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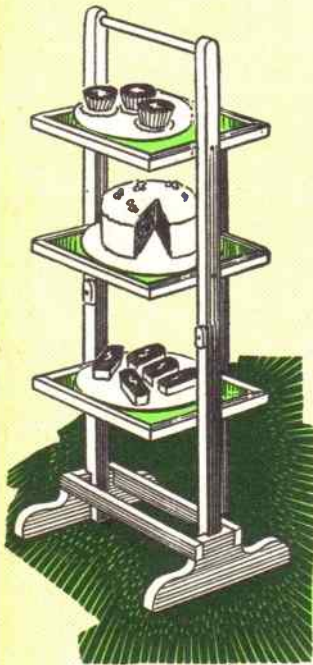
IN THIS ISSUE

	Page
A Folding Cake Stand - - - - -	321
Twin Cacti Garden - - - - -	322
Lino-Cuts - - - - -	323
Win a Watch! - - - - -	323
Chemistry in the Home - - - - -	324
Desk Blotter - - - - -	325
New Kinds of Plants - - - - -	326
Wallet for Photographs - - - - -	327
Canoe Sailing - - - - -	328
With Rod and Line - - - - -	330
How to weigh your Bird regularly -	332
Is this Your Problem? - - - - -	334
Patterns for Club Notice Board -	335



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

Make it from our **FREE** design



**CLOSED, IT ACTS
AS A SCREEN**

A FOLDING CAKE STAND

FOR setting out the afternoon tea cakes, light meals and snacks in general, this folding cake stand is ideal. It will also be found very handy for holding 'eats' which can be prepared ready to hand before settling down to a session of television.

As will be seen from the illustration there are three tiers which will hold quite a quantity of food, and these trays fold flat when not in use. In the closed position the assembly lends itself admirably as a handy screen, and if the tops of the trays are nicely decorated, such as with transfers, this can form a most useful and decorative piece of furniture.

The whole construction is quite simple. There are no difficult joints and its making can be undertaken with confidence. It will be noted that there is a third 'leg' which gives added sturdy-

ness to the cake stand when it is used in the open position, thus limiting the chance of there being any upsets.

The feet (pieces 1) are shown full size on the design sheet, and for other parts full measurements are given. Mark out the feet on to $\frac{1}{2}$ in. wood and cut out their shapes with the fretsaw. Mark out the side legs (3) to length from 1in. square stripwood, cut away the lower ends as at (A) and drill at the top for the insertion of $\frac{1}{2}$ in. diameter round rod (2) which serves as a handle.

The feet are now glued and screwed from the inside to the legs (3) and the rails (4) are added by pinning and gluing as shown in Fig. 1. While adding the rails, at the same time insert the handle (2) which is also fixed by gluing.

The three trays which are all of the same size are made up as detailed on the design sheet. Each consists of a 'frame'

321

**FOR ALL HOME CRAFTSMEN
Over 60 years of 'Do-it-Yourself'**

4¹/₂^D

World Radio History

of $\frac{3}{4}$ in. square stripwood halved at the corners. This is covered by $\frac{1}{4}$ in. hardboard and finished round the edges with a $\frac{1}{4}$ in. half-round rebated moulding specially made for use with hardboard, and which is included in Hobbies kit. The third leg (5) is also cut from lin. square stripwood to the size given.

The three hinges are screwed to the third leg in the positions indicated on the design sheet and then to the underside of the trays. The trays are pivoted to the side legs as shown in Fig. 2, which also indicates how the trays are moved to the closed position. Use roundhead screws as the pivots, drilling oversized holes in the legs (3) to allow easy movement of the trays.

Two wood buttons (9) are pivoted (screwed) to the fronts of the legs in the positions shown. These are turned in front of the centre tray to hold the whole assembly in a folded position.

This article lends itself to staining and polishing or painting. Cream, with pastel blue for the tray tops, would look very nice, whilst the use of transfers for decorating the tops has also been mentioned.

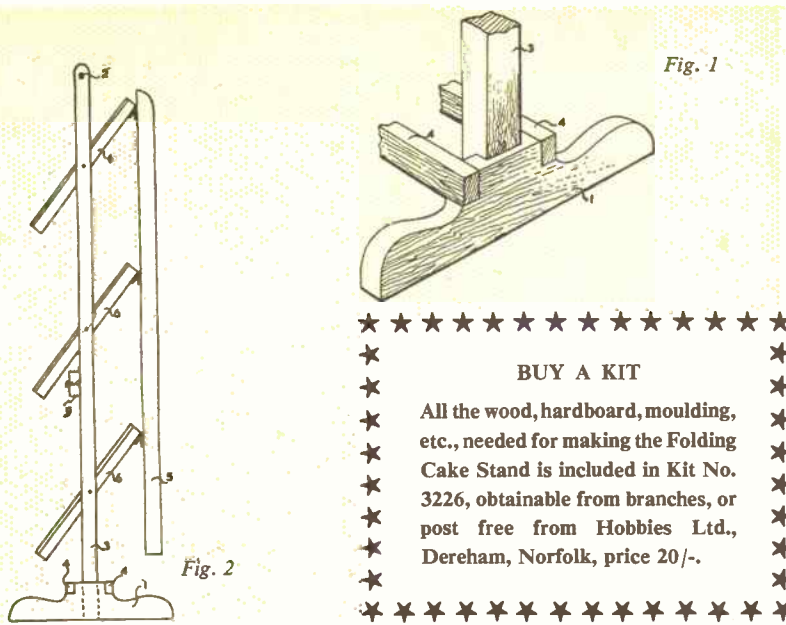


Fig. 1

Fig. 2

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★
 ★
 ★ BUY A KIT ★
 ★ All the wood, hardboard, moulding, ★
 ★ etc., needed for making the Folding ★
 ★ Cake Stand is included in Kit No. ★
 ★ 3226, obtainable from branches, or ★
 ★ post free from Hobbies Ltd., ★
 ★ Dereham, Norfolk, price 20/- ★
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Made from coconuts

TWIN CACTI GARDEN

TASTEFULLY arranged in the lounge or dining-room, cacti plants make a delightful display. Unfortunately all too often they are 'massed' around the window ledge or on a spare shelf in ugly pots of all shapes and sizes, marring rather than 'making' the room.

By S. Lambert

The answer to this is a simply constructed cacti 'garden' which is not only attractive in appearance, blending admirably with the plants, but is a practical proposition insofar as it can be placed on any piece of suitable furniture without looking 'out of place'. In addition, it will not scratch your dining-room table or sideboard.

All you need to make the twin version of this decorative 'garden' is a good sized coconut, 2ft. of either $\frac{3}{8}$ in. or $\frac{1}{2}$ in. dowelling, and either six or eight wooden balls about $\frac{1}{2}$ in. diameter, which can be obtained from your local do-it-yourself dealer. The number is determined by the choice of shape as indicated in the sketches.

First, saw the coconut into two halves according to your chosen shape and gouge out the edible substance with a sharp knife, leaving only the bare shell intact.

To obtain the zig-zag patterned edge as shown in the sketch is an easy matter, using a fret-saw, though it is always

version. Remember to shape the end of each piece to conform with the arc of the coconut shell as shown in Fig. 2.

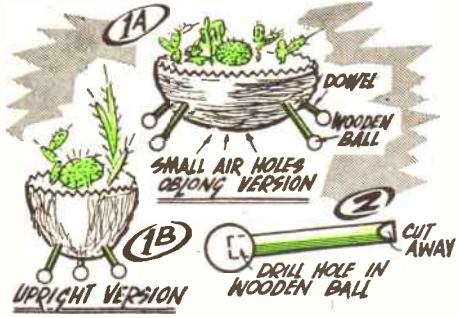
Using a 'bit' the diameter of the dowel, drill a hole in each of the wooden balls as shown. It is now just a simple matter of assembly. Using a contact glue, fasten each of the legs into the ball sockets and, in turn, on to the base of the coconut shell. Also drill two or three very small air holes in the base of the shell.

Repeat the entire process with the remaining half shell to complete the pair.

Paint in two or three tasteful colours (some may prefer to use varnish) and your holders are complete. Alternatively, brightly

painted clusters of shells glued on to the sides add greatly to their attractiveness.

Fill up each holder with loam and plant your cacti. It is always worth remembering that without a plentiful supply of water (about once every three days during the summer growing season) your cacti will not develop.



advisable to mark the outline in pencil on the shell before cutting. About $\frac{1}{4}$ in. depth is all that is required for a decorative effect, but of course any cut-out design may be utilised.

Smooth off the outside of the shell with glasspaper and turn your attention to the legs. Four pieces of dowelling 3ins. long should be sawn, assuming you have decided to construct the oblong

LINO-CUTS

MANY lino-cuts have been publicly exhibited and others bought for national preservation, which is indicative of the fine results that can be achieved.

The necessary tools are a knife, a gouge for clearing away the unwanted lino and a V-shaped gouge, such as is used in wood carving, which can easily be made from an old umbrella rib.

The best lino for lino-cuts has a smooth matt surface with a close texture and a thickness of about $\frac{1}{4}$ in.

First cut the lino into the size required, allowing a small margin all round.

The next step is to cover the lino square with a thin layer of white poster paint and allow to dry. The reason for doing this is that only a soft pencil should be used to mark out the design, and the paint provides a surface on which to draw.

Actually it is usually better to draw the design on paper first, and later trace on to the lino. Do not forget, though, that the design must always be drawn or traced in reverse on the block or when printed it will be reproduced back to front. This does not matter in some designs, but is necessary, of course, where lettering is used.

The design shapes should be cut around with the knife, going to a depth of about half the lino, and then followed with the V-shaped gouge. Take care not to cut under the edge of the final printing surface or it may break away when printing is in progress. Use the other gouge to cut away the surplus lino surface, but avoid tearing. Where the design includes many simple line cuts, it looks more attractive if they are made in varying thicknesses.

If only one colour is to be used in the printing, then the lino should now be stuck with rubber adhesive or thin glue on to a piece of plywood which is slightly larger than the lino. But if several colours are to be used, then a separate block is necessary for each colour. In this case a key block is cut for the predominant colour section of the design. All the surface that is not included in this colour is cut away. This is repeated for each colour, and it is then that a paper design is essential, as only by tracing from the same design will all the colour sections finally fit together when printed. When the blocks have been cut then the white paint should be wiped away with a damp rag.

For printing the best paper to use is a strong but thin absorbent kind. Try to avoid using a paper that has a large

watermark, as often a watermark will not absorb the same quantity of ink as the remainder of the sheet. Good results can also be achieved by printing on cloth. For this, a fine lawn material is about the most suitable.

Fabric inks are the best for cloth printing. Water colour inks can be used, but as they wash out in water, they are not permanent. For printing on paper, water colours are suitable, though often the results do not compare with those obtained by using oils.

When printing, spread a little of the colour to be used on a tile or something similar and leave until it becomes slightly tacky. It is far better to have too little than too much ink on the tile. Place the block, or the key block if more than one colour is being used, face upwards, and with a small roller, or a tight pad of cloth, spread the colour over the block face. At first the lino will tend to absorb the colour, but remember that only a little is required on the block when printing.

