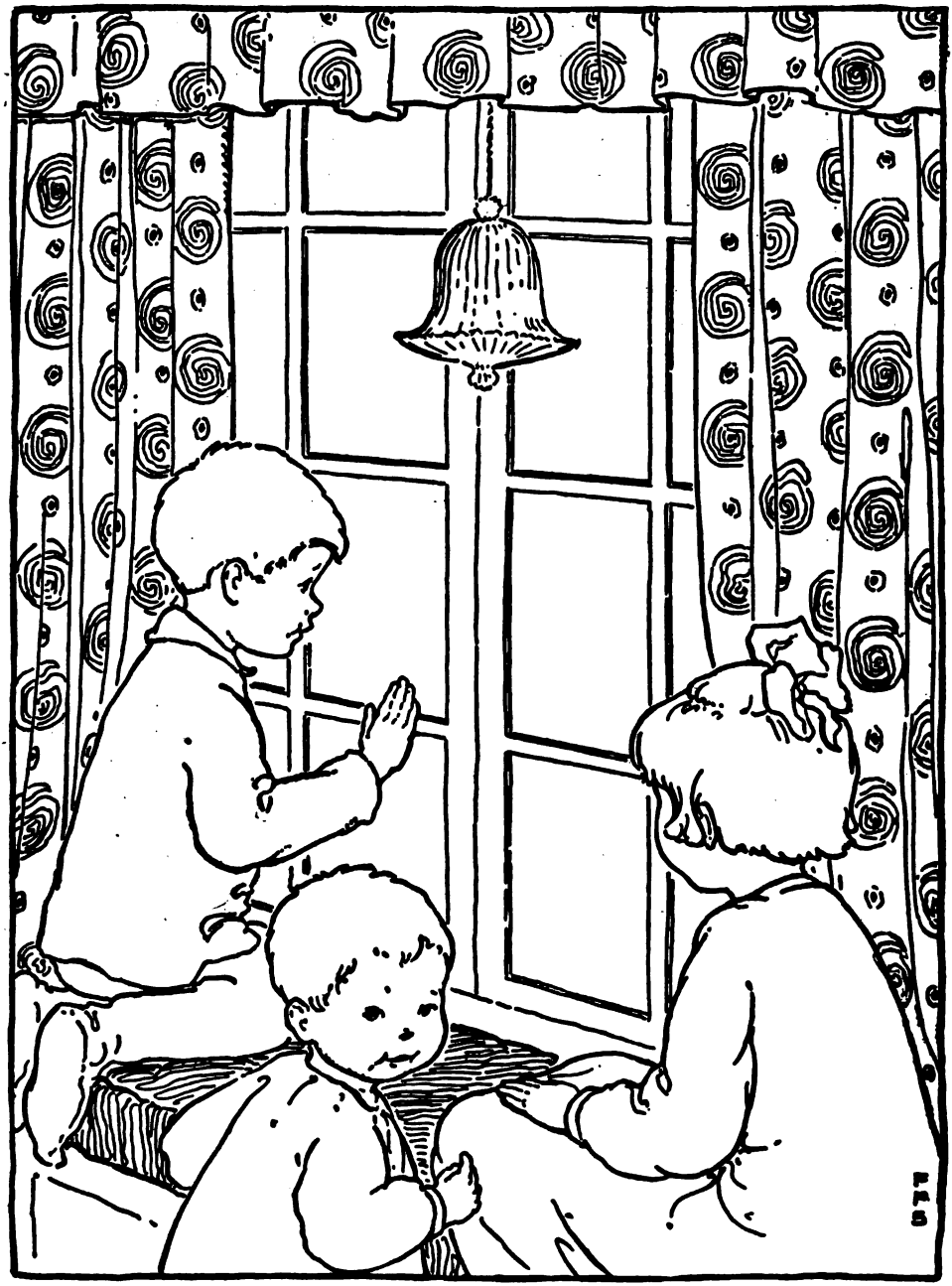
graded wash of dull yellow for the distant hill and add green, little by little, until coming to the separate leaves in the foreground, you paint them separately. When this is dry, paint the shirts of the men blue-purple, the grapes purple, and the vine stems red-purple.

The Busy Life of the Squirrel

What is the color of the squirrels who hide nuts for the winter? What is the color of the nuts? Would not a dull red-yellow be a good color for the picture? The colors of the smaller parts might run more toward the yellow, and more toward the red, with just a touch of blue somewhere. Make the coloring right for November.

It is Christmas Eve and the children in the picture opposite are looking out the window for Santa Claus.

It is a very dark night so paint the window panes a very dark purplish blue (blue with a little red in it). When it is thoroughly dry paint the window frames a very light tan. That part of the window by the boy's foot is tan also. Paint the children's hair light brown. Their sleepers are all white.



WATCHING FOR SANTA CLAUS

The little boy carrying a bunch of goldenrod home to his mother is out in the yellow sunshine under the blue sky, so we will use mostly yellow and blue. We will begin with splashes of very light, bright yellow, on the goldenrod. While that dries, put some very light pure blue over the sky above the clouds and in the little spot between them. Leave the clouds white. For the sky below, add a very little red and yellow to the blue, making your color still lighter in tone.

The distant trees are a little darker than your sky color. Add more blue and yellow, and paint the ground just below the trees. Lastly, paint the nearer grass, and the leaves and stems of the goldenrod a clear, bright, sunny green. Add a little red and yellow to some blue to make it dull, and put in the tie and trousers. To very light red add a little yellow, and paint the face, hands, and legs above the socks.

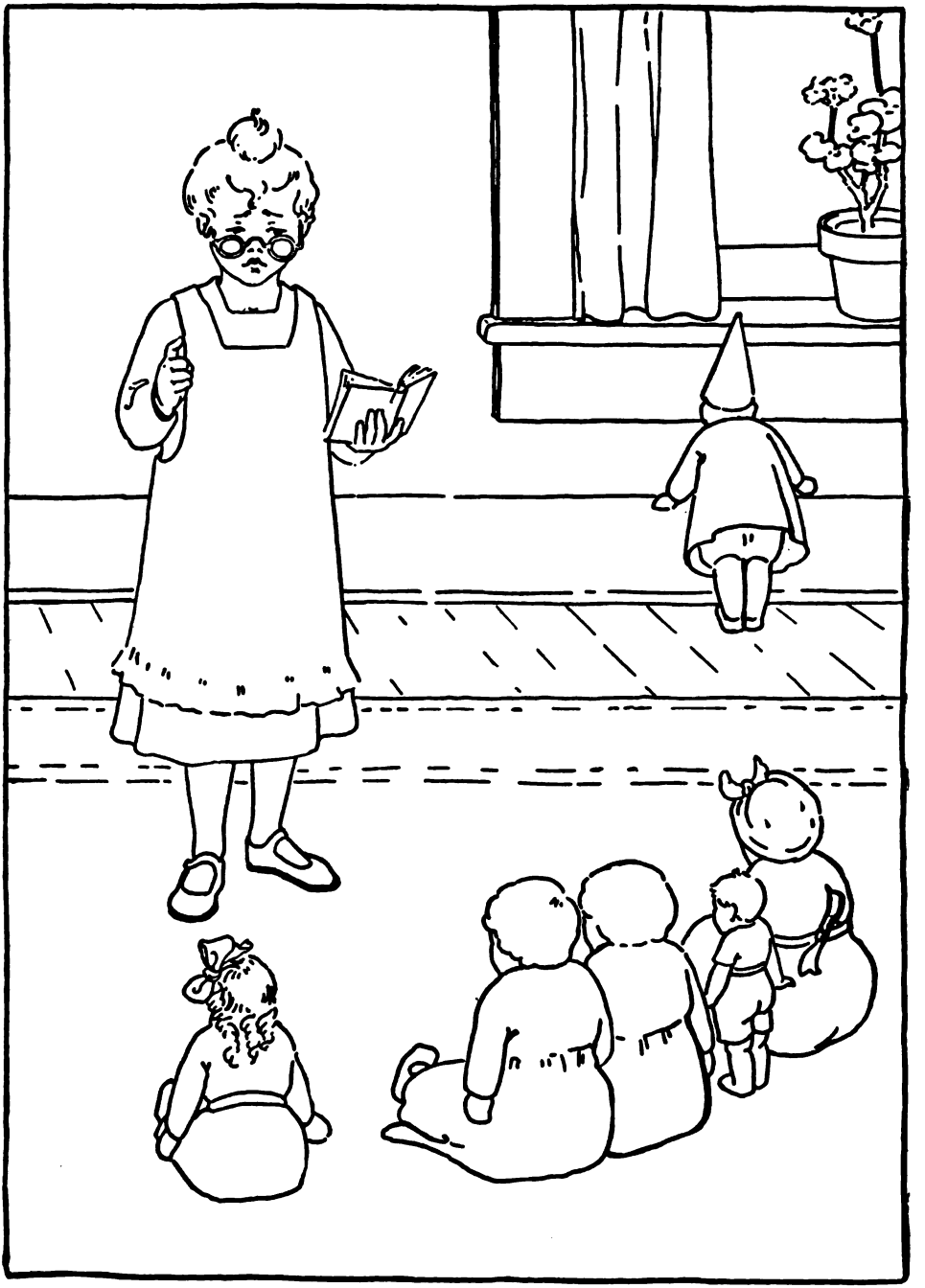
While this color is moist, drop a little red into the cheeks. Take light yellow with just a little red and blue in it for his hat, and for the hair use the same mixture, darker.

In "Playing School," the curtain, the girl's apron and stockings, the naughty doll's cap, Aunt Jemima's apron, and the belt of the curly-haired doll are white. The shoes are all dark gray.

The geranium flowers are bright red with a little yellow in it. The dress and hair ribbon of the curly-haired doll are the same color. The book is red with no yellow. The turban and dress of Aunt Jemima are dark, dull red. Outside the window is bright light yellow-green. The geranium leaves are light gray-green.

The girl's dress is dull gray-green. The wall is a dull orange. Use the same color, darker, for the woodwork and floor, and for Aunt Jemima's face. The girl's hair has more red and yellow than the woodwork. The flower pot is lighter than her hair. Make the two border strips of the rug a dull orange. Then take brushfuls of dull red, put beside them brushfuls of dull green, and let them run together until the whole rug is covered.

Give the curly-haired doll dull yellow hair. The twins and the boy doll have hair of different tones of brown. Paint the faces and hands of the girl and dolls as directed for the little boy with the goldenrod. Give the boy doll a dull blue suit. Dress one twin in light red and one in light blue, so that you can tell them apart. The naughty doll should have on a green dress with dull red stockings.

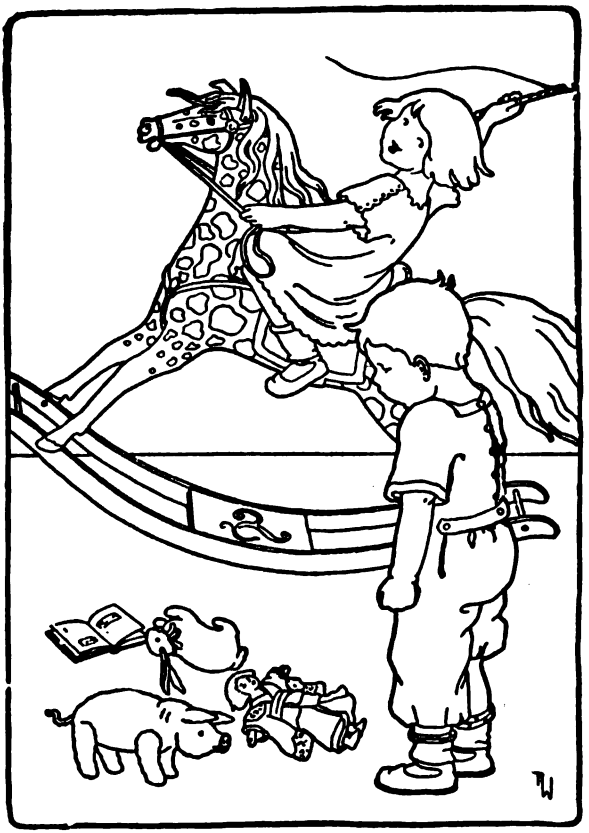


PLAYING SCHOOL

My Pony

I had a little pony,
His name was Dapple Gray,
I lent him to a lady,
To ride a mile away.

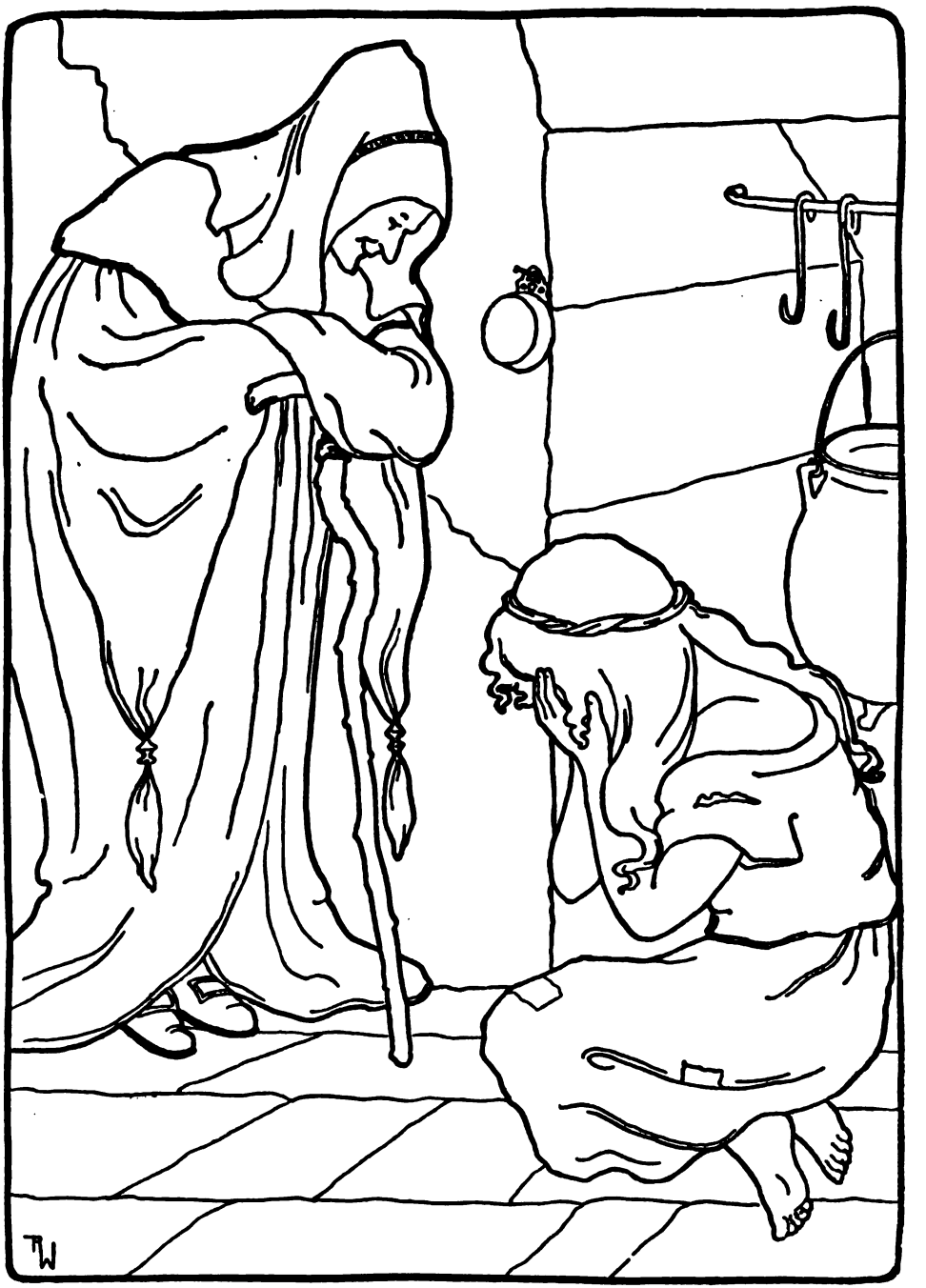
She whipped him, she lashed him,
She rode him through the mire:
I would not lend my pony now,
For all the lady's hire.



The dapples on the white pony are gray; the harness black with green rosettes; the saddle black and red, and the rockers gray. The brown-haired lady, dressed in white, flourishes a red whip. Paint the owner's hair a tint of yellow and his rompers light brown with white bands; the tops of his white socks red and the ankle ties black. Red and yellow with a bit of blue and quite a little water will give the flesh color. The pig, book and rabbit are white and the Jap doll is gay in red, white and green. The wall and floor are tints of gray.

Cinderella

On the following page you will find poor little Cinderella. She is crying so hard that she does not know her godmother has come to make her very happy. When she does look up, she will see that dear lady in a beautiful rose colored cloak with tassels of gold. The band across her soft white head-dress is also of gold. The staff on which she leans is brown. Cinderella's dress is brown but her hair is golden.



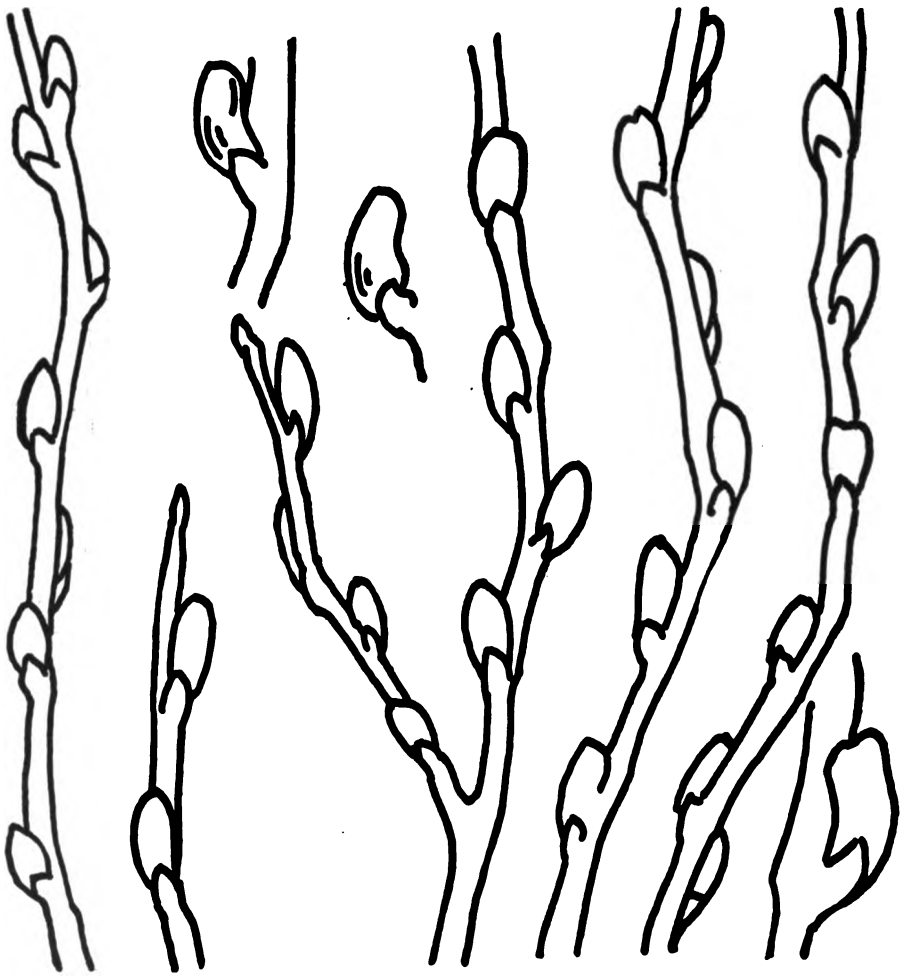
CINDERELLA AND THE FAIRY GODMOTHER

BLANCH AND VERMILION. A DRAWING FOR ORIGINAL COLORING. MAKE IT SPRINGLIKE

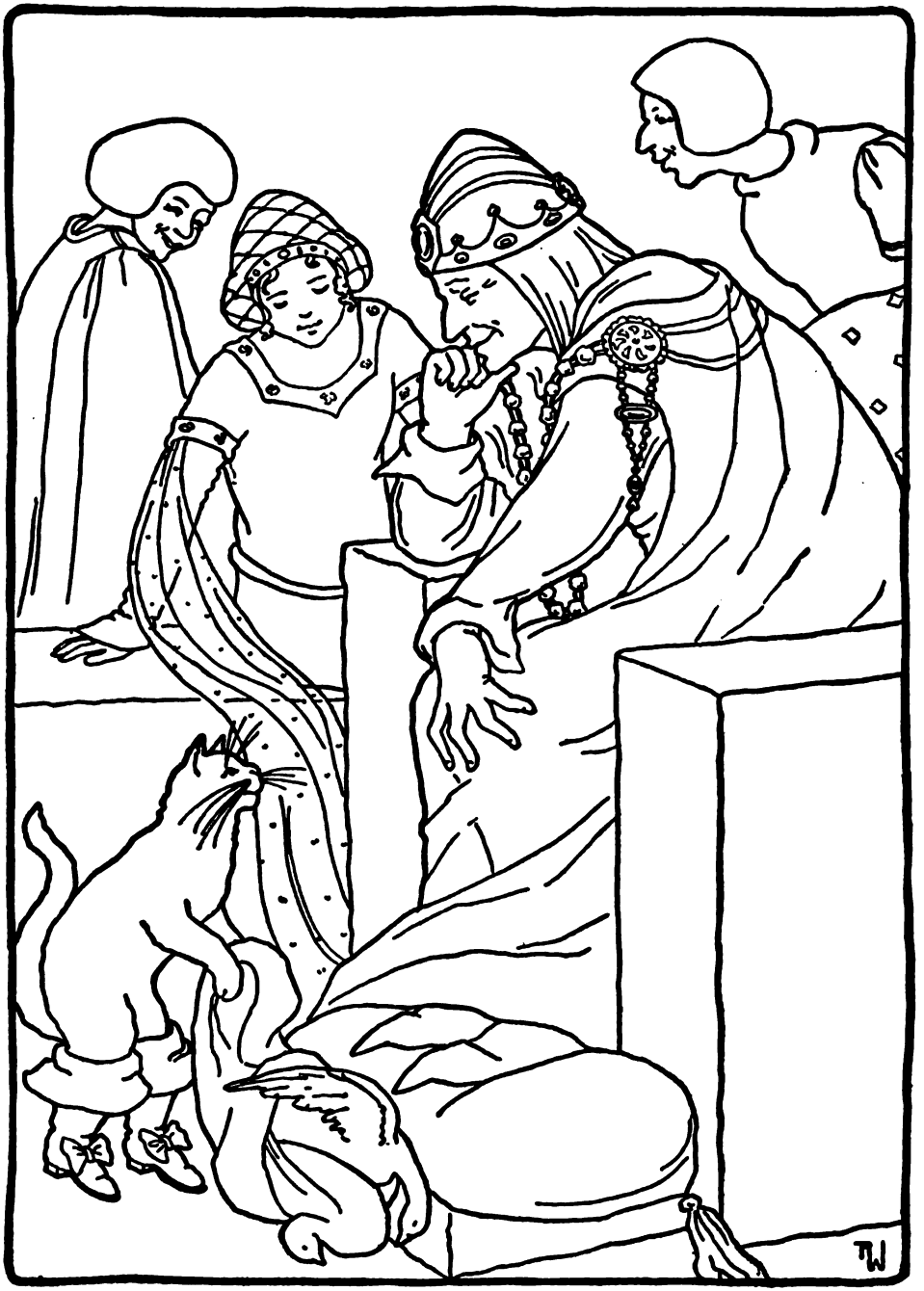
Pussies

Here is another picture that suggests spring.

