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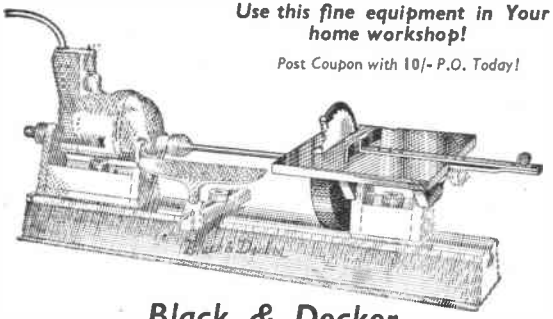

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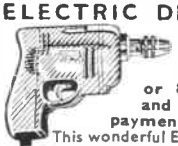

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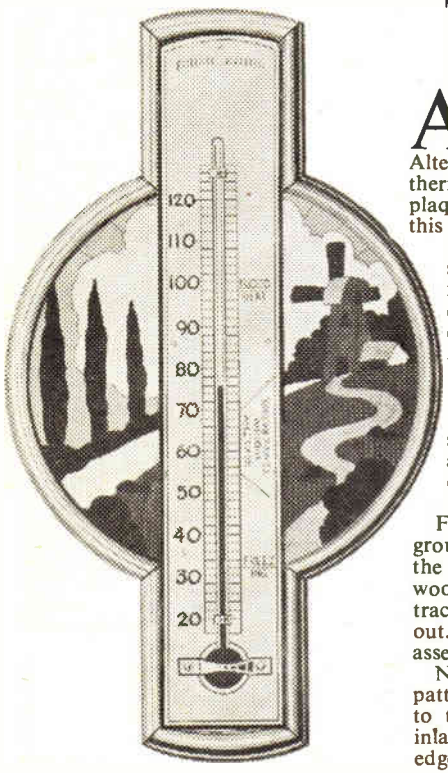
HOBBIES WEEKLY

JULY 18th 1956 VOL. 122 NUMBER 3168

IN THIS ISSUE

FREE Design Inside for—

AN INLAID THERMOMETER



A THERMOMETER set in a coloured wood background makes a pleasing fitting for the home. Alternatively, workers could omit the thermometer fitting and make circular plaques for hanging on the walls from this design.

The picture is made by the fretsaw inlay method, with which most readers are familiar, but the procedure will be described for the benefit of newcomers to whom there is available a leaflet 'Making Pictures in Wood', obtainable free from the Editor. Please enclose s.a.e. The kit for making this design includes sufficient wood for the backing piece and mitred framework, and four contrasting panels of wood for the inlays.

First transfer the shape of the background (piece 1) and the pieces forming the frame (4 to 11 inclusive) to ¼in. wood. Make sure that *all* parts are traced out on the panel before cutting out. Clean up and lay aside for future assembly.

Now build the picture. Transfer the pattern of the picture and pieces 2 and 3 to the whitewood panel. Pin the four inlay panels together around the outside edge in the waste wood, and drill a hole near the edge of the picture. With a fretsaw, cut out one shape at a time, allowing the pieces to fall out. When all the cutting has been completed, assemble the pieces according to the keyed picture on the design sheet. The picture is now glued down piece by piece to the background (piece 1). The wood for pieces 2 and 3 can be selected to contrast with the picture.

Scrape smooth

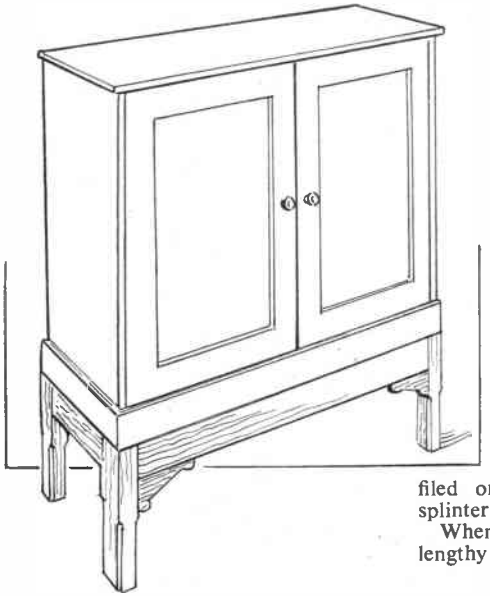
When completely dry, the picture should be scraped (i.e., with a piece of glass) until smooth. Glasspaper may be used for this operation, but it will take much longer. Apply white wax (furniture polish), rub it well in with the fingers, and polish lightly with a duster. Then rub down with fine-grade glasspaper until the surface wax has been removed. From this operation it will be appreciated that the fine dust from the glasspapering, combined with the polish, will begin to fill up the cracks between the pieces. Repeat this process of waxing, polishing and lightly glasspapering until the cracks have been completely filled and the surface is reasonably well glazed. The more often this is done, the

● Continued on page 242

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

For Modellers, Fretworkers and Home Craftsmen

4½D



STAND FOR A CUPBOARD OR BOOKCASE

Described by W. J. Ellson

INCONVENIENCE is sometimes experienced when it becomes necessary to take an article from the bottom compartment of a cupboard, or a book from the lowest shelf of a bookcase. To remedy this a stand is suggested, high enough to elevate the article of furniture, and thus render access to its lower parts much easier.

A simple design of stand is illustrated. It shows a common pattern of cupboard on a stand of 12ins. in height. No dimensions are given, as these must depend on the size of the article to be raised.

The legs are cut from 2in. square timber, and the horizontal rails are 1in. thick. The rails are tenoned into the legs as in Fig. 1. Note that the face sides of these rails should come level with those of the legs, so cut the tenons accordingly as at (A), where the wood is reduced to half thickness, cutting from the face side.

Using 3in. wide timber for the rails, cut the tenons 2ins. by ¾in. A horizontal section of a corner of the stand is given in Fig. 2. This also shows the corner block, screwed across each corner angle. After gluing up the stand, and allowing it to set hard, screw the blocks across. The blocks can be cut from spare bits of the wood, at least 1in. thick, with a notch cut out to pass over the legs.

Using turned legs will practically complete the stand, but with plain squared timber it will be as well to add some little finish as a decorative effect. A stop chamfer, as shown in the drawing of the finished stand, can be easily planed, and is quite effective. The sharp bottom corners of the legs should be filed or glasspapered off to prevent splintering when the stand is moved.

When the stand has to be rather lengthy to suit a wide piece of furniture, corner brackets (as seen in the illustration) may be added to break up the space between the legs. These can be cut from pieces of wood 6ins. long and 3ins. wide, and glued and nailed in the corners to impart a finishing effect.

It will be desirable in most cases to add stopping slips at the top of the stand to prevent the article on it from moving. These are cut to the shape at (B) in Fig. 3, and are nailed or screwed to the inside of the rails as in the diagram, and should project about ¼in. above. As seen at (B) the projecting portion of these stops should be cut to make up any difference between the thicknesses of rails and plinth above.

To fix the stand permanently to the article resting upon it so that the whole can be moved as one, the projecting parts of the stops should be made longer as indicated by dotted lines, and screwed to the plinth.

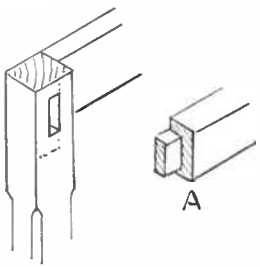


Fig. 1

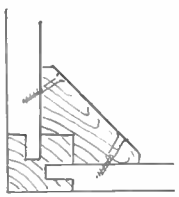


Fig. 2

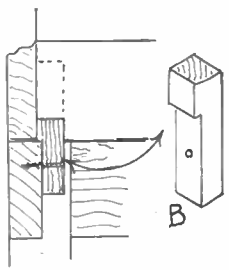


Fig. 3

● **Continued from page 241**

An Inlaid Thermometer

better will be the resulting finish. The final operation will be waxing and polishing only, omitting the glasspapering.

The border strips can now be glued to the outside, trimming where necessary to ensure a perfect fit. The edges can be rounded or left square, as thought suitable. Wax polish the frame and finish off by screwing the thermometer and bracket eye in place.

It will be appreciated that only one set of each shape has been used for making the one picture. Other pictures using different colours of wood can be sorted out from the shapes already cut and similarly made up. Those who wish to make a number of these inlaid thermometers for gifts, etc., can add extra panels of wood, cutting up to a total of ¾in. to 1in. thick on a fret-machine.

A portable wicket

TAKE GUARD WITH THIS CRICKET SET

THE difficulty of fixing stumps in a hard playground or yard can be overcome by using this ready-assembled set, which will stand quite firm on any flat surface. The swivel arrangement at the base allows each stump to fall independently without losing the set positions of the wicket.

The over-all measurements are given in the side and front views in Fig. 1. Notice that the base is made from ¼in. mild steel 2ins. wide. It can be riveted or welded together as shown in Fig. 2. The inside measurement of the 'U'-shaped piece is exactly 8ins. and allowance should be made when bending or the measurement will be scant.

The bolt securing the stumps is ⅜in. diameter with about 1in. of thread to take a wing-nut as illustrated. Bore ½in. holes in the 'U'-shaped piece 2½ins. from base to allow a generous clearance.

