

# HOBBIES WEEKLY

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FEBRUARY 29th 1956

VOL. 121

NUMBER 3148

*From FREE Design  
inside make this*  
**HOLDER FOR A  
CLOTHES BRUSH**

CLOTHES brushes are particularly apt to be mislaid, involving a last-minute search which can be exasperating when one is in a hurry. A good idea then is to have a neat holder in which to place the brush for safe keeping, and the one described here makes up into quite an eye-catching article.

It can stand on the sideboard or small table, etc., but for those who prefer it to hang on the wall, two screweyes can be added. The brush which is included in Hobbies kit slips into the holder and is always there ready for use.

**Four Designs**

There are four different designs to choose from, and the reader will select that in which he is particularly interested. The dogs and birds make very pleasing subjects, while others may prefer the scroll and 'clothes brush' wording.

All the overlays and the front pieces (A), (B), (C) and (D) are cut from 1/4 in.

Choose  
any of  
these  
subjects



wood, and the bases (2) and back (1) and end piece (3) from 1/4 in. wood.

There is no difficulty in the construction of the holder, but care must, of course, be taken in the accurate cutting of the overlays as neatness here will add much to the finished article.

Trace off the various parts from the design sheet on to their appropriate thicknesses of wood, and cut them out with a fretsaw. Before cleaning up, notice the chamfer on the top of piece 3

and at one end of piece 2.

To start the assembly, glue the back (1) and end (3) to the base 2. Fretpins can also be added if thought necessary. Now add the front with the outline selected according to the overlay design. Now glue on the overlays to the front, ensuring particularly in the case of the dogs and birds that these are symmetrical and positioned correctly.

When the glue is thoroughly dry, all

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All correspondence should be addressed to The Editor, Hobbies Weekly, Dereham, Norfolk

*For Modellers, Fretworkers  
and Home Craftsmen*



# Development of the Drill

THE method of making holes by means of portable drills—tools that can be taken to the work—is one of the oldest workshop operations known to man. Illustrated is a collection of such drills, tracing their history from a crude piece of flint, actually used by the early Egyptians, 3,000 years before Christ, up to the present method of portable electric drilling—by means of a Black & Decker Sander-Polisher Drill.

so that it is returned for a further stroke. It can, therefore, be seen that the tool has an idle return action, drilling only taking place on the forward movement of the bow.

### 3. Eskimo Bow Drill—Modern Primitive

This represents one of the earliest methods of drilling and it should be compared with the drill from Ancient Egypt. The mouth-piece is of wood in

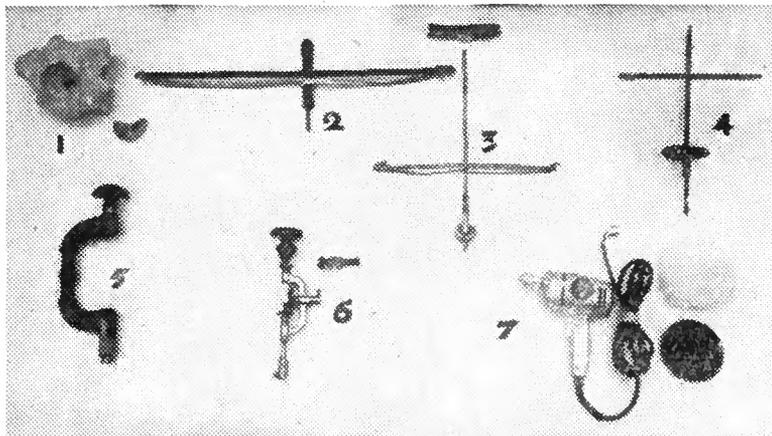
the bow drill. The brace is easier to manipulate than the bow, and there is no idle return movement as in the latter. The speed of rotation is much slower, but turning movement is correspondingly greater and a different form of drill bit taking a heavier cut can be used. This tool is very similar to the carpenter's brace in use today.

### 6. English Bevel Brace—Mid-19th Century

The bevel gear driven brace displaced the older type of cranked brace for use when boring metal, as it enables the speed of drilling to be increased. Drills of this type were the forerunners of the modern geared breast drill. The drill is held in position by inserting it in the socket and tightening the clamp screw. This is, in effect, a forerunner of the modern three-jawed chuck.

### 7. Portable Electric Sander-Polisher Drill

This tool, made by Black & Decker Limited, represents the latest development in portable drilling. The tool is designed for use with  $\frac{1}{4}$  in. diameter twist drills for steel or for  $\frac{1}{4}$  in. diameter wood augers. It is powered by a Universal A.C./D.C. motor, and has a pistol grip with a trigger switch. It runs at a no-load speed of 3,000 r.p.m. and weighs  $3\frac{1}{2}$  lbs.



Descriptions and history of the various stages are:

### 1. Egyptian Flint Drill Head and Trial Block of Soft Limestone—3,000 B.C.

Taken from the temple of Zoser, Saqqara. It is thought the drill head was supported in a forked stick which was rotated and that it was used for removing material for masonry work or from the interior of vases. This particular example was probably used in fluting the columns of the temple, holes being drilled at intervals and the intervening material removed by chiselling.

### 2. Replica of an Early Egyptian Bow Drill

The Egyptian bow drill was a tool of advanced form as can be seen from this example which is a copy of a drill taken from Tutankhamen's Tomb. The drill is operated by pushing and pulling the wooden bow backwards and forwards. The top end of the drill stock is pivoted in a hollowed-out stone bearing (not shown) and as the leather cord is looped around the stock, forward motion of the bow will rotate the drill. Cutting speed is regulated by controlling the downward pressure of the stone bearing. When the bow has reached the end of its stroke, pressure on the stone is released and the bow pulled backwards,

the form of a fish, with a stone bearing inserted to serve as a pivot for the top of the drill stock. The bow is not original. The drill is operated in a similar manner to the early Egyptian bow drill.

### 4. New Guinea Pump Drill—Modern Primitive

This represents another primitive and very early method of drilling which has survived for certain purposes up to the present day. The point is made from a small piece of broken cast-iron. The flywheel is made from wood. The ends of the cross-piece of the drill are attached to the top of the drill stock by means of a length of cord. If the cord is wrapped around the stock and the cross-piece pushed downwards, the cord will unwind, rotating the drill at the same time. When the cord has unwound the pressure on the cross-piece is released, the wooden flywheel will have sufficient momentum to allow the drill to continue rotating until the cord has wrapped itself once more around the drill stock. Downward pressure can then be applied to the cross-piece and the drill bit will be rotated again, but this time in the opposite direction.

### 5. English Wooden Brace—A.D. 1880

This is an example of the brace, a medieval tool, which gradually replaced

● Continued from page 321

## Holder for a Clothes Brush

that is required is to finish off the holder. Some workers will stain and then give two or three coats of clear lacquer. Others will prefer pale shades of plastic enamel paint with, of course, a contrast for the overlays.

### KIT FOR 5/6

Kit No. 3148, which contains all the wood necessary to make one holder and also includes an efficient clothes brush, costs only 5/6. Obtainable from Hobbies branches or post free from Hobbies Ltd, Dereham, Norfolk

Get one NOW!

# MAKE A TV AERIAL

THE construction of a television aerial does not present any special difficulty, except, perhaps, when for use at extreme distances from the transmitter. Many constructors have built satisfactory B.B.C. aerials, and there is no reason why one suitable for reception of the I.T.A. transmissions should not be made with equal success. There is some latitude in the dimensions and form of such aerials, though they do require to be made particularly for the station in view.

are best, being light and not much influenced by weather, but copper or brass tubes can be used.

The simplest aerial consists of the dipole element only. This is in two halves, separated by about  $\frac{1}{2}$  in. Such an aerial will usually give a strong enough signal up to 15 to 20 miles from a transmitter (B.B.C. frequency), according to local conditions and receiver. From the constructional point of view, the simplest possible method is to take a length of twin flex, and unwind the end,

connected to anything. However, its centre may be in metallic contact with the cross-piece or middle arm of the aerial, even if this is a further metal tube. In addition to having a correct length, the spacing between the dipole and reflector (C) should be correct.

## Other Aerials

When signal strength is good, the elements may be bent in the form of an X, thereby simplifying construction, and making a lighter aerial. Many of this type are in use up to 20 miles or more from a B.B.C. transmitter.

