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THE ORIGINAL
'DO-IT-YOURSELF'
MAGAZINE

HOBBIES *weekly*

FOR ALL
HOME CRAFTSMEN

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GONDOLA MUSICAL BOX

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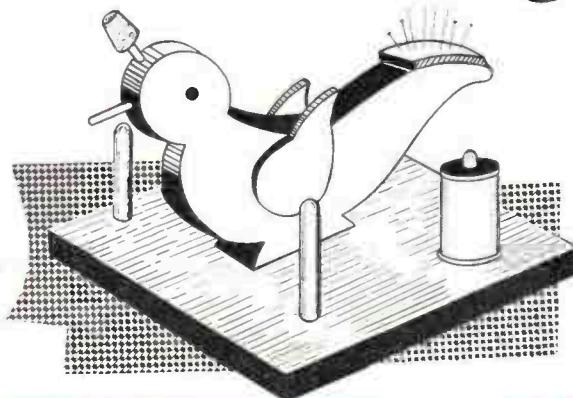
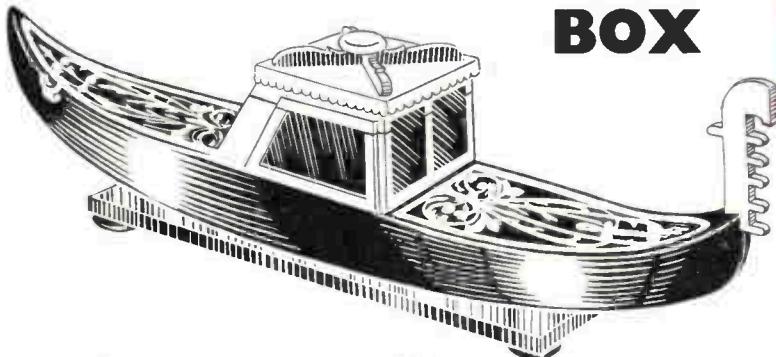
HOUSEHOLDER'S
STRONG LADDER

COVERS FOR
HOUSE PIPES

HOW TO MAKE
A PERISCOPE

REPLIES TO
READERS' QUERIES

ETC. ETC.



How to
make
**NOVELTY
SEWING
'BIRD'**



*Up-to-the-minute ideas
Practical designs
Pleasing and profitable things to make*

World Radio History

5^D



THE Aztecs, who inhabited Mexico when Cortez and his Spanish Army landed on the shores of that country in the sixteenth century, were an intelligent nation. However, they worshipped hideous stone idols, and had human sacrifices in their temples, which were great mounds with winding stairs going round the sides to the top.

STRIKE UP THE BAND—5

Apart from these heathenish practices, the Aztecs had very good laws. They had colleges where boys and girls were taught useful arts. They were an agricultural people, and had extensive market-places. Their family life was simple, and well ordered.

They had beautiful festivals in honour of a floral goddess, when they decorated their houses and temples with wreaths, and had processions with young girls carrying great baskets of flowers. There was one festival when, for days before the time, priests went about the streets playing little clay flutes.

Idols, flutes, and other interesting relics are found in the earth in Mexico, where they have been buried for hundreds of years.

The mandolin has been a favourite in Italy and Spain for centuries. It is a beautiful instrument. The strings are in pairs, and are played with a plectrum of tortoise-shell, whalebone, or ostrich-quill, held in the right hand.

The hurdy-gurdy, or vielle, belongs to peasant life. In the opera of 'Linda di Chamouni', Donizetti introduced it as an accompaniment to Savoyard songs. It does not make sweet music. The first name was given to it in imitation of the grinding and grating sound which is a cross between those of an organ and a bagpipe.

In the last century the hurdy-gurdy was very popular in France. When Marie Antoinette and the ladies of her court played games, grinding the hurdy-gurdy was a part of their sport. Beautiful instruments were made in Paris at that

time, richly inlaid with ebony and ivory, and with heads carved to represent knights and cavaliers.

The strings of the hurdy-gurdy are set in vibration by a wooden wheel, which is rosined and acts like the bow of a violin. The wheel is turned by a handle, at the lower end of the body, which the player whirls around, while with the fingers of his other hand he presses the little ivory keys which make the different notes.

Wherever Spanish is spoken there will be found the guitar. It is a favourite instrument with all nations. But it belongs to Spain. It always reminds one of dark-eyed lads and lasses, with guitars and tambourines and castanets,



dancing among the orange-groves and vineyards and olive-trees of sunny Andalusia.

It is said that the guitar was brought to Spain by the Moors, about 1,000 years ago. Old guitars of the seventeenth century are beautifully inlaid with ivory, tortoise-shell, ebony, and mother-of-pearl.

Of old musical instruments there is no end. Wherever one is found it has a charming story to tell.

THREE nice stamps have been issued by the Gilbert and Ellice Islands. They mark the diamond jubilee of the discovery of phosphate at Ocean Island.

The story began in 1897 when a sailor went ashore on the island. He found a strange piece of rock, which he took back home to Australia, where it was used as a door-stop. Then, one day, a friend of the sailor remarked, 'that bit of rock there reminds me of phosphate!' Tests were made, and the door-stop was found to be solid phosphate.

In 1900 Sir Albert Ellis led an expedition to Ocean Island, and discovered the soil to be pure phosphate rock.

You can see the celebrated phosphate-rock 'door-stop' on the 2½d. stamp. The 2d. value shows phosphate being loaded

A FAMOUS DOOR STOP

aboard a steamer, while the 1/- stamp depicts phosphate-mining.

You can get this set for 1/9. But buy now. (See illustrations below.)

The Gilbert and Ellice Islands are located in the Pacific Ocean, north-east of Australia.

The Gilbert group, of which Butaritari, Tarawa, and Tamana are the more important, is situated on the Equator. The Ellice group includes Fanning, Washington, Christmas, and Ocean Islands. The islands were annexed by Great Britain in 1892, and formed into the Gilbert and Ellice Islands Colony in 1915 on request of the native governments.

The first stamps were issued in 1911. There were four values depicting Pandanus Pines. From these trees the natives obtain fruit, timber, dye, and leaves for thatching and for making hats.

Everywhere on the islands the coconut palm waves its plumes — pictures on 6d. stamp of 1956. The natives regard this palm as their 'fairy godmother'. It gives them food, drink, a roof for their huts, fibre, ropes, fishing nets, etc.

You can see a canoe on the 5d. pictorial of 1939, a seascape on the 3d., and a native house on the 2½d.

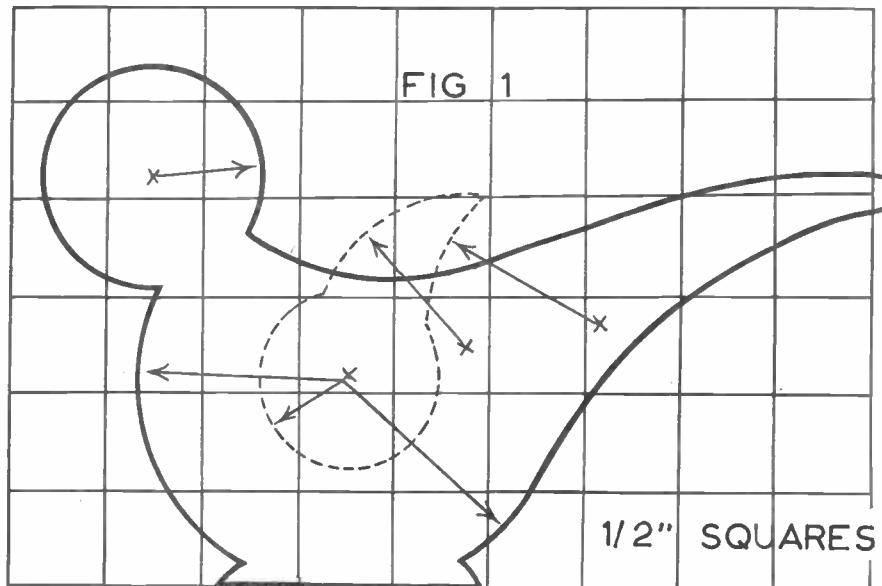
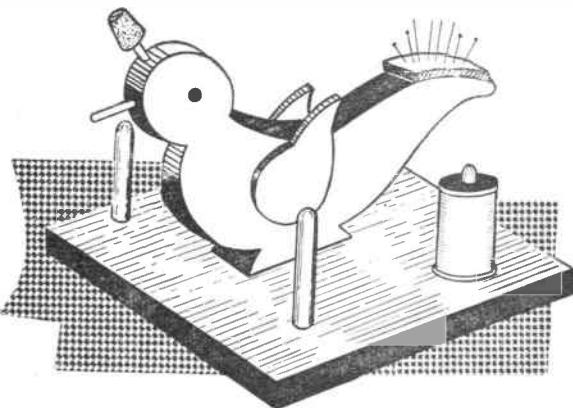


A NOVELTY SEWING 'BIRD'

HERE we have a novelty sewing bird, easily made from oddments into an attractive gift. It will be seen that provision is made for the usual sewing equipment — a thimble, pins, needles, scissors, and reels of cotton.

