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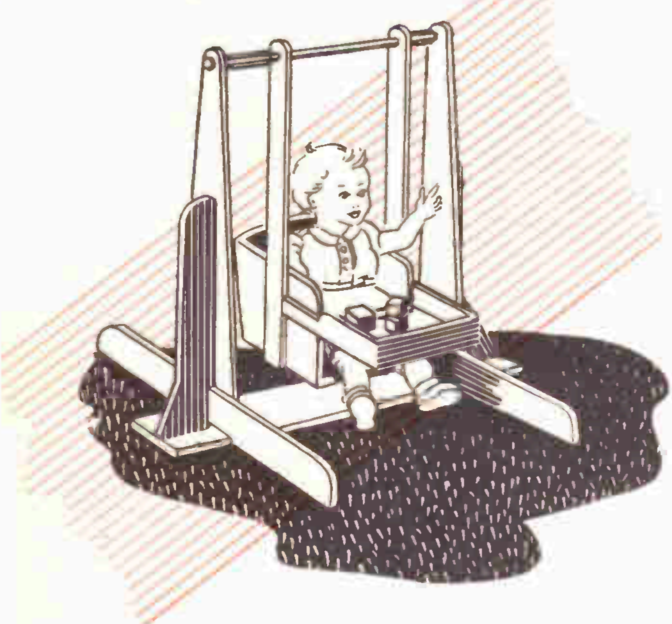
IN THIS ISSUE

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



Keep your youngster happy—make this . . .

SWING CHAIR FOR A BABY

BABY can enjoy an occasional swing and also play safely with bricks and toys in the tray provided in this novel swing chair. If suitably painted it can be used outside on the lawn as well as indoors. It is sturdily constructed and the wide base eliminates any danger of turning over.

The parts are all cut from ⅜in. wood and the main measurements are shown in the various diagrams. You will see that there is plenty of scope for improvisation, so that any wood you have in stock may be used economically.

Commence by making the uprights (A) and (B). Glue and screw them together, remembering that there are slots in pieces (B) to take the cross members (C). Next glue (C) in position and then the cross piece (N) (Figs. 1 and 2).

The chair and tray (Figs. 3 and 4) are next made up and the tray screwed to the chair as shown in Fig. 3. Note that piece (K) which is the strengthening bar in the tray, also acts as a stop, resting on the projecting portions of pieces (F) of the chair.

The chair and tray are suspended from the rod (M) by means of the arms (D). These are screwed securely to the

FOR ALL HOME CRAFTSMEN

Over 60 years of 'Do-it-Yourself'

4½D

sides of the chair in the position shown in Fig. 3. The length of (D) depends upon the age of the child. They should be long enough to keep the feet off the ground.

The rod (M) should be ½in. diameter metal and may be threaded at each end to take a nut and washer. Before fixing, insert two lengths of garden hose to act as stops, preventing the swing chair from moving sideways.

Clean up well with glasspaper and give a coat of wood preservative such as Rentokil before applying two coats of paint. Where children are concerned it is preferable to use a synthetic paint rather than one with a lead base. (M.h.)

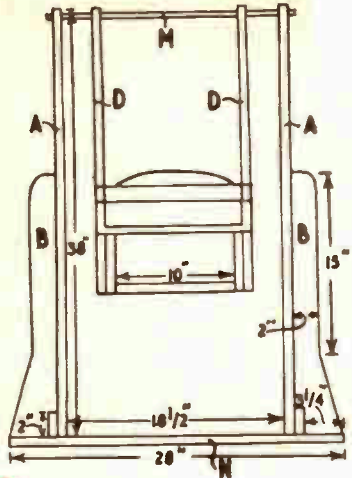
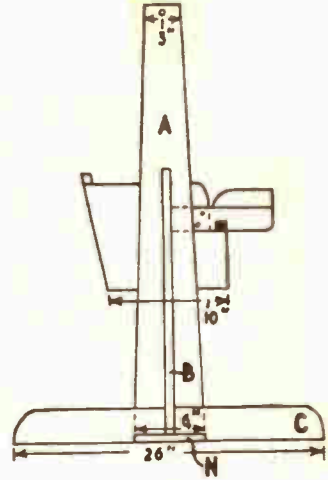


Fig. 1



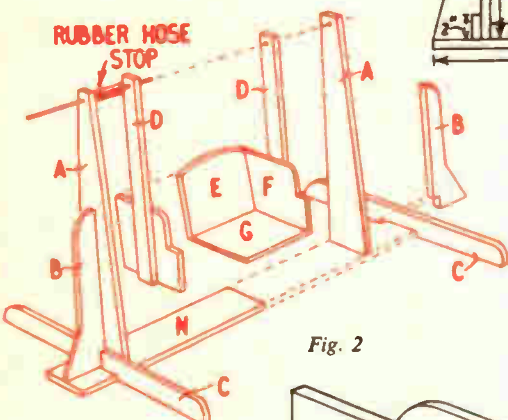


Fig. 2

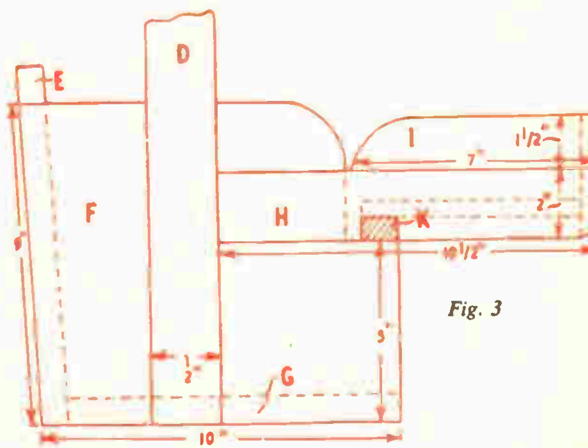


Fig. 3

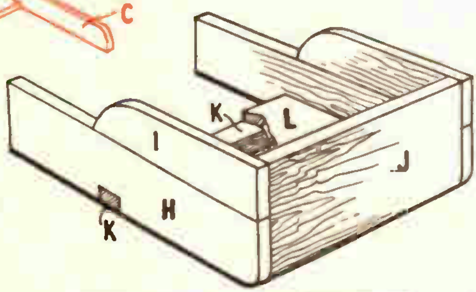


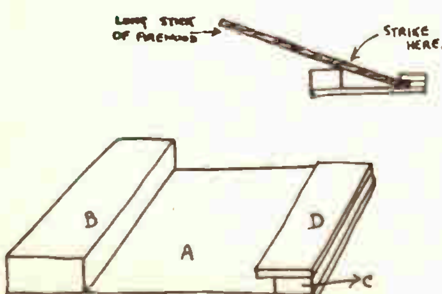
Fig. 4

Firewood Chopping Block

CHOPPING long lengths of firewood into smaller lengths can prove difficult — even risky. This simply constructed chopping board supplies a handy solution to the problem.