Next carefully drop the paper, which should have a good margin, or the cloth, which must not be stretched, on to the



block. On this place a piece of scrap paper and rub over with a wooden spoon. Make sure that the paper or cloth does not slip when rubbing. When the material has taken the print, it will need to be left for about a day to dry thoroughly.

If several colours are to be used, then, of course, this procedure has to be repeated, each block printing a different colour to complete the design. To be certain that the material falls into the correct place each time a guide rail is required along the top and one side of the plywood backing sheet.

WIN A WATCH!

BADGES of no distinction whatsoever are now being individually made for blazer breast pockets. Usually it is the initials of the wearer that are woven into a free-lance design. The competition this month is to submit a lino-cut print on cloth or paper suitable for a blazer pocket badge which is based on your initials. The maximum size of entries must be 6ins. square and a maximum of three colours can be used.

Prizes of wrist watches are again offered to winners of the Senior (16 and over) and Junior (15 and under) sections. Ball-point pens will be awarded for the next best efforts in each section.

RULES

1. Entries must be received by the Competition Editor, *Hobbies Weekly*, Dereham, Norfolk, by September 27th and cannot be returned. We reserve the right to publish details of any entry.
2. Winners will be notified and prizes despatched by October 11th. Details will be published in a subsequent issue of *Hobbies Weekly*.
3. The name, full address and age of the competitor must accompany the entry.

4. An entry must be the unaided effort of the competitor. All entries for the Junior Section *must* be accompanied by the certificate below, or a similar declaration on plain paper, signed by a parent, otherwise the work cannot be considered.

5. Because of Customs regulations and the necessity to adhere to a definite closing date, entries are confined to those from Great Britain and Northern Ireland.

6. The judges' decision is final and no correspondence can be entered into.

CERTIFICATE (for Juniors)

The entry is the unaided work of
..... aged

Signed

Relationship

Address

CHEMISTRY IN THE HOME

HEATING COMMON CHEMICALS

A FEW pieces of simple apparatus and a few common chemicals are all we need to watch some interesting heat effects. We can also discover easy ways of making other useful chemicals and so extend the stock of the home laboratory.

Chemicals behave in various ways when heated. Some are unchanged, others lose combined water, but not their identity. Others, again, give off gases and leave residues of another compound. Some explode — but we shall not be heating any which do so!

Let us make a start with copper sulphate. Place some small crystals on a tin lid or in a crucible and heat them over a flame. The blue crystals crumble and become slowly white. If you hold a cold slip of glass over the powder just as it is beginning to whiten, you will see the glass mist over. Steam is being given off. When no more steam comes off, a white powder is left. Drop the powder into water in an evaporating basin. It at once becomes blue again and will dissolve if you stir or warm the water. Boil away the water until only a small quantity of solution remains, and let it cool and stand some hours. Blue copper sulphate crystals will be obtained once more.

be anhydrous. Hence it is called anhydrous copper sulphate. It is obviously a useful substance when we wish to test for water.

White lead (chemically known as basic lead carbonate), which is so widely used as a basis for paint, behaves differently.

To find this out you will need a dry test tube fitted with a bored cork and delivery tube dipping into lime water in

the cylinder of cork from the tube after boring. Always bore a hole slightly narrower than the glass tubing it is to take, and carefully enlarge it with a round section file.

Put some white lead in the test tube and a short distance away, nearer the cork, a little anhydrous copper sulphate. Heat the white lead. The copper sulphate turns blue, showing water to be given off from the white lead, and the lime water

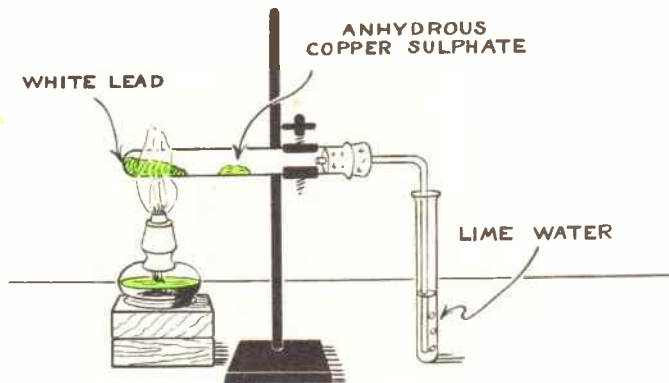


Fig. 1—Heating white lead

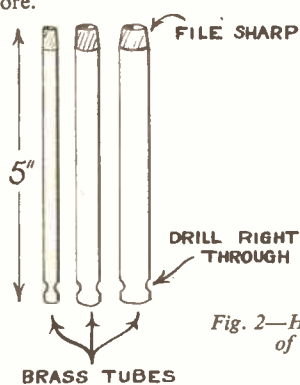
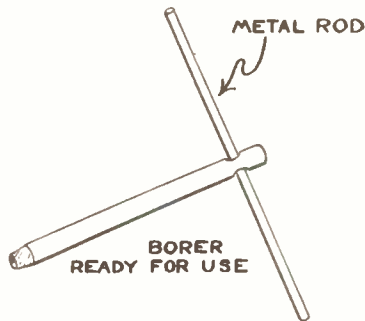


Fig. 2—How to make your set of cork borers



turns milky, indicating that carbon dioxide is also evolved. When no more bubbles of carbon dioxide appear in the lime water, let the apparatus cool, carefully remove the copper sulphate first and then shake out the powder left by the white lead. You will find it is no longer white, but reddish-yellow. This is lead oxide.

White lead, then, is decomposed on heating into lead oxide, water and carbon dioxide.

The green crystals of ferrous sulphate also undergo a remarkable change. Clean and dry the apparatus used in the last experiment, place some ferrous sulphate in the horizontal test tube and a little anhydrous copper sulphate nearer the cork. The delivery tube dips into water in the second test tube. Now heat the ferrous sulphate. The copper sulphate turns blue, showing water to be given off. At the same time the ferrous sulphate crystals crumble. Hence the water is water of crystallisation. Continue heating until the ferrous sulphate becomes dark red. Carefully remove the

●Continued on page 325

These effects are clear proof that water is a vital factor in forming copper sulphate crystals. When all the water was driven off the crystals by heat, the crystals disappeared, but water restored the crystalline nature of the chemical. Such water is thus known as water of crystallisation. The white powder contains no water and is said to

another test tube, as shown in Fig. 1. If you have no retort stand and clamp, use a test tube holder. Should you also lack a set of cork borers, you can easily make them from 5in. lengths of thin-walled brass tubing of various diameters. File one end sharp as shown in Fig. 2, drill a hole through both sides of the other end and slip a metal rod through to act as a handle. The rod is also used to push out

Made from odd materials

DESK BLOTTER

USEFUL desk blotters are easily made from odd pieces of material, although a small block of balsa wood is recommended for the base measuring 5½ ins. by 3¼ ins. by 1¼ ins., with a piece of ¼ in. plywood, 6 ins. by 3¼ ins. for the top. The only other requirement is a plastic knob fitted with a screw.

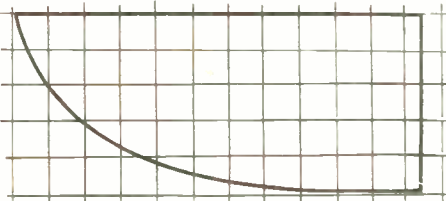
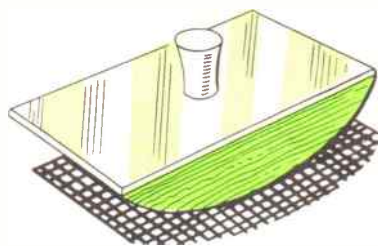
The block of balsa wood is marked out on both edges by means of a template prepared with the aid of Fig. 1. Take a piece of stiff paper, fold in half, ruling out into ¼ in. squares as shown. Outline the shape, cutting out with a pair of scissors. On opening out the paper you will have a properly balanced template. It is then a simple matter to lay this on the wood, pencilling in the curved shape.

Cutting out is best done with a bow saw, working from each end to the centre. Alternatively, you may cut away the major portion of the waste at each corner, rasping off the remainder to the curve shown, but make sure that it is balanced by working to the guide lines on both edges of the block. The base is finally given a good smoothing with glasspaper.

A top is prepared from the plywood to the dimensions given, which allow for an ¼ in. overlap all the way round.

The edges should be neatly smoothed off to give a rounded finish, and the only other requirement is a hole in the centre to take the knob screw.

The top and sides may be stained and polished or finished in gloss paint.



1/4" SQUARES
FIG. 1

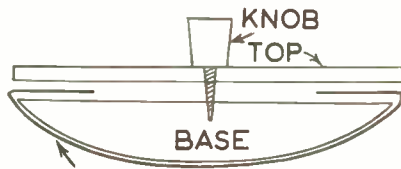


FIG. 2

Before assembling, place the two parts together, marking the centre on the base, then preparing a hole for the screw with a gimlet.

A strip of blotting paper is cut to the width of the base, but at least 3 ins. longer than the bow shape, so that the ends will be kept tight when the top is attached and the knob screwed down. Fold the blotting paper over as shown in the sectional diagram Fig. 2, and the desk blotter is ready for use.

These handy little blotters are easy to produce and will last a long time, the only renewal being the blotting paper.

Small pieces of suitable wood can be obtained quite cheaply from any Hobbies shop where you will also be able to buy a knob. See that the base is well shaped, and a good test for this is to allow it to rock on a table top. Any defect in the finish will prevent the base having an easy rocking movement.

● Continued from page 324

Heating Common Chemicals

copper sulphate and shake out the residue from the ferrous sulphate. This red powder is ferric oxide and is the well known polishing medium jeweller's rouge. It is also used to colour red tile polish.

Fuming Sulphuric Acid

Take a drop of the liquid in the other test tube and apply it to blue litmus paper. The colour changes to red, showing an acid to be present. Add some strontium nitrate solution to the liquid. A white precipitate forms. This is strontium sulphate and shows that the acid present is sulphuric acid (this is the weak, not the strong acid). Ferrous sulphate, then contains water of crystallisation, and on heating loses this, giving also sulphuric acid and ferric oxide. By first carefully removing most of the water of crystallisation and then heating the residue, a very strong form of sulphuric acid can be obtained, namely, fuming sulphuric acid, which is

also known as oleum. It is an important substance in the chemical industry, for it reacts more energetically and quickly than ordinary strong sulphuric acid in some processes and so saves time.

Potassium permanganate shows interesting changes on heating, too. First dissolve a few crystals in water. An intensely purple solution forms. Now heat some of the dry potassium permanganate in a dry test tube. Each few moments hold a glowing wood spill in the mouth of the tube. Soon it bursts into flame, showing oxygen is being given off. When the spill will no longer reignite, let the tube cool, half fill the test tube with water and shake. A muddy liquid forms. Lightly plug the stem of your filter funnel with a little woolly asbestos and filter the muddy liquid through this into a test tube.

