

# HOBBIES WEEKLY

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★ *FREE Design inside for*

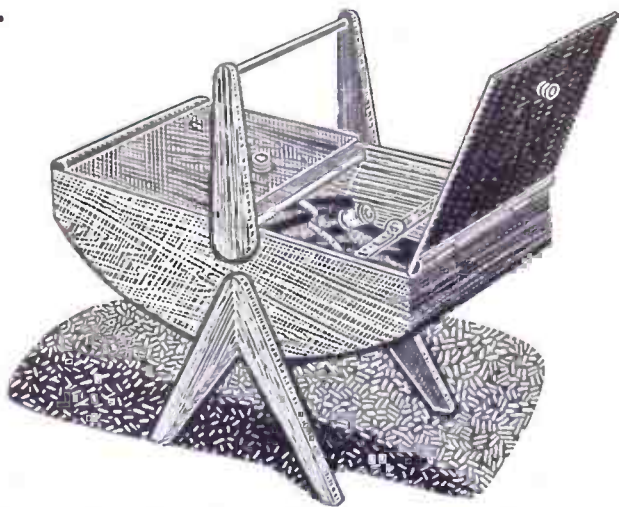
## A LADY'S WORKBOX

**W**ITH its very pleasing design and appearance, this lady's workbox in contemporary style would be sure of a welcome in any home. In it can be kept 'under one roof', as it were, all the silks, cottons, needles, threads and other materials needed constantly by the woman of the house for making and mending.

She will appreciate having just what is needed immediately to hand without having to search round in drawers or cupboards for a needle, pin or reel of cotton. And as will be seen from the illustration, the workbox is easily portable and makes an elegant piece of furniture. For the odd occasion it could serve quite usefully as a fireside table.

There are two hinged lids opening in the centre, and held open by Hobbies stays (No. 713R) of polished brass. Of substantial construction, the workbox is made principally from  $\frac{1}{4}$ in. wood. All the wood and accessories are included in Hobbies kit No. 3166, which costs only 37/6.

**A VERY  
POPULAR  
SUBJECT  
FOR A  
GIFT**



Trace off the parts from the design sheet on to their appropriate thicknesses of wood, and cut out. It will be noticed that on the design sheet only half of one side of the box is shown because of limitations of space. To complete the sides, trace the half shown and then reverse the tracing. All the other cutting is straightforward, the handles and legs being shown full size. Make sure when cutting the leg sections that the correct angles are adhered to, as two will be joined together to form one leg, and a neat join must be aimed at.

The first step in assembling is to glue the end pieces (2) between the two side pieces (1) as shown in Fig. 1. For strengthening purposes, drill and countersink two screws from each side. The holes can be filled with plastic wood. It will be noted that the bottom edges of pieces 2 are shaped as shown in the side view on the design sheet, and provision is also made on the top edges for letting in the four  $1\frac{1}{2}$ in. hinges for the lids.

The three strengthening supports at the bottom (pieces 7) are now glued and

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

*For Modellers, Fretworkers  
and Home Craftsmen*

**4 1/2<sup>D</sup>**

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World Radio History

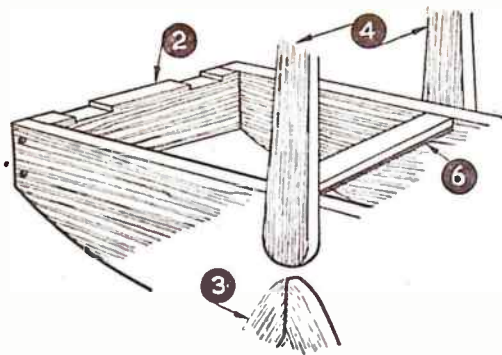


Fig. 1

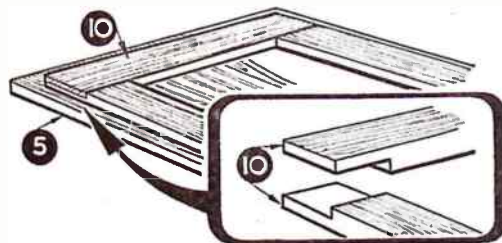


Fig. 2

pinned or screwed between the sides (see side view on design sheet). These are to support the bottom (piece 8) which consists of a piece of thin plywood. This is added by gluing and pinning or screwing to the sides, ends and supports. When fixed, the edges should be trimmed with a sharp knife and well glasspapered to give a smooth finish.

#### Make legs in pairs

Next make up the legs (pieces 3) into pairs. The design sheet shows how these are doweled and glued together. The doweled can be omitted as the legs will be held secure by screws from the inside of the box, again countersunk and filled in. The positioning of the legs is indicated by a broken line on piece 1 on the design sheet. Four screws for each pair of legs will be found sufficient — two for each section. At this stage, ensure that the box stands level on its legs.

A piece of 1in. by 3/4in. stripwood (piece 6) is now glued and screwed centrally between the top of the sides, as shown in Fig. 1, and the arm pieces (4) for the handle are added the same as for the legs. These will cover the screws needed to fix piece 6, and they in turn are screwed from the inside, two screws for each arm piece. To complete the handle, an 11in. length of 3/4in. round rod is glued into the holes provided in the arm pieces.

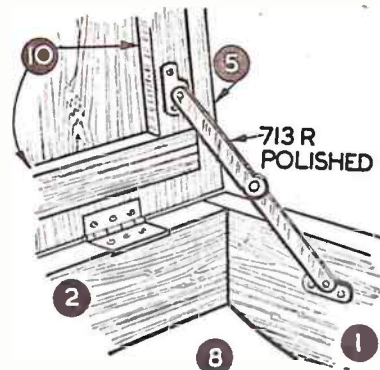


Fig. 3

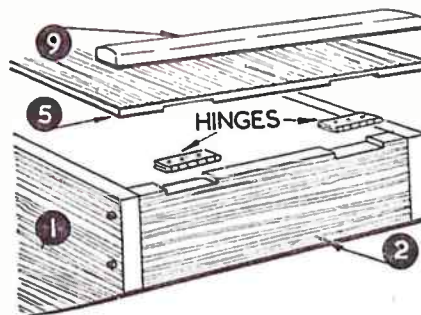


Fig. 4

#### A Kit for 37/6

All the wood, hinges, knobs, stays, etc. needed to make this charming workbox are contained in Kit No. 3166, price 37/6, from Hobbies branches, or post free from Hobbies Ltd, Dereham, Norfolk.

The construction of the two lids is seen on the design sheet and in Fig. 2. They consist of pieces of 1in. by 3/4in. stripwood (10), halved together to form frames. These are glued and pinned underneath pieces 5, 3/4in. all round from the edges. When the lids are lowered the frames fit into the squares formed by the ends, sides and piece 6. Pieces 9 at the hinged end of the lids can now be glued on, as seen in Fig. 4.

The lids are hinged to pieces 2 and the lid stays added as indicated in Fig. 3. Position these so that when open the lids are fixed in the perpendicular. The addition of Hobbies plastic knobs (No. 707) screwed into the lids, completes the construction.

Clean up the work thoroughly and finish as desired, either by staining and polishing or with enamel paint. Workers will have their own ideas about

finishing the interior to give a smart effect. It can be lined with silk or other material. Here the opinion of the woman of the house can be sought, and provision can also be made for the holding of scissors, etc., in the 'wells' of the lids.

#### Uses for Olive Oil

**A**FTER washing clothes or when hands get hard and dry, rub them well with olive oil, then wipe off with an old rag.

Before doing dirty work rub olive oil well in hands and nails — it keeps them clean and soft.

Rubbed into the scalp olive oil promotes growth and silkiness of the hair, especially if a shampoo is contemplated the next day.

Ink stains soaked with olive oil for a time, then washed in hot suds, usually disappear.

Olive oil blended with condensed milk, vinegar, a pinch of salt and a little mustard, makes a very good, cheap and nourishing salad dressing.

Olive oil and salt will often eradicate white marks from furniture. (R.L.C.)

## MASSIVE JIGSAW PUZZLE

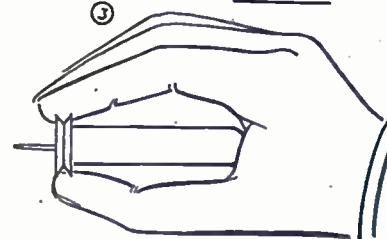
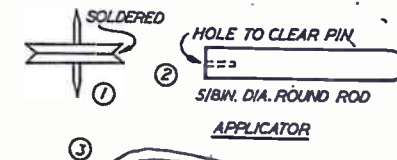
**O**UR picture shows Tim Cain and David Doggett working on a massive jigsaw puzzle made by them on a Hobbies Gem Fretmachine. This puzzle contains 10,800 interlocking pieces, covers 80 sq. ft. and tells the story of Jesus in twenty episodes.