Color the stems brown and the pussies gray. Gather some pussy-willows near your home. What colors do you notice in them? See if you can find the same colors in your box of crayons.



You can make a very pretty gray by taking a black crayon and bearing on lightly. Perhaps some parts of the pussy are almost out. If so, let your paper show the white parts. Do you find just a speck of yellow in your larger pussy-willows?



PUSS-IN-BOOTS. A PEN DRAWING BY RACHEL WESTON

Run! run! as fast as you can. You can't catch me, I'm the Gingerbread-Man!

You can color him, at least. Try this new way of coloring. Mix a wash of light red-yellow and brush it over the whole picture. Let it dry. Make the wash a little darker by putting some blue into it and brush that over everything but the Gingerbread Man and the opening where the window is. Let this dry. Make the wash darker yet by adding more of the colors, and brush it over the background, that is over the walls of the room only.

Do You Keep Your Colors Clean?

Do your pictures look muddy?

No one can color pictures well unless he learns to keep his colors clean. When the brush that has been filled with blue is carried to the cake of color that is yellow, instantly there appears the color green. Then what happens? When yellow should be used there are streaks of green in the picture.

Keep your brush well washed and all your paints will go to the paper in clear, sharp tones.

When your work is done see that your paint box is left clean.

☞ *Be sure to let each color dry before putting on another.*

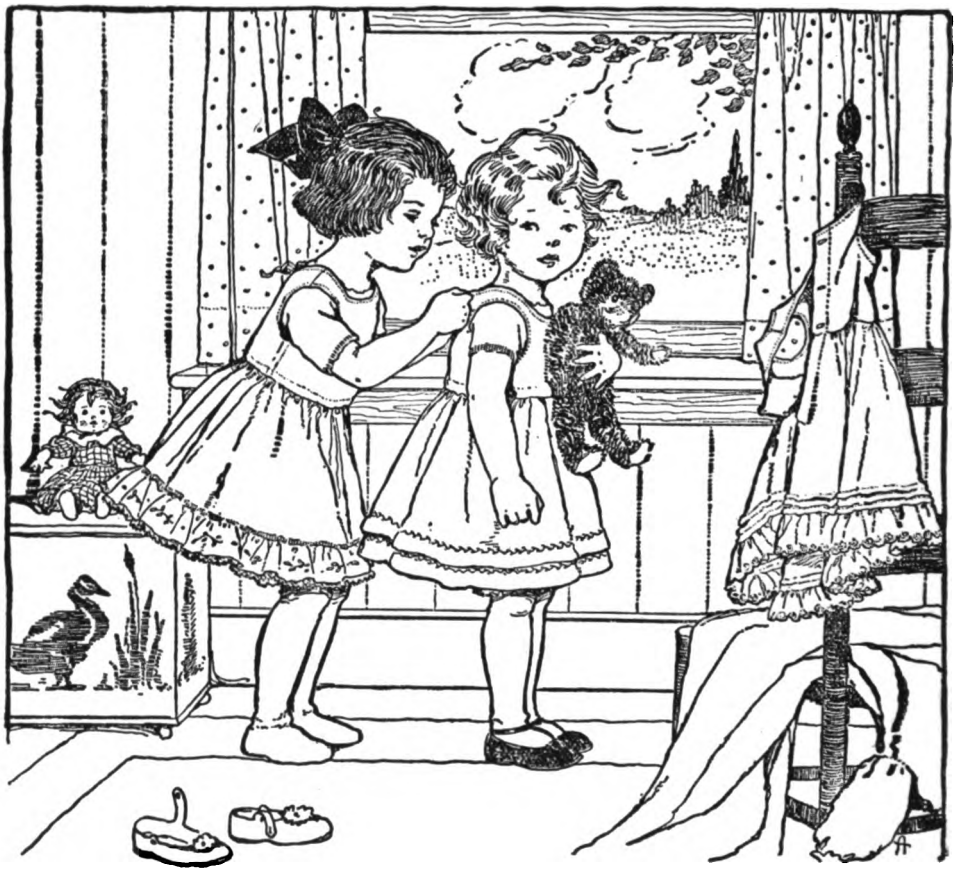
Something to Write About

Lost, Strayed, or Stolen?

Dear me, dear me, here is more trouble! What can have happened? I think she needed SOMETHING To Do, this sorrowful looking little girl—then perhaps she hasn't done anything wrong. Maybe she's just lost.

There are lots of ways she might have gotten in amongst all that grass and all the little friends. She might have wished on a four-leaf clover; she might have eaten more pumpkin seeds than were good for her; maybe she's still asleep. And the little friends are surprised and I wonder what the rabbit is saying for he knows more about the trouble than I do. Does she make you think of Alice in Wonderland?

Maybe it is only a dream!



Once Upon a Time

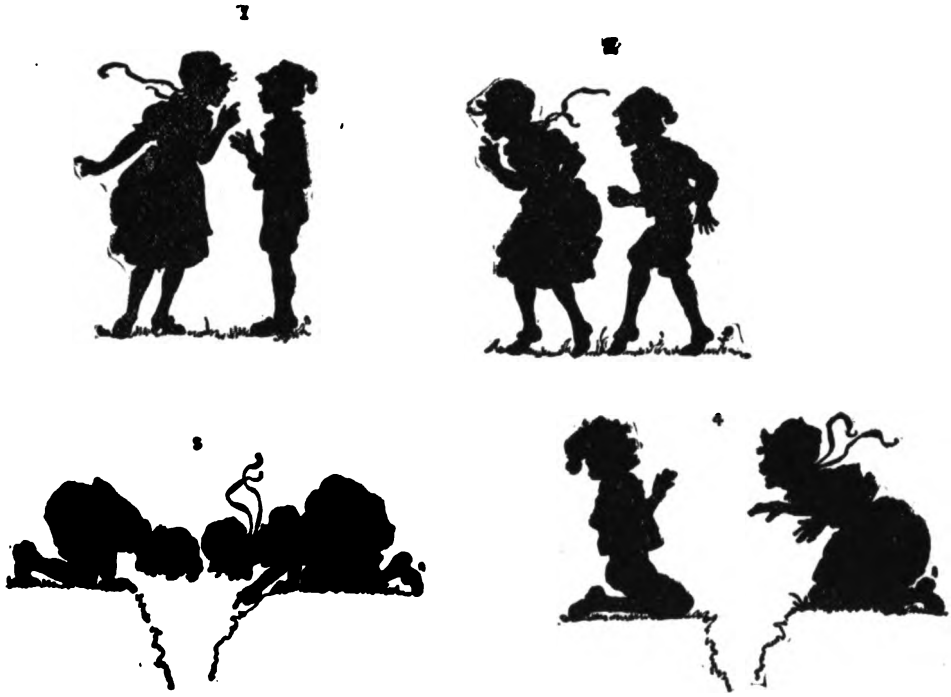
Once upon a time, when was it—one summer, or winter, or in the fall?

Don't you like stories that begin "Once Upon a Time"?

All stories happen "on a time." What kind of a time was this? Was it day or night time?

Write a story for mother.

Well, anyway, two little girls named—oh, what *were* their names? Well, they got up early one morning—or, come to think of it, were they just going to bed or perhaps going away? It may be that they hear music coming down the street, and if they hurry fast they will be in time to see a procession.



A Deep Dark Mystery

Oh my—oh my! Something's up! What *will* these children be up to next?

Or maybe something is "down."

Now "she" came to "him" and said—Well, I don't know what "she" said nor who "she" was, but he was *so* astonished; and they went off together and found—

Well, it depends altogether on where they went as to what they found; but it was something funny, I think, by the looks of the children in the fourth picture.

They nearly bumped their heads together in their eagerness to look down—way down ever so far, and they nearly tipped over backwards when they found what they were looking after. You can put that in the story, can't you?

Can you imagine what it was? Oh, I think *I* know; and I wonder how many of you will think of the same thing.

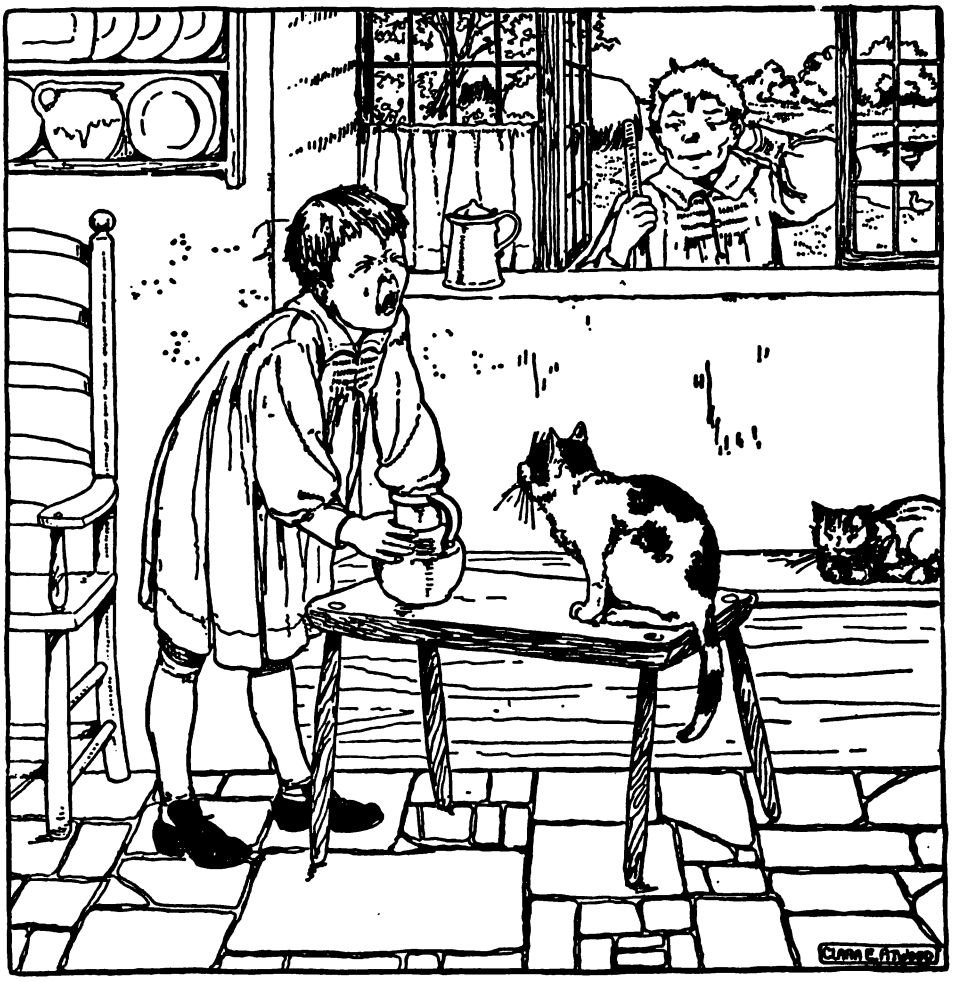
I think it was something round!

Having a Picture Taken

Do you remember the first time that you went to have your picture taken? You were a little afraid perhaps. Do the bunnies seem afraid?

See Mr. Squirrel and Mrs. Bunny having their pictures taken by old Mr. Black Cat. Young Miss Bunny does not like it. How smart Mr. Squirrel feels, with one hand in his pocket! Mrs. Bunny is doing her best to look as well as she can. Old Mrs. Robin hopes she will be in the picture somehow. Her husband, Cock Robin, is probably at home feeding the children. She is very proud of her fine new bonnet! See those three little birds all fixed up for the day waiting for their turn to come. Aren't they well dressed? Does anybody watch birds and little animals closer than old Mr. Black Cat? See his camera. It must be a home-made one. What a good old cherry tree that is to grow to fit the space, and to hold everything just right!

Do you think that the photographer has said, "Now look pleasant! Keep very still and you will see a little bird"?



Is This What Happens to Greedy Boys?

Compare the faces of the two figures. What happens to the shapes of eyes and of mouths when a-body cries?

The boy is in trouble of some kind and he must have done wrong. The gardener seems to think so.

What time of day do you think it is?

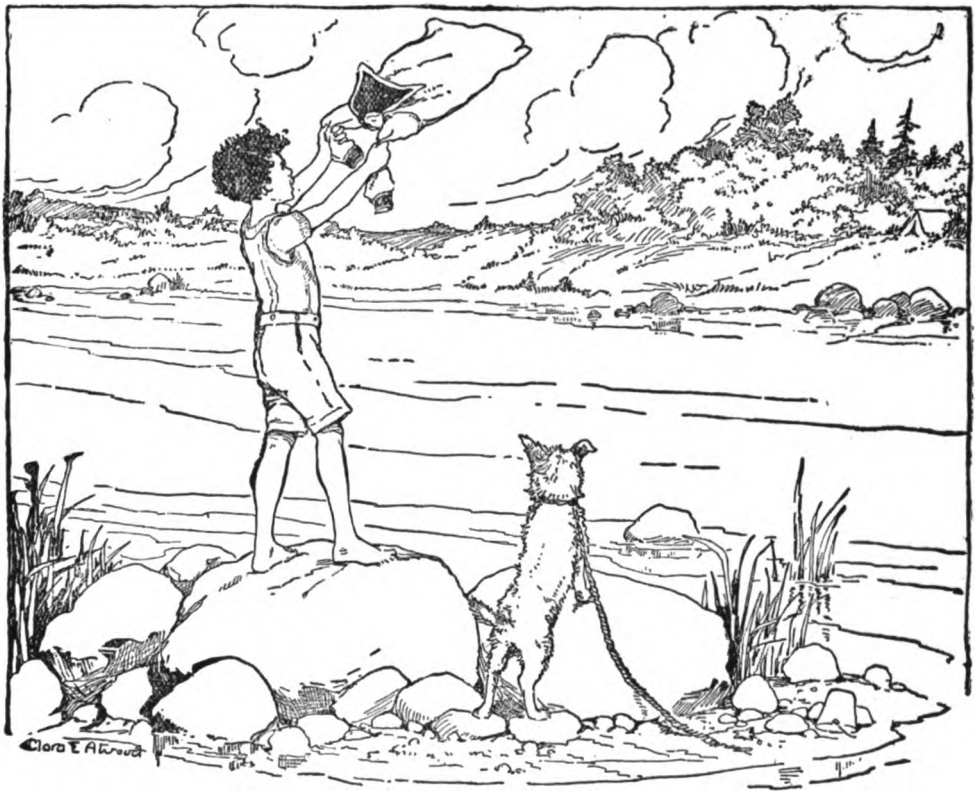
Two kinds of light came in! What were they?

Count the number of objects that you can see when you look through these windows. I can see eight different things to write about.

Who Was He?

This picture tells a story about a boy who lived many years ago and I wonder if you can tell who he was. When he was born, men who knew about such things said that the stars promised great things for his life. His father lived about three miles from a large city in Italy and his nurse was the wife of a stone-cutter. He liked to cut things from the stone with a chisel and mallet. When he was still a boy a very rich man took him for a pupil. Now, can you find out what he became—how he came to have a broken nose—what he did to the statue he loved the best—what a great painting he made in a church in Rome, and what a great statue he made of a wonderful Jew? Was he a strong man? Happy? How old was he when he died—an artist, sculptor, and patriot?

You can ask some one in your family to help you on this picture but when you have all the facts you will have material for a wonderful story.



Signalling Why?

I've had so many questions asked about this picture that it made me feel very funny—because you know—I came away before this boy waved his middy, before he *thought* of waving it even. So how could I tell whether he happened to be standing on that rock using his middy for a flag, or whether he was trying to dry it because he got it wet?

And since I didn't go over to that tent at all, how could I tell who lived in it and where it was and why it was there and a lot of questions like that?

Now you just see how *you* would like it. Suppose you had that picture on your drawing board or in your hand and your sister came along and said, "Well, what's the matter with him?" and your mother looked at the picture and said "Why! What's the child's mother thinking of?" and your grandmother said, "Dear me, he'll get his death o' cold!" What would *you* answer?

Something to Find Out

What is Happening?

Let's play Twenty Questions with this picture and see how much we can find out about this old Lady, the Little Girl and the Goat, and how interesting a story we can write after we've answered the questions.

1. What is the little girl's name?
2. Are her parents living?
3. Where did they live?
4. Was it a long way off?
5. Who is the old lady?
6. Does she live all by herself or with some one?
7. Does the goat belong to the little girl?
8. Where did she get him?
9. Does she know what his name is?
10. Where is she going?
11. What has she in her apron?
12. Where did the old lady come from?
13. What is she saying to the little girl?
14. Why is she saying it?
15. Who is behind the tree?
16. What is the one behind the tree there for?
17. Is it windy or pleasant and warm?
18. Is it in the morning or later?
19. What are they—each one—going to do by and by?
20. Are they going to be happy?

Surprise Party

Somebody's father once dreamed that he went down-stairs in the night—Well—that's what some one told me but maybe it isn't so at all!

Maybe he really did go down because he thought he heard some one rattling in the fireplace and perhaps he thought the Christmas tree would be stolen and then, maybe it wasn't that way either!

Perhaps you know all about it and can tell me—for really I'd like to know.

Why has the tall man got pajamas on? And who is the funny little fat man and what has he in that sack on his back?

Whose Christmas tree is it? Has that man a lot of children, do you suppose? Do you suppose the maid left those stockings?

If you would like to write a story, try to think of a Christmas surprise to yourself. Think of what might happen if you should get up at twelve o'clock and go down-stairs!

A Fable

Have you read Æsop's Fables? If you have you will see more in this picture than the boy who has not read them.

Let's write a fable about the picture this time. Do you know what a fable is? It is a short story in which animals act and talk as men do and which is meant to point a moral or a lesson for us; like "The Shepherd's Boy and the Wolf." The boy, you know, took care of sheep, and used to call "wolf, wolf" to tease the neighbors, who would all run to help him kill the wolf, only to find that he had fooled them. One day the wolf really came, but for fear of being fooled again the neighbors didn't run to help the boy and the wolf killed the sheep. The moral is "There is no believing a liar even when he speaks the truth." The moral goes at the end of the story in a sentence by itself.