The bird itself is made from $\frac{1}{2}$ in.

By
H. Mann



material, and you will require a piece measuring 3 in. by 5 in. It should be noted that Fig. 1 is prepared on $\frac{1}{2}$ in. squares, and we indicate the centres to aid preparation of the head, body, and wings. The shape and position of the latter is shown by the broken lines. You will need a pair of wings, cut out together, from $\frac{1}{8}$ in. plywood, measuring $1\frac{1}{2}$ in. square. Prepare the patterns of the bird and wings on transparent tracing paper after ruling out the $\frac{1}{2}$ in. squares, then tracing the outline on to the wood.

The edges of the bird and the wings must be smoothed after cutting, and we are ready to fit the beak and a peg for the thimble. Two $\frac{1}{8}$ in. lengths of $\frac{1}{16}$ in. dowel rod are required for these items, which are glued into position after drilling suitable holes about $\frac{1}{4}$ in. deep. A further hole may be drilled vertically in

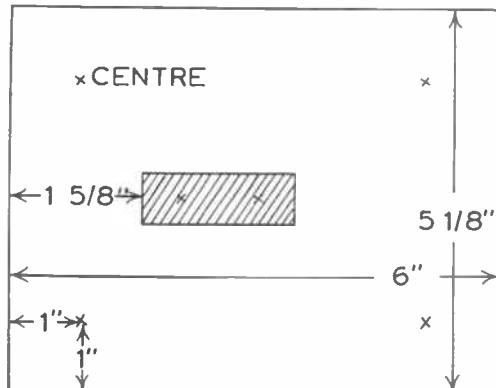
the centre of the body, and between the wings for holding a pair of scissors.

A small pincushion is made to fit on the tail, and this is composed of a piece of material folded into an oblong, padded with a little soft material, and ultimately glued to the end of the tail.

The wings may now be glued into position before attaching the bird to the base. This is a piece of $\frac{1}{2}$ in. material, measuring $5\frac{1}{2}$ in. by 6 in. Fig. 2 shows centres for four holes to be drilled at the corners to accept $\frac{1}{16}$ in. dowel rods, which hold the reels of

cotton. The centres are 1 in. from each side. The position of the bird is indicated by the shaded portion in Fig. 2, and fixing is by means of screws through the underside of the base.

For final decoration, you may leave in the plain wood after cleaning up, applying two thin coats of clear varnish after adding such details as the eye and wing feathers in Indian ink. Remember to treat both sides of the bird. Alternatively, you may paint in a pastel colour, adding details last.



Illuminated Viewer for Transparencies

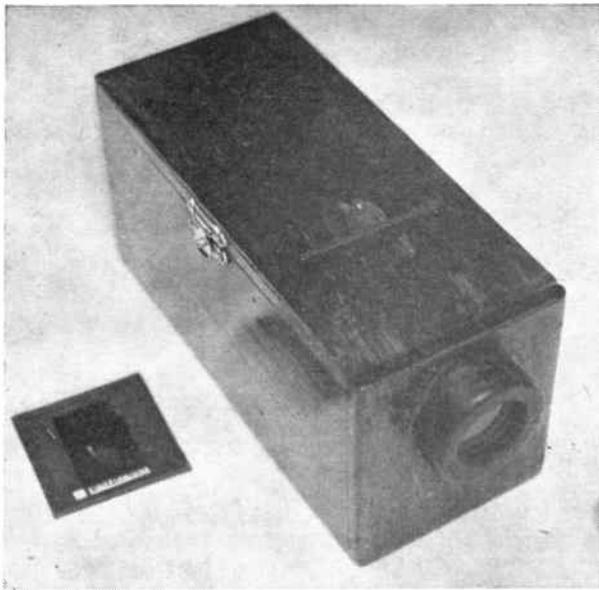
ALTHOUGH colour transparencies are seen at their best when projected on to a screen, a hand viewer is useful for showing odd slides to friends.

A plan of the completed viewer is shown at Fig. 1. The bulb lights automatically when a slide is inserted and pressed down. When the pressure is released the light is switched off, thus economizing on batteries.

The battery is housed in a compartment at the back of the viewer and is easily renewed. Behind the bulb is a mirror to reflect the light and in front of the bulb is a lens to concentrate the light. A piece of ground glass diffuses the light and the slide is viewed through a magnifying glass at the front of the viewer.

The viewer is made from solid wood, $\frac{1}{2}$ in. thick. To commence, cut out the two ends, $3\frac{1}{2}$ in. by 3 in. The front end-piece has a hole for the viewing lens, and the diameter of the hole will depend on the size of the lens obtained. The centre

The completed viewer



of the hole must be 1 in. from the top of the front piece. The viewing lens should be approximately 1 in. in diameter, and should focus sharply at a distance of approximately $2\frac{1}{2}$ in. A lens of this type can be bought at any shop selling magnifying glasses or from one of the dealers in ex-WD lenses. Hold a slide up to the light and view it with the lens close to the eye. When the slide appears

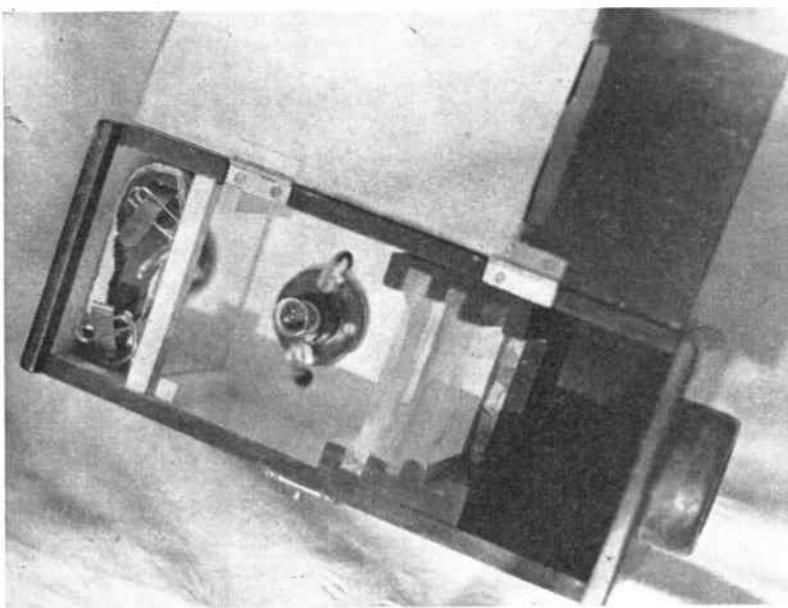
perfectly sharp, ask someone to measure the distance from the edge of the lens to the slide. This figure will be the measurement marked X in Figs. 1 and 2. In the viewer illustrated it was $2\frac{1}{2}$ in. If a lens of slightly different focus is used, X can be modified by altering the thickness of the lens housing on the front of the viewer.

When the two end pieces are finished, cut the two sides, $6\frac{1}{2}$ in. by $3\frac{1}{2}$ in., and secure to the two end pieces with glue and fine brass pins. Now cut the battery partition, $2\frac{1}{2}$ in. by 3 in., marked B in Figs. 1 and 2. As shown in Fig. 2, two holes should be drilled in this piece to allow the wires to pass to the battery.

The piece supporting the bulbholder is $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in., and also has two holes for the wires. When these two pieces are in place in the viewer, add the two strips of wood which hold the mirror in place. These are marked C in Figs. 1 and 2. A piece of mirror should be cut $2\frac{1}{2}$ in. by $1\frac{1}{2}$ in.

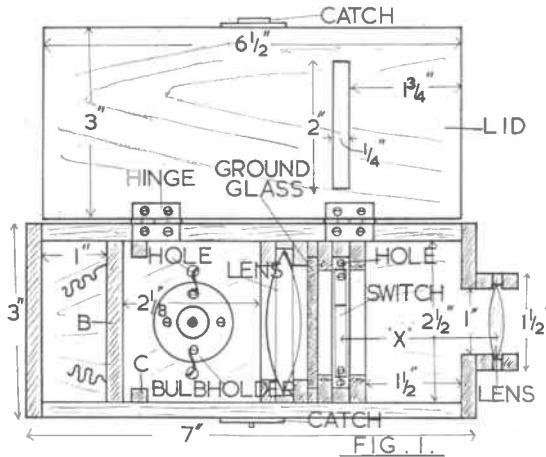
Fig. 3 shows the parts holding the slide, ground glass, and rear lens. The switch is made from brass strip removed from an old battery. One piece is 1 in. by $\frac{1}{16}$ in., and is bent, as shown. The smaller piece is $\frac{1}{8}$ in. by $\frac{1}{16}$ in., and both have holes for small screws to attach them to the slide-holder. A length of wire is soldered to each strip and passes down a hole in the slide-holder, then along a groove, and so to the bulbholder and battery. The piece holding the ground glass is $\frac{1}{8}$ in. thick. A piece of ground glass is required, 2 in. by $1\frac{1}{4}$ in.