Nail a block (B) to the end of a base (A) and a smaller block (C) to the other end of the base. On top of block (C) nail or screw a strip (D) to give an overhanging edge on the inner side, as shown in the diagram.

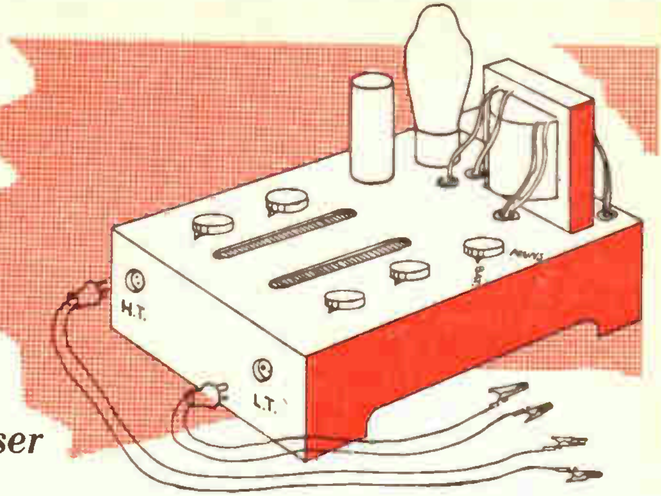
To use the chopping board insert the stick of firewood under the ledge made by (D), resting the remainder of the stick against block (B). Chop the stick where it rests against (B). (W.J.S.)



1958 Competition

April 30th is the last day for receiving entries in Hobbies £200 Fretwork Competition. Make sure your model is received at Dereham, Norfolk, in good time. Remember, there are a host of valuable prizes and entry is free.

A VERSATILE POWER UNIT



By
A. Fraser

A PRIMARY concern of all radio constructors is a source of power supply. Each set demands its own particular power supply, and so one's requirements vary from set to set. Some are battery fed, others are mains fed, and the voltages vary. Many constructors often fancy building this or that set, but are loath to undertake the expense of the power supply merely for experimental work.

The answer here is to build a permanent bench source of power supply that will to a considerable degree supply any set that the constructor might wish to build and try out experimentally.

The unit described here will supply voltages from 45 to 200 at up to 60 mA. Heater voltages can be 6·3 volts at 2 amps, or 2 volts or 1·4 volts. It can be seen that most sets from battery types to domestic mains types can be supplied by the unit. It can be used for experimental purposes, but also for emergencies if the domestic set has a breakdown in its power supply. It is also useful for testing sets that have gone 'dead'.

The cost will be in the region of £2 10s. 0d. but the usefulness of the unit will more than repay the experimenter.

The size of the unit depends on the components used, but in any case it should not exceed say 9ins. by 6ins. by 2½–3ins. for the chassis itself.

The chassis can be made of plywood or aluminium. In the latter case, it is very important to insulate the negative line of the high tension section. This is necessary because some battery sets, such as the conventional four valve superhet 1·4 volt type, connect the H.T. negative to chassis only through a resistor for bias purposes. If the H.T. negative were earthed to chassis, the bias resistor would thus be shorted and no bias would result. So take care to keep the negative H.T. line insulated. Where the electrolytic smoothing condenser (E) has the outside of the can as negative, then this should not be allowed contact with the chassis (if this is aluminium). Mount the condenser instead on a strip of paxolin bolted to the chassis.

COMPONENTS LIST

Mains transformer, 250 volt 60mA. 6·3 volt 2A, 5 volt 2A. (11/9) (a)
Rectifier valve 5Z4G
E, 32–32mfds. 350 volt working.
J, metal rectifier, 6/12 volt. 1A. F.W. (Bridge) (4/11) (a)
K,K, 6,000 mfds. 6 volt working. (5/6) (a) or 1,000–2,000 mfds.
S, 4 pole, 2 way switch.
F. on/off toggle switch.
Wire-wound potentiometers 3–5 watt:
A (15K), B (100K), C (20), D (100)
Wire-wound resistor, 5 watt:
R (1·5K)
H.T. and L.T. battery socket strips.
H.T. and L.T. battery plugs.
4 Crocodile clips.

(a) Radio Supply, 32 The Calls, Leeds 2.

It should be made certain, also, that the variable resistors (A) and (B) do not earth themselves through the shaft.

To the doubtful, the best way out is to make the whole chassis of plywood or at least the top deck of plywood or paxolin. This will guarantee insulation of the H.T. line.

A complete list of parts required is given separately in the article, and it is best to procure these first before making the chassis, setting them out experimentally to ascertain suitable dimensions.

Note that there are slots cut out in the deck of the chassis, adjacent to the variable controls, as well as a section cut out along the bottom of each long side of the chassis. These are for ventilation, for some heat is given off by the resistances.

The small holes (P), (Q), (R), (M), can be ⅜in. diameter, while the cut for the valveholder should be 1⅛ins. Smoothing condenser cans (E) are generally 1⅜ins. diameter. The holes for the controls should be ⅜in.

The wiring up of the unit should be clear and straightforward from the diagrams, but some observations can be made to help the constructor.

First, H.T. section. The mains transformer has two 250 volt secondary leads, but only one of these is used, the other being ignored. It is passed through the chassis at (P) to join tags 6 and 4 on the valveholder. The (O) volt lead goes through hole (Q) to connect with the outer case of the condenser (E). A soldering tag can be placed under the bolt of the condenser can clip for this purpose. Where the negative pole is not the outer case, but a special tag near the positive tags of the condenser, then the (O) volt lead should be taken to this

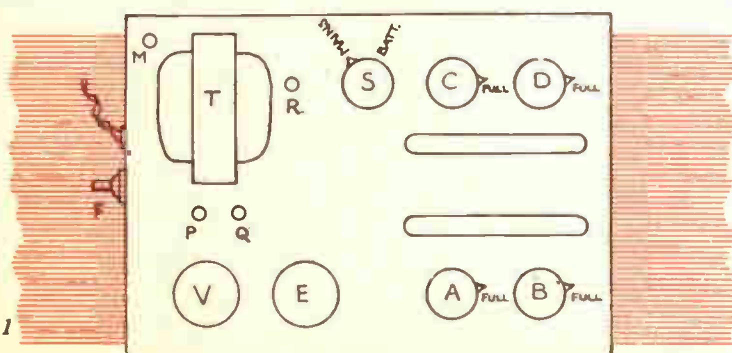


Fig. 1

point. Whichever is the case, join from this point to the negative socket on the end of the chassis.

The tags 8 and 2 are joined to the 5 volt leads of the transformer.

Now turn to the L.T. section. First find the two 6·3 volt leads on the transformer and pass these through the chassis at (R). Then connect them to the centre tags of the switch as shown in Fig. 2. The other centre tags are taken straight to the L.T. socket on the end of the chassis. Take care the right tag goes to the right socket.