Now, for example, you might call this "The Little Pig who didn't mind his mother," and after telling what the little pig did, point your moral which might be "One who disobeys in little things cannot be trusted in big things." But be sure you don't make your fable like this. Think of something else.

A Nursery Romance

Oh! what do you suppose this picture means? Where do you think the Mouse and the Dutch Doll are going on the horse?

Do you suppose the Dutch Doll was in a circus and Mr. Mouse saw her and liked her and they ran away to get married—on the Humpty Dumpty Circus horse?

I wonder what the horse's name is, and whether he belongs to Mr. Mouse or to some one else?

Isn't that a clever dog to carry Mr. Mouse's hat in his mouth, and I suppose that bouquet of flowers belongs to the Dutch Doll.

Look in the dictionary and find the meaning of the word "Romance" and then see if you can write one.

The Latest Trouble

What do you think about it? Play that some one started to tell you about the children and the nurse and the cat and then was called away and you didn't hear what the trouble was all about.

Suppose the one who told you just said—"Well, it was so nice that the nurse was there for——" and then had to go. Where was the nurse, I wonder, and who were the children, and why does one seem to be running away? It wasn't very long ago that it happened and it couldn't have been very far from home—could it? Because the cat is there, you know. There's something strange about it—can you guess what? Do you think the two boys are brothers? Why is the little girl crying? Do you suppose the great black cat has made the little girl cry? I wonder what the little boy is saying to the nurse; he seems to be pointing at something. Can you guess what the boy is carrying under his arm?

There are many things to find out in this picture and you will have to look at it carefully.

When you find the mystery that is the beginning.

Can you finish this story?

Polly's Good Luck

Here's a new way to write a story about this picture.

And here are many things to look for in the picture. I will write a long list of words that *I* might put into *my* story and you see how many of them you can use in your story. People sometimes, when they don't know just what to say, talk about the weather so we'll begin with that.

Spring	Fall	windy	rainy
wind	storm	blowing	cold
warm	soft	country	Grandma's
cousin's	walk	play	umbrella
pets	girls	Polly	rabbit
yard	barn	brother	feed
lost	long	day	night
Mother	friends	little	Bunny
house	wall	leaves	stones
rubbers	glad	sorry	crying
laugh	shout	hunted	tried
many	cellar	attic	places
dinner	far	tired	found
ribbon	lettuce	cabbage	hill
fence	soon	twice	joy
children	father	never	wire
hutch	three	o'clock	hurrah

Something to Illustrate

You have had pictures to suggest a story and now we will have stories and verse that suggest pictures.

Our Christmas

What does Christmas mean to me?
Splendid, dazzling *Christmas tree,*
Stockings dangling in a row,
Stuffed by Santa, top to toe;
Heaps of gifts for Jack and me
And for all the family,
Dinner-table piled up high,
Christmas goose, and hot mince-pie!

Then, when dusk begins to fall,
That's the bestest time of all:
Mother tells about *the star*
And the Wise Men from afar;
How the *shepherds of the plain,*
Wakened by the angels' strain,
Hurried through the night to greet
Just a sleepy baby sweet.

Though we know the story old,
Yet we love to hear it told,
And I shut my eyes tight—so,
Till I see the star aglow;
Hold my breath, and listening,
Hear the angel chorus sing,
And *the mother, crooning deep*
O'er the baby fast asleep.

While we sit so quiet there,
Daddy tiptoes from his chair;
Lifts the curtain, and we spy
One bright star shine in the sky
Just as if it came to say,
"This is happy Christmas Day;
And to every girl and boy,
Love and peace and Christmas joy!"

Alice Lovett Carson.

The Christmas Story

Here is a poem which is filled with pictures. Read it over, think about it, shut your eyes until you can see the pictures in it. Look through your story books and papers and find drawings which tell the same stories. Then try to cut paper pictures to tell the beautiful Christmas Story.

For your pictures get several sheets of black, white, and colored paper.

Here are some of the best pictures:

1. The Christmas tree: use dark green paper for the tree; a white star for the top; red, for the many candles on its branches; background black.

2. The fireplace with the stockings, and heaps of gifts; use red for the brick fireplace; black for the opening in it; black stockings and suitable colors for the toys.

3. The dinner table with its dark brown legs, dainty, crisp, white cloth and different colors for all the good things to eat.

4. The town of Bethlehem and the Star. For the background use a medium blue and cut the star and town of white; make a black

frame. You can find a wonderful madonna and child to go with the verse. Do you know the famous madonnas and the names of the artists who painted them?

The Magic Vine

Here is a little poem by an unknown author that I want you to read. It is full of pictures. Read it over carefully. If you live in a big house full of servants and are not allowed in the kitchen, perhaps you have never seen a pumpkin seed; but, perhaps, by good luck, you have seen one at school or somewhere.

A *fairy seed* I planted,
So dry and white and old;
There *sprang a vine* enchanted
With *magic flowers* of gold.

I watched it, I tended it,
And truly, bye and bye,
It bore a *Jack o' Lantern*
And a *great Thanksgiving Pie.*

Do you know how the fairy seed looks? Have you ever seen a pumpkin vine with its large yellow flowers? Did you ever make a Jack o' lantern? Did you ever see a whole pumpkin pie? Could you draw the pictures suggested by the words in italics? The drawings on this page will help you to make the pumpkin seed Brownies.

Take your black crayon and draw an ellipse. Next add to this, at the top, his head, with a very pointed cap shaped like a pumpkin seed. Now, on the lower side of the ellipse make the letter U upside down with the ends extended and next add arms and hands and any other details you may wish, and you have a fine Brownie. Color his jacket green, his trousers and cap red, his shoes brown. Could you make a number of Brownies holding hands and dancing about the pumpkin? Draw them running, jumping, sitting, playing and having a jolly time.

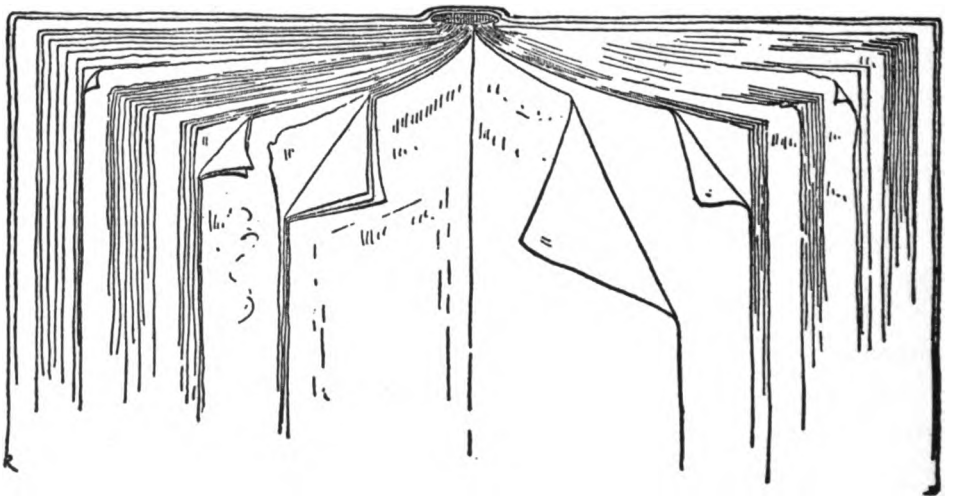
A Fable

Have you read fables? Take one from the writings of a man who sees word pictures and pencil pictures. No doubt "Æsop's Fables" is a book that is familiar to you. After you have studied the picture go to your clippings and find characters to fit the wording of the story. You can select pictures for many different stories and bind them together. In that way you can make your own book.

Read one over, looking at the words hard and thinking what every single one means. Read it all over again, then shut your eyes and see what you see.

How Do You Keep Your Place?

Not your place in the class at school. I can guess how you do that! You just do the best you know how and earn a place for yourself which nobody else can fill. What I mean is the place in the book you are reading when the dinner bell rings and you have to put it down in a hurry? (How very hard it seems to be for me to say what I really do mean! Of course it is the book and not the dinner that you have to put down in a hurry!) Suppose you have come to a tremendously exciting place where something great is just going to happen and you have to stop. What do you do? Not this, I hope.



You will see by the picture that the reader kept his place by turning down his leaf.

All the soft leaves were creased and rumpled in that way.

The book that is handled that way grows old very fast.

That is the way books get "dog-eared," but no dog's ears ever look as bad as such book pages do.

Another way the books get these queer "ears" is by being dropped corner-down.

Something to Remember

In your spare moments commit some good things to memory.

The Golden Rule

Do unto others as you would like to have them do to you.

Another Good Rule

Dare to be true; nothing can need a lie,
A fault which needs it most, grows two thereby.

Herbert.

The Shepherd Psalm

The Lord is my shepherd; I shall not want.
He maketh me to lie down in green pastures: he leadeth me beside the still waters.
He restoreth my soul: he leadeth me in the paths of righteousness for his name's sake.
Yea though I walk through the valley of death, I will fear no evil: for thou art with me; thy rod and thy staff they comfort me.
Thou preparest a table before me in the presence of my enemies: thou anointest my head with oil; my cup runneth over.
Surely goodness and mercy shall follow me all the days of my life; and I will dwell in the house of the Lord forever.

A Lesson

Tell me little spider,
Who taught you how to spin?
Tell me little minnow,
How you learned to use your fin?
Tell me little swallow,
Who taught you how to fly?
And they each said, "It is easy
If you only try and try."

Keeler.

Can you repeat every word of our National Hymn?

The Star-Spangled Banner

Oh, say, can you see, by the dawn's early light,
What so proudly we hailed at the twilight's last gleaming,
Whose broad stripes and bright stars, thro' the perilous fight,
O'er the ramparts we watched, were so gallantly streaming?
And the rockets' red glare, the bombs bursting in air
Gave proof thro' the night that our flag was still there.

CHORUS:

Oh, say, does that star-spangled banner yet wave
O'er the land of the free and the home of the brave?

On the shore dimly seen thro' the mists of the deep,
Where the foe's haughty host in dread silence reposes,
What is that which the breeze, on the towering steep,
As it fitfully blows, half conceals, half discloses?
Now it catches the gleam of the morning's first beam,
In full glory reflected now shines on the stream.

CHORUS:

'Tis the star-spangled banner. Oh, long may it wave
O'er the land of the free and the home of the brave.

And where is that bard who so vauntingly swore
That the havoc of war and the battle's confusion
A home and a country should leave us no more?
Their blood has washed out their foul footstep's pollution.
No refuge could save the hireling and slave
From the terror of flight or the gloom of the grave:

CHORUS:

And the star-spangled banner in triumph does wave
O'er the land of the free and the home of the brave.

Oh, thus be it ever when free men shall stand
Between their loved home and wild war's desolation;
Blest with vict'ry and peace, may the heav'n rescued land
Praise the Power that hath made and preserved us a nation!
Then conquer we must, when our cause it is just,
And this be our motto: "In God is our trust!"

CHORUS:

And the star-spangled banner in triumph shall wave
O'er the land of the free and the home of the brave.

Francis Scott Key.

Here are lines that are easily learned and remembered.

Days of the Month

Thirty days hath September,
April, June, and November;
All the rest have thirty-one;
February twenty-eight alone,—
Except in leap-year, at which time
February's days are twenty-nine.

Old Rhyme.

Every Day

The world is full of a number of things
I am sure we should all be as happy as kings.

Stevenson.

A Safe Rule

Duty first and pleasure next;
This is every brave boy's text.

Old Saw.

Every Time

When Duty whispers low
"Thou must,"
The youth replies
"I can."

Emerson.

America

My country! 'Tis of thee,
Sweet land of liberty,
Of thee I sing;
Land where my fathers died,
Land of the pilgrim's pride,
From every mountain side
Let freedom ring.

My native country, thee,
Land of the noble, free,
Thy name I love;
I love thy rocks and rills,
Thy woods and templed hills;
My heart with rapture thrills
Like that above.

Let music swell the breeze,
And ring from all the trees
Sweet freedom's song;
Let mortal tongues awake;
Let all that breathe partake;
Let rocks their silence break,
The sound prolong.

Our fathers' God to Thee,
Author of liberty,
To Thee we sing:
Long may our land be bright
With freedom's holy light;
Protect us by Thy might,
Great God, our King!

A Good Poem for Fourth of July

COLUMBIA, THE GEM OF THE OCEAN

O Columbia, the gem of the ocean,
The home of the brave and the free,
The shrine of each patriot's devotion,
A world offers homage to thee.
Thy mandates make heroes assemble
When Liberty's form stands in view;
Thy banners make tyranny tremble
When borne by the red, white and blue;
When borne by the red, white and blue,
When borne by the red, white and blue,
Thy banners make tyranny tremble
When borne by the red, white and blue.

When war winged its wide desolation,
And threatened the land to deform,
The ark then of freedom's foundation,
Columbia rode safe through the storm:
With the garlands of vict'ry around her,
When so proudly she bore her brave crew,
With her flag proudly floating before her,
The boast of the red, white and blue.
The boast of the red, white and blue,
The boast of the red, white and blue,
With her flag proudly floating before her,
The boast of the red, white and blue.

The star-spangled banner bring hither;
O'er Columbia's true sons let it wave;
May the wreaths they have worn never wither,
Nor its stars cease to shine on the brave:
May the service, united, ne'er sever,
But hold to their colors so true;
The army and the navy forever,
Three cheers for the red, white and blue;
Three cheers for the red, white and blue,
Three cheers for the red, white and blue,
The army and navy forever,
Three cheers for the red, white and blue.

Ask your father if he ever "spoke a piece" in school and if he ever spoke "Columbia"?

Games and Sport,—Indoors and Out

As the evenings grow longer, much fun may be had in trying some of the many little trick games that have amused children and grown-ups for many generations. Some of these you may know already, but there is fun in trying them again, and almost always there will be one or more in a group to whom the games are new.

One of the most puzzling of these games is that of telling who raised a hand behind your back. Ask three or four of your playmates to stand in a row facing you and hold up their hands, elbows at sides, fingers up, and palms toward their faces. Now ask all to put their hands down by their sides. Then turn your back to them and ask one to raise one hand and hold it up. Meantime you appear to be busied about something until a minute or more has passed. Then you tell the one whose hand is raised to lower it like the others. Now you turn toward them and tell them to raise their hands as in the first place, elbows at sides, fingers up, and back of hands toward you. You will be able readily to pick out the hand that was raised behind your back for it will be paler than the others. The reason is that while the blood gathered in the hands that were held down, it flowed out of the hand that was raised and left it whiter than the others. This is quite a puzzling game to those who do not think of their physiology lessons.

Who's Who?

An amusing trick game may be played to puzzle one or a number who are not familiar with it. This game may be called "Who's Who?" The one who does not know the game leaves the room. The rest arrange themselves in a circle and agree to describe each his right hand neighbor. The one who left the room is recalled and instructed to ask a question of each player in turn around the circle and from the answer guess "Who's Who." Since "Who's Who" changes in the mind of each player questioned, the answers become very puzzling until the one asking the questions begins to suspect the joke in the game.

A Mind-Reading Game

There are many good games that are quite puzzling for a while. One of them is to tell a number selected by the company. In this game the leader has a helper. The leader leaves the room. The rest arrangé themselves in a circle and select some number less than one hundred. The leader is recalled. He goes from one person to another placing his hands on their temples and bidding all to think hard of the number chosen. When he comes to the accomplice, the accomplice makes a slight biting movement of the jaw. This movement can be felt by the hands of the leader on the temples. Slowly the accomplice "bites" out the number. If the number is over ten, he "bites" first the number in ten's place, pauses, and then "bites" the number in unit's place. Thus if the number chosen is 34, he bites three times, pauses, and bites four times. In this game the company need not know there is an accomplice.

He Can Do Little Who Can't Do This

There is an old and simple game called "He can do little who can't do this." In this game the leader takes a cane or stick in his left hand and raps upon the floor several times rhythmically, and says: "He can do little who can't do this." He then hands the stick to another player who is to imitate him. If he holds the stick in his right hand, as he is likely to do, the leader says "Wrong," and hands the stick to another, repeating the words and rapping as at first. The game is continued as long as any one is unable to discover the secret. Those who succeed in guessing it find great amusement in watching those who remain mystified.

Here is a way to communicate almost any word chosen by a group of players. By tapping with a cane or stick, one may spell out the vowels of a word, one tap for "a," two for "e," three for "i," four for "o" and five for "u." The consonants may be communicated by making short remarks, the first consonant used in each remark to be understood as the next consonant required in the spelling of the word. For example suppose the word selected is "Fudge." The leader calls his accomplice who left the room

before the word was selected and says, perhaps, "Fortune favors us." (F) Tap-tap-tap-tap (u) "Do you understand?" (d) Give good attention (g) tap-tap (e). Thus "Fudge" is spelled out and the word is given correctly by the accomplice.

Jumping Through the Fingers

These games just described are trick games for the mind. Let us try some trick games for the body. There are many of these little trials of strength and skill, or "stunts" as they are now often called.

Grasp the end of an ordinary foot ruler with each hand and without letting go with either hand, leap over the ruler. Gradually shorten the space between the hands until the leap can be made with the hands near together. It is possible to learn to do this trick without using a ruler or stick, placing the ends of the two middle fingers together. One should wear shoes without heels when trying this feat.

Broomstick Bend

Measure the length of your arm on a broomstick, from the arm to the end of the fingers. Grasp the broomstick at the point reached by the fingers, marking the place with the thumb. Then place the thumb at the nose, throw the head backward, the broomstick pointing to the back and bend the body backward until the handle of the broom touches the floor. Then regain upright position without help of any kind.

A Game to Play in the House

Now we cannot always play outdoors and we cannot always have playmates come in to play with us, and I wonder if some of you could not tell me of a good game to be played in the home, in the evening, in which Grandmother, Father, Mother, Brother, Sister, and even "Baby" could join. If you can, please do. I saw such a game, a very comical one, played the other night. They called it "Old Mrs. Smith is dead." The players sat in a circle, all facing the center. The leader began by saying to her neighbor, "Did you hear that old Mrs. Smith was dead?" The neighbor re-

plied, "No, what did she die of?" The leader said, "She died with her right hand shaking," suiting the action to the words. The neighbor then went through the same dialogue with the next player, suiting the action to the words, as the leader had done. This continued until the leader's turn came again. Meantime everybody kept up shaking the right hand. Then the leader started the same dialogue again, but in answer to the question, "What did she die of?" said, "She died with her left eye shut," at the same time shutting her left eye. This went the rounds as the other had done, everybody keeping up the action once begun, until, as the game went on, all were shaking the right hand, keeping the left eye shut, shaking the right foot, keeping the mouth open, nodding the head, etc. The last ailment, "shaking all over," announced the beginning of the end and when this act had gone the round, the game ended. There proved to be a lot of exercise in this game and I thought I heard somebody laugh.

The Long Reach

Place the toes at a line on the floor and stoop over resting the weight of the body on the left hand and the toes. With the right hand, make a mark on the floor at as great a distance as possible from the line you are toeing, yet being able to regain upright position without touching the right hand to the floor or moving the left hand along the floor. The toes may not be brought forward of the line, but may be pushed back of it, if desired. With practice a short person may often reach farther than a taller one, but boys of about equal height should be matched together.

The Palm Spring

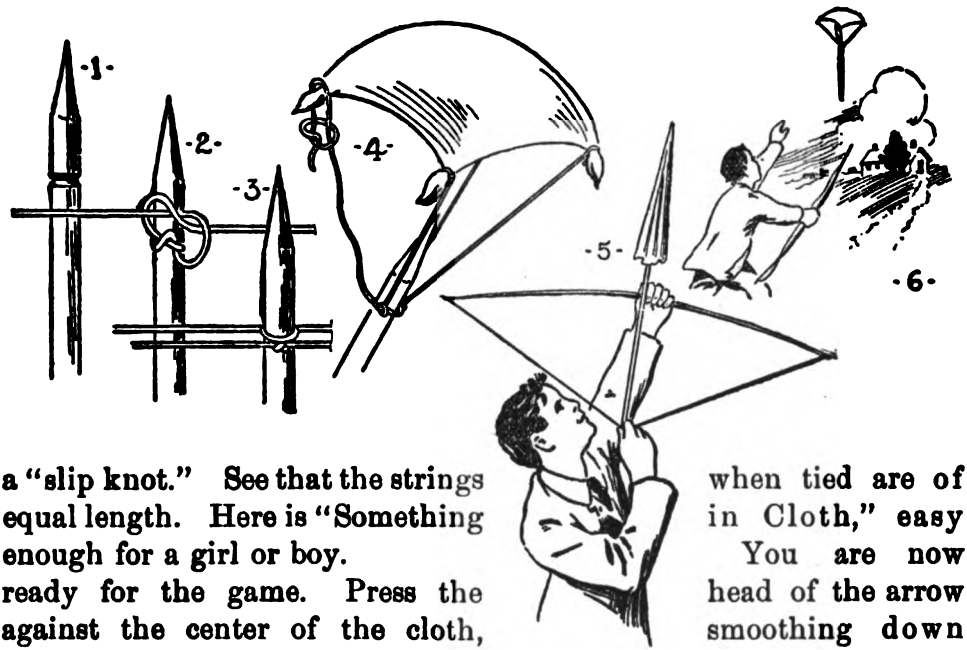
Stand a short distance from the wall with one hand behind the back, and noting the position of the toes on the floor, lean forward until you touch the wall with the palm of the other hand. Now push back quickly and regain upright position without moving the toes from the floor. Trials should be between boys or girls of nearly the same height. The one who can perform the feat with toes at the greatest distance from the wall beats.

