HOBBIES WEEKLY

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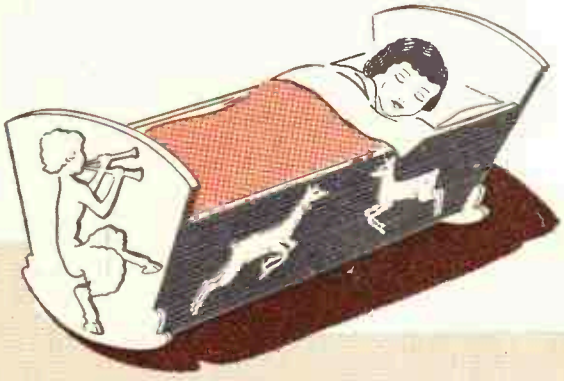
IN THIS ISSUE

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

'HUSH-A-BYE BABY'

★ *FREE* ★
design inside
to make



A DOLL'S ROCKING CRADLE

LITTLE girls like to treat their favourite dolly or Teddy as true-to-life as possible, and the provision of somewhere for the little playmate to sleep is, therefore, a 'must'.

This cradle is ideally suited for the purpose. Safely tucked in, dolly can be gently rocked to sleep by her little mistress. And for dad the makeup of the cradle is quite simple. The main parts are of ¼in. wood, and the decorative overlays depicting little fauns dancing to the merry pipes of Pan are cut from ⅛in. wood.

An ideal suggestion as a Christmas gift for a little lady

The cradle is of quite solid construction and ensures a lasting toy which will stand a lot of hard wear. Almost 20ins. long, it is big enough to accommodate all but the largest doll.

Make a start by tracing the various parts from the design sheet and transferring their outlines by carbon paper on to the appropriate thicknesses of wood. Cut them all out with the fretsaw, taking particular care with the joints, so as to ensure tight fits. Make a test assembly and clean up thoroughly with

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Simple science experiments

ELECTRIC WELDING

HAVE you ever watched a blacksmith joining together the ends of two bars of iron? He heats both ends in a fire until they are red hot and then hammers them together. They can be joined much better and much more quickly by using electricity. The process is called electric welding. It has now developed into a highly important industrial process for joining together rails and plates which formerly had to be drilled and riveted.

If you have made the model transformer previously described, you should now make another special secondary coil to use with it for this exercise. This secondary coil is illustrated here. Make a plywood coil former (A) to fit over the core of the transformer and fix to it a piece of sheet brass or aluminium (B) drilled to take two terminals as illustrated.

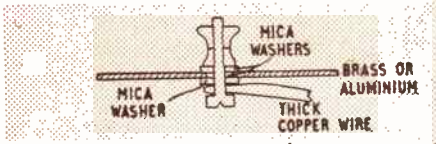
Make a coil of about six turns of copper about $\frac{1}{8}$in. in diameter, flatten out and drill the ends of the wire to fit on the terminals. The terminals must be insulated from the metal plate with mica washers as shown. You can make these washers from a piece of sheet mica from a worn out electric iron. The copper wire should not touch the plywood coil former as it becomes very hot in use.

The voltage between the terminals of the six turn secondary coil is calculated by multiplying the mains voltage (230) by the ratio of the number of turns in the secondary to the number of turns in the primary coil; counting this for convenience as 1,800 turns, this would be

$$\frac{6}{1{,}800} = \frac{1}{300} \times 230 \text{ volts}$$

$$= 0{\cdot}8 \text{ volts.}$$

Now if 5 amperes are flowing through the primary coil, the power will be $230 \times 5 = 1{,}150$ watts. Assuming no loss



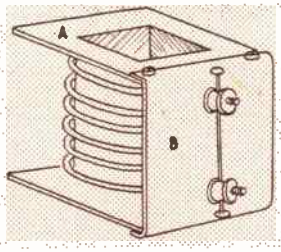
of power in the secondary, the current flowing in the secondary coil will be

$$\frac{1{,}150 \text{ watts}}{0{\cdot}8 \text{ volts}} = 1{,}438 \text{ amperes.}$$

and since the heat generated in an electric conductor is proportional to the (current)^2, great heat is generated in the six turn coil.

Whenever you are using the current from the mains you should always take great care to see that all wires are properly insulated and take the additional precaution of having your apparatus checked by your science teacher or an experienced electrician before trying it out.