The switch connections (outer tags) must be carefully followed, and one must be sure to get the connections to the metal rectifier (J) correct. The input tags are generally green or yellow, while the output tags are usually red for positive to the positive tag of the electrolytic (K), with black for connection to the negative case of the condenser.

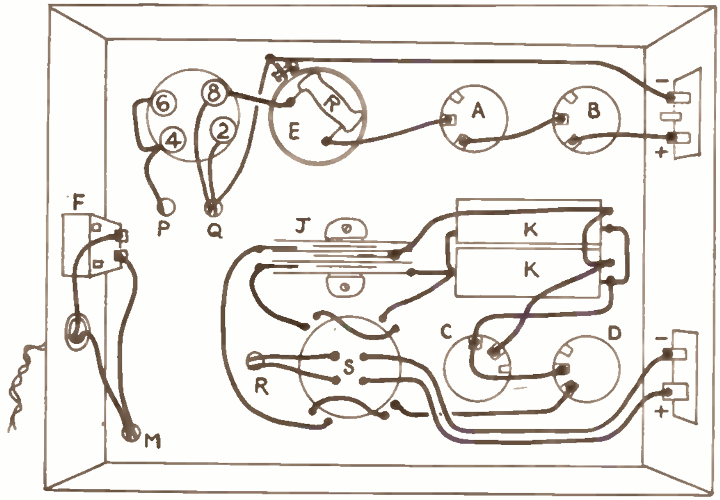


Fig. 2

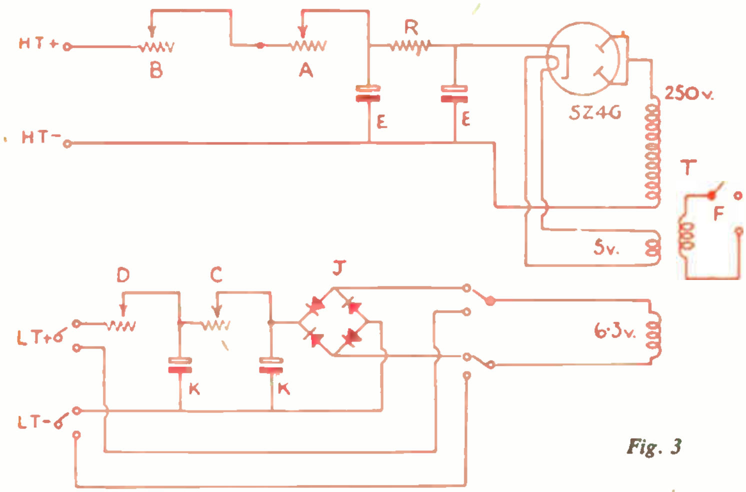


Fig. 3

The operation of the unit can now be described. The L.T. will be dealt with first and we assume a battery set is to be supplied, for example, a four valve 1·4 volt type.

Clip on the crocodile clips to their appropriate points in the set, taking care to avoid any accidental short circuit of the positive clip. To the same points attach the leads of a high resistance meter set to the 3 volt range. This is to measure 1·4 volts correctly.

Switch off toggle (F), and plug in at the mains. (Unit plugged in, but switched off.)

Turn switch (S) clockwise to second position, which switches to rectifier (J).

Turn controls (C) and (D) fully clockwise so that full resistance is engaged.

Switch on the unit at toggle (F).

Correct setting

Slowly rotate knob (D) anti-clockwise and watch the meter reading. If the knob comes to a stop with the meter reading still inadequate, then start rotating knob (C) anti-clockwise very slowly. When the meter registers about 1·35 volts then this is a correct setting.

This point can be marked and a note made as to the type of set it covers. This will be useful for future reference, so that the unit can be set into operation without recourse to the meter.

The same procedure is adopted for all battery sets, using the meter to get the correct setting for the necessary voltage, and then noting the exact spot and the exact type of set. Each spot can be numbered and a card index employed, indicating the types of set covered.

The H.T. section for battery operation comes next. For this, the heaters of valves in the set must be in operation, either by battery or from the unit.

● Continued on page 437

The electrolytics (K,K) shown in the diagram were 1,000+2,000 types. They were connected together at the bottom of each can for the negative pole. The 1,000 mfds. tags of both cans were joined to form a 2,000 mfds. first positive pole, while the 2,000 mfds. tags were treated similarly to produce a 4,000 mfds. second positive pole. This latter is joined to the left outer tag of variable resistor (C), as shown.

Two condensers

Instead of this method, one could use two separate single condensers of 3,000 mfds. or 6,000 mfds. each (the bigger value is better). In this case, one would have only to deal with two single positive poles, one pole linking the rectifier positive to the centre tag of the variable resistor, with the other pole going to the left-hand tag. The negative ends of the two condensers are joined, as before, and the black tag of the rectifier is linked to the switch, as shown.

It is essential to take great care in getting the wiring correct. Check as often as possible. See especially that the leads are correct to the appropriate tags of the H.T. and L.T. output sockets.

At the same time see that the leads are right with regard to the plug-in system. The plugs are the normal battery three pin for H.T. and two pin for L.T. With the L.T. the thick pin is the positive, while the H.T. plug has the positive pin on the right (looking at the pin bottoms with one pin below). Make the L.T. positive lead brown coloured and the negative green. The H.T. positive lead can be red and the negative black.

Labels are also recommended at the ends of the leads next to the crocodile clips, to avoid any chance of error.

Unusual and attractive

FLAT LEG TABLE

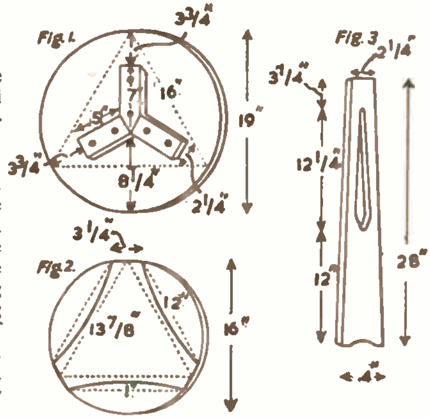
A LIGHT, useful and yet attractive table made of white pine and five ply wood, has three flat cut-out legs and a shaped shelf.

The round table top is 19ins. in diameter. A five ply wood is used, making this about ½in. thick. A simple system to draw the circle is to tie a pencil to a piece of string, looped at the other end, the overall length of the string from pencil to end of loop being 9½ins. Loop the string over a drawing pin or small nail inserted in the centre of the wood and swing the pencil around. This method will give a circle with a diameter of 19ins. The top is then easily sawn out. Smooth the edges with a glasspaper block.

A small strip of white pine ¾in. thick and 2¼ins. wide is needed for three leg supports; one 7ins. long with a mitred point and two pieces 5ins. long. Placing the table top upside down, mark out a triangle with 16in. sides, one point being at the centre top edge. A line should be drawn through the centre of the triangle from this top point. The 7in. piece of wood is laid 3¾ins. from this top point on the centre line. Fasten down to table top with two screws. The two smaller 5in. pieces are screwed down 3¾ins. from the two remaining points of the triangle and to jut against the mitred end of the 7in. piece as in Fig. 1.