The Parachute Game

Here is a game that you can play with your sister. Girls will enjoy a good outdoor game that is interesting.

Pick out your longest arrow and cut a little notch all the way round it about 3½ inches from the head, Fig. 1. This notch is to hold a piece of twine or strong thread which you must tie with a "square knot" leaving two ends, each about 7 inches long, Fig. 2. In the same way attach a second string, with the knot on the opposite side, Fig. 3.

Next find a piece of light cloth, about the size and shape of your pocket handkerchief, and tie the strings to the corners, Fig. 4. Use



a "slip knot." See that the strings when tied are of equal length. Here is "Something in Cloth," easy enough for a girl or boy. You are now ready for the game. Press the head of the arrow against the center of the cloth, smoothing down the folds neatly. Then shoot! right straight up into the air as high as you can, Fig. 5.

As the arrow starts to fall, the parachute opens and floats gracefully down. If you have a quick eye and hand you can catch the shaft of the arrow before it strikes the ground, and this gives you another "turn."

When you miss, you let the next player shoot.

The Over and Under Trick

There are tricks in every trade and picture making is full of clever tricks. Some of the very commonest things do not look right in a picture unless you know just how to draw them. Fig. 1 shows one line crossing another, but neither one seems to be on top. Notice Fig. 2. If you draw the top one first, then stop the under one before it touches the first, it will look as though the second line really disappeared under the first and came out on the other side. Fig. 3 might be a string, thread, or wire with the ends crossed, and it is hard to draw.

Can you thread a needle? Which is on top in Fig. 4, the long or the short end of the thread? What is the pin doing? A needle can do lots more than a pin. This over and under trick will help you to draw a picture of a needle at work.

Good pictures help very much to make things plain, but such pictures must be studied.

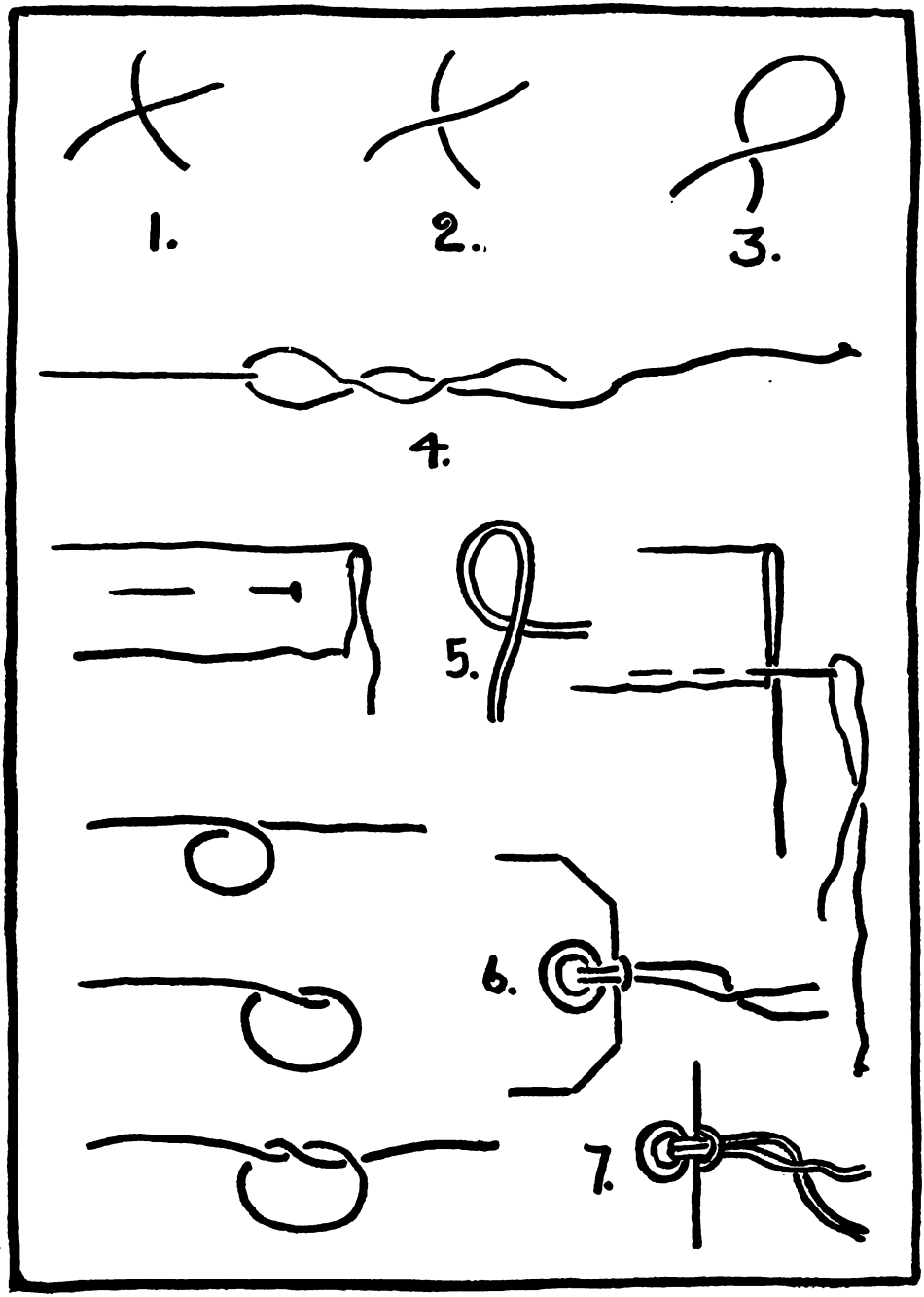
Now get a piece of string and watch yourself tie a simple knot. Can you show by pictures just how it is done? It is a real puzzle to make the lines go just right.

Do you know how to string a tag? What is the difference between Fig. 6 and Fig. 7? If a string is very thick you may need two lines to show how thick it is. See Fig. 5. This is another over and under trick.

Now hunt around for some busy string, rope, wire or thread. How does the picture wire take hold of the picture? What is your shoestring doing? Who knows just how to fasten a horse so that the rope will not slip? Can you draw a series of pictures to show another how to do it? One thing sure, all the words in the world could not make it clear. You must "show me." Probably you will have to show yourself several times before you can draw it and draw it correctly.

There are many other things to learn about the art of knots aside from those given. There are many forms known to sailors and to those who handle ropes,—knots that are secure from any slipping.

Many a person who has been confined to the bed from accident or illness has found an agreeable employment in something as simple as a bit of string, and the attempt to tie a knot that will not slip.



HOW TO TIE KNOTS WITH A PENCIL OR PEN

New Games of Marbles

There are many games of marbles. You all think you know how to play marbles. Do you know Boss-out, Three Holes, Hundreds, Long Tawl, Pyramids, Bun Hole, and I won't ask how many more? Less than a hundred years ago men played marbles as well as boys, and some of the taverns of England had "marble alleys" made of concrete, 12 x 20 feet, just as many hotels now have tennis courts or bowling alleys. The game is very old. Roman boys played marbles and Roman writers speak of the game. The boys of ancient Egypt played marbles and some scientists say that the men who lived in the stone age had marbles. Now marbles isn't a good game because it is so old; but it has lived so long because it was good.

Three Holes

Three holes are made in the ground about three feet apart in a straight line. The object of the game is to shoot one's alley into the holes in succession, first up, then down, returning to the first hole. The first shot is made from a line, or "taw," two paces from the first hole. One keeps on playing until he misses a hole or has "made" them all in the right order. When he misses, the next plays. A player has the choice of shooting at another's marble instead of at a hole. If he hits the marble, he may shoot again. In this way he can sometimes come nearer the hole that he wishes to "make" and also drive the other player's marble farther away. In shooting at a marble from the hole, the player has a right to "span," that is, to place his thumb on the edge of the hole and draw a line with his outstretched little finger. He may then shoot from any point on that line. If, in shooting at a marble, his own goes into a hole, he must go back to "taw."

Ring Taw

In this game a large ring is drawn on the ground and a small inner ring in which each player places a "commey." The shots are made first from the circumference of the large ring. The object is to knock the marbles from the small ring clear out of the big ring and not leave one's alley in the ring after a miss; for in that case it, too, may be shot at. Rules vary greatly in marble games, but whatever rules you have, stick by them and play fair.

Twelve Days of Christmas

The players are all seated about the room. The leader commences by saying,

"The first day of Christmas my true love sent to me
A partridge in a pear tree."

These lines are said by each of the company in turn; then the leader repeats the words for the first day and adds those for the second. At each stage of the game the words are repeated by each player in turn from the beginning. If a player makes any mistake, a forfeit must be paid. The words for the entire game are as follows:

1. The first day of Christmas, my true love sent to me
A partridge in a pear tree.

2. The second day of Christmas, my true love sent to me
Two turtle doves and a partridge in a pear tree.

3. The third day of Christmas, my true love sent to me
Three French hens, two turtle doves and
A partridge in a pear tree.

4. The fourth day of Christmas, my true love sent to me
Four colly birds, three French hens,
Two turtle doves and a partridge in a pear tree.

5. The fifth day of Christmas, my true love sent to me
Five gold rings, four colly birds, three French hens,
Two turtle doves, and a partridge in a pear tree.

6. The sixth day of Christmas, my true love sent to me
Six geese a-laying, five gold rings, four colly birds, three French hens,
Two turtle doves, and a partridge in a pear tree.

7. The seventh day of Christmas, my true love sent to me
Seven swans a-swimming, six geese a-laying,
Five gold rings, four colly birds, three French hens,
Two turtle doves and a partridge in a pear tree.

8. The eighth day of Christmas, my true love sent to me
Eight maids a-milking, seven swans a-swimming, six geese a-laying,
Five gold rings, four colly birds, three French hens,
Two turtle doves and a partridge in a pear tree.

9. The ninth day of Christmas, my true love sent to me
Nine drummers drumming, eight maids a-milking,
Seven swans a-swimming, six geese a-laying,
Five gold rings, four colly birds, three French hens,
Two turtle doves, and a partridge in a pear tree.

10. The tenth day of Christmas, my true love sent to me
Ten pipers piping, nine drummers drumming,
Eight maids a-milking, seven swans a-swimming, six geese a-laying,
Five gold rings, four colly birds, three French hens,
Two turtle doves, and a partridge in a pear tree.

11. The eleventh day of Christmas, my true love sent to me
Eleven ladies dancing, ten pipers piping, nine drummers drumming,
Eight maids a-milking, seven swans a-swimming, six geese a-laying,
Five gold rings, four colly birds, three French hens,
Two turtle doves, and a partridge in a pear tree.

12. The twelfth day of Christmas, my true love sent to me
Twelve lords a-leaping, eleven ladies dancing, ten pipers piping,
Nine drummers drumming, eight maids a-milking, seven swans a-swimming,
Six geese a-laying, five gold rings, four colly birds, three French hens,
Two turtle doves, and a partridge in a pear tree.

It is quite possible and great fun for the players to make up their own verses,—and better ones than these perhaps. Try it.

Other common Christmas games used to be Blind Man's Buff, Puss-in-the-Corner and the ever popular game of tag which can be made as noisy as desired or be played almost quietly.

Tag Games

"What shall we play? Oh! let's have a game of tag." Every one knows the old-fashioned runabout game of tag but there are various ways of increasing the fun. About the jolliest game of tag I know is "THE BOILER BURST." (No! this isn't a lesson in language in the guise of a game.) It is a good game for pleasant fall days and fine too for a game on the ice, when there is good skating. This is the way to play it. You choose a starting place and a goal at what you think is about the right distance away. The one who is "It" sits down at the starting place and all the rest gather about him (as near as they dare to) to listen to his tale of disaster and all ready to run the instant he shouts, "The boiler burst." Now, "It" always tries to tell a good story in which, at his own good pleasure, he brings in the words, "The boiler burst." At these words all run for the goal with "It" in full chase after them. The one who is caught before reaching the goal has to be "It" and tell the next story. By a little skill in telling the story one can give the listeners many false starts and surprises leading them to think the boiler is going to burst when it only springs a leak or gets too hot, or some other inconsequential thing happens not worth running for. The game ends when it is time to go home or when the fun has all run out.

Another good tag game is HANG TAG. This is played best where there are trees with low branches or other things one may hang from, such as gymnasium apparatus or ladders. One may not be tagged so long as he is hanging by the hands. Of course, one cannot hang a great while and he seeks safety in this way only when hard pressed and hoping some one else will venture near enough to the tagger to entice him away. The tagger, of course, would not wait beneath a fellow so as to have him drop like a plum into his hands. That would be like the "blinder's" hanging round his "gool" in "I Spy"—which the bravest fellows never do.

Most folks think boys are better runners than girls—and so they are, generally, except at one time in life. When girls are about ten or eleven years of age, they can very often beat boys of the same age all to pieces. Try these games and see!

Girls who have played outdoor games, good hard running games, are stronger and healthier at eighteen than girls who have not, and they can safely do many more things that are venturesome and hardy. To play running games when one is ten or eleven is to increase the possibilities of fun through vigorous plays in later years. Moreover, good runners at ten or eleven will not be likely to have consumption at eighteen when so many girls show signs of this dread disease.

Pass Tag

Some object is agreed upon as the one to be passed, a pocket-knife, a stick, a stone, or any convenient object. After the tagger and the first runner have been chosen, the other players scatter about and put their hands behind their backs. The game is for the tagger to tag the player who has the object. Now the one who holds the object runs about behind the other players and when he has a good chance slips the object into the hands of another who then becomes runner. If a runner is caught while holding the object, he becomes the tagger and the former tagger the runner. In gymnasiums and playgrounds, a dumb-bell is often used as the object to be passed. This is easily seen by the tagger. The game is sometimes called *Dumb-bell Tag*.

Gegg

This is a good hiding and tag game with sides. In this game the object held by one of the players is called the "*Gegg*." After the sides are chosen and a goal is agreed upon, the *Ins* remain at the goal and the *Outs* give the signal by crying: "Smugglers." The *Ins* then set out to find and catch them. The *Outs* try to get back to the goal in any way they can. When one is caught before getting to the goal, he refuses to tell whether he holds the *Gegg*. When all are caught or back in the goal, the one who had the *Gegg* gives it up. If he was one to get safe back to the goal, the *Outs* go and hide again. If the player with the *Gegg* was caught, the *Ins* become *Outs* and take their turn at hiding.

Scammels

By Frances L. Warner

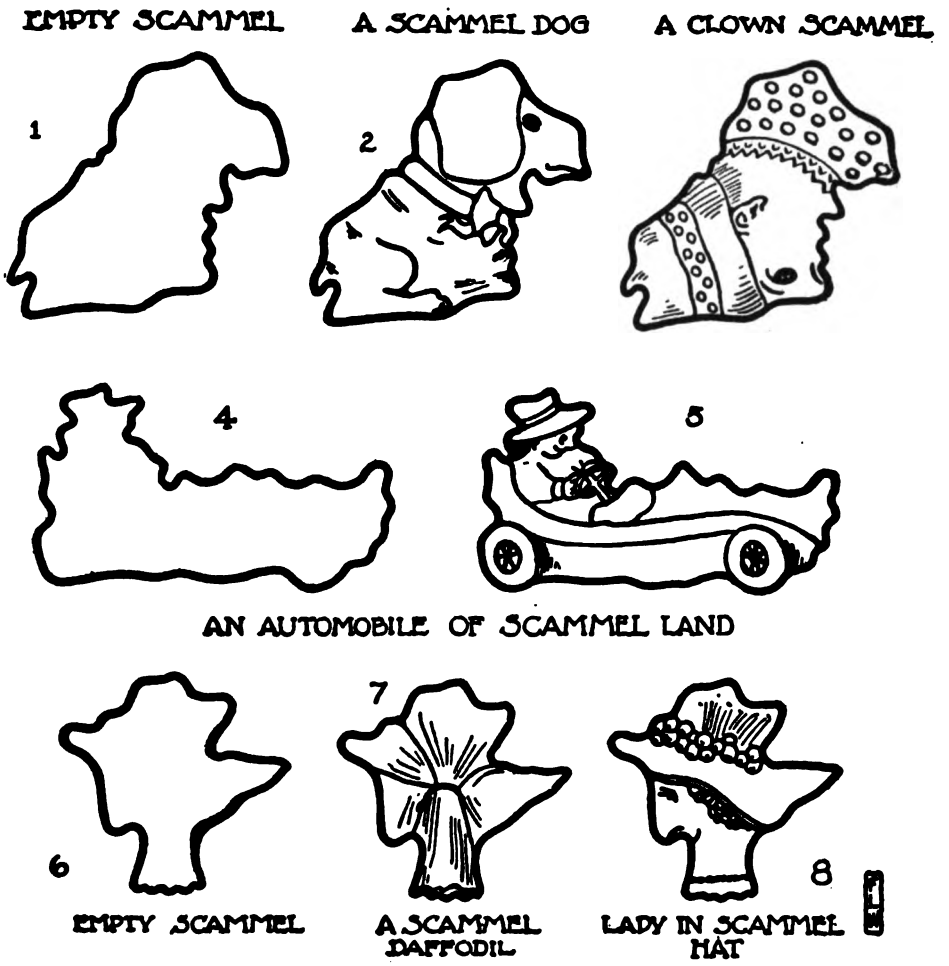
The best thing about Scammels is that you don't know what they are. Not at first. To make them, each person in the game needs a sheet of white paper, a pencil, and a piece of newspaper six inches square.

If you play it in the daytime, pin your white paper in a bright patch of sunlight on the floor or on the wall. It is better to play it just after tea, when the lamps are lighted. Then you must pin the white papers under the light, either on the table or on the wall. When they are all arranged, squeeze up the newspaper into a soft heap, not too tightly. Have it loose enough so that there are little corners and twists sticking out in all directions. Take the crushed paper by one corner and hold it over the flat drawing paper so near that the shadow on the drawing paper is clear and black. Then draw around the shadow. Be sure to follow the outline of the shadow exactly, for the queer little ins and outs make the Scammel very much nicer when it is done.

After you have drawn the outline, look at it very carefully. You can usually find a nose or a head or a funny mouth to begin with. Decide what sort of a Scammel it will make best. Sometimes they look like old witches, sometimes like rabbits, and sometimes like ladies walking down the street. When you decide what your Scammel is going to be, draw in lines for hands or paws. You need not know how to draw at all to fill in the Scammel, because the outline is already done. Usually a few little dots make the dresses look more real.

When you have learned to draw the Scammels, the real game can begin. Each player must pinch his paper into the queerest shape he can think of, and draw the outline on a clean paper. Then each player has an outline for a Scammel ready to be filled in. The game is to make the very prettiest or funniest or queerest Scammel you can in ten minutes. Name each Scammel.

In the summer, beautiful Scammels can be made of flower-shadows. Nasturtiums and woodbine and sweet-peas are the best. Soon you will begin to notice what strange and lovely things shadows are—the shadows of daffodils and tulips on April mornings, of peo-



ple in the firelight in the evening, and the shadow of apple-tree leaves on the grass.

This game will educate the eye in discovering outlines and it will make observation keener. The practice of noting form will surely be of great help in drawing and painting. It is a pleasant game, for one or two, to glance at objects and then, closing the eyes, recall and name as many things as is possible. All games that educate the eye must help in improving the mind.

Get your friends to make Scammels for you and sign them. In this way you can make a kind of autograph book.

The Stooping Stretch

Here are a few tricks that are a means of developing the muscles and they are so simple that they can be used for entertainment in any place,—while waiting or "killing time."

In doing this trick the feet may be placed in any way along the line, but may not pass beyond the line. Stoop down and place the right hand between the legs and round the right leg. Now mark with a piece of chalk at as great a distance as possible in front of the line. After making the mark come back to standing position without help of any kind or moving the feet from the line.

The Elbow Bend

With your arms folded loosely across your stomach, sink down by bending at the knees. Let your arms pass between your knees and try to touch the floor with both elbows at once, without unfolding the arms. You will probably fail at first but a little practice will enable you to double up surprisingly and balance yourself farther forward on your toes. The trick is much easier when done without your shoes; and this is the only way some especially long-legged fellows can do it.

