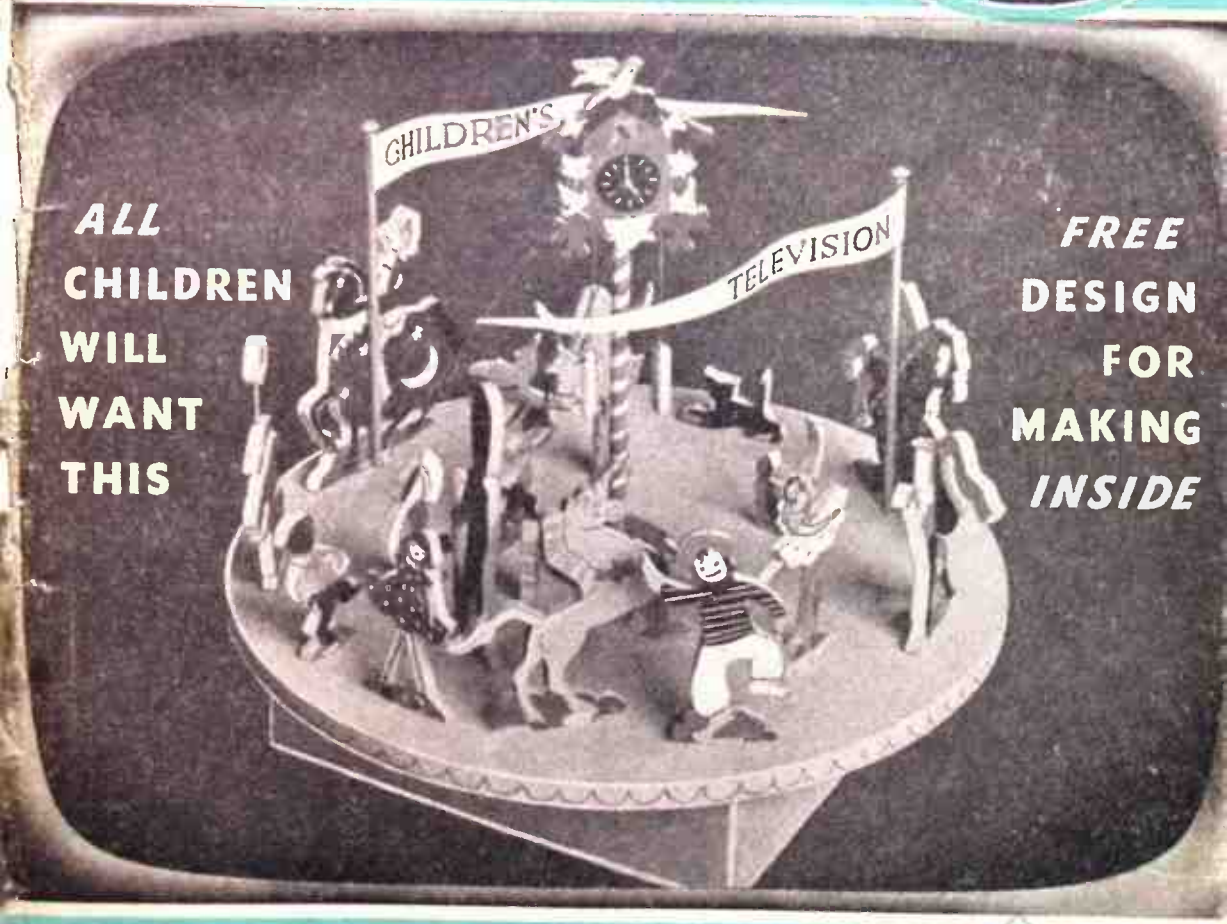
HOBBIES WEEKLY

OCTOBER 3rd 1956
NUMBER 3179
VOL. 123

FOR FRETWORKERS, MODELLERS & HOME CRAFTSMEN

SPECIAL BIRTHDAY ISSUE

Hobbies

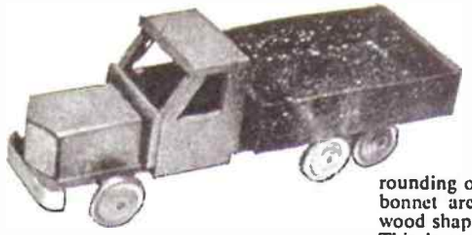


ALL CHILDREN WILL WANT THIS

FREE DESIGN FOR MAKING INSIDE

CHILDREN'S TELEVISION ROUNDABOUT

9D.



TOY LORRY FOR A CHILD

WITH large toys as expensive as they are today it is often a problem to keep youngsters out of mischief for longer than a day or so — the average life of the smaller and cheaper toys.

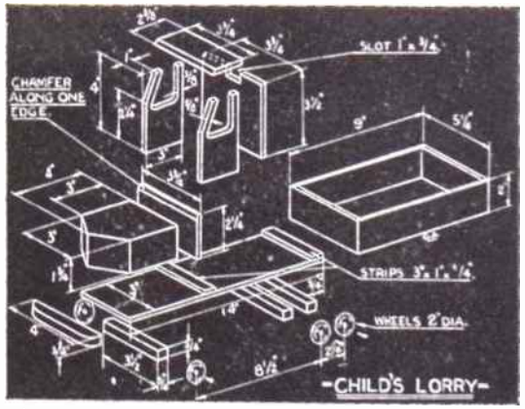
The answer, of course, lies in making one yourself. It should prove ideal for Christmas and won't take long to construct. A six-wheel lorry seems to be a firm favourite. Details of its construction are presented here.

Some odd blocks of wood, an orange box, six 2in. diameter wheels, six large screws and some small nails completes the list of requirements.

An Orange Box

The baseboard, 14ins. by 3ins., is cut from ¾in. ply or from the side of the orange box. On the front of this is nailed the fender, previously shaped by rounding off the corners. Radiator and bonnet are represented by a block of wood shaped as shown on the drawing. This is screwed or nailed to the baseboard from underneath.

The front of the cab is fixed directly behind this followed by the two cab sides which are nailed to the baseboard along their bottom edges. Roof and back are then fitted. All the pieces forming the cab are sawn (using a fretsaw in the case of the cab sides) from ¼in. or ⅜in. timber.



The two strips (see drawing) are then nailed home, one directly behind the cab and the other at the extreme end of the baseboard. Wheel supports can be made from discarded building blocks, as in the original, or cut from square stock. These are screwed in place in the positions indicated on the drawing.

Six wheels, either metal ones 'collected' from old toys or wooden ones cut from dowel, are then screwed to the supports, leaving them slightly free to revolve.

The freight container is made separately to the dimensions given on the drawing. It can be screwed direct to the baseboard strips or made to tip up by fitting a stout 1½in. hinge to the rear edge of the base board and the container.

A coat of paint using two bright colours and some silver or white for the fender and radiator completes a stout job that will stand up to any amount of 'boy handling'.

(G.A.)

IN THIS ISSUE

WITH the beginning of a new volume of 'Hobbies Weekly' we present this special double page birthday issue which gives us space for many more grand features to interest all hobbyists and handymen.

There is sure to be a terrific demand for kits for our free design subject — a Children's T.V. Roundabout — and the instructions for making this musical novelty are given on the centre pages. Other articles are:

● Continued from page 3

Pendulum Puppets

are moved from left to right. Put in a screw for the pendulum string or cord. In the case of pattern (B) this screw should be sufficiently long to ensure the pendulum string tied to it running well clear of the dowel rod 'tail'. The rod is 4½ins. long and is pivoted centrally on a fretnail driven in at the rear. Taper and round off the end of this rod with glasspaper before fixing. A short length of thin string is tied around the rod just under the pivot nail. The other end is attached to the pendulum screw.

Having made the working figure, it can now be fixed to its back support ready for hanging on the wall. Trim the hanging cord to a suitable length. All that is needed now to form the momentum is a heavy ball or weight. A discarded small boot-polish or similar round flat tin can be utilised. Fill the tin with plaster of paris, dropping in pieces of metal or lead. When set, put on lid and paint. Tie string to lid-opener. The string or cord could be dyed a bright red or green. Readers handy at lettering may wish to add a little motto or nursery rhyme to the back, in which case the back panel may been enlarged, or parts marked (X) on patterns omitted.

Fun to make—and work

ANIMATED CUT-OUTS

By T. Richmond, Junr.

ONE of the two quaint animal figures described here hanging on a bedroom or nursery wall will fascinate a child as it comes realistically to 'life' at the touch of its swinging pendulum.

Two patterns are provided; one for a cat with moving eyes, ears and bow tie, the other a puppy with an additional movement — a wagging tail. They are easily cut out with a fretsaw and assembled in a very short time. Very little wood is needed for each part, and owners of a Hobbies fretmachine could soon turn out a quantity for sale at, say, a church bazaar or for Christmas gifts. Careful painting is needed for effect, but this is quite straightforward.

Alternative Patterns

Choose one of the two patterns given and copy the shape of the figure to full size on paper ruled off in 1in. squares. Do the same with the respective moving part patterns, which include the eyes, ears and bow tie.

The patterns are then transferred on to ply or fretwood of about 2/16in. thickness. Cut these out with your fretsaw or fretmachine including the frets of the eyes. Smooth away any roughness to the edges with glasspaper but leave the details of figure on the wood as a guide for painting.

It would be as well to undertake all painting of parts at this stage before assembly. Finish as desired with gay enamel paints. Be careful to get the eyes nice and round and well positioned. While these parts are drying, the backpiece shown in Fig. 2 can be cut from plywood of a suitable thickness. Drill holes at top for taking the hanging screws. Glue a block of about 1in. thickness to each bottom corner. It is on these blocks that the completed figure is mounted. Paint the backboard a contrasting colour.

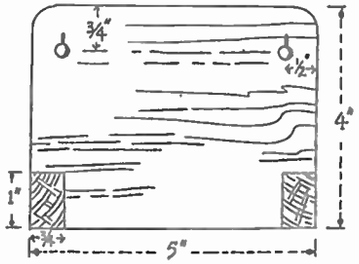


Fig. 2

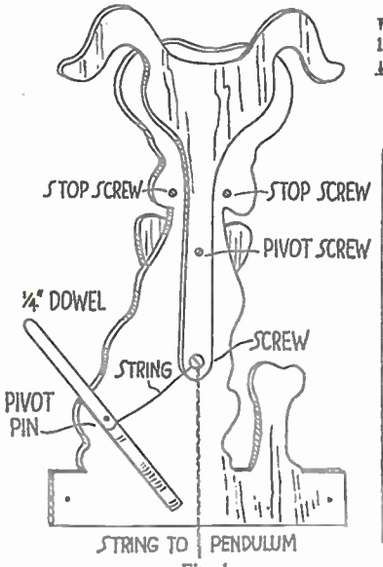
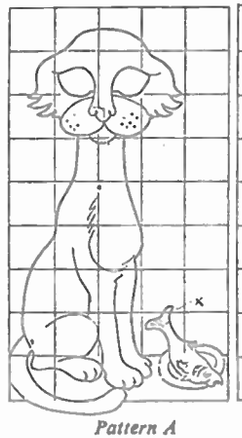
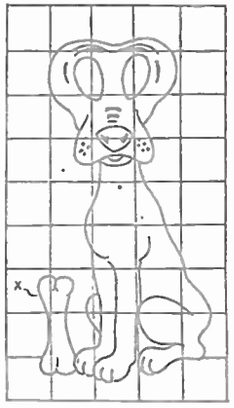


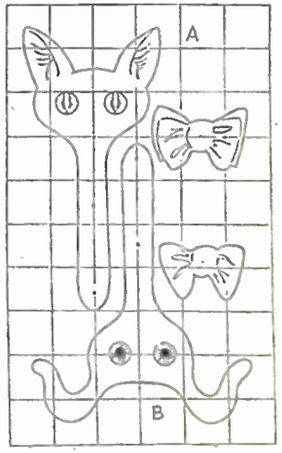
Fig. 1



Pattern A



Pattern B



Moving Parts

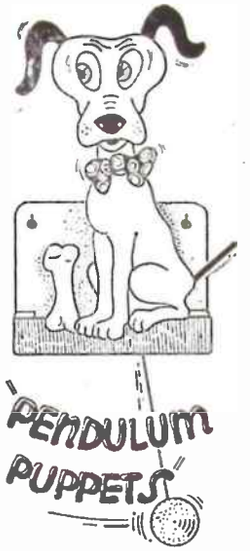


Fig. 1 gives a back view of the dog figure. The moving parts for pattern (A) are assembled in the same way, but the wagging tail movement is omitted.

The pivot screw should be a tight fit through the eyes and ears movement, but pass freely through the hole bored in the neck of the figure. It is then screwed firmly into the bow tie at the front of the figure. Small washers may be added to help the parts swing easily.

The correct positions for the two stop screws should be determined with a pencil mark before fixing by noting the positions of the eyes through the apertures in the animal's head as they

● Continued on page 2

Project for the handyman

A BEDSIDE CUPBOARD

By A. Fraser

A SMALL cupboard by the side of the bed comes in extremely handy. The one here described contains a small drawer and the cupboard below is divided into two compartments.

A special effort has been made to make the construction simple. Fancy joints have been avoided and the average person should find the cupboard quite easy to make.

The method of construction is basically framework of battens covered with plywood. This will be strong enough, considering the size of the cupboard, and easier for the amateur to construct.