For the shaped shelf first draw a circle 16ins. in diameter on the five ply wood. In this case the string will be 8ins. long. Within the circle mark a triangle with sides of 13⅞ins. At each triangle point draw a line on the edge of the circle 1⅝ins. each side of point, making the line 3¼ins. and saw along the line to make the flat side of the shelf for the leg. Draw lines connecting the outer points of the three flat sides. These lines should be 12ins. long. Now from the same outer points of the flat sides, draw a line curving 1in. at the centre from the 12in. line and ⅝in. from the original triangle as in Fig. 2. Saw along the curved lines with a fretsaw and smooth edges.

The three legs are 28ins. long and are cut from ½in. white pine. They are tapered from 2¼ins. at the top to 4ins. at the bottom. The very bottom of each leg is shaped with a scoop. Allow ¾in. at each side and curve the middle up to ½in. at the very centre. 3¼ins. from the top of the leg a drop-shaped hole is cut 12¼ins. long, using a fretsaw. This will bring the hole 12ins. up from the centre of the bottom scoop. The cut is ¼in. wide at the top and widens to 1½ins. and waved down to ¼in. It is advisable to draw a paper pattern of this drop-shaped hole and transfer to the legs.



By H. Mills

Drill a hole and saw out with the fretsaw as Fig. 3. Smooth the edges of the wood.

Insert a small screw-eye on the inside of each leg 10ins. up from the centre of the bottom leg scoop. These will hold the shelf.

The legs are next screwed to the top. Lay the table top once again upside down and fit the legs against the supports and screw on with 1½in. slight, countersunk screws, two screws to each leg.

With the table still inverted, slip the shelf under the screw-eyes on the legs and screw on with ½in. stout screws.

For a finish use a very small quantity of 'Bismark Brown Powder' mixed with a very small amount of water. Brush the stain well into all the wood of the table. Wipe off the surplus with a cloth and cover with a coat of size. To obtain a gloss apply a coat of varnish.

The table is of an unusual pattern and will stand firmly.

● Continued from page 436

VERSATILE POWER UNIT

Connect up the clips to the correct points in the set, also the meter (this time using the 150 volt range. Take precaution against accidental short circuit of the positive lead.

Switch off toggle (F) and plug in at the mains. Turn controls (A) and (B) fully clockwise. Switch on (F).

Slowly turn knob (B) anti-clockwise, watching the meter reading. If the voltage is still not high enough after (B) has come to a stop, then start turning knob (A) anti-clockwise slowly until the correct voltage is recorded.

Note the spots the knobs indicate and enter this and the type of set in the card index, for future reference.

For mains set operation, the switch (S) is turned anti-clockwise to its first position, to cut out the eliminator section and switch the output leads straight to the 6·3 volt winding of the transformer. The knobs (C) and (D) are ignored in this case.

With mains set operation, the H.T. section is as before, only in this case the knobs (A) and (B) will have to be turned fully anti-clockwise to give maximum voltage that mains sets need.

One last warning. Always turn off toggle (F) before plugging in to the mains. Always turn all knobs fully clockwise before switching on. This ensures minimum voltages at the outset, for safety. It would be disastrous to switch on with the knobs inadvertently turned to voltages far too high for the particular set under treatment.

PUZZLEPIC (See page 441)

This unusual angle photograph is of an electric lamp bulb.

Interesting and profitable

THE ART OF LETTERING

By A. F. Taylor

THE art of lettering is undoubtedly one of the most interesting hobbies and when tackled in the right manner can be a very profitable one too. Every shop in the country is in constant need of tickets and showcards, while the organizers of concerts, fetes and dances must inform the public by means of posters.

Lettering is soon learnt and proficiency is easily gained with a comparatively short amount of practice. There is no reason therefore why you should not prepare tickets and showcards for your local shopkeepers and get paid for doing it.

If you are not interested in the financial side then why not make a study of the different alphabets and their history, or make a collection of them? It is a most fascinating occupation and can keep you amused for a long time.

Very few tools and materials are needed to start with and a few extras can be obtained as you proceed with the work. It should be remembered however that it does not pay to buy cheap goods, even for practice. Good work cannot be turned out with inferior tools or material and the few pence extra is money well spent.

Ordinary drawing and cartridge paper can be obtained in various thicknesses and the light weight grade is suitable to start with and is quite cheap. Get a smooth surface paper or you may have trouble getting the colour to flow easily or evenly.

The same paper may also be used to make tickets or showcards by pasting it on to a suitable thickness of card. Blank tickets can be bought cut to size, but it is better to get large cards and cut them to the various sizes you will need. They are made in white, black and a wide range of gay colours.

You will need bottles of black and red ticket ink for use with pen or brush work. These can be added to later with pots of showcard paints in an assortment of colours if desired.

Lettering with a pen is much easier than brushwork and can also be executed much more quickly. The hints in this article therefore will be confined to pen-work. Having mastered this technique it will then be somewhat easier to use a brush.

There are several types of pen on the market, each of which is made for a particular job — different kinds of alphabets require different shaped pens. That shown in Fig. 1 is a ball point and is very suitable for starting with. Dip the pen in the ink and drain off any surplus on the edge of the bottle.

Keeping the working ball flat on the paper start off by doing the simple exercises in Fig. 2 and continue with each stroke until it comes easily, then pass on to the next. Join up the various strokes to form letters, and do these in several sizes. Allow the hand and fingers to move freely and try to form graceful shapes. A cramped, jerky movement of the hand will produce badly shaped letters and you will find it very tiring work.

Fig. 3 shows the order in which to do the strokes to form the letters. Practice doing these several times and continue with the alphabet. When making a letter which is formed with a straight stroke and then a curve like capital J and U or a small a, b, h, etc, you will find it easier to pause very slightly at the junction but do not take the pen off the paper. This will produce a better shaped letter, and is shown in Fig. 3 by a line at the junction.

We have just done the Gothic alphabet with a ball pen, now let us try another type which will produce a greater range, including the Roman and Text alphabets. With a square or oblique pointed pen it is possible to make both thick and thin strokes and anything between the two, whereas a ball point pen is capable of only one thickness.