Undoubtedly many readers saw these two fretwork enthusiasts with their puzzles and Gem Machines on B.B.C. Television in the film 'Stranger than Fiction'. Tim and David are two of Skipper Clifford L. Tillett's White Crusader Boys. All the boys of this splendid London Club use Hobbies Gem Machines for making the countless toys they give away as Christmas gifts to orphans and deserving charities.

The Gem speeds up cutting tremendously and is a fine piece of machinery for £5.17.6.



## A Simple Dowel Marker



**W**ITH several of the little markers and the special applicator described here the job of marking out blind dowel holes becomes as simple as possible.

To make these markers, obtain a couple of dozen brass drawing pins with large flat machined heads and 'screwed in' pins. These drawing pins are usually about 3/16in. or 3/8in. diameter and are about 1/4in. thick. These are soldered together in pairs, as shown in Fig. 1.

To solder successfully, first 'tin' the heads and then apply heat again and press together. Do not use a lot of solder or it will be difficult to align the pins. The markers cannot be accurate in use unless the pins are accurately in line and concentric with each other.

To position the markers an, applicator as shown in Fig. 2 is needed. This can be made from a piece of dowelling about 3/16in. or 3/8in. diameter and about 3ins. long. Round off one end with glasspaper and square the other end. Then

drill a small hole in the flat end, just big enough to allow the pin of the drawing pin to enter freely and deep enough to clear its length.

#### Application

In use, the marker is fitted into the applicator and with the round end in the palm of the hand, and the rim of the marker held between the thumb and forefinger (see Fig. 3) push the pin into the wood where a dowel hole is required. With the applicator, position all the markers required, and then present the other piece of wood to the outstanding points of the markers and push home.

On taking the two pieces apart and removing the markers, the dowel hole positions will be found to be accurately marked on both parts of the job in hand.

Drilling to size finishes the job except for fitting of the dowels.

A dozen or so of these handy and easily made markers and one applicator, will be found most useful in any amateur constructor or woodworker's kit of tools. (T.H.M.)

# MAKE A RABBIT HUTCH

**R**ABBITS have always been popular as pets. Not only among young people but among grown-ups they are great favourites. No animal is more docile, more quiet. Even the youngest child can stroke them without fear. Altogether they are delightful pets, certainly repaying in pleasure the little attention they need.

But if you are fair to your pet you ought to see it has decent accommodation. Apart from the humanity of this, experience shows that good housing will save you a lot of trouble from the point of view of ailments. A well housed rabbit will remain healthy and live long, giving practically no trouble at all.

By A. Fraser

So, right from the start, build a really good hutch. One has to build one in any case, so it might as well be a proper one.

What makes a good hutch? There are several requirements, but two really important ones. First, it must be large. It is simply cruel to coop up a rabbit in a small narrow box where the rabbit cannot even stretch itself. The bigger the hutch, the less cruel you are, so the onus is on you. Second, the hutch must be completely waterproof. Rabbits, just as much as human beings, are miserable and unhappy if obliged to live in wet draughty quarters.

For this hutch, it is recommended that the minimum size should be 3ft. long by 2ft. wide, with 2ft. high door. The ridge of the roof will, of course, be higher than the door — say, 6 to 9ins. The roof must slope to shed the rain.

The thicker the wood you can use, the better. This means more strength and warmth. 1in. thick wood would be satisfactory.

First, make the floor of the hutch. You will need a sufficient number of ordinary boards to make the width of the floor, and these should be joined together by a batten along each end. Fig. 1 shows the boards (A) joined by batten (B). The battens should be sawn off flush with the edges of the boards. These boards should be as thick as possible, one inch for boards and battens would do.

After this, make the sides of the hutch. Select a number of boards to stretch the exact width of the floor already made. Set them up side by side

against the wall or on the ground, so that the bottoms are absolutely in line, and each board is pressed close up against its neighbour. Using straightedge and pencil, mark off on the boards the slope of the hutch. The degree of slope is not important, so long as it will shed the rain easily.

Mark off a similar number of boards to form the opposite side of the hutch.

Before assembling the sides, take the front boards in each side (C in Figs. 1, 2, 3) and saw out a section at the top front corner. This is to accommodate the cross-piece (D) (Figs. 1, 2, 3) which comes at the top of the hutch front. If (D) is 2ins. by 1in. section, then the cut-out should be 2ins. deep by 1in. wide. The side elevation in the circular inset of Fig. 3 is explanatory.

Having sawn out the sections, the side boards can be placed together on the ground and nailed together on to a batten (E, Figs. 2, 3). This batten should run flush with the tops of the boards, and be sawn off at the shoulders.

When this is done, each side can be placed against the hutch floor already made, and the bottoms of the boards nailed to the battens (B) (Fig. 1).

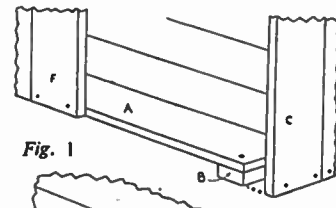


Fig. 1

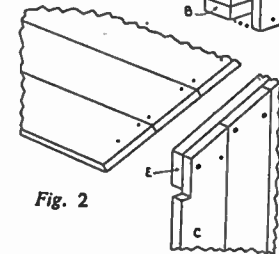
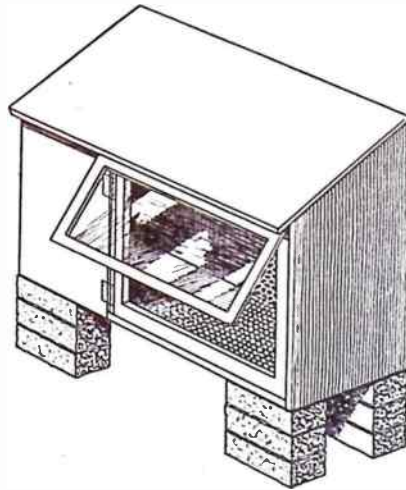


Fig. 2

The back can now be fitted. This will consist of similar boards, but put on horizontally this time. The boards should be marked off and nailed on one at a time. They are nailed into the back edge of the side board (L). See Fig. 4. Nails are also driven into the back of the floor, through the bottom board of the back (K).



The back boards should come to the same height as the shoulder of (L) Fig. 4. The top edge of the back can be chamfered with a plane so that it continues the slope of the side, and so make a close fit with the roof to be put on later.

The next thing to do is to fix the piece (D) (Fig. 3) across the front. This should be marked off and sawn to the correct length, and it has to be nailed to the side boards (C). It can be chamfered off to continue the slope of the roof, or just left as in the drawings.

Before nailing into position, it is best to attach to it the front boards (F,F) in Fig. 3. If the hutch is 36ins. long, then these boards can make up a width of about 14ins. The top edges must be chamfered off to accord with the slope of the roof.

Having nailed on the front boards, attach the whole to the hutch front, nailing (D) to side boards (C), and the front boards at the bottom to the floor edge (Fig. 1).

Before proceeding further with the woodwork, it is advisable to paint the inside now with a couple of coats of white or light cream paint. It is easier to do this at this stage before the roof is put on. The paint will keep the wood clean and the interior light and cheerful, and so set off the rabbit's appearance.

While the paint is drying, the roof can be made. This, again, consists of boards preferably laid horizontally. As in the case of the back, these should be marked, sawn and fixed one by one

They can be painted on the under surface before nailing. The bottom board should be allowed to project 2ins. or 3ins. to create an overhang, so that the rain drips free — away from the hutch front.

The door can next be made. This is easily done by making a frame of, say, lin. by 1½in. stuff. Half-lap joints are quickest. These can be glued and screwed together. The width of the door will be that distance between the edge of the front boards (F,F) and the outside of the side boards (C). The door will be flush with the bottom of the floor, but its height will not go right up to the roof, or the door would not open owing to the sloping overhang of the roof obstructing it. Make it high enough to come just over the bottom edge of the cross-piece (D). This should enable the door to swing open without bumping into the overhang. The wire netting should be ½in. or 1in. mesh and can be attached to the back of the frame with staples. Alternatively, laths or stripwood can be used to hold it down.

Two good hinges can hang the door to the front boards and on the right-hand side some method, such as a hook and staple, should be adopted to secure the door to the side boards.

Next, the hutch is covered with thin roofing felt to make it absolutely watertight, and draught-free. First, cut one

long piece to extend from the side of the door (near the hinges) along the front boards, then round the side, then the back, then along the right-hand side of

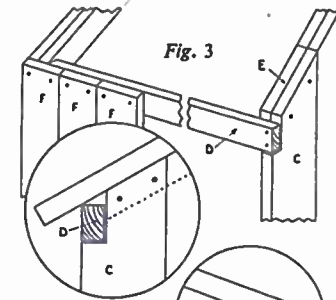


Fig. 3

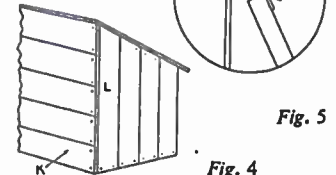


Fig. 5

hutch. Nail into place, and cut the felt along the bottom and again along the roof top.