In making the cupboard, begin first with the front and back frames. These are identical, and a drawing of the desired form is shown in Fig. 1. The cross-rails (A), (B) and (C) are of the same length and section, and are plain butt-jointed to the outside members (D). It is important, therefore, to saw off the ends of (A), (B) and (C) as accurately as possible. Measure them carefully and use a square on all four sides, then saw so that the cut follows the guide lines correctly. This will give a true end.

The joints are glued and for extra firmness two nails are driven through (D) at each appropriate point. When putting the frame together, it is best to lay it on the floor. See that the frame is true. Test the angles made by (A) and (D) and confirm that they are right angles. See that the front face of the frame is true and not twisted.

Another frame similar to this will be made for the back of the cupboard. Both frames must be left for the glue to set properly.

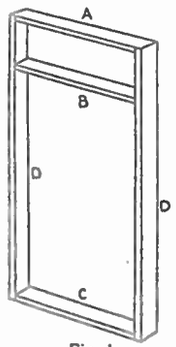


Fig. 1

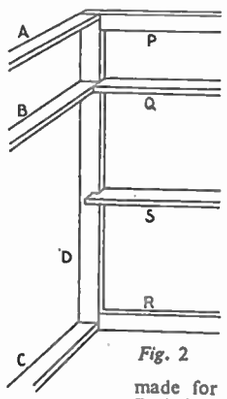


Fig. 2

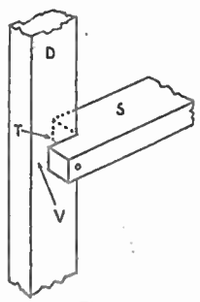


Fig. 3

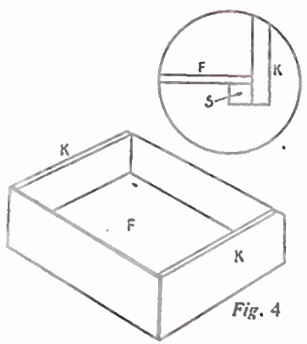
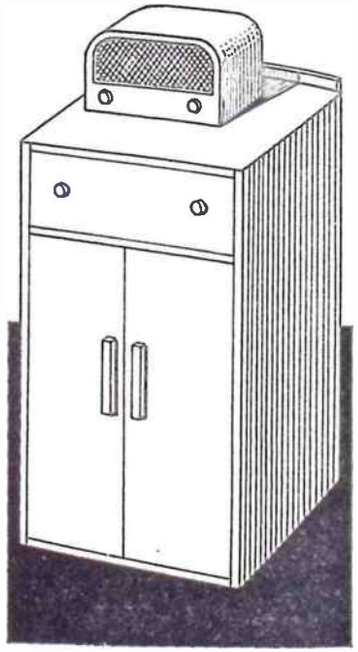


Fig. 4

The dimensions may be made to suit the individual's requirements, but for the average person the height of (D) can be 30ins. to 36ins. high. The width of (A), (B), (C) can be about 18ins. The section of the battens can be ¾in. by 1½ins. but here again, any wood of section somewhere near to this would do. Any kind of wood can be used, but softwood will be the cheapest.

While the front and back frames are setting, the cross-battens for the two sides can be prepared. These are shown in Fig. 2, which represents a view of a side from the inside of the cupboard. (P), (Q) and (R) can be of the same kind of stuff the front frame was made of, and are the same in length. They are sawn off square, to make butt joints, as in the case of the front and back frames. They can be made to suit one's needs, but 14ins. should suffice.



The member (S) is cut differently, as will be seen from Figs. 2, and 3. It is cut longer than (P), (Q) and (R) and a piece is cut out at each end to form shoulders. The front and back vertical members (D), sit in these shoulders. The exac size of the cut-out will have to be ascertained from the particular size (section) of (D) used. Note that the length (T) (Fig. 3) must not come to the front of (D). It must leave sufficient space (V) for the door of the cupboard to sit in.

Six pieces of the (P), (Q), (R) type will be needed, and only two of (S) type.

The plywood sides can now be sawn to size. The plywood can be ¼in. thick or thereabouts. Avoid any warped pieces — get them as flat as possible. If the cupboard is to be painted eventually, then cheap surfaced ply can be used. Where the intention is to exploit the beauty of natural wood, however, the plywood will have to be surfaced with the preferred type of wood. This, of course, will cost more.

The depth of the sides will have to be the same as the length of (D). The width will be (P) or (Q) plus two widths of the long section of (D), plus the thickness of the plywood to be used for the back. (The plywood side must cover the edge of the ply back.) It is therefore best to get the exact width of the side ply by placing (P), (Q) and (R) in between the front and back frames, pressing up close, and adding to this total width the thickness of the back plywood.

Measure off the desired width and height on the plyboard, using a T-square to get a true rectangle. Two pieces, one for each side, will be needed.

For the back, cheap plywood only is necessary in any case. The measurements of this will be exactly the same as the front or back frame (outside measurements).

The cupboard can now be assembled. There are alternative ways of going about this, but perhaps the better is as follows. Take the front frame and glue the outside of (D) (either the right or left side). Then glue the portion of the plywood side which corresponds to this. When the glue is tacky, join together and hold them firm with a couple of cramps. See that the edges are flush. If the cupboard is to be painted, then nails can be used to fasten the ply to the frame instead of cramps.

The back frame can then be taken and in the same way glued to the other side of the plywood, using cramps or nails to hold the two parts together.

If sufficient cramps are available, then the other side of the cupboard can be fixed. Otherwise, wait until the first side is set.

When both sides are attached, take the two cross-battens (S) (Fig. 2) and with glue and nails fix into position.

The height of this batten above the floor is optional, but whatever it is, see that the two battens are at the same height.

(P), (Q) and (R) can next be fixed. (P) must be flush with the top of the plywood side. (Q) must be absolutely level with the front rail (B). It will be noticed (P) and (R) have their longer sides flat on the plywood, while (Q) and (S) are placed with their shorter side to the plywood.

Glue is sufficient to fix (P), (Q) and (R), but thin nails can be used through the outer side of the plywood for further security.

The back can now be fixed, first with glue and then with nails, for these will not be seen.

Fixing the Top

The plywood for the cupboard top should next be measured and sawn out. A suggested thickness is ⅜in. Place the board on top of the cupboard and draw round the underside to get the exact shape. After sawing out, glue it to the top, seeing that it adheres closely to the frame top. Heavy weights can be placed on top to ensure close fitting and proper adhesion.

Next, make the shelf for the cupboard. This rests on the battens (S). Note that four pieces will need to be cut out at each corner to make way for the frame verticals. Remember, also, that the shelf must not come right to the front of the frame, as space must be left for the thickness of the door. The shelf can be glued into place or merely fitted in.

The doors should be made next, ⅜in. or ¼in. plywood is quite adequate. The dimensions can be measured from the cupboard already assembled. The vertical measurement will be from the underside of (B) to the top-side of (C). Each door will be half the distance between the insides of (D, D).

There is a multitude of handles for the doors to choose from, so this is left to the reader. A spring or ball catch can be arranged for each door either in rail (B) or (C). Two brass hinges for each door complete the fitment.

After this, put in the floor. Pieces will have to be sawn out at each corner of the plywood rectangle to allow fitting to the frame. Note that the front of the floor comes to the back of the doors, in the same way as the shelf above.

The drawer can be made as shown in Fig. 4. The sides (K, K), can be about ¾in. thick, with the front and back ⅜in. plywood. The bottom can be of the same or thinner plywood. Butt-joints will do for attaching front and back to the sides, while the floor can be set on stripwood, glued and tacked to the walls (see circle inset, Fig. 4). (F) is the floor and (S) is the stripwood. The joining of the front to the sides which is by glue, is helped by thin nails or pins, driven well in and the holes filled in with plastic wood.

A final refinement consists of gluing a piece of spar about 1½ins. by ¾in. on the far side of the top, narrow edge down. This back ledge gives a finishing touch to the design.

Clean up the woodwork, making everything smooth and flush, especially the edges of the plywood. The ply of the top can be bevelled or rounded off if desired.

Finally, finish as desired, either by painting three coats of paint or staining, waxing, or polishing.

Stilts for Learners

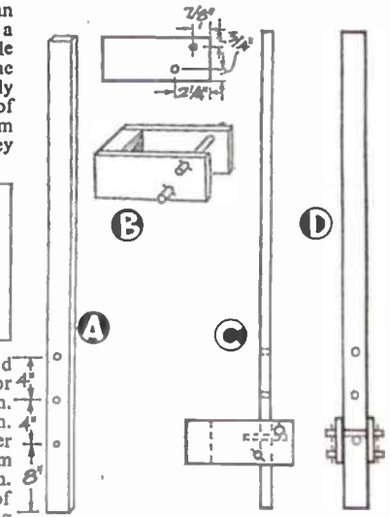
WALKING on stilts is great fun for youngsters and here is a pair with easily adjustable footrests which you can make in one evening. They have been thoroughly tested and are quite safe. Many hours of enjoyment can be experienced with them by the young 'learner' for whom they are particularly suitable.

CUTTING LIST

Uprights.	(2). 4ft. 6ins. by 2ins. by ¾in. Oak.
Blocks.	(2) 3½ins. by 2ins. by ¾in. Oak.
Side pieces.	(4) 6ins. by 3½ins. by ¾in. Ply.
Dowelling.	(4) 4½ins. by 2½ins.
	(2) 3ins. by ½in.

Reference to the diagrams should make construction a simple matter for the average handyman. The 4ft. 6in. uprights are made from 2in. by ¾in. oak and are drilled with ½in. diameter holes at 8in., 12ins. and 16ins. from the base end (Fig. A) to take a 3in. locking dowel. Plane off the corners of the uprights for about 2ft., measuring from the top or handle end, and smooth down the entire length of each upright with glasspaper, remembering that a smooth surface especially at the handle ends is essential for the tiny hands which will clutch them.

The footrests are put together as in Fig. B. An oak block measuring 3½in. by 2in. by ¾in. is screwed or nailed to two side pieces of ¾in. ply measuring 6ins. by 3½ins. and through each side piece two ½in. holes are drilled to take the 4½in. long pegs. Each peg must be drilled to take a short piece of stout wire to keep the pegs in place when fixed through the footrest side pieces (Fig. D).

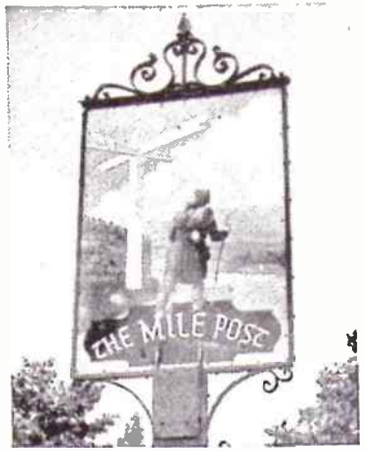


Cut two 3in. dowel pegs to act as locking pegs when pushed through the appropriate hole in the upright (Fig. C). Provided the two dowel pins through the footrests are correctly positioned, the width of the upright apart, the footrests will remain rigid under pressure, but they can be quickly adjusted to raise or lower the footrests according to the proficiency of the young adventurer.

(S.F.)

Out with a Camera

'COLLECTING' INN SIGNS



A pictorial inn sign at Harrogate. Such subjects are best photographed in bright but not necessarily sunny conditions.

NEARLY every facet of British history, from the Middle Ages down to the present day, is portrayed on our inn signs, and making a collection of photographs showing such pictures is an absorbing branch of amateur photography.

Since the subjects are all out-of-doors and are usually well illuminated, you do not need a fast lens to record them. Fast shutter speeds are not called for either, so even a simple box camera will usually serve.

For preference, however, it should have an eye-level viewfinder rather than a small reflecting one. The latter type of viewfinder shows rather too small an image for convenience, and the waist-level viewpoint which it entails is often too low for satisfactory working.

Inn signs being often 10ft. or more from the ground, an eye-level viewfinder brings the camera closer to them and less tilting of the instrument is necessary.

Good work can be done with a folding camera giving twelve 2¼in. square pictures on a No. 120 or No. 620 film, and excellent results are obtainable with a single-lens or twin-lens reflex camera. The 35mm. camera is less suitable, for one can rarely get close enough to an inn sign to fill the picture frame with the subject. Consequently considerable enlargement is required when the prints are being made, and this does not ensure the clear detail which an inn-sign picture should have. As a point of interest it may be mentioned that all the illustrations accompanying this article were taken with a folding Zeiss camera. No special optical equipment, such as a telephoto lens, was used.

The variety of inn signs is so wide that many photographers will probably wish to specialise in one or two particular types. There are examples portraying famous personalities, from royalty to Old Mother Shipton, while others show authentic coats of arms. A further selection bear rhyming couplets, and others again are notable for their unique conception, such as the real beehive outside an old tavern at Grantham.

The Modern vogue

Alternatively, attention might be given to really modern examples. During the last few years some highly topical signs have been hung outside inns up and down Britain. At Hempstead Wigmore, in Kent, there is even a Flying Saucer Inn with a board showing one of these mysterious objects!

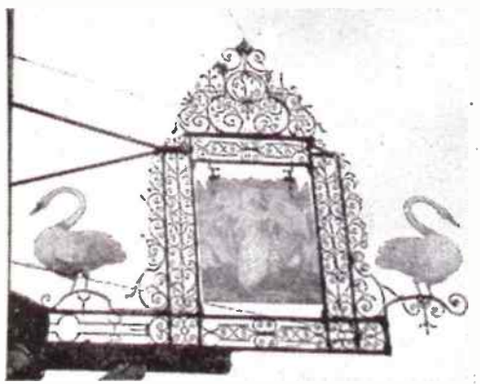
For this branch of photography, in which most of the subjects are brightly coloured, the camera should be loaded with a panchromatic film to get the best monochrome rendering. A light yellow or medium yellow filter will also help.