The three rear pieces in Fig. 3 hold the rear lens, and the cut-away part will depend on the size of lens available. It



The interior of the viewer

should be a magnifying lens large enough to cover the area of a colour transparency. In the viewer illustrated, a 6d. plastic lens from a multiple store was used. These are $2\frac{1}{4}$ in. in diameter and are moulded from Perspex, complete with handle. After fixing in place



the handle and that part of the lens protruding above the top of the box was cut off flush with the top of the box, using a fretsaw.

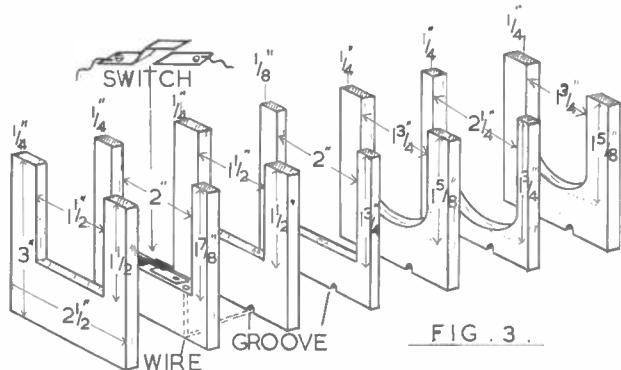
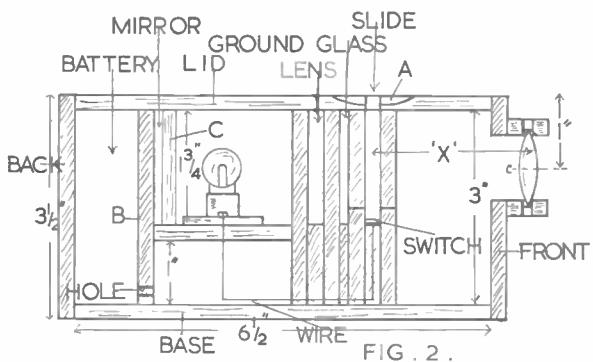
When all the parts in Fig. 3 have been made, glue them together and fix in the viewer. Screw the brass pieces into place, and pass one wire direct to the battery. The other wire passes to one side of the bulbholder, and the other side of the bulbholder is connected to the other terminal of the battery. To attach the wires to the battery, either use a small crocodile clip or solder a small paper clip to the end of the wire.

When wired up, cut out the base $6\frac{1}{4}$ in. by $2\frac{1}{4}$ in., and fix in place.

Cut out the lid, $6\frac{1}{2}$ in. by 3 in., and mark out the slot for the slide. Ensure that this slot is directly over the slide-holder. Before cutting out the slot, take a gouge, and make a depression in the top of the lid, as at A in Fig. 2. This forms a place for the finger and thumb when removing the slide. Now cut out the slot and hinge the lid to the viewer. Add a brass catch to hold the lid shut.

Cut three rings of wood to hold the front lens. The centre ring has a hole the same size as the lens. The other two rings have holes slightly less than the diameter of the lens. When the lens-holder has been made, attach it to the front of the viewer, and the construction is finished.

Stain the exterior and give a coat of polish. The interior is painted, part being white and part matt black. The front half as far as the slide holder is painted matt black, including part of the



lid. The remainder of the interior, including the remainder of the lid, is painted with white enamel to increase the light reflection.

Attach the leads to the battery, slip the mirror, rear lens, and ground glass into place, close the lid, and the viewer is ready for use. (N.E.J.)

BOOKS FOR THE PRACTICAL MAN

Radio Control for Model Builders

By W. Winter

THE dedicated model maker, however skilled and experienced in his hobby, usually does not even know how to tune a receiver when considering the possibilities of radio control. His questions are fundamental, such as: where do I put the wires? This book is designed to fill that need. All popular control systems of transmitters and receivers are explained, from the simplest single-channel equipment that operates a steering device, to the most advanced, that simultaneously operates multiple controls.

This American publication of over 200 pages has everything a beginner or expert needs to know in this field of radio-control, whether it be for aircraft, boats, or cars.

*Published by Chapman & Hall, 37
Essex Street, London, W.C.2 —
Price 34/-.*

Building Chine Boats

by Michael Verney, A.M.I.C.E.

WITH the vast increase in home boat-building which has swept this country in recent years, this is a book which fills a much-needed want. Anyone who has never tackled boat-building before can make a successful job with the aid of the many hints and 'know how' given.

Full instructions and plans are given for building four craft, from the 13 ft. 6 in. Junior to the 18-24 ft. Eventide. All are capable of seagoing, and have been put fully to the test by long sea voyages.

This is a publication which should have a place on the bookshelves of all enthusiastic boat-building handymen, and as the foreword says, 'There is nothing like sailing the boat you have constructed with your own hands.'

Published by Yachting Monthly, 3
Clement's Inn, London, W.C.2 —
Price 12/6.

For those household jobs

A SERVICEABLE LADDER

A LADDER that is about 8 ft. long will be found very handy for odd jobs concerned with greenhouses, sheds, and windows. It will also be of value to those readers who live in bungalows, for cleaning out gutters, and many other minor jobs.

The timber used for making the ladder must be free from knots and

flaws, and it should be straight and smooth.

Fig. 1 shows one side of the ladder that is to be made from 3 in. by 1½ in. timber. At the bottom of each of the two pieces required, cut off a wedged-shaped piece, as shown.

Mark the housing for each rung, as shown in Fig. 1. This allows for 11 in.

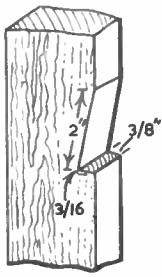
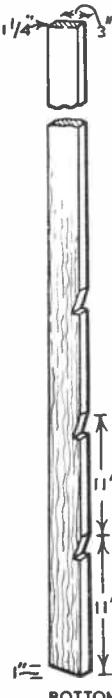


FIG. 2.

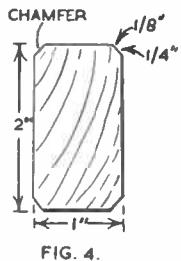


FIG. 4.

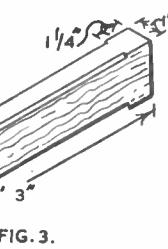


FIG. 3.

typical rung 1 ft. 3 in. long. The ends are left, as shown, and the remainder is chamfered at the four arrises. Details of the chamfer are shown in Fig. 4. The rungs should be glasspapered when they have been prepared. Make certain that all the rungs are of equal length when they are completed.

The rungs are to be fixed to the two sides by means of countersunk screws. Drill holes in the ends of the rungs, as shown in Fig. 5, and make smaller matching holes in the housings for the rungs that have been made in the sides. This will avoid any possibility of splitting the timber. Screws 2 in. to 2½ in. long will be suitable for securing the rungs.

The countersunk holes will enable the heads of the screws to be below the level of the timber. The holes may then be filled with plastic wood or putty.

The strut that is fixed near the head of the ladder is made from 2 in. by 1 in. timber. For this, cut out housing 2 in. by $\frac{1}{2}$ in. at 3 in. from the top. Details

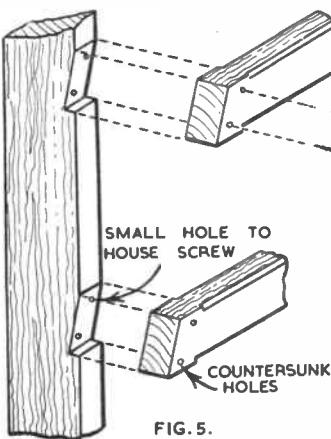


FIG. 5.

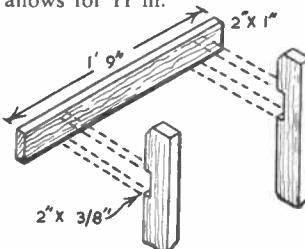


FIG. 6.

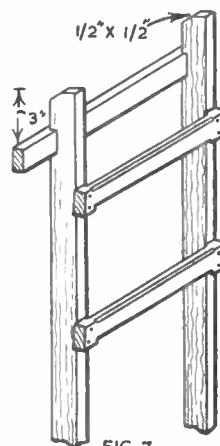


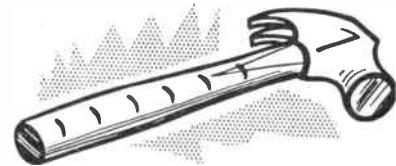
FIG. 7.

of this will be seen in Fig. 6. The strut is then placed in the housing, and secured to the two sides by means of four screws, two at each side.

The ladder should now be checked, and loose fibres cleaned off. (A.R.N.)