A second piece of roofing felt is then laid over the roof top, folded over on all

four sides about 1½ins. or so, and nailed down.

The hutch is now practically complete. There remains only the refinement to be seen in the illustration. This is a special canopy which is very serviceable in wet weather. Everyone who has kept rabbits knows that with the ordinary hutch, the rain drives into the hutch through the wire-netting and the floor far back into the hutch becomes soaked. This unsatisfactory state of affairs is obviated by the special canopy mentioned. It consists of a simple frame of wood fitted with a pane of glass. This keeps out the rain successfully and yet at the same time allows the light still to get into the hutch, and, of course, the rabbit to see outside.

The canopy is hinged beneath the overhang of the roof proper as seen in Fig. 5. A simple wood stay can be used to hold the canopy up. In the summer a piece of roofing felt can be pinned over the canopy and can serve as a sun-shade.

Mount the hutch on bricks as shown in the illustration, to keep it away from the damp ground, and also allow better viewing of the rabbit. Use plenty of sawdust for the floor, with some hay or straw for the part behind the front boards where the rabbit can retire.

Clean the hut out frequently. It only takes a minute or two, and will keep the hutch and rabbit clean and sweet smelling.

# Make Useful Hoes from old Saws

**H**AS it ever occurred to you that the old rusty handsaw hanging up in the shed can be brought out of retirement and given a further useful life?

Many gardeners will welcome the useful hoe described here and which is made from an old saw — in fact, several can be got out of one saw blade. Although rusty, the blade is generally of good quality steel and will stand a considerable amount of hard wear.

Besides turning over the soil a hoe should be able to chop down unwanted weeds, and if the teeth are left on the saw blade the efficiency of the tool is increased.

Cutting the saw blade may present a little difficulty, the steel is tough but with care and patience the problem can be overcome. If you possess a large vice a piece can be snapped off with ease, or you may have a friend with a guillotine to chop off the required pieces. Failing these you can cut half way through the blade with a triangular file and then snap it off.

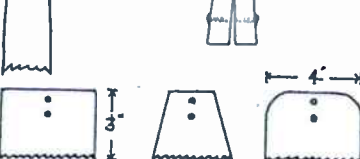
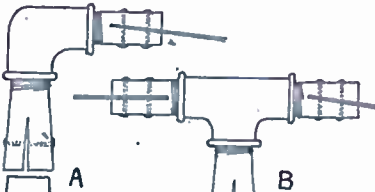
Whatever method you adopt the edges will need filing level and any rough parts removed. If the saw is covered with rust this is best removed

with emery paper, because a smooth hoe will do the job so much better than a rusty one.

Several different patterns are shown at (C), which will file to shape fairly easily if held tightly in the vice. You may, however, have other ideas and



OLD SAW



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like to design your own hoe blade. Two holes for fixing the blade will be needed and these should be about ½in. A twist drill with plenty of pressure and a slow action will give best results with mild steel.

Fixing the blade to the handle is achieved with the aid of steel or iron tubing and you can have either a single- or double-ended hoe as shown at (A) and (B). For the ordinary single-ended type you need an 'L' bend, and for the other a 'T' piece. The blades may be set at different angles.

One or two pieces of tubing 2ins. long are screwed tightly into these angle pieces depending on the type you use to hold the hoe blades, while a longer piece about 3ins. long serves to hold the handle.

The sketch shows the handle piece split and opened up slightly to take a sturdy handle.

When preparing the tube for the hoe blade it is an advantage to plug it first with a piece of dowel rod which helps to strengthen it and form a firm base for the riveting. Cut the slot with a back-saw. Do not make the slot too wide — a tight fit is best. Two good rivets will complete the job.

(A.F.T.)

# Neat and efficient ALBUM FOR PHOTOGRAPHS

OUR grandparents were very proud of their substantial photograph albums, which contained the portraits of most of the uncles and aunts from childhood to maturity. They had to be big, because the photographs of those days were mounted on thick cards, and the tiny prints we know had not become popular.

And again, it was quite the thing to display the family album to friends with a certain amount of pride. But like the pictures they held, they seemed stiff and starchy, so here is a suggestion for making your own albums, introducing new

Described  
by  
S. H. L.

Allow the edges of the covers to overlap the pages slightly as shown in Fig. 1 to give protection.

A more ambitious album is shown in Fig. 2, where a hinging arrangement is provided. Two pieces of card for the back and front, and three smaller pieces, 1½ins. in width, and the other two, which are punched, for the hinge. These cards are glued to some good paper or bookbinding linen, with the corners trimmed as shown. Another piece of stiff paper is then glued to the inside, flush with the edges, and not folded over. Sheets are

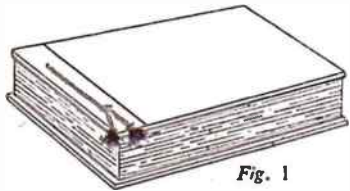


Fig. 1

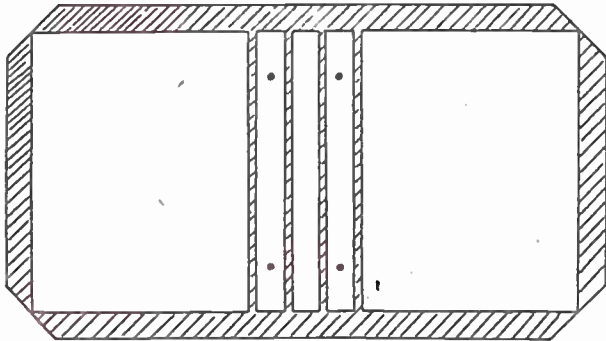


Fig. 2—Shaded portion shows binding material

features to make the whole an enjoyable record of any holiday.

An album in its simplest form is merely a number of pages held together between stiffer backs of cardboard. They may be fastened together by cord, hinged rings or special barrelled screws bought from a stationer's. Holes are pierced with a punch and the fasteners keep the pages in position. You may buy large sheets of pastel paper in black, dark brown or grey, measuring 20ins. by 25ins., and these can be cut up to suit your own requirements. It is wiser to prepare a stiff cover and back covered with a gay paper. A convenient size for such albums is 10ins. by 7½ins., and they may be either upright or horizontal.

then cut to fit the binders. It is easier if a small gauge is prepared, so that the holes are punched in the correct place on every leaf. This can be another strip similar to the ones used in the cover, laid on the leaves and the position of the holes marked before punching.

You may wish to make up an album of your own size, so particular measurements are not given, but remember that the spine should not be too large for the slim album, and you may dispense with this strengthener. Otherwise, leave about ½in. between the three strips. Moreover, if you prefer the simpler form, it is preferable that the top card is scored to make a hinge, ease opening, and prevent damage.

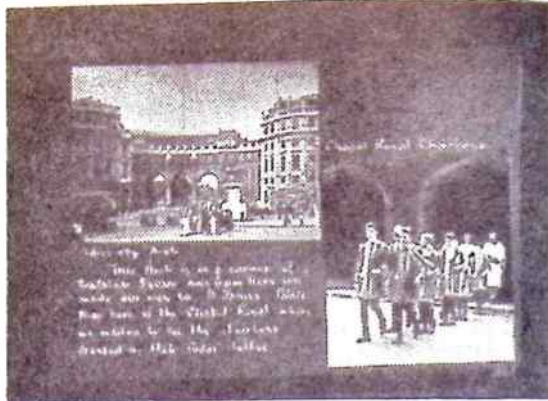


Fig. 3—Photographs and their story

In compiling the album, try to start at the beginning of your holiday, arranging the pictures in a proper sequence, and this is best done before mounting begins. In addition, you can include souvenirs of the holiday in the form of 'bus tickets, theatre programmes, menu cards or, perhaps, pressed flowers and picture postcards you may have bought, besides your own photographs.

Write a short account

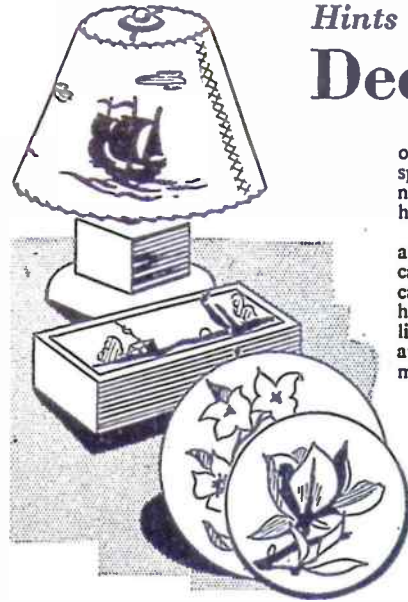
Having decided the arrangement of the pictures and souvenirs, it is also nice to write a short account of the holiday, incorporating any incident of interest, or any story worth recording.