Many of the boards are of the swinging type, and these have to be photographed against the sky, so a filter will help to capture the clouds too, obviating a plain white background. Even more necessary is some form of lens hood to protect the lens from glare. It can be home made, consisting merely of a cardboard tube (matt black inside) which slips over the lens and cuts off extraneous light, but whether simple or expensive it will ensure brighter pictures.

Ultra-fast films are not needed. Slow ones will often serve, and their wider exposure latitude is useful. On a bright day, an exposure of 1/100th sec. at *f*11 is usually ample, even when a filter is used. Over-exposure is as much to be avoided as under-exposure in this kind of photography, for it will clog the finer details of the picture. In point of fact, the best results are often obtained when actual sunshine is absent but the sky is bright. Brilliantly sunny conditions are particularly to be avoided when the inn sign carries an electric lamp, as many do today. In such cases the picture is best taken when sunshine does not throw a shadow of the lamp across the sign.

Processing the film should take normal

● **Continued on page 7**



A lovely Inn sign at Market Harborough, 'collected' with a simple folding camera.

This hive outside the Beehive Inn, Grantham, merited an exposure. The picture was taken with a camera fitted with an eye-level viewfinder, the most convenient type for this kind of photography.

For speed off the mark . . . make

A SET OF STARTING BLOCKS

ALL athletes who participate in sprint events will appreciate the value of a set of starting blocks. These are widely used by sprinters nowadays, and the set described and illustrated here may be made for the fraction of the cost necessary to buy a set.

For the centre piece, a straight-grained, hard-wearing piece of timber such as beech is essential. The two blocks may be made from almost any type of wood. The essential requirements when buying the wood is to look for timber that is strong and yet not too heavy. Lightness is essential to facilitate easy carrying.

The centre piece is planed up to size (2in. by 2¼in.) and the ends sawn square. Mark out for the slot. Cut the slot by first boring out most of the waste with a brace and bit, finishing off to clean edges with a chisel and mallet.

MATERIALS REQUIRED

1 piece of wood 24ins. long, 2¼ins. wide and 2ins. thick.
1 piece of wood 9ins. long, 3ins. wide and 3¼ins. thick.
(The sizes given are finished sizes.)

Two coach bolts 6ins. long and ⅜in. diameter.
Two wing-nuts to fit the coach bolts.
Two washers with a ⅜in. centre hole, and as large an outside diameter as possible.
Two strong steel pins about 6ins. long.
Two pieces of matting.

The washers should be as large an outside diameter as possible to evenly distribute the wear on the centre piece that is bound to arise with constant tightening and untightening of the wing nuts.

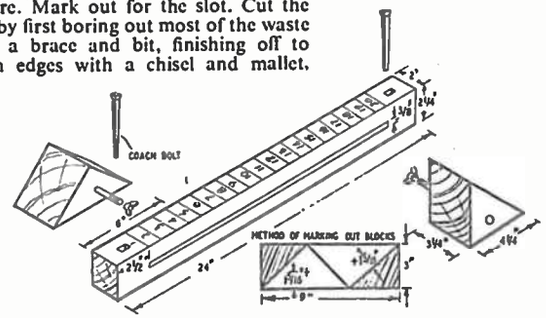


Fig. 1

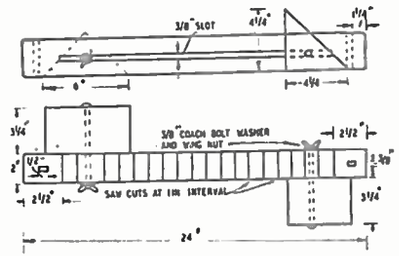


Fig. 2

The saw cuts on the top are marked out at 1in. intervals beginning and ending at each end of the slot. Make the saw cuts ⅛in. deep.

Mark out and cut the small through mortices at each end in the position shown on the drawing. These are to take the steel pegs that will secure the starting blocks to the ground when in use.

The blocks are cut from one piece of wood size 9in. by 3in. by 3¼in. Mark out as shown and cut with a cross-cut saw. Clean up the faces with a smoothing plane and glasspaper.

As will be seen from Fig. 2, the front block has its front face at 45° to the ground and the rear block its front face at 90° to the ground. Bore the ⅜in. diameter holes in the blocks as shown. Slightly round off all edges of the centre piece and both of the blocks.

The 6in. long, ⅜in. diameter coach bolts are knocked with a hammer into the holes that have been bored into the blocks. The square part underneath the head of the bolt will ensure its tight fit in the blocks. Secure the blocks to the centre piece with wing nuts and washers.

To complete construction, cut a piece of matting to fit the face of each block and bind round the edges to prevent fraying. Nail the matting to the block faces with round headed nails set at intervals. Finally, all pieces should be painted or clear varnished to preserve the wood and the saw cuts on the centre piece numbered with small painted numerals.

The completed blocks will require two stout steel pegs. They should be a loose fit in the mortices at front and rear. In practice it is found that square pegs are best.

In use, the blocks are set to individual requirements. If a note is taken of the number of the setting it will save time, on future occasions, to set them up. Take the number at the face of each block for the reading. It must be remembered that the blocks we have made are designed to enable them to be dismantled for greater convenience in carrying.

Having assembled and set up the blocks, they are placed in position on the track and secured by tapping the steel pins into the ground. In use they will be found to be strong, rigid and very reliable.

In conclusion, it should be mentioned that the blocks, constructed as described, are intended for the runner who starts right foot forward. If you are in the habit of starting left foot forward then the bolts should be driven in from the reverse side to that already described. (A.E.H.)

● **Continued from page 6**

'Collecting' Inn Signs

lines, aiming at a fairly thin negative in which all the lines of the subject are visible. This means that the film should be developed for the minimum rather than the maximum length of time.

One of the attractions of this branch of photography is that the pictures need not be regarded as mere records. Many inn signs are associated with illustrious people and families, and the stories of the signs often merit investigation. Local characters are sometimes portrayed too — as at Burley Woodhead, Wharfedale, where the Hermit Inn carries a picture of a recluse who once lived nearby.

It is worth remembering, too, that inn signs are repainted from time to time. One which appears in too bad a state to justify a photograph today may present a really attractive subject tomorrow. It may then be well worth adding to the collection.

Cyclists and motorists, in particular, will find plenty of scope for enjoyable photography by looking out for attractive signboards outside inns, no matter where they are sought. (A.N.)

Attractive corner fitment

A BATHROOM CABINET

A SMALL cupboard to hold toilet requisites is a *must* in any bathroom if shaving tackle, small bottles and the like, are to be kept from the window-ledge. One made to fit unobtrusively in the corner near the wash basin can look very attractive suitably enamelled.

Let us see how one can be made from a small quantity of timber, and without recourse to a lot of carpenter's equipment and difficult joints.

By Gordon Allen

The base and the top are identical and are marked out on ½in. thick timber (planed) to the dimensions given in the diagram, i.e., 10ins. sides and 2½ins. on the 'buttresses'.

Two side panels are made next from similar timber; one being 12ins. by 10½ins., the other 12ins. by 10ins. These are nailed to the edges of the top and bottom pieces having made sure that all edges are planed smooth and true. After nailing, ¼in. diameter holes are drilled along the edges about 1in. deep at intervals of approximately 2ins. Tight fitting dowels are then driven into the holes after applying glue. They are then trimmed flush with the back faces of the cupboard.

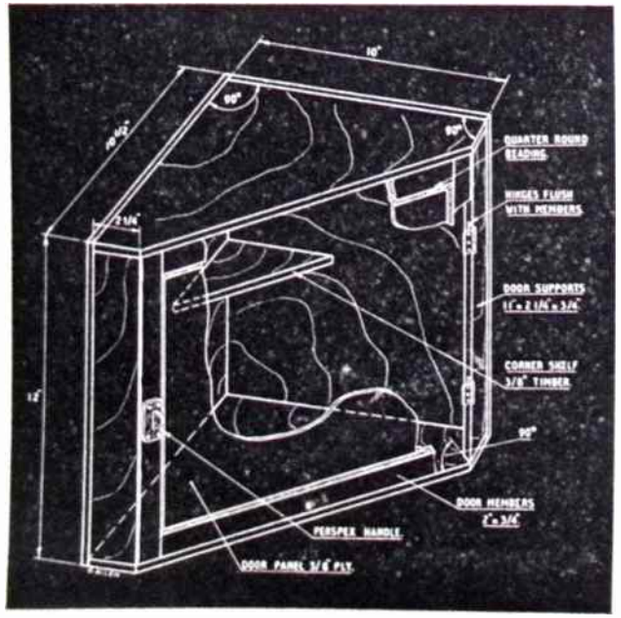
The side 'buttresses' are now cut. These are from ½in. timber 11ins. by 2½ins. One of the long edges of each is square, the other is planed to an angle to allow the door to fit flush. In other words an angle of 90 degrees must be formed between the edges of the buttresses and the front edge of the cupboard base at the door opening. They are fitted as were the sides.

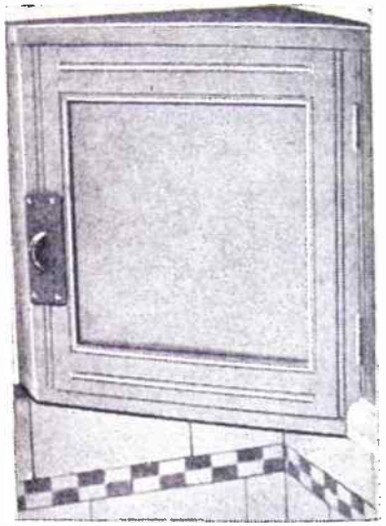
A triangular shelf made from ½in. timber is cut and fitted likewise.

Two upright door members are cut to such a length that they will fit snugly between the top and bottom of the cupboard. The horizontal members that fit between the uprights are cut to give an overall door dimension that will likewise fit snugly in the cupboard opening. Mortise and tenon joints can be used, or the members can be butt jointed and reinforced on the inside of the door with L shaped pieces of ply ¼in. thick screwed to the members at the corners.

Fixing the door

Two 1in. hinges are fixed 6ins. apart to the inside of the door frame member. The door is then put in place and the position of the free blade of the hinge is marked on the edge of the buttress. The buttress is then recessed to take the hinge leaves.





Ply ⅛in. thick is used for the door panel which is cut to give a neat fit within the door frame. Eight pieces of quarter round beading (four each side) hold the panel central within the frame. They are mitred in the corners and are held in place with tiny panel pins and glue. Four pieces are fixed to the door frame first. Then the panel is glued in place and the four remaining pieces of beading are fixed on the opposite side.

The door can now be fixed in place by screwing the hinges to the buttress.

Perspex is used for the handle. Two pieces are cut to the shape shown and are polished. The handle is cemented to the base which measures 3ins. by 2ins. This is fixed to the door support with four ½in. nickel screws.

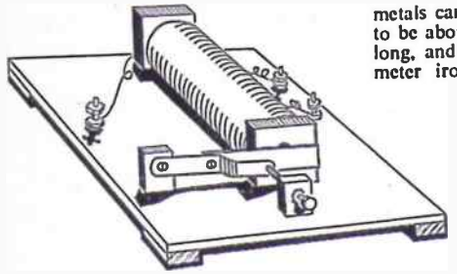
A stop for the door is made from ½in. ply (1in. sq.) and is screwed to the base of the cupboard.

If he door has been made carefully i's neat fit will be sufficient to keep it closed. But an ideal catch for this type of work is a tiny 'spring ball catch' type of fitting. The catch plate is screwed to the buttress on the inside door edge while the cylinder containing the ball and spring is sunk and screwed into the door member with a neat fit hole.

The whole cabinet is given a good undercoat followed by a cream high gloss top coat. Such refinements as the facing of the base, shelf, and door front with Perspex or other plastic and, perhaps, the fitting of a mirror and fluting of the members must rest with the reader.

Lots of fun with this

MODEL SHOCKING COIL



By F. G. Rayer

IT is some time since constructional details of a shocking coil have appeared, and it is thought that the one described here will be of interest. No difficult work is involved, and there is little expenditure beyond the cost of the wire to wind the bobbin.

In common with ready-made shocking coils which can be purchased, the coil acts as a step-up device, producing a high (but quite safe) voltage from a small dry battery. An interrupted low voltage is applied to the primary of the coil, which has few turns. Since the secondary has very many turns, the output from it is of higher voltage.

The high voltage output is safe because it is of very low current. However, shocks should never be administered to persons unexpectedly. The coil can be used in various ways. Trials can be made to see who can withstand the strongest shock. Or one wire may be placed in a vessel of water, out of which competitors try to lift a coin, while holding the other output lead or handle. Shocks can also be passed through a chain of two or more people.

Wooden Parts

These can readily be cut from ⅜in. wood by means of a fretsaw, and dimensions are shown in Fig. 1. Two cheeks are required, both the same, and also two bracket pieces. All four of these items have small projections which are a push-fit in the holes cut in the baseboard. Both brackets are drilled for 4 B.A. or 6 B.A. bolts, then glued in place.

Four small corner blocks are glued to the underside of the base, so that the three terminal heads will stand clear. The base should be varnished and allowed to dry, or should at least be free of moisture, which can reduce output.