The two pens shown in Fig. 4 will be found excellent for this style of lettering Both are by William Mitchell, (A) is a square point round hand pen which is made in several widths, while (B) is a

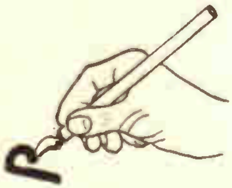


Fig. 1

Fig. 2

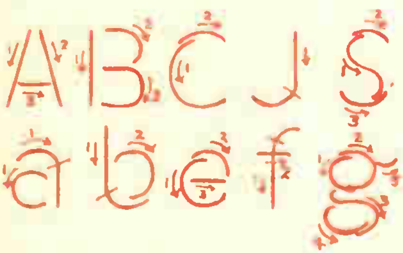


Fig. 3

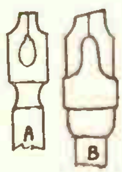


Fig. 4

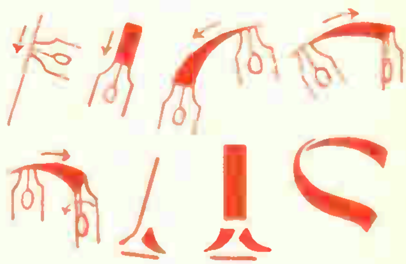


Fig. 5

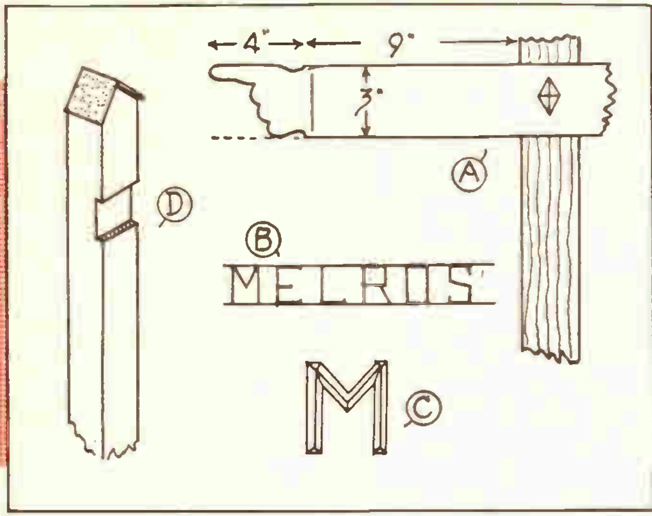
Fig. 6

● Continued on page 439

A DOUBLE NAMEPLATE

FOR semi-detached houses, especially those with long front gardens, the double nameplate is a real blessing. It saves the postman, tradesman, and visitors much time in searching and is by no means an unsightly addition to the houses. It should be erected as near the centre of the two houses as convenient, and the post should be just tall enough to suit the average person's line of vision.

By W. J. Ellson



At A a half view is given of the nameplate alone, the missing half being identical, with the hand of course pointing in the opposite direction. The length given will suit for most names in common use, but can be lengthened to allow for longer names.

Cut the plate to length, and of course, allow extra for the part attached to the post. For this, a suitable length of 2½in. sq. timber should serve. It will be noticed that the straight portions of the nameplate are for the actual names, the extra at each end for the hands. These can be drawn on paper and transferred through carbon paper to the wood. Only one hand needs drawing, and it should be transferred to the wood as drawn, the second hand being transferred through the paper, the latter being reversed. Both will then be symmetrical.

The names can be painted on in the usual way if the reader feels confident enough to make at least a passable result, otherwise the careful use of transfer lettering will give excellent results.

A good alternative is to cut the letters in the wood, using sharp chisels of suitable widths. Even a tyro can do a good job here, especially if he copies straight line letters instead of the more conventional type. An example of this form of lettering is shown at (B), and looks quite well.

Pencil in the lettering first, then cut with the chisel on the lines, pressing the tool inwards and at an angle of 45 degrees. Then cut on the inside of the lines, with the chisel at the opposite angle to remove triangular slips of wood to show the shape of the letter. Finish the ends neatly, the result being as at (C).

When lettering is finished, the nameplate can be stained and varnished, or painted. Paint in the lettering with white, or other coloured enamel, to bring into prominence. Any enamel creeping over the lettering to the plate should be removed as soon as possible with a scrap of cloth, moistened with turpentine.

When cutting the post, allow 2ft. extra for insertion in the ground, and well creosote below ground level against rotting. Cut a groove ¼in. deep, into which the nameplate can sink and screw the plate tightly in it. Bevel off each side of the top and cover with a piece of zinc, as at (D). Finally, to separate the two names fix in the centre a wood diamond, or similar decoration.

● Continued from page 438

Art of Lettering

wider version but with an oblique end and is called a poster pen.

To produce the thick and thin strokes the pen is held in certain positions as indicated in Fig. 5, which also shows the different strokes necessary to produce the letter. This will need a little more practice, but you will soon find it a good pen to use.

Modern newspapers and magazines contain a wide range of lettering of excellent quality, all of which can be copied. Start off with the easier alphabets and thoroughly master one before passing on to the next.

To make a ticket or poster look nice and attractive good letter spacing is essential. Good spacing is in fact more important than good lettering. Letters should not be spaced in mechanical fashion with an equal distance between them. Optical spacing is what is needed and you should study the work with half closed eyes. This will show up any defects and point out any extra large gaps or black spots.

To make printed matter appear pleasing the letters should be fitted together so that they read clearly. Avoid gaps between irregular shaped letters by fitting them closer together. Reference to the examples in Fig. 6 will explain this — equal spacing between the letters is shown at (A), while at (B) they have been optically spaced so that they *appear* equal.

Plenty of practice is the best way to thoroughly master this important branch of lettering. Try out all the letter combinations and keep rearranging them until you are satisfied with their appearance. The mistakes you make while practising will teach you quite a lot — more in fact than whole volumes of instruction.

SOLUTION TO CROSSWORD NO. 14 PUBLISHED LAST WEEK

Across: 3. Flog. 7. Radar. 8. Alas. 9. Stag. 10. Bismuth. 12. Soda. 15. Irish. 18. Coir. 19. Asses. 21. Arena. 22. Abet. 23. Helix. 26. Late. 29. Mutters. 30. Grim. 31. Wing. 32. Sneer. 33. Sash.

Down: 1. Rapid. 2. Marmion. 4. Laths. 5. Gags. 6. Bald. 9. Stir. 11. Uriah. 13. Oust. 14. Also. 16. Habit. 17. Fall. 18. Cent. 20. Sextant. 22. Alum. 24. Emits. 25. Green. 27. Apis. 28. Eggs.

High flyers these . . .

MAKE YOUR OWN KITE

THERE are several types of kites, ranging from the simple pegtop to the more ambitious box kite. When properly constructed they give hours of pleasure at little cost.

The pegtop

The best known, easy-to-make kite, is the pegtop pattern (Fig. 1). The backbone (A) is a 2ft. length of ½in. square stripwood. The bow (C) is formed from a 20in. piece of thin split cane or flexible wood. This is bent to a semi-circle, and held in that position by the bowstring (B). The centre of the bow is lashed to the top of the backbone with thin twine (X). Two strings (E) are run from the ends of the bow to the bottom of the backbone, thus completing the frame. These strings must not be too tight. It is advisable to notch the wooden frame where the strings are tied to it, to prevent them from slipping.

Cover the kite with coloured tissue paper, gummed to the frame, or preferably, fine linen or similar light cloth.