For the welding experiment you should use two iron nails. Fix them in the terminals as shown, place the welding coil over the core of the transformer, connect the primary coil of the transformer to the mains, place the choke in position, clamp it down on the core, and then switch on the current. Where the ends of the nails are touching they become red hot, then white hot, there are showers of sparks, and the ends of the



nails fuse together, switch off the current, allow the nails to cool, and then remove them from the coil. Your two nails will now be one.

This method of welding by striking an arc between metal poles is now greatly used for welding iron and steel. The operator must have his eyes and face protected by a mask with a deep blue glass window and his hands protected by gloves, for the iron arc gives out showers of white hot sparks and a blinding light injurious to the eyes.

Most Technical Colleges now have classes to train electric welders. (T.A.T.)

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Completing the Doll's Rocking Cradle

glasspaper. It will be noted that the sides (pieces 2) and the bottom slats (pieces 3) are not shown full size on the design sheet, and they have to be extended to the measurements given there.

To assemble the cradle, glue the sides (2) and slats (3) in position on one end (1), and then glue the other end in place. The relevant positions of the pieces when gluing together are shown in Fig. 1.

Glue on the overlays and when all is dry give an application of brush polish all over. Then paint the overlays as desired and finally give all a coat of clear varnish or lacquer.

And now Mum can start making the mattress, pillows and coverings.

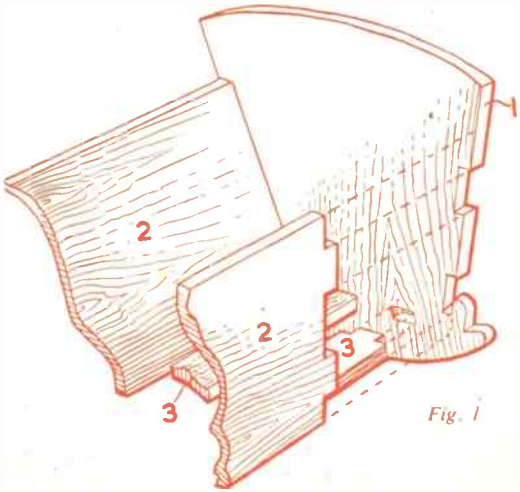
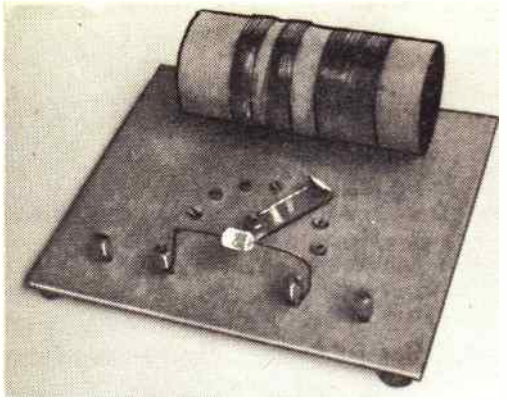


Fig. 1



Crystal Receiver

AN INDUCTANCE TUNED SET

Described by F. G. Rayer

CRYSTAL receivers require no batteries or mains, and no additional licence, but will provide satisfactory headphone volume when used up to 100 miles or so from a B.B.C. transmitter. This means that the local station can normally be heard well. In many parts of the country, two or more stations may be received at sufficient volume.

A crystal set is thus of definite practical use, for bedroom or individual listening. The one described here has a tapped coil for tuning, thus eliminating the variable condenser often fitted, and which is the most expensive item. It is easily built upon a piece of ebonite, paxolin, or plywood 5ins. square. The other parts required are as follows:—

Cardboard or paxolin tube 1½ins. to 2ins. in diameter and 3½ins. to 4ins. long. A 2 oz. reel of 32 to 38 S.W.G. insulated wire. A 'crystal diode' or other form of crystal detector. One doz. small bolts, with eighteen nuts. (Or four bolts may be replaced by terminals). A few small scraps of wood and metal. Woodscrews and washers.

Panel drilling

Ebonite or paxolin is used as it stands, but plywood is best given a coat of varnish, to keep out damp. The electric currents present are extremely small, and dampness will reduce volume.

Four holes are drilled about ¾in. from the front edge, for aerial, earth and phone terminals, as shown in Fig. 1. The position of the selector arm pivot bolt is then marked, and seven other holes are drilled in a 1¾ins. radius from here. Eight further small holes are then drilled in the position the coil will occupy, for the tappings.