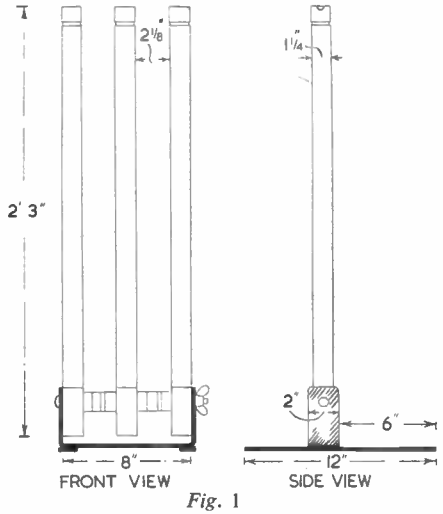


Fig. 1

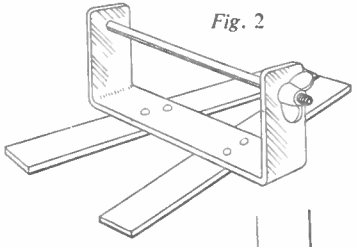


Fig. 2

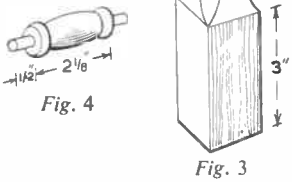


Fig. 4

Fig. 3

The stumps are shaped from 1¼in. square wood 2ft. 3ins. long. Fig. 3 shows how the base is left square for about 3ins. A hole should be drilled in each stump and centred 2ins. from the base. The diameter is ½in. to take the ⅜in. diameter bolt.

Circles of wood 1½ins. in diameter act as washers or spacing pieces between the stumps. The total thickness is 2½ins., so that three or four pieces should be cut to make up this thickness exactly.

The bails are shaped from 1in. diameter wood as shown in Fig. 4. The pegs can be shaped from the block, or dowels let in at each end.

Finish off by painting the metalwork green and give the stumps and bails two coats of clear varnish. (M.h.)

Books to Read

Making and Using a Telescope

by H. P. Wilkins and Patrick Moore

MANY would-be astronomers are deterred from obtaining the equipment they need by the feeling that any telescope that is good enough to be useful, is bound to be expensive to buy and impossible to make. The authors, however, show that with no previous experience the handyman can make up his own instrument comparatively cheaply. A start, in fact, can be made by using some old spectacle lenses and rolled-up paper. From this stage the reader is led on to the advanced refracting type, and there is also much guidance in making observations of the moon, the planets and stars.

Published by Eyre & Spottiswoode (Publishers) Ltd., 15 Bedford Street, Strand, W.C.2—Price 12/6.

The Canoeing Manual

by Noel McNaught

THIS contains a mine of information about a sport which is becoming increasingly popular year by year. It describes the legal position in regard to individual touring on rivers, the various types of craft, the advantages of joining clubs, and notes on the different races held annually. There is much good advice for beginners, and a helpful list of the Canoe Clubs in Britain, which those interested in the sport would do well to contact.

Published by Nicholas Kaye Ltd., 194–200 Bishopsgate, London, E.C.2 —Price 10/6.

Making and Repairing Fishing Tackle

by Richard Arnold

THIS is a book for all angling enthusiasts which shows how tackle can be kept in good repair at a minimum cost. How various tackle accessories can be made is also fully explained.

Published by W. & G. Foyle Ltd., 119–125 Charing Cross Road, London, W.C.2—Price 3/-.

F. G. Rayer says

BUILD A TEST METER

READERS appear to be interested in constructing a meter with several ranges, so that batteries, and wireless and electrical circuits can be tested. It is quite easy to do this, and to provide any desired ranges. Or the meter may be made up in simple form, and other ranges added later.

Such multi-range meters are built up around a milliammeter, and these can be purchased new, or from ex-service stores, in many sizes and types. They are usually round, but square ones are also made. The shape, naturally, does not influence results in any way. Again, some are flush mounting, and others projecting. The flush mounting type will fit in a suitable hole cut in the panel of the finished test meter, the glass and dial being almost level with the panel. With the projecting type, there is no flange for this method of fixing, and the whole meter stands out from the panel. The flush mounting type is generally most convenient.

The diameter of the meter, or length of its scale, will also appear in the supplier's list. Small meters may be 1½ins. or so in diameter, with a scale of similar length, while big meters may have scales several inches long. A 2in. meter is large enough for all ordinary purposes.

In addition to the above (e.g., size and shape of meter,) it is most important that the current required to move the pointer to full scale is known. The most generally suitable type will be a 1mA meter. With this, 1 milliamp (one-thousandth part of an amp) will move the pointer to the end of the scale.

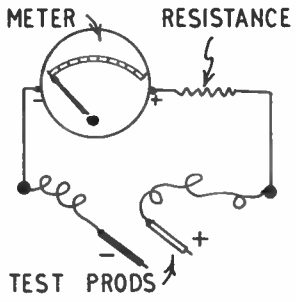


Fig. 1—Circuit for measuring volts

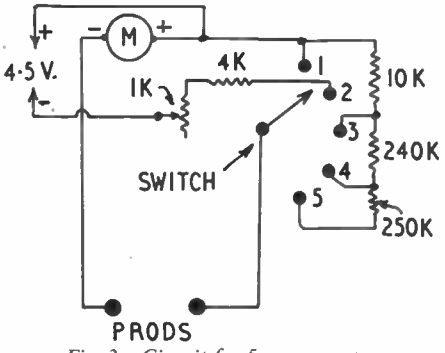


Fig. 3—Circuit for 5 range meter

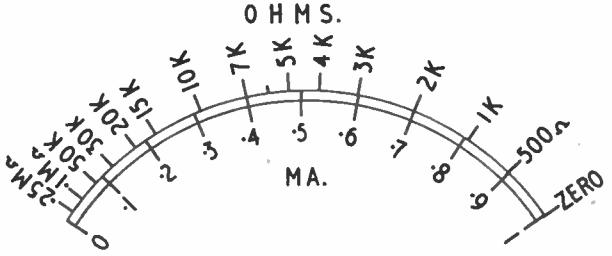


Fig. 2—The resistance scale

Voltage Ranges

The method used to measure voltages will be clear from Fig. 1, a resistance being wired in series with the meter. If a 1mA meter is used, this resistance must have 1,000 ohms for every 1-volt of the required range. For example, a 5,000 ohm resistor would read 0–5 V, and a 100,000 ohm resistor would read 0–100 V.

To obtain several ranges, it is only necessary to select various resistors. This can be done with a rotary switch, plug and sockets, or simply by taking the resistances to a number of terminals, to which the positive test prod lead can be connected, to select the range required.

If the meter should be a 2mA one, then 500 ohms will be needed for each volt. A 5mA meter would require 200 ohms per volt, while a ½mA (500 microampere) meter would require 2,000 ohms for each volt. This can be kept in mind if a meter of other than 1mA type is to be used.

With high value resistances (K) is used to show 'thousands of ohms'. A 50K resistor is thus 50,000 ohms. It would give 0–50 V with a 1mA meter, or 0–100 V with a 2mA meter. With the ½mA meter 50K would give 0–25 V, and with a 5mA meter it would give 0–250 V in accordance with the 'Ohms per Volt' ratings explained above.

Ordinary resistors are correct to 20% only. Resistors with a silver band or end are correct to 10%, and those with a gold band are correct to 5%. For much testing, 5% resistors will do well. If it is desired that readings be correct to a higher degree of accuracy, then 1% tolerance resistors may be used, but these cost a little more.

The circuit in Fig. 1 can be used exactly as shown for a single range voltmeter.

Reading Ohms

It is often an advantage to be able to read resistance values. This can be done by using a dry battery, usually contained in the multi-meter case. With normal use the battery will last six to twelve months.

A typical resistance scale is shown in Fig. 2, and will be correct when using a 1 mA meter with a 4·5 V dry battery of the kind used in flashlamps. Meter, battery, test prods, and a resistance which can be set to 4,500 ohms are all wired in series. The prods are held together, and the resistance adjusted until the meter shows 1mA, or Zero ohms. When the prods are parted, the pointer will return to its original position. When they are applied to any resistor or circuit, the pointer will take up a position which shows the resistance on the ohms scale.

It must not be forgotten that the scale shown is only correct for 4·5 V battery and 1mA meter. If a different battery or meter is to be used, the deflections for given resistance values can be worked out from Ohm's Law, and a scale to suit drawn.

Five-Range Meter

Volts and ohms readings are most satisfactory for the majority of tests, and the principles explained can be used to make a meter according to the circuit in Fig. 3. A small case, with Paxolin or Bakelite panel, must be constructed to hold the parts. A 5-way rotary switch is

easily obtainable, but terminals or sockets can be used instead.

Considering the ohms range first, a 4K fixed resistor and 1K variable resistor are used in series, to obtain 4,500 ohms. This saves the meter from possible damage, as if the variable resistor is turned to zero, 4K will still be in circuit. Furthermore, when the dry battery has run down to 4 V, it will no longer be possible to get the meter pointer to Zero. A new battery will thus be necessary, and the errors in ohms readings which would result from a discharged battery cannot arise. For ohms readings, the switch is set to '2' and the scale as shown in Fig. 2 is employed.