The Finger Reach

Curl your left arm behind you, pushing the hand as far up on the back as you can. Now reach over the right shoulder with your right hand and try to join the long fingers of your hands. It is very amusing sometimes to see a person struggling to find one hand with the other, thinking he lacks only an inch when his companions can see that his hands are several inches apart. Some people do this trick easily the first trial, and nearly any one can accomplish it with a little practice.

Picking the Pin

Stick an ordinary small pin in the ground (or carpet, if indoors). Stand erect with a foot on each side of the pin, heels nearly together. Now bend forward and get the pin without bending your knees. This is harder than merely touching the floor with a swing, because

one has to get hold of the pin and this requires holding the position momentarily. It is easily done with a little practice. An amusing variation of this trick is to tell some one who has been able to do it to stand with his back against the wall and do it. A trial shows this to be impossible.

Simple Instructions for Kicking a Football

As in all other branches of Athletics, football instructions are full of "*Don'ts.*"

First then,—in learning to kick a football *don't* kick with all your strength but always try to kick in the direction you want the ball to go. If you kick too hard you cannot give good aim to the ball. After you learn how to direct the ball, then you can practice putting more force into your kicks. As a beginner you should learn how to *punt* and *drop kick.*

Punting

Try punting first because it is easiest. A punt is made by dropping the ball toward the foot and kicking it before it strikes the ground. Much depends on how you hold the ball before dropping it. It should be held in front of you by both hands and with the ends of the ball pointing to and from the body. The lacing should be on top. This is important. Get the habit of quickly rolling the ball around in your hands until the lacing is uppermost. If the lacing is underneath the foot may gave the ball a glancing blow. If it is at either side the extra weight may cause the ball to twist in the wrong direction.

In kicking, start with both feet fairly close together, and, holding the ball just below the level of the waist, bend forward, and if you kick with the right foot, begin by taking a short step with the left foot and dropping the ball, swing on it with your right foot, planning to meet the falling ball about knee high.

Remember do not try to kick hard at first. Be sure that the ball drops without rolling or twisting. It should fit into the hollow between the toe and ankle as you reach out with your foot. All this will require practice. Don't do too much kicking the first few days or you will have sore muscles.

You will find at first that the whole force of your kick will be given by using the leg from the knee down. Try to overcome this error and learn to use the entire leg, but do not keep the muscles stiff when kicking.

Once more, don't forget to think each time of where you want the ball to go. If you wish to kick for height, drop the ball so that the foot meets it when knee high or above. If you wish to kick for distance let the ball get closer to the ground before your foot strikes it.

Drop Kicking

Now for the *drop kick*. This is made by dropping the ball on one of its ends and kicking it with the toe just as it rises from the ground. It *must* strike the ground before you kick it. Drop the ball so that it will stand upright, and have the lacing on the side away from you.

In drop kicking do not try to use the whole length of the leg at first, but swing on the ball easily and carefully. Try only for good aim and height. You can get distance into your kicks later. Most beginners draw the foot back too far in drop kicking. You can increase the length and height of your kicks by dropping the ball farther away from you and leaning farther forward as you rush to the kick. If trying for great distance, drop the ball so that the upper end points slightly away from you toward the goal. Don't get discouraged.

Here Are a Few Timely Questions

Can you sit long without slumping?

Can you stand without slouching?

Do you know how to walk, riding at the same time?

Do you know how to run without getting out of breath?

Can you swim and dive and float?

Can you carry a weight on one arm without drooping on that side?

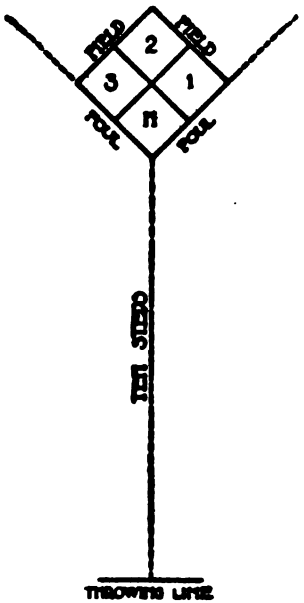
Can you rise from a reclining position without touching your hands?

Can you touch the ground without bending your knees?

Do you hold your chin in when you walk?

Can you play games without losing your temper?

A Game of "Throw"



LAYOUT FOR THE BEST KIND OF A BEAN BAG GAME

Of course all you children *just have* to throw something once in a while. And that is all right—only mind what you throw at. Of course, every boy likes to throw and wants to learn to throw straight. And every girl ought to learn, too.

It is fun to throw stones and to throw at something that will break. Cork an empty bottle and throw it out into the water at the shore or river or pond and have it for a mark. That is one of the few safe ways in which you may throw stones.

But there are other kinds of throwing games that are good fun and they can be played almost anywhere. Have you any bean bags in the house? Well, that's strange if you haven't. Every well regulated home with children in it should have bean bags just as surely as bean porridge.

Here is a fine throwing game. Get two boxes, as nearly square in shape as you can, one smaller than the other. Fasten the smaller box inside the other. Good sized boxes should be used. Stand off ten paces and throw three bags at the boxes. Throwing a bag into the smaller box counts ten, into the larger five. Whoever gets one hundred first, wins.

A very simple game for the younger children is to tie a little hand bell to a stick placed across two chairs. The bags are thrown from a short distance at the bell. Whoever hits the bell scores one.

There is another good game to play with bean bags which makes you think of baseball. It is a fine game to play evenings at home with father, mother and the rest.

Draw a diamond like the one in the illustration that is shown.

Sides are chosen. Any number up to nine on a side may play, but four or five on a side are about right. One bean bag is all that is needed, though each player may have his own bag if he chooses. The first player stands at the throwing line and tries to toss his bag into the diamond. If his bag goes in square 1, it counts as a hit;

if in square 2, as a "two-bagger," if in square 3, as a "three-bagger," and if in H, as a "home run." Each hit advances any player that has already made a hit. Suppose the first player's bag lands in square 2. If the second player's bag lands in square 1, then that advances the first player to base, and puts the second on first base. If the third player's bag third should land in square 1, that would bring one player home, score a run, and leave a player on second and a player on first with no one out.

Of course, this running of bases is all "done in the head," although the bean bags may be advanced to represent the runners, if preferred. If a bag lands in the "field" the player is out. If it lands in the region marked "foul" or on a line anywhere, it counts as a strike. After three strikes, a player is out. Three outs make an "inning" and the next side takes its turn. The game ends when both sides have had nine innings. The side having the highest score wins.

Bean bags may be used instead of quoits. Mark two small circles ten short steps apart (or drive two sticks into the ground instead). When two only are playing, each player has two bean bags. The first one to pitch stands with one foot at one of the circles and tosses his bags one after the other at the other circle. The second player follows in the same manner. The one who has a bag nearest the circle (or stake) scores one. If he should have both his bags nearer the circle than either of the other's bags, he scores two. The one scoring pitches first again, standing at the second circle and pitching back to the first. The game ends when one has a score of 21.

If four play, partners are chosen. Partners remain at opposite circles and bags are pitched back and forth. The score a player makes is added to his partner's. In other respects the game is the same whether two or four play.

Prisoner's Base

As long ago as when Edward III was King of England, the children used to play a game called Prisoner's Base in the avenues of the palace at Westminster, and they ran about the avenues so lively and made so much noise that the members of Parliament and other passers-by were quite annoyed. So Parliament passed

a proclamation forbidding the playing of the game in the avenues of the palace and the children had to go elsewhere to play. It is to be hoped that Parliament thought it all out where the children *could* play.

Very likely William Shakespeare played this game of Prisoner's Base when he was a boy, for he speaks of it in several of his plays.

Now Prisoner's Base is such a good game that it is no wonder that the children kept on playing it and that it was handed down to us.

There are several ways of playing Prisoner's Base. The way the children played it at the time Parliament couldn't "hear itself think" because of it, is really such a good form of the game that you will be glad to know, as near as it can be determined, how it was played.

The players chose sides. Each side had a base or home, these bases being perhaps thirty or forty paces or steps apart. Each side formed a line by taking hold of hands, the line stretching out as far as it could with one player always touching the base. As soon as the lines were formed, the player at the end of the line farthest from the base, on one side or the other, left the line as a challenge to the other side to chase him. Then a player on the other side let go of hands also and gave chase. As soon as this second player left his line another player of the first side set out in turn to chase him, then one from the second side to chase him, and so on as many as wished, always, however, observing the order in which they stood in line. But a runner might chase only the one he first set out to catch. Whenever a player tagged another, he scored one for his side and both returned to their bases to set out again when it came their turn in the line. A runner might return to his base whenever he wished although he had not tagged any one or been tagged, but such a course was probably adopted as a last resort and was in the nature of a retreat. You see that a runner always had to keep his "eyes peeled" because, while he was trying with might and main to tag one runner, he had to look out for the fellow who was chasing him. The one he was chasing might at any instant dodge or turn on his track in a way to put his pursuer in danger of being tagged himself. Of course the players yelled back and forth, shouting warning and encouragement to their com-

rades and derision at their enemies (saving some breath, however for running), and no wonder they drowned out Parliament. Oh! it was a great game. (I think I shall never forget as long as I live the day I learned to play Prisoner's Base.)

Well, when the game ended the side having the highest score won. Sometimes a number was agreed upon before the game began and the side scoring that number first won.

Now it may be that the game just described was called "Base" instead of "Prisoner's Base" for there weren't any "prisons," but both names were used by the earliest writers mentioning the game. At any rate, it came about that the form of the game most common in this country was the one in which both bases and prisons were used. There have been several methods followed in placing the prisons. The fun of the game depends a good deal upon whether the prisons are placed so that it is quite possible, but not too easy either, to free a prisoner. Try the game that bothered Parliament so much five hundred years and more ago, and not bother anybody in doing it. There are several forms of the game,—a form of Prisoner's Base which is capital for a recess or after school game, and another form which is quite new and fine for a match game between schools called Baltimore.

Prisoner's Base is one of the best games preparatory to football. It trains one for hard, fast running and skilful dodging, two very important things in football. It also trains one for watchful running, in which one must be on the lookout for foes in front of him, to right of him, to left of him, and behind him. Boys who want to become good runners should remember two or three simple rules. They should run "on the toes," keeping the heels free from the ground. They should breathe through the nose, keeping the mouth shut tight and the teeth clenched. The chest should be kept high and firm to give the lungs full room, and to induce right breathing. It is very important to try always to start in the quickest possible time when the signal for running comes and to get into full speed as soon as ever one can. Quickness in starting and reaching one's highest speed has much to do in winning a race.

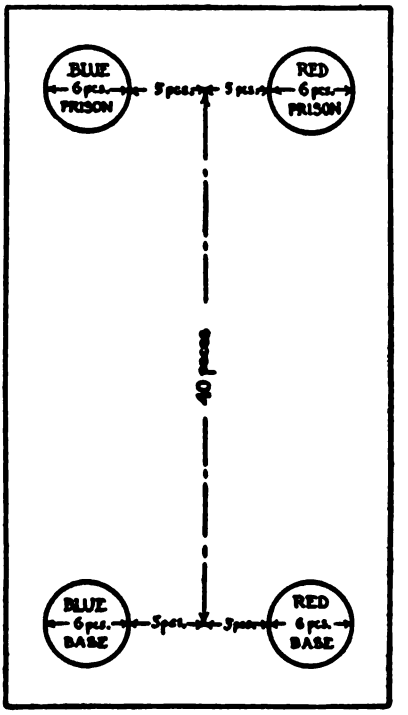
Strong, healthy boys and girls who run a good deal naturally run in good form and breathe right, but the rules given will help one

who has not a good form in running to run better. It is very wonderful how one may improve in running. Just as in many other things, some who at first seemed to have no very great promise of ability have finally come to be the very best.

The Latest Forms of Prisoner's Base

I. Chevy Chase

A good way to play Prisoner's Base is to have two bases at one end of the playground (or field of ice, if you are skating) and two prisons at the other end. The bases and prisons may be square or circular in form, but in marking them out on the ice, it is best to cut "circles" by skating round and round. The bases should be roomy enough to hold the players comfortably and permit ready shifting about for turns at sallies. The prisons may be a little smaller. The bases may be near together, and the prisons near together, but the prisons should be forty or fifty paces from the bases. The prison for either side may be directly opposite the base for that side or diagonally opposite, as desired. If directly opposite, the field would be as shown in the illustration.



LAYOUT FOR THE CHEVY CHASE KIND OF PRISONER'S BASE

After the captains and sides (which we may call Reds and Blues) have been chosen and it has been decided by lot or otherwise which side is to begin the game, the Reds gather in their Base and the Blues in theirs. If the Reds are the side to start the game, the Captain of that side sends a man to the middle of the field to give the challenge. As soon as this man shouts "Chevy, Chevy Chase, One, two, three," a player from the Blues sets out to catch him if possible before he can put back to his base. But some other player from the Reds is sent out to protect the first man, then another from the Blues, and so on according to wish.

If at any time in the game no one is in the field to be chased, the side last sending out a man to give the challenge may require the other side to take its turn in giving the challenge in the manner followed at the beginning of the game.

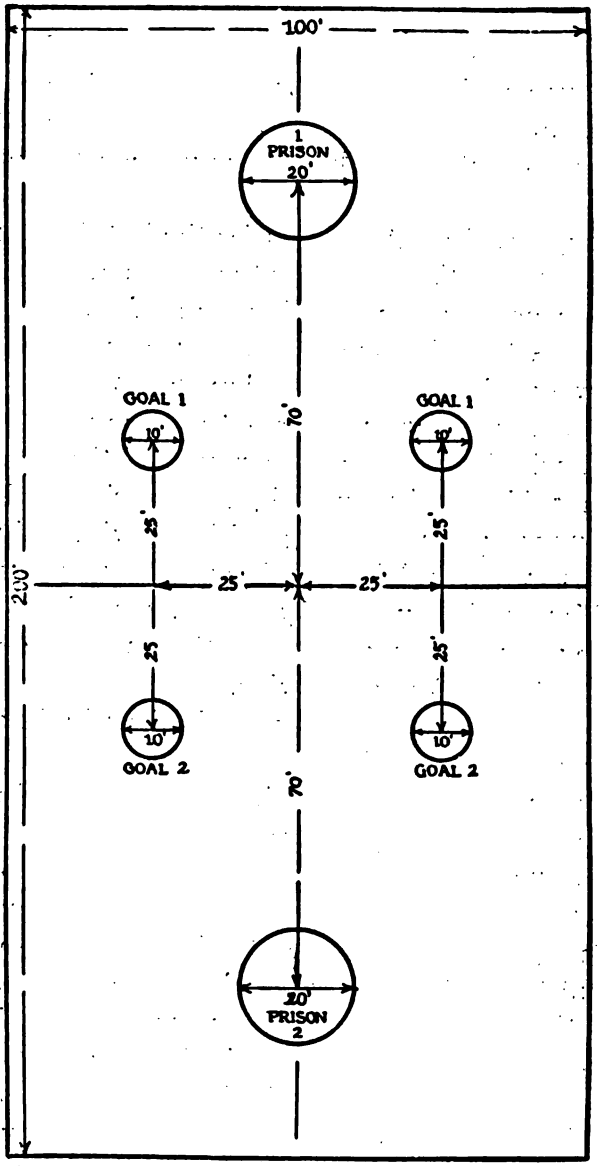
A player may tag only those who left their base before he did. When a player is tagged he is put in prison by the one who tagged him and the tagger is allowed to return to his base without being touched. A prisoner may be freed from prison whenever a player from his side succeeds in reaching the prison without being tagged, and the two are given free return to their base. The game ends if one side is able to put all of the players of the other side in prison and take possession of the other's base. This done the game starts over again. The victorious side has the privilege of requiring the other side to start the game by sending a man to the middle of the field to give the challenge.

II. Playing Baltimore

Perhaps the very best new form of the game is the one played first in Baltimore, Md. In this game there are ten players on a side. The field is divided into two equal portions, as shown in the diagram, each half serving as the home grounds or base of one side. Within each half are a prison and two goals. The object of the goals is to invite adventure into the enemy's field. Whoever can get into one of the goals in the field of the enemy scores one for his side. A player is liable to capture as soon as he crosses the line into the enemy's territory and if captured must go to prison. A prisoner may be rescued by being touched by a player of his side who succeeds in reaching the prison in safety. Both are then allowed to return to their home grounds but must pass outside of boundary lines in doing so. Players are not allowed to pass through or remain in the goals or prison in their home territory. Nor may they pass beyond the side or end boundary lines, except in returning home from prison.

The game is played in "two halves" of fifteen minutes each, with a five-minute period between. Sides change fields for the second half.

At the end of each half, a score of one is allowed for each of its players who succeeded in reaching a goal (where he must remain until the end of the half), and a score of two for each of the enemy still confined in prison. The side having the highest total score for the two halves wins.



LAYOUT FOR THE BALTIMORE KIND OF PRISONER'S BASE

Referees. The referee shall be the superior officer of the game, shall decide when player is safe in goal, captured or released. He shall have power to make decisions for violations of rules committed at any time including periods when the game may be momentarily stopped for any reason. The referee shall record the points made. His record shall constitute the official score of the game.

Umpires. There shall be an umpire in each half of the field. Umpires shall make decision on players being safe, caught and released, and shall blow a whistle whenever it is necessary in giving such decision. He shall have no power to call time.

Timekeeper. The timekeeper shall be appointed by the referee, and his record is the ONLY OFFICIAL TIME. He shall note when the game stops and shall blow a whistle indicating the expiration of the actual playing time in each half.

Time consumed by stoppages during the game shall be deducted only on order of the referee. Time involved in returning to home grounds, etc., shall not be considered stoppages.

Some Games for Hot Days

There are many simple games that can be played by a little company out-of-doors, on the lawn, just to while away a little time of waiting. Such games help out at a children's party when the refreshments are on the way.

Who knows some good games for out-of-doors for the hot days of summer? My! but it *is* hot. Let's get under that tree and sit on the grass. This is fine. Now every one pull grass blades at least two or three inches long. Get good strong blades, for they are ammunition. There! Every one has a good little bunch. We ought to count them and even up, so every one will have the same number of spears. Now the fight will begin. Each of you bend the grass blade and loop it within a blade of your neighbor's. Now hold firmly the two ends of your weapon and pull quickly, slowly, slyly, straight, or sidewise, as you wish, and break, if you can, your enemy's spear, but don't let him break yours. If you win, you take the pieces and try again. The one who has, at the end, the largest number of grass blades, counting the broken ones, wins.

This is an old, old game played for centuries by children in Asia. To win in this game is a sign of good luck.

There is another good game, too, to play right here under this tree. It is "mumbledy peg." What! you don't know mumbledy peg? Well, after you have "rooted the peg" just once, you will remember the game forever after. Jack, lend us your knife. Yours is just right. It has a strong handle and a pointed blade. The sod under this tree is just right too, not very hard, and free from stones.

First play: You hold the knife on the palm of your hand, blade open and pointing toward the fingers. Toss up the knife so that it will give a turn in the air and come down sticking the blade into the ground. The throw is good and counts if the knife sticks up straight enough to let you get two fingers edgewise under the handle of the knife. If you succeed, you try the next play, and so on. If you miss, the next one takes his turn.

Second play: Place the knife on the back of the hand, blade toward the fingers. Toss up as before.

Third play: Shut the fingers and hold the hand, palm side up. Put the knife on the hand, blade pointing toward the right. Now

turn the hand toward the left, tossing the knife as so to make the blade stick in the ground as it falls.

Fourth play: Place the point of the blade on the back of the left wrist, balancing the knife with the fore finger of the right hand. Flip the knife so as to make the blade stick in the ground as before.

Fifth play: Put the blade on the elbow and flip the knife.

Sixth play: Put the blade on the shoulder and flip.

Seventh play: Put the blade on the left knee and flip.

Eighth play: Take the blade between the thumb and first finger. Put the end of the handle at the chin. Flip the knife, making it turn a somersault and stick in the ground.

Ninth play: The same, with the handle at the nose.

Tenth play: The same, with the handle at the left eye.

Eleventh play: The same, with the handle at the right eye.

Twelfth play: The same, with the handle at the forehead.

Thirteenth play: Take the blade as before and hold the handle at the left ear. Now reach the left hand over the right arm and grasp the lobe of the right ear. Flip the knife as before.

Fourteenth play: Same as before, holding the blade with left hand and the left ear with the right hand.

Fifteenth play: Take the knife in the palm of the hand, blade toward the fingers. Toss the knife backward over the head so that the blade sticks in the ground.

Sixteenth play: This is the hardest of all. Put the point of the blade on the ground, balancing the knife with the fingers. Flip the knife so that it will somersault along the ground one or more times, finally sticking the blade in the ground and standing straight enough to get the two fingers edgewise under the handle. This is the last play and the one who succeeds in doing this play first wins.