The crystal diode is connected between aerial and phone terminals as indicated in Fig. 1. It is worth using a new detector, as the receiver cannot work well if this part is faulty. Most detectors of this kind are fitted with wire ends, which are simply clamped under the terminals.

Tuning coil

The diameter of the former, gauge of wire, and number of turns are all not critical, but a former about 1¾ins. in diameter will be convenient. The coil may be wound for Medium Waves only, unless the Long Wave Light Programme is well received in the locality, in which case winding can be for both M.W. and L.W.

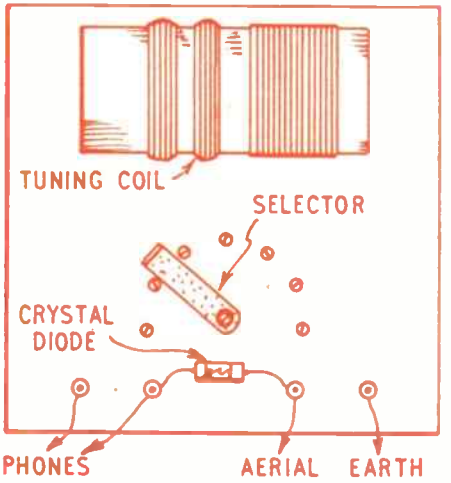


Fig. 1—Top wiring

Wire of about 30 S.W.G., enamel covered, is satisfactory for M.W. The wire is anchored by passing it through two very small holes, as in Fig. 2, this being point 1. About 45 turns are then wound on, and a loop made for point 2. After a further 10 turns, point 3 is made, with another loop for point 4 after another 10 turns. A further 10 turns give point 5. About 12 turns are then wound on, to point 6, with about 13 turns to point 7, and 20 turns to point 8, which is the end of the coil. This gives 120 turns in all.

The loops 2 to 7 are made by twisting the wire, leaving it long enough to reach the various contact bolts. A touch of Durofix will hold the turns secure where these loops are made. The wire must not be broken anywhere in the coil, and all turns throughout must be in the same direction. As the selector is moved round, it will be possible to choose 45, 55, 65, 75, 87, 100, or 120 turns.

The finished coil is mounted as shown in Fig. 3, the loops and two ends passing down through the holes, and terminating at the contact bolts as shown in Fig. 4.

If a coil for both M.W. and L.W. is required, thinner wire will be required, so that enough turns can be accommodated. The M.W. section already described occupies one end of the former, as in Fig. 1. Towards the other end, the long wave windings are placed, turns wound in compact piles. Each pile will require about 120 turns, and two piles are necessary, as shown in Fig. 1. There will thus be 360 turns in all (including the 120 on the M.W. section). Tappings are made at the following numbers of turns:—55, 65, 80, 100, 120, for M.W., and 260, 300, and 360 turns, for L.W.

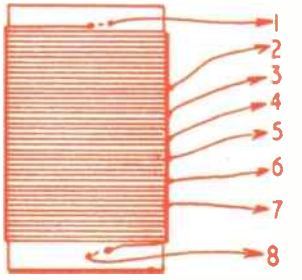


Fig. 2 Medium wave coil

Selector

A small strip of thin metal is pivoted, lock nuts holding the pivot bolt secure, as shown in Fig. 3. A washer or two will help to secure a smooth action, and if a spring washer is available, this is included under the bolt head. The selector

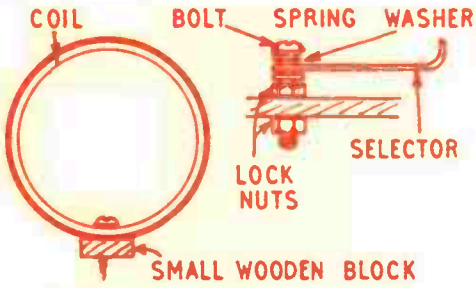


Fig. 3—Coil mounting and selector

arm is bent so that it presses on the bolt heads, and it can be rotated to contact any one of the seven bolts.

The remaining connections are seen from Fig. 4 — a lead from pivot bolt to earth, and earth to phone terminal. Some of the coil wire will be suitable. All joints must be sound, the insulation being scraped away carefully. Four small feet, made by sawing ½in. lengths of dowel, and gluing them to the corners as indicated, are then fitted.