With the switch at '1' the meter reads up to 1mA, exactly as if used alone. When it is set to '3' a 10K resistor is in circuit, giving a 0–10 V range. When set to '4' 250K (240K plus 10K) will be in circuit, giving 0–250 V. At '5' a range of 0–500 V will be obtained, 500K in all being in circuit.

It would be possible to wire 10K, 250K, and 500K resistors directly from the switch contacts to positive on the meter, as explained in relation to Fig. 1. However, with high voltages (over 150–250 V or so) it is more usual to wire the resistors in series, as in Fig. 3. This breaks up the voltage existing across the resistors. For up to 250 V it is perfectly in order to use one resistor only. But for 500 V or 1,000 V it is desirable to use two or more resistors in series, the total value coming to that necessary.

Ranges to Use

It will be seen that the voltage ranges can easily be made up to any figure wanted. They can thus be chosen to suit the purpose in view. For example, if battery radio sets are to be tested, there is no point in providing 250 V or 500 V ranges. Instead, it would be better to have a range reading about 0–5 V to test the L.T. batteries.

It is also helpful to choose ranges which fit easily to the meter scale. With a 1mA meter, usually marked as in Fig. 2 (0–1mA scale) it would be very awkward to read, say, 0–6 V or 0–12 V. But 0–10 V could be read off at once, without needing to mark the meter scale. So could 0–100 V. With such a range, ·1 would be 10 V, ·2 would be 20 V and so on.

If the meter dial is big enough, new ranges can be marked on it, or on thin card. Or the actual meter scale may be copied on card, enlarged, and the various voltage ranges marked on this. A glance from meter to card scale will then show the reading. If the meter is opened to fit a new scale inside, care is necessary not to damage the delicate pointer, moving-coil, or hairsprings and pivots.

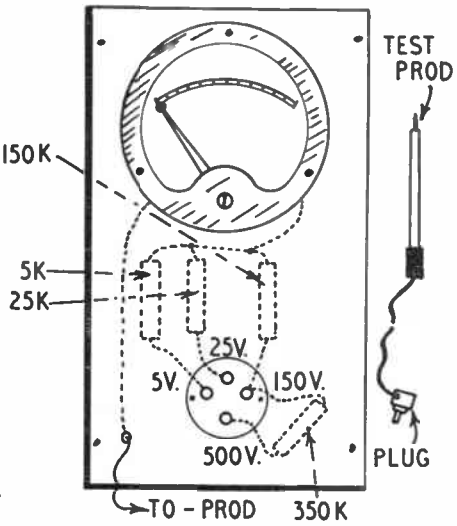


Fig. 4—A 4 range meter

With a 0–5mA meter voltage ranges to suit can be chosen, such as 0–5 V and 0–50 V, etc. If this is done, the meter scale can be left unchanged, and readings will still be easy.

A Four-Range Voltmeter

The arrangement shown in Fig. 4 will be satisfactory for many purposes. A shallow case large enough to hold the meter and other parts is made, with a Paxolin panel. A 4-socket valveholder allows four ranges to be selected by simply inserting the plug in the appropriate socket. If more ranges are wanted, then a 6-, 7- or 8-socket holder can be used.

With the 1mA meter, 5K gives 0–5 V. For 25 V a 25K resistor is in circuit. For 150 V, a 150K resistor is present. For 500 V only 350K extra is necessary, since 150K is already present, making 500K in all, when the plug is in this socket.

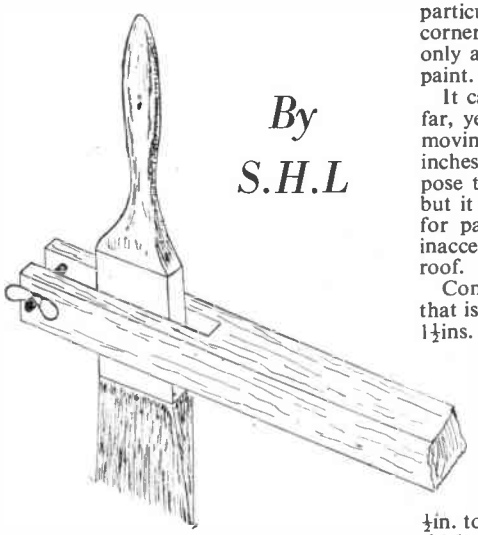
For high voltages, well insulated prods are necessary. These can be bought, or made by passing very stout wire, or thin brass rod, down rubber tubing. Good quality flex, red for positive and black for negative can be soldered on, and slightly larger rubber tubing used to cover the joint.

When an ohms range is provided, battery and 1K variable resistor are in the case, the latter being on the panel. It can then be turned to bring the pointer to Zero on the ohms scale, as explained.

Details of circuit testing have appeared in past issues. But it should be noted that batteries should always be tested when actually working the motor, receiver or lamp, if a correct indication of voltage is to be obtained. In addition, a meter of this type reads D.C. only — this includes batteries, H.T. and other voltages in radio receivers (including mains sets), etc., and is most generally useful.

Extending the Paint Brush

By S.H.L



THERE are times when one wishes the paint brush had a longer handle or could be made to extend a little further to avoid moving the ladder so many times. This applies particularly when one comes to the corner of the house and there remains only a small portion of the spouting to paint.

It can be dangerous to lean over too far, yet it is tempting to try instead of moving the ladder for those few extra inches. It was for this particular purpose that the gadget shown was made, but it has also been found to be useful for painting fallpipes and one or two inaccessible spots on the greenhouse roof.

Construction is extremely simple. All that is required is a 3ft. length of 1in. by 1½ins. wood and a ⅜in. wing nut and bolt. A slot is cut out large enough to accept the brush to be used with an extra 1in. for the bolt. Drill a hole for the bolt first, then a further hole at the base of the slot, cutting away the waste material with a saw. Most brushes are about ½in. to ⅝in. thick and this must be the thickness of the slot.

In use, the brush is fitted into the slot and the wing nut tightened to keep the brush in position. Note that the brush may be set at almost any convenient angle.

Home chemistry

EXPERIMENTS WITH ALUM

WHEN we speak of alum we mean potash alum, or, as chemists term it, potassium aluminium sulphate. There are many other alums, some containing aluminium and some not. Potash alum is a double salt and is a chemical combination of one molecule of potassium sulphate, one of aluminium sulphate and twenty-four molecules of water of crystallisation.

Growing a crystal is an interesting experiment and alum is a good chemical to use, for it crystallises easily. Take about 200 c.c. of warm water and stir in as much alum as will dissolve in it. Hang a hair from a glass rod placed across the vessel and weight the end of the hair with a small washer (Fig. 1).

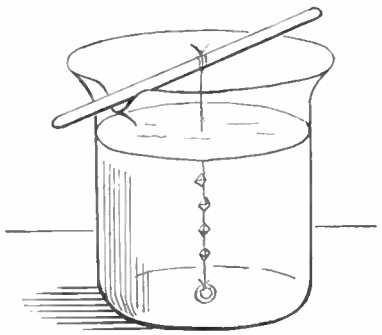


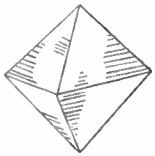
Fig. 1

As the solution cools crystals will deposit on the hair and in the vessel. The next day remove the hair, pour the solution into another beaker, taking care that no crystals pass from the first to the second beaker. Now examine the crystals on the hair, using a magnifying glass if they are very small. Select one which has the form shown beside the beaker in Fig. 1. Remove the others from the hair and replace the hair in the solution as before. Place the beaker in a warm place, such as on a mantelpiece, so that slow evaporation may take place. By daily removing all crystals except the selected one, a perfect crystal of alum will be obtained. Larger crystals may be grown by making a fresh lot of alum solution when the volume of the previous solution sinks too low to be effective. Using similar methods, an American experimenter grew an alum crystal weighing around one hundredweight! Apart from the expense and patience involved, such a huge crystal would be inconvenient to have around, and if you stop at a dimension of ½in. to 1in., you will have a specimen which is quite as instructive.

In the last experiment we made use of the water of crystallisation in alum to form a crystal. Now let us see what happens when we remove it. This we do by means of heat. Place some alum in a crucible and heat it. First it melts in its water of crystallisation, then boils as the water is given off. When the temperature reaches a low red heat the alum begins to swell up, rises above the rim of the crucible and forms a startling sort of chemical mushroom (Fig. 2) which even has the spongy texture of the real thing.

Red hot glow

Powder this residue and mix it well with a third of its weight of fine carbon black. Put the mixture in a crucible, cover the crucible with a lid and heat to full redness for about thirty minutes. Turn out the flame and let the crucible grow cold. Remove the lid. The black mass will suddenly glow red hot in a spectacular way. If the air is sufficiently humid at the time it will fall in a shower of sparks when sprinkled out of the crucible. This product is known as Homberg's pyrophorus.