Writing up the album requires space, so it is best to allow for this by mounting only two or three pictures on a page (Fig. 3), and for variety, place them in different positions on each succeeding page. White ink, or white pencil shows up well on the darker coloured papers and these may be bought at any photographic shop.

Any of the usual mountants may be used for sticking the prints in the album, but there is no need to paste all the back of the print. It is far more satisfactory to apply just a little to the top edge. Alternatively, you may use some of the special adhesive corners. Flowers may be mounted by means of thin strips of Sellotape, with slits cut in the page for holding programmes if you wish these to be removable.

\*\*\*\*\*  
\*  
\* Next week's issue will contain \*  
\* instructions for making a gar- \*  
\* den seat—quite simple, cheap \*  
\* and efficient. Make sure of your \*  
\* copy. \*  
\* \*  
\*\*\*\*\*

# Hints on a gay medium Decorating Parchment



Before commencing work, lightly rub over the parchment with methylated spirit to remove grease spots. Take care not to touch the surface again with the hands.

Choose a simple design to start with and transfer it, by means of pencil carbon paper, to the parchment. Blue carbon paper can be used, but it must be handled carefully and traced very lightly or marks will appear where they are not wanted. (Pencil carbon paper is made by pencilling on the back of a piece of notepaper and rubbing it over with a piece of rag. Dust lightly to remove excess carbon and the paper is ready for use.)

Paint in the design with coloured waterproof inks, shading with darker colours if necessary. The ink can be diluted with distilled or boiled water to give lighter shades. Sometimes a design can be improved by outlining in black or brown ink. Instead of a paintbrush use a fine mapping pen for this job, using the ink straight from the bottle.

Plastic enamel paint can also be used with good effect. To simulate oil painting, keep the paint fairly stiff and give two or three coats to build up a 'body'.

Do not try to put on too much paint at a time, but keep the various coats thin and they will dry out quickly and give a better result.

Keep a piece of paper handy while painting, to test the

brush and the colour. Work the brush to a point before attempting to apply it to the design. Be careful not to overlap coats which are not perfectly dry. With oil painting it is not necessary to add an outline as with the waterproof drawing inks.

Poster paints are also useful for 'matt' decorations and splendid effects can be obtained by using the bright colours which are obtainable now. If the paint, which is water based, will not take well to the surface, a little soap should be worked on to the brush before charging it with colour. Keep a small piece of soap handy, dip the brush in water, apply it to the soap, working up a little lather, then charge with paint. Finish off the work by giving a coat of clear varnish.

The illustration shows suitable subjects for decorating. The table-mats are painted with the magnolia motif shown full size in Fig. 2. This design shows the kind of picture to choose and will help you to get started on your first job. Parchment paper can be obtained from Hobbies Ltd., Dereham, Norfolk, price 2/- per sheet of 25ins. by 10ins.

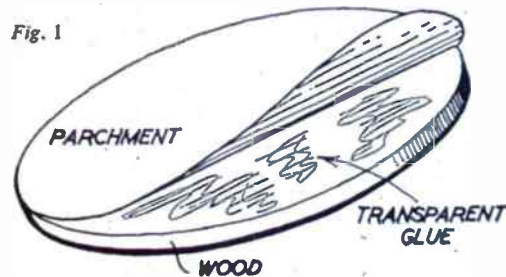
(M.h.)

WITH its attractive colour and variations in shade, parchment paper makes an ideal background for decorative work. It can be bought in large or small sheets and can be cut up and used for covering boxes, making lampshades, book-markers, table-mats and a host of other useful things.

Where the paper is to cover boxes or mats it should be glued down before work commences, using waterproof glue as shown in Fig. 1, but in the case of lampshades it should be decorated before assembly.

Suitable subjects forming the basis of a design can be obtained from magazines and coloured shrubs and seed catalogues. There is no need to copy the pictures exactly, just use them as a guide and single out one well-shaped flower for repetition. Do not make the mistake of using too many colours. Three or four will give a better effect if used with discretion.

Fig. 1



A = MAUVE  
B = BROWN  
C = LIGHT PINK  
D = PINK (MAUVE TINT)  
E = GREEN  
F = GREEN-BROWN  
G = DARK GREEN

Fig. 2

# BOAT STEERING UNIT

A TRANSMITTER and receiver which can be built at low cost have been described, and a mechanism to transform the signal into actual movements of the boat rudder is now required. This item can be made in various forms, but that described here is probably the simplest which can be used with good results. Made up as directed, it provides for straight sailing, turning either way, and floating with propulsion motor off.

The basis of the unit is a small clockwork motor of the kind used in cheap toys. It is also possible to buy suitable small motors separately. A very powerful spring, or long-running motor is not required, because it only has to move a small rudder from side to side, and only runs down a quarter of a turn at a time, when the rudder is being moved from one position to another to steer the boat. For a small boat, a light motor is necessary, and it must not take up too much space. Such motors are about 1½ ins. to 2 ins. long, 1 in. or so wide, and around ¼ in. deep. The size or shape is unimportant provided the motor can be accommodated in the boat.

### Escapement

All the additions necessary to the motor for steering purposes are shown in Fig. 1. The escapement wheel (A) is fixed to the driving spindle of the motor. An existing cog or wheel can be shaped

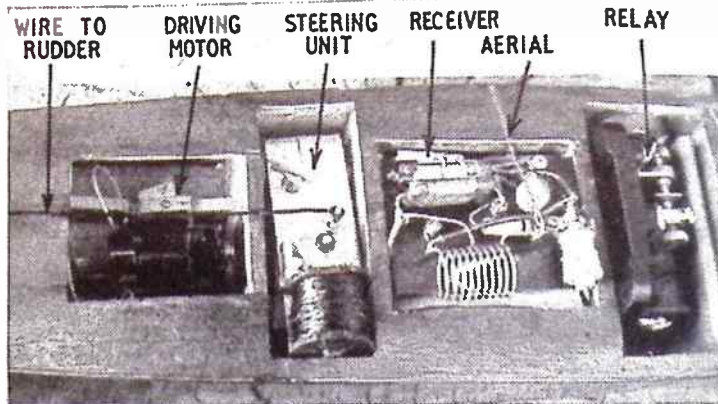


Fig. 3—Steering unit, etc., as incorporated in Hobbies Launch Patricia Design No. 3096

The part (B) is bent up from thin sheet iron, a strip about 2 ins. long and ¼ in. wide being necessary. (Brass may be used if a piece of iron or tin-can is fixed opposite the magnet pole.) The ends of the shaped piece should be filed smooth, and a thin steel rod (such as a piece of knitting needle) is soldered in the pivot corner, and passes through small holes drilled in the motor frame. A thin, weak spring holds the escapement against the stop bracket.

An existing magnet from an electric bell, etc., can be used, or one wound by

the escapement piece (B) is attracted to it, the wheel tooth near the magnet is released, so that the wheel turns until the next tooth engages the end (B). When the circuit is broken, the escapement returns to the position shown in Fig. 1, but the wheel will have rotated one-quarter of a turn. The wheel can thus be brought to rest in any one of four positions. This gives right and left steering, and two positions where the rudder is straight.

In order that the mechanism may work properly, the ends of the teeth should be filed smooth and free of any rough edges. The teeth should only be

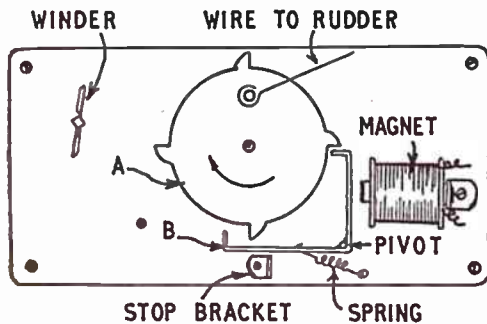


Fig. 1—The steering motor

correctly by filing, or one may be made from thin sheet metal, about 1 in. or so in diameter, and soldered to the axle. The teeth are shaped as indicated if the spindle rotates as shown by the arrow. If the motor runs the opposite way, then the teeth are reversed. The escapement wheel has a small bolt projecting vertically. The looped end of a stiff wire, used to control the rudder, can be dropped over this bolt.

fitting cheeks to an iron core, and filling with insulated wire. An iron or steel bolt will do for the core. If the mechanism works freely, and the spring is weak, a very powerful magnet is not necessary. Current only flows for a few moments when direction is being changed. A dry battery is, therefore, suitable, and the magnet can be wound with 24 S.W.G. wire, for a 4½ V battery. The magnet is so positioned that when

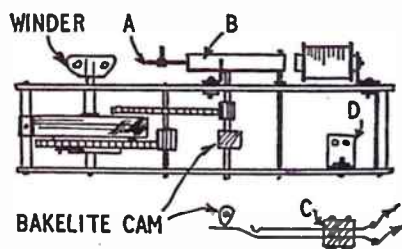


Fig. 2—How the propulsion motor is switched

very small, and the magnet should be as near the escapement as possible, so that the latter does not need to move very far.