A HAMMER RULE

THE home handyman may wish to know the width of a piece of wood or take some other rough measurements with a fair degree of accuracy and find that a foot-rule is not available. A hammer is a very commonly used tool, so why not make this serve another role as a rough measuring gauge? Make a series of small saw cuts along the wooden shaft at convenient intervals and rub some black lacquer into the cuts to make them more prominent. (F.K.)



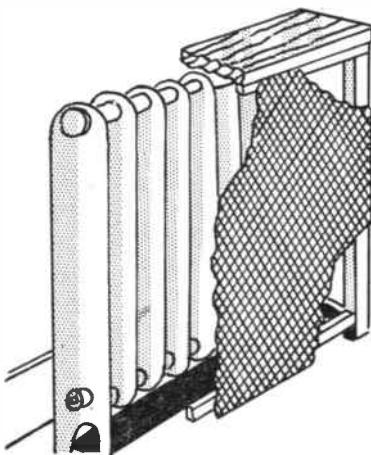


ENCLOSE THOSE FITTINGS!

I RECEIVED an interesting letter the other day, reports Ed. Capper. It was from David Hughes, the popular singing star.

David has a lovely home at Elstree, built mostly to his own design. If he had more time he would be a keen do-it-yourselfer. All the same he notices other people's homes. And there is something he sees time and again, which he considers is 'nothing to sing about'.

He feels that nothing looks worse than uncovered radiators and pipes in houses



that have a hot water system. He feels that lots of people would like some suggestions for covering the naked ironwork.

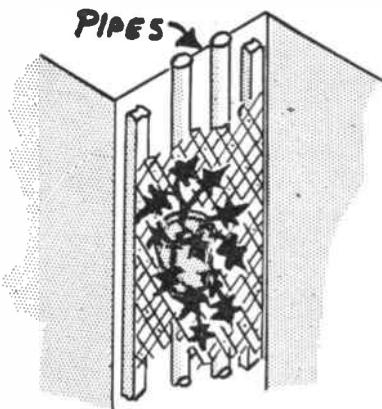
Most people would agree with David. I would myself, for uncovered radiators are as much out-of-tune in the modern, contemporary home as an unpanelled bath. There is no need to tolerate the eyesore any longer.

As the drawing shows, a simple frame of 1 in. planed timber can be screwed together and topped with a shelfpiece of 1 in. thick timber. The front and sides are covered either with expanded metal, as shown, or with metal fret, as used for radio speaker fronts.

The fitting is free-standing, so that it can easily be removed for cleaning around the radiator. You will find that the slow rising warmth from the radiator is ideal for indoor plants, which can be stood on the shelf. Do remember not to make the unit a tight fit around the radiator. Give it 2 in. clearance all

round, so that there is no danger of too much heat warping the woodwork. The front and side covering looks best painted with heat-resisting gilt lacquer.

An even simpler covering for the radiator can be made by first fixing the



top shelf to the wall with ordinary shelf brackets, and then enclosing all round with cretonne curtaining, hung on run-



David Hughes

ners fixed to the underside of the shelf top.

To cover up vertical pipes, especially those that are on show down the side of the chimney breast in the lounge, fix trellis work in front of them, and suspend plant pots from it.

If the pipes are already supported quite strongly with a bracket or two, the trellis can be held by simply wiring it to the pipes. If the pipes are unsupported, nail the trellis to two lengths of batten, screwed into Rawlplugged holes in the wall, as in the drawing.

You can, of course, box in these pipes completely with a hardboard front nailed to two lengths of batten. Do not use panel pins over $\frac{1}{2}$ in. long for holding the hardboard. You want to be able to remove it quickly if ever the pipes must be reached for attention, even if this possibility is remote.

A MAGIC TRICK WITH PAPER CLIPS

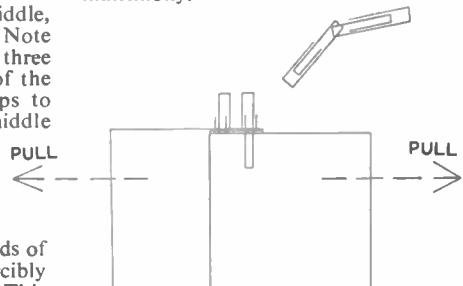
AS an impromptu magic trick with a surprising climax, the 'Linking Clips' is hard to beat. You will need two identical paper clips and a sheet of stiff paper the size of a one pound note.

Fold the paper twice, near the middle, to form a 1 in. wide vertical flap. Note that the flap will be formed of three thicknesses of paper. At the top of the paper press down one of the clips to secure together the lower and middle thicknesses of the flap and press down the second clip, $\frac{1}{2}$ in. away from the first, to secure together the middle and upper thicknesses of the flap.

Now, when you pull apart the ends of the paper, both the clips will be forcibly ejected, linked firmly together. This

startling effect is automatic.

You may like to tell a story about two paper clips who are in love and want to be married. They go into church (the folded paper) and come out joined in matrimony.



'GONDOLA' MUSICAL BOX

THIS richly decorated gondola is an ideal subject for the incorporation of a musical movement. It forms a very attractive model which serves as a cigarette box, the music starting when the roof of the cabin is

appropriate thicknesses of wood for cutting out. Details for adding the pearl acetate will be given later. Note that the hull is built up on the bread and butter principle. The chief parts are pieces 2, 3, 4 and 5, which are cut to their separate

outlines shown on the design sheet, which also gives their gluing positions.

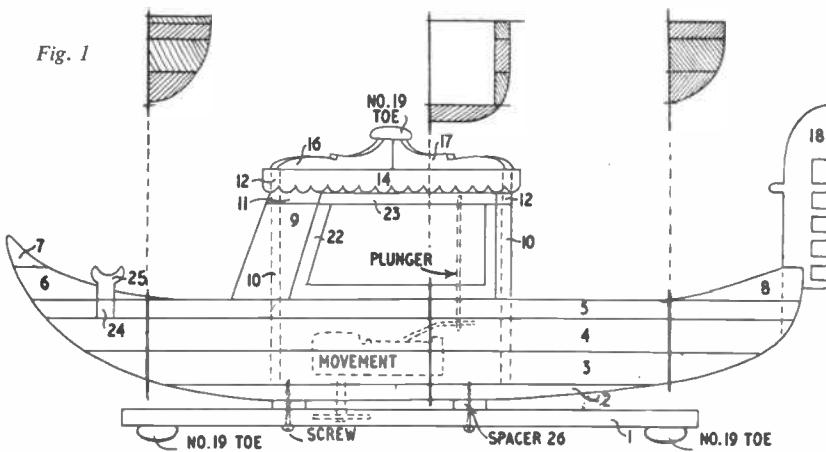
A general idea of the construction is shown in Fig. 1. Make a start with the hull pieces as in Fig. 2, lining up the cut-out rectangles, and gluing together. Pieces 6, 7 and 8 are next added in the positions shown. Piece 8 comes level with piece 5 but pieces 6 and 7 are located as shown by dotted lines on the design sheet.

Leave overnight to dry thoroughly before shaping the hull with a knife as seen in Fig. 3. The approximate sections are shown for guidance in the side view in Fig. 1. Round all contours off nicely, finishing with fine glasspaper.

The musical movement can next be screwed to piece 2 in the position shown by dotted lines and as indicated in Fig. 1. The winder shaft of the movement fits through the hole provided.

Continue by building up the cabin (Fig. 4). Pieces 10 are glued between pieces 9 and recesses cut for adding the hinges. The four floor supports 28 are added, one in each corner. A plunger which actuates the musical movement is cut and shaped from medium gauge

Fig. 1



raised. There is room for 20 cigarettes.

This is a particularly satisfying project for the careful fretworker who excels in neat cutting. A feature is the carved prow, and the decorative canopy and deck overlays also contain lovely patterns in pearl acetate. The overall length of the model is 13 in. and it stands 5 in. high on a base.