You will be surprised to note that a brown solid remains in the funnel, while the test tube now contains a green liquid. What has happened is this. On

heating the potassium permanganate, oxygen was given off and a mixture of manganese dioxide and potassium manganate left behind. The manganese dioxide is the brown solid in the funnel and the potassium manganate is responsible for the green colour of the filtered liquid.

Breathing Magic

Now for an interesting colour change. Pour the potassium manganate solution into a beaker and dilute it largely with water. The green colour changes to purple. The potassium manganate has changed back to potassium permanganate. The same change can be brought about by bubbling your breath through the green solution, since the carbon dioxide contained in expired air reacts in a similar way.

There lies another conjuring trick for surprising your friends. You heat potassium permanganate and produce oxygen, dissolve the product in water, filter it, and reproduce potassium permanganate merely by the magic of your breath! (L.A.F.)

NEW KINDS OF PLANTS

QUITE a lot of people are keen budgerigar breeders, others prefer to produce rabbits, but, surprisingly enough, very few take the trouble to raise new varieties of flowers, fruit or vegetables.

Based on a knowledge of plant genetics, the art of hybridization or 'crossing', as it is generally known, is a most fascinating hobby and one that is not difficult to acquire. A certain amount

By A. F. Taylor

of patience, however, is needed, but when the result may be a true blue rose, a geranium that will stand a sharp frost or a hollyhock with a delightful scent, then all the trouble and time spent in waiting will be amply repaid.

A hybrid is the offspring of two plants of different varieties and is produced by transferring the pollen from the stamens of one flower on to the stigma of another after taking certain precautions; and this is called 'crossing' or cross breeding. It is not a job that is confined exclusively to the expert and many of our charming new plants have been raised by amateurs.

Let us start by carefully examining a flower and see what happens in order that it will produce a fertile seed. Fig. 1 is a wallflower cut in half to show its separate parts — the outside green sepals, then the petals. In the centre is the ovary containing the seeds and this is topped by the stigma. Around the ovary and stigma we find the stamens which in the wallflower are six in number, but vary in other flowers from just a few to perhaps several dozen.

Cross fertilization

Now when the pollen on the stamens is ripe and some falls on to the stigma which is ready to receive it, fertilization takes place and the seeds in the ovary start to grow and ripen. This is called 'self fertilization' and the seed will generally produce a plant similar to the parent.

In order to produce a plant differing from the parent we must stop its pollen from reaching the stigma and take some pollen from another plant and place it there instead. This is called 'cross fertilization' or 'hybridization'.

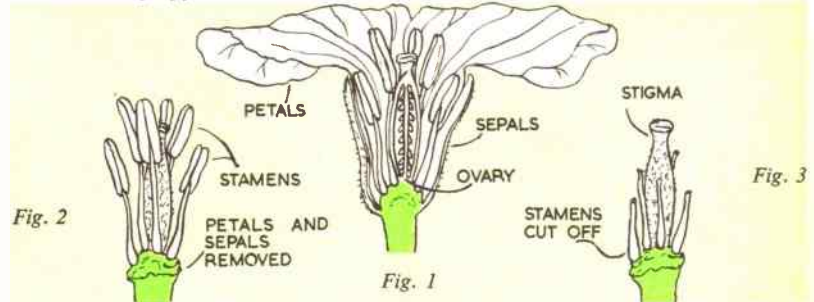
The parent and the pollen plant must belong to the same species or be very closely related, and it is useless to try to cross plants from totally different families. It would be quite all right to

cross a white with a red sweet pea if you are trying to obtain a pink one, but you would have very little success by crossing a strawberry with a runner bean in the hope of producing a climbing strawberry.

Remove the petals

The pollen is often ripe and the stigma ready to receive it before the flower opens so that to prevent self-fertilization taking place we must remove the petals in order to expose the stamens and stigma. Fig. 2 shows this stage and it is now easy to cut off the stamens very carefully with a sharp pair of small scissors with the result shown in Fig. 3.

When the pollen grains are ripe they become powdery and the stigma assumes a sticky appearance. In this state



you can place your chosen pollen on to the stigma but it must be done carefully. The best way is to pick the pollen bearer, hold it over the stigma of the parent plant and gently shake off some of the pollen. You can transfer it with a small camel hair brush but it is better not to touch the stigma if you can help it.

Insects should not be allowed to come in contact with the stigma during the entire operation as they may carry foreign pollen to it and upset your plans. Cover the flower very carefully with a small muslin bag for a time after you have fertilized it, and also if the stigma is not ready to receive the pollen after the petals have been removed you should cover it until it is ripe.

You will soon be able to tell if your cross has been successful by the swelling of the ovary and the final ripening of the seed. Shrivelling and falling off will quickly denote failure and you must be prepared for a certain amount of this, but do not be discouraged.

Have a definite plan to work to and do not try to cross just anything that is handy. You may for instance wish to develop some special colour in a flower or to produce a stronger scented variety

Keep an accurate record of the work carried out and enter these in a note book, or better still, a card index. The name of the parent and pollen bearer, together with the date and time of crossing should be recorded. If you are making a careful study of plant genetics then the state of the weather and its effect can be noted and also how the plant progresses from time to time.

Having produced a successful cross, the next part is undoubtedly the most interesting. What will the new plants and their offspring be like and will there be something sensational?

When your seeds are ripe they may be sown or if you have not got the protection of a greenhouse they may be stored in a dry place ready for next season.

If you have crossed a red flower with

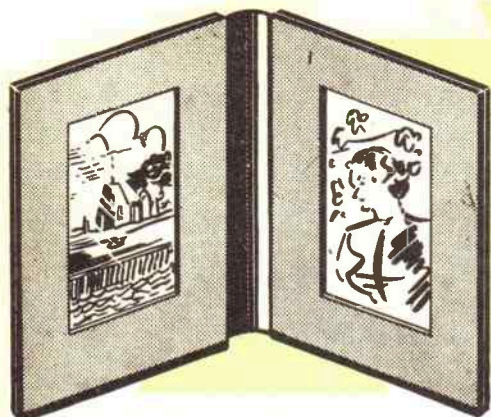
a white one in the hope of getting a nice shade of pink don't be disappointed if they all turn out to be red. It is the next generation that will be worth waiting for and in order to get these you must allow the plants of the first generation to fertilize themselves and sow the seed when ripe.

We cannot go into all the problems of plant breeding in a short article like this but for the keen student it will be advisable to get a book from the local library on the subject and make a careful study of it. The librarian will be pleased to help you choose something suitable on plant genetics, plant breeding or Mendelism.

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☆☆
☆☆ When dusting books, wipe
☆☆ the leaf edges away from the
☆☆ binding. This will keep the dust
☆☆ and dirt from lodging in the
☆☆ back portion of the book and
☆☆ eventually discolouring the
☆☆ leaves.
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WALLET FOR PHOTOGRAPHS

Described by
S.H.L.



You may make these frames from white card but if you prefer to use stouter material, they should be covered with the same wallpaper as the covers. Reference to Fig. 4 will show that there are two alternative arrangements of these frames. One is for a vertical picture by cutting out an aperture measuring 3ins. by 2ins., leaving a border of $\frac{3}{8}$ in. at the top and sides and $1\frac{1}{8}$ ins. at the base. If you would like to provide for twin horizontal pictures the frame should be prepared as in the other diagram. Here you will notice that there is a $\frac{3}{8}$ in. division between the two apertures, with a $\frac{3}{8}$ in. border all the way round. Measure these apertures carefully, using a set square to ensure perfect corners. By using a sharp knife you

ATTRACTIVE folding wallets, useful either for carrying in the pocket or for standing on a shelf, are easily made from cardboard, and while the one shown in the illustration is a single fold, it is a simple matter to make additional sections.

does not fold over at the top and base but fits exactly. (Fig. 2).

A cover made from surplus wallpaper is attached with glue to the outside as shown in Fig. 3, allowing half inch turnings for the overlap. Note that the cover is trimmed straight where it

will be able to cut out several frames at the same time.

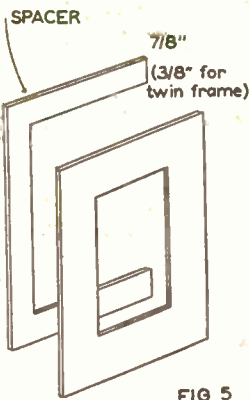
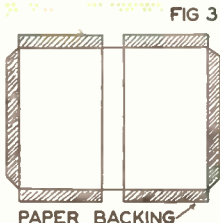
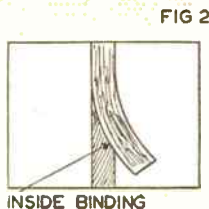
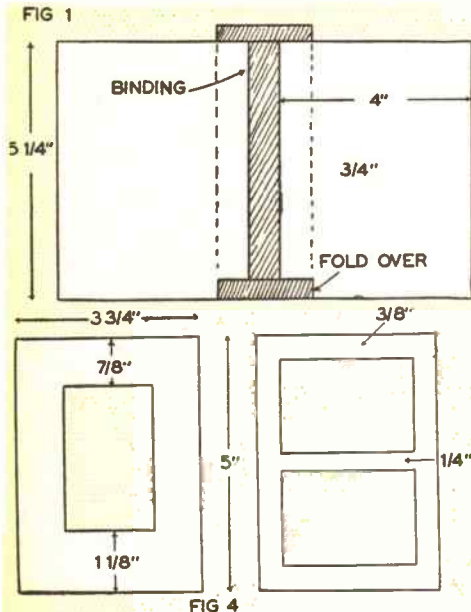
Pictures are inserted on the slot-in principle, from the inside edge in each case, and to facilitate this a spacer must be inserted between the frame and the wallet cover. It must be remembered

that the vertical side of this spacer should be attached to the outside edge so as to leave a small aperture on the inside for slotting-in the pictures, and there is thus a right hand and a left hand frame.

The spacers are made from similar material to the frames and cut in the form of a U turned sideways and $\frac{7}{8}$ in. in width, except for the base which should be $1\frac{1}{8}$ ins. It is best to cut these in a pair, reversing when attaching to the frames. If it is decided to make the twin horizontal frame, note the difference in the width as shown in Fig. 5.

After gluing the spacer to the back of the frame and neatly trimming both, the unit may be attached by glue to the inside of the wallet. If you wish to make the smarter job the frames may again be covered with the same material as the cover, and in which case it should be attached first and folded round the edges of the spacer and frame to hide the edges. Allowance should also be made for a small overlap to fold over the inner edges of the aperture.

These handy wallets can be used for carrying in the pocket, or may be adapted to adorn a shelf or table. The pictures can be changed with little trouble, and the title may be written underneath.



The dimensions given are for the popular size of $3\frac{3}{4}$ ins. by $2\frac{1}{2}$ ins. pictures so that slight adjustments become necessary for other sizes, although the basic principles remain the same.

Two pieces of card for the backs measuring 4ins. by $5\frac{1}{2}$ ins. are required and these are bound together by a strip 3ins. by $6\frac{1}{2}$ ins. of bookbinding material, long enough to fold over at the top and bottom as shown in Fig. 1, leaving a hinge $\frac{3}{8}$ in. wide. A further strip of the same material is added inside as a strengthener, but note that this piece

adjoins the hinge, so that the latter remains uncovered as with a book. Fold over the cover paper on to the inside, gluing down firmly. There is no need to add a lining paper on the inside, since the frame will hide the backing.