The boat rudder is pivoted freely, and has a small crank at right angles to the rudder. The wire in Fig. 1 is long enough to reach this, and has a further loop at its other end, which slips over the crank. Having four teeth on the wheel (A) gives left and right steering (with straight ahead), but no intermediate rudder positions. This is the arrangement

found on most small models, and is quite satisfactory in practice. If intermediate positions are wanted (rudder half to port, and half to starboard) then the wheel must have eight teeth. It can then be brought to rest in any one of eight positions.

### Motor Switching

The steering mechanism already described will, of course, function alone, and this gives the equivalent degree of control to that in some simple, commercially-manufactured radio-controlled boats. However, it is best to make further use of the one unrequired 'straight ahead' position of the escapement wheel, to switch off the propulsion motor. The model can then be brought to a standstill in the centre of the pond, when desired. It can also be placed in the water with motor off, and control taken up from the transmitter.

To do this, a small piece of shaped Bakelite is pushed on the spindle carrying wheel (A). In some models there will be sufficient space for this under the wheel. But in others it will be necessary to take the clockwork motor to pieces, and fit the cam on the spindle inside, as in Fig. 2. The cam can be filed from any hard insulating material, or can easily be made by sawing a small piece off a length of ¼ in. diameter rod, and filing to shape. It is a tight push fit on the spindle.

Two thin, light contact strips are bolted together as shown, with three small pieces of insulating material (C). The holes in the metal strips clear the bolts, so that the circuit is only completed when the ends of the contact strips touch. A small bracket is bolted inside the motor, and the contact assembly is fitted to this by nuts. When the rudder is in one straight-ahead position, the point of the cam presses back the longer strip, opening the circuit, and halting the driving motor. In all other positions of the wheel (A) the two metal strips are in contact, so that the motor is running. One strip is wired to the motor, and the other to the battery.

### Fitting the Unit

If the motor is screwed to a shaped piece of wood cut to fit inside the hull, it will rest securely. If bulkheads or other members of the hull are strong enough, a few small screws will hold the motor in place.

The electrical circuit to the propulsion motor is as mentioned. The wire connecting link is made of a suitable length, so that the rudder adopts the proper right, left, and central positions, as the escapement wheel turns. The escapement relay contacts and operating battery—the same battery which drives the propulsion motor will do for the magnet also.

This is the 5th and concluding article in F. G. Rayer's series on radio control for model boats particularly as applied to Hobbies motor launch 'Patricia'. Copies of the magazine in which previous articles have appeared can be obtained from the Editor, price 6d. each, post free.

Full kit for making the 'Patricia' (No. 3096) including motor and propeller unit, costs only 39/6 from branches or Hobbies Ltd. Dereham, Norfolk, (post free).



It is desirable to keep weight as low down as possible, especially in a small model, so the unit should rest on the bottom of the boat. The most convenient position will be near the stern, so that a long operating wire is not required.

### Sailing

It will be realised that the same sequence always arises, namely: motor off, turn right, sail straight, turn left. This is so with all control mechanisms of this type, but does not constitute any real disadvantage because undesired positions can be passed through in a second or so, before the boat has time to respond. For example, assume the boat is floating by the pond side. If it is to be sailed away turning right, one pressure is given on the transmitter key. If it is to sail away straight ahead, two quick pressures are given on the key. Similarly, if to sail away to the left, three impulses are transmitted, and even these would take scarcely more than a second in all.

The same sequence is kept in mind for

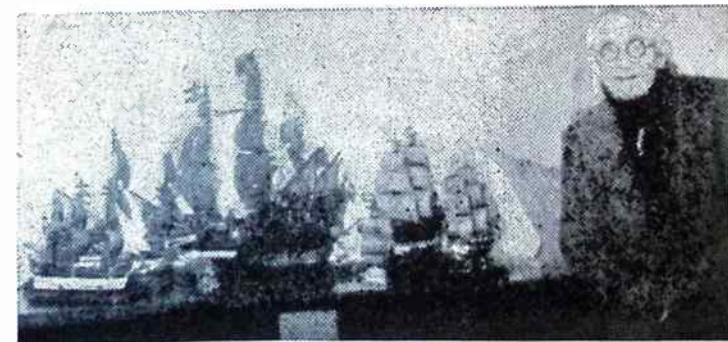
sailing. For example, if the boat is going straight ahead, and is to be stopped, two impulses accomplish this. With a very little practice it will be found that the boat can be sailed about in any desired manner with accuracy and ease, and there can never be more than two undesired positions to be passed through, whatever manoeuvre is intended.

With an 8-tooth wheel, more rapid keying will be necessary, as more positions may require to be passed. For this reason the 4-tooth wheel is best for a beginning.

If an 8-tooth wheel is subsequently used, the sequence will be:—1, stop; 2, half right; 3, right; 4, half right; 5, sail straight; 6, half left; 7, left; 8, half left. The two wasted positions (e.g., 4 and 8) can, if desired, operate other contacts, to reverse the propulsion motor, allowing the boat to move backwards. This gives field for experiment. But despite its simplicity, the movements provided by the 4-tooth wheel, as dealt with above, will be found very satisfactory, indeed.

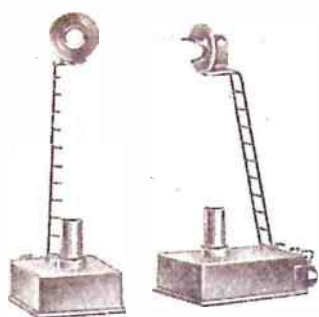
In Fig. 3 the general arrangement of the main working parts of the boat will be seen, fitted in the Hobbies motor launch 'Patricia'. To avoid unnecessary modification to the plans of this model, the actuator can be fitted into the space intended for the rear seat. The receiver or relay can fit on top of the 4½ V driving battery, a piece of card being placed over the battery first. The front seat compartment is then used for the remaining equipment (relay, in the photo) and receiver batteries, leads passing through holes in the bulkheads. A low, light superstructure or cabin will cover the working parts, the vertical aerial wire projecting through a clearance hole in the roof of this. To preserve balance the batteries must be kept low in the bottom of the boat.

## A Stickler for Detail



A splendid collection of ship models submitted by Mr R. L. McKinlay, aroused much admiration at the Hounslow Rotary Club Exhibition. Although he is 80, Mr McKinlay is still passionately fond of model boat making, and is a stickler for detail, especially when it comes to the rigging which, he says, makes the ship.

# SIGNALLING EQUIPMENT



Colour-light signal 'OO'  
(Courtesy Trix Ltd)

be passed by the driver when it is in the 'on' or 'danger' position. This is in contrast to the yellow 'distant' signal, which may be passed when in the 'on' or 'caution' position, providing that the driver is ready to pull up when he arrives at the next signal—the 'home'.

By E. F. Carter

Further on, at the engine-end of the station platform, is another signal, this time termed the 'starter', which gives the all clear to trains about to start from the platform. There is, however, a slight variant which is often used at stations where the exit road from sidings is at some distance ahead of the platform starter signal. In such cases it may, on

occasion, be necessary to allow an engine or train to pass the 'starter' so that the sidings may be entered without giving the driver a clear road forward as far as the next station's 'home' signal. To provide for such exigencies, another signal is introduced between the station 'starter' and the next 'distant' (or 'home') as the case may be. This extra signal is termed an 'advanced starting' signal.

Should it be desired to run or shunt a train past the station starter with a view to entering the sidings ahead, the 'starter' is placed at 'all clear', whilst the 'advanced starter' is left at 'danger'. Should a train desire to leave the station for the next station in the ordinary way, then both 'starter' and 'advanced starter' are both placed at 'all clear', and the road is set right up to the next 'distant' signal (or to the 'home' signal of the next station, as the case may be).

'Home', 'starting', and 'advanced starting' signals are all of the same appearance (i.e., red with a white band on the face of the arm and white with a black bar on the rear. It is their positioning which determines their name. 'Distant' signals have yellow-painted arms with a black V-shaped stripe across both back and front of the arm, and the colour of the light displayed when in the 'on' position is amber—not red, as in the case of the other types.