For greater distances, one or more director elements may be added, in front of the dipole. In the fringe aerial shown (F) is the director, slightly shorter than the dipole, and connected

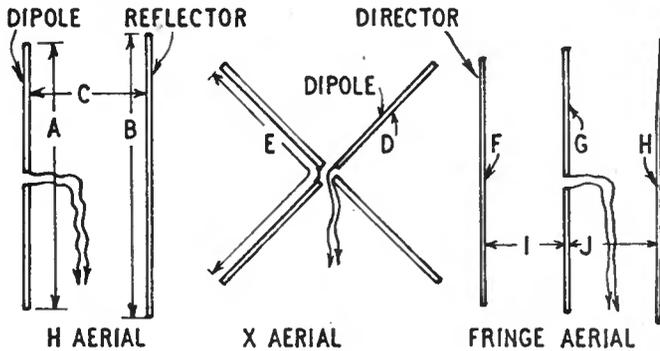


Fig. 1—Most popular types of aerial

Both B.B.C. and I.T.A. aerials are exactly the same except for the length and spacing of the elements. The same kind of construction can thus be used, and the actual arrangements employed will become clear from Fig. 1.

## Dipoles

The essential part of the aerial is the dipole element, from which the feeder is taken to the receiver. The overall length of the dipole (A) in Fig. 1 is cut to suit the wavelength of the transmitter. In actual fact, one length would be correct for the vision signal, and another length, a few inches different, would be best for sound, because the two signals are radiated on dissimilar wavelengths. A compromise is thus made, the aerial being some length between the two figures. Some manufacturers use a 'middle' length. Others use a length specially suitable for the vision signal. This accounts for slight differences in exact length of the dipole.

For best results, the dipole should have ample 'bandwidth'—that is, not be sharply resonant at one wavelength. This is achieved by using a conductor of fairly large diameter—e.g., a metal tube. There is no critical or exact diameter, something from about  $\frac{1}{8}$  in. to  $\frac{1}{4}$  in. being usual. Aluminium and similar alloys

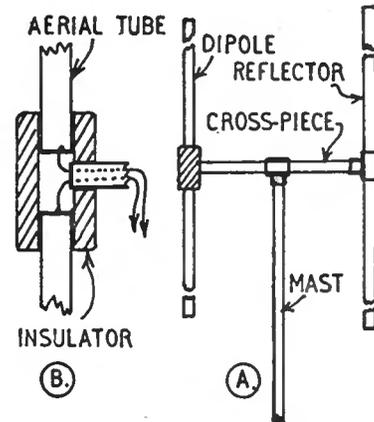


Fig. 2—Constructional Details

extending the leads to form the two elements of the dipole. Such a temporary arrangement will give a satisfactory signal in many areas.

## Reflector

To improve signal strength from a dipole, a reflector element is added behind it. This gives the familiar 'H' type aerial. The overall length of this element, (B) in Fig. 1, is slightly greater than that of the dipole. It is not

to nothing. (G) is the dipole, and (H) the reflector. (I) is distance between director and dipole, and (J) distance between dipole and reflector.

With the X type, (D) is the dipole, and (E) may act as a director, if faced towards the station.

The complicated appearance of I.T.A. aerials often arises from there being two, three, or even more director elements, on a long spar. These become necessary because the I.T.A. signal is generally weaker than the B.B.C. signal. A simple aerial good enough for the B.B.C. transmissions may thus be unsuitable for the I.T.A. transmissions. However, in many areas H type aerials are satisfactory. With the I.T.A. signal, actual reception depends even more upon local conditions than with the B.B.C. signal, because the I.T.A. uses a higher frequency. Hills, buildings, or even large trees may influence the signal.

## Aerial Position

Many sets used within some miles of the transmitter work well with indoor aerials. One manufacturer produces a dipole, for this purpose, consisting of two lengths of metal strip, which can be tacked up the side of a door-frame, or have one section vertical, and the other horizontal, along the skirting board. Such an arrangement can readily be devised from flex or metal foil, as already explained.

For greater distances, outdoor aerials become necessary. If possible, they

The first of two articles

By F. G. Rayer

should be unobstructed in the direction of the transmitter. For example, an aerial may be satisfactory if on a side of the house facing the transmitter, but be useless if fixed behind the house. When the aerial is on a wall fixture, it should be at least 3ft. from the wall, when out-of-doors.

As an aerial is raised, it is less obstructed, and this accounts for the popularity of chimney mountings, though these are often used in localities where a wall mounting, or even indoor aerial, would be satisfactory.

Some transmitters use vertically polarised signals. This means that the elements of the aerial must be vertical. Others use horizontal polarisation, when the elements must be flat, or horizontal. A glance at T.V. aerials in the vicinity will at once show in which manner the aerial should be mounted. The earliest stations, such as Alexandra Palace, Sutton Coldfield, Holme Moss, etc., are vertically polarised, Belfast, South Devon, Aberdeen, Pontop Pike and South Hants being horizontally polarised.

#### Signal Strength

The direction in which the aerial faces is best found by trial, but it will usually face the transmitter. As it is rotated, a position of best signal strength will arise, and this can be adopted. If, however,

there is some local source of interference, the back of the aerial (reflector element end) can be faced towards this, to reduce the trouble, even if this means the aerial does not point directly at the transmitter. Such sources of interference may be an industrial or medical plant, main roads, or a signal reflected from a building, hill, etc., giving a ghost image on the screen. In such cases one person should rotate the whole aerial, while a second observes the picture.

#### Practical Construction

Fig. 2 will serve as a guide in making the aerial, if for outdoor use. Dipole and reflector tubes will, of course, be cut to suit the transmitter, from the list of dimensions given in the next article. Mast and cross-piece may be of metal tubing, and can be joined by T-pieces such as used for plumbing. Or they may be bolted, welded, or fixed together in any way which is convenient. The cross-piece is of such a length as to provide the specified separation between dipole and reflector.

In exposed positions, high winds can impose a considerable strain on the aerial, so that a strong mast is required. The minimum diameter will depend on the type and thickness of metal, but  $\frac{3}{4}$ in. or 1in. tubing will usually suffice. The aerial must be expected to vibrate

and sway somewhat in high winds.

An insulator is required at the dipole end. This can consist of a stout insulating tube about 4ins. long, into which the rods are forced. Joints can be sealed by paint to prevent rain entering. The ends of the feeder should be soldered to the dipole elements before fitting them in place. (B) in Fig. 2 shows this.

Another method is to use a piece of strong paxolin or similar material, fixing each dipole rod to it by means of two or three 2 B.A. bolts. The whole is then fixed to the cross-piece by other bolts. It is also feasible to use the insulated connector boxes, with removable top, sold for junctions in mains wiring.

The actual method is not important, provided insulation is good, water kept out, and the joint strong enough to avoid collapse. If an indoor aerial is sufficient, construction is greatly simplified, as no wind stresses arise, and waterproof joints are not necessary.

An examination of aerials seen in the locality will suggest whether a simplified type is likely to be successful. Or a simple dipole can be made, and the reflector added if it proves necessary.

Element lengths and other dimensions, and methods of connecting to the receiver, will be dealt with in a concluding article next week.

## Facts for Your Stamp Album

**T**URN your stamp album into an encyclopædia by making notes about the various customs, religions, arts and crafts connected with the countries concerned.

If using a loose-leaf album, write these on separate sheets headed 'Interesting Facts about (Greenland)' and insert them preceding the stamps. Or use an exercise book for the purpose.

Here are some extracts from my own notes on Greenland: A Danish possession N.E. of Canada. Currency 100 öre = 1 Krone. Stamps first introduced 1st Dec. 1938. Country of the Eskimo (fish and flesh eaters). Eskimos take most of their food raw and think nothing of devouring eight pounds of meat at one sitting.

Whenever they meet neighbours or friends they cry 'Timoo!' and show their goodwill by rubbing noses. The women do not use handbags. They carry personal trinkets in the tops of their boots which, being very wide, make excellent pockets.

Their hair is drawn to the top of the head and tied in a knot with a piece of reindeer skin. Some allow a plaited lock to hang down at either side of the neck. If the woman is a mother her jacket has a large hood behind, in which the baby

is carried.

Eskimo boots, made from tanned sealskin are superior to any of European make. Their clothes, tools, canoes, etc., all skilfully and neatly made by hand are the envy of their neighbours the Red Indians.

Modern Greenlanders, intelligent and less superstitious than their ancestors, are rapidly becoming civilized with the development of northern air travel and the Alaska Highway, with consequent contact with the white man. They no longer tattoo their faces. Their love of home, and pride in their ice-bound country is immense. All in all, they are a hard working good natured people.

Such jottings often prove useful when some controversy arises. They increase one's knowledge of the world and its inhabitants enormously. And, by the way, it is within the beginner's range to possess Greenland stamp issues complete.