We now prepare frames to take our pictures, made from thin cards measuring $3\frac{3}{4}$ ins. by 5ins. This size allows for a small border all the way round so that the frames lie rebated within the covers.

CANOE SAILING

THE ordinary paddling canoe is the wrong shape for serious sailing — it is too long and narrow to carry a high and efficient rig and it does not manoeuvre easily under sail. However, if these limitations are realized and a performance like a 'class' racing-dinghy is not expected, the addition of sail to a canoe can introduce a second auxiliary means of propulsion that can add considerably to the fun of canoeing.

The simplest sail is one which is only intended to be used when the wind is

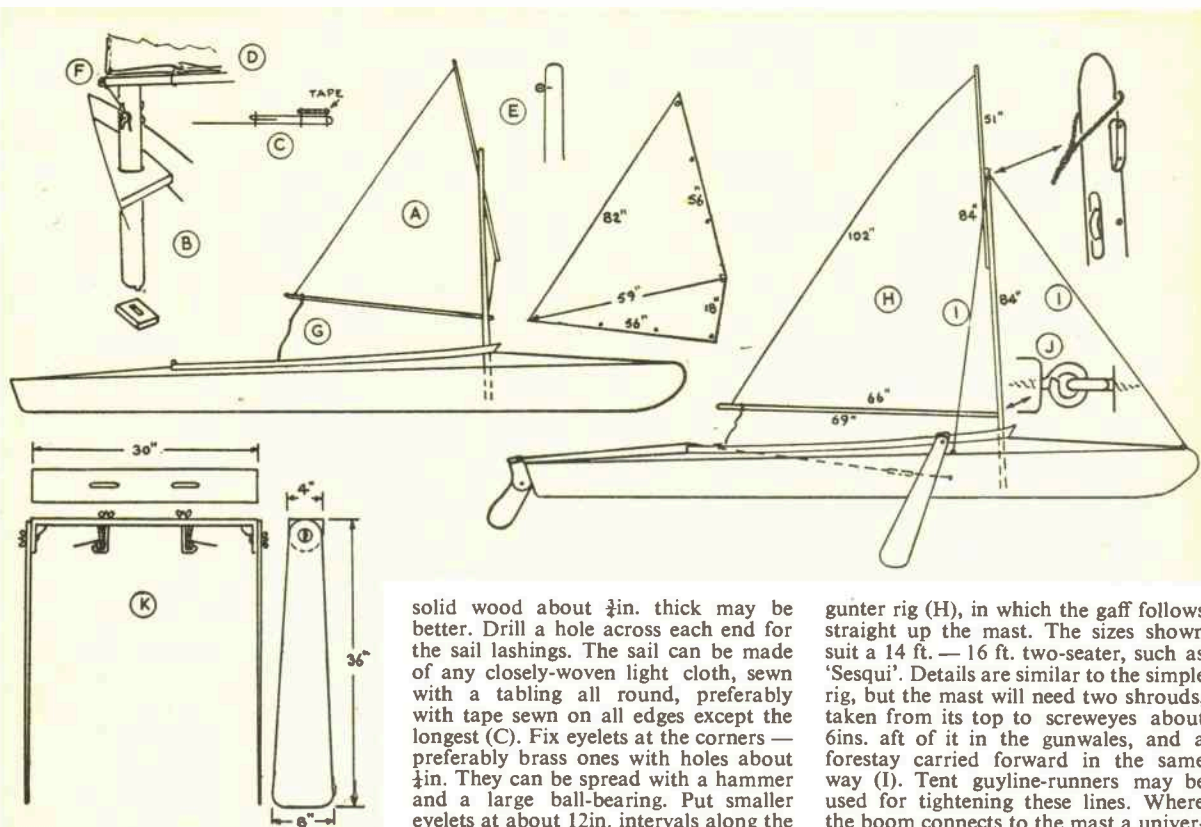
the point of the coaming and a step on the bottom boards (B). In a folding canoe it may be simpler to mount the supports on the frame at the point of the cockpit.

By P. W. Blandford

The yard and boom may be stout canes, although there is an advantage in having some weight in the boom, and

the cleat and back to a point within reach of your hand if you are likely to want to drop the sail quickly. A short tack line from the end of the boom hauls it back to the other cleat (F). The sail is controlled by the sheet (G) which you hold in your hand. Steering is done with a paddle trailed over the side.

For more ambitious sailing, with the possibility of sailing across or towards the wind, the rig gets more complicated. Height is necessary, and the best way to get this on a narrow hull is to use a



going your way. If the wind is coming from anywhere a few points either side of astern, the sail is hoisted and you can expect to travel at least as fast as when paddling, in anything like a breeze. For this purpose the sail can be quite small and the spars kept reasonably short for easy stowage. A balanced lug rig is simplest (A). For most canoes, the mast and both spars may be 5ft. long. The mast is spruce or fir, tapering from about 1½ ins. to ¾ in. and supported by a block at

solid wood about ¾ in. thick may be better. Drill a hole across each end for the sail lashings. The sail can be made of any closely-woven light cloth, sewn with a tabling all round, preferably with tape sewn on all edges except the longest (C). Fix eyelets at the corners — preferably brass ones with holes about ¼ in. They can be spread with a hammer and a large ball-bearing. Put smaller eyelets at about 12 in. intervals along the edges against the spars. Stretch the sail with lines through the corner eyelets and the holes in the spars, then half-hitch along the spars (D).

For more ambitious sailing

There may be a small block, or simply a screw-eye at the top of the mast for the halyard (E), and two cleats just above coaming level for fastening the ropes. The halyard is a length of cord, tied around the yard and taken through the screw-eye to a cleat — or taken under

gunter rig (H), in which the gaff follows straight up the mast. The sizes shown suit a 14 ft. — 16 ft. two-seater, such as 'Sesqui'. Details are similar to the simple rig, but the mast will need two shrouds, taken from its top to screweyes about 6 ins. aft of it in the gunwales, and a forestay carried forward in the same way (I). Tent guyline-runners may be used for tightening these lines. Where the boom connects to the mast a universal joint is needed, and a simple form is made from two screweyes (J). A small triangular foresail may be made, with two sheets. This is of debatable value, as it cannot be very big, but most people like to have one.

A canoe, with its few inches draught, has insufficient grip on the water to prevent it drifting sideways when sailing across the wind, so additional keel surface is needed. In a sailing dinghy this is usually a centreboard fitting into a case, but in a canoe this would inter-

tere with accommodation and leeboards are used instead (K). The crossbar has to be located by experiment. Normally both boards are left down, but their stiff joints allow them to rise if they touch the bottom.

A deep rudder also helps in preventing leeway. It should have a lifting blade, either metal which will keep down by its own weight, or wood held down by rubber (L). Lines from the yoke pass over the back of the cockpit to a rudder bar, or two stirrups.

One snag with a canoe is that the mast usually has to be located too far forward. Where the accommodation permits, it should be brought a foot or so back from the point of the cockpit. When the centre of effort of the sail plan is too far forward the balance is incorrect and the canoe will not sail properly. In some very-long cockpit two-seaters, the only way of getting a good sail balance is to have a third sail behind the cockpit (M). This ketch rig is very picturesque, but it gives the crew so many things to handle that it is difficult to sail properly.

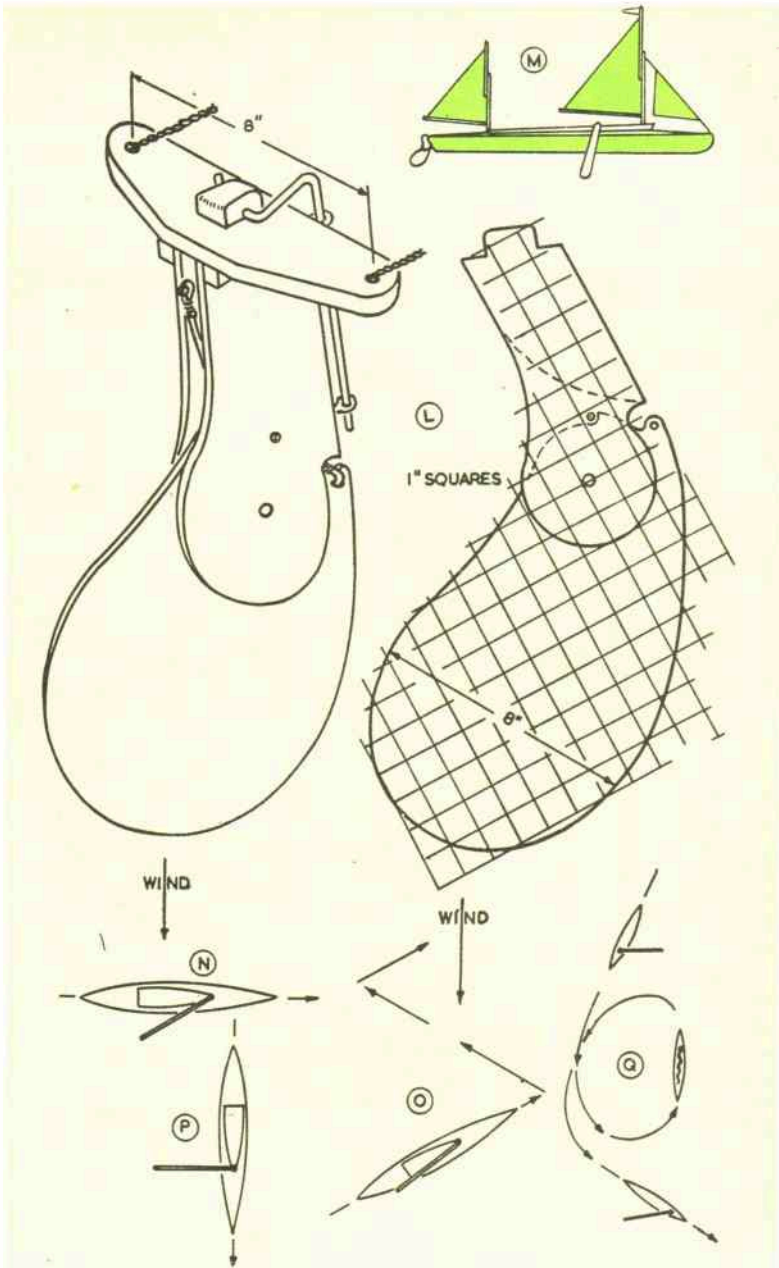
'Reaching' and 'tacking'

Whatever the number of sails, the principle of sailing is the same, as all are normally set to about the same angle. It is best to learn with a single sail. Sailing with the wind at right-angles, called 'reaching' (N), is simplest. The angle of the sail approximately bisects the angle between the wind and the course, but because of the curve of the sail the boom comes in further. To go back you use the rudder to 'go about' into the wind. The sail will flap and go out the other side to the same angle.

No boat will go direct to windward and you get that way by 'tacking'—sailing as close to the wind as you can one way, then going about and doing the same the other way, 'tacking' to windward on a zigzag course (O).