The question of whether or not distant signals are incorporated into a layout is largely determined by the length of track run between adjacent stations. If this is not more than four average train-lengths, it will not be found either necessary or convenient to use them—except, perhaps, for purely decorative purposes.

Signals of all types and with various arrays can be purchased, either ready-made or in kit form, from which a multiplicity of specially planned designs with bracket posts or gantries can be built. Similarly, colour-light signals are purchasable which can be easily installed and operated, incidentally without any mechanical complications—a wire from a switch in the signal-box being all that is required. Such signals can be illuminated from the power supply unit which drives the trains—at least, in most cases. They can, however, be lighted from small dry-cell batteries very cheaply.

\* \* \* \* \*

Our next issue will contain details of the circuit for an automatic block signalling system.

THERE is no doubt that the enjoyment to be obtained from any model railway layout—large or small—is greatly increased if a certain amount of signalling is provided; just how much being dictated by circumstances.

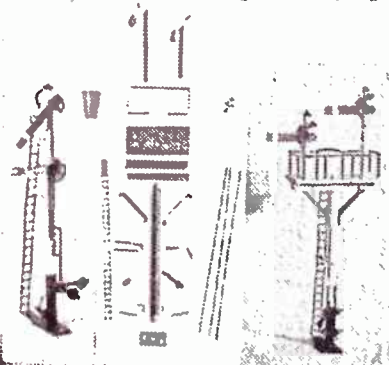
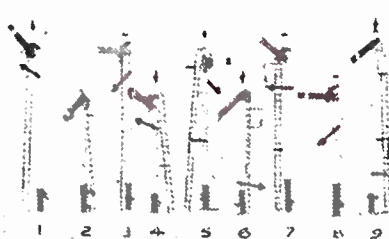
Such signals as are provided should always be applied and placed in accordance with correct real railway principles, for although it is not always practicable, except in the case of the very elaborate and costly layout, to reproduce full-sized signalling practice completely, it is amazing what can be done with a few of the simpler types to afford a measure of train protection and at the same time to add very greatly to the realism and relief of a model line.

To apply even a few 'upper quadrant' or 'colour-light' signals calls for some knowledge of general railway signalling practice and principles, so a discussion into the rudiments of British railway signalling will now be made with a view to the reader applying the knowledge gained to making his layout more spectacular and complete.

Signal posts are usually placed on the 'near' or left-hand side of the line as viewed by the driver on an approaching train, the arm being placed on the left-hand side of the post.

The first signal seen by the driver of a train approaching a signal box or station is given the name of 'distant', as it is located at a considerable distance from the signal box.

From the distant signal it may be up to 1,000 yards to the next signal—the 'home', which is generally situated in the immediate vicinity of the station signal box. It is a 'stop' signal which must not



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  - 6 Lower Quadrant Distant Signal (S. Reg)
  - 7 Upper Quadrant Distant Signal (M. Reg)
  - 8 Upper Quadrant Stop Signal (M. Reg)
  - 9 Lower Quadrant Stop Signal (W. Reg)
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(Lower Right) Two-arm Bracket Signal  
(Lower Centre) Kit of parts for Two-arm Bracket Signal

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# A GREENFLY REPELLENT

AN ever present garden pest in the summer is the greenfly. How many gardeners, for instance, have been disappointed to find that their rose-buds have opened into distorted blooms, which shed their petals almost immediately. By spraying with a simple home-made preparation the pest can be kept off.

To make the spray, simply boil 1 ounce of quassia chips with a pint of water and strain the liquid. To this add a solution of 4 ounces of common soft-soap in 1 pint of hot water, stir well and pour the mixture into a gallon of cold water. The spray is then ready for use.

## TRY SOME OF THESE

**MARBLE COLOURING.** A fine rose- or flesh-coloured shade may be given to marble objects by means of a tincture of alkanet root. This root may be obtained from a dispensing chemist. Boil out a little of the root with enough technical grade methyl alcohol to cover it well in a reflux apparatus, as shown in the diagram. Filter the tincture and dilute it with more methyl alcohol according to the depth of shade desired. This dilution may easily be ascertained by brushing on scrap marble. In using this staining solution care should be taken that no flames are in the vicinity, for methyl alcohol is inflammable.

**POLISHING AMBER.** Unworked amber should first be filed as smooth as possible. Next, work it over with old fine glasspaper and then rub up with rotten-stone and oil on flannel. A final gloss is given by rubbing with dry flannel. Worked articles which may have suffered small scratches from wear can be re-polished with rotten-stone and oil on flannel and then with dry flannel. A word of warning is necessary. It is well known that amber develops electricity when rubbed. What is not so well known is that too long rubbing can produce so much electricity that the amber can crack and fly to pieces. The polishing should, therefore, be interrupted at short intervals and the amber left for a while before proceeding.

**PEWTER SOLDER.** A good soft solder for pewter work may be made by melting 1 part of lead, adding 2 parts of tin and then 1 part of bismuth — all parts by weight. When melted to a homogeneous liquid, pour out into long strips on a flag-stone.

**BROWNING COPPER.** A simple way of giving copper articles a brown shade is to rub them with a solution of liver of sulphur. A ½-ounce of liver of sulphur

dissolved in 4 or 5 fluid ounces of water gives a solution of suitable strength. The copper article should be clean and bright. After development of the shade required, rinse with water and allow to dry. The coloured surface layer may be made durable if the article comes in for much handling by thinly coating with a solution of bleached shellac in methylated spirit. Enough shellac should be dissolved in the meths to give a thin syrupy solution.

Liver of sulphur may be made by grinding together ¼-ounce of potassium carbonate and ¼-ounce of flowers of sulphur in a warm mortar and then heating the mixture gradually in a crucible until effervescence ceases. Pour out the black liquid on to a slate and cover with an evaporating dish until

Powder the bones finely and mix 6 parts with 1 part of bronze powder, both parts by weight. With a linen pad, apply this mixture to the still tacky linseed oil. The pigment known as mosaic gold, mixed with 6 times its weight of bone ash, may also be used instead of the bronze powder.

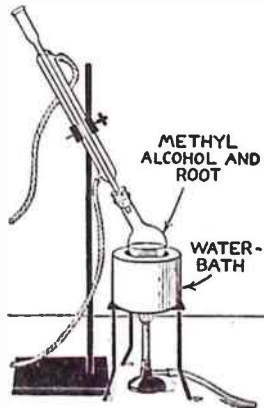
**MENDING BROKEN STATUETTES.** Statuettes and other ornaments of marble which do not have to be exposed to water can be cemented together again with a paste made from white of egg and finely powdered quicklime. Apply the cement thinly to the clean broken surfaces and leave aside for a few days. The cement hardens and gives a very strong joint.

**MENDING BROKEN STONE.** Stone steps and similar appointments can be mended with a mixture of 20 parts of river sand, 2 parts of litharge (lead monoxide) and 1 part of quicklime, all parts by weight. This mixture should be made into a putty by kneading with boiled linseed oil. Coat the broken surfaces of the stone with it, press lightly together and scrape away any surplus which exudes. This jointing compound gradually ages to a stony hardness.

**JOINING IRON PIPING.** The cement used for joining cast-iron piping is easily made. Simply mix together 50 parts of iron filings and 1 part of sal ammoniac. The parts are by weight. When required for use, mix it to a paste with water and apply. This gradually oxidises and gives a very firm joint.

**BRUNSWICK GREEN PIGMENT.** More than one paint pigment carries the name Brunswick green. An easy one to prepare is produced by placing copper turnings or wire in a shallow dish and not quite covering with a solution of 1 or 2 ounces sal ammoniac (ammonium chloride) in 10 fluid ounces of water. By leaving this aside the pigment gradually forms. Any water lost by evaporation should be made up by occasional additions of more water. When a good quantity of pigment has been formed, wash it off the remaining copper into a filter and then wash it in the filter with plenty of hot water. Let it dry in a warm room. Chemically, this type of Brunswick green is an oxychloride of copper.

**CASE-HARDENING IRON.** To give iron a hard surface, first abrade the surface clean and then heat it to bright redness. Sprinkle the whole of the area to be case-hardened with powdered potassium ferrocyanide. The potassium ferrocyanide appears to boil, and when this ceases, quench the iron in water. (L.A.F.)



Making a marble stain

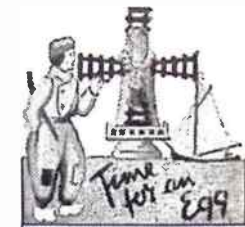
cool enough to bottle. As it is very deliquescent, keep it in a well-stoppered bottle.

**ANTIQUÉ GREEN FINISH ON BRONZE.** To give the greened appearance of age to bronze, first stir into 12 fluid ounces of hot water, 1 ounce of ammonium chloride, 3 ounces of cream of tartar, and 6 ounces of common salt. Mix this solution with 8 ounces of a solution of copper nitrate whose specific gravity is 1.16. The liquid is brushed on to the bronze and allowed to dry out in a damp place. By repeating the operation several times a durable antique green finish is imparted to the metal.