Bobbin Windings

An iron core is required for the bobbin — brass or other non-ferrous metals cannot be used. The core needs to be about ¼in. in diameter and 3¼ins. long, and a piece sawn off a ¼in. diameter iron bolt will do well. Little difficulty should arise in finding something suitable. The wooden cheeks fit tightly on the core, about ¼in. projecting each end. Spacing between the cheeks may be adjusted slightly, so that they will fit into the holes cut in the base. If the cheeks are not really tight, a binding of glued thread should be put on the core ends, outside the cheeks and right up against them.

The core is covered with one layer of insulating tape, or with stout brown paper. Some 22 S.W.G. enamelled wire is then taken, and passed through a tiny hole drilled in one cheek near the core. A layer of wire is then wound on, turns side by side, all along the core. A layer of thin paper is placed over the turns, and a further layer of wire wound on. This is again covered with paper, and a final layer, making three in all, added,

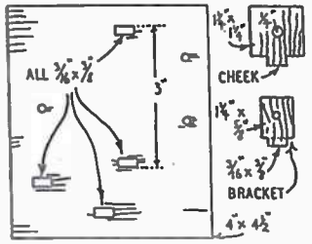


Fig. 1—Wooden parts required

the wire then being cut and the end taken out through a hole in the second cheek. This is the primary, going to battery and contact screw. If cotton-covered wire is used, no paper will be required between turns.

The primary is covered with a layer of brown paper, and the secondary, consisting of 2 ozs. of 42 S.W.G. silk-covered wire, is then wound on. Winding this part of the coil will be much easier if the bobbin can be rotated by some mechanical arrangement. A simple method is to grip one projecting end of the core in the chuck of a geared drill, secured in a vice. Winding can then be accomplished rapidly by turning the handle. Hand winding of the secondary is difficult, since there will be some thousands of turns. A few inches of the 42 S.W.G. wire should be brought out through small holes, care being taken not to break off the inner end, in particular, which would make rewinding necessary.

A final layer of brown paper, secured by a touch of glue, completes the bobbin, which is now fitted into the appropriate holes in the base. The secondary is taken to the two output terminals.

Trembler Assembly

As the coil is a transformer, and cannot operate from continuous direct current, a trembler is required, as in a bell or buzzer. The armature is of iron, about 2ins. by ¼in. wide, and can be made by folding a 2ins. by ½in. piece of tin-can, to obtain a double thickness.

A hole is drilled in the end of the armature, and a small bolt secures it to the middle of a brass strip about 2ins. by ¼in. wide. One end of this strip is bolted to the bracket, and the other bent out to touch the contact screw, as shown in Fig. 2.

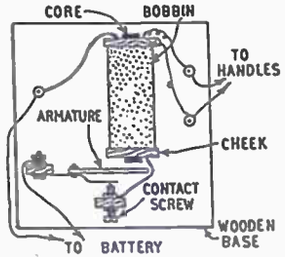


Fig. 2—Layout and connections

The contact screw is filed to a point, and can be 4 or 6 B.A., with two nuts, so that its position can be adjusted. If a 3 V or 4½ V dry battery is connected, the armature should vibrate rapidly, but if it does not, it may require bending a little, or the screw may need adjusting. The end of the armature should be quite near the core — not more than ¼in. when the brass strip is bearing back against the point of the screw.

Shocking Handles

Shocks are felt most strongly when a fairly large metal object is gripped, and handles can be made from large bolts, 5in. nails, or brass tubing about 4ins. long for each handle. The handles are connected to the output terminals by a few feet of insulated flex of the kind used for standard lamps, etc.

● Continued on page 11

CAMPING THEMES

By L. P. V. Veale

SOME weeks ago we had an article on Scouting on stamps, and some of those illustrated showed camping scenes, but we must remember that it is not only Scouts who camp. This week we shall discuss camping scenes on stamps, together with some other forms of holiday.

From another part of the same Dominion we have a very different camping picture, the 10c. air stamp of the 1933 issue of Newfoundland. Re-

1. *France. French postal workers at play*
2. *Gaboon. Raft on the river Ogowe*
3. *Newfoundland. Land of Heart's Delight*
4. *Belgian Congo. Missionary doctor*

Most of us know the joys of camping in this country, but there are not many stamps that have been issued showing scenes like caravaning or sea-side camping, in fact, if we except the Scouting stamps already mentioned, then we have to turn to a different type of stamp, but a type that is none the less interesting, in fact it really is more interesting, as it shows other people's way of living.

Consider the 1950 issue of Canada, the 10c. value showing a trapper drying furs. There you have a scene depicting the mode of life of a fellow being. It is rather doubtful if we would like to share his life; although the Canadian cold is a very different type of cold from that experienced in this country with our fogs and mist. We think of camping in the warm weather while on holiday — with a solid house and warm fires to which we can return. To the trapper the tent is his home for quite a long time. By the way all these Canadian stamps have the date on them in very small figures and generally one needs a magnifying glass to see it. In this case you have to look carefully at the bottom right-hand corner of the tent.

member that on 1st April, 1949, Newfoundland joined the Confederation of Canada and now uses those stamps. This picture is entitled 'Land of Heart's Delight' and a most descriptive name it is, too. This is surely a most intriguing stamp holiday picture, and it would be difficult to find one to beat it.

Another interesting specimen which describes the work of an important member of society is that from The Belgian Congo, the 1930 issue, each stamp of which bore a premium which was devoted to the Congo Natives Protection Fund. This premium varied from 5c. for the 10c. postal value to 5f. for the 10f. value. The stamp chosen for illustration of this set is the 35c., which shows the missionary doctor at his daily task in his open air surgery.

Jugoslavia on her 1931 issue takes us from the heat of the tropics to the cold of the mountains. The stamp was issued to raise funds for the Serbian War Memorial to be erected in Paris. It depicts a band of men camping on the ice of the mountain.

Another very different type of life depicted on a stamp is that shown on the stamp from the French Colony of Gaboon. On this stamp you see a raft made of tree trunks fastened together to be floated down the river, and if you look carefully you will see a small hut built on the logs, and it is in this hut that the men responsible for taking the logs down the river have to live during the journey which may occupy some few days.

Although they are not views of camping, as they are such holiday subjects, it is only right that they should be mentioned. We refer to the stamps issued by France in 1937 in aid of the Postal Workers Sports Fund. One is illustrated in this article and the other depicts a rambling party.

Lastly it would be leaving out the most important of the contributions to happy holidays if we did not take some notice of all the New Zealand Health stamps. The best known of all of them is the 'Smiling Boy' stamp of 1931. Then issued at 2d. and 3d. each, they are now worth £5; 1935 with the child playing on the sands, 1936 looking through a life belt, 1937 rock climbing, and so on. It would be worth while listing all of those issues and then looking to see if any other country can get any where near the list you make.

● Continued from page 10

Model Shocking Coil

The shock will be most powerful when the armature is so adjusted that it vibrates fiercely at high frequency. The output also depends on the battery, and initial tests can be with a single 1½ V dry cell, the voltage and size of the battery being increased if stronger shocks are required.

When trying to lift a coin as previously mentioned, one handle is held, and the other placed in the water, or the second lead can be connected to the vessel, if metal. To experience a shock, it is always necessary that the circuit be *completed* through the body or hands. No shock will be felt if only one handle is touched, but if the circuit is in any way completed to the second output terminal, a shock will be experienced, continuing as long as the coil operates. Shocks will be stronger if the hands are damp.

Make your own apparatus

WORKING WITH GLASS

MANIPULATION of glass tube and rod is a very useful art for the hobbyist, and is not difficult to learn, given a little patience. Apparatus for photography, chemistry and for the aquarium can easily be made and repaired, and for most simple jobs no special tools are required.

An old triangular file will be required to cut the tube and rod. The best source of heat for this type of work is a fish-tail gas jet. They used to be common house fittings at one time, and no doubt some old junk shop would fit you up for a few coppers. However, all the operations described in this article can be done on an ordinary gas ring or Bunsen burner.

Methods

The first operation to master is the cutting of the glass rod and tube into suitable lengths. Make a scratch with an old triangular file, firmly and deeply, wet the cut and with the thumbs on each side of the scratch, pull apart and down. It is advisable when practising this to protect the hands with a cloth.

The best way to get used to the various operations involved would be to make a few simple and useful articles.

A glass stirring rod

A stirring rod is always useful, and with a flattened end is very useful for crushing and dissolving photographic chemicals.

Select a piece of glass rod, say about 9in. in length, and rotate one end in the gas flame until it becomes smooth. Allow to cool. Heat the other end until it softens and starts to thicken, remove from the flame and press firmly on to an asbestos pad (an electric iron stand or heat-proof mat would serve). If the knob is not large enough, reheat and press again.

Simple glass syphon

It is surprising the uses you can find for a glass syphon when you have one. It is useful for removing the sediment from the aquarium, and can be pressed into service for transferring all sorts of liquids.

Take a piece of glass tubing, say 3½ft. in length, and smooth off the ends in the flame. Heat a portion of the tube about 1ft. from the end, continually rotating the tube with the fingers. As soon as the tube starts to bend with its own weight, remove from the flame and it can be gently bent in the shape of an L, without creasing.

When cool, move along about 6in. and repeat the process, bending the tube down the same way so that you have a 'U' shaped syphon with one long arm. If the diameter of the tube is over ¼in. it is best to bend successive parts in a large flame and arrive at the final bend by degrees.

Christmas tree decorations

Blowing glass bubbles can be both amusing and useful.

Very good decorations for the Christmas tree can easily be made with a little practice. Cut off a suitable length of tube, about 1ft., smooth off the ends in a flame, and seal one end by rotating it in the flame.

Continue to heat the sealed end slowly and evenly, rotating the tube until the walls start to thicken. Remove from the heat quickly, and with the bulb hanging downwards blow gently from the cheek. If the bulb is not big enough, put back into the flame and reheat a little above the bulb. The bulb and part of the tube will collapse; remove from the flame and blow to required size.

For decoration do not try and blow a bulb too big, the walls will be very thin; 1in. diameter is plenty. Cut the tube off about ¼in. above the bulb and smooth off carefully in a small flame. The bulb can be decorated by filling with thin enamel, turning upside down and allowing to drain. Spots of clear varnish can be put on the outside and 'glitter' sprinkled on. A piece of stiff wire can be bent for a hanger, and sealed in with wax. (K.J.H.)

Sources of Supply

Glass rod and tube can be bought from various sources. Some chemists sell it or will order it through their usual trade channels. Sport and handicraft shops that sell chemical and photographic apparatus sometimes stock it.

The best source however is from laboratory furnishers. Prices vary considerably on quantity and quality, but as a general example good quality soda-glass, say 4 mm. to 6 mm. is about 5/- a lb. Rod is about 6/- a lb for the same sizes.

'Mind Reading' with Coins

THIS effective but simple trick can be performed to the astonishment of your friends without requiring any preparation or elaborate apparatus, since it is one of the so-called 'mind reading' tricks.

Ask your audience to lend you six coins of different dates. Any number of coins may be loaned, and the more you use, perhaps, the more mystifying, but for our example we will borrow six, and these are examined to verify that they all have different dates. The coins are laid in a line on the floor, and one member asked to read out the dates while you write them down on separate slips of paper. This should be done away from the audience to show that you do not see the coins or there is any collusion with the assistant. The slips are then folded up into small squares, placed in a hat, or similar container, and well shuffled. One of the audience is asked to draw out a piece of paper, and this done, the remainder are thrown on to the fire.

The assistant is now asked to pass the piece of paper with the selected date to the other members of the party, taking care that you are not allowed to see what is written on it. The audience is now asked to assist by concentrating on the date so keenly that the thought may be transferred to yourself. Here, while in a deep study, you may confuse your friends by stating that someone is not concentrating sufficiently for the thought to pass. The trick is completed by inspecting the line of coins on the floor, and, after impressive pantomime, picking the selected coin which coincides with the date written on the slip of paper.

The explanation of this trick is extremely simple. You will note that it is essential for you to look at the coins to see whether the dates are all different. At this stage it is merely necessary to memorise just one of these dates, and when writing out the dates on the six slips of paper, you only write *one* date. For instance, if one of the coins bears the date 1937, this is written six times, and it is bound to be the date drawn out of the hat!

It will be appreciated, therefore, that it is essential to burn the slips after one has been selected, leaving no risk of inspection later. (S.H.L.)

Steady and strong

AN AQUARIUM STAND

By W. J. Ellson

AN aquarium, even of the smaller size, can be a weighty object when filled with water, and needs a substantial table to support it. The stand, illustrated, is of sound construction and can be relied upon to hold any aquarium up to 2ft by 15in. in dimension. Handles are provided to enable it to be lifted out, when cleaning behind it becomes necessary, without unduly disturbing the water.

A front view is given in Fig. 1 and a side view in Fig. 2 from which all necessary dimensions can be taken. The legs are cut from 1½in. square material. Wood of sound quality should be chosen for construction, oak if the expense can be met, or red deal if something cheaper has to be employed. The rails are cut from 1in. thick stuff, free from knots and shakes. These rails are tenoned into the legs, the tenons being ¾in. in length. Those of the top rails are detailed at (C) each 1¾in. long and spaced ½in. from the top, with a ½in. gap between them.

Ensure tight fit

The thickness of the wood is shouldered down to ½in. for the tenons, by removing ½in. each face side. Set out the mortises on the legs for the rails to come midway as at (B) Fig. 3. Make a close tight fit to all joints. For the lower side rails, the single tenon at each end should be 2ins. long, a double tenon sufficing here. These are positioned centrally like the upper rails. Glue and knock the joints home, then leave for awhile for the glue to set hard.