Sailing away from the wind is called 'running' (P). This may seem the simplest way, but you must always be looking out for the sail being caught aback with the wind getting on the wrong side and causing a 'gybe', when the sail crashes across unexpectedly. This may cause anything from a bruised head to a capsize if you are caught unawares.

There are no brakes on a boat. You stop by turning up into the wind and letting the wind out of the sails. When you alter direction, as when following a winding river it is always best to turn into the wind, rather than away from it, even if it means turning a complete circle to avoid a gybe. Of course, in light airs a gybe which is controlled is harmless, but in a strong wind it is better to spill the wind from the sail as you turn in a small circle (Q).



Make sure you obtain next Wednesday's issue of 'Hobbies Weekly'. F. G. Rayer will give details of making a one-valve all wave radio and there will be patterns for fretwork and a marquetry picture besides the other usual features.

With ROD & LINE



THE tench, according to an ancient writer, is a fish of uncertain habits — *'he is the most part of the year in the mudd. And he stryth moost in June and July; and in other seasons but lityll. He is an evyll biter . . .'* Whoever that old-time writer was there is much truth in what was written, as every angler who seeks this hefty fish well knows.

There may be an idea among some fishers that tench are really the most difficult of fish to catch. Personally speaking, I have found them responsive to my overtures very often, but have also had many blank outings. But then, I have had failures with trout and grayling, roach and chub, and recall occasions when the elfin dace beat me utterly. Therefore, I do not regard the tench any more 'an evyll biter' than the rest of the finny ones of river and lake. All fish have their moods.

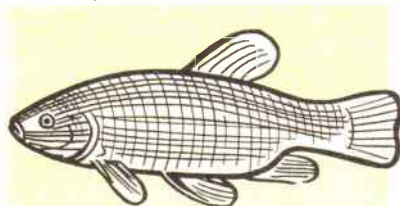
Tench are livelier in the early summer than later in the year. The best month is probably July, when the weather is hot and humid. August is also good.

Years ago I lived quite near to an ancient deer park which contained a number of ponds or 'stews'. They were all weedy, rush-fringed, deepish in parts, with plenty of mud, and surfaced with matted weeds in summer. Keeping a fat tench, boring steadily and determinedly for a matted carpet of *Potamogeton natans* or a clump of *P. densus* (dense pond-weed), from reaching his desired sanctuary is not so easy. Not on fine tackle, anyway.

Still, though I lost quite a number of hooked fish in the subaqueous jungle I succeeded very well on the whole. My methods were simple enough. Keeping certain spots in three ponds connected by small weirs, cleared of weed, I resorted thither in the months of July and August, choosing as the likeliest time an early morning following a warm, showery night, when in the low-lying part of the well-timbered park where the ponds lay, it was misty and humid, with no wind at all. It meant losing some beauty sleep, but worth it. On such a dawning of a July day, with the promise of a piping hot noontide to follow, it was very quiet — that hour of the summer dawn.

In each of the ponds open patches of water and little channels between the weeds — and other places I cleared with a drag made for me by the village blacksmith — afforded spots to fish in.

Sometimes ground-baiting was done overnight, but mostly I did not trouble to use much ground-bait. For hook-baits I relied upon red worms, brandlings, maggots, snails collected from the dew-wet grasses at the pond's edge, and slugs, which were trapped under rhubarb leaves in the garden. Wasp-grubs were very effective in season. Worms



'Tench are queer customers and uncertain in habits.'

were the great standby, collected from a 'wormery' — a corner of the kitchen garden where we deposited lawn mowings, kitchen waste, garden refuse of suitable nature, tea-leaves, etc., and kept moist by frequent watering.

Tackle consisted of the usual cane roach and general rod, a fine but strong line, quill float, 3x gut casts and No. 10 'crystal' hook. The baited hook was allowed to lie on the bottom or adjusted so that it was just above the muddy bed. The deeper spots fished best, though very frequently good tench could be caught in the shallower places.

I found 3 a.m. in July until round about 8 a.m. (sun time) the likeliest period for catching the olive-tinted fishes, though I also had sport at times right up to early afternoon; usually, however, when the sun became hot and glary on the mirror-like surface of the pond in the forenoon I packed up for the day.

Sometimes I marvel at the catches I once enjoyed. It was not at all unusual to get from six to ten fish in the early morn, and once I had nineteen, not

MEMORIES OF FISHING FOR TENCH By A. Sharp

including odd perch. Generally I was well satisfied if the catch numbered a dozen, ranging from around 1½ lbs. to 3½ lbs. The biggest we ever landed from those ponds was about an ounce under five pounds. Many 3-4 pounders, not to mention 2-pounders.

Usually, I carried each fish, when unhooked, to a stone cattle trough fed by a spring a short distance from the ponds, and at the end of my fishing collected them up — as many at a time as could be accommodated in the landing-net — and replaced them in the pond.

Years of fishing for tench in ponds taught me a few wrinkles. Tench are queer customers and uncertain in habits. The morning you go forth in keen anticipation they may be having one of their fasting days. However, do not rush home cursing your luck! Give the fish a chance and angle on. Sometimes when tench are 'dour' at dawn, they may start to feed at mid-forenoon and prolong their lunch time till late afternoon; and there is always a chance, after a hot day, of getting a few fish in the gloaming. I never tried an all-night session, but have no doubt that on occasion, tench could be caught right through the night.

It is unwise to throw in the water huge lumps of ground-bait, as the sticky mess will only sink in the soft mud. Give the fish something they can easily find. Ground-bait sparingly with a mixture of bread, bran, and a few worms. If you follow this plan all should go well, especially if you watch the following points — do not stamp about on the bank; keep hidden behind a fringe of reed-cover; do not walk around the very edge of the water when throwing the 'feed' in; tench are sensitive. So do everything quietly and keep pretty well back from the edge of the pond. Let your hook lie on the bottom; but, if you get no response after a while, try fishing at mid-water or at varying depths.

Tench have a peculiar way of biting. The float will register a 'knock' by the float either bobbing or twitching, sometimes for a minute or more; then it will slowly slide under surface, stop, move on again, hesitate, and finally draw under water — the time to 'strike'.

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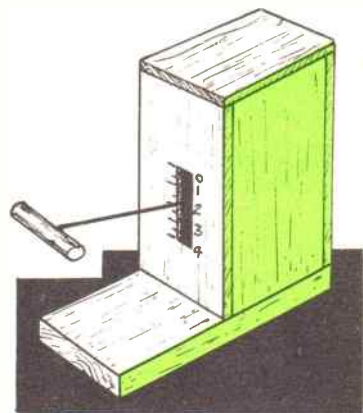
The weighing machine consists of a short perch fixed on the end of a wire which is free to move up and down with-

fore be the heaviest hardwood you can find.

All measurements will of course depend on the size of the cage door but a piece 3ins. long, 1½ins. wide and ½in.

By *A. F. Taylor*

to ½in. thick is the size shown in our design, and on to this the thin casing is built up. Wood ½in. thick is used throughout. Back and front pieces are 3ins. long and 1½ins. wide and the front has a slot cut in it for the wire lever to move up and down — about ½in. long and ½in. wide should be sufficient.



the wire which should be a tight fit. To make a more secure fixing the wire can be pushed right through and coiled round the roller for half or a complete turn.

The perch, made of a 1½in. length of ½in. dowel rod, is secured to the other end of the wire at a distance of nearly 3ins.

Fix the roller as far back in the case as possible but leave room for it to move easily and not rub on the back. The spiral spring or piece of elastic is fixed round the wire lever close up to the roller and secured here so that it does not slide along which would alter the tension and give a false reading. The other end is secured to a screw eye in the roof of the case.

Test for tension

A little experimenting will be necessary in order to get the correct tension for the spring or elastic, as this will depend upon the average weight of your bird. To be of the most use, when the bird is on the perch it should be about two-thirds of the way down the slot. This will allow ample margin on either side for loss or gain in weight, and the spring or elastic can be lengthened or shortened to give this setting.

If you are calibrating the scale in ounces this is best done by placing different weights where the bird perches on the bar and marking the scale accordingly. A quicker way is to mark off the scale with a number of equal spaces say 0 to 10 and by noting the reading each day you can tell if the bird is gaining or losing weight.

HOME-MADE PAINTS

CHILDREN'S water-colour paints may be made by mixing flour and water to a thin paste. Crush some pastels to a fine powder and blend well with paste. Use small jars for the various colours.

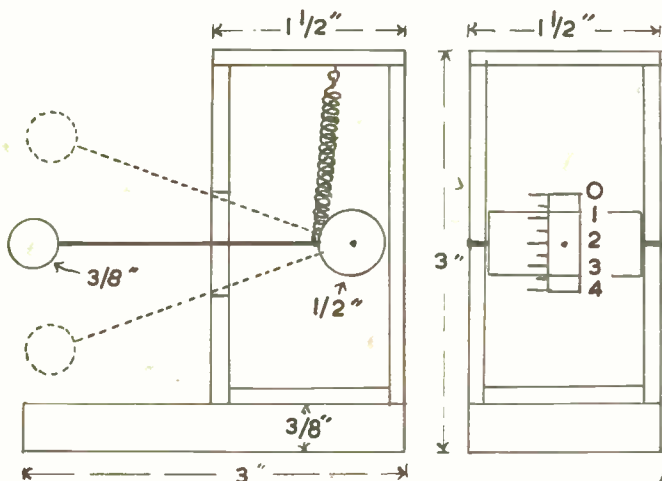


Fig. 1

in certain limits. It is kept in the up position by means of a spiral spring or strip of elastic fixed inside the casing as shown in Fig. 1.

When the bird alights on the perch its weight causes the wire lever to descend, and the spot where it comes to rest on the scale records its correct weight.

Measure the cage door

It has to be made small enough to go in the cage easily, and before you start to make it measure up the cage door and make sure that the finished machine will pass through the opening.

The baseboard should be substantial in order to keep it steady when the bird flies on to the perch, and should there-

Two side pieces are 3ins. long and 1½ins. wide and a small base to this casing 1½ins. square. This base is not essential but makes it easier to glue the other parts together. The back is not glued up with the other pieces, but screwed on afterwards so that it can be removed for adjusting or replacement of the spring. Cut a top piece 1½ins. square and glue all these together.

A piece of ½in. dowel slightly under 1½ins. long is used for the roller into which the wire lever is fixed. It must be just free to move easily and the ends can be rounded to aid this.

Drill a small hole in each end to take panel pins which will act as pivots for the weighing lever. Before fixing the roller, drill a hole in its centre and insert

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Replies to Readers

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Solid Fuel from Paper

IS there any way of turning old newspapers and magazines into a solid fuel that could be stored away? I was thinking of making papier mâché then soaking it in creosote or something like that. (S.W.—Walton.)