All parts which go towards its make-up are shown full size on the design sheet. They should be traced and transferred by means of carbon paper on to their

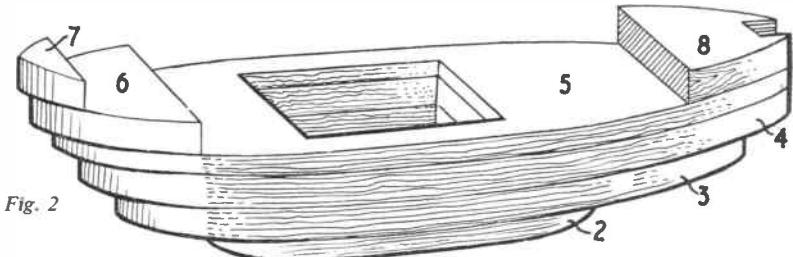


Fig. 2

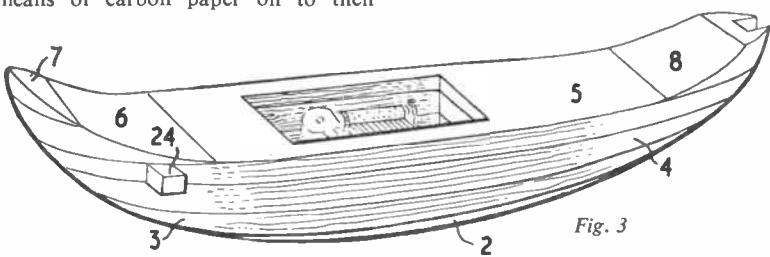


Fig. 3

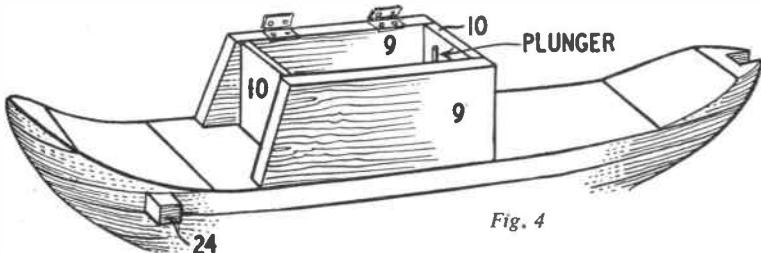


Fig. 4

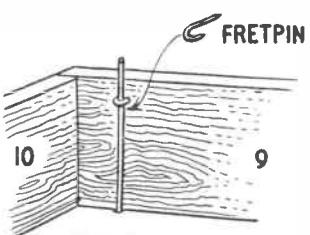


Fig. 5

wire. It is slipped on the arm of the musical movement and held in place while the floor 21 is dropped in position. A notch in the floor will guide the plunger, and a small staple shaped from a fretpin holds the top of the plunger close to the side 9 as seen in Fig. 5. Leave the plunger fully long and make final adjustments when the lid has been hinged in place.

The roof of the cabin is shown in Figs. 6 and 7. Make up the frame and then add the various shaped pieces. Note that the pieces 22 and 23 which go at the

back should be chamfered slightly to allow the lid to open when hinged. Glue block No. 27 to the inside of the lid so as to engage the plunger when the lid is lowered. The shaped piece 18 is glued into the prow, and pieces 24 and 25 are

next added to form the quant rest (see Figs. 1 and 4).

The decorative overlays (19 and 20) with which the decks are covered are cut from pearl acetate sheeting. This can be cut quite easily with a fine fretsaw, but first of all the rough side of the acetate should be glued to a piece of $\frac{1}{8}$ in. plywood,

using a water soluble glue. This will ensure a clean cut, and when the cutting has been completed the acetate will peel off the wood or can be soaked off in water. Those using a Hobbies kit will find the designs of these overlays already printed on the acetate. This also applies to the side window frames 22 and 23. Otherwise lay the acetate on the pattern and trace through to the rough side. Glue the rough side down to $\frac{1}{8}$ in. plywood and cut out as previously described.

Alternatively, for those not so proficient with a fretsaw the pattern can be cut with scissors to outline only. The back should be painted in a bright colour before fixing to enhance the delicate printed tracery. This also gives a delightful effect.

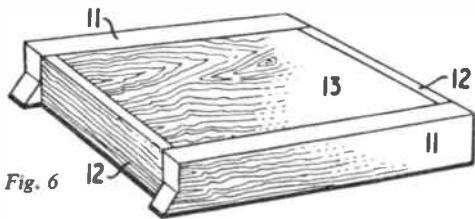


Fig. 6

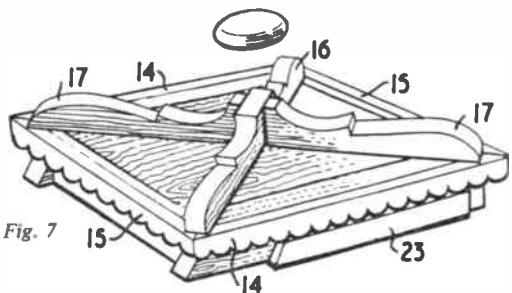


Fig. 7

A KIT FOR 14/-

Hobbies kit No. 3388 for making the Gondola contains all the necessary panels of planed wood, pearl acetate for overlays, wood toes, wire, hinges, flock paper, etc. Kits from branches, stockists, etc. or direct from Hobbies Ltd, price 14s. (post 1s. 6d. extra).

No. 1 Swiss Musical movements suitable for incorporation in the model cost 14s. 11d. (post 6d. extra). There is a choice of 27 tunes, among them being, Kiss me Honey-Honey, Anniversary Song, Auf Wiedersehen, On the Street where you Live, Gounod's Ave Maria, Limelight, etc.

The base 1 is cut from $\frac{1}{8}$ in. wood in which a hole is provided to give access to the winder key of the movement. The model rests on two spacers 26, and is secured by two round-head screws inserted from underneath the base. The addition of four Hobbies No. 19 toes complete the base.

Line the cigarette container with flock paper. It is suggested that the boat should be jet black, windows black, with the cabin and decorations in yellow or gold. Piece 18 can be painted white. Before adding to the deck, etc, the backs of the acetate overlays should be painted in flat white. They are fastened in place with brass fretpins which will add to the decoration.

A Multi-deck Park for 540 Cars

THE first multi-deck car park to be erected in this country is in Rupert Street, Bristol.

Built of pre-cast concrete, it resembles a giant spiral. Ninety vehicles can be parked on each of its six circuits. Each vehicle has its own individual bay

Suspension Bridge. The park is a project of Multidek Car Developments of South Audley Street, London, and they have received enquiries from Japan,

North and South America, Australia, New Zealand and Central Europe. Builders are William Cowlin Ltd of Bristol.



Model of 'Multidek' 540-car park, with petrol service forecourt and car sales showroom

measuring 16 ft. by 8 ft. The central spiral roadway on which vehicles enter or leave the park is 24 ft. in width, giving ample room for turning-in or backing-out of the bays.

The gradient of the central roadway is surprisingly slight, being only 1 in 32 ft. In other words, a car freewheeling down could barely maintain 10 m.p.h.

The park can accommodate 540 cars. Allowing 20 ft. in length for each car, this is equivalent to nearly two miles of street parking in line ahead or one mile of street on both sides.

The building is becoming as much an attraction in Bristol as the famous

PERISCOPE MADE OF TANK PRISMS

A PERISCOPE which gives very clear vision can be made from a pair of ex-Service prism units of the kind used in tank periscopes.

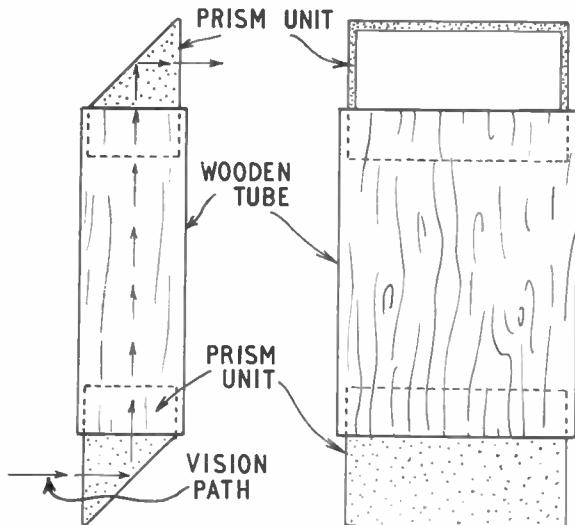


Fig. 1—Constructional details of the periscope

Prisms are heavier than mirrors, but give better results, and with surplus tank periscope prism units it is only necessary to construct a rectangular tube of thin wood to fit the prisms.

Suitable surplus prism units can be obtained from the supplier mentioned. There is, of course, no reason why other prisms should not be used, but dimensions may then need changing. For a periscope, the prisms must have one face at 45 degrees, so as to give a vision path, as shown in Fig. 1.

Tube construction

The tube is best made from 3-ply. The prism units mentioned are fitted in metal holders 4½ in. wide, so that both eyes may be used together for viewing. The back and front of the tube thus need to be 4½ in. wide. The prism holders are 1½ in. from front to back. If $\frac{1}{16}$ in. thick plywood is used, the sides of the tube should be 1⅜ in. wide, so as to overlap front and back pieces.

The completed tube can be any desired length, but if it is very long the field of view will be restricted. A tube 6 in. long will be convenient, and the

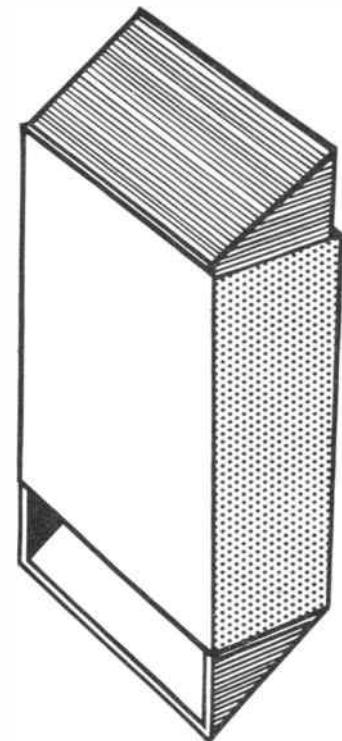
view out of the periscope will then be about 8 in. higher than that of the user's eyes. For many purposes this is sufficient. If a very tall periscope is wanted, the tube can be increased in length.