Across the centre of the framework where shown by the dotted outline in Fig. 1, groove in a middle bar as an extra support for the weight of the aquarium. To stiffen the whole, screw wood corner blocks in each angle as at (B) Fig. 3, these being level with the top.

The actual stand top can be cut from ¾in. wood, but owing to the width two or more boards will be needed, glued together edge to edge. Dimensions of the top will be 2ft. by 1ft. 3ins. to extend

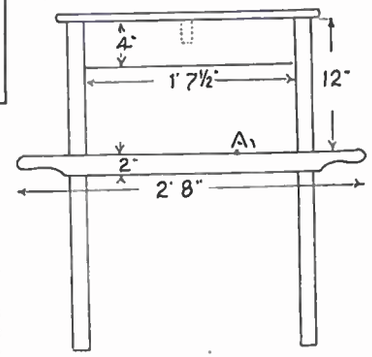


Fig. 1

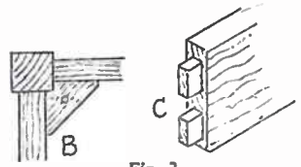


Fig. 3

beyond the framework about ¾in. all round. An alternative to the boards would be plywood, of ½in. thickness at the least. Employment of this would eliminate the need of gluing boards together, but an edging of ¾in. wood, glued and pinned round, is recommended to hide the cut edges which might otherwise mar the general effect.

The top can be secured in place with screws from beneath, the screws being driven through the corner blocks and elsewhere through smaller blocks, these latter ones being glued or screwed to the stand rails. If the aquarium is large enough to cover most of the top surface, the stand top might well be nailed on and the nails punched down and the holes stopped level. Screw fixing from underneath, however, makes a much neater and more professional looking job and is really worth the small extra trouble involved.

CUTTING LIST

Legs.	(4)	2ft. 6ins. by 1½ins. by 1½ins.
Side rails	(2)	1ft. 9ins. by 4ins. by 1in.
End rails, top.	(2)	1ft. by 4ins. by 1½ins.
End rails, bottom	(2)	1ft. by 3ins. by 1½ins.
Top cross rail.		1½ins. by 2ins. by 1½ins.
Handles.	(2)	2ft. 8ins. by 2ins. by 1½ins.
Stand top.		2ft by 15ins. by ¾in.

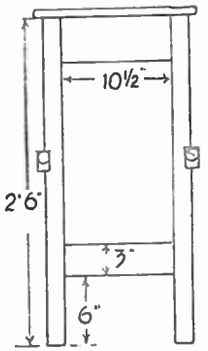


Fig. 2

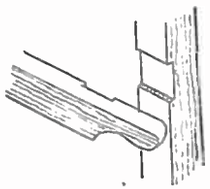


Fig. 4

For the carrying handles (A) lengths of 1in. by 2in. hardwood, preferably ash or oak, should be chosen. Some strain comes on these when the stand and aquarium are lifted and a breakage of the handles may spell disaster, at least to the fish. The handles are shaped at the ends and glasspapered to provide a smooth, comfortable grip. They are grooved into the legs as shown in the detail sketch (Fig. 4), the grooves in both being ½in. deep.

Finish the stand with a good varnish stain to match existing furniture, or paint it as preferred.

Full instructions for making

CHILDREN'S HOUR T.V. ROUNDABOUT

AT five o'clock each evening Children's Hour on B.B.C. Television is announced by a musical roundabout on which are a succession of delightful little figures in various playful poses. This highlight of the children's viewing has been captured permanently by our design for a model T.V. Roundabout in which we have had wholehearted co-operation from Miss Dorothy Rogers of Hampstead, N.W.3, who designed the original figures.

These figures in their delightful colourings rotate in their correct sequence and positioning on a baseboard, activated by a movement which is also responsible for the music. Children will love watching these figures cavorting to the merry music, and their cutting out and colouring will give fretworkers a chance to show their skill.

Not difficult

There is nothing difficult about the makeup of this charming model, but it will be appreciated that clean cutting and a good finish will go a long way towards ensuring a novelty that will be the envy of all who see it.

In one respect we have not been able to make this model quite authentic. The action is anti-clockwise due to the nature of the mechanism. But the Moon Knight and Sun Knight still proudly bear their banners, the Kitten plays happily with a ball, the Little Boy topples, the Little Girl, the Ballerina and Sailor are seen in their various dances — in fact, all are there as seen on T.V. No father can surely resist making this up for his child.

On the design sheet, each figure excepting the small trees, is shown in detail — back and front — as a guide to painting, a colour key also is given. Each figure is provided with a tenon which fits into a mortise on the baseboard.

Cutting the figures

There are two ways of cutting out the figures. They can be traced and marked out on to the wood and cut out with a fretsaw. Then on the back of each figure trace the appropriate marking for painting. After cleaning up with glasspaper, the figures are now ready for painting with enamel as detailed on the key.

A second way is to cut out the patterns of the figures (front view) from the design sheet, paste these on to wood and cut out with the fretsaw. Then cut out the reverse markings from the design sheet and paste them to the backs of the figures. This method will enable poster paints to be used, which give an advantage of quick drying, but, of course, enamel can also be used, and will possibly give better results as regards durability and shine.

The top of the pole on which the cuckoo clock will be glued can be cut away with a knife to give a flat surface for about 1in. of its length. The winding weights of the clock and the pendulum are fixed by means of pieces of thread and a length of thin wire, as is clearly shown on the design sheet.

With the figures all prepared, the next stage is to cut out the circular baseboard (18) from ¼in. wood, making it 7ins. diameter (Fig. 1). In the centre, a hole and slot must be cut, so that the winder key fits into this tightly. This must be a pressed fit in order to ensure rigidity of assembly.

The positions of the figures as they appear on the baseboard are seen in Fig. 1, and the mortises in the baseboard can be marked from the tenons on the figures. When these mortises have been cut out, clean up the baseboard and paint both sides. It is suggested that pale blue, cream or white enamel will accentuate the outlines of the figures. Paint a black scallop around the edge of the baseboard as seen in the photographs.

The box in which the musical movement is contained is made up from five pieces of wood (Fig. 2). The four sides (22 and 23) are of ¾in. thick wood, and the top (21) is ¼in. thick. Pin and glue these together. The hole for the winder spindle must be in the centre of piece 21, and this centre is determined by drawing diagonals (Fig. 2).

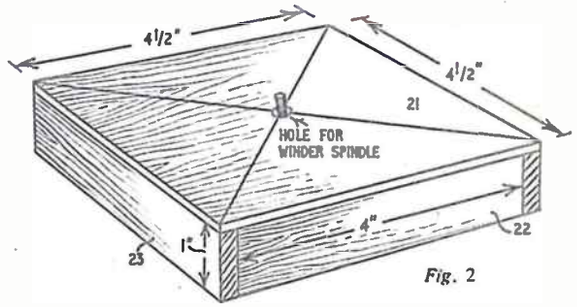


Fig. 2

Fixing the movement

Next screw the musical movement inside the box (Fig. 3) in any convenient position, with winder spindle projecting through the hole, but ensuring that the stopper arm of the movement is free (i.e. — not touching the sides of the box). If the screws extend beyond the top of the box, the ends should be filed off so as not to foul the underside of the baseboard. This box assembly can now be cleaned up, and the sides painted to the desired colour which should, preferably, be a matching one to that of the baseboard.

All is now ready to glue the figures into their appropriate positions on the baseboard. Use balsa cement, as this is colourless. The staffs carrying the banners worded 'Children's Television' consist of portions of No. 13 knitting needles. Before gluing the knights carrying these banners into position, holes should be provided in the baseboard to take the needles. Extra support for the needles can be obtained by a dab of cement on the back of the knights. Ensure that the figures are facing the correct way by studying the arrows in Fig. 1

The banners are shown full size on the design sheet, and the wording should be painted on both sides. Glue these banners in their trailing positions as indicated by the photograph of the finished roundabout.

Next screw the winder key of the musical movement on to its spindle, and holding the movement with one hand, press the baseboard down on to the key, so that the key fits tightly into the slot provided. Wind up the movement by holding the box in the left hand and pulling the baseboard towards you, with the right hand gripping the edge of the baseboard (Fig. 4). Allow the movement to unwind and while it is doing so, adjust the rotating baseboard so that it runs true in a perfectly horizontal movement. To seal this position, fill up the key slot with stiff glue and allow it to dry for twenty-four hours. Glue can be stiffened by allowing it to become exposed to the air for a short time, and this will ensure that none runs through the slot.

Colour plan for figures on page 19

The cuckoo clock is the final piece to be added to the roundabout. The pole for this is glued into pieces 19 and 20, and this assembly is then glued in turn over the top of the winder key (Fig. 1).

One final word of warning. Gentle handling when winding the movement is called for in order not to upset the true running of the baseboard, and take care not to damage the figures.

Get your Kit now — only 5/-

THERE is bound to be a great demand for kits to make up the Television Roundabout and readers are urged to send for theirs right away. Kit No. 3179 contains all the materials needed and costs only 5/-. It is obtainable from Hobbies branches, etc., or post free from Hobbies Limited, Dereham, Norfolk.

Similarly there are several musical movements available for incorporating into these models Costing 18/11, the tunes are listed below. When ordering by post please give 1st, 2nd and 3rd choice of tune in case your selection is out of stock.

Auld Lang Syne
Home Sweet Home
Blue Bells of Scotland
Bells of St. Mary's
Brahm's Lullaby
Harry Lime Theme
Some Enchanted Evening
Moulin Rouge
Limelight
Merry Widow
Blue Danube
Vienna, City of my Dreams
Swedish Rhapsody
Irish Eyes are Smiling
Greensleeves
Parade of the Wooden Soldiers
Silent Night
O My Papa
Jingle Bells
Always

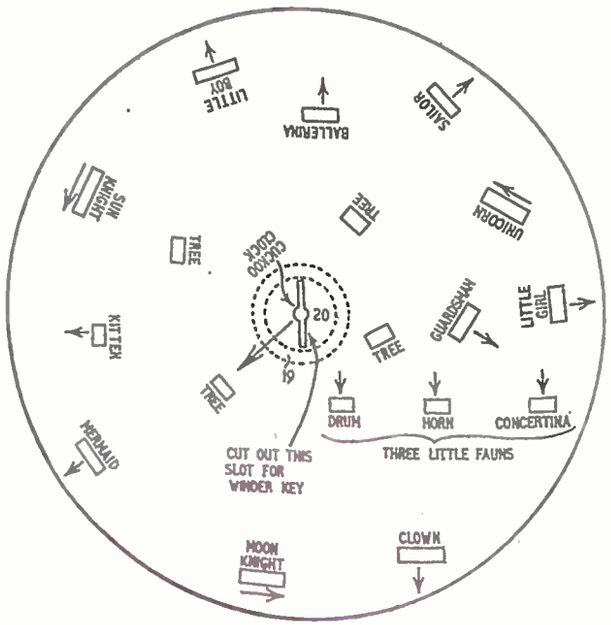


Fig. 1

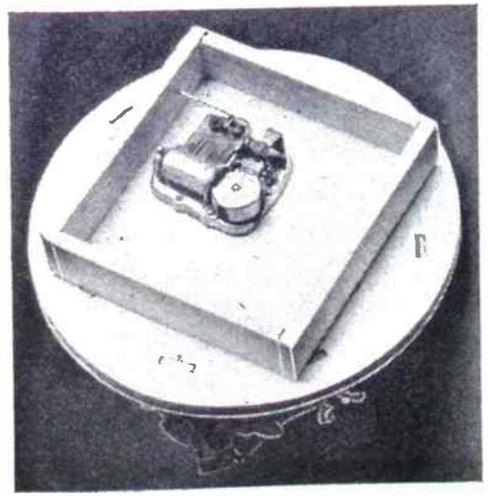


Fig. 3

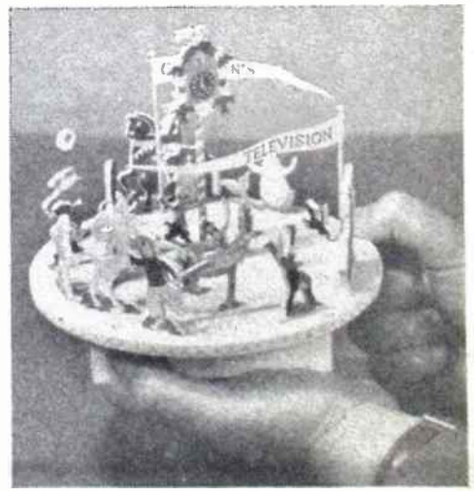
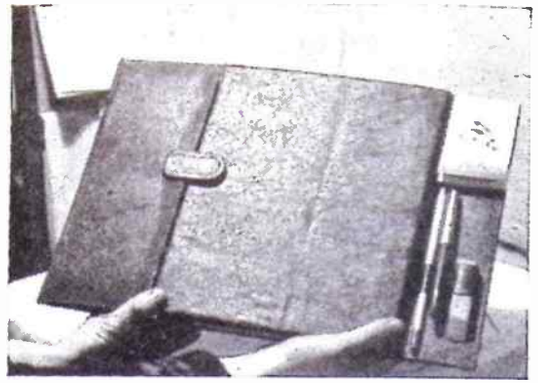


Fig. 4

A WRITING COMPENDIUM

Described by Gordon Allen



THE handicraft worker will find this writing compendium ideal for carrying about. It is covered with rexine or thin leather and will stand hard wear. The first requirement is a piece of tough board ¼in. thick — item (1) in the illustration. To the left hand edge of this is hinged a folding partition (3) which is cut from a piece of thinner board and measures 11in. by 4½in. This is made integral with the baseboard by virtue of the rexine corner hinge and paper cover on the inside.