WITHOUT a beating engine, the making of papier mâché is very unsatisfactory, shredding and tearing under water being essential for good results. A compromise would be to shred and tear as fine as possible by hand, and pulp with water in a bowl, using a potato masher. Short logs can then be made from this by ram moulding in a short length of drainpipe. Stack the logs to dry thoroughly. Creosote can be used, but care should be taken not to have the paper logs excessively impregnated. Otherwise the logs will blaze too fiercely. Standing them on end in a very shallow layer of creosote so that capillary absorption may take place is safer. A more expensive but safer way, and which also would bind the paper and prevent disintegration during handling or storage, is to soak the logs as above in a solution of resin in methylated spirit — ratio one ounce resin; 10 fluid ounces meths. In both cases allow to dry thoroughly before use.

Marks on Wallpaper

CAN you please tell me how to remove marks from wallpaper? (J.C.—Hull.)

THE most efficient and easy way is to rub the surface with any good wallpaper cleaner, such as 'Waldecó'. These cleaners are not unlike soft rubber in general appearance, but are most effective in use.

Finish for Wooden Building

WILL an oil-bound distemper stay on the exterior of a wooden building satisfactorily — or does rain wash it off? (B.D.—Kenya.)

OIL-BOUND distemper and emulsion paints are not intended for exterior use. They only have a limited resistance to water. In any case they are intended for plaster and the makers specifically say that they are not intended for wood. The best finish would appear to be an ordinary paint applied by brush, although you may like to

apply one of the coloured wood preservatives such as Cuprinol, which penetrates the wood and protects it from rot, but the colour is more of a stain than a paint, as it soaks in.

Renovating a Brass Jug

I HAVE a brass jug which has been painted over with silver paint. Can you tell me how I could get this paint off without damaging the brass, and then how I could polish the brass. (M.K.—Huddersfield.)

THE selection of a suitable paint remover depends on the paint medium. First swab with a mixture of 3 volumes benzene and 2 volumes of methylated spirit. If this makes no impression the medium is probably cellulose, and in this case, swab with a mixture of equal volumes of amyl acetate and acetone. Ordinary metal polish will clean up the underlying brass, unless there is much green corrosion (verdigris). In the latter event, work over it with a rag dipped in ammonia, dry and finish with metal polish.

Re-graining Wood

PLEASE tell me how to set about stripping, graining and varnishing doors and windows which are at present grained and varnished brown and have become dirty, with parts of the windows bare of paint. (G.H.—West Bromwich.)

IT will be best to strip the paint with a chemical stripper, from your paint shop. This will go right down to the bare wood. Apply a coat of priming paint, then get matching colours for graining. The paint shop will advise you on colours. The undercoat must be dry. When the top coat is partly dry, the graining is done with a special comb or brush. When this is dry, give a coat of clear varnish.

Removing Balsa Glue Stains

WHAT can I use to remove the stains of paint and balsa glue from a pair of trousers? (N.N.—Ilford.)

IN an endeavour to remove the stains you should place a pad of absorbent cotton beneath the stained portion, and swab freely with acetone (highly inflammable). If the stain is too

IMITATION LEATHER

A SIMPLE 'dip' treatment can be used for preparing 'imitation cloth' from ordinary white card or stout cambridge paper. The card or paper is first dipped in a solution of copperas and then rinsed out quickly in a solution of ammonia. Whilst damp the card or paper can be beaten lightly to indent the otherwise smooth surface. A final rinse in clean water is advised before allowing to dry.

(R.H.W.)

heavy to yield entirely to this treatment, push out the stained part into a cone, bind tightly above it with string, and soak the stain for some minutes in acetone. Squeeze out and rinse in fresh acetone. Remove the string and allow to dry.

Treatment for Bone

IS there any way I could straighten a curved pair of nigger-bones (clappers)? I want to use these bones on a knife handle. Also, how could I dye them black, and what would be the best glue to stick them on to the metal haft? (A.T.—Camborne.)

PRACTICALLY speaking, it is impossible to straighten curved bones. The most helpful method to try is to soak them for hours in hot oil, and then grip them in a vice or press and gradually push them straight and to set. There is, however, a risk of their breaking. They can be dyed successfully with spirit aniline black dye, or possibly by soaking for lengthy time in a bath of Colron wood dye — ebony or black. The best glue to use is a modern product known as 'Araldite', or failing this, use a mixture in the form of a stiff paste made of whitening and white of egg. Leave untouched for several days after using this mixture, as it takes time to set.

Marks on Leather

I SHOULD be grateful if you could give me advice on removing a stain from a leather chair. (I.M.—Oswaldtwistle.)

TO remove the stain from the leather chair you might try washing the surface with warm water in which a little soda has been dissolved. Then treat with a cotton-wool pad soaked in a mixture of half ounce bismarck brown to one pint methylated spirit and half gill french polish. Finish off with a rub over with furniture polish on a soft dry cloth.

Make it distinctive

CLUB NOTICE BOARD



THE figure may be used as an overlay on your club's notice board. Cut it from $\frac{1}{8}$ in. wood and colour it as realistically as possible. The hair should be black, the body dark brown and the club light brown. The ornaments round the neck are red and yellow.

The notice board can be made from $\frac{1}{4}$ in. plywood screwed or pinned to a stripwood frame as shown in the small detail. Sizes will, of course, depend upon individual requirements.

The wording should be cut from $\frac{1}{8}$ in. wood, painted and pinned in place. If you use glue it must be a waterproof type.

The figure may also be used as a stencil to decorate your display bills. Trace and transfer it to thin card, and cut with a razor blade. Use an old brush with the bristles cut short to print your stencils. (M.p.)

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YOUR FRETSAW

CLUB
NEWS

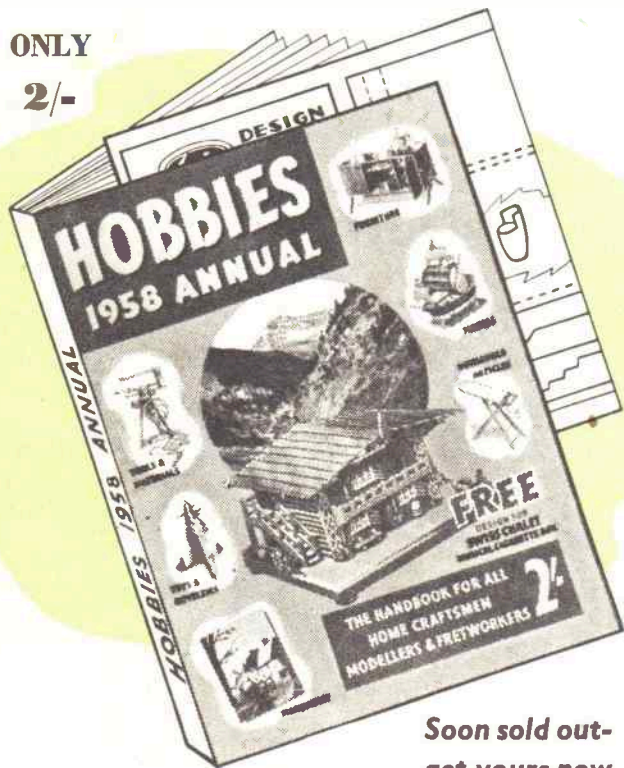
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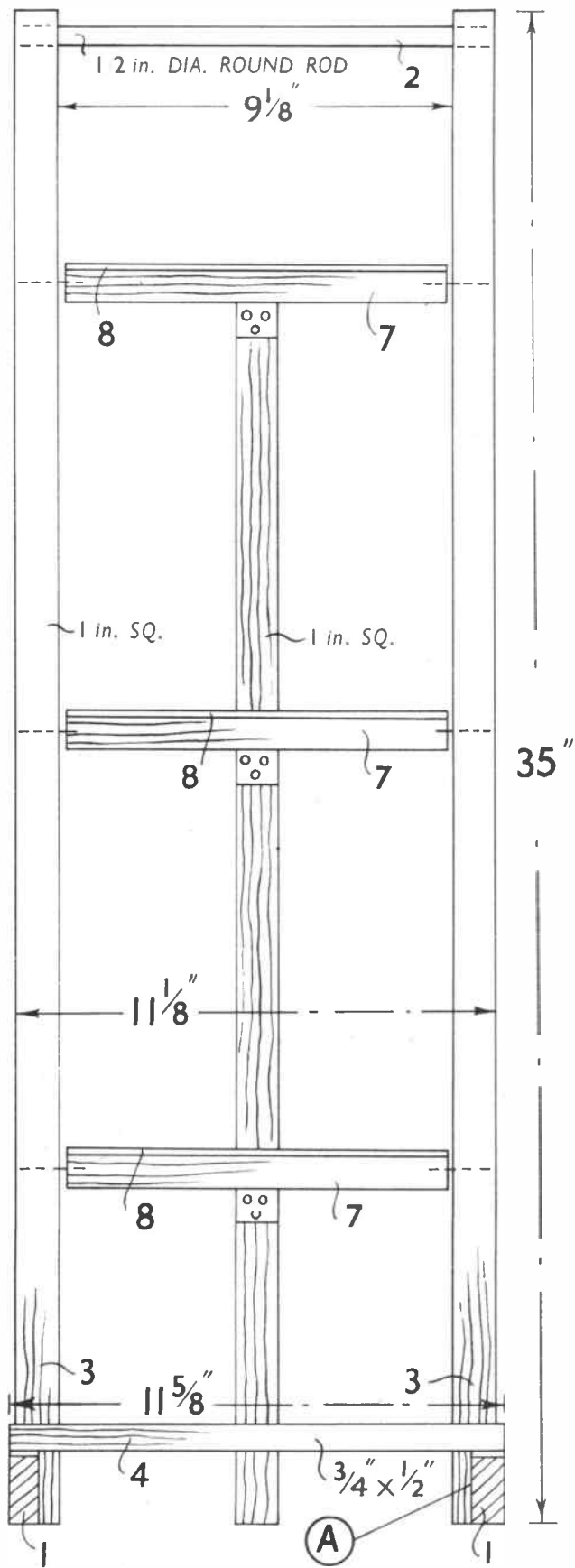
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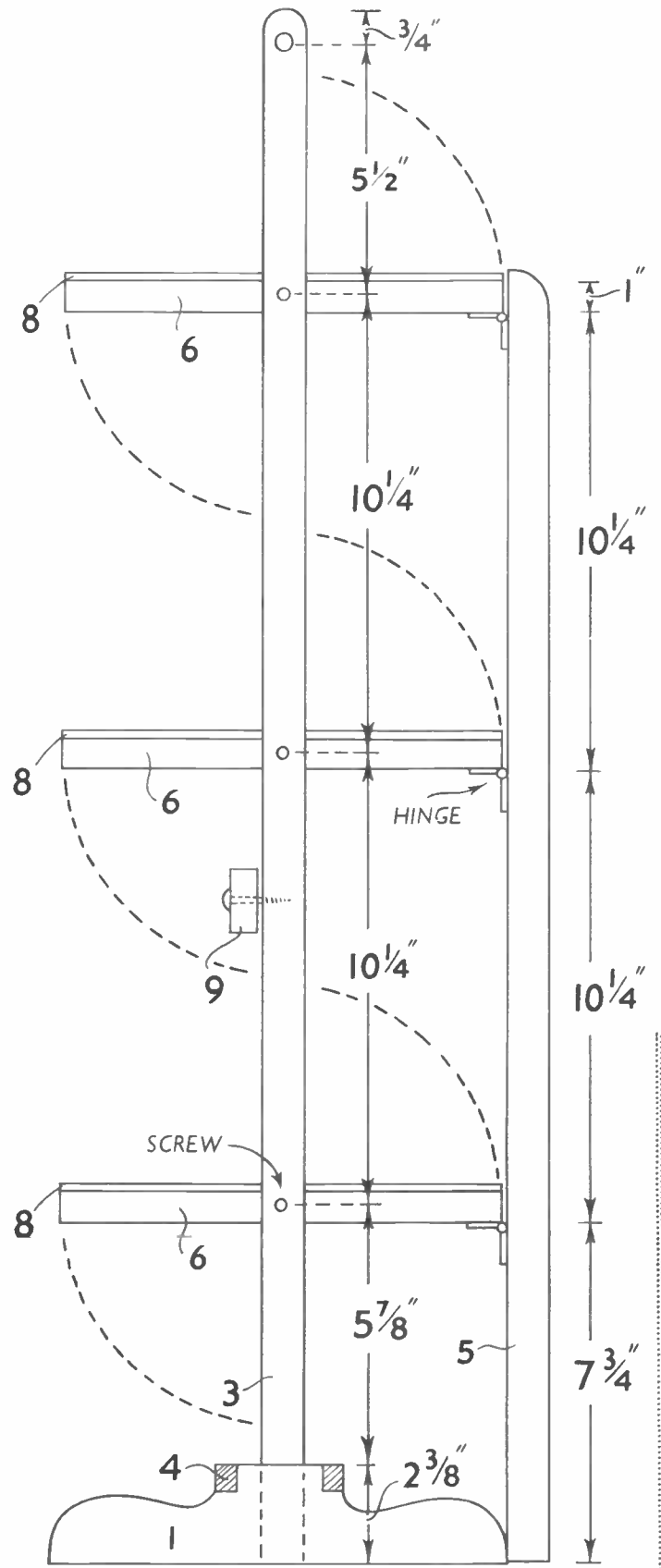
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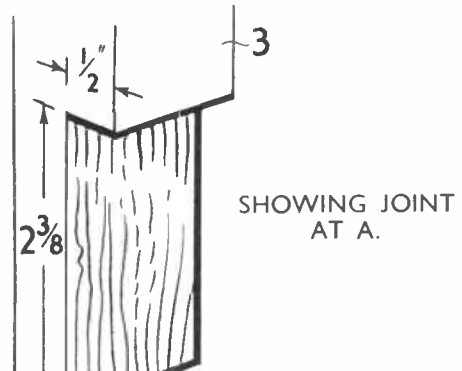
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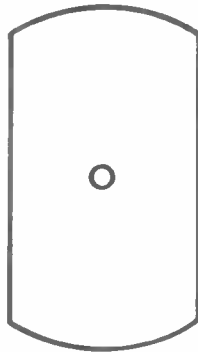
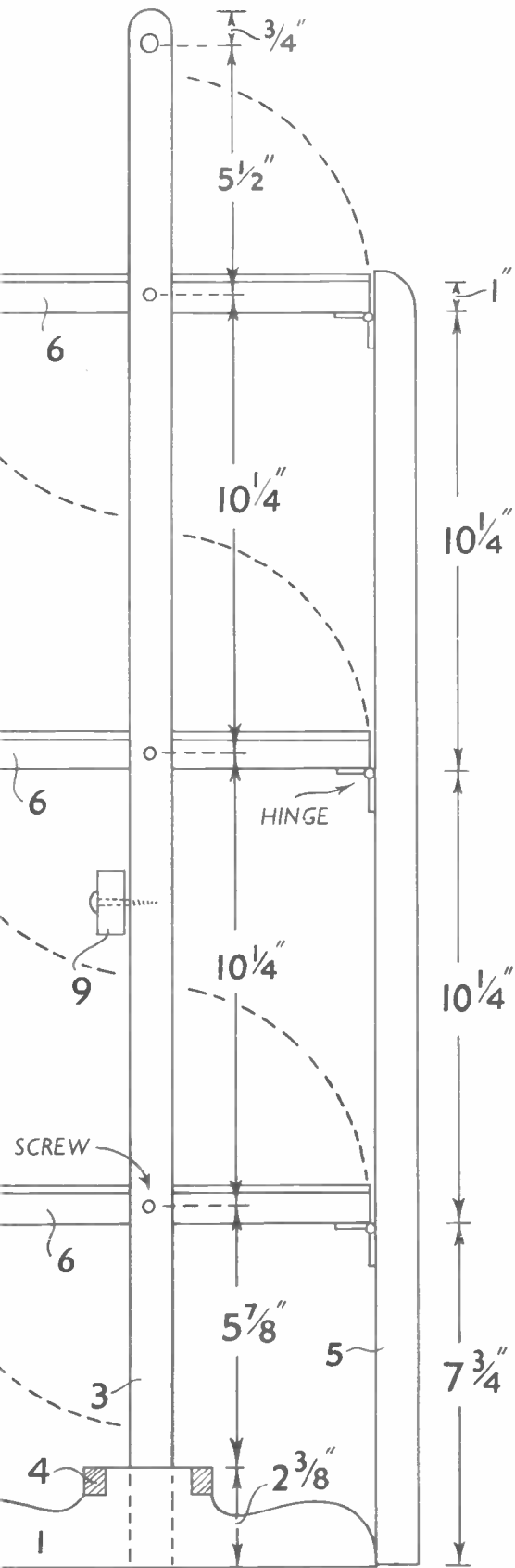