Usually the other players keep on until all but one has succeeded in every play.

Sometimes, if it is agreed upon beforehand, the one who is beaten has to "root the peg." A little peg is whittled out and stuck lightly in the ground. Each player has the privilege of taking the knife by the tip of the blade and hitting the peg one blow with the knife handle to drive in the peg. Then the one who was beaten, with a laugh and with grit in his heart (and grit in his teeth, perhaps) "roots" out the peg, for he must not touch it with his hands.

Learning to Swim

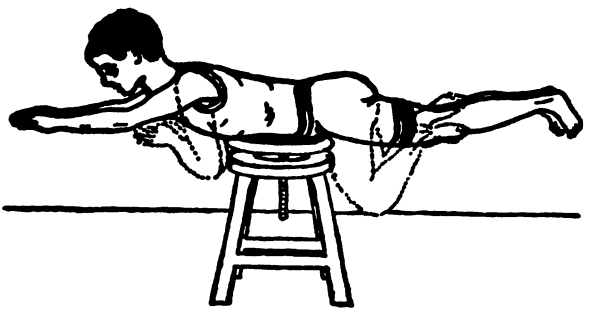
Stubby Barron was walking down the main street of the country village in which he lived one hot summer's day when, spying a boy across the street, he shot his right arm upward with the first two fingers of his hand extended and moving back and forth like the blades of scissors. Instantly the boy across the street raised his hand in a similar fashion with fingers moving in the same curious way. What in the world were they doing? Was it a Boy Scout salute? Not at all—it was long before Boy Scouts were thought of. They were talking in the sign language known to boys since no one knows when. One might resist the invitation, "Will you go swimming?" but never the wiggle waggle of fingers on a hot day. So on this day, the crowd grew larger at every corner until a dozen boys were headed for the river.

All boys and girls ought to know how to swim by the time they are twelve years of age. Yet the most of them do not. Many fathers and mothers, with good reasons, too, fear to have their boys go swimming unless some older person goes along with them. And as for girls, it is only the favored ones near the beach or a swimming pool who ever have much chance at all to learn. The fear of mothers for their daughters at the thought of swimming has been expressed in that old jingle:

> Oh! Mother, may I go out to swim?
> Oh! Yes, my darling daughter;
> Hang your clothes on a hickory limb
> But—don't go nigh the water!

Well, this old jingle doesn't sound so foolish any more. Much of the best teaching of swimming nowadays is really begun outside the water. One of the best places to learn to swim is across the music stool in the parlor at home. Of course, I mean to begin to learn. If Father or Brother knows how to swim and you don't, just begin to use him right away. He isn't too dignified to take a swim on the piano stool to show you how, I am sure; at least, if you promise not to laugh. The most important part of the lessons can be demonstrated in this way. But if they don't know how, this will help you:

You need first to learn the strokes. The best stroke for the beginner is the old-fashioned "breast stroke." You can try with the arms first, standing. Stand firmly on your feet with hands at your sides. Raise the hands to your chest, elbows horizontal, the tips of the fingers touching in front of the chest and the palms down. Now push the arms upward a little in front of the face, the fingers and hands, palms inward, forming a kind of inverted V or plow point. Push the hands as far as they can reach, then turn the palms outward and bring the hands outward and downward in a wide circle until they are a little below the shoulders, then bring the hands in toward the arm pits, and across the chest as they were when you started. This is the stroke for the arms. Repeat until the movement is learned. But in swimming you have to work arms and legs together. Now take a swimming position across the piano stool, as shown in the picture, arms and legs straight out. Bring the hands back toward the body with a wide circle movement, palms turned outward, and bring the hands in toward the arm pits to the position shown in the drawing. At the same time draw the legs up toward the body as shown by the dotted lines in the illustration. Now thrust the hands and feet out good and strong as they were at first. Repeat the movements until they are thoroughly learned. Be sure to make arms and legs work together, drawing them in together and shooting them out together.



YOU DO NOT ALWAYS HAVE TO PRACTICE ON A PIANO STOOL

When in the water don't be foolish and don't be timid. *You must know exactly where the water is not too deep.* Wade out to your neck, turn toward the shore and try to swim in, using the strokes you have learned. Remember you should lie as low in the water as you can and keep your mouth and nose above water. *Don't hurry.* It is helpful to use a short plank under the chest at first, or you can "blow up" a wet pillow case. Tie the opening and use it as a buoy.

One thing will help tremendously. If you can only believe that the water alone will hold you up as long as you have breath in your

lungs. Take a good breath with the mouth closed and lie out on the water with confidence. You will not sink if your movements are very gentle. Do not thrash about; but never venture in water over your depth with these things until after you have learned to swim. Try with less and less support until you can do without it altogether. Good luck to you all!

A Word Game

There is a jolly game that can be played with the letters of the alphabet;—it is the game of word-building. The best thing about the game is that it can be played indoors on a rainy day or out-of-doors, on the piazza or the lawn, when the day is a sunshiny one. Another good thing about it is,—you can make the things that you use in the game. First you can draw good black letters on a cardboard. If you cannot draw the letters you can find them in newspapers or magazines, and after cutting them out, paste them on cardboard. The letters should be all of one size, and you should have a good many that are alike. That is true of the vowels,—a, e, i, o, and u; it is best to have several "sets." And you should also have a number of sets so that several people can play the game.

After the letters are all ready on the cardboard, cut them out carefully with a pair of sharp shears; keep the edges as even as you can because you will wish your letters to look well.

Now when the players are ready divide the letters and let each one see how many words he can make out of the letters that he has.

Another way to have fun with the game is to allow each player to select ten letters at random from a pile in the center of the table and then see how many words he can build.

Another good game of letters can be played with pencil and paper. The players can choose a word of good length and then see how many words can be made from it.

It is well to choose a word that has two or more vowels, because vowels are necessary to word-building. This is a good game to play if you are not very good at spelling. Play it a while and you will see how soon you are able to place your e and your i in words and to tell which one comes first. A good word to use when you begin is "feature," or "treasure." Words where the letter i appears more than once is another good choice.

Fighting Buckeyes

If you are going to play with "fighting buckeyes," then October is the month when you need to begin to think about saving up your "fighters." Fighting buckeyes are horse-chestnuts gathered and hardened for the good old game of cracking chestnuts and making and breaking "kings." Especially, if horse-chestnut trees are scarce in your town, you need to get to work as soon as the frost comes. In some places the more successful boys sell their chestnuts, five for a nickel. This is the way the game is played: A hole is bored through a chestnut with the small blade of a pocket-knife. The chestnut is then slipped onto a piece of rawhide or stout cord with a knot at one end to hold the chestnut on the string. The game begins by having one player hold his "king" perfectly still, suspended by the string. Then another player takes his stand and swinging his "king" swift and hard, strikes at the other's chestnut. If he makes a fair hit, he strikes again and continues until he misses. Then the other takes his turn. If a player, in striking, misses and winds his string about the string of his opponent, then his opponent may have two "misses" before the other may strike again. The object of the game is for one player to break the other's "king" so that it falls from the cord. When a chestnut has broken another it is said to be king over one; if it has broken two, it is king over two, and so on. A successful king is always credited with the number which the opposing king had broken. Thus, if a king over ten should succeed in breaking a king over five, it would then be king over eleven plus five, or king over sixteen. A fighting buckeye sometimes becomes "king" over a hundred or more. One may get very skillful in "striking" and acquire good judgment in selecting fighters. The chestnuts should be dried. The drier and harder they are, the better. It is said that chestnuts two or three years old make the best fighters. This is a good game to play as you meet your friends on the way to school.

Another quite different but equally good game to play on the way to school is telling numbers. Let any one think of a number. Have him take one away from the number, and multiply by two; then take away one, add the number thought of, and give the answer. If you add three to this answer and divide by three the result will be the number first thought of. For example, suppose nine was the

number thought of. Nine, less one is eight, two times eight is sixteen; sixteen less one is fifteen; fifteen plus nine is twenty-four; add three and you have twenty-seven; divide by three and the answer is nine, the number thought of. Perhaps, if you like arithmetic, you can think of other ways to do this.

Every Boy His Own Pupil

Every boy who has reached the age of ten, strong and sturdy, once in a while clenches his fist, stiffens his muscle and says to a grown-up, "How's that for muscle?" And grown-ups stare in wonder and admiration. But you can't tell just how strong an arm may be or how swiftly the legs may run by looking at them. There is something inside a fellow that counts quite as much as size. I guess it is as much like a "spirit of trying" as anything.

Do you want to know how strong you are or how swift you are compared with boys of your size? This is to tell you how to find out, and, by the way, it is a wonderful help to have a standard to work for. Any one can always do better when he has set a mark or standard to try for. In this way he can keep track of his "spirit of trying" too.

First you will need to get weighed so as to know in what class you belong. We shall have five classes:

80-lb. Class, weight 60 to 80 pounds.
95-lb. Class, weight 81 to 95 pounds.
110-lb. Class, weight 96 to 110 pounds.
125-lb. Class, weight 111 to 125 pounds.

If a boy weighs over 80 pounds he is in the 95-pound class. If a boy is weighed with his clothes on, the weight of his clothes should be taken from the total weight to find his exact weight.

The following are the standards for each Class:

THE STANDARDS[1]

80-lb. Class	*Passing*	*Honor*	*High Honor*
Pull Up	2 times	4 times	6 times
50-Yard Dash	10 seconds	8 seconds	6 seconds
Standing Broad Jump	3 ft. 5 in.	5 ft. 6 in.	7 ft. 7 in.
Running Broad Jump	5 ft. 10 in.	10 ft.	14 ft. 2 in.
Baseball Throw	70 ft.	120 ft.	170 ft.

[1] These standards have been worked out with much care and have been published in a little manual "Outdoor Athletic Tests for Boys," by John Brown, Jr., M. D.

95-lb. Class	*Passing*	*Honor*	*High Honor*
Pull Up	3 times	5 times	7 times
75-Yard Dash	13 seconds	11 seconds	9 seconds
Standing Broad Jump	3 ft. 11 in.	6 ft.	8 ft. 1 in.
Running Broad Jump	6 ft. 10 in.	11 ft.	15 ft. 2 in.
Baseball Throw	100 ft.	150 ft.	200 ft.

110-lb. Class	*Passing*	*Honor*	*High Honor*
Pull Up	4 times	6 times	8 times
100-Yard Dash	16 seconds	14 seconds	12 seconds
Standing Broad Jump	4 ft. 5 in.	6 ft. 6 in.	8 ft. 7 in.
Running Broad Jump	7 ft. 10 in.	12 ft.	16 ft. 2 in.
Running High Jump	2 ft. 8½ in.	3 ft. 9 in.	4 ft. 9½ in.
Baseball Throw	130 ft.	180 ft.	230 ft.

125-lb. Class	*Passing*	*Honor*	*High Honor*
Pull Up	5 times	7 times	9 times
100-Yard Dash	15 seconds	13 seconds	11 seconds
Standing Broad Jump	4 ft. 11 in.	7 ft.	9 ft. 1 in.
Running Broad Jump	8 ft. 10 in.	13 ft.	17 ft. 2 in.
Running High Jump	2 ft. 11½ in.	4 ft.	5 ft. ½ in.
Baseball Throw	145 ft.	195 ft.	245 ft.
Putting 8-lb Shot	15 ft. 6 in.	28 ft.	40 ft. 6 in.

Unlimited Class	*Passing*	*Honor*	*High Honor*
Pull Up	6 times	8 times	10 times
100-Yard Dash	14 seconds	12 seconds	10 seconds
Standing Broad Jump	5 ft. 5 in.	7 ft. 6 in.	9 ft. 7 in.
Running Broad Jump	9 ft. 10 in.	14 ft.	18 ft. 2 in.
Running High Jump	3 ft. 3½ in.	4 ft. 4 in.	5 ft. 4½ in.
Baseball Throw	160 ft.	210 ft.	260 ft.
Putting 8-lb. Shot	22 ft. 6 in.	35 ft.	47 ft. 6 in.

This table will show you just what a boy might be expected to do to be a good athlete for his size and age. Every strong, healthy boy ought to be able to beat the passing standard for his class. He will be doing very well if he can equal the honor standard and he will be unusual if he can equal the high honor standard for his class.

Before practicing these events, you should be examined by your family doctor or school doctor to make sure you have no heart weakness or defect that might make the practice injurious to you. After you have been examined and pronounced all right, weighed and know to what class you belong, you should practice each event until you can beat the passing standard in all.

The Events[1]

The Pull Up. Grasp the bar with the hands, the feet swinging free from the ground. Raise the body, without kicking, snapping, jerking, or swinging, and bring the chin higher than the bar. Lower the body the full length of the arms making a slight pause before each Pull Up.

The Dashes. A good way to "start" is to take the "crouching position." The front foot is placed about six inches from the line; the hind foot being placed so that the knee is opposite the instep of the front foot. The hands are on the line.

The Standing Broad Jump. When possible, the jump should be made from a plank or joist, 8 inches wide, sunk level with the ground. The toes must not be placed beyond the edge of the joist. When it is not convenient to have a joist, or "take off" as it is called, the jump may be made from a line on the ground. The jump is measured from the line to the nearest mark made by any part of the jumper's body. In this and other events, generally, three trials are allowed in which to equal or exceed the best mark made.

Running Broad Jump. In this event there is a running start. The same rules as to toeing the line and measuring apply in this as in the standing broad jump. The ground should be dug up to give a soft landing and should be smoothed over after each jump.

Baseball Throw. The thrower is allowed to run fifteen feet in throwing the ball, but he must not step over the starting line.

Running High Jump. The jumper may run any distance and from any direction.

Shot Put. The shot is put with one hand which may be raised above but not drawn behind the shoulder. The put is made from a circle seven feet in diameter. One may not touch the front part of the circumference in making the put or step beyond it. In athletic meets, a wooden stop-board is placed in the middle of the circumference of the front half of the circle. This may be touched with the foot but not stepped upon.

Girls from ten to twelve, as well as the boys, may practice the events for the 80-lb. class and the 95-lb. class.

[1] Fuller direction and rules of much interest to teachers or officials may be found in the "Official Handbook Public Schools Athletic League."

A good game may be played by a group of boys individually or, better still, on sides. Each boy or each side scores points in accordance with the following scale: For each Pull Up better than Passing standard, 25 points. For every half inch better than Passing standard, in the Standing Broad Jump, 1 point. For every inch better than the Passing standard, in the Running Broad Jump, 1 point. For every quarter inch better than the Passing standard in the Running High Jump, 1 point. For every foot better than the Passing standard, in the Ball throw, 1 point. For every three inches better than the Passing standard, in the Shot Put, 1 point. By this scale one scores just 100 points by equaling the High Honor standard. This suggests an interesting way a boy may keep track of his progress by noting his scoring day by day. It also suggests how different groups, or classes, or schools, may compete and compare their scores to see who wins.

A Walking Club

How many of our boy readers belong to a "Walking Club"? Walking is great fun, if only one has learned the secret, and a Walking Club makes it all the more fun. Sometimes the club is called "The Hiking Club."

It is a simple matter to get up a walking club. This is the way to do it: One boy makes up his mind to start a club. He tells a friend and the two make out a list of names of six or more boys and all are invited to meet at the home of one of the boys. Some teacher or older friend of the boys is let into the secret and invited to be the club's adviser. At this meeting a captain and a scribe may be elected. Then a list of interesting "Tours" should be made up. These tours should not be less than two miles nor more than five miles in length. A good ideal for the Club is to walk not less than twenty-five miles in two months.

The Adviser will help in suggesting walks which have an interesting history, or where there are beautiful views, or which are of geographical or industrial interest.

The walking and the chatting together will be the chief fun on the journey perhaps, but there may be much enjoyment also from songs, stories, games, and picnic lunches. If the journey is a long one, the games, of course, should not be the very strenuous ones and

would be played at lunch time or when stopping to rest, although singing marching songs and marching to them and playing "Follow the Leader" need interfere but little with the progress of the walk.

Some very good games to remember when you are on a tour are "Pantomime School," "Follow the Leader," and "Slap." These are also very good games to play at any time.

A good game to play when resting on the journey is "Pantomime School." One is chosen "Teacher." The others stand in line facing him like a class in school. The object of the game is to get the "best scholar" at the head, or left of the line, and the "dunce" at the foot. The teacher does some odd little "stunt" which all of the scholars attempt to imitate in turn, beginning at the left of the line. Some good stunts for the game are such as balancing on the toes while five is counted slowly; on toes of one foot; patting the head with one hand and rubbing the stomach with the other; extending the hand and opening the fingers between the middle and ring fingers; wiggling the ears; rotating the hands, one in one direction and the other in the other; making an old-fashioned bow in a very stately manner. If a pupil misses, the next tries. Whoever succeeds passes above those who fail. When the game is over the one at the head of the line is the "best scholar" and the one at the foot is the "dunce." The "dunce" may be punished in any suitable way the teacher decides.

"Follow the Leader" may be played while the Club is still on its way. All walk in single file following the Leader, stepping and acting exactly as he does. The Leader marches slowly or fast carrying his arms now this way, now that; balancing lunch box or something on the head; walking on curbs or walls; jumping over stones or brook; skipping; jumping down a bank; climbing a fence; and every kind of suitable "stunt" an ingenious leader can think of.

"Slap" is a better natured game than you might think from the name. The players stand in a circle with the one who is Slapper inside. Slapper goes from one player to another and says: "Are you quick?" The player answers, "Yes, I am as quick as you." Slapper says, "Put out your hands and we'll soon see if I can beat you or you can beat me." The player then puts out his hands, palms down, elbows at the sides. Slapper extends his hands and gently feels the other's palms. Then begins a contest which the others watch. Slapper tries to withdraw his hand or hands and slaps

the other's hands before he can withdraw them to safety. The trial is made three times. If Slapper succeeds in slapping the other's hands twice, he continues being Slapper and tries another player in the same way.

It is well to carry a lunch of plain, wholesome food such as sandwiches and fruit. Care must be taken that only pure water is drunk on the journey and not much of that when one is heated.

If liquids are carried, jelly water is a pleasant drink and will quench thirst better than ice water, even though it may not be as cold.

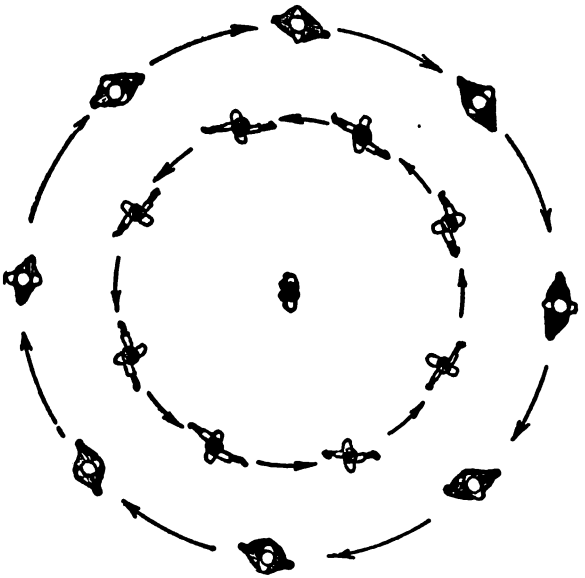
For each glass you will need ½ cup of boiling water and two tablespoonfuls of grape or currant jelly. Beat the jelly with a fork until smooth, add the boiling water and, if the jelly is sour, stir in enough sugar to sweeten it.

How Fast Are You Going to Travel?

If you want to know how fast you are going when you are on a railroad train how can you find out for yourself? Probably you have noticed the clickety-click sound that you hear all the time. That is when the car wheels go over the joints where the ends of the rails come together. Count the number of these clicks in just twenty seconds. That will be the number of miles an hour your train is going. Can you tell why this is true? How long is one of the steel rails?

Suppose your teacher wishes to find out this coming season how fast you are going in school, how can she do it? Perhaps you make some kind of a clickety-click which she can count. Of course she knows how many words you spell right and how many examples in arithmetic you do correctly, and such things as that. But are there not some other things which she can count? Suppose she should keep count of the times you try to do well even when you do not get right answers; or the times you do some helpful thing for her which she did not ask you to do; or the times you pick up a little fellow who gets knocked down at recess; or the number of times she hears one of your parents or neighbors say some pleasant thing about the way you behave yourself. Don't you think she could tell by these things, these clickety-clicks, better than by anything else just how fast you are going? Ask her what she thinks about it.