Fixing the cover

An overlap of ½in. all round is provided for when the outer covering (4) is cut. When the covering is measured the edge of (3) should be ¼in. clear of the front face of the base board when it is in the half open position.

The covering is fixed in place by starting with the 2½in. facing at the right hand side of the baseboard. It is fastened with a good quality gum. Quick drying cellulose cement must not be used, for if rexine is being utilized it will ruin its finish.

When the covering has been fixed to the back of the base and the front face of (3) the ½in. overlaps are turned down and gummed firmly. This is followed by the fixing of the inside corner hinge which is a piece of rexine 1½in. wide and 11in. long.

Cartridge Paper

After this the paper cover can be positioned. This is a piece of strong cartridge paper cut to the length indicated on the drawing. Its width is 10½in. which leaves it short of the edges by ¼in.

The right hand folding partition, (2), is cut next and covered as before with rexine (5). It must be noted that this covering incorporates the male portion of a large press stud which is fixed on the underside of the rexine. Its position must be central and ½in. from the edge of the partition.

The whole unit is then fixed to the baseboard making sure to leave a gap of ¼in. as shown on the drawing. An inside corner angle of rexine is joined to the front covering in this instance to form a double thickness hinge. It should overlap the edge of (2) by ½in. A paper cover is cut last and fixed as described earlier.

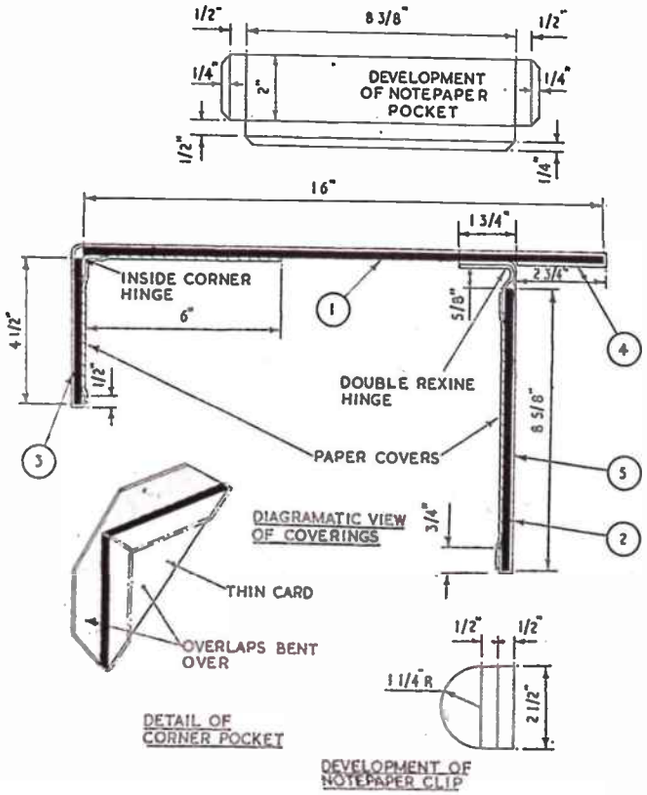
Retaining Pockets

To hold blotting paper four corner pockets are required. These are made from thin card and covered with rexine as shown in the illustration. The pieces of card are triangular in shape with 1½in. sides. Two are positioned directly under one another level with the edge of the paper cover on the left hand side of the compendium. The other two are fixed over the double rexine flap which holds the right hand partition to the baseboard.

A development of the notepaper pocket is shown in the diagram. This is stiff card and, when bent to shape, is glued to the inside face of the right partition so that it is ¼in. clear of the bottom.

A clip is made and fixed centrally at the top of the partition.

● Continued on page 21



KEY FOR COLOURING T.V. ROUNDABOUT

Only the merest dots for eyes and mouths are possible on these small faces and do not try to add too much detail to the features.

MOON KNIGHT—
Silver armour, collar and helmet
Royal blue surcoat with silver moons
Cornflower blue plume
Black horse
Royal blue pall, silver moons and stars points
Cornflower blue bridle and harness, with silver stars and bosses
Cornflower blue stirrups
Silver saddle

SUN KNIGHT —
Gold armour, collar and helmet
Flame coloured surcoat with gold suns
Orange plume
White horse
Flame coloured pall, gold suns and points
Orange bridle and harness, gold sun-bosses
Orange stirrups
Gold saddle

UNICORN —
White: pale grey outlines where necessary
Silver and white horn
Pale pink nose and hooves
Rose pink flowers, green leaves

KITTEN —
Black, with white cap, shirt front and tail tip
Pink ball

TREE —
Half dark, half light green
Wood coloured base

LITTLE GIRL —
Fair hair
Turquoise blue dress with white spots
White collar
White socks
Black shoes

BALLERINA —
Dark hair
Silver crown
White dress with silver spots
Silver leaves on bodice
Bright sugar pink tights, pale pink shoes

SAILOR —
Red hair and whiskers
Royal blue jersey, pale blue stripes
Straw hat, dark blue ribbons
White trousers
Bare feet

LITTLE FAUNS —
Flesh colour (buff, not pink)
Reddish brown hair on heads and legs
Green leaves round necks
Horns drawn with pencil
White instruments with gold mounts
Flesh coloured hooves

MERMAID —
Very pale blonde hair
Seaweed necklace and long ends, red coral
Pale green tail and fins with dark green spots

CUCKOO CLOCK—
Clock medium grey with dark grey border, silver grey leaves, flowers and bird
Silver grey weights, and leaf on pendulum
Dark grey face, white figures and hands
Copper and white striped column

LITTLE BOY —
Fair hair
Royal blue lumber jacket
Grey shorts and socks
Tan shoes

GUARDSMAN —
Black busby, gold chinstrap
Scarlet tunic, white piping down front
Gold buttons, white belt, gold buckle
Dark blue cuffs, white piping
Dark blue trousers and collar
Black boots
Brown rifle
Silver bayonet

CLOWN —
White ball, red stars on bright green pole
White face, black crosses for eyes
Red nose, mouth, ear
Orange hair with very wide parting
Crimson coat, trousers, white shirt and big collar
Green tie and buttons, green shoes

Handy for modellers

TOOL FOR MAKING RIVETS

RIVETS are of great importance to the model maker, metal worker and handyman in general, and to be able to make your own is a big advantage in many ways. It often happens that you cannot buy the size or pattern that you want for a special job, or, perhaps, they are not available in the particular metal you are working with.

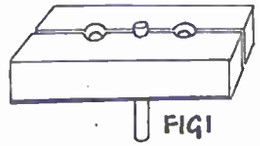
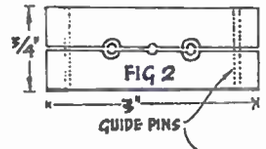


FIG 1



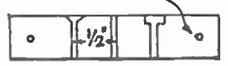


FIG 3

FIG 4

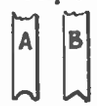


FIG 5

Making rivets is quite a simple job and the few hints given here should enable you to turn out a most satisfactory article.

Brass, copper, silver and aluminium will make up very easily, while iron and mild steel, although being somewhat tougher and requiring a little more care, are equally suitable metals for rivet making.

The die for making the rivets should be of good quality steel, or if you do not want to make many rivets, iron may be used, but it will soon show signs of wear, and is not so satisfactory. Two pieces of metal of equal size are clamped together in the vice to hold the wire securely (Fig. 1), while the head of the rivet is being formed with the aid of punches and hammer.

Three types

The size of the die will vary somewhat according to the size of rivets to be made but for most general purposes make it 3ins. long, ¼in. deep and ⅜in. wide (each half being ⅜in.). This allows plenty of room for three holes as shown in Fig. 3. The centre hole is perfectly plain, that on the left is for forming a countersunk head, while the right-hand one will give either a square or roundhead according to the kind of punch used.

In use, a piece of wire is gripped in the die with a small amount projecting on top (see Fig. 1). By using a round-faced hammer and carefully tapping this projecting piece, the rivet head is formed. Start by tapping round the edge and gradually work towards the centre, using gentle taps in preference to a few heavy blows.

Two guide pins as shown in Fig. 3 will be needed in order to keep the separate parts of the die rigid and in the correct position. These are best fitted before the centre holes are drilled, and they can be quite small. The guide pins can be a tight fit in one half and slide in the other, or they may be free to slide in both halves.

Having fitted the guide pins we are ready to drill the centre holes and this needs doing carefully. Unless you start drilling in the right place or do not hold the drill upright, the holes will not be evenly distributed between each half. Be sure to grip the two halves tightly in the vice while drilling.

The size to make the holes will depend on the size of the rivets and should be very slightly smaller than the wire used to make them. The countersink is easily cut with an ordinary drill, but the square sink will need a little more attention, and the special drill shown in Fig. 5. If you are unable to buy one, you can easily file one from a piece of flat tool steel and then harden it by heating it to cherry red and plunging immediately into water. Clean with emery paper and carefully reheat again until it turns to pale straw, then plunge into water.

By A. F. Taylor

Quite good rivet heads can be produced with the die and a round-headed hammer, but the use of special punches help to make regular shaped heads of equal size. Fig. 4 shows two shapes which can be turned from tool steel (A), making a round head, while (B) is somewhat pointed. Other shapes can be produced for special purposes. The punches must be hardened and tempered to a straw colour in order to keep their shape, especially when used for iron and steel rivets.

When forming the rivet head, whether it is with a hammer or with punches, do not have much wire projecting above the die, otherwise it may get bent over and spoil the final shape. Also remember that a series of light taps are much better than a few heavy blows. It is sometimes an advantage to lubricate the rivet head when using a punch, and also to rotate the punch slowly with each tap.

● Continued from page 18

Writing Compendium

An envelope pocket is made from rexine. Its dimensions are 4in. wide and 2in. deep. It is fixed, as shown, ¼in. from the bottom of the baseboard.

On the inside face of the small partition two pockets are fixed, one to take stamps at the top, the other to accommodate letters to be answered. The stamp pocket is cut from a flat piece of rexine. It is 3¼in. long and 1in. deep with a recess cut along the top edge ¼in. deep

The envelope pocket is made similarly, but, to give a little depth inside to take letters, flaps are allowed for during the cutting operation which should be ¼in. wide. The pocket is 6¼in. long and 2in. deep with a curved cut-away along the top edge ¼in. deep.

Fixing Studs

To fasten the two partitions together, a flap made from a piece of stout board about 1/16in. thick is required. This is 2¼in. by 1¼in. and is rounded off at one end. It is covered on both sides with rexine and the piece on the underside of the flap incorporates the female portion of the press stud. The latter is stitched in place before the rexine is gummed to the flap. The flap is then cemented to the narrow partition so that it mates easily with the stud on the wide partition.

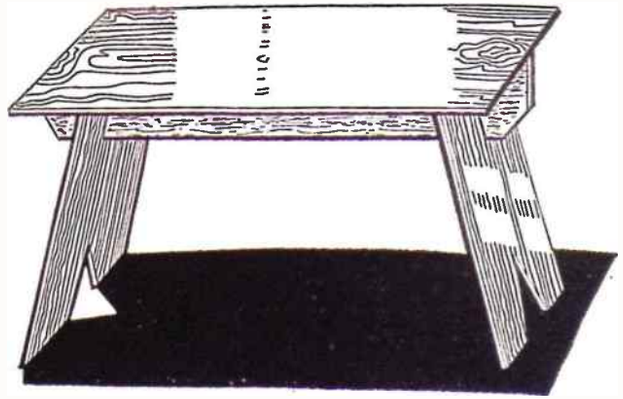
Finally, strips of rexine are cut to fasten the notepad, pen, pencil and rubber on the right hand outer face of the compendium.

PAPERHANGER'S BOARD

THE old kitchen table may serve when the paperhanging is being done in a downstairs room, but it is not so convenient when a bedroom is concerned. The handyman may construct a light rigid board at little cost, and one which has the advantage of being easily stowed away.

The table illustrated is made from a piece of hardboard 1ft. 9½ins. wide and 7ft. long, with two legs made from the same material, 1ft. 6ins. wide and 2ft. 4ins. deep. A piece of ¾in. shelving is attached by nails or countersunk screws, down the centre of the hardboard. This shelving should be at least 7ins. wide, and even wider if available up to 12ins., thus giving the main support to the table without the necessity of additional strengtheners.

Stretchers are glued and pinned at both sides of this central piece to form a stop for the legs. Note that these are



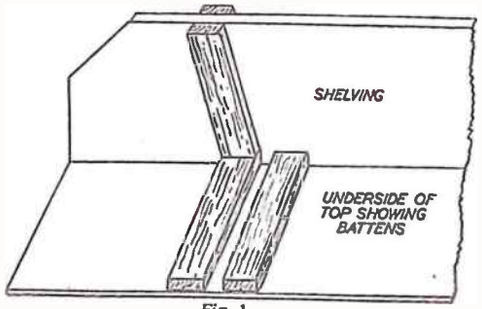


Fig. 1

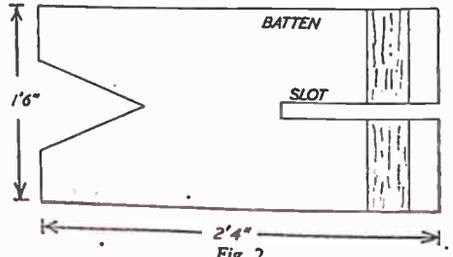


Fig. 2

inclined at an angle, Fig. 1. Two stretchers are also attached to the underside of the hardboard to engage with the top part of the legs, but with a space between them, sufficient to accept the thickness of the legs. This arrangement should be 9ins. from each end.