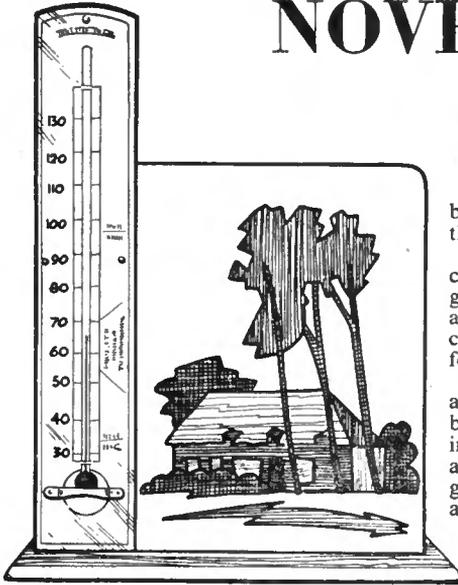
There are three sets each containing nine values: 1938, catalogued at 5/8 used or unused; 1945, 26/-, ditto; 1950, 8/3 used, 6/9 unused; all obtainable on approval at prices below catalogue. So, if not yet specializing, why not begin with Greenland? And do not forget your notes! (R.L.C.)



### THE 'IMPROVED'

Equipment for the stamp collector, such as gauges, magnifiers and tweezers, can be obtained from branches or from Hobbies Ltd, Dereham, Norfolk. Also available is a wide range of albums, including the 'Improved', illustrated above, which costs only 5/- . Others are priced from 2/6 to 15/-

# NOVEL DESIGNS FOR THERMOMETERS



**A** THERMOMETER is always handy in the home and makes a useful present at any time of the year. These novelties can be made up and sold locally to suitable shops if the standard of workmanship is good.

With a little ingenuity many different shapes of birds and animals can be used in the manner shown in the diagrams. In each case it is wise to have a main piece for a background to prevent damage to the thermometer. The cut-outs can then

be glued to the backing piece in the appropriate positions.

Good effect can be obtained by using contrasting woods or by staining to give the same result. Other methods are to paint the cut-out in natural colours, or better still, paint black to form a silhouette.

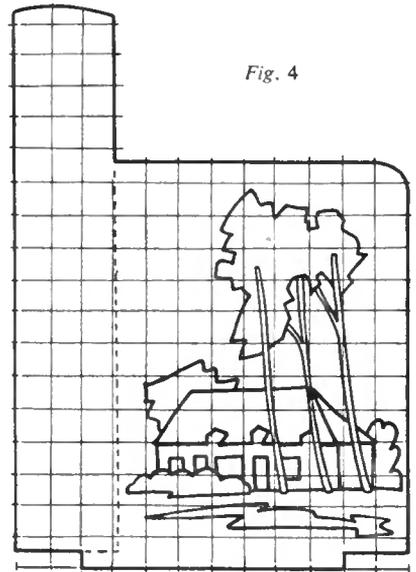
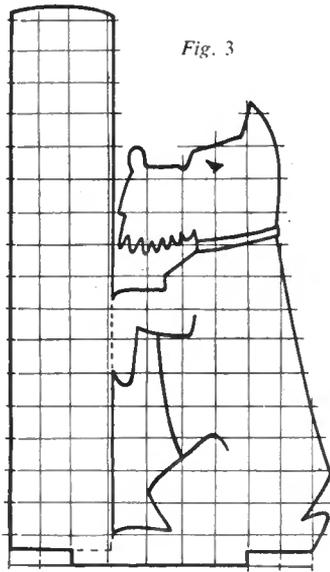
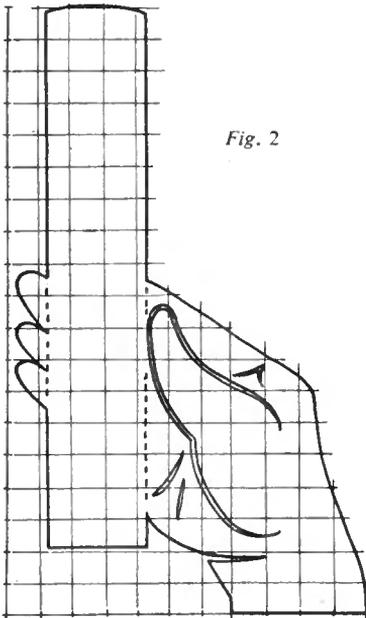
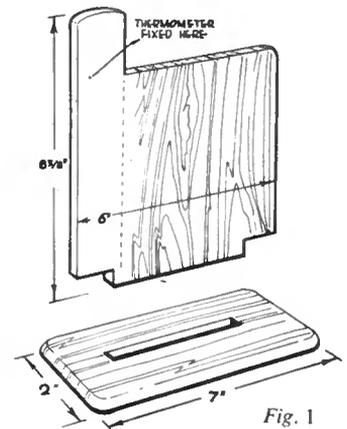
The diagram in Fig. 1 shows a suitable construction using a base and a background. Birds, animals or amusing figures can be cut from  $\frac{1}{4}$  in. wood and glued direct to this. In the diagrams in Figs. 2 and 3 the background and cut-out are combined. They are cut from  $\frac{1}{4}$  in. wood and tenoned direct into the base. In the case of Fig. 2 the mortise in the base must be off centre.

Both these cut-outs can be drawn easily by enlarging the squares to  $\frac{1}{4}$  in. and sketching in the details. This is quite a straightforward job to do, but if you prefer it we will send simple tracings to those who apply to the Editor, *Hobbies Weekly*, Dereham, Norfolk. State which tracings you prefer and enclose a stamped and addressed envelope. There is no charge to readers of *Hobbies Weekly*.

The last diagram, Fig. 4, shows a picture suitable for painting in oil col-

ours or working in marquetry. If knife marquetry is used, the veneer should be applied to the whole background. Finish off with several applications of wax polish.

Suitable thermometers can be obtained from Hobbies Ltd., Dereham, Norfolk, price 2/9 each, post free. (M.h.)

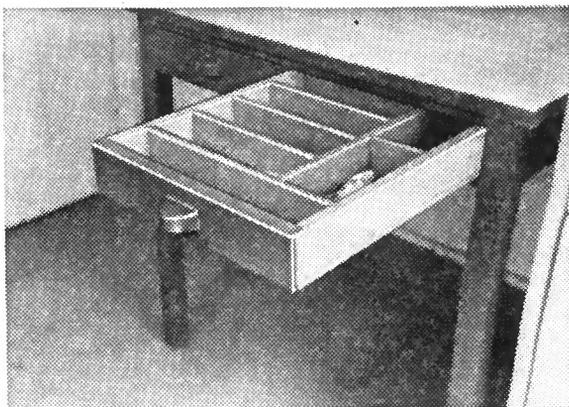


Convert it yourself

# A Drawer for Cutlery

**A** DRAWER in the kitchen table can be easily converted into a handy container for cutlery by inserting divisions as shown in the photograph.

The arrangement of the divisions should be decided by the individual. This is best done by drawing a rectangle the same size as the interior of the drawer on a sheet of paper, and placing the different pieces of cutlery on it in various positions until the best layout is found.



By K. Blackburn

Draw in the divisions, and measure each one to find the length required, adding  $\frac{1}{8}$  in. or so to each measurement for waste. The width of the divisions will be the same as the depth of the drawer, and the wood should be about  $\frac{3}{8}$  in. thick.

Plane each division to the required width and thickness, but do not cut them to length at this stage; this is done when the grooves have been made.

Take out the drawer, and remove any nails or screws securing the bottom to the back. It can then be slid out from the rear. Mark out the grooves on the sides of the drawer with a try-square,

and use a marking gauge to mark the depth on the top and bottom edges. The depth should not be more than half the thickness of the side of the drawer.

These grooves can be cut in the normal way by sawing on the bench hook, and fixing the side of the drawer in a vice while removing the waste with a chisel.

Any division which goes right across the drawer should now be cut. The length can be ascertained by placing the wood along the top of the drawer above

the appropriate grooves, and marking the correct length off on to it. Square round at these points, and saw off the waste.

If one division is to be grooved to receive another, as in the photograph, it should be fitted temporarily in position while the grooves are marked. This reduces the risk of error.

When all the pieces have been fitted in this way, they should be removed while the drawer bottom is replaced. The divisions can be secured by gluing or pinning.



**T**HIS is an ideal item for the amateur magician, for it is easy to make, easy to perform, and the effect on the audience is all that could be desired.