Using the set

Aerial, earth and phone leads are connected up as shown in Fig. 1. An out-door aerial is best, as high as can be arranged, well insulated at suspension points, and clear of walls, roof, and other earthed objects. However, in many localities the local station will be heard at enough volume with an indoor aerial. For the latter, thin insulated wire may be used, extended along two or three walls of the room near the ceiling. There is no point in doubling the wire back along itself to secure greater length.

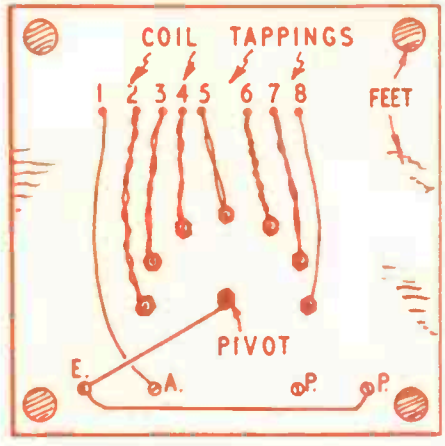


Fig. 4—Underneath connections

Indoor aerials are often quite satisfactory in upstairs rooms, but are not suitable for long-distance reception, or for listening in buildings with a metal fabric.

Some kind of earth is very desirable. This lead should pass by a short route to a metal spike driven into the earth, or to a descending water pipe. If adding the earth lead does not greatly increase volume, then the earth is not efficient.

Tuning is carried out by moving the selector arm, as mentioned. When the best number of turns has been selected, volume will be at maximum. The correct position will depend upon the wavelength of the local station, and the characteristics of the aerial/earth system.

For proper results, phones of suitable type must be used. Unfortunately, some advertisers of ex-service equipment supply headphones which were never intended for such purposes, and which only give weak results. Such phones should be refused. They are of low resistance, and no crystal set can work properly with them. The correct type of phones will have coils with windings of 500 to 4,000 ohms resistance. The low-resistance phones may be of only 10 to 100 ohms resistance, and their magnets have so few turns that volume will always be very poor.

● **Continued from page 133**

Chemistry Experiments

hydrogen and oxygen as sucrose, but is much less sweet.

Put about 100 c.c. of milk in a separating funnel (Fig. 1) and let it stand overnight undisturbed. The cream rises to the surface and the milk beneath may be separated from it by opening the tap and closing it again when the decreamed milk has not quite all run through. Add dilute acetic acid to the decreamed milk until you have curds suspended in a clear liquid (whey). Filter off the curd through fine cotton and evaporate the filtrate to dryness on the water-bath. The remaining solid is crude lactose.

Dissolve a little of this in water and warm it with a few drops of Fehling's solution. As with glucose, cuprous oxide appears.

Why are carbohydrates so called? Heat a little sugar in a dry test tube, arranging that a little anhydrous copper sulphate lies a short distance from the sugar (Fig. 2). The sugar turns brown, then black. At the same time drops of liquid condense farther along the tube and turn the anhydrous copper sulphate blue, showing that water was given off from the heated sugar. When the tube has cooled, carefully remove the copper sulphate and tip out the black residue. Heat it on a crucible lid. It burns away. It is, in fact, carbon. Repeat this test with starch, glucose and lactose. The result is the same in each case.

Parlour trick

Carbohydrates, then, contain water and carbon. When we remember that salts containing water of crystallisation are called hydrates, it is easy to see the connection in 'carbohydrate'. Actually, the proportion of hydrogen and oxygen to each other in the carbohydrates is exactly that required for the formation of water under suitable conditions.

Should you go out to tea and find lump sugar on the table, there is a chemical parlour trick with which you can amuse your friends. Take two lumps of sugar, hold them in shadow and strike them together with a rubbing motion. They will produce flashes of light just like two flints! (L.A.F.)