A Good Indoor Game



PLAN OF PLAYERS IN ACTION IN "TUCKER WANTS A PARTNER"

Tucker Wants a Partner

This game is played to Music. Some one will have to be leader but can play while leading. We will now form a double circle—all the boys in the inner circle. When the music begins we all march around in a circle. When the leader gives the command "About turn!" all will unclasp hands and those in the inside circle will turn about and march in the opposite direction. Remember the outside circle pays no attention to these commands but goes right on marching. Now we have the inside circle moving in an opposite direction from the outside circle (see illustration) with Tucker standing in the center looking for a partner. When the leader again gives the command "about turn!" the inside circle again does the turning; this will bring them facing as they were at the beginning. They must now quickly join hands with the first player they can reach in the outside circle and at the same time *Tucker* joins the inside circle and tries to get a partner in the outside circle. If he succeeds some one in the inside circle will be left without a partner and that one becomes *Tucker*. If *Tucker* does not succeed in getting a partner he must be "it" again. Do not fail to play this game the very first time the opportunity presents itself. You can't imagine what fun you are missing until you do.

Maybe the musician will please play a march for you and then pay no further attention,—unless she just cannot help looking on and enjoying the fun. At any rate she is not to stop playing music while you are playing Tucker!

If the boys are inside, Tucker must be a boy. If the girls are inside you must have a "Miss" Tucker.

Real Games for Real Boys and Girls

Reprinted from a Handbook for Boys by Courtesy of the Boy Scouts of America

Hand-Wrestling

This is a jiujitsu game, introduced by Dr. L. H. Gulick.

The two contestants stand right toe to right toe, each right hand clasped, left feet braced, left hand free. At the word, "Go!" each tries to unbalance the other; that is, make him lift or move one of his feet. A lift or shift ends the round.

Battles are for the best out of five, seven, eleven, or thirteen rounds.

Badger-Pulling

The two contestants, on hands and knees, face each other. A strong belt or strap is buckled into one great loop that passes round the head of each: that is, crosses the nape. Half-way between them is a dead line. The one who pulls the other over this line is winner.

The contestant can at any time end the bout by lowering his head so the strap slips off; but this counts one against him.

Game is for best out of five, seven, eleven, or thirteen points.

Poison

This is an ancient game. A circle about three feet across is drawn on the ground. The players, holding hands, make a ring around this, and try to make one of the number step into the poison circle. He can evade it by side-stepping, by jumping over, or by dragging another fellow into it.

First to make the misstep is "it" for the time or for next game.

Hat-Ball

When I was among the Chepewyan Indians of Great Slave Lake, in 1907, I made myself popular with the young men, as well as boys, by teaching them the old game of hat-ball.

The players (about a dozen) put their hats, hollow up, in a row near a house, fence, or log. A dead line is drawn ten feet from the hats; all must stand outside of that. The one who is "it" begins by throwing a soft ball into one of the hats. If he misses the hat, a chip is put into his own, and he tries over. As soon as he drops the ball into a hat, the owner runs to get the ball; all the rest run away.

The owner must not follow beyond the dead line, but must throw the ball at some one. If he hits him, a chip goes into that person's hat; if not, a chip goes into his own.

As soon as some one has five chips, he wins the booby prize; that is, he must hold his hand out steady against the wall, and each player has five shots at it with the ball, as he stands on the dead line.

Feather Football or Feather Blow

This is an indoor, wet weather game.

The players hold a blanket on the knees or on the table. A soft feather is put in the middle. As many play as can get near. They may be in sides of two or four, or each for himself. At the signal, "Go!" each tries to blow the feather off the blanket at the enemy's side, and so count one for himself.

A game is usually for best out of seven, eleven, or thirteen.

Cock-Fighting

Get two stout sticks, each two feet long (broomsticks will do) Pad each of these on the end with a ball of rag. These are the spurs. Make an eight-foot ring. The two rivals are on their hunkers, each with a stick through behind his knees, his hands clasped in front of the knees, and the arms under the ends of the spurs.

Now they close; each aiming to upset the other, to make him lose his spurs, or to put him out of the ring, any of which ends that round and scores one for the victor. If both fall, or lose a spur, or go out together, it is a draw. Battle is for seven, eleven or thirteen rounds.

Nature Friends

A Builder of Under-Water Houses

A strange house builder is the "worm" or *larva* of the caddice-fly. He is found crawling over the bottoms of all our brooks, dragging his house along with him. Take a small pail, some time in the fall before it gets cold, and search for him. He will be there all winter, but it will be more comfortable getting him earlier; if

the brook flows fast, you will probably find them in *stone* houses, made of little pebbles stuck together. These are about one-eighth of an inch in diameter and an inch long.

Bring home a few of each kind and put them in glass jars. Always keep them in a cold place, but not where the water will freeze solid. Change the water often, and if you can, get brook water.

Take out one of the caddice-worms, and very gently remove the case by breaking open the end opposite his head. Look closely at the inside of this case. The pebbles are fastened together with silk that the little fellow spins. When you have removed the case place the worm back in the water at once. Now get some fine sand or pebbles and put them in the water with him, and see if he will build another house for himself from these pebbles.

Winter Cocoons

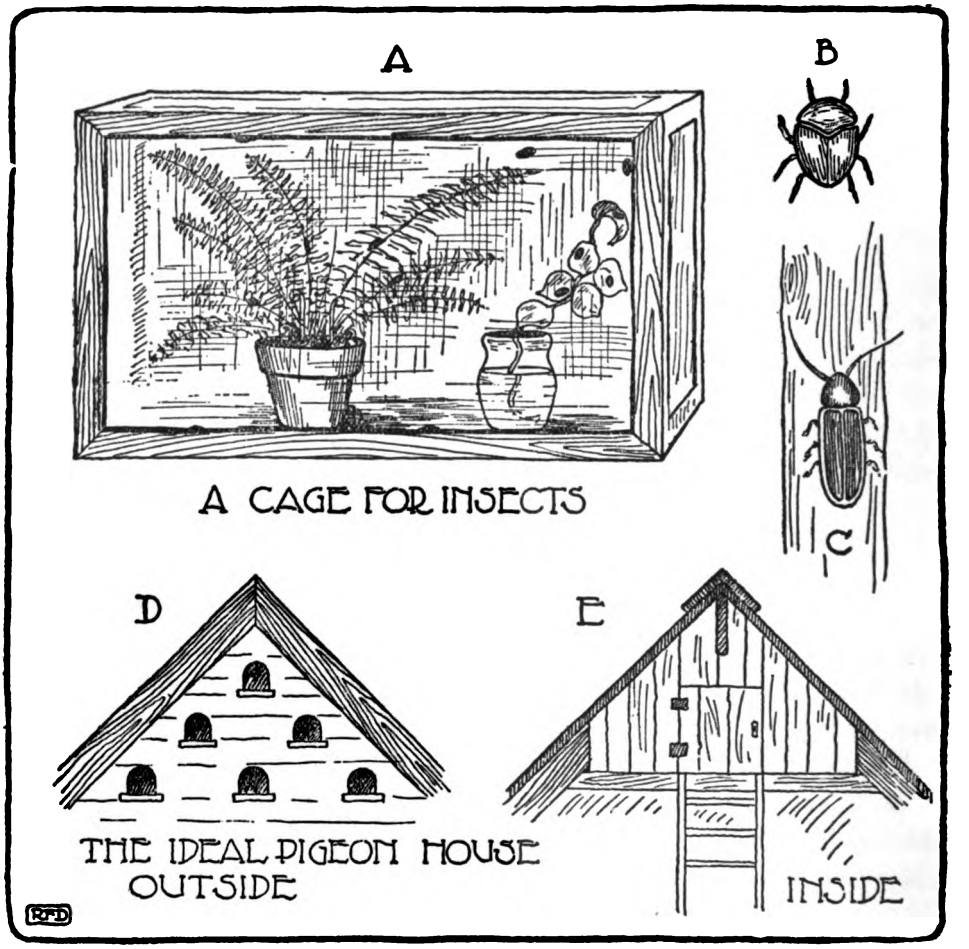
You must collect some cocoons and chrysalids in winter so that you can watch the moths and butterflies come out in the spring. You have all seen the cocoons that hang on twigs; but this is not the only place to look for them. You will find some under the leaves, some on fences, and some underneath the loosened bark of trees. Take them all home. Perhaps you have seen some golden-rod stems all swelled up in the middle. These are the winter homes of little insects in their chrysalis stage. Take some of these also.

Put all your cocoons in a box that has a layer of moss or a folded blanket in the bottom. Tack some fine wire screening over the top of the box to keep out mice, and put it in a cool room, away from the sunlight, but where the air will circulate about it. Occasionally sprinkle a few drops of water on the cocoons.

Two Remarkable Insects

There are all sorts of interesting things to be found in the fields and woods of June, but I am going to choose two of the *most* interesting this time.

FIREFLIES. Take an insect net (your cap will do, if you are quick enough); go to the nearest meadow, and collect as many fire-



flies as you can. The fireflies can be put into a large glass jar, but the best place to keep them is in an insect cage. You can easily make one of these. Construct a frame of $\frac{1}{8}$ inch material about 12 inches high, 12 inches wide, and 18 inches long. Then cover this with either wire or cloth screening. See Fig. A. Place a potted plant in the cage for the insects to cling to, or if you have the cage outdoors just set it over some low plants. Fireflies do not eat much except a little nectar now and then from flowers. You can keep them supplied with all the food they need by putting in a piece of cloth saturated with molasses and water. Our fireflies are not as large as those living in the tropical countries.

THE GOLD BEETLE. Do you know that there is a beetle living right in your own yard that looks like a drop of glittering gold—a regular magician who can change himself from a gold nugget to a pearl shell and then to a plain yellow beetle? Go out about the last part of August and search on the *under* side of your morning glory leaves. You haven't any morning glory vines? Well, then, look on the wild morning glory, or bindweed, found along stone walls and field edges. Be careful when you try to catch him, for he is quick. Put your gold beetles in the insect cage with the fireflies, and place a vine of morning glory or bindweed in a vase for them to feed upon. Watch the color changes they make, and see if you can determine why they change.

You can now have a continuous performance in your insect cage—the sparkling fireflies by night, and the magical changing beetles by day.

Keeping Pigeons

The common slate-colored pigeon is the best variety to keep—at first, anyway. It is very hardy, requiring little care; and it is about the only kind that you can safely give its liberty.

Begin with a flock of common pigeons and let them grow to a whole flock—then if you want to, begin with the more specialized breeds.

Get two or three pairs from a pet store, or from any one who owns a flock. But have your pigeon-house ready first. They may be kept in an old hen-house, a shed, or in a barn loft. If you haven't any of these places, a large packing case on a shed roof will answer. As a rule pigeons should be kept as high above ground as possible; they like it better, and they are safer from their enemies. The barn loft is the ideal pigeon-house. A small portion can be boarded in and a door made for cleaning and inspection. Fig. E. Cut five or six holes through the side of the barn, as in Fig. D. Place a small alighting shelf at the base of each opening.

Put some sawdust on the floor of their house, and provide several nesting dishes. These can be obtained at the pigeon stores; or shallow boxes, eight or ten inches square, can be made for them. Do not let your first pairs of pigeons out for two or three weeks, or until they become thoroughly at home.

Be sure to guard against cats, rats, and weasels—they are the pigeons' worst enemies. Give them dry grain and plenty of water to drink. After they get their liberty, they will need less attention, but they should be fed regularly just the same. Always keep the house clean and sanitary—it is the best way to prevent disease.

An Interesting Experiment

There are many simple experiments with plants which a bright boy can make to prove that plants are at work all the time. One of the best of these is easily done at home. It is for proving that the leaves of plants give off water vapor in surprising quantities. This vapor escapes into the air unseen.

To make the experiment take a small plant growing in a flower pot. A seedling dwarf marigold is excellent but any healthy plant will do. Cover the top of the pot with water-proof paper or cardboard, cutting a slit into the center so it can be fitted around the stalk of the plant. Turn a thin glass tumbler down over the plant, so that it rests upon the water-proof paper. Next fit up another flower pot full of moist soil in the same way, except that it is to have no plant growing in it.

If now you place these side by side in a sunny window you will soon see water settling upon the inside of the glass covering the plant, but none in the other glass. The water comes from the leaves, and as it cannot get out of the glass it gathers on the cool inner surface of the glass.

To understand what has happened it is necessary to recall that a plant is made up of the roots in the soil, the stem rising from the soil and the leaves in the air. The stem connects roots and leaves and serves for carrying water and food materials from one to the other. The water enters the root hairs and passes upward to fill the plant. But it is not stationary. The surface of the leaf is dotted with tiny openings called stomates or breathing pores, through which the water vapor that is constantly being formed in the leaf escapes into the air. So the water escapes from the plant just as it does from the tea-kettle on the stove. This passing of water into the air from leaf and stem is called transpiration. Do you begin to see why cutting down all the forests is bad for a country?

Sticklebacks

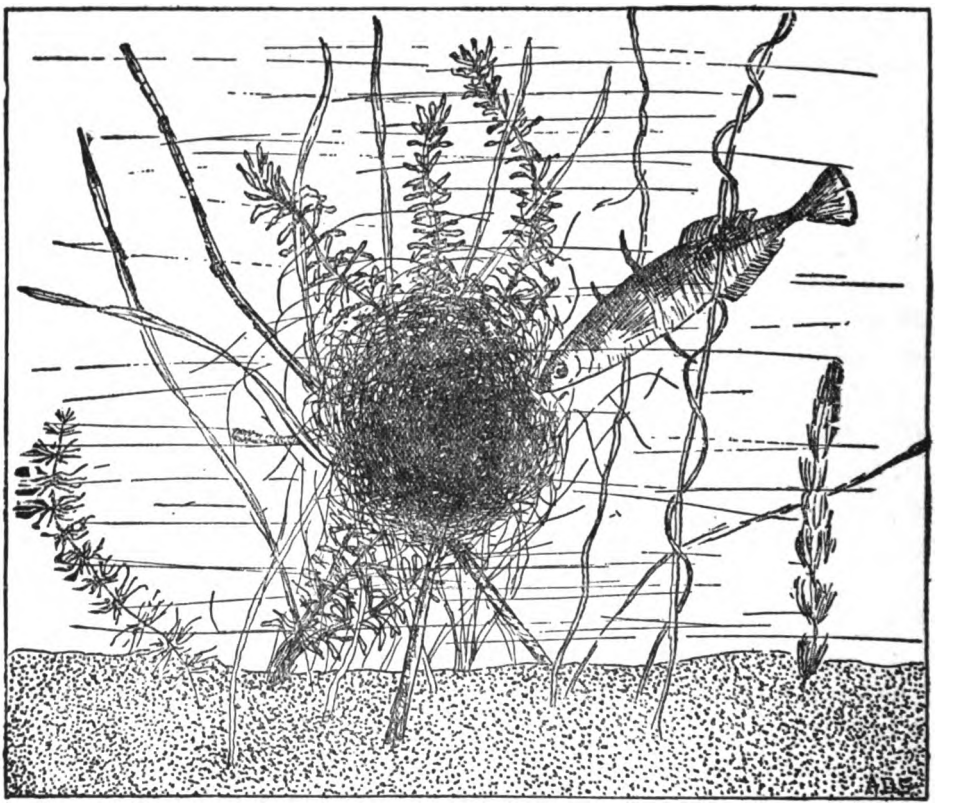
April is the month to go fishing—for trout and sticklebacks. You will catch your trout with a hook and line; but your sticklebacks should be caught with a net—or with pennies!

Now you have probably caught trout before, but do you know what sticklebacks are? These little fish are only about two inches long, but they look like little torpedoes and fight like sharks. On their backs and breasts, in place of certain fins, they have sharp little spines that they use vigorously against their enemies.

Sticklebacks are found in brooks, ponds, and marshes. In April the male stickleback builds a little globular nest of algæ, or green pond scum, coaxes a female stickleback to lay her eggs in his nest; then, after she has deposited them and gone away, he keeps house all by himself until the baby sticklebacks have hatched and grown large enough to take care of themselves.

All these things and many more you can watch for yourself if you capture a pair of sticklebacks in April. Take a pail, a dip net, and a pair (or two) of sharp eyes. Look for them where the water is stagnant, and where pond scum is found. Perhaps you can find Father Stickleback guarding his eggs, and get him, nest and all; for he is so loyal to his nest and eggs that he will sometimes allow himself to be caught up in the net rather than desert his post. If you do not succeed in catching them in your net, try fishing for them with a small worm tied to a bit of cotton for bait. They will usually take worm and cotton with one gulp, and can then be pulled out. Look out for spines!

Sticklebacks can be kept in anything from a pail to a large size, square glass aquarium. This last is, of course, the best, but the ordinary fish globe, or a battery jar will do. Put a layer of sand at the bottom of the aquarium, and set some water plants in this, or put in some floating plants, not forgetting the green pond scum that Mr. Stickleback builds his nest of. This pond scum, or algæ, is really composed of hundreds of tiny, silk-like threads, and is found wherever the stickleback makes his nest. Be sure to have the vegetation fairly dense, and put in a few twigs, for he likes to hide his nest in tangly places. The plants will keep the water supplied with the necessary oxygen for the fish. The water will not need to be changed unless it gets very dirty. Try to keep it as clean as you can by re-



MR. STICKLEBACK ON GUARD BY HIS NEST

moving all uneaten food and waste. This is best done with a glass pipette, which can be bought for a few cents at the pet stores.

Sticklebacks live almost entirely on animal food, so you must feed them either small worms, insects, or tiny bits of raw meat. Do not overfeed them.

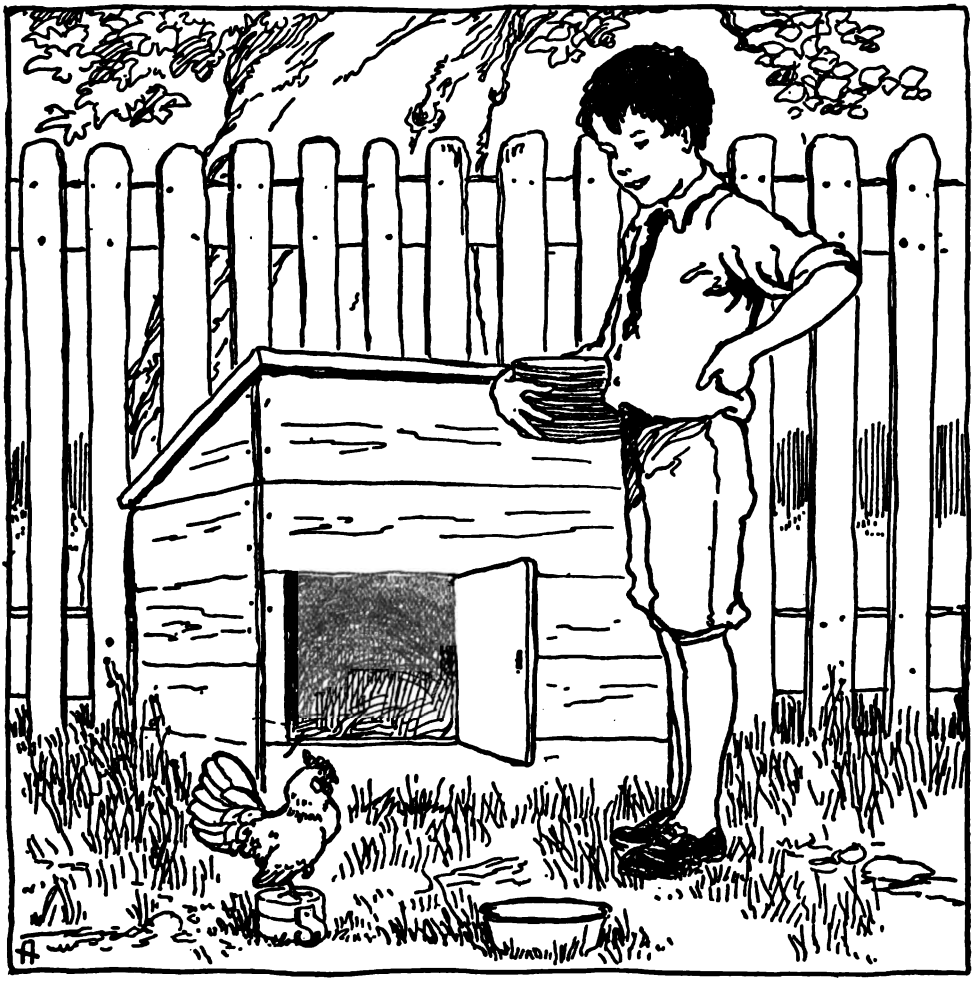
If you have a pair of sticklebacks (you can tell the female by being larger and duller colored than the male), you must put the female in another aquarium after she has laid the eggs, for if you do not he will either kill her, or she will eat up all the eggs. Never keep two males together during the mating season if you want to have any sticklebacks left at the end of a few days' time.

If sticklebacks are not found near your home, or if you have no luck at stickleback fishing, you may be able to purchase a pair at the nearest pet store, where goldfish are sold. You may find them as interesting as the goldfish.