What appears to happen is this. A sixpenny postal order is shown, and the performer proceeds to tear off the counterfoil. This is handed to a member of the audience to keep until the magical experiment is complete. The postal order is next placed quite openly into an

envelope which is then sealed up. This is stood in some conspicuous place on the performer's table, while he picks up a box of matches. Presently he strikes a match, takes up the envelope and sets fire to it, holding it by one corner until it is almost burnt up. As the flames reach his fingers the performer places the envelope on to an ashtray and soon there is nothing left but a bit of black crinkled ash.

Taking this in his fingers the performer crumbles it away—and from the dust produces the postal order completely restored. The number on the postal order is checked against the number on the counterfoil and, of course, they are seen to be identical!

The explanation of this seeming miracle lies mainly in the artful preparation of the postal order. Two postal orders are required. From one the counterfoil is cut with a razor blade, but the cut is made about  $\frac{1}{8}$  in. on to the body of the postal order. Of course, the postal order must be laid flat and the cutting done along the edge of a ruler.

## The Puzzling P.O.

From the other postal order the counterfoil is torn in the usual way and destroyed. The remaining counterfoil is glued to the postal order from which the counterfoil was torn; it is attached by the narrow strip that runs parallel with the perforations. This is the postal order that is exhibited for the trick.

The other is folded up into a compact wad and slipped into the cover of a half-open matchbox. With the matchbox lying on the table near the ashtray and the faked postal order in his pocket, the magician is ready for action.

He shows the postal order, tears off the counterfoil which, of course, belongs to the postal order in the matchbox. While the matchbox is in his hands and the postal order is burning, he pushes the tray shut with one finger. This forces the hidden postal order neatly into his hands quite unknown to the spectators. When this is later opened out it naturally matches the counterfoil—and so another modern miracle has been accomplished. (R.W.W.)

*Strong and inexpensive*

# MAKE A COAL SCUTTLE

**M**ETAL coal-scuttles are difficult to make, and expensive to buy, but a wooden one suffers from neither of these disadvantages. Make this wooden coal-scuttle and you will possess a strong and useful article that will last for years.

If you have the scrapwood by you (a thick wooden box would serve well), then you only need to spend a few

*Says F. Gilson*

pence on a pair of hinges, and a metal handle. A small shovel is, of course, a necessity.

Use  $\frac{3}{4}$ in. wood and  $1\frac{1}{4}$ in. nails throughout. Cut the two sides according to Fig. 2. Nail a piece 9ins. by  $10\frac{1}{2}$ ins. at the bottom (Fig. 3, A), between the two sides. Then fix the back portion, 9ins. by  $10\frac{1}{2}$ ins. (B), which should rest on the bottom piece (A).

Next, firmly nail in the top section (C), which measures 9ins. by  $4\frac{1}{4}$ ins. Then insert the front piece 9ins. by 2ins. (D).

The lid (E) measures 9ins. by  $12\frac{1}{2}$ ins. It requires two hinges; but before fixing them, the top edge of the lid must be bevelled, so that the lid will close easily at the correct angle.

The holder for the small shovel is at the back (F). Make it as in Fig. 3, and attach it to the scuttle with  $1\frac{1}{4}$ in. screws. Use 1in.

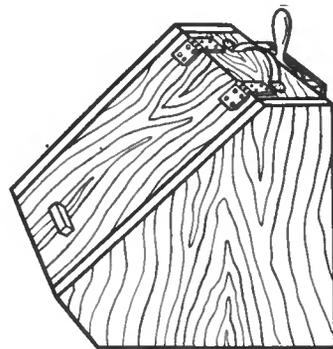


Fig. 1—The coal scuttle.

square stripwood 7ins. long for the two sides of the holder, and a piece of 3-ply 7ins. by 7ins. for the back. If, however, a large shovel is to be used, you will need to alter the size of the holder accordingly.

As a handle to lift the lid, nail on a 2ins. long strip of 1in. square wood. Place it about  $3\frac{1}{4}$ ins. from the front edge.

After glasspapering the scuttle throughout, give it a coat of dark oak varnish-stain. When dry, screw a strong metal handle on the top section for carrying purposes.

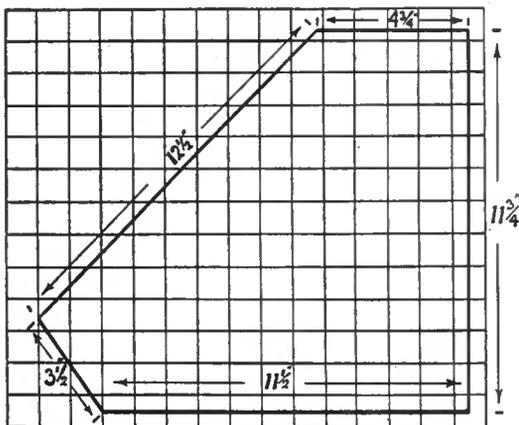


Fig. 2—Side piece. Each square equals 1in.

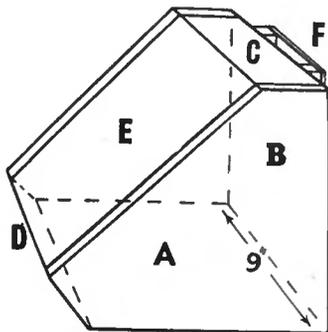


Fig. 3—Sections.

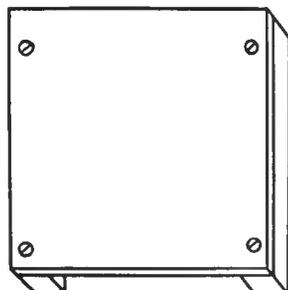


Fig. 4—Shovel holder.

## 'Holiday' Photo Frame

**M**AKE this novel and attractive photograph frame especially for your favourite holiday snap. The cut-out overlay is designed to give a holiday atmosphere.

Cut out the back piece (A) from  $\frac{1}{4}$ in. wood. It is shown full size on the pattern page and has only to be extended to the overall height of  $8\frac{1}{4}$ ins. The overlay of the sailing boat is of  $\frac{1}{8}$ in. wood, or can be cut from sheet copper or aluminium if obtainable.

### Patterns are on Page 335

The diagram on the pattern page shows how the glass is held in place. Cut pieces of  $\frac{1}{8}$ in. wood and mitre round behind the opening in piece (A). These pieces, two of (C) and two of (D) are  $6\frac{1}{4}$ ins. and  $4\frac{1}{4}$ ins. long respectively. They are  $\frac{3}{8}$ in. wide. When mitred round they leave a  $\frac{1}{8}$ in. rebate around the picture opening into which the glass is fitted. After the glass and picture have been placed in position, the back is covered with thin plywood or cardboard (E) which is tacked in place.



The overlay is glued or pinned on the front and the back, fitted with a strut which can consist of a wedge of  $\frac{1}{4}$ in. wood. Finish off by wax polishing the frame or by painting with high gloss enamel. (M.p.)

Hit the target with this

# SPACE ROCKET TO THE MOON



Designed by  
**T. S. Richmond Jr**

**T**HIS is an ideal project for the young toy maker and provides plenty of fun for a 'space-minded' boy. A lightweight rocket constructed round a table tennis ball is shot from an elastic-powered control tower towards a balloon target suspended from the ceiling. The player has to knock the balloon out of its 'orbit' (Fig. 3) to score a direct landing on the 'Moon'!

Fig. 1 gives elevation and side views of the tower. Start by cutting the 4ins. square base (A) from  $\frac{1}{4}$ in. or  $\frac{1}{2}$ in. wood. From  $\frac{3}{4}$ in. wood cut the 2ins. square block (B). This is glued and nailed to the base. Next draw the side support (C) and cut two from  $\frac{3}{8}$ in. plywood, not forgetting the slot along which the plunger piece (E) slides. This piece is  $\frac{1}{4}$ in. plywood, and has a strengthening block (F) glued to it. This assembly has a hole drilled centrally through, to which the plunger rod is firmly glued. The dowel rod is 7ins. long. A screw-eye or staple is fixed to the inside of each side support as shown, and the sides then screwed to the block (B). The plunger assembly is placed in position, and twin rubber bands passed around the staples and piece (E). A round top piece (D), which is cut from  $\frac{1}{4}$ in. wood and is 3ins. in diameter, has slots cut in it, so that it can be jointed firmly to the supports (C).