The pieces of wood can be fitted together with panel pins, after checking that the prism units will be a good tight fit. The inside of the tube is best painted flat black. The prism holders mentioned have a metal clip, and a small cut-out should be made in the tube to receive this, so that the prisms are held in the tube.

Fig. 1 shows the arrangement required, and the outside of the tube can be painted any desired colour. The glass surfaces of the prisms should be carefully cleaned with a soft cloth before the holders are inserted in the tube.

Clarity of vision through the periscope will be such as to permit trick photography and similar effects, as well as giving a view over the heads of other people, or over obstacles, or allowing wild birds to be watched without disturbing them, and so on. The bottom of the periscope is held as near the eyes as possible.

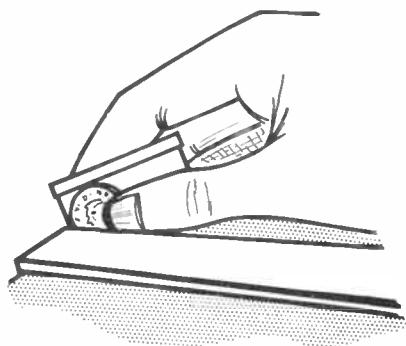
A suitable pair of tank prism units can be obtained for 3/-, postage and packing 1/9d. from J. E. Annakin, 25 Ashfield Place, Otley, Yorks.



By 'Modeller'

RAZOR BLADE TIP

MANY home craftsmen like to use an old razor blade for cutting thin materials. This is normally done by laying a rule or lath along the line of cut and using this as a guide. Very often this results in the blade 'biting' in and removing small slices from the rule or lath. To prevent this, place a coin or washer between the guide strip and the blade. (F.K.)





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Replies to Readers

Old Warming Pans

COULD you tell me how to stain light oak dowel? I wish to obtain an antique effect as they are required for two copper warming pans. Would you also tell me of a method of retaining the polish on the copper to save daily cleaning? (F.H. — Fareham).

YOU will probably get the best results by using Colron wood dye. Rub it on with a cloth and allow to dry. Follow this with a wax furniture polish. Two or three coats should be applied and each left for a short time before rubbing lightly with a cloth. Finally, leave this a few days then rub with a piece of sacking, which should give the antique finish which you want. To avoid frequent polishing of copper, it is possible to buy lacquer to coat it. The simplest is for brushing, but this needs care to avoid brush marks. A spray type is better if you have the means of spraying. Both types are cellulose and very quick-drying.

Formula for Fly Killer

I AM interested in making wines and have a room in which to do it, but there are so many flies. I have tried to get rid of them, but they still come back no matter what I use. Could you please give me a method or a recipe with which to get rid of them, as I would be very grateful. (M.B. — Heage).

I AM afraid you will never keep your room free of flies unless you take precautions to prevent their entry. Fly killers take time, and whilst they are disposing of the first lot, the second will be on its way in. The door should be kept shut while killers are at work. Afterwards, if doors or windows are desired to be open, screens of net or muslin on frames should be fitted. Provided the wine is covered, no ill effect will be caused by the flies. If you wish to make an extra powerful fly killer you can make up a Gammexane based spray. Gammexane is five times more powerful than D.D.T. and is less toxic to other forms of life. Mix 89 c.c. of kerosene and 1 c.c. of methyl salicylate. Pour the mixture into a bottle and add 10 grams of pyrethrum powder. Close the bottle and shake occasionally during three days. Strain and add 5 grams of Gammexane. Since the kerosene is inflammable, spray in flame-free conditions.

Gentian Violet Stain

COULD you please tell me how to remove 1 per cent solution gentian violet stains from a pair of trousers? I have washed them and tried various stain removers, but the stain is still there. (S.W. — Bacup).

IN the absence of any information as to the material of the trousers, it is assumed that they are of the usual wool/cotton suiting. The trouble here is that the gentian violet, being a basic dye, has combined with the wool. In such cases, stripping is difficult without a special

Next week's issue will contain
projects for all the family,
including patterns for a double
bunk bed for a doll's house.
Make sure of your copy.

boiling treatment — clearly impracticable here. Two other treatments are available, however, which may be effective with so weak a solution of the dye. Mix 4 volumes of methylated spirit with 1 volume of a mixture of glacial acetic acid (1 volume) and water (9 volumes). Place a sheet of blotting paper below the material, swab well with the stain remover and press a second sheet of blotting paper over the stain. If this fails, try a remover made by dissolving 20 grams of ammonium chloride in a mixture of 72 c.c. of water and 8 c.c. of 20 vol. hydrogen peroxide. Immerse the stained area in this solution. Follow up the treatment with a warm water soaking.

Reproofing an Oilskin

I WOULD like to know how to waterproof old oilskin coats, if it is possible. (S.O. — Eire).

REPROOFING old oilskin is rarely satisfactory because the carefully controlled drying conditions of industry cannot be maintained at home. There is a formula which can be tried,

but its success depends on hit or miss drying conditions. The main thing is to be sure of complete disappearance of tackiness between coatings. The product is made up by warming in a pan of hot water 2 fluid ounces of oil of turpentine (NOT turpentine substitute), 8 fluid ounces of boiled linseed oil and 1 ounce of beeswax. When the wax has dissolved, brush warm on to the coat. Wipe off surplus after about an hour. Hang in a shady place, not too cold. When this is quite dry (after some weeks) brush with a warm mixture of the above with its own volume of boiled linseed oil. Hang to dry again. Give two more coats under the same conditions.

Surface Tension Toys

IN Hobbies Weekly (29.2.60) there is an article by A. E. Ward on 'Fun with Surface Tension'. I made his 'Perpetual' Dancer but was unable to get gum camphor. Our local chemist offered me a camphor block for 4½d. but this failed to rotate the toy. Can you help? (R.P. Chalfont St Giles).

YOUR 'camphor block' was the correct material to use. No surface tension experiment will work well if even a layer of grease one molecule thick should be present upon the water. Wash out your bowl with soapy water and then rinse thoroughly with clean tap water before setting up your toy. Also make sure that your hands are as grease-free as possible and let your apparatus be free of grease.

Indian Ink

I AM able to obtain printers' carbon which has been milled very fine (of almost colloidal dimensions), and would like to make some Indian ink from this. I would be most grateful if you could furnish a formula for (a) Ordinary Indian ink, and (b) waterproof (when dry) Indian ink. (J.A. — Huddersfield).

THE fine milled carbon should be ideal for Indian ink, but it must be oil-free. Ordinary Indian ink may be made by dissolving 0.5 gram phenol and 5 grams gum acacia in 100 c.c. of water. Rub in enough pigment to give the requisite intensity. The vehicle for waterproof Indian ink varies in strength and consists of shellac, borax and water. The shellac is in the proportion of 4 parts to 1 part borax. Thus, the vehicle may consist of:

Shellac 2·8 grams	} up to	10 grams
Borax 0·7 gram		2·5 grams
Water 100 c.c.	100 c.c.	

and is a matter for trial with the particular grade of carbon. To make up the vehicle, dissolve the borax first in the heated water. Then stir in the shellac, and when it has dissolved allow to cool and rub up with the pigment.