What to Select for Bantams

Bantams are really little hens. They do not come from the town of Bantam, as some believe, but are just small sized varieties of our regular breeds of hens.

Bantams are easy to take care of, and they will supply you with bantam eggs to eat—little toy eggs, but tasting just as good as the larger ones.



While bantams as a rule are easy to take care of, unless you have had some experience, it is better to select only the more hardy varieties at first. The Cochin, Brahma, and Plymouth Rock bantams are

perhaps the best breeds for the beginner. These are all hardy, and make good pets. When you have become thoroughly accustomed to these, you may want to experiment with such varieties as the white Polish bantam, with its topknot of feathers that looks like a big white hat, or the Japanese bantam that has short legs and a long tail that sticks straight up in the air. There are over twenty varieties altogether, but most of these are rare varieties and rather delicate. These are so hard to rear that it would not pay you to keep them unless you have had a lot of experience first. There are a good many books on the subject and from them you can learn a great deal.

The coop for your bantams may be anything from a large packing case to a well built hen-house. It should have a tight floor, and well papered sides and roof, to insure good, dry quarters. Make at least one window in the coop, and cover this with muslin. Good ventilation and cleanliness in the coop are two things that you must always keep in mind if you want to keep your fowls healthy.

The paper on the walls should be taken off every season and new covering put on. If the walls are simply whitewashed, that process should be frequent. While the flock is out it is well to open up the house and let air and sunshine come in, for there is no cleanser like sunshine and nothing so purifying as fresh air.

Make the yard as large as you can, or, if possible, let them run about freely. If the flock is let out at the end of the day there will not be time for them to do great damage, as they will go back to the roosts at sundown.

In winter you should feed bantams cracked corn and a little hemp seed for hard grains. Give them plenty of vegetable food, such as cabbage, lettuce, and turnips. They should also have a few meat scraps, mixed with bran and water, occasionally, or some fine ground "green" bone.

With a little patience and gentle treatment, you can readily tame bantams. Feed them regularly and spend some time each day with them until they get accustomed to you. Never approach them suddenly, or tease them in any way. They will soon learn to eat from your hand and ride about on your head or shoulders. They will surely follow you at feeding time!

A Guinea Pig Family

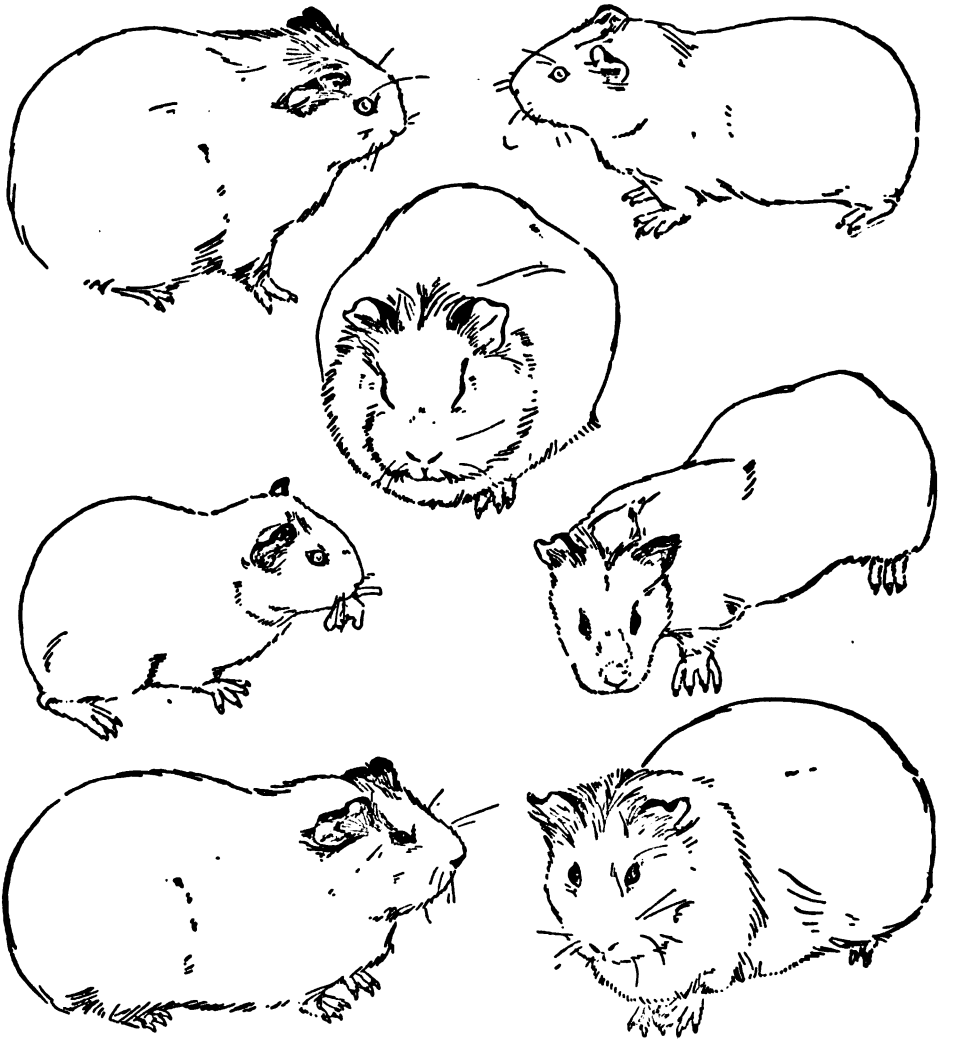
Before I tell you how to care for a Guinea pig, let's find out something about his history. In the first place, he isn't a pig at all, and he doesn't come from Guinea. (Do you know where Guinea is?) The Guinea pig really belongs to the rabbit family, and he comes from South America. Years ago, before Columbus set sail for the Indies, a tribe of South American Indians, called the Incas, kept Guinea pigs for pets—and ate them, too!

Perhaps you will not care to eat *your* Guinea pigs, but you will want to make friends with these queer little squeaky animals, anyway. Dealers in Guinea pigs will show you four kinds to select from: English, Angora, Abyssinian, and Peruvian. Each of these varieties has a number of different colors. The English is short haired, the Angora has long straight hair, the Abyssinian has long curly hair, and the Peruvian has such long hair that you cannot tell which end is his head and which his tail. Sometimes Guinea pigs are called "cavies." Remember that "cavy" is just a new name for our old friend the Guinea pig.

Guinea pigs cannot stand the cold, so you must keep them in some room where the temperature never goes below the freezing point. The size of their house will depend upon the number that you have. If you have only one Guinea pig, a box a foot square will do, but if you have two or more, a larger box is needed. Turn the box inside down and cut a doorway six inches square at the lower edge of one side. A layer of straw should be put on the floor of the house. If cats or rats can get into the room, put a wire cage around their house and yard. This will protect the baby Guinea pigs.

Do not keep more than one male in a cage, because males are apt to fight among themselves. One male and two or more females can be kept in the same cage, but then you should have a small individual house for each female.

You will have no trouble in feeding them, for they eat all kinds of vegetable food. Carrots are very good for them. They like all sorts of grains, green vegetables (like lettuce and celery), and sometimes apples and other fruits. The babies should be given bread and milk until they are three days old. Always keep a dish of water in the cage.



SEVEN PEN DRAWINGS FROM GUINEA PIGS, BY BESS BRUCE CLEAVELAND

Remember that your pets need regular attention. Do not overfeed them at one hour and then leave them for a long time. They soon acquire habits and they learn by teaching that is regular. If you take the responsibility of animals you should look carefully to their needs.

Has any one ever told you that if you hold a Guinea pig up by his tail his eyes will drop out? I wonder if you know why. You might try it. Be sure and handle him gently!

Feeding Your Dog the Right Way

Your dog's health depends more on feeding than on anything else. Most dogs are fed too much or too often. An over-fed dog gets lazy and does not take enough exercise to keep him healthy. A dog does not need the three meals a day that we take. Two is enough for him—one in the morning, and one in the evening. The evening meal should be his main meal. But he should never be given a hearty supper just after vigorous exercise, or if he is very tired. Let him rest a bit first.

Meat, of course, is the dog's natural food. But you should be very careful about feeding it to him. The dog is a civilized animal, and does not require the vigorous flesh diet that his wild relatives do. The amount of meat that you should feed him will all depend upon his nature and the amount of exercise that he gets. Small dogs and house dogs of all sorts require very little meat, but larger dogs and all dogs that romp a great deal will need more. A good proportion for active dogs is one-fourth meat and three-fourths cereal or vegetable food. It is not a good plan to give raw meat at any time. The best way is to cook the meat with some cereal—rice, oatmeal, or corn meal. Mix it well and let it cool off before the dog eats it. Never give him hot food of any kind. Meat and cereal should be his main diet in the winter time, occasionally varying it with vegetable or fish. Dog biscuits make a very good addition to his bill of fare. One biscuit might be given him at each evening meal, or at any time when he does not seem satisfied with his regular food. If you do not have any dog biscuits, be sure that he frequently gets a good gnawing bone. It helps clean his teeth and aids his digestion. But never give him chicken bones, for they are splintery and might cause serious harm internally.

In summer give your dog less meat and more milk. The morning meal the year round may well be of porridge and milk or bread and milk. Be sure always, both winter and summer, to have plenty of water where he can always get it, inside and outside the house. Change the water and clean the dishes every day.

Do not feed your dog every time that he begs for food. Try to keep regular feeding hours. And above all, do not feed him candy, fancy crackers, tea, coffee, and such things. Just think what would happen to *you* if you got these things every time you begged for them!

A Bird Life-Saving Corps

February is one of the hardest months for the winter birds in the Northern states. The food supply in the woods and fields is getting low, and the deep snows have covered all the choice seeds and berries on the ground and on the low bushes. Now is the time to come to their rescue. Establish a bird life-saving corps in your neighborhood and have for your motto "Every bird life saved is a good deed to our country."

Arm yourselves with a broom, some twine, a box of sand, a bag of suet and bones for the meat-eating birds, and a bag of crumbs and seeds for the seed-eating birds. Gather up all the odds and ends of bread crusts and crackers that you can find and grind them up in a food chopper. If you live on a farm you will not need to resort to the bread box. Go to your hay-loft and gather up a bagful of weed and grass seeds on the loft floor.

Now go to the woods on the outskirts of your town and find a sheltered spot. Sweep the snow to the bare ground and scatter your crumbs. If there is no earth there scatter a little sand among the crumbs. Birds must have grit with their food, you know.

When this is done move on to another station, and so on, making a systematic route, not forgetting to tie some suet and meat bones for the chickadees and jays wherever the best opportunity offers.

Make a trip over this route once a week at least, or after every snowfall or ice storm. Remember that this work must be kept up until the thaws open up the weed seeds again.

The Origin of Birds

Long ago, before the time of birds in the world, say the Indians, wherever God touched the earth a tree sprang up.

In the early fall, the leaves of the trees changed their colors. The autumn winds came. The leaves fell to the ground.

God so loved the leaves He did not wish them to die, so He changed them to birds. From the red-brown leaf of the oak came the robin. The leaves of the red maple changed to cardinal birds, the yellow willow leaves became little yellow birds, and the brown leaves flew away as sparrows and larks.

Because these first birds were once leaves of the forest, their descendants have always loved the trees and lived among them.

Peep Parades and a Mother Goose Peep Show

CHILDREN TAKING TURNS AT THE PEEP SHOW

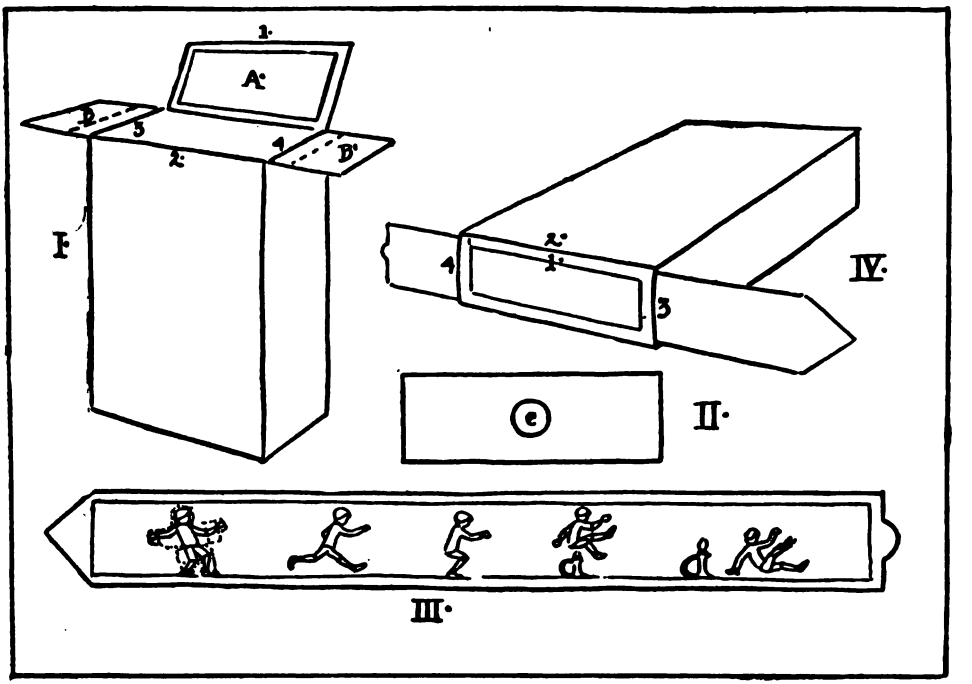
A Peep Show is a play that can be seen only by one person at a time and with only one eye at a time. If you don't think such a thing is possible, look with both of your eyes at the boy in the picture and then you will understand. This boy is looking into the Peep Show at the parades as another boy makes them march by.

If you would like to make some of these fascinating little parades ask Mother to give you an empty breakfast food box like the one in Fig. 1. Mark ½ inch from each edge of the open end (a) and draw the dotted rectangle. Cut this out with a sharp knife. Cut flaps (b) ½ inch wide and turn them in. Put the end down as it was before the box was opened. Sew edges 1 and 2 together or fasten them by gluing a paper over them. Do not fasten edges 3 and 4.

In the center of the other end of the box made a circle 4 inch in diameter. Cover your box with any pretty paper you have and decorate it with pictures if you like.

Make slides like Fig. III ½ inch narrower than the end of the box and as long as you wish to have your parade. Fifteen or twenty inches is a good length. Slip the slide pointed end first between flaps (b) and end (a) as in Fig. IV. It should slip through easily and smoothly. Mark the width of the opening on the slide and do not let any drawing extend above this line.

The slides are now ready to make. For the Mermaid Parade first draw the pictures as in Fig. V, or better yet some of your own. The parade could be much longer. With a sharp knife cut out the pictures of the mermaids and fish. Paste colored tissue papers over the openings at the back being careful not to let the paste extend beyond the edge. If you are careful you will not find it hard to make the upper portion of your mermaid one color and the lower another color. Use bright colors and let your slide dry thoroughly.



THE PASTEBOARD BOX PEEP THEATER

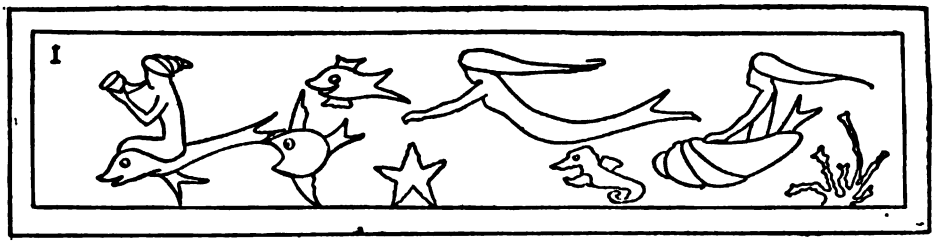
(I) Cut out A and cut off B and B'. Fasten 1 and 2 together.
(II) The place for the audience.
(III) The back of the "Jack be Nimble" slide. The dotted lines in the figure at the left show the way the colored paper is pasted on.
(IV) The slide in place.

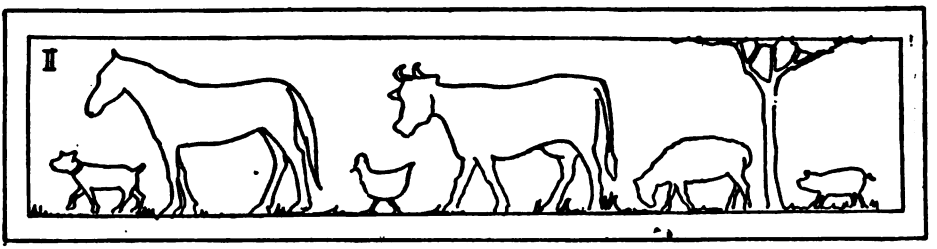
Now slip it in place and take a peep. You hadn't expected to see such a pretty little parade, had you? See how gracefully the sea folks swim past as you move the slide. See how prettily the light shines through the colored tissue paper.

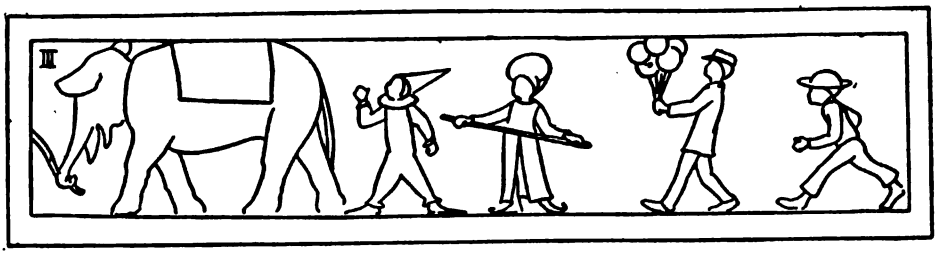
The Barnyard Parade is made in the same way. Use just as many colors as you can. If you make a white pony paste on a colored blanket and make the grass green.

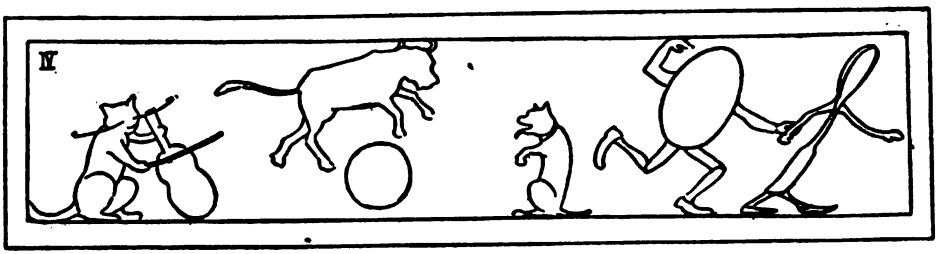
Try a Circus Parade and be sure to put a man in it carrying balloons of all colors. Make a slide of flowers too. You can pretend you are walking in your garden.

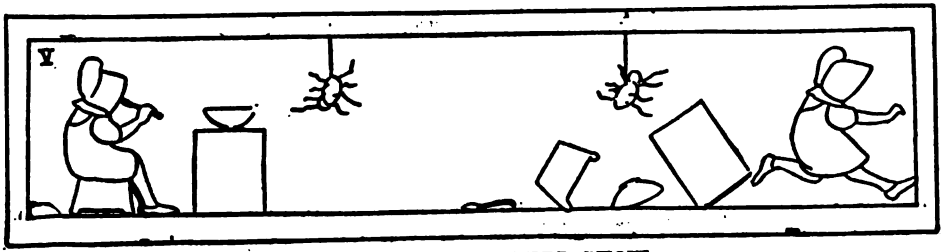
Get out the box you need for your Peep Parades and cut several slides of different lengths. Now get down your Mother Goose book and choose the rhymes you wish to use for your show. The ones that tell a little story are the ones to use. One or two are shown to











SLIDES FOR THE PEEP SHOW

(I) Under the Sea.
(II) The Farm.
(III) The Circus.
(IV) Hey Diddle Diddle.
(V) Little Miss Muffet.

give you an idea but you will have more fun in doing it all yourself. What a nice long slide you will have when you come to the House that Jack Built.

You will want to start your entertainment with a long parade beginning perhaps with Old Mother Goose herself and ending with Jack jumping over his candlestick. The illustrations in your Mother Goose Book will help you with the drawings.

When you have all the slides drawn, cut the pictures out carefully with a knife and paste tissue paper over the openings just as you did before.

In slide A make the fiddle bow very narrow and paste black paper over it. Where the bow crosses the fiddle, paste a very narrow piece of the same paper.

When all the slides are done, place your Peep Box on the table and let your friends look in at the little round hole. As you slip the slides through repeat the verses they illustrate. It will be great fun. Just try it and see. The long Parade Slide will be nice to show first.

But don't let your peep parades last too long, for if the boy with his eye at the peep hole stays too long, the rest of the audience may get tired of waiting and go away, taking with them their price of admission.