Two discarded cotton reels are glued together, and are screwed centrally over the hole drilled in the disc (D), through which the plunger rod passes. When the plunger assembly is found to be working smoothly, the disc with its cotton reel muzzle may be glued in position. Cycle inner-tube rubber may be used for power, and should be untied before

painting the toy. 'Size' well and give two coats of bright enamel paint, or silver lacquer. The plunger rod is best left unpainted, however. A cork or small rubber ball is glued on the end of the plunger rod for striking the celluloid ball used in the construction of the rocket. A short length of cord with a length of dowel or a small knob for a handle may be looped around the plunger assembly for releasing piece (E) from the notched sides when firing the rocket.

## The Rocket

From thin cardboard (about post-card thickness) cut out the shape given in Fig. 2 and rule off the positions for the fins. The shape of the fin is copied on to card and used as a template for marking out the three fins required. These are cut from thin card, bent along one edge, and glued to the rectangle, which, in turn, is folded round and glued along the edges as shown, to form a tube. The table tennis ball is then glued in position to form a round nose for the rocket. Painting will stiffen the card, and a coating of silver lacquer looks effective. Any markings may be added as desired, using a fine brush.

● Continued on page 329

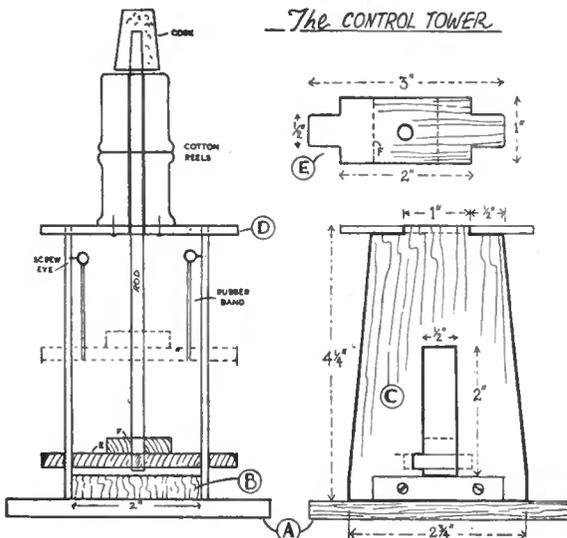


Fig. 1

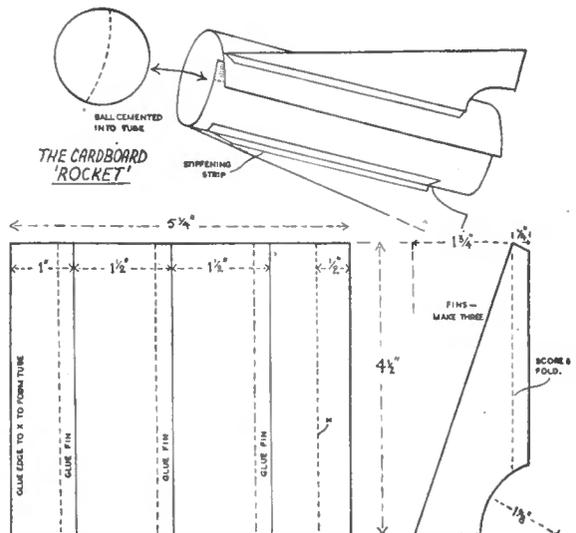


Fig. 2

# First Aid for Furniture

**S**OONER or later you are bound to come up against the problem of repairing broken furniture. This applies particularly to furniture that has been bought second-hand, or which has been in use for many years.

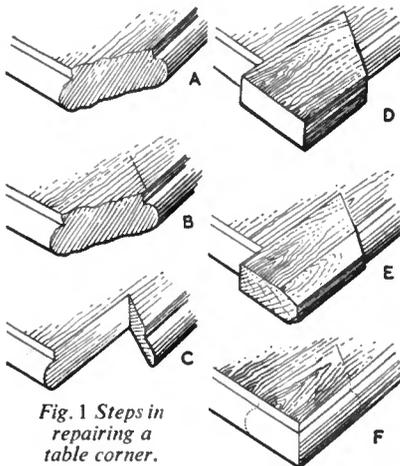


Fig. 1 Steps in repairing a table corner.

piece as at (C). Next prepare a wedge of wood of the same thickness as the table (D). The wedge should match the table exactly, or should be stained if necessary. It should be glued in place and held by cramps until dry.

Rough shape the wedge (E) with a smoothing plane and finish off with a beading plane. If you have no suitable plane the shape can be cut with a chisel. It will need careful working to avoid marking the rest of the table. The repaired corner should appear as at (F). Finish off by polishing. If you can strip the table top and repolish the whole thing, so much the better. The repair will then be almost invisible.

When a table leg is broken, the fracture is often very ragged and glue is not usually sufficient to effect a repair. The best method is to insert a long dowel. Owing to the difficulty of arriving at the centre on the jagged edge, it is easier to cut off the leg as shown in Fig. 2. Glue the two broken pieces together and run a piece of round rod or dowel right through as shown in Fig. 3. Use glue when assembling the joint and, preferably, make a shallow groove the whole length of the dowel to allow excess glue and air to escape. The finished joint will appear as in Fig. 4,

with only a faint trace of the old fracture showing.

In the case of a tapered leg, shown in Fig. 5 it would be possible to make a good joint by using a dowel, but, perhaps, the best method is to cut away the leg and add a new shaped piece as

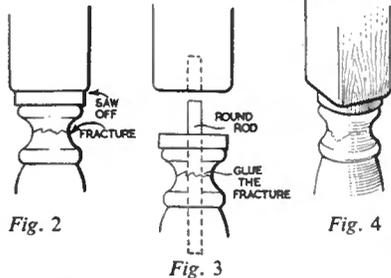


Fig. 2

Fig. 3

Fig. 4

Often you will find that the damage is due to woodworm. The worm activity, which may have gone unnoticed for years, has reduced the wood to a crumbling mass which breaks with the slightest strain.

If for example this has occurred in the leg of a chair it may be possible to replace the leg completely. If on the other hand the worm has attacked the rest of the chair it can usually be considered beyond repair. In any case there is little to be gained from trying to repair a leg which is badly attacked by woodworm.

In the case of a chair or table that has become accidentally damaged, it is easy to effect a good repair, providing the wood is in reasonable condition.

In the illustration in Fig. 1 (A) is shown the corner of a table needing repair. Mark off as shown at (B) and prepare to cut out with a sharp tenon saw. Make the right-hand cut first and then cut or chisel away the remaining

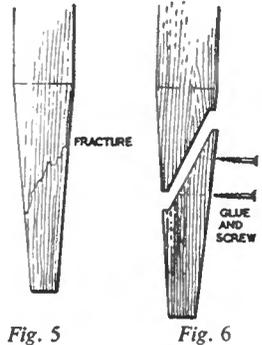


Fig. 5

Fig. 6

shown in Fig. 6. This should be glued in place and secured by two countersunk screws. Obviously the main essential is to make sure that the new piece fits exactly before attempting to glue and screw. Finish off by staining and polishing to match the rest of the leg. (M.H.)

Continued from page 328

## Moon Space Rocket

NOVEL 'MOON' TARGET

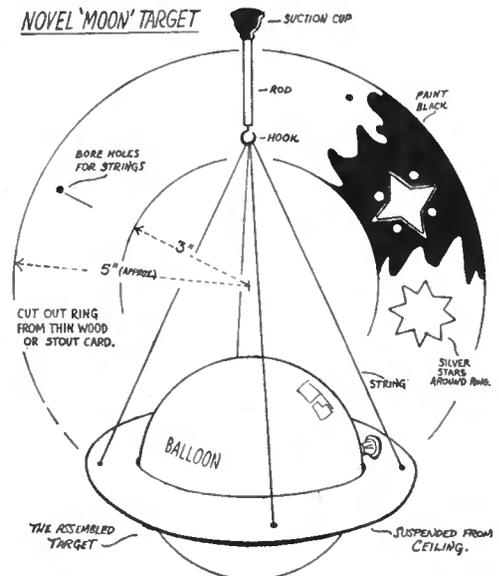


Fig. 3

When the toy is finished and working satisfactorily, you may wish to have a target to aim the rocket at, and Fig. 3 illustrates an ideal target which can be constructed simply from a cut-out circle of thin wood or cardboard, some lengths of string, and a rubber balloon. It can be hung from the ceiling, using a suction cup or ball of plasticine. The strings should allow room for the balloon to be knocked out of the ring, which may be painted black, with silver stars, either painted on cut from silver paper. (The disc cut out from the centre may be used as an extra round base for the control tower, as illustrated).

Happy landings!