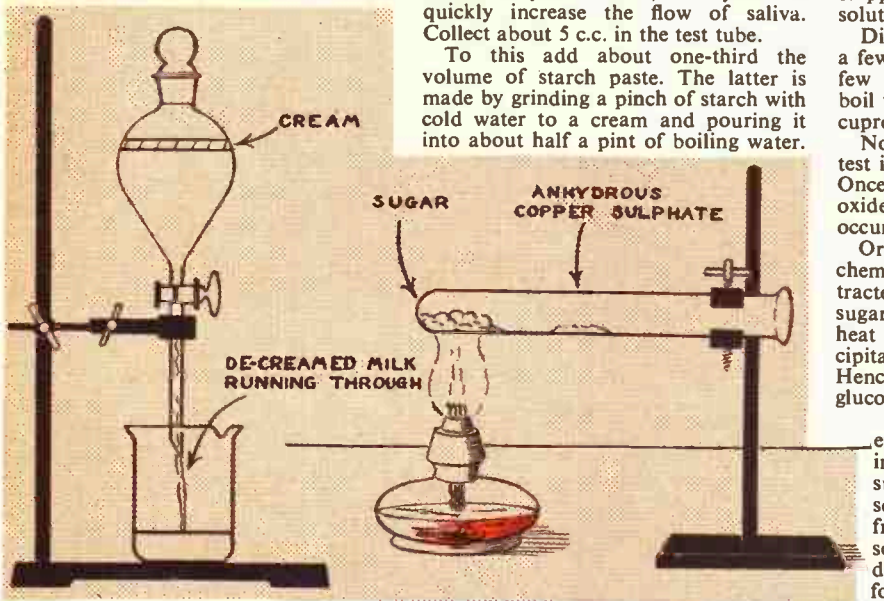
Next week details will be given for making a very handy newspaper and magazine rack which can also be used as a table. With Christmas only a few weeks away we shall also print patterns for fretwork cutouts on this theme.

CHEMISTRY IN THE HOME

EXPERIMENTS WITH CARBOHYDRATES

SCIENTISTS have proved that a balanced diet is important for health. Carbohydrates and proteins are, for instance, much heard of these days. Flour contains both carbohydrate and protein, and so our ancestors were wise before their time in their belief that bread is the staff of life.

Other cereals, potatoes, and many vegetables and fruits contain carbohydrate in the form of starch. There is a special test for starch, and we can make use of this to detect starch in common foods. It is based on the fact that starch strikes a blue colour with iodine solution.



Put a drop of tincture of iodine on a freshly cut slice of potato. A deep blue stain appears, showing starch to be present. In separate test tubes boil up a little flour and a few grains of rice. Add a drop of iodine to each. Once more the blue colour appears. A slice of unripe apple will also give this reaction, but a ripe apple will not, since the starch changes to sugar during the ripening process.

This last fact is of special interest. It shows a close chemical relationship between starch and sugar. The body does not use its starch intake as such, but converts it into a sugar in the digestive system. This sugar — glucose — is then absorbed into the body tissues.

This conversion into glucose takes place partly in the mouth under the action of a ferment present in the saliva. It is most interesting to carry out this experiment in a test tube with some of your saliva. Imagine you have a slice of lemon in your mouth, and you will quickly increase the flow of saliva. Collect about 5 c.c. in the test tube.

To this add about one-third the volume of starch paste. The latter is made by grinding a pinch of starch with cold water to a cream and pouring it into about half a pint of boiling water. Leave the test tube aside for an hour or more, and then occasionally test a drop with iodine solution. A point will come when no blue colour will appear, showing starch no longer to be present. It has been converted into glucose.

Glucose is now well known as an energy producer. We find it in tablet form, powder, in soft drinks and sweets. It is present in very considerable amount in honey. The solid in crystallised honey consists of glucose. Grapes, too, contain it. In fact, glucose was formerly known as grape sugar. The sweet crystalline grains often found in raisins consist of the glucose which has crystallised out of the drying grape juice. The glucose in grapes is the substance which makes it possible to ferment the grape juice into wine.

To test for glucose you will need some Fehling's solution. Dissolve 1·73 grams of copper sulphate in 25 c.c. of water and add 0·2 c.c. of dilute (10 per cent sulphuric acid). In a separate vessel dissolve 8·75 grams of Rochelle salt (potassium sodium tartrate) and 3 grams of sodium hydroxide in 25 c.c. of water. Mix the two solutions and keep the resultant deep blue solution in a well-stoppered bottle. This is Fehling's solution.

Dissolve a pinch of glucose powder in a few c.c. of water in a test tube, add a few drops of Fehling's solution and boil the liquid. A reddish precipitate of cuprous oxide appears.