A piece of string (D), double the length of the kite, has its two ends tied to the backbone, one near each end.

The kite line is attached to this bridle, so that the upper arm is shorter than the lower. The best position at which to fix the line to the bridle will be found by practice in flying the kite. To enable quick adjustments to be made, the kite line is attached to the bridle with a reef knot and a bowline knot. The string tail is twice the length of the kite, and has a few twisted pieces of paper tied to it at intervals.

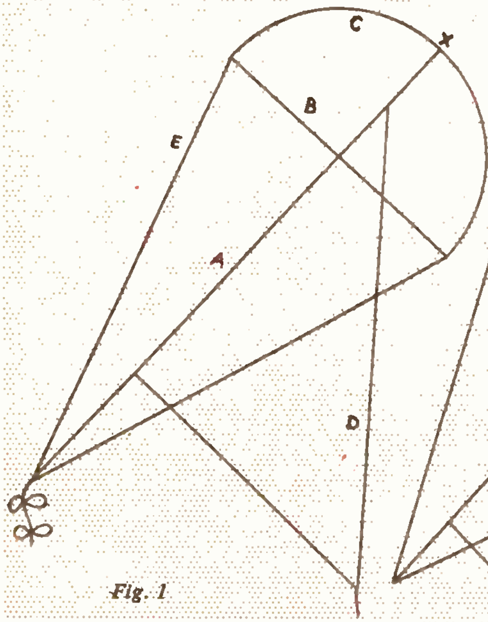


Fig. 1

The Eddy kite

The backbone (A) is a 2ft. length of ½in. square stripwood shown in Fig. 2. A piece of thin split cane or flexible wood, 2ft. long, forms the cross strut (B). These two are lashed together (X) in the form of a cross, 4½ins. from the top of the backbone. A surround string (D) is run round these sticks to complete the frame. The ends of the cross strut are bent backwards, and held in position by a bowstring. The distance between the bowstring and the centre of the strut is 2½ins. The bowstring lies clear at the back of the kite.

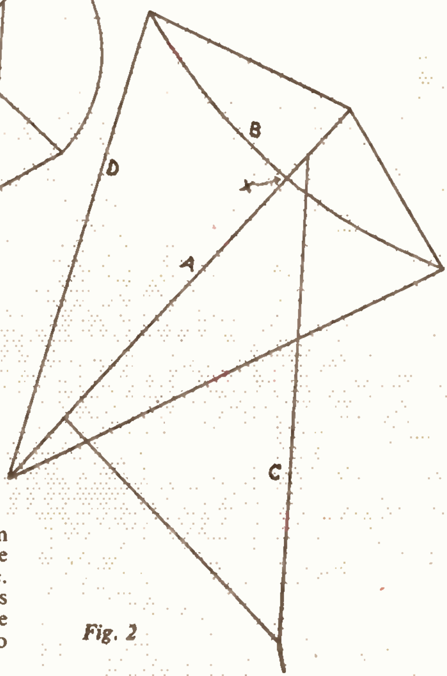


Fig. 2

The covering, of light cotton material, should be wider than the frame. This loose fit will enable the cover to bulge like a sail when the kite is flying.

A bridle (C) and a kite line are fitted, like those for the pegtop. No tail is needed.

The Jet kite

This is a grand flyer seen in Fig. 3. The main centre rib (A) is a piece of split cane or flexible wood, 31ins. long. Two pliable cross pieces (B, 31ins. long and C, 15½ins. long), are also required. The cross piece (B) is fixed 1½ins. from one end, and (C) is 2½ins. from the other end of (A). Use thin twine to lash them together. Notch these sticks at the end to receive the string (D), which forms the outline of the frame and braces the parts.

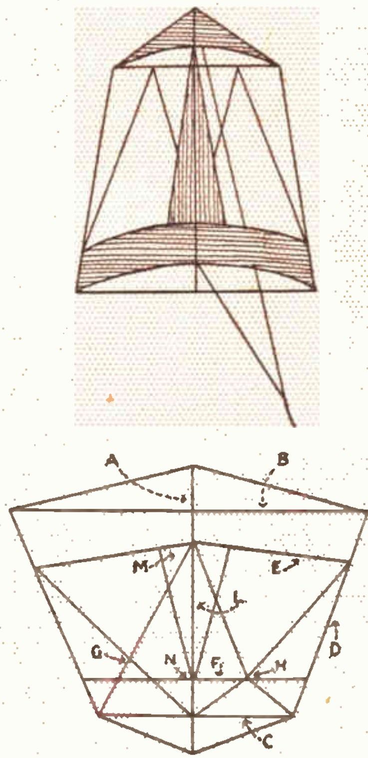


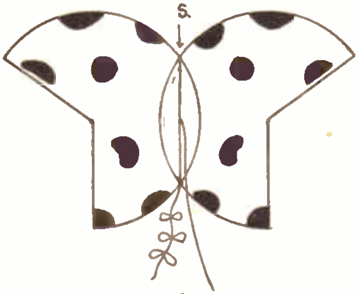
Fig. 3

Two cross strings are placed at (E) and (F) 7ins. from each end of the centre rib (A). Further bracing strings are crossed, as at (G) and tied to the cross string (F) as shown at (H), on both sides.

The cross piece (B) is curved upwards to form a bow, the centre of which is

3¼ins. above the string to which its two ends are tied. The shorter cross piece (C) is bent and tied in the same manner. The depth of the curve at the centre is 2½ins. The centre rib is also tied to form a bow, the depth of the curve at the centre being 1¾ins. All these curves follow the same direction.

The front and rear parts of the frame, between the end and the cross strings, (E) and (F), are covered with tissue paper, indicated in the diagram by shading. This is gummed on to the two



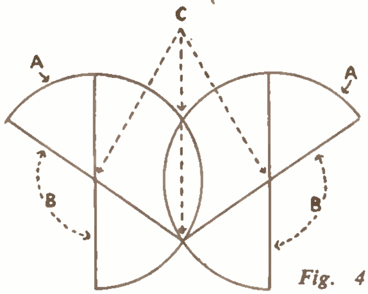


Fig. 4

cross pieces and the strings. The piece of tissue paper (L) is 4ins. wide at (M), tapering to a point at (N).

The bridle string, 5ft. long, is fastened to the centre rib (A) at the junction of the cross pieces (B) and (C). Usually the kite line is attached to the bridle at a point where it centres under the cross stick (B). .

The Butterfly kite

This is a really lovely kite (Fig. 4) and most graceful in flight. Two 2ft. 6ins. lengths of split cane are required. These are bent to a curve as at (A). Tie a piece of strong string (B) to one end of each of these curved sticks, and take the string to a point 3ins. from the other end.

Tie another string to the free ends of the sticks, and run up to a point 3ins. from the ends which are already tied. These arched frames are then lashed together (C), so that they overlap, as shown.