## A neat finish

# Wooden Radiator Covers

THE average radiator is a hideous looking piece of furniture simply asking to be 'finished off'. This job can be done very neatly by making a fitted wooden top, on which a vase of flowers or other ornaments can be stood when the radiator is not in use.

A plain wooden box top will probably warp, unless suitably stress-relieved, but this is actually quite a simple matter to arrange. Wood itself is a fairly effective insulating material and with the temperatures reached by most domestic type radiators polished or painted surfaces will stand up quite satisfactorily.

No specific dimensions can be given, since each radiator top must be 'tailored' to fit individual units. The material used, however, should be  $\frac{1}{2}$  in. or  $\frac{3}{4}$  in. thick throughout, solid stock, not plywood. Veneering will not be suitable for finishing, so select wood of good grain and appearance which will take a satisfactory polish, unless you intend painting the finished job.

### A snug fit

The frame is made first, dimensioned to fit snugly around the radiator. Aim to make it a loose rather than a tight fit. The depth of the frame should be 4 ins. to 6 ins., depending on the overall size and height of the radiator, and simple contouring of the bottom edges should be employed to improve the appearance. Corner joints should be mitred and bonded with a modern thermo-setting adhesive like Aerolite, One-Shot Cascamite, etc. They can also be pinned for additional strength, if preferred, but a resin adhesive will give all the strength required if properly made up and the joints clamped whilst setting. Be particularly careful to get the assembled frame square.

The false top is then cut to fit exactly the inside of the frame. The top proper is cut from similar thickness material but  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. bigger all round. Edges of the top proper are chamfered off or planed concave to improve the appearance—Fig. 1. Both the top pieces should be cut from true flat stock. The grain appearance on the false top is not important, since this part will not show.

By R. H. Warring

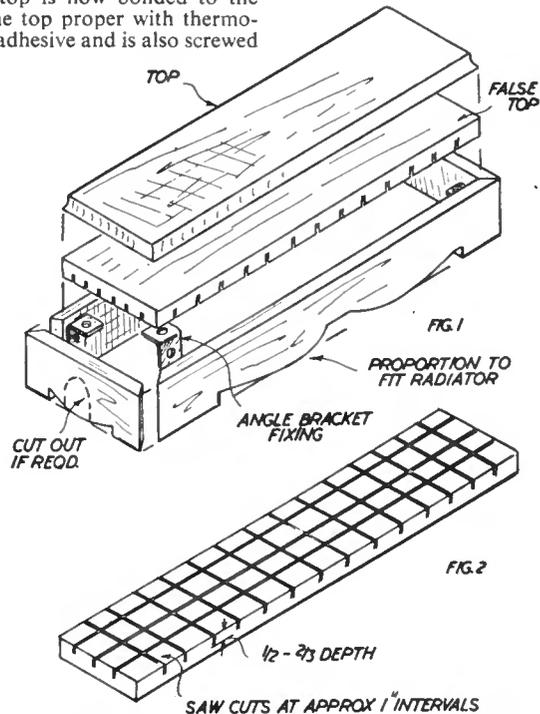
The false top is then stress-relieved by saw slitting, criss-cross fashion, as detailed in Fig. 2. Depth of these saw cuts should be  $\frac{1}{2}$  to  $\frac{2}{3}$  of the total thickness of the material. This job can be done quite satisfactorily with a hand-saw, provided care is taken, but a power saw does, of course, make for faster work and consistent depth of slotting.

The false top is now bonded to the bottom of the top proper with thermo-setting resin adhesive and is also screwed

together whilst setting.

The top assembly is finally anchored to the frame by means of four metal angle brackets. Fit the brackets to the inside of the frame first at a height, such that the edge of the false top comes just above the top edge of the frame. Then anchor the top to the frame with screws. In a long unit two or four more brackets can be used to advantage along the length for additional support.

The completed top is then finished by



in place, from the underside. Make sure that you choose a screw length less than the total thickness of the two top pieces. Check also that the jointing is done over a true surface, so that the laminated top comes out perfectly flat. If screws are used as well as glue, there is no need to clamp these two pieces

staining and polishing, or painting, as preferred. Provided the initial fits are good ones and the assembly is true and correct, there should be no warping tendencies when exposed to the continual heat from a normal radiator. With a painted finish, too, it is not necessary to use a heat resisting paint.

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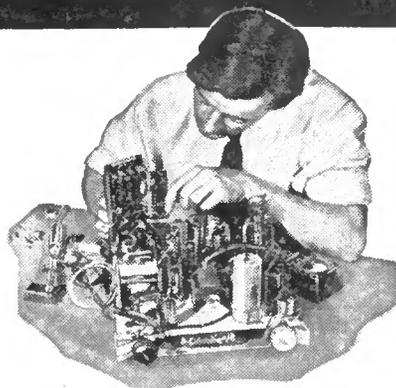
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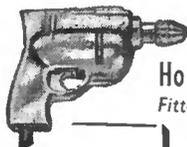
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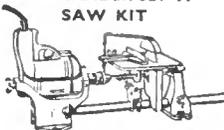
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# More Random Recipes

**R**EADERS who have damson trees in their area will often have noticed large drops of what appears to be resin oozing from the branches. This exudate is, in fact, a mixture of gums and can make an effective substitute for gum arabic.

To make an 'office' mucilage with it the only cost involved is a fraction of a penny for phenol to preserve it. Break off a quantity of the gum from the trees and if any is soft enough to yield to finger pressure, set it aside to dry out hard. Remove bits of bark from the hard pieces and soak 25 grams of it in 90 c.c. water, stirring occasionally. When you have a syrupy liquid containing semi-transparent insoluble matter, squeeze the liquid through cotton, rejecting the insoluble matter.

Next dissolve 1 gram phenol in 10 c.c. warm water and stir it into the mucilage, which is then ready for use. When weighing the solid phenol, take care that none comes in contact with the skin, for it raises blisters if not immediately washed off with water. It is harmless when dissolved in the gum.

**TRAINING EMBROCATION**—Athletes may welcome an embrocation to prevent muscle stiffness after training. Simply shake together until clear a mixture of 4 volumes olive oil, 2 volumes castor oil, 1 volume pine oil and 1 volume oil of turpentine (NOT turpentine substitute).

**BLACK BOOT POLISH**—A super cheap polish and which is easiness itself to turn out contains only paraffin wax (candle ends will do), turpentine substitute and finely powdered charcoal. If you make your own charcoal, the only outlay will be on the turpentine substitute and the polish will cost only about one-sixth the price of similar bought polish.

Melt 1½ ounces wax in a water-bath (removing the wick fragments if you use candle ends), turn out the flame and stir in 2½ fluid ounces turpentine substitute. Remove the vessel from the bath and when the liquid is cooler but not set, stir in ½ ounce charcoal. Keep on stirring until pasty to prevent the charcoal settling.

**FURNITURE CREAM**—To make a good polishing cream first melt in a water-bath 18 grams beeswax and 8 grams stearic acid. Then add 4.5 c.c. triethanolamine. When the mixture lies at a temperature of 90 degrees Centigrade, stir in a little at a time 80 c.c. white spirit (turpentine substitute). As white spirit is inflammable, take care not to spill any down the side of the water-bath or on the bench close to the flame.

The best way of running it in is to hold a glass rod against the spout of the beaker from which you are pouring. The spirit will then run safely down the rod into the vessel in the bath.

When the temperature is again at 90 degrees, run in, in a thin stream, 200 c.c. of boiling water, stirring rapidly. An even milky emulsion soon forms. Now remove the vessel from the bath and continue stirring until lukewarm, when the cream may be bottled. From the addition of the boiling water to the lukewarm stage stirring must be con-

**L.A.F. describes some more  
handy recipes from which  
readers can make up at home  
their own preparations**

tinuous. It is essential, too, that the water in the bath be briskly boiling and that it comes well up the sides of the mixing vessel. Otherwise lumps separate; these, however, can be incorporated by sinking the vessel farther into the water-bath.

**INSTANTANEOUS LEATHER POLISH**—The brilliant black polish we sometimes see on leather harness can be achieved on bags and straps by the use of the following recipe. As the product is simply painted on, no 'elbow grease' is necessary. In 100 c.c. technical grade methyl alcohol contained in a bottle, place 2 grams shellac, 0.5 gram rosin, and 0.25 gram camphor. Shake occasionally until all the solids have dissolved. Next grind 1 gram of spirit soluble Nigrosine into a thin slurry with a few c.c. of methyl alcohol, add it to the main mixture and shake until it has also dissolved. The polish is then ready.