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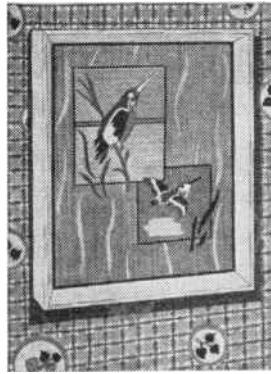
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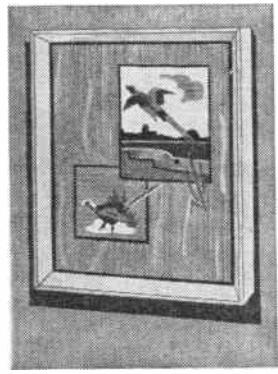
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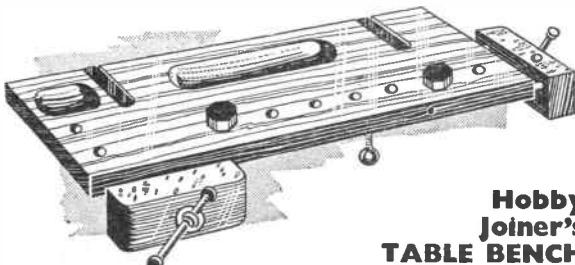
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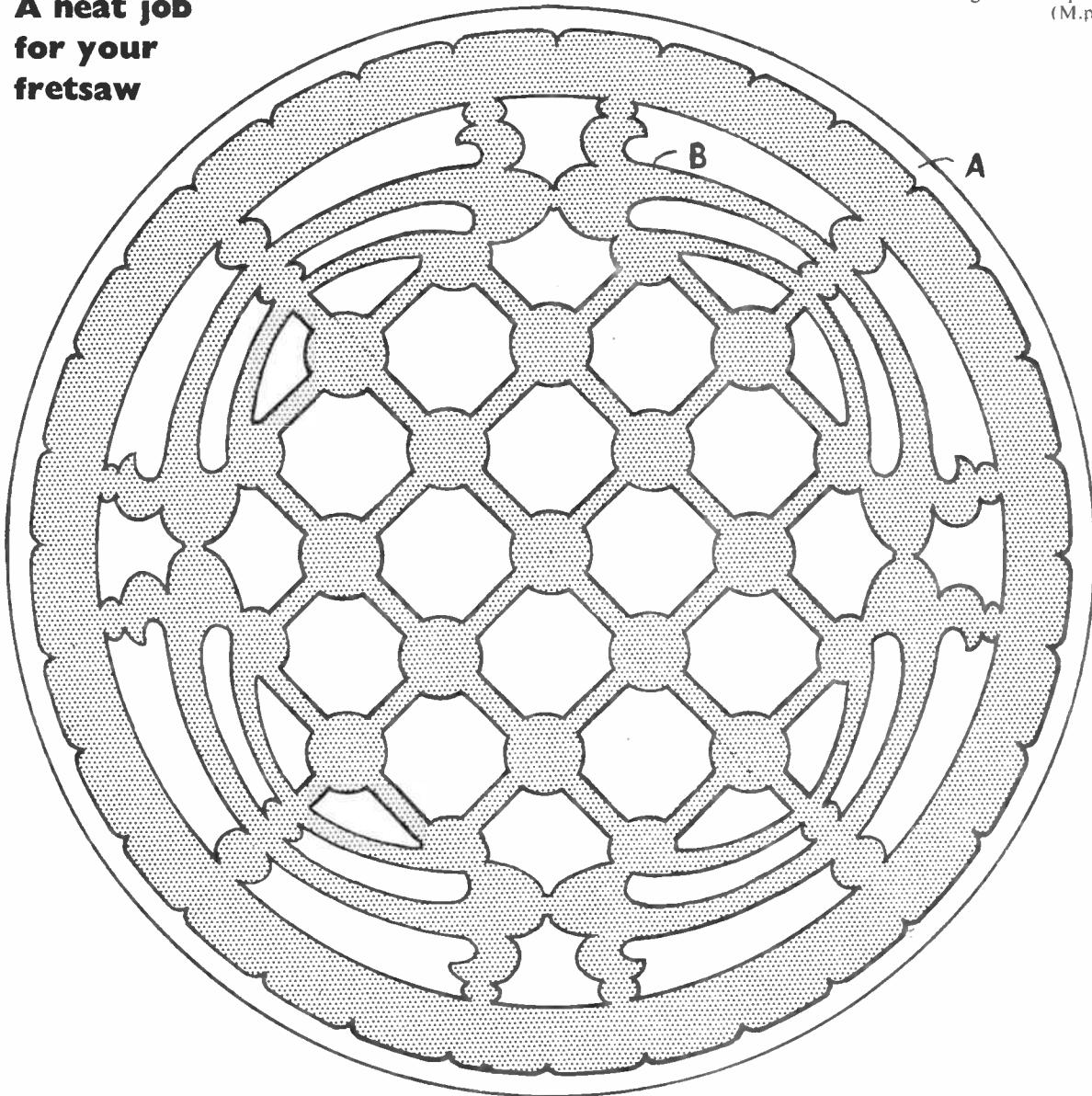
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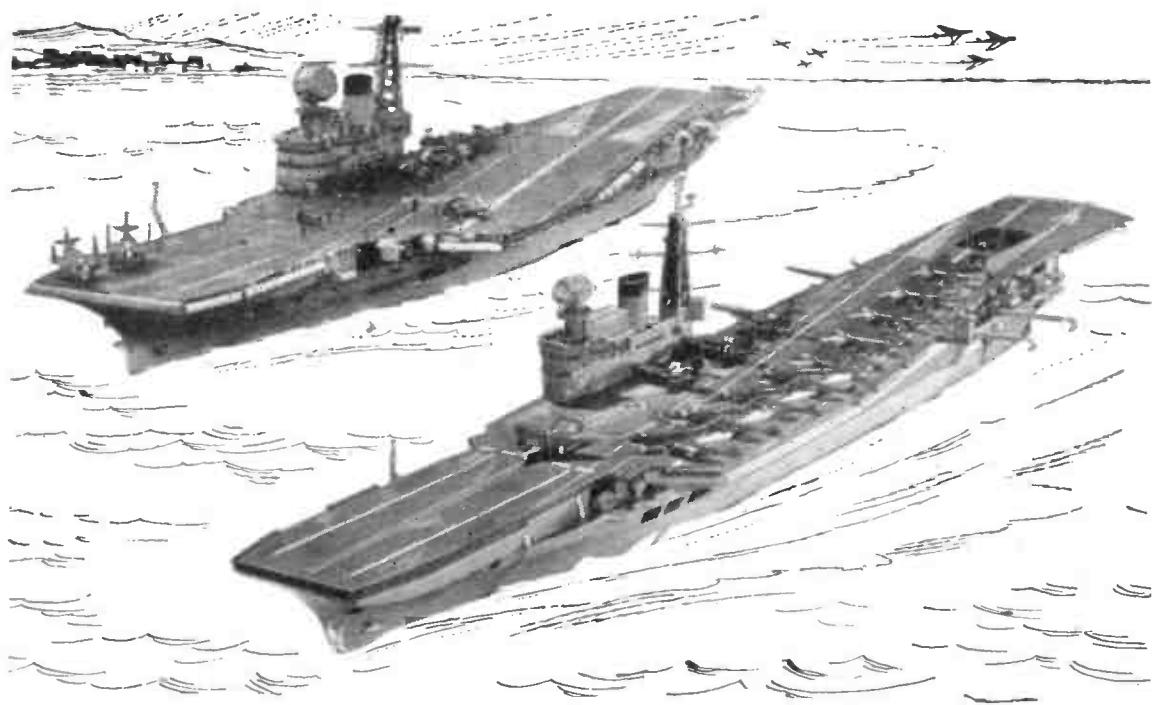
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for your
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SHOW your folk just what you can make with your fretsaw. Cut out this tricky piece of work from two contrasting pieces of wood. The background A should be $\frac{1}{2}$ in. thick and the overlay B $\frac{1}{8}$ in. thick. Glue the two together and clean up with glasspaper. Finish with heat-resisting clear lacquer.
(M.p.)





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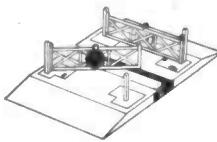
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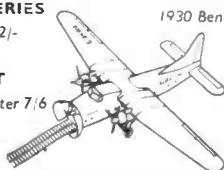
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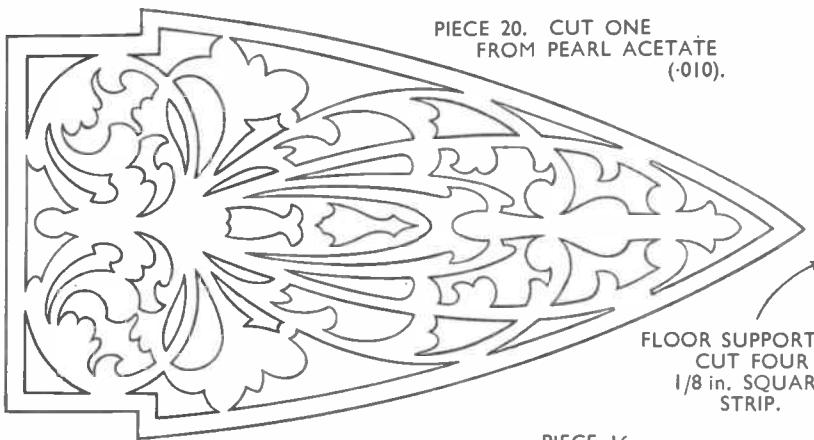


H.M.S. TIGER

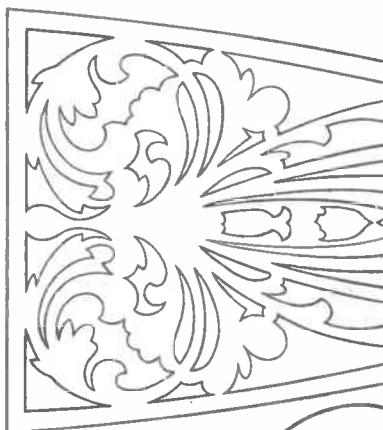
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1/8 in. SQUARE
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PIECE 18.
CUT ONE
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CUT ONE
1/4 in.

PIECES 17.
CUT TWO 1/4 in.

PIECES 10.
CUT TWO 1/8 in.

28

FLOOR 21. CUT ONE 1/8 in.