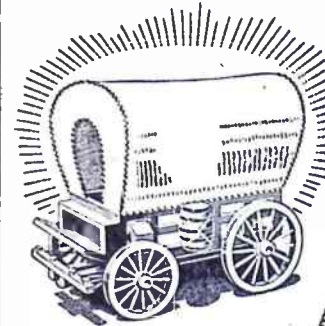
**BRONZING PLASTER AND WOOD.** These materials may be made to imitate bronze by first giving them a thin coat of boiled linseed oil. Next make some bone ash by heating bones in an iron vessel or a crucible until they are quite white.

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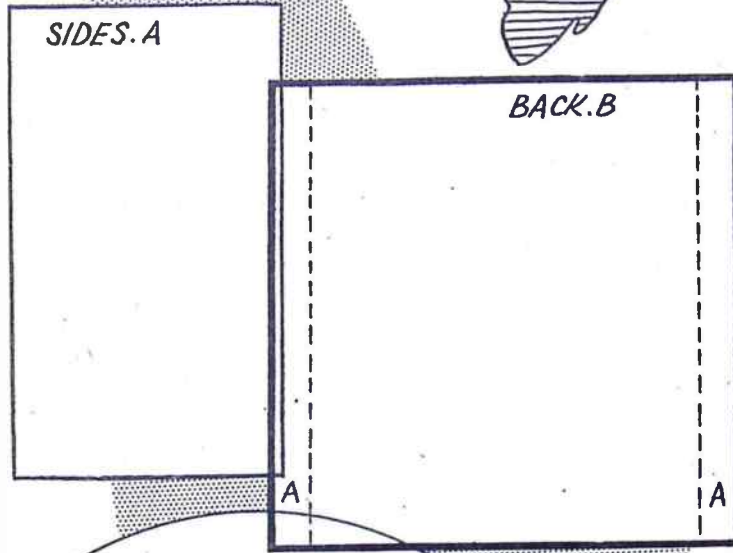
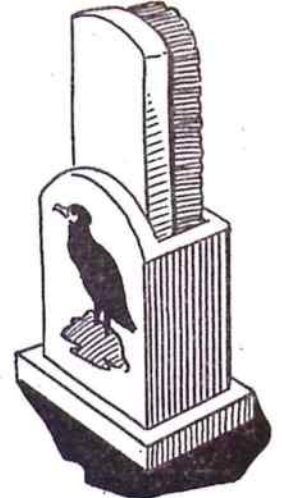
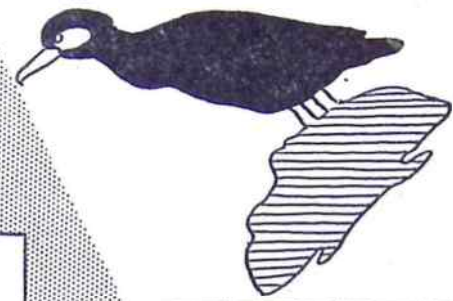
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**Novel Clothes Brush Stand**

FRETWORK FOR BOYS



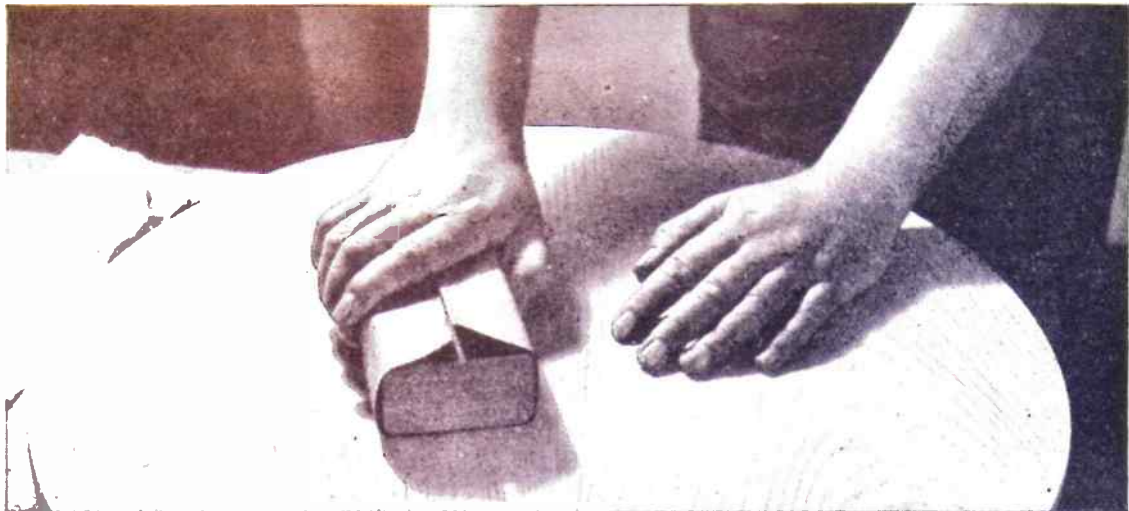
**A** SUITABLE brush for this attractive novelty can be obtained from Hobbies Ltd., Dereham, Norfolk, price 2/9. Ask for No. 720.

The stand is made from 1/4 in. wood and an overlay, in the shape of a bird, is cut from 1/4 in. or 1/8 in. wood. Cut all the parts with a fretsaw and glue them together in the positions shown by the dotted lines.

The article can be finished with varnish or plastic enamel paint. The bird is coloured black, with yellow beak and legs. The patch on the side of the head is white and the rock on which it stands is dark grey. (M.p.)



# Craftsmanship deserves a triumphant finish.



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**GARNET-COATED PRODUCTS** For woodworkers, CARBORUNDUM make papers and cloths coated with grains of specially prepared garnet. Careful factory preparation and size-grading of the tough, hard-wearing garnet grains produces abrasives that do better work than glasspaper can, and go on doing it longer. Garnet-coated papers by CARBORUNDUM are excellent for woodworking. They are available in a wide range of grit sizes from coarse (for really fast, easy removal of material) to very fine (for producing the super smooth finishes that craftsmen require).

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*\*Regd. trade mark*

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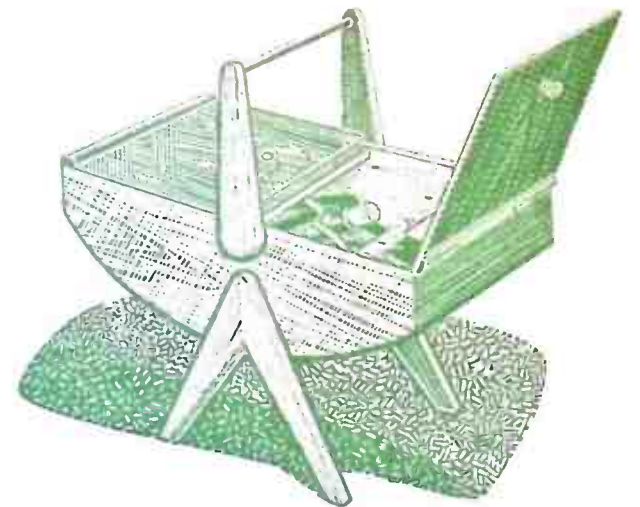
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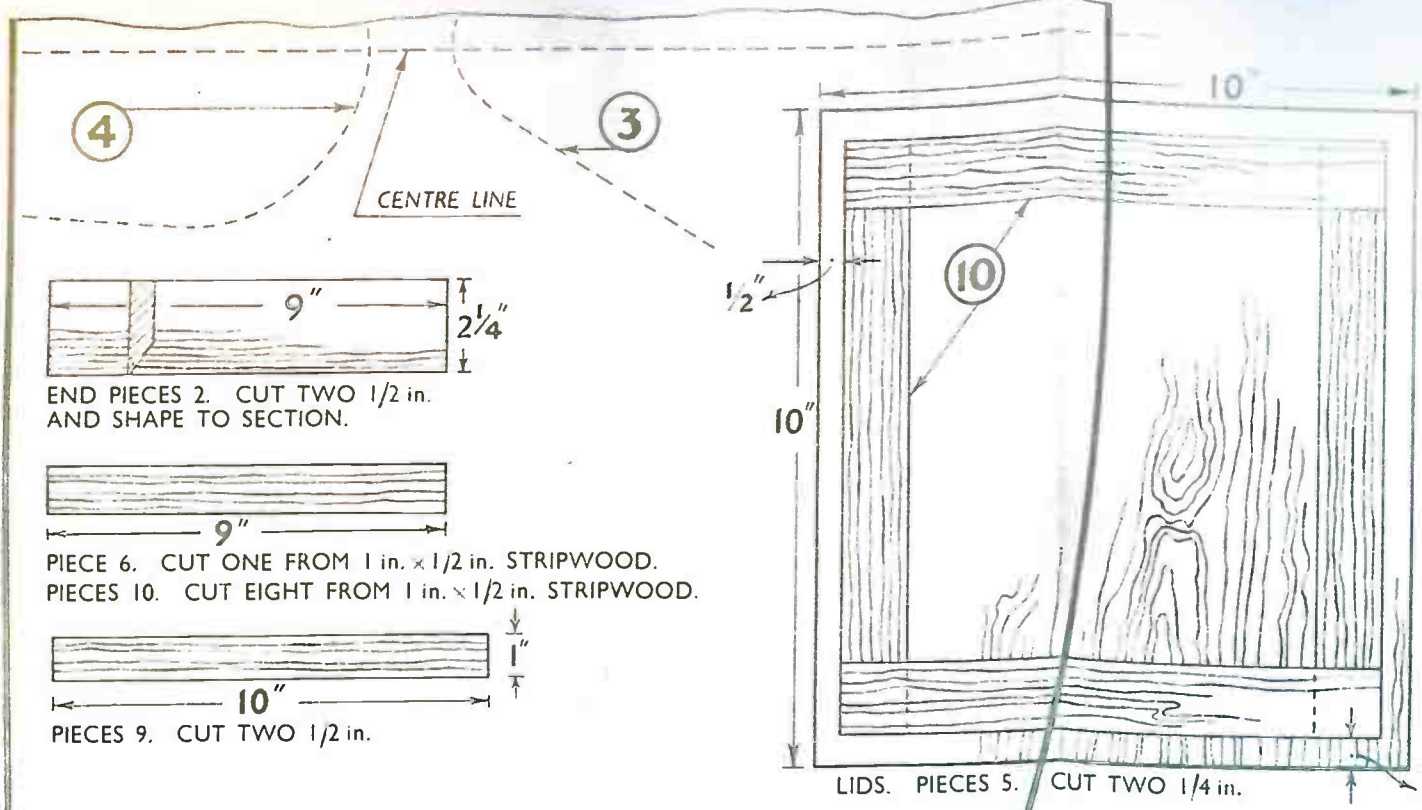