**MOUSTACHE POMADE**—Older readers or military men may welcome the recipe for the genuine Hungarian moustache-stiffening pomade. 30 grams beeswax are melted in a water-bath, 20 grams Castile soap powder added and then a hot solution of 7 grams gum arabic in 13 c.c. water, the whole well stirred and finally 60 c.c. hot rose water stirred in. Beat well and, after removing from the water-bath, work in 1 c.c. oil of bergamot.

**STAIN ABSORBING CREAM**—Grease stains which are proving tedious to re-

move with the usual grease solvents will often yield to this cream. Simply mix magnesium oxide (magnesia) with enough benzene to form a thick slurry. Smear some of this over the stain, place a piece of unpainted metal above and below and weight lightly. Leave the garment aside for a couple of hours. The benzene dissolves the grease and the solution is absorbed by the magnesia. The benzene then evaporates, leaving the grease in the magnesia, which, having now become powdery again, can be easily brushed off.

**GLASS POLISHING CLOTHS**—These are useful for giving a high lustre to glass. They are simplicity itself to make. Dissolve 1 ounce Castile soap and 1 fluid ounce glycerine in a quart of hot water. Into this dip squares of cotton cloth, wring out and allow to dry.

**LANOLINE SKIN CREAM**—This cosmetic is an excellent skin food. Melt together in a water-bath 16 grams each of anhydrous lanoline B.P. and white petroleum jelly B.P. Stir in 24 c.c. glycerine B.P. and 1.5 c.c. oil of lavender B.P. After a few minutes remove from the bath and stir well until cool enough to pour into jars.

**MILD-SMELLING NAIL VARNISH REMOVER**—Those who object to the strong pear drop smell of ordinary removers will take to this formula. Simply mix 20 c.c. ethylene glycol monomethyl ether (also known as methyl cellosolve) with 1 c.c. castor oil. Perfume oil may be added if desired. (L.A.F.)

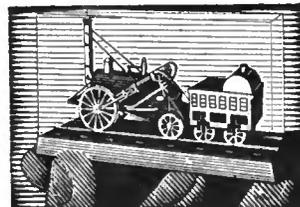
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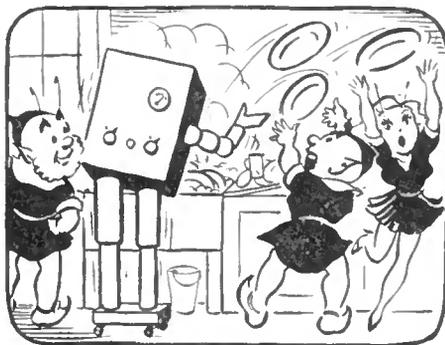
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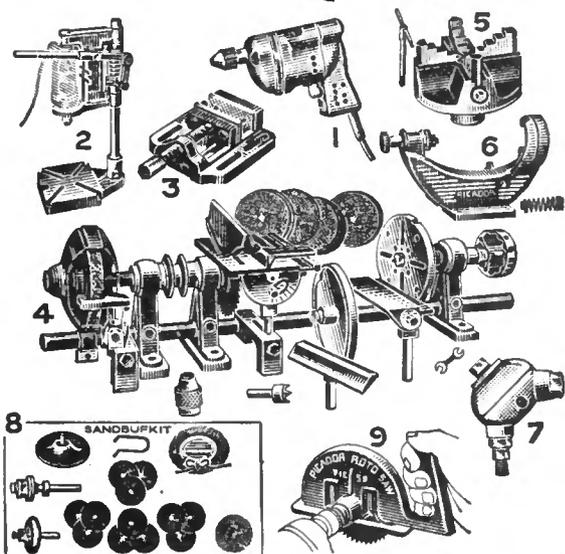
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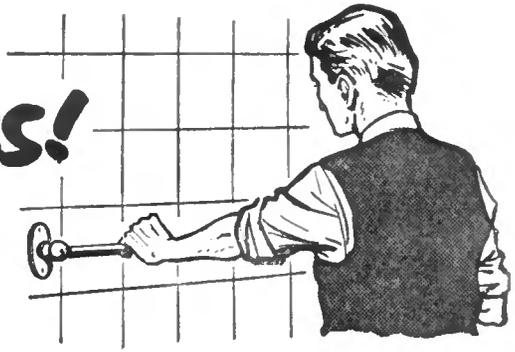
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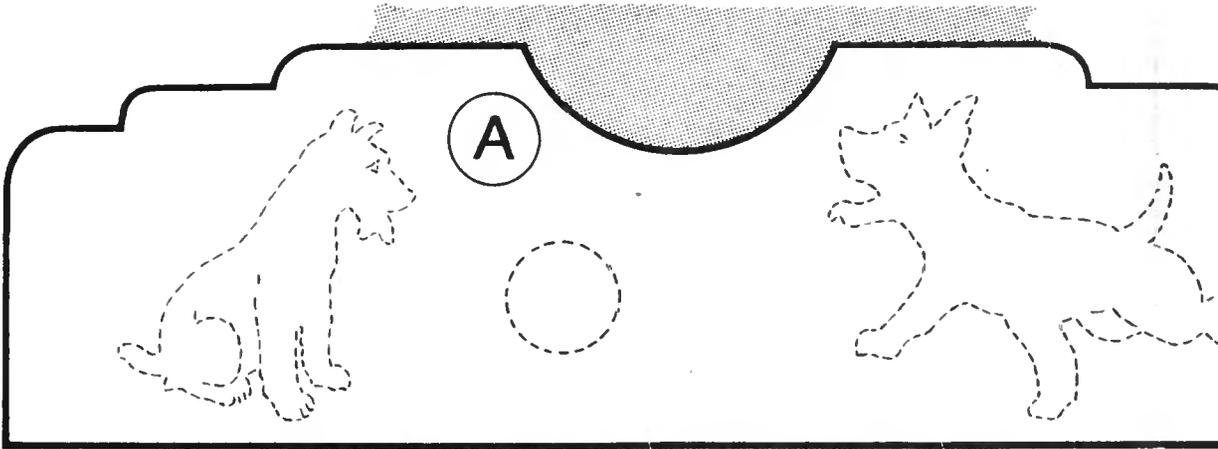
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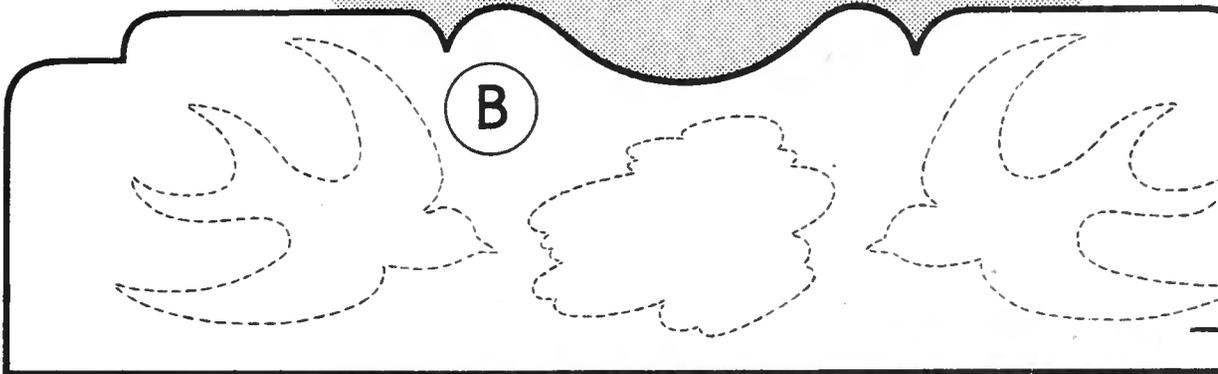
Obtainable only from

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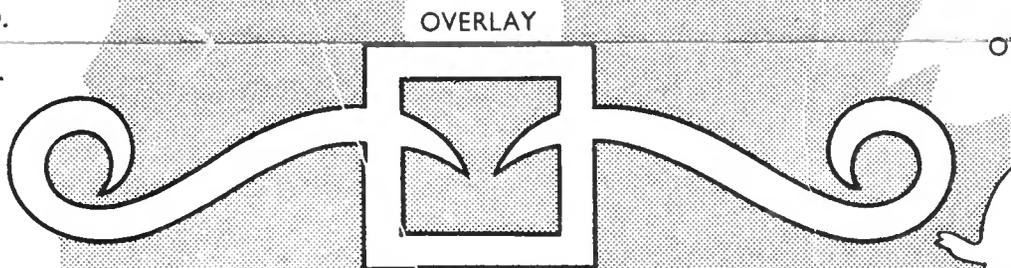


OVERLAYS.  
CUT FROM  
1/8in. WOOD.