28

SUPPORT 28

NOTCH FOR
PLUNGER

8
5
4

PIECE 13. CUT ONE 1/4 in.

PIECES 9. CUT TW

10

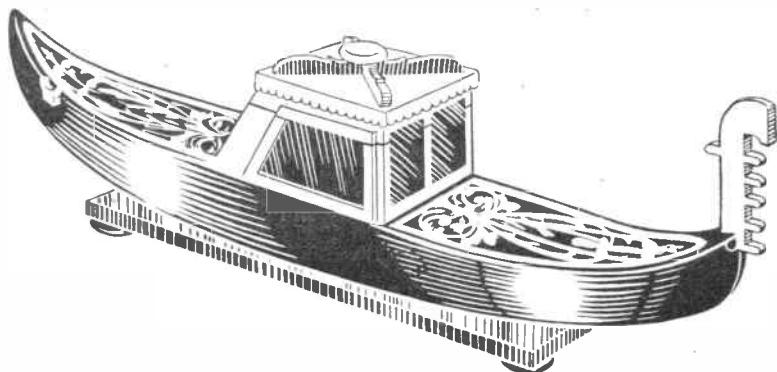
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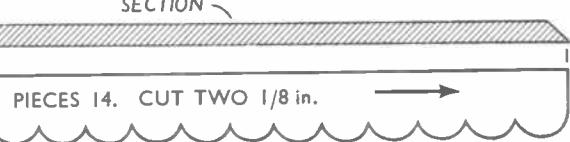
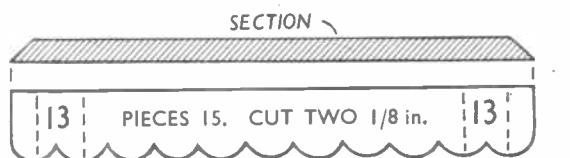
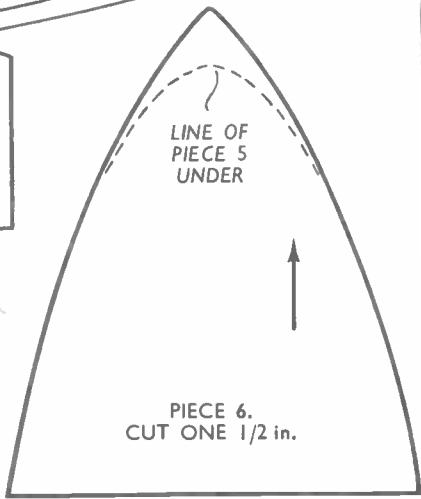


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CUT TWO 1/4 in.

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World Radio History

PIECE 8.
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SUPPORT 28

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PIECE 13. CUT ONE 1/4 in.

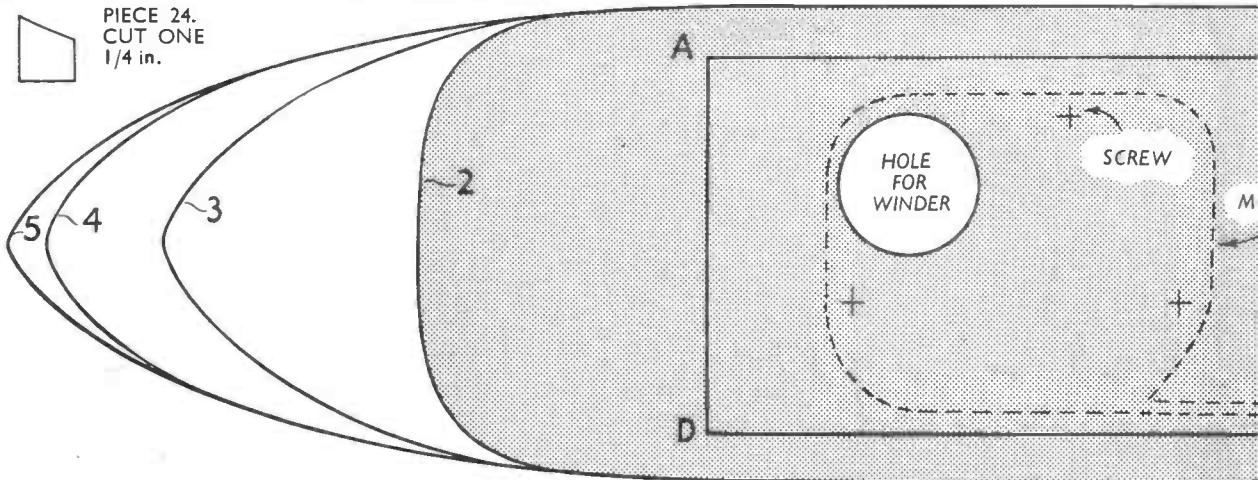


~10

~22

PIECES 9. CUT TWO

PIECE 24.
CUT ONE
1/4 in.



SPACER 26

HOLE FOR SCREW

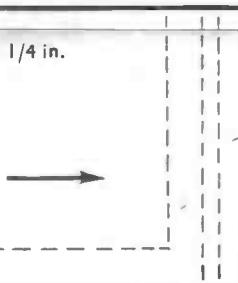
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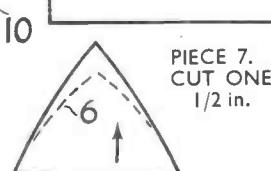


CUT TWO 1/4 in.

PIECES 11. CUT TWO 1/4 in.



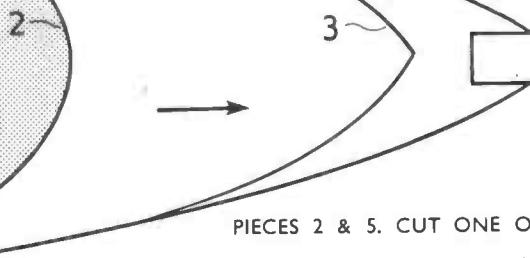
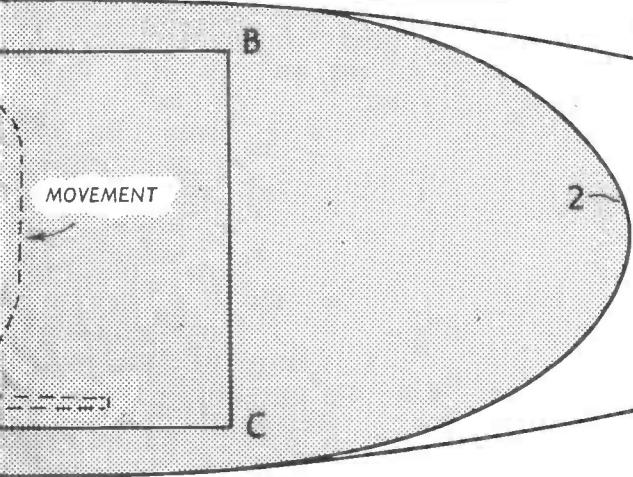
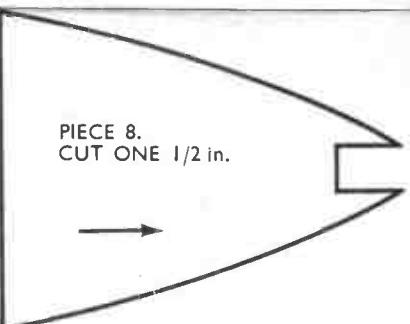
PIECES 12.
CUT TWO 1/8 in.



PIECE 7.
CUT ONE
1/2 in.

PIECE 8.
CUT ONE 1/2 in.

PIECE 2S.
CUT ONE
1/4 in.



PIECES 2 & 5. CUT ONE OF EACH 1/4 in.

PIECES 3 & 4. CUT ONE OF EACH 1/2 in.

THE SHAPE OF PIECE 2 IS SHOWN SHADED.

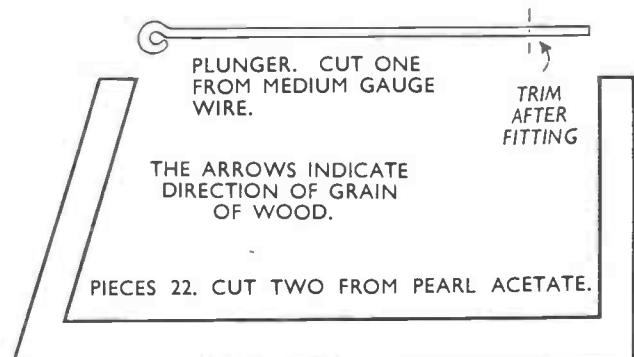
THE HOLE FOR WINDER IS CUT IN THIS PIECE.

THE RECTANGLE ABCD IS REMOVED FROM PIECES 3, 4 AND 5 ONLY.

BASE 1. CUT ONE 1/4 in.



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PLUNGER. CUT ONE
FROM MEDIUM GAUGE
WIRE.

THE ARROWS INDICATE
DIRECTION OF GRAIN
OF WOOD.

PIECES 22. CUT TWO FROM PEARL ACETATE.