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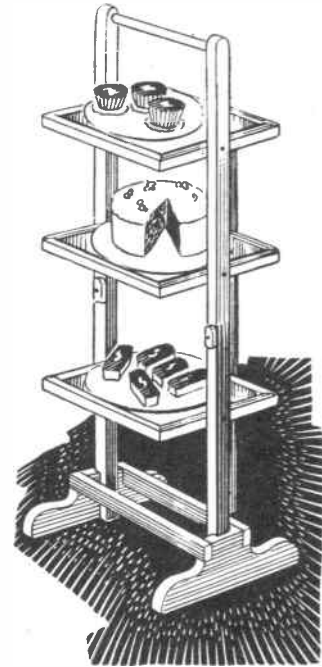
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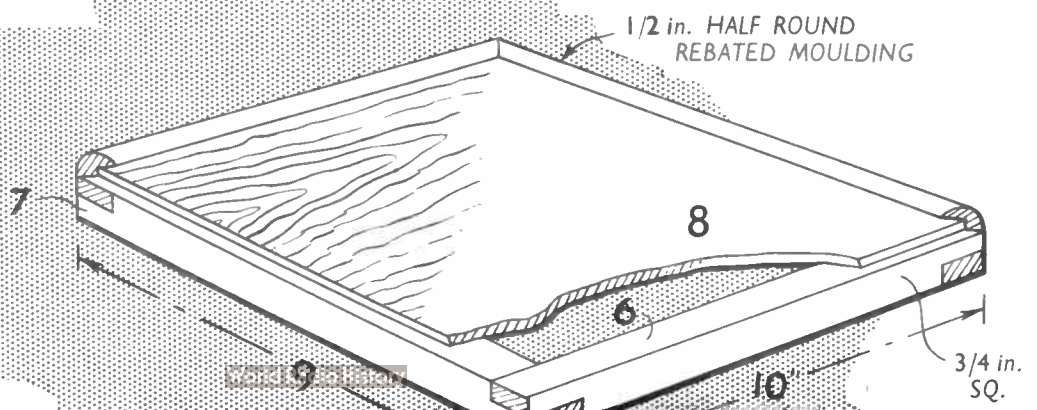
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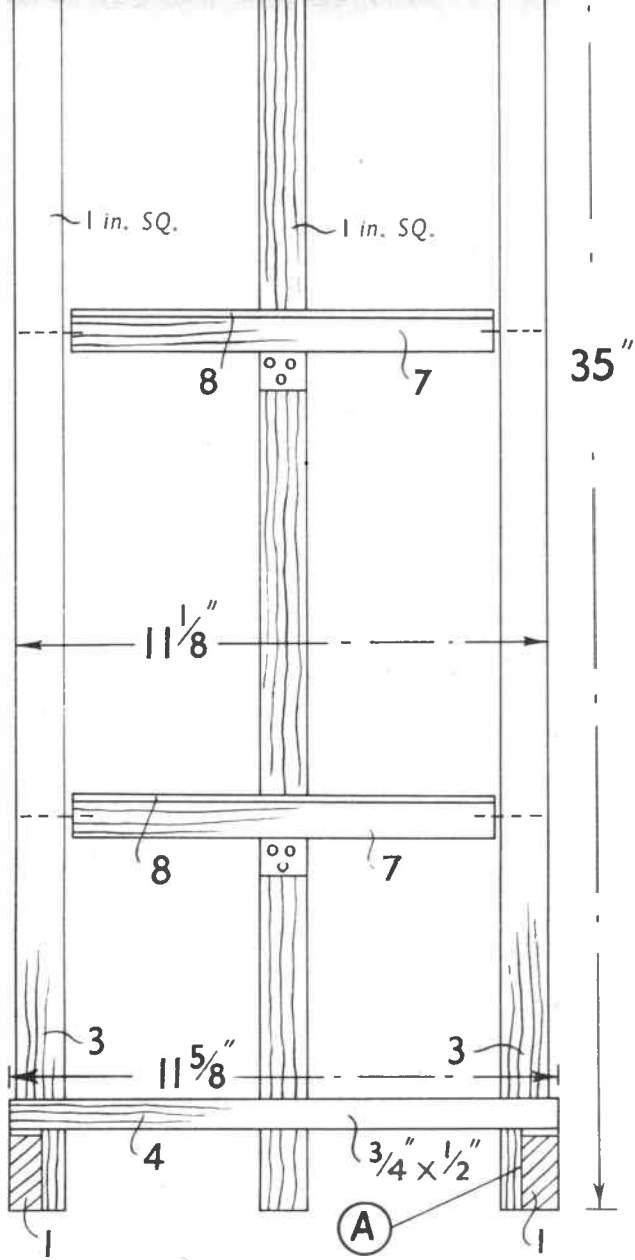
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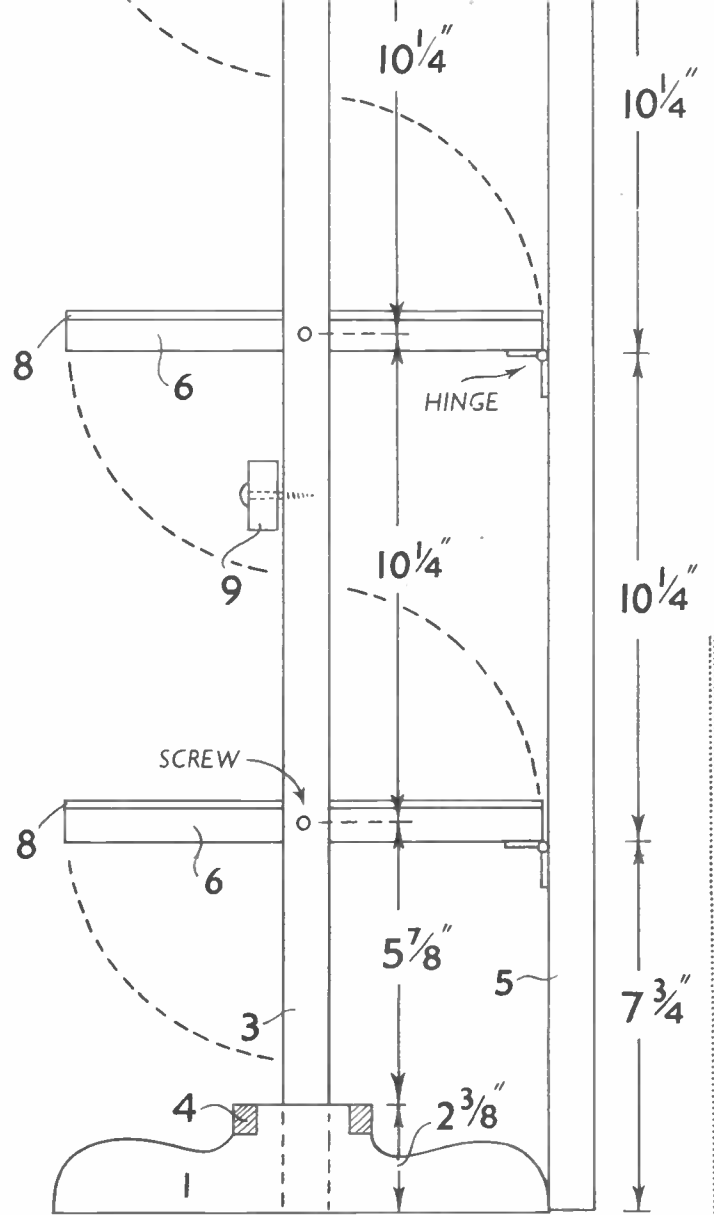
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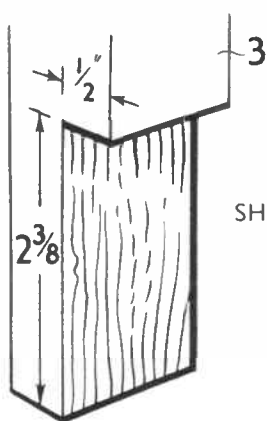
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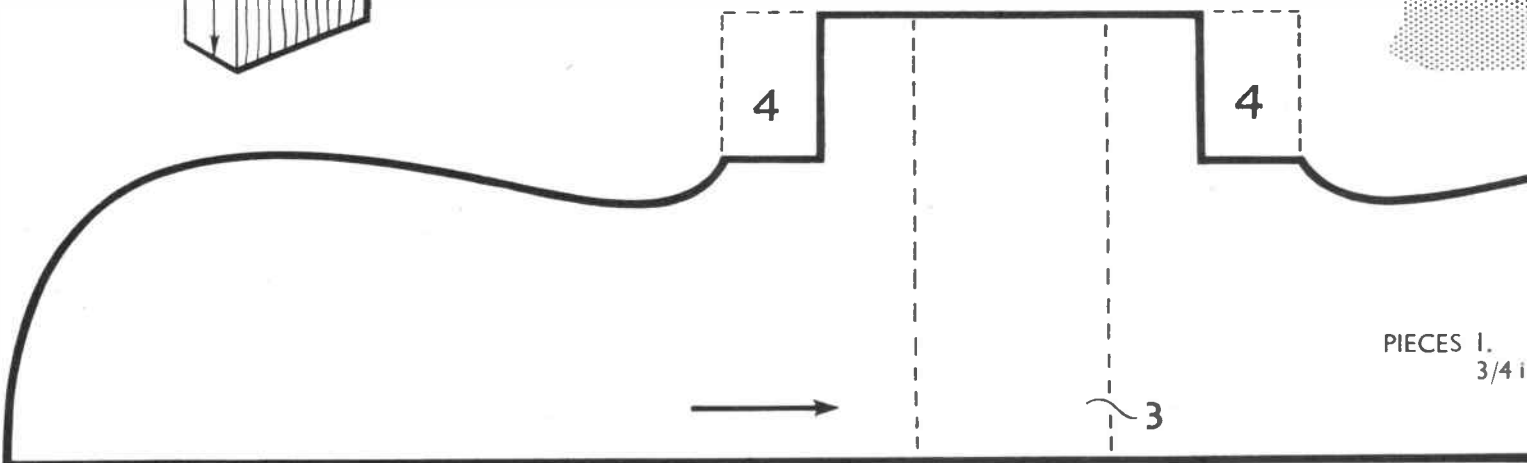