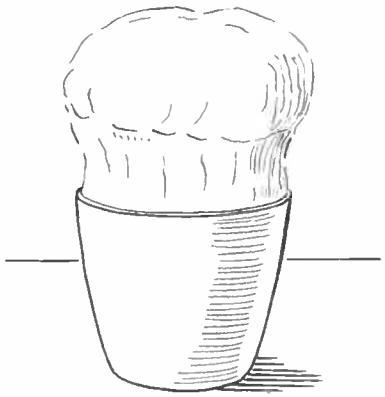


Fig. 2

Alum has proved a useful chemical to the dyer. Let us see why. Make a solution of alum by shaking successive small quantities of the powder with water until no more dissolves. Pour off the clear upper solution from the undissolved residue. Stir ammonia into this slowly until a drop of the mixture turns red litmus paper blue. A bulky white precipitate will have appeared in the liquid. This is aluminium hydroxide. It possesses the property of making many soluble colouring matters insoluble by combining with them. This is the reason why alum has been of so much use to the dyeing industry.

Filter off the aluminium hydroxide on a filter made not from paper but from a circle of white cotton cloth. Pour hot water through until one wash water gives no white precipitate with strontium nitrate solution.

Put some of this purified aluminium hydroxide in a test tube and thin it down with water. Add enough cochineal to give a pink tint, warm the mixture and filter it through a filter paper. The filtrate will be colourless, but the residue of aluminium hydroxide in the filter will be coloured pink. It has combined with the cochineal.

If you tried to dye a piece of cotton with cochineal the colour would wash out when rinsed in water. By depositing aluminium hydroxide in the fibre and then dyeing, the cochineal is fast to washing. This principle is used widely to fix colours in cloth and is known as mordanting.

Fixing colours

You can try out the principle very simply. Fill a test tube with alum solution and pour it into a beaker. Stirring well, add, drop by drop, a solution of washing soda (sodium carbonate). Aluminium hydroxide is precipitated, but redissolves as more soda solution is added. At last there comes a point when a slight permanent cloudiness remains. Now add alum solution drop by drop until the solution clears.

If you take a little of this solution and warm it in a test tube a precipitate of aluminium hydroxide immediately appears. Therefore, if we warm this solution on the cloth the aluminium hydroxide will be deposited in the fibre and form a mordant. Soak a piece of white cotton cloth in the solution, drain it and then dry it by holding it in front of a hot fire. Cut a small hole in one corner.

Put this marked and mordanted cloth together with a piece of unmordanted cotton into a beaker containing water which has been strongly reddened by the addition of cochineal. Boil the whole for about ten minutes. Then remove the two pieces of cotton, wash them in several changes of plain water until one wash water is colourless. You will find the mordanted cloth is now permanently dyed, whereas the other is not.

By making the aluminium hydroxide deposit only in certain areas of the cloth, only those areas will take dye.

●Continued on page 247

A. Sharp says

Bream afford a Fine Sport

THE bream is a fish highly esteemed by the 'coarse' angler, particularly during July, August and September. Last summer, for instance, no fewer than six bream weighing over 5lbs. apiece were caught by an angler in the river Shannon. These big fish gave excellent sport. Larger specimens are not unknown. The record for English waters is one of 13lbs. 6ozs. caught in 1945 from the Castle Lake, Chiddingstone, by Mr. E. G. Costin.

Bream run to a noteworthy size, like carp and barbel. Happily, they are fairly widely distributed, in sluggish rivers, drains, lakes, reservoirs, ponds, canals, meres and the East Anglian Broads. In a well-stocked water you may expect bream to range from 1lb. to 5-, 6- or even 7lbs. and over. These bigger fish are strong and when hooked resist with great determination, boring down to the muddy bottom, or seeking refuge in weeds. One's tackle must be strong, the hook a No. 8 or 10 tied to gut or Nylon of 2x or 3x strength, and the line itself of corresponding quality. The float should be either a porcupine quill or goose quill.

The float is adjusted so that the baited hook lies close to the bottom of the 'swim', or drags just on the bed, the angler nipping on the cast sufficient split-shot to achieve this purpose.

'Finicky' Feeders

With the knowledge to spur him on that it is possible to hook and land a bream that may prove a notable specimen, the angler can afford to ignore the indifferent days when these fish are for some unaccountable reason, 'off their food'. The truth is that bream are uncertain in their habits, and there is no accounting for their 'on' days and 'off' days. They are apparently sensitive to weather influences and react to extremes of heat and cold. A sudden shift of wind may also upset their feedings.

Cold, windy, rainy spells, occurring at intervals during summer, after a period of high temperatures, will often check their appetites. They seem to abhor a quick change from hot to cooler conditions. Often during a heat wave they will be found well 'on the feed', and thus may give good sport when other species are disinclined to 'wine and dine'.

It pays to study bream habits. They are disposed to rove in schools along a waterway. It is possible to pursue a travelling company of bream moving leisurely in a drain or canal, keeping them in sight as they forge ahead. As they wander on their 'summer cruises' they often stir up the soft mud from the bottom or the sides of the watercourse, causing discoloured patches on the surface — these betray the presence of a school moving in formation and questing for food as they go along. Such muddy patches are sure bream signs — watch out for them! If such a patch be found, ground-bait liberally with a ground-bait of soaked bread and bran mixed together thoroughly, or brewer's grains well soaked with warm water and worked in with bread crumbs and bran to a fairly stiff consistency.

The correct bait

Baits for bream are various, namely, worms, maggots, paste, slightly sweetened with honey, creed wheat, stewed barley, wasp grubs (in season), and greaves.

Another bream sign, well known to old anglers, is the presence of 'sentinel' bream on the surface of the water. Izaak Walton noted this habit, and mentioned it in his famous book.

There are times when the angler trying for bream, sees his float rise out of the water an inch or so and then lie flat on the surface. This is said to be caused by the fish sampling the bait, 'standing on its head' as it were, to nuzzle the succulent titbit on the hook, and then, taking hold and levelling itself again in the water, lifting the hook tackle, causing the float to rise and fall on the surface. In such a case the angler exercises patience until the float moves and is leisurely drawn under, and as it disappears he strikes — and not until then.

Sometimes, instead of muddying the water, bream blow air-bubbles as they root about at the side of the water; therefore, when you observe such bubbles rising to the surface in a particular place, it is wise to fish there for a while and test it well before moving elsewhere.

During the height of summer some anglers resort to a spot of night-fishing for bream. If you desire a good catch of biggish bream, try angling during the midnight hour. August is a good month for this. Night-angling, however, has its drawbacks. It is, perhaps, better to set your stage beforehand and get on the job at early dawn and stick there trying your luck and hoping that your plans will turn out successful. If you observe patches of buff-coloured muddy water with flecks and bubbles on its surface you can usually settle down to a decent morning's sport — if nothing untoward puts the bream off their appetites in the meantime.

Bream are easily recognised from other fish by their deep, bellows-shaped body, sharply forked tail, large dark-hued fins, and in general colouring — blackish-green on the back, with light-hued underparts.

'Breamflat'

The silver bream, which is a smaller variety, has a flattish instead of rounded body, with silvery appearance. This variety is often called the 'breamflat'. The record for English waters is a specimen of 4lbs. 8ozs., caught at Tortworth Lake in 1923.

Finally, when bream fishing, carry an old towel with you to wipe your hands on after handling — bream are well coated with slime.

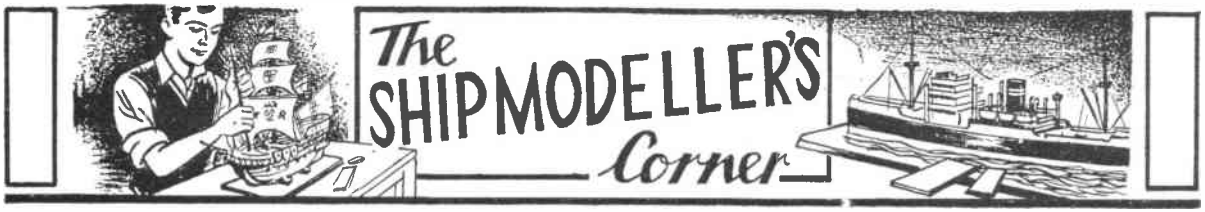
● **Continued from page 246**

Experiments with Alum

Here we have the principle of calico printing. Take a few c.c. of the soda-treated alum solution and thicken it by grinding in a little powdered gum arabic. Dip a cork end into the mixture and press it on a small square of white calico. Hold the cloth in front of a hot fire as before until dry and then boil it for ten minutes in cochineal as in the last experiment. On washing the cloth, the only place to have any colour will be the mordant-printed spot. From this simple principle arose all the elaborate and beautiful designs we see on printed fabrics.

As a final interesting experiment you can make use of the purified aluminium hydroxide left over from the first experiment with cochineal. Dry this in a dish in the oven. Now heat it to bright redness for about an hour in a crucible. The aluminium hydroxide shrinks and loses water, becoming aluminium oxide, which is also known as alumina.

This innocent looking white powder in the bottom of the crucible may look as different from emery, rubies and sapphires as those do from each other. Yet they are all aluminium oxide, the difference in appearance in the last three being caused by their being crystalline and coloured by small quantities of oxides of other metals. (L.A.F.)



OUR little model represents a vessel favoured by the slave traders during the early part of the nineteenth century. They were at first converted ships and were later designed for the trade. The main consideration was speed and cost, decoration and other non-essentials being cut to the minimum. Armament consisted of one gun, mounted on a pivot.