THE ARROWS INDICATE  
DIRECTION OF GRAIN  
OF WOOD.



A, B, C AND D.  
CUT FROM  
1/8in. WOOD.



SIZE:—  
7 $\frac{1}{8}$ ins. WIDE.



DESIGN

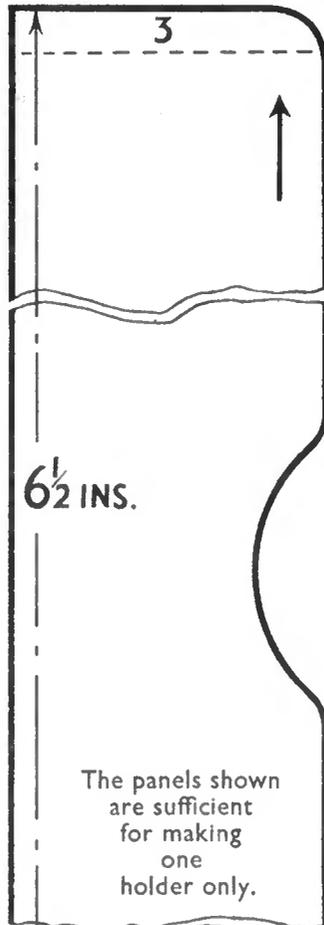
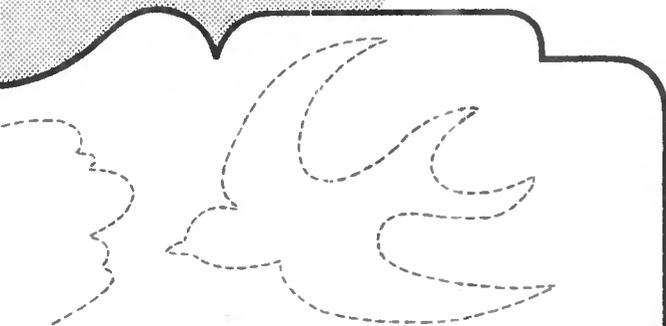
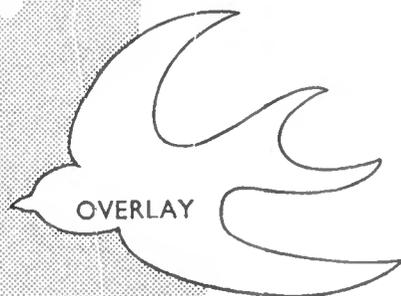
No.  
3148

## A NOVEL CLOTHES BRUSH AND HOLDER

(WITH FOUR ALTERNATIVE DESIGNS)



ARROWS INDICATE  
DIRECTION OF GRAIN  
OF WOOD.



The panels shown  
are sufficient  
for making  
one  
holder only.

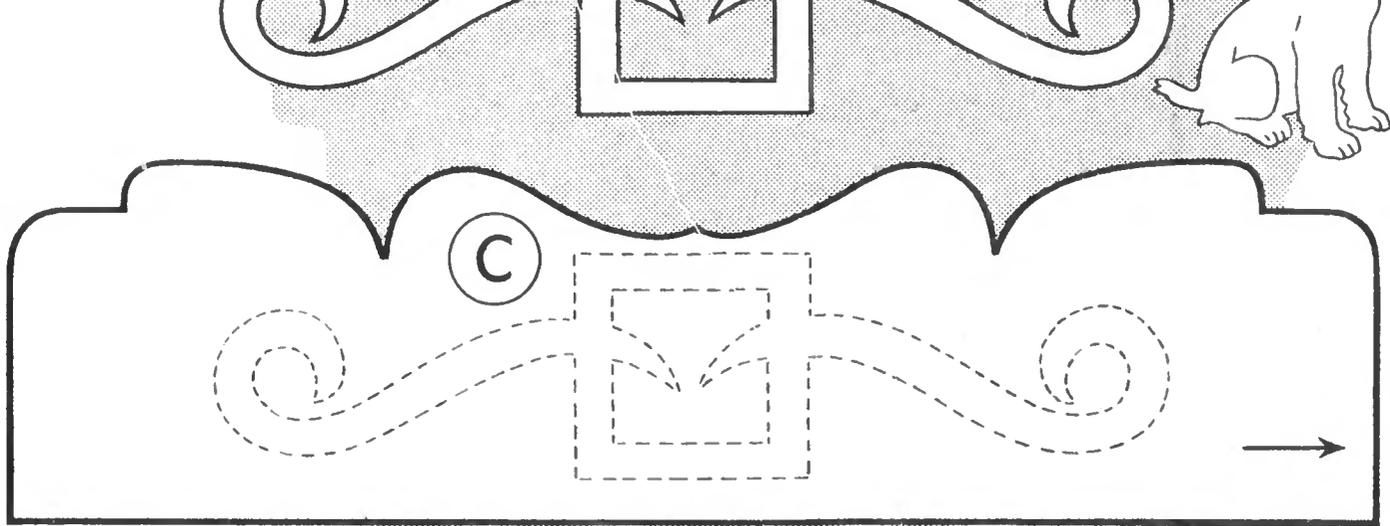
BACK 1. CUT ONE  
1/4in.

*Materials Required for this Design*

**ONE G2 ONE G4**

*A complete kit of the above materials can be obtained  
from*

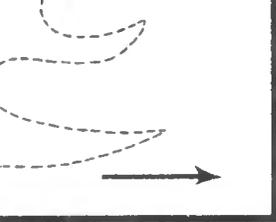
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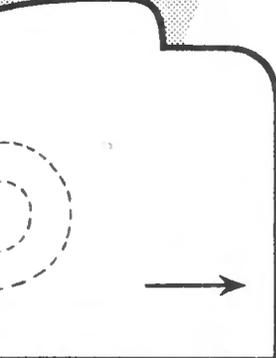
*Clothes Brush*

OVERLAY

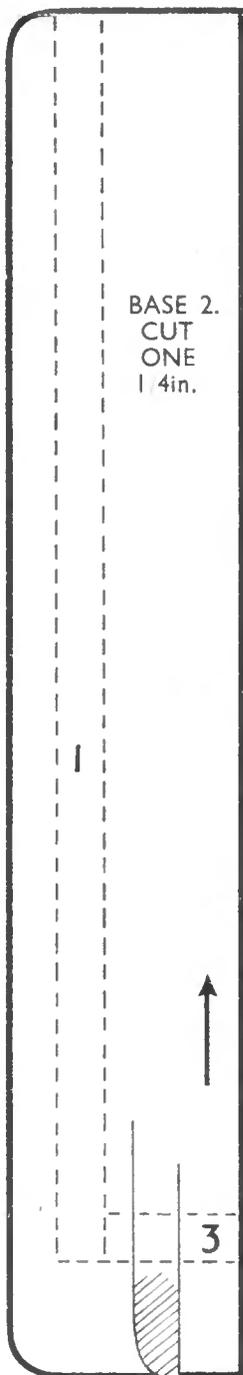
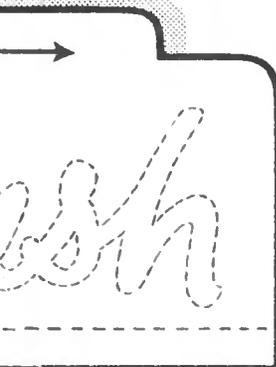




BACK 1. CUT ONE  
1/4in.



sh



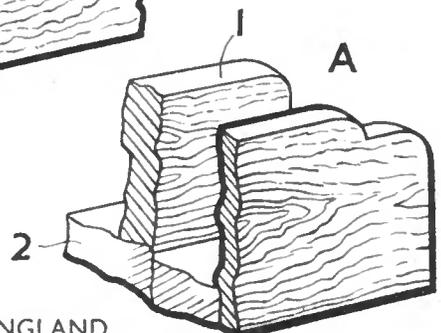
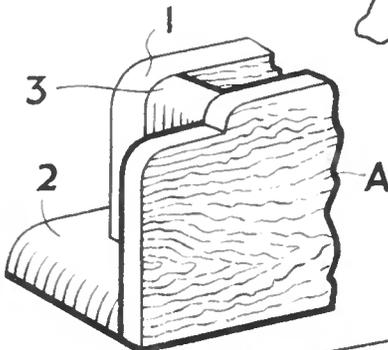
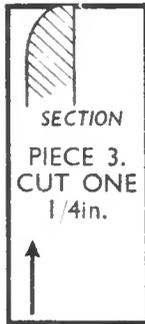
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