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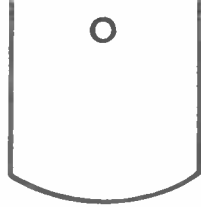
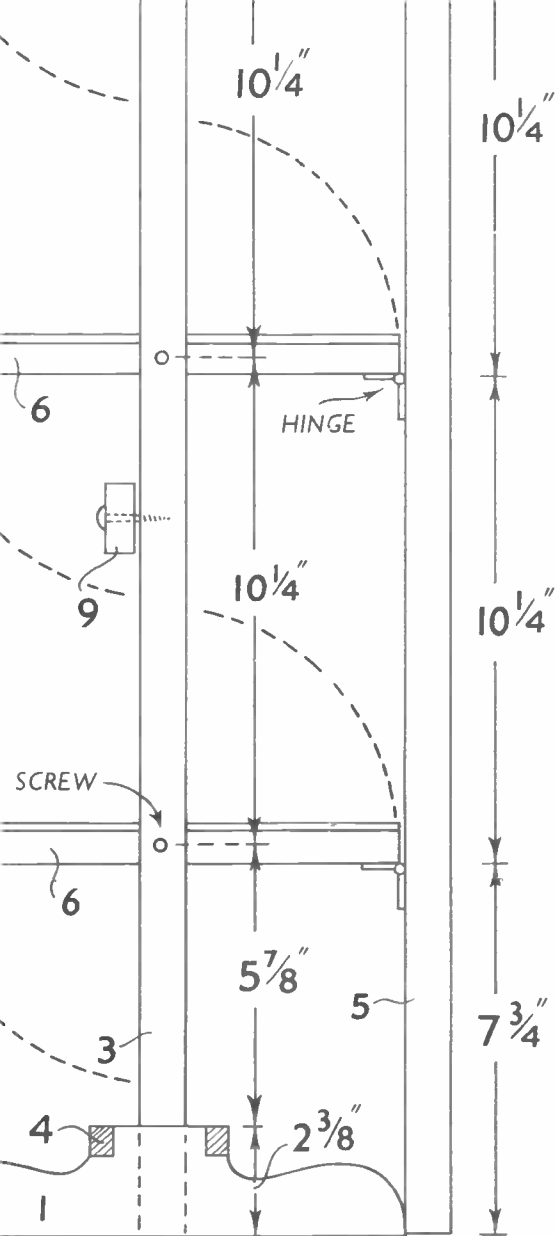


SHOWING JOINT AT A.

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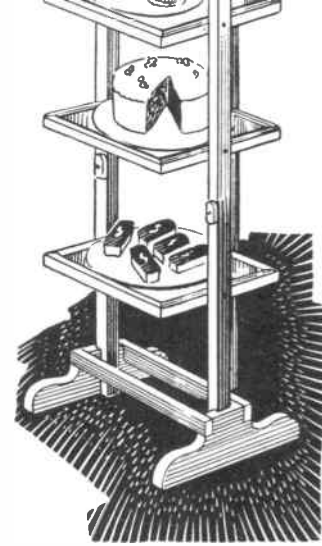


PIECES 1.
3/4 i



BUTTONS 9.
CUT TWO
 $\frac{3}{4}$ in.

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HIGH.



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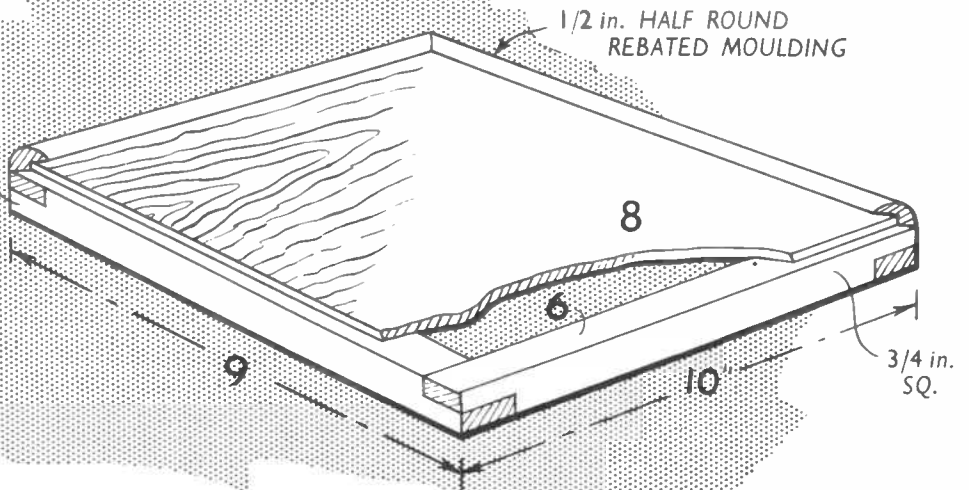
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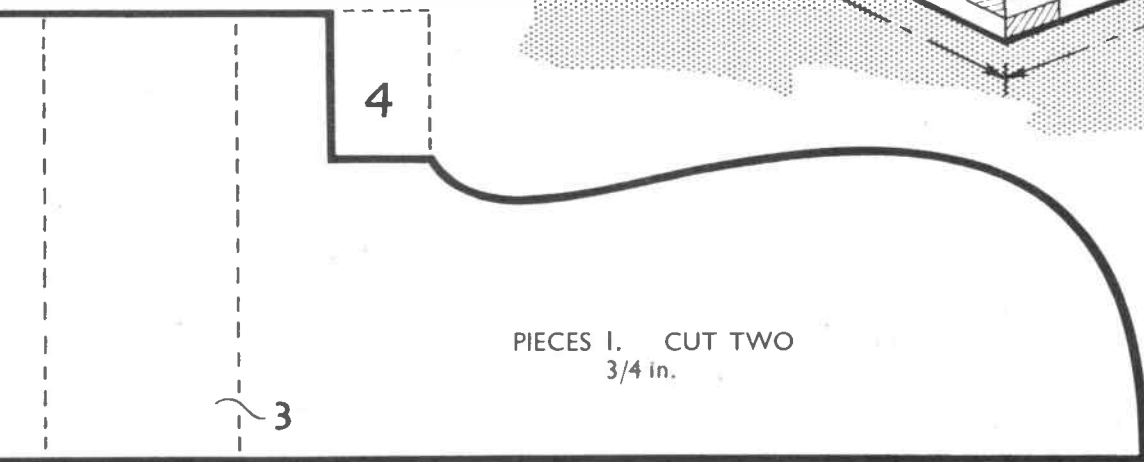
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SIDE VIEW

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