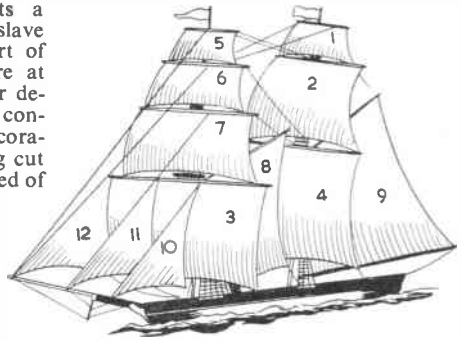
Commence with cutting the keel and hull pieces (A) and (B). Glue together (A) and (B) in pairs in the usual way and carve to the dotted lines on the keel piece. Note the particularly fine lines to the hull shape, designed for speed, as was the large sail plan.

Cut the deck piece and when glued in place on hull, drill the mast holes at an angle for the rake of the masts, the main at about 8 degrees and the mizzen at 10 degrees. The rake on these vessels was more than normally found.

Cut and fit the bulwarks so that at the bow (front of ship) there is a space of $\frac{1}{16}$in. between the edges to allow for fitting the bowsprit.

Chamfer the bowsprit and glue to the deck or cut a little longer and set in a hole drilled at an angle in the deck.

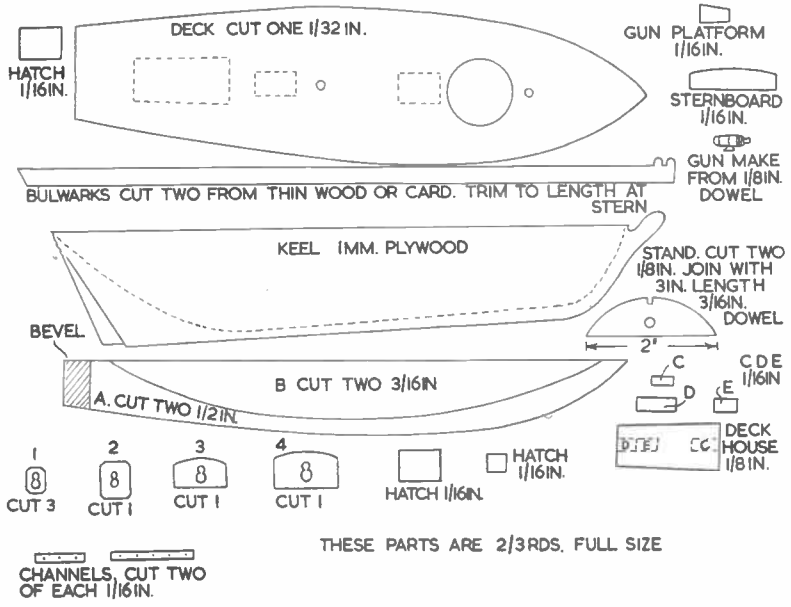
The deck-house is built up of pieces (C), (D) and (E) as shown.



Finished model and sail plan

The hatchway grating need not be a problem. At this scale a very good representation can be made in the following manner. After cutting the hatchway piece, cut a piece of surgical gauze $\frac{1}{32}$in. smaller than the wood all round, this leaves a margin to represent the hatch coaming. Glue on the top of the wood block and give a coat of shellac. When dry, this gives a good imitation of the grating.

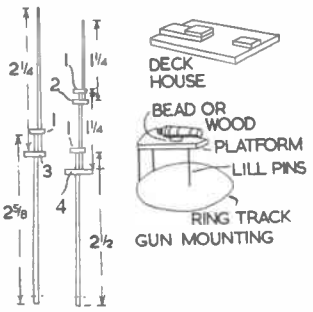
Cut out and glue the other two hatchways in position and make the gun platform and pivot. This is done by winding one turn of fine wire or rigging cord around a piece of $\frac{1}{4}$in. dowel and gluing the resulting ring on the deck. At this scale we will not make the gun platform actually pivot, but fix it in position as illustrated, with three lill pins. Cut off the heads of the pins and drive through the platform one in the narrow end to be driven into the deck in the centre of the circle and the other in the rear two corners of the platform and driven into the deck as close to the wire ring as possible. If a ring of cord has been used they can be driven through the cord, the effect will actually be more realistic in the case of cord, as the two rear supports were actually running on the circular track when the gun was pivoted for firing in any direction.



MODEL SLAVE TRADER

By 'Whipstaff'

The mast tops can be cut in thin wood, or in thin white celluloid, which saves painting as well as giving a stronger assembly, the channels are cut from $\frac{1}{16}$in.



wood and treated with shellac instead of painted. Make the mast assemblies and bind and glue the spars in place. In fixing gaffs and booms on small models, a short length of lill pin inserted in the end of the spar and driven into the mast when gluing in position makes a very strong job of the joint.

The sails in my model were made from good quality cream-laid notepaper fixed to the spars with balsa cement.

●Continued on page 249

Handy at all times

A TWO-TIER TEA TRAY

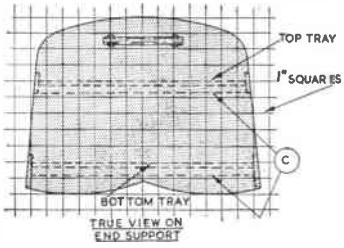
By G. Allen

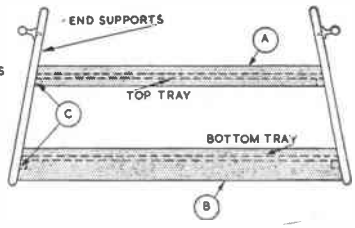
THIS is an ideal household accessory for those who do not require an elaborate tea trolley but find that a single tea tray becomes overcrowded — particularly when there are guests present.

Chief requirements are some ¼in. ply for the trays, ½in. thick timber for the end supports and Formica if you intend to face the trays in the modern style.

Start by fretting out the two end supports. Finish the faces dead smooth and, if desired, round off all the edges.

On the face of each support mark the positions of the tray ledges (C) by drawing parallel pencil lines ½in. apart. The ledges are cut from ½in. square hardwood. Note that they fall short of the edge of the main supports by ½in. at each side — i.e., the thickness of the side pieces (A and B). Plane one face of each ledge strip at an angle to allow for the eventual lean of the end supports. Glue them in place between the pencil lines and reinforce each by driving three woodscrews through the ledge into the supports.





Inward lean

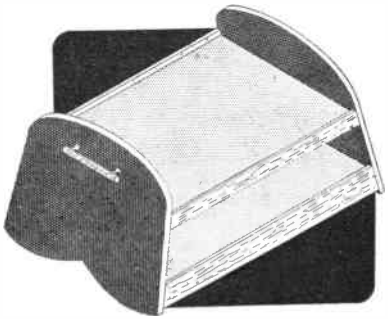
Next cut the trays from ¼in. ply. The bottom one measures 20ins. by 14ins.; the top one 18ins. by 13ins. Bevel the end edges of the trays to allow for the inwards lean of the supports. Do this with file and glasspaper.

Face each tray with Formica or similar plastic at this stage, using the appropriate glue, and trim flush with the ply.

Glue the trays in position on top of the respective ledges. Fix the bottom one first, leaving the top tray loose on its bearers to act as a guide. When set, glue the top tray. Reinforce by driving panel pins into the edges of the trays through the end supports, making sure that the heads are driven below the surface of the timber.

Now cut and fit the tray sides (A and B). (A) is 1¼ins. wide; (B) 2ins. wide. Each side protrudes ½in. above the surface of the trays. Ply ¼in. thick is used. Mark the angles on the ends of the strips by holding each in position against the edges of the supports and drawing fine pencil lines in the appropriate places. Cut and glue in place.

Before fitting the ornamental handles finish off the unit as desired; by polishing, staining, varnishing or enamelling—having first filled in all holes and cracks with wood filler. You may consider it a good idea to cut fretwork overlays, using designs already published in *Hobbies Weekly*, and fixing them on the outside faces of the end supports.



The handles themselves, in metal or plastic, can be obtained at a modest price direct from Hobbies, ready for screwing into position, or you may wish to have the entire unit home-made and to cut two from ply and screw them in place from the inside.

● **Continued from page 248**

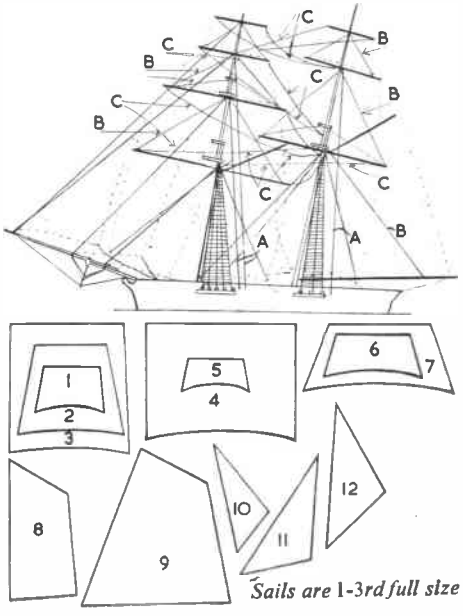
Model Slave Trader

The rigging is simplified for this small model, consisting only of the stays, lifts and braces.

The original ships were plainly painted and lacked any decoration. Paint the topsides black with a white stripe. The stripe can be added by painting a piece of fine cord white and fixing in position when dry with balsa cement. The underwater body is painted coppery red, to represent the copper sheathing of the period.