The legs have a piece of 2in. by ¾in. batten attached, ¾in. from the top, again glued and pinned (Fig. 2). Before fixing in position it is best to cut out the central slot, to fit the shelving, and test for the exact position, which may vary according to the angle. Fix the full width of the batten on to the leg cutting away the waste from the slot later. A 'V' shape is then cut out of the base of each leg.

Locking the legs

If the joints have been well made, the table will be quite rigid, the weight of the central piece of shelving being sufficient to hold the whole together. If it is so desired, an ordinary door bolt may be attached to one of the battens on each leg, and a hole drilled in the shelving to accept the bolt. This will lock the legs firmly in position.

It is also a wise precaution to smooth off the sides of the hardboard to prevent damage to wallpaper. The ends where the paper is drawn over for pasting should be rasped and smoothed until rounded, thus allowing the paper to pass over quite freely.

If the board is not required for immediate use it is an advantage to give two coats of paint to the top surface at least, not only as a protection, but to ease the removal of surplus paste.

(S.H.L.)

A LUCRATIVE HOBBY

Collector of Cigarette Cards

A LONDON man has turned a commonplace hobby into one that is both distinctive and lucrative. Originally he owned an extensive collection of ordinary cigarette cards numbering some half a million, and in 1931 he decided to try to start a business, buying and selling cigarette cards. The gamble came off, for his wide knowledge of the subject gained through years as a keen amateur hobbyist enabled him to judge the market accurately. At one time his firm had about 60 million cards in stock, comprising over 3,000 complete sets. The rarest set of cards this man has ever handled is the first edition of the set of 'Alice in Wonderland' distributed in England towards the end of the last century. There is thought to be only one completely perfect set of these in existence, and they changed hands for £1,000. The most sought-after sets are those issued with popular brands of cigarettes in the 1890's, which change hands through this strange hobby-cum-business at around £30 each. (D.G.)

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All the thrills of the game

Play Test Cricket at Home

WITH the aid of the Play Chart illustrated and some small pieces of white cardboard, it is possible to experience the thrills of a Test Match at home. The dramatic fluctuations of a struggle at the Oval, or the unpredictable course of the day's play at Old Trafford can be recaptured all the year round by using this simple chart and two packs of numbered and lettered cards which are easily made.

To prepare for this most exciting game of home cricket, cut out 54 pieces of plain white card. The size of each card is immaterial, but in practice, cigarette-card size has been found quite suitable. The first 32 cards are numbered 1 to 32 by printing in ink, or with coloured pencil, the relative numeral in the middle of the face of each card. The remaining 22 cards are lettered A to V in similar manner.

This game may be played by any equal number of players, up to eleven on each side, but it is usually played by two only, the solo player on each side assuming captaincy and control of the game from his team's viewpoint. We shall assume, therefore, that one player each side is to play. The two captains will chose a side each and construct their teams. Thus, if one is England and the other Australia, South Africa, or any team in the news at the time, or, coming down to County cricket, if one picks Yorkshire and the other plumps for Lancashire, each will write down the members of his team, as chosen by him, in the score book.

A score book can easily be ruled out in an exercise book. Having entered up details in the score book, the name of each player is written down on a small slip of card or paper, the chart set out on the table, the two packs of cards shuffled and placed face downwards on the table in front of the chart and all is ready for the toss to decide choice of first innings.

The batting side will place the slips bearing his opening batsman on the table at each end of the 'pitch' — that is, about 9ins. apart. The fielding side will place the card bearing the opening bowler's name in a line with and on the outside of batman No. 2, and bowler No. 2 will have his card positioned in a slip position behind and slightly to one side of the opening bat. It must be remembered that, to make this table game as realistic as possible, the non bowling member of the bowling pair will always be moved to a slip position between his overs, until finally taken off. New bowlers can be brought on at discretion.

To commence play, the fielding side will shuffle the two packs and replace on the table. The batting side, on behalf of batsman No. 1, will take a card from each pack and from the combination of letter and number find the square on the play chart which has decided the result of the first 'knock'.

Assuming, for instance, that the two cards drawn are N and 23. By referring to the chart we find that square N.23 (the 14th line down and the 23rd column across) is marked '3'. This means 3 runs for the batsman, and, as this is an odd number of runs, the batsmen's cards are changed from one end of the pitch to the other, and batsman No. 2 is brought into play for the next ball. The score is, of course, entered in the score-book, and

●Continued on page 26

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
A	–	1	–	2	–	4	1	2	–	1	–	1LB	1	4	2	–	1	2	–	2	1	–	1LB	4	2	1	–	–	–	2	1	–	A
B	1	–	4	–	1	2	C1	4	–	2	1	–	3	B	1	–	2	1	C4	4	1	1B	2	RET HURT	1	–	2	1	4	2	–	1	B
C	–	–	2	1	2	–	3LB	–	1	C7	4	2	1	2	3	2	1	2	5	2	4	B	1	6	2	–	1	C2	3	1	–	4	C
D	4	1	2	B	6	1	2	–	4B	1	2	–	–	1	4	LBW	3	1	–	–	1	2	1B	4	C8	1	2	2	1	4	2	2B	D
E	–	–	2	1	1B	4	RUN OUT	3	1	2	1B	4	1	–	2	1	2	–	2	1	4	–	–	1B	1	2	3	1	–	2	C6	1	E
F	1	2	4	–	1	2	2	1	4	2	1	1	B	3	1	–	–	–	4	C2	1	–	3	1	2	4	B	1	–	2	1	2	F
G	2	1	C9	3	4	1	2	2	C8	1	–	2	1	2B	4	1	1W	–	2	1	2	–	1	LBW	2	1	2	3	1	4	–	1	G
H	4	2	1	2	1	B	2	1	1B	–	1	4	C3	1	2	C10	4	1	–	2	1	2	3	1	2	1W	1	4	C1	1	–	1LB	H
I	1B	1	2	3	2	4	1	–	2	1	2LB	2	1	4	2	1	1LB	2	1	4	B	1	1NB	–	1	2	–	1	2	4	1	–	I
J	1	LBW	4	1	2	1	2	1B	4	C9	1	2	–	1	2	–	4	C11	3	1	2	2	1	2	4	C4	1	–	1	2	2B	1	J
K	2	1	2	–	1	C11	2	1	3	1	2	ST	4	3	C5	1	1B	2	1	–	4	1	RUN OUT	4	2	1	1LB	–	1	B	4	2	K
L	–	3	1	2	4	1	2	–	1	–	4B	1	2	2	1	4	2	1	6	B	1	2	4	1	–	2	1	1B	2	4	1	–	L
M	2	1	C2	4	–	–	1	B	4	1	6	2	1	3	2	1	C6	4	2	1	3	–	1	2	2	1	C10	4	1	2	3	1	M
N	1	2	4	1	–	1	2	4	1	2	C1	2	2B	LBW	1	2	4	1	–	2	1	2	3	C3	1	2	4LB	1	–	1	C7	4	N
O	1B	2	1	–	2LB	2	1	–	–	1	4	–	1	4	3	2	1	2NB	2	1	ST	4	1	2	2	1	1LB	4	1	2	1	–	O
P	4	C4	2	1	3	B	4	1	2	2	1	1LB	–	1	1W	4	C10	2	1	2	3	1	2	2	1	–	2	LBW	6	1	–	1	P
Q	2	1	4	–	2	1	2	–	1	B	3	1	2	–	1	2	4	1	–	2B	1	4	C6	3	–	1	4	1	2	1W	1	–	Q
R	1	–	1	–	2	4	1	2	–	1	2	2B	C7	4	2	2LB	1	–	4	C11	2	1	2	2	1	1B	3	2	1	–	–	1	R
S	–	1	2	2	1W	1	LBW	4	1	–	–	1	6	2	1	B	4	2	1	3	1	1LB	4	1	2	4	C5	2	2	1	3	–	S
T	–	4	C5	1	–	2	1	3	–	1	2	1B	1	–	4	1	2	2	1	1B	2	1	2	C8	1	1LB	4	1	2	B	1	–	T
U	1	2	4	2	1	–	2	–	1	2	C3	4	–	1	–	–	2	1	C9	5	–	2	3	1	4	–	1	2	2	4	–	1	U
V	–	1	–	2	–	–	1	–	–	4	2	2	1	1LB	–	–	–	4	2	1	–	–	–	2	–	1	–	–	4	2	1	–	V
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	

Out in the open

CAMPING IN AUTUMN

By H. A. Robinson

IF you have enjoyed the year's camping, there is always a strong desire to carry it as far into the autumn as possible, but when September comes, despite even sunny days, the early mornings and late evenings can tend to become rather chilly, and this is where you have to take precautions.

With care you can keep quite snug in your canvas home till really late on, and I have in mind a set of successful week-end camps I once ran till nearly Christmas.

With the coming of September and October, although the sun may be shining for long periods, owing to rapid atmospheric changes, the most important thing to remember is that moisture no longer dries out quickly. In the summer months equipment can get really damp, say, in a sharp storm, but it is of no consequence, for with the stopping of the rain and coming out of the sun, everything is dry again in an incredibly short time.

In autumn, however, the sun, though bright, has lost its drying-out powers, and items once damp will remain damp.

Recognising this, the first thing then in successful late camping is to take much greater care to prevent gear getting damp. Keep by you a pair of old sandals for walking about in damp grass, and always slip them off when going into the tent, and don't go in at all if you have on heavy and wet shoes that you do not want to remove. Wet boots or shoes can carry in quite a lot of damp.

Watch the blankets a little more carefully during rain storms, and bring them just a little nearer into the centre of the tent, as with the drying properties vanishing from the atmosphere, 'airing' is becoming steadily more difficult.

See to it that your side trenches for draining off water and any other drainage system you have are in tip-top condition.

With a little care it will be found that the inside of the tent remains a little island, which, with your personal gear, remains bone dry. And with regard to your own clothes, a good cape which will completely envelop you as and when needed, is essential for late camping.

Should 'airing' become necessary, adopt the method of making a frame with sticks over an ash fire, upon which doubtful blankets and clothes can be dried out.

Warmth is the next thing. September nights can be quite sharp, but warmth is more a question of rearranging your sleeping gear than anything else. If you are using blankets only (i.e., no sleeping bags) a greater efficiency can be obtained from them by two campers making a joint bed, which means that they each get a double supply of blanket above and below.

The 'and below' is important, for warmth in camp depends far more on what you have under you than what is above, and this is where the man with the palliasse scores. Indeed, if you propose carrying camping into the autumn, it is well to try and get some simple palliasse, even though you may have been camping 'light' earlier on. Actually, a palliasse need not be very large, and need not necessarily be of any official make. Any small sack filled with straw or hay will do.

Warming Tips

To give added warmth when bedded down, it is quite a good idea to push the feet, wrapped in their blanket, into a kit bag or even a big haversack. Thus the blanket is kept well in position and the hot air from the body is not so easily lost.

The atmosphere in the tent itself can be slightly warmed up if desired by placing a candle in a flower pot and a second one inverted on top. A candle so placed burns steadily and warms the upper pot which radiates heat to the air of the tent. This is quite a good idea, and was used in the war for heating air-raid shelters.

An emergency warmth-giving idea for nights is to spread sheets of paper between the layers of your blankets. This little addition has a remarkable effect in the heat-retaining properties of the covering.

If caught with a really sharp night, a stone warmed in the fire, wrapped in a cloth and taken into the blankets will often work wonders.

With regard to foods, have everything just a trifle warmer, especially at late meal or supper time. Cold drinks can take down the body temperature, but hot ones can help a great deal if the evening is beginning to get just a bit chilly. So add a policy of slightly warmer meals to your list of autumn precautions.

Diet, too, should be adjusted if possible to give a little more heat. Add more fats to the menu. 1 gramme of fat gives 9 calories of heat, while the same amount of protein or carbohydrate foods produce only 4 calories. Extra sugar, too, is called for. Scotch Oats (porridge) is also a great giver of heat, and so should feature in the breakfast or supper menu — or in both.

Summing up, then we see that successful comfortable and safe autumn camping is but a matter of taking a little more care in keeping away dampness, in studying warmth at nights, and eating a warmth-giving diet.

Never, however, at any time take silly risks. Being 'hardy' and 'foolhardy' are two very different things. Late camping I always think is the real test of a camper's ability. Anyone can stay out of doors in sun drenched meadows, but it takes the real out-of-door man to carry on into the darker days.

● Continued from page 25

Test Cricket at Home

the ball recorded in the bowling analysis. A 'blank', of course, indicates no score—and no wicket. And thus the game will proceed, in accordance with the rules of procedure for the real game.

The catches are numbered from 1 to 11 and, therefore, credit can be given to the successful fielder, according to his number in the batting order.

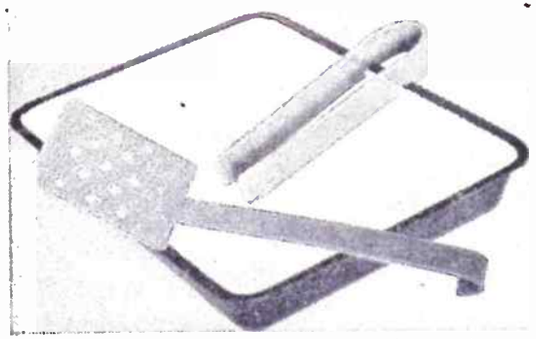
In actual practice, the chart has been devised to give an innings of 200–250 runs. The number of catches and other ways of losing one's wicket are based on analysis of a dozen first-class matches. The differing number of runs, byes, etc., are worked out on the same basis.