Thin strong paper, marked with spots, will make a good covering for the wings. Allow for a 1½in. margin of paper all round, so that it can be gummed securely round the edges of the framework. Before gumming, cut slits round the edges of the paper, so that it will not wrinkle. A short tail, about 1ft. long is needed. The kite line is attached to the centre of the butterfly's body, on a piece of string indicated at (S) in the diagram.

The Box kite

This is a great favourite, for it is an excellent flier. All the sizes given in

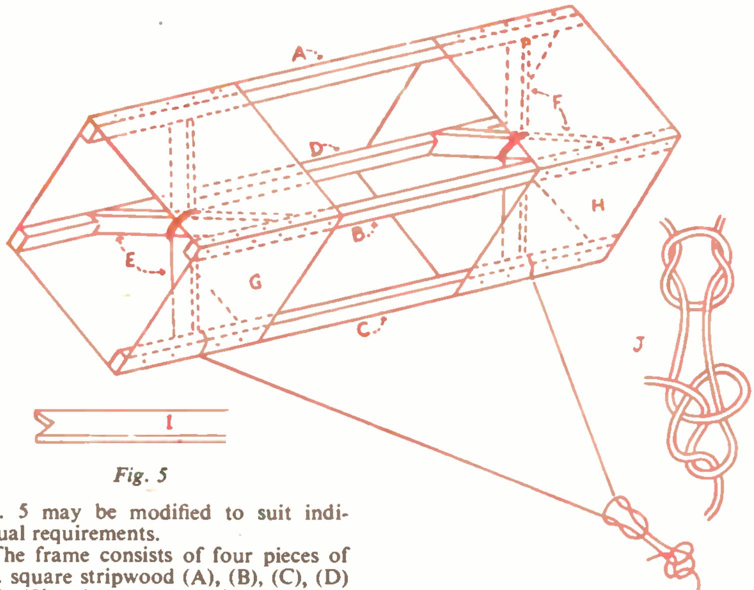


Fig. 5

Fig. 5 may be modified to suit individual requirements.

The frame consists of four pieces of ⅜in. square stripwood (A), (B), (C), (D) each 42ins. long. Four stripwood cross struts (E and F) are required. They are 26ins. long, ½in. wide and ¼in. thick. The two bands (G and H) are made from a light cotton material, and are 6ft. 3ins. long by 13ins. wide. When they are hemmed they measure 12ins. in width. The ends are overlapped and sewn together to make endless bands.

Lay these bands on the table. Iron two creases in them, one where the ends are joined. Fold over again and make two more creases. The four creases on each band will indicate where the four 42in. struts, or longerons, are fixed. They are tacked on along both sides of each crease.

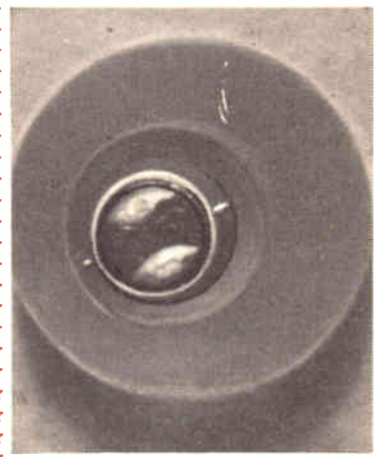
The important cross struts

The ends of the cross struts are cut to a V-shape. Tape is bound round them, near the point of the cut, to prevent splitting. They are inserted at the centre of each band, as shown. The struts must be a close fit, to keep the bands tight. Lash them together at the centre with thin twine. Small blocks of wood, glued on to the longerons, will keep them in position. A detail of the ends of the cross struts is shown at (I).

A bridle of strong string, 7ft. long, is tied to one of the longerons, 6ins. from either end. The kite line is attached to the bridle with a reef knot and a bowline knot (J), to permit adjustments to be made. Usually, the lighter the wind, the shorter the front line of the bridle. When the wind is blowing strongly, it is advisable to tie the line direct on to the longeron, just behind the front band.

(H.R.)

PUZZLEPIC



What is it? Pictured is an unusual angle of an article used every day in most homes. Solution on page 437

Practical and entertaining

THE DOVETAIL PUZZLE

THE dovetail puzzle is both deceiving and intriguing, for when the parts are fitted together, it appears impossible to construct such a joint. Moreover, the puzzle forms an interesting piece of constructional work within the power of any reader if some care be taken. Fig. 1 shows how the puzzle appears when finished, but although we can only show two sides, it

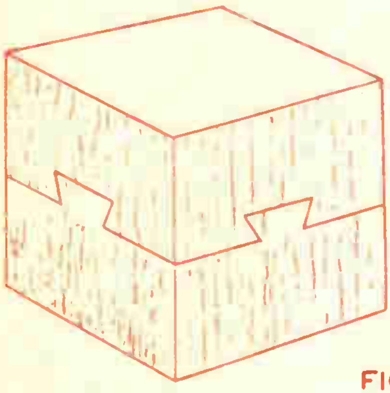


FIG 1

will, no doubt, be appreciated that the dovetail appears on all four sides. The puzzle thus becomes one of separating the parts.

Reference to Fig. 2 will reveal the secret and it will be seen that instead of true dovetails running across the blocks at right angles as may be assumed, construction is such that the joints are diagonal, while a sliding movement in that direction will unlock the two pieces.

You will require a block of wood 2ins. square and at least 6ins. long for ease of working, cut into two equal parts, one being for the raised dovetail ½in. in depth. Note that this measurement is given for convenience, but if you wish, can be amended to suit your requirements. When the joints have been made and the two parts fitted together, the cube should be trimmed down to measure 2ins. by 2ins. by 2ins.

Careful marking out is essential and after preparing, make sure that the tops of both blocks are square, by testing. Mark a line all the way round the blocks with a gauge ½in. deep. The dovetails are now marked in as shown in Fig. 3, exactly in the centre of each side and the points joined diagonally. The other part must be similarly prepared as shown in Fig. 4.

First of all prepare the block with the dovetail, using a fine tenon saw after scribing in the lines, making a few additional sawcuts to help removal of

By S. H. Longbottom

the waste material with a chisel of appropriate size. In view of the fact that the sawcuts are at an angle, it will be helpful to place the blocks in a vice, so tilted that your saw can cut vertically — that is in the normal manner. By following this method you should not encounter much difficulty, and after removal of the waste, clean up with a file, particularly in the corners.

Before proceeding with the other part it will be advisable to test the dovetail with the markings already prepared. And it should be noted that the two diagonal dovetails must be parallel or there may be some difficulty in assembling. When finished the two parts should slide together with only a little pressure, yet not be so loose that the secret will be revealed.

By careful measuring and patient work you should be able to produce this tricky puzzle and the secret is to be quite true that the tops of the blocks are square with the sides. You can ensure this by use of a right-angled cutting block in the first stages. It may be mentioned that although this gives the basis of the puzzle as a cube, you may trim off the corners or make into any shape you like, for the principle of locking together will not be affected.