The spar sizes are as follows: No. 1, 1in.; No. 2, 1⅛ins.; No.3, 2ins.; No. 4, 2½ins.; No. 5, 1in.; No. 6, 1½ins.; No. 7, 1⅞ins. Gaff for sail No. 9 is 1⅜ins., and the boom 2½ins. The gaff for sail 8 is 1½ins. This latter sail has no boom, but is held down by the sheets, i.e., the rigging line from the lower corner aft and the tack from the forward corner.

A. BACKSTAYS - BOTH SIDES OF MODEL
B. LIFTS - ON AFT (REAR) SIDE OF SAIL
C. YARD BRACES



Sails are 1-3rd full size

For Holiday Thrills

MAKE A SURF-BOARD

SURF-RIDING is a sport that is both exciting and exhilarating and one that can easily be learnt. There are many places around our coasts and in the Channel Islands that are suitable for 'the art of surfing', and for quite a modest sum — about 10/- — an excellent board may be made.

Firstly, obtain from the wood merchants a piece of ¼in. mahogany resin-bonded plywood, 48ins. long and 12ins. wide. It is essential that the ply be resin bonded because this is waterproof. Clean off all edges with a smoothing plane and mark out the curve at the front. Cut near the line with a fretsaw and finish off with a sharp spokeshave. Smooth off the corners and all edges with glasspaper.

Making the bend

So far, the construction of the surf-board has been quite straightforward. The most difficult part is making the bend at the front. This bend upwards should be between 1½ins. and 2ins. from the straight.

HINTS ON SURF-RIDING

1. It is best to surf-ride on an incoming tide, when the waves seem to have more power. In any case only strong swimmers should 'ride' away from the shore.

2. Wade out into the sea until waist deep and then turn to face the beach.

3. Hold the surf-board in front of you, sloping upwards about 45° and held firmly into the body about where the top of your bathing trunks will be. In this position wait for a suitable wave.

4. The best waves for surfing are those that are just about to break or those that have just done so. When a wave approaches, glance behind and leap forward just a fraction of a second before it reaches you. Try to jump forward, keeping the front of the surf-board above water and at about the same speed as the wave.

5. The art of surfing lies in three things:

- **(a) Keeping the front of the board above water.**
- **(b) Jumping forward at about the same speed as the wave.**
- **(c) Judging the right moment when to leap forward.**

These three points will be learnt, on the average, in an afternoon. Of course, the more practice you get, the better you will be, and eventually you will probably get a surf-ride every time.

The surf-board described was easily and successfully bent by using a smooth log about 5ins. in diameter (any similar round and solid object would be suitable). This was held firmly in a vice. The round end of the surf-board was fully immersed in boiling water in a pail and left for about ten minutes, quickly taken out, and bent by hand around the log. Old rags are useful in this operation. Before it was dry the board was firmly held in position and left over-night to allow the curve to set. When dry, the curve will remain in position. On the original, the tip of the surf-board was put under the leg of a bench and the back supported in a tilted position by the simple means of placing a chair under it.

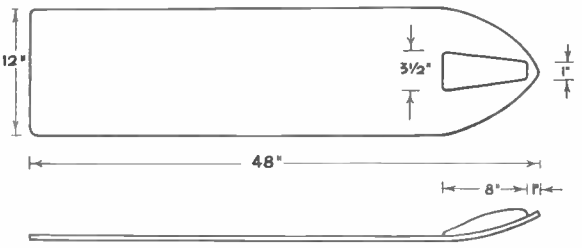
The bending operation will have raised the grain of the ply-wood, so it will be necessary to glasspaper smooth again.

Supporting block

A block made from a light wood and shaped on the underneath to the curve on the surf-board will ensure that the board never loses its shape. Make the block from a piece of timber 2ins. by 3½ins. by 8ins. To get the exact curve, it is a good idea to make a paper template, or pattern, and trace round this on to the wood. Make the top of the block into a streamline shape, rounding off all corners, and secure by means of screwing from the underneath with brass screws. Waterproof resin glue can also be applied.

MATERIALS REQUIRED

One piece ¼in. mahogany resin-bonded plywood.
One piece pine 8ins. by 3½ins. by 2ins.
Brass screws: Two 1in. Number 8.
Two 1½in. Number 8.
One 1½in. Number 10.
Half pint yacht varnish (or enamel paint).
Resin glue (optional but advisable).



To finish off the surf-board it is necessary to give it several coats of yacht varnish, glasspapering down in between each coat to ensure a final smooth finish. Of course, the board may be painted, preferably in gay colours, so that it can easily be located if washed out of your hands in the sea.

A surf-board so constructed will give years of service and endless hours of amusement. All that will be required in the way of maintenance is a glass-papering down at the end of the season and a coat of varnish or paint. (A.E.H.)

Gouges from Scrap

THE ribs from an old umbrella can be utilised for making small gouges which are very handy for use in model making or carving. There are usually two sizes of ribs used in umbrellas; these will make $\frac{1}{16}$in. and $\frac{1}{8}$in. radius gouges.

With a pair of pliers break off a 5in. length, after cleaning off the paint, and grind the cutting end to an angle of 30 degrees, taking care not to get the metal too hot when grinding, as it will lose its temper and become very soft. Before sharpening with a slip stone, fasten the tool in a handle made of wood. (J.R.)

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ISSUES ON SCOUTING

By L. P. V. Veale

THE Canadian stamp commemorating the 1955 World Jamboree makes one consider some of the stamps and their designs which have been issued, either for a definite Scouting purpose, such as raising funds for a Scout charity, or as a commemorative stamp commemorating some Scouting activity.

This last reason may appear as a rather vague one until one considers, for example, the 1918 stamp from Czechoslovakia, which is the subject of the first illustration. This stamp was issued by the Revolutionary Committee of

Top left: Czechoslovakia. Commemorating the work of Scouts as postmen.
Right: Siam. In aid of the Tiger Scouts Fund.
Bottom left: Russia. First Scout Rally.
Right: Roumania. One of the many Scouting stamps.

Prague, and the distribution of the letters was undertaken by the Scouts, so that these certainly commemorate a Scouting activity. Some of the stamps have an overprint recording the fact that the Scouts took out the post, and these are exceedingly rare, but the specimen can be purchased for a few shillings. It serves as a very good introduction to a Scout collection.

One of the most important of the stamps comprising a Scouting collection would be one of the Mafeking Siege stamps. At first the besieged used the stamps of the Cape of Good Hope overprinted with the 'Mafeking 3d. Besieged'. Then the stamps of the Bechuanaland Protectorate were so overprinted, and lastly stamps were prepared by a photographic process by a Mr. Taylor. There were two values, the 1d. and 3d. The former showed a picture of Sergt.-major Goodyear on a bicycle and the other showed a head and shoulder portrait of, as he was then, General Baden-Powell. These stamps were, of course, used between 24th March and 17th May, 1900, which was considerably before Scouting, as such, started, though the portrait is that of the late Chief Scout. Scouting was born in Dorset, at Brownsea Island in 1907, when General Baden-Powell took a few boys and told them all about Scouting. Little did he imagine that the movement that was started then whould develop into the world-wide affair that it is today.

English overprint

The second illustration has one peculiarity about it. It was issued in 1920 by Siam, or Thailand as it is now called, and there was a premium on each stamp, this going to the Wild Tiger Scout fund. The rather curious thing is that the overprint is in English and not Siamese. But, then, Scouting is English isn't it?

Russia in 1929 gave us the third illustration, that of the Scout with the trumpet, and it was issued to commemorate the first all Russian gathering of Scouts.

Their neighbouring country Roumania has had quite a large number of Scout designs. In many cases these stamps have carried a 100% premium, that is to say, a stamp postage value 2 lei would cost 4 lei, the other two lei going to some Scout fund. The reason why this country has allowed Scout funds to benefit so much from postal charges is shown when one considers the design of the 6 lei value of the 1931 charity stamp. This shows a picture of King Charles II in Scoutmaster's uniform. In 1932 there was a set in connection with the Scouts' Jamboree, and the designs show Scouts in camp, the signaller shown in the fourth illustration, Scouts cooking by a camp-fire and, again, King Charles II. As you see in the stamp illustrated there is a premium of 100%, the cost of postage being 50 bani and the amount to go to Scout funds is also 50 bani.

Hungary seems to have favoured the Girl Guides rather than the Scouts, and issued four stamps in 1939 to celebrate the Guide rally at Godollo.

Holland, on the occasion of the World Jamboree in 1937, had three stamps forming the set. The lowest value showed a picture of the tenderfoot's badge, the 6c. a picture of a drum with the drummer's hands and a background of flags, while the 12½c. had a picture of Hermes — the Greek name for the messenger of the Gods called by the Romans, Mercury. Australia had two jamborees, one 1948–9 and the other 1952–3 Pan Pacific Scouts' Jamborees. The designs were almost identical, the values and the dates being the differences, 2½d. against 3½d. Both these stamps are quite common and everyone should be able to see specimens.

Since the United States of America has been issuing stamps for every possible excuse, it is rather surprising that she has not got a few more examples of Scout stamps. There are only two. In 1952 were issued the 'Boy Scouts of America' stamps showing three American Scouts, the Scout badge and the words 'On my honour I will do my best'. In 1948 the founder of the American Girl Scouts, Juliette Gordon Low, was honoured also on a 3c. stamp, which showed her portrait and also the girl Scouts' badge.