As the chart will be subject to much handling in the course of several matches it is advisable to mount it on a piece of stout card or fretwood.

It is astonishing how interesting each game can become as it progresses, especially if the score-book is faithfully and fully kept. One exciting possibility is permitted in this humble replica of the big match — a player may be his own Test selection committee and he may even include his own name in the England side. The feat of knocking up a century against the might of Australia's bowling is alone worth the little trouble involved in mounting the chart and preparing the cards for this attractive game. (C.O'R.)

PLASTICS IN PHOTOGRAPHY

By J. D. M.



A print paddle and tongs which have notches on edges to prevent slipping

IN this modern world plastics are used in many forms and ways, and their application in the sphere of photography is no exception. They are especially useful in the darkroom, as they are safe to use in photographic solutions. Plastics can be bought in the form of tube, rod, and sheet. Sheet plastic can be obtained in varying thickness and colour from dealers everywhere.

The articles described here are made from ⅛in. thick coloured Perspex. This material is an acrylic plastic which requires a dry heat of 200° to 300°F. to soften it before bending to the shape required.

A simple means of heating this material is in the oven of an electric cooker with the thermostat set at a temperature of 230° to 250°F. A few minutes at this temperature makes Perspex pliable enough for working. In fact, prolonged heating makes it extremely soft, and overheating will cause

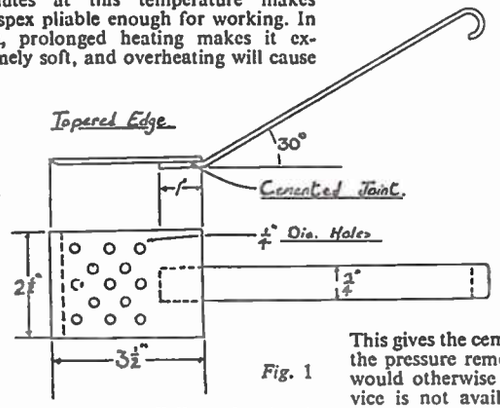


Fig. 1

blisters or even small lines showing in the material. An oven of any type will do and if there is no thermostat, a thermometer can be used, or failing that, continual observation of the material is required.

Coloured Perspex is preferable, as it shows up better against the white enamelled developing dishes in the darkroom.

Print Paddles

These are used in pressing the prints below the solution surface and they can be made in varying sizes. The blade is perforated with ½in. holes to allow drainage. The handles are all of the same length and breadth, namely 9ins. by ½in.

The handle when heated is bent about ½in. from one end at an angle of 30° (Fig. 1). The other end must be done at the same time, that is without reheating, being bent round a rod to form a hook. If, at any time, reheating is necessary, use a former to hold the original work in position, otherwise the strip plastic will straighten itself out.

The blade is fixed to the handle with Perspex cement and the two parts are then held in a vice for a few minutes. This gives the cement a chance to set and the pressure removes air bubbles which would otherwise weaken the joint. If a vice is not available, then a metal or wooden clamp will do, or even a strong metal paper clip. The work should be held between wooden blocks to prevent the material from being marked.

Perspex cement dries very quickly and so, if at any time large or long surfaces have to be cemented, speed is essential. Plastic cement actually dissolves the surfaces being joined and, therefore, fuses the pieces together.

The blade is tapered to a blunt edge from the bottom with a file. This enables the paddle to be slipped below prints in solution for turning or lifting purposes.

Print Tongs

Tongs are used to lift prints from one dish to another and are invaluable for people with sensitive skins, as they prevent the fingers from coming in contact with the solutions.

Tongs can be made of any length or breadth, but a good standard size is made from a strip 12ins. by ½in. The ends are tapered to a blunt edge of about ½in. to ¼in. in depth.

When the Perspex strip is softened, bend it in the middle and tie it round a 1in. broad wooden block, as shown in Fig. 2, and then reheat. The idea is that when reheated the first curve will develop from a preliminary kink into a perfect curve, the legs of the tongs becoming parallel at the same time. When the tongs are removed the second time from the oven they cool very quickly, but they can be set in seconds by immersing them in cold tap water. They are then ready for trimming and finishing.

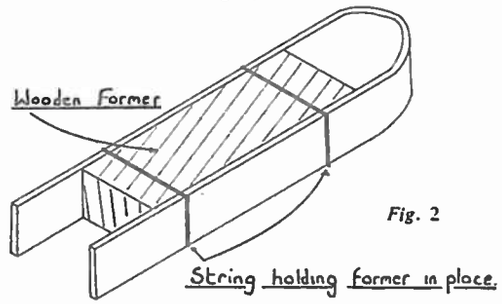


Fig. 2

To prevent the tongs from slipping into the dish while in use, a notch is cut in the sides with a file.

Tools Required

The only tools required are files, glasspaper, a drill and a hacksaw. When drilling do not mark the hole with a centre punch, as cracking or splintering of the material may occur. When cutting with a hacksaw give a start by notching the plastic with a file edge. This prevents the saw blade from skidding.

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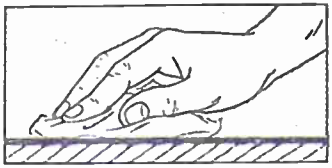

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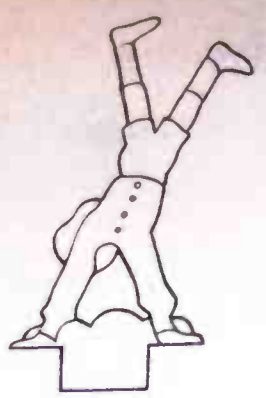
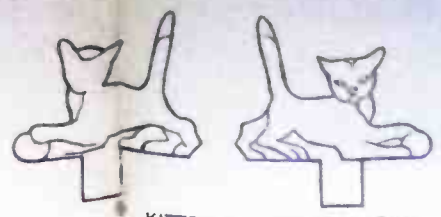
PAINT THE WORDING ON EACH SIDE IN BLACK.



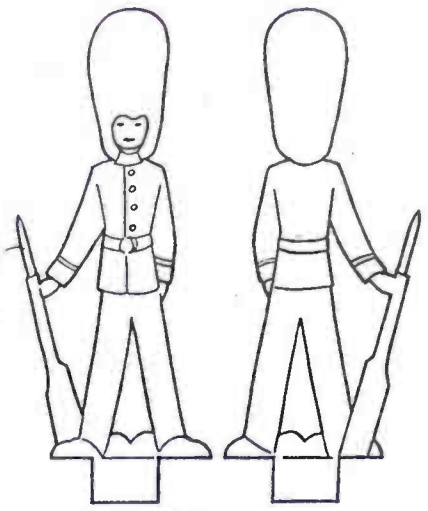
LITTLE BOY 9. CUT ONE 1/8 in.



KITTEN 4. CUT ONE 1/8 in.

KNITTING NEEDLE

MOON KNIGHT 1. CUT ONE 1/8 in.

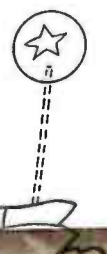


CARD

GUARDSMAN 10. CUT ONE 1/8 in.

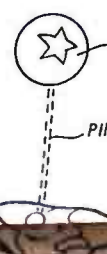
LITTLE FAUN 6. CUT ONE 1/8 in.

SIZE— 7 ins. DIAMETER. 7 ins. HIGH.

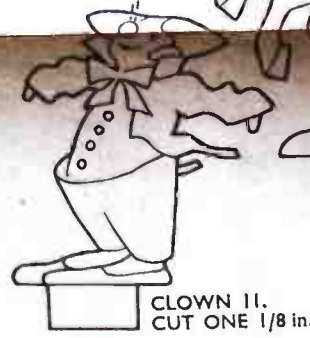


THIN CARD

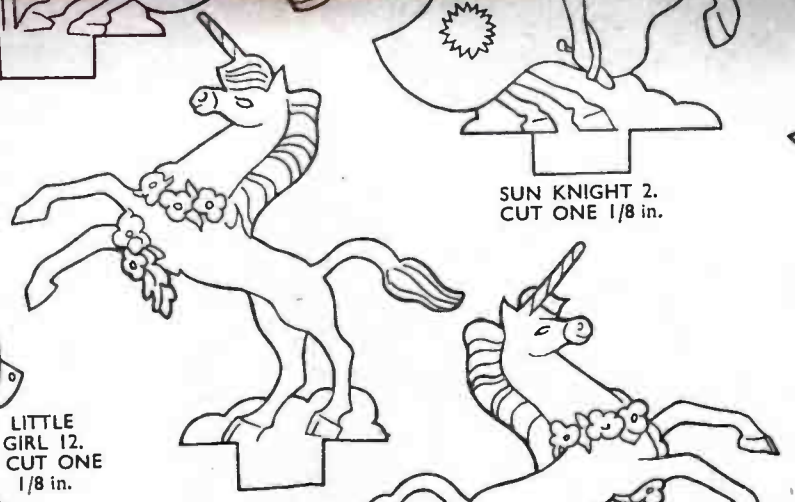
PIN



KNITTING NEEDLE

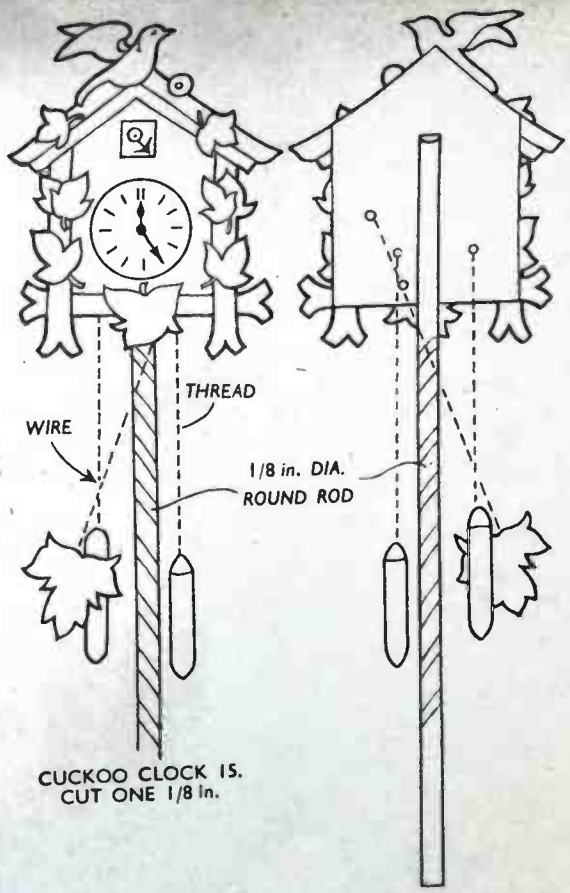


CLOWN 11. CUT ONE 1/8 in.

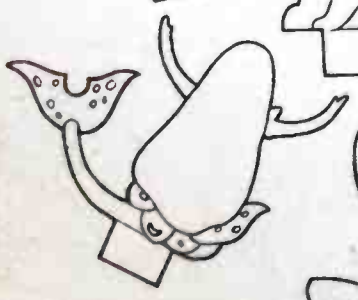


SUN KNIGHT 2. CUT ONE 1/8 in.

LITTLE GIRL 12. CUT ONE 1/8 in.



CUCKOO CLOCK 15. CUT ONE 1/8 in.

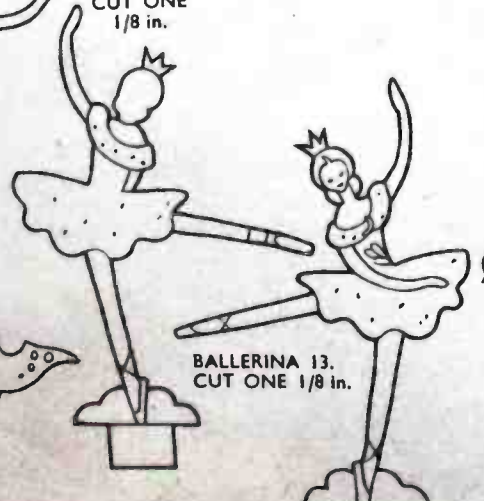


SAILOR 14. CUT ONE 1/8 in.

TREES 5. CUT FOUR 1/8 in.

UNICORN 3. CUT ONE 1/8 in.

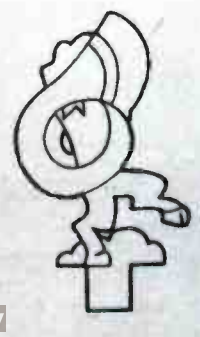
MERMAID 16. CUT ONE 1/8 in.



BALLERINA 13. CUT ONE 1/8 in.

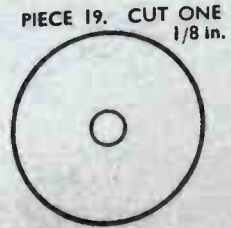
PIN

LITTLE FAUN 8. CUT ONE 1/8 in.

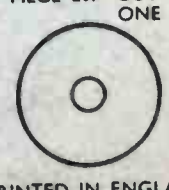


LITTLE FAUN 7. CUT ONE 1/8 in.

PIECE 19. CUT ONE 1/8 in.



PIECE 20. CUT ONE 1/8 in.



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