# LADY'S WORKBOX

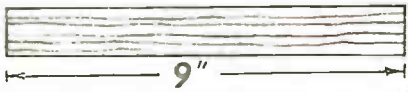
SIZE — LENGTH 20 ins.  
HEIGHT 18½ ins.



A KIT OF MATERIALS FOR MAKING THIS DESIGN IS SUPPLIED BY HOBBIES LIMITED DEREHAM, NORFOLK. PRICE ON APPLICATION



END PIECES 2. CUT TWO 1/2 in. AND SHAPE TO SECTION.



PIECE 6. CUT ONE FROM 1 in. x 1/2 in. STRIPWOOD.  
PIECES 10. CUT EIGHT FROM 1 in. x 1/2 in. STRIPWOOD.



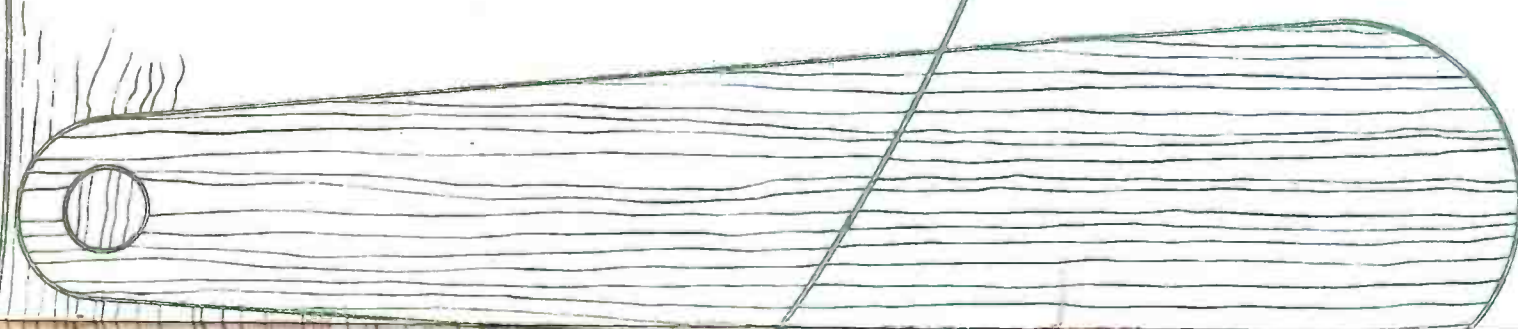
PIECES 9. CUT TWO 1/2 in.

PIECES 1 (HALF ONLY SHOWN). CUT TWO FROM 1/2 in.

LIDS. PIECES 5. CUT TWO 1/4 in.



PIECES 7. CUT THREE 1/2 in.



ARMS. PIECES 4. CUT TWO 1/2 in.

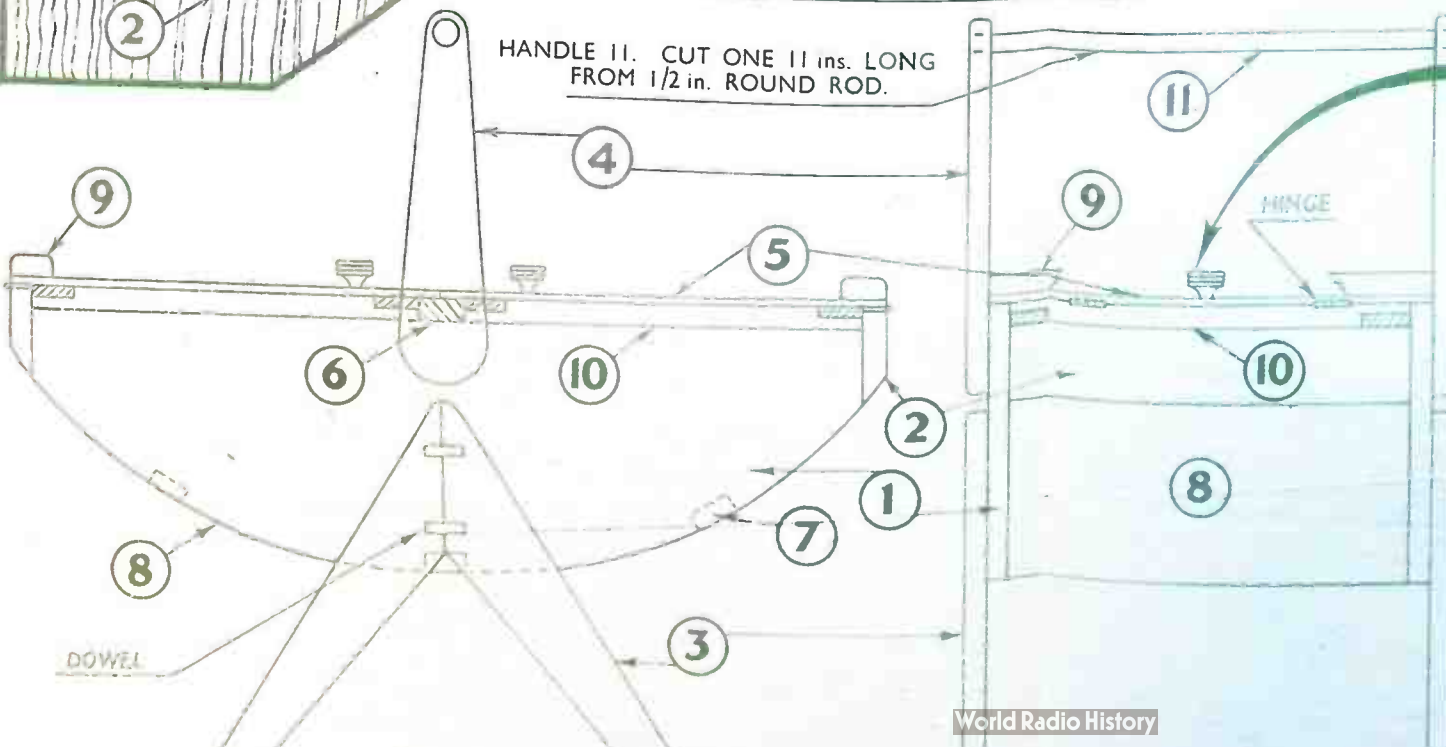


PIECE 8. CUT ONE FROM THIN PLY. APPROX. 1/2 in. ALLOWED EACH END FOR TRIMMING.



LEGS. PIECES 3. CUT FOUR 1/2 in.

HANDLE 11. CUT ONE 11 ins. LONG FROM 1/2 in. ROUND ROD.



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