Excellent examples

Moving south into the Caribbean sea we reach Jamaica which issued two stamps to mark the occasion of the first Caribbean Scout Jamboree, 1952. The 2d. value has a map of the Caribbean Sea seen through the Scouts' badge and the 6d. value has the badge resting on a map of the island, each having the portrait of King George VI in a medallion. Readers should endeavour to obtain good specimens of these stamps which have gone up very considerably in price.

The last country that we shall mention is New Zealand, and among her issues you will find two excellent examples of Scout stamps. The first is the 1953 health stamp. The 1½d. postage plus ½d. premium for the health stamp shows a portrait of a Girl Guide proudly carrying a Guide banner and the 2d. postage plus 1d. premium has a Scout squatting beside a camp-fire cooking. Lastly we come to the two 1944 Health stamps, both of the same design. Her Majesty Queen Elizabeth II as Princess, and Princess Margaret appear both in Guide uniform.

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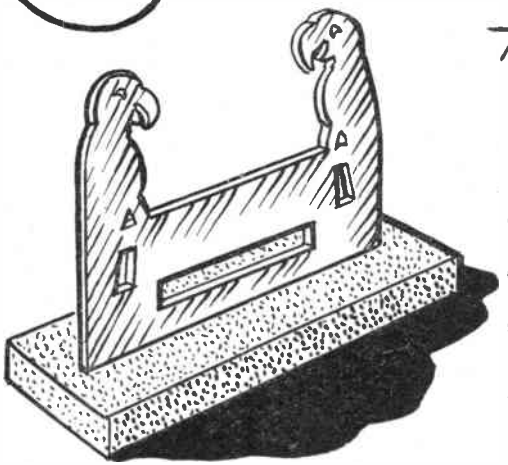

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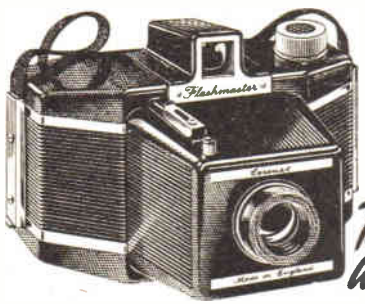

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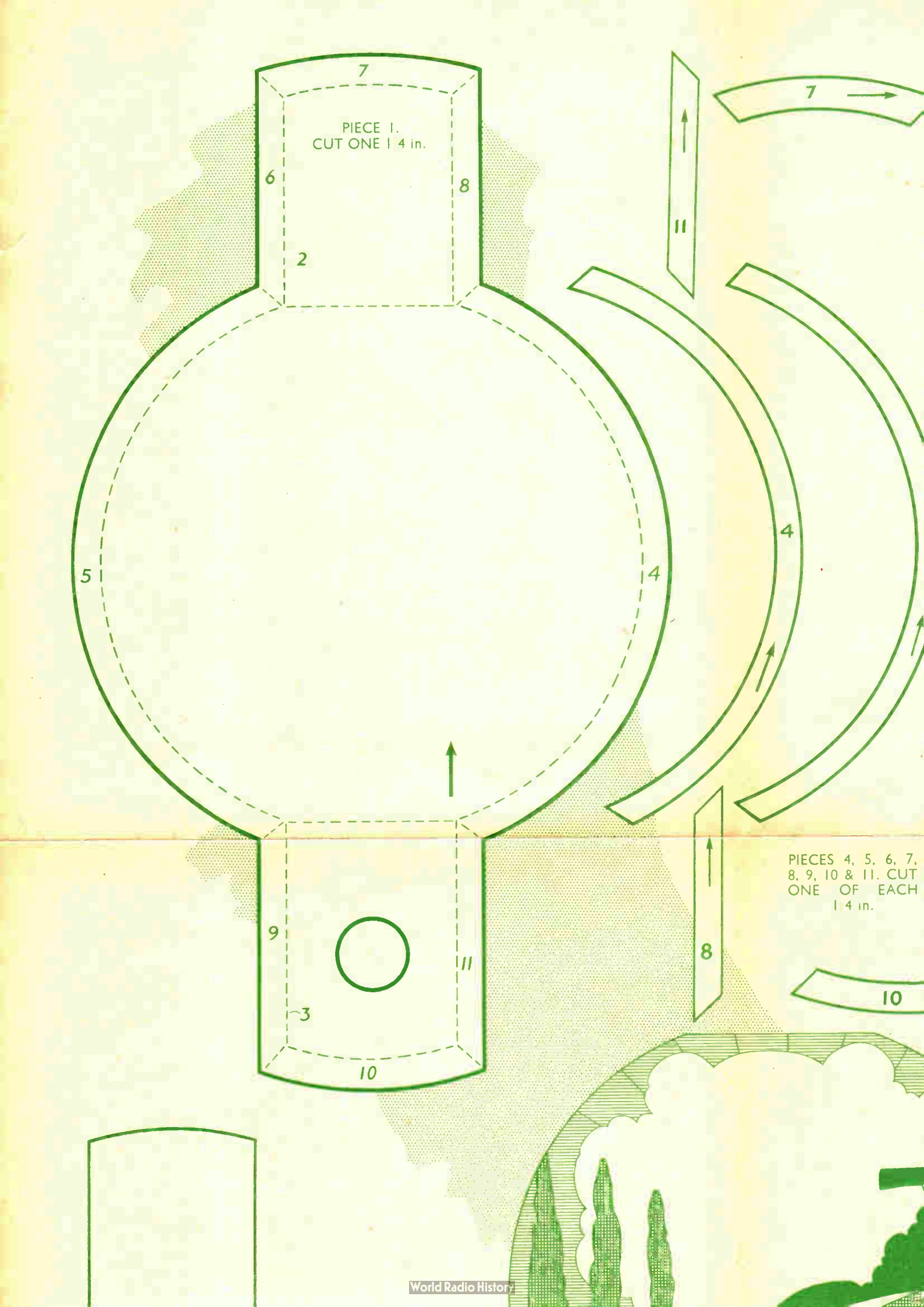

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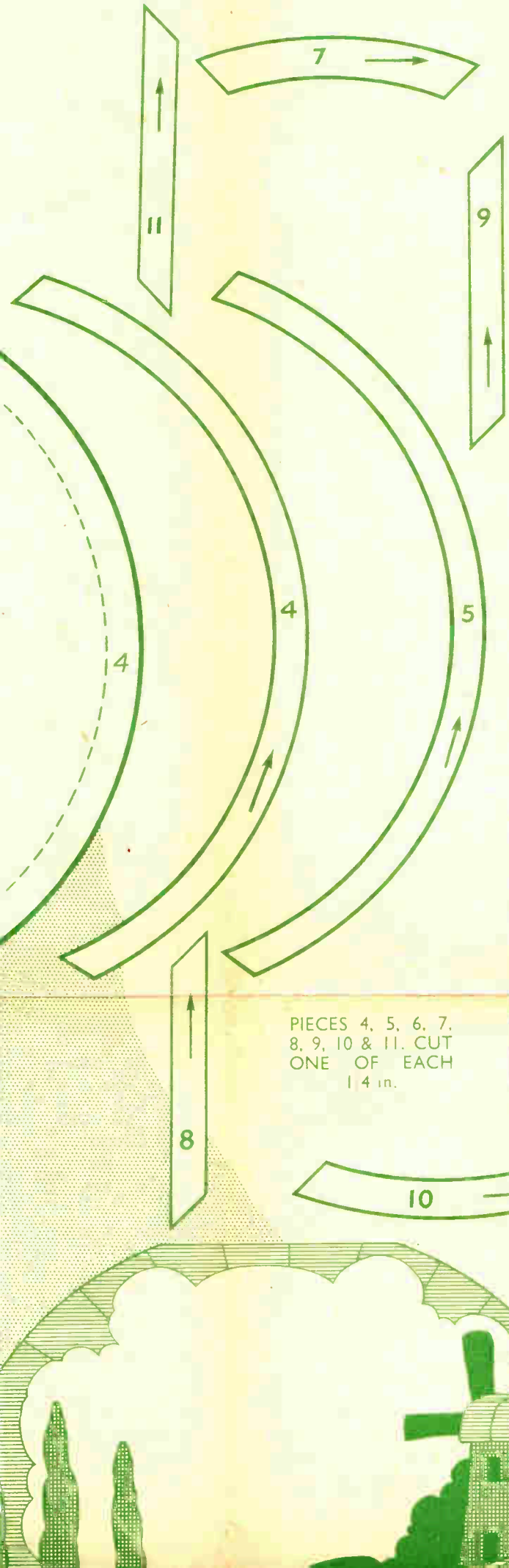