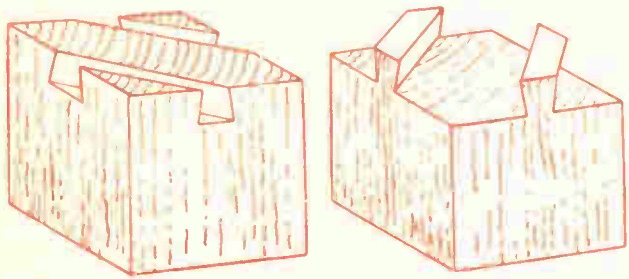


FIG 2

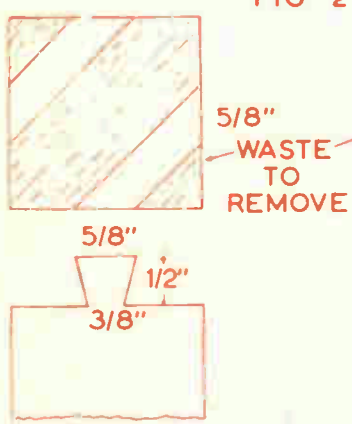


FIG 3

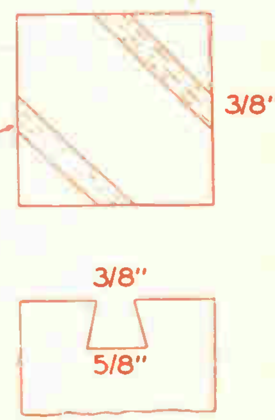


FIG 4

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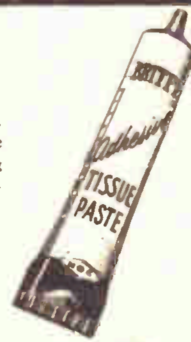

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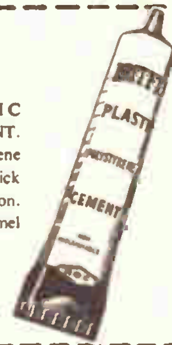

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By R. L. Cantwell

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After officiating at mass at the high altar, the Pope is borne back through the crowded church, and then ascends to the balcony over the central doorway. There rising from his chair of state he pronounces a benediction, with indulgences and absolution. The crowd is most dense almost immediately below the balcony at which the Pope appears; for there papers are thrown down containing a copy of the prayers that have been uttered, and there is a scramble to catch them.

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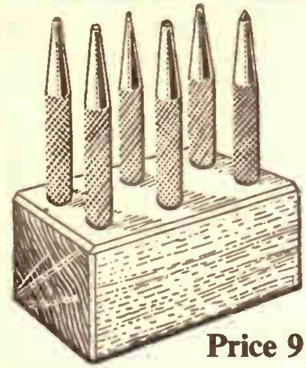

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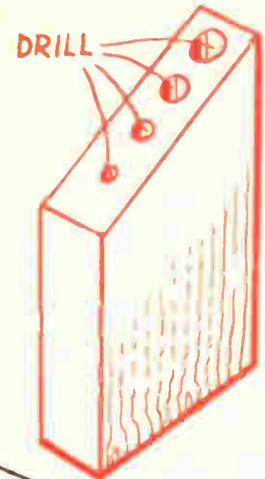

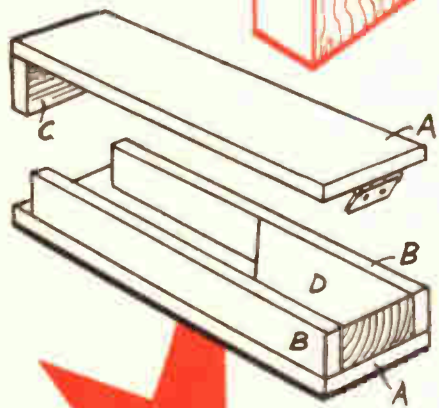

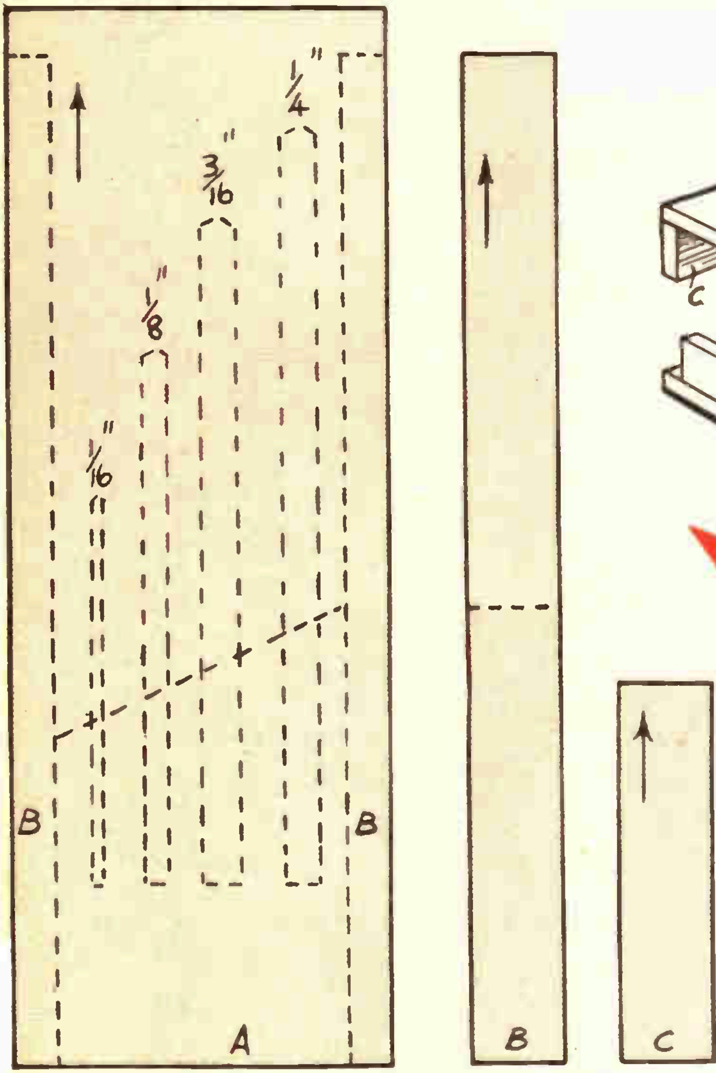

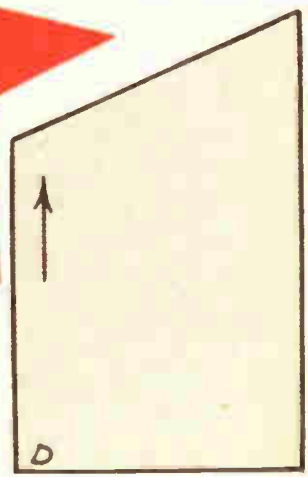

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