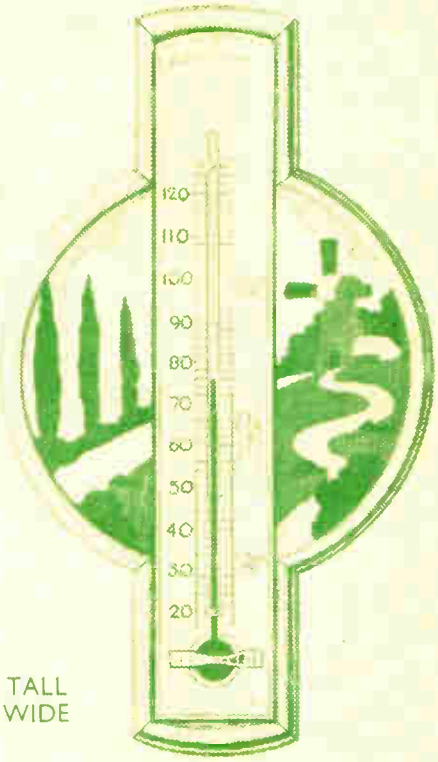

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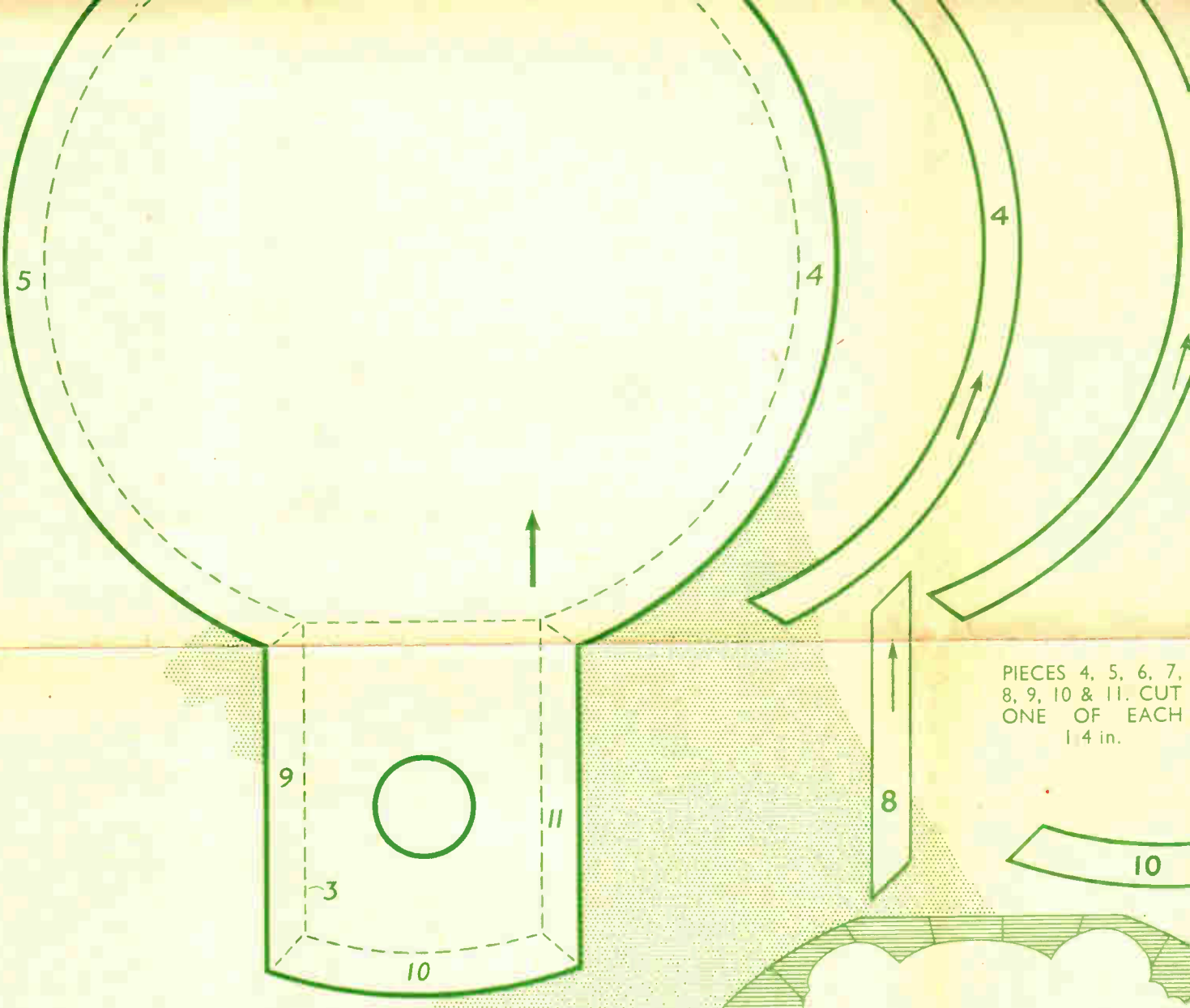

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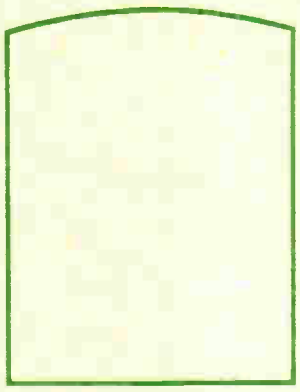

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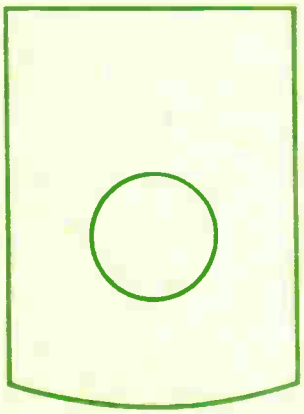

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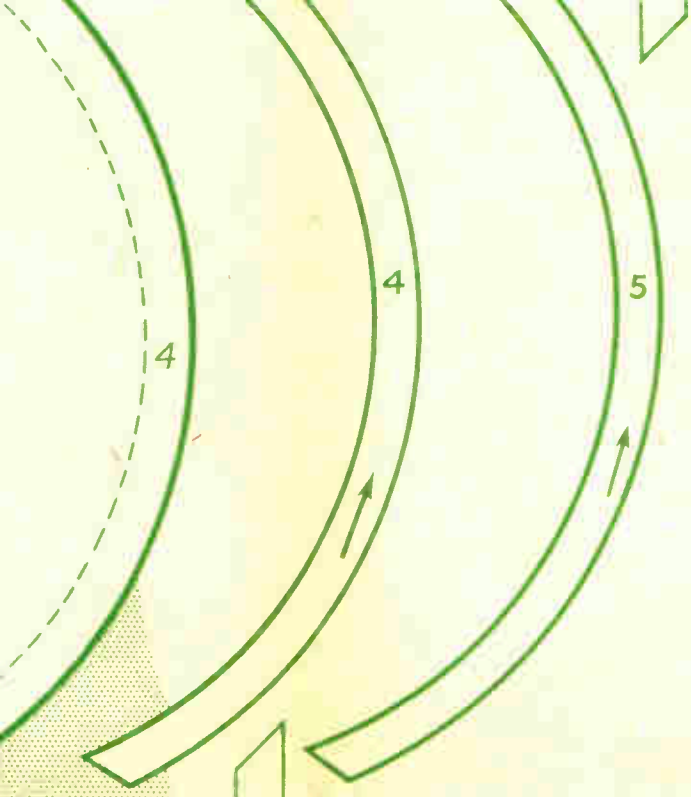

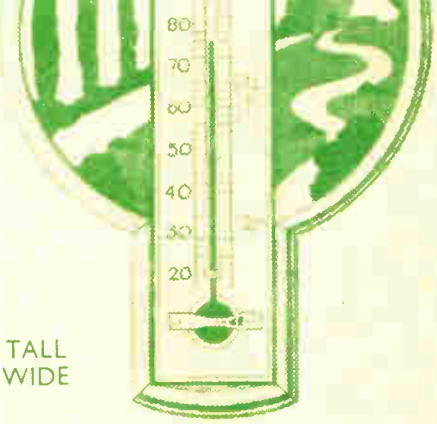

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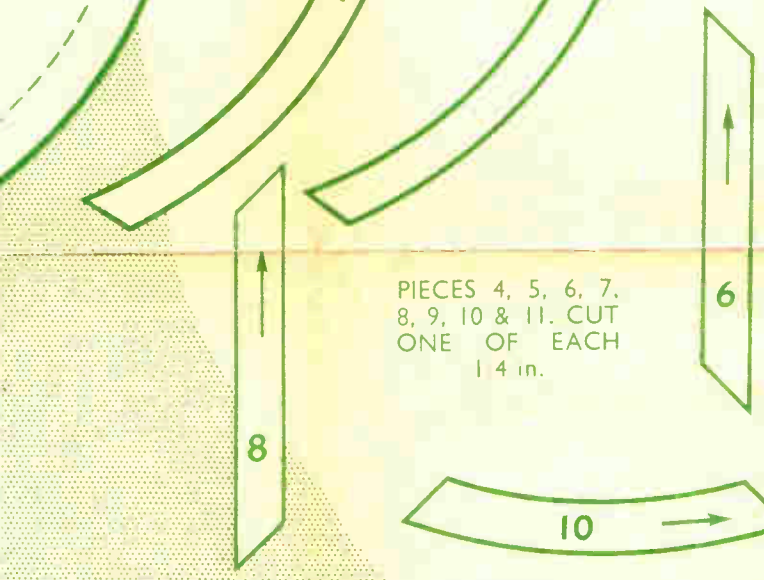

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