Now mix some honey with water and test it similarly with Fehling's solution. Once more the precipitate of cuprous oxide appears, and the same result will occur if you use grape juice.

Ordinary table sugar — or sucrose, as chemists call it — is, as we all know, extracted from the sugar cane or from sugar beet. Dissolve some in water and heat it with Fehling's solution. No precipitate of cuprous oxide appears. Hence, it is chemically different from glucose.

By heating it with acids first, however, it can be induced to split up into glucose and another similar sugar, known as fructose — the latter so called from its occurring in many fruits. Make a small amount of sugar solution in a test tube, add some dilute hydrochloric acid and boil it for a few minutes. Neutralise the acid by carefully adding sodium hydroxide solution until a drop of the mixture turns red litmus paper purple, add a few drops of Fehling's solution and boil. Cuprous oxide is precipitated, showing the sugar has been changed to glucose.

Yeast also effects this change. Indeed, it has to do so to provide itself with the glucose it needs for its existence when placed in a solution containing only sucrose. It is on this property which yeast has of modifying sugar that the production of home-made wines depends, for sugar is always added to supplement the deficiency of natural glucose.

Milk, too, provides us with a carbohydrate. This is milk sugar or lactose. It contains the same proportions of carbon,

● **Continued on page 132**

Photographic aid

A SIMPLE RANGE FINDER

QUITE often a photograph is ruined because the photographer has incorrectly estimated the distance between the camera and the subject and the picture is consequently out of focus. And this defect most frequently arises where the camera requires adjustment of the focusing scale, either on the base or the lens barrel.

You may of course overcome this difficulty by purchasing a rangefinder, an optical instrument which enables you to measure the distances, but prices are high.

Our illustration shows a simple instrument, giving distances in feet, which consists only of a strip of white cardboard 1½ins. wide by 6ins. long and yet is equal in accuracy to the bought article. The principle of triangulation is used for calibrating the scale of distances and the best method to adopt will be described later.

No doubt you will be aware that when each of the eyes is opened and closed alternately an object before you appears to skip from side to side. When you consider that each eye actually views an object from its own position you have the explanation for this apparent movement of the object. It follows therefore that an imaginary triangle is formed between the object (being the apex) and the two eyes — in one plane — (forming the base). This will be seen in Fig. 1a, although the base line is omitted. Again, while the distance between the eyes and arm length remain constant, it is only the distance between the eyes and the object which varies. When we intercept either line of vision along one of the sides of the triangle by means of a card, we are able to construct a form of measuring instrument. Reference to Fig. 1b shows that the sighting of object O by the right eye (RE) is intercepted by the card, but the left eye (LE) views the object from the end of the card.

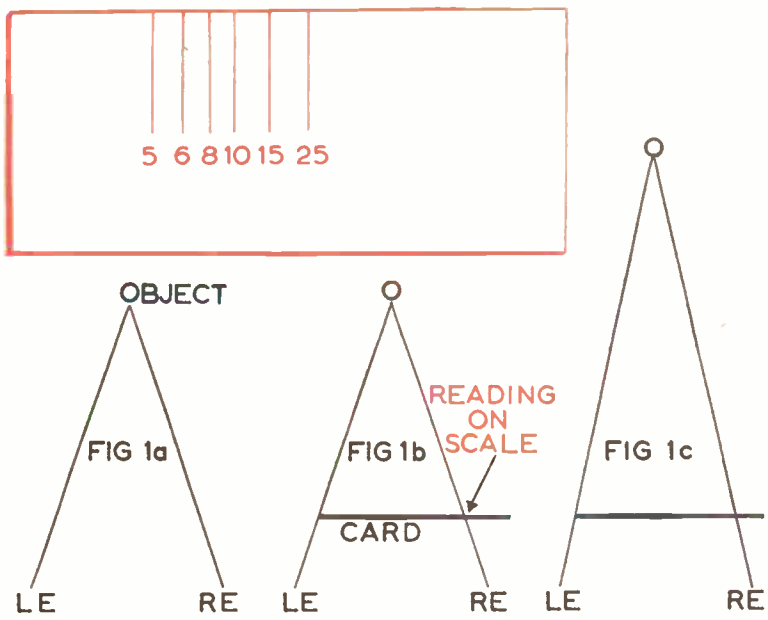
This then, is the method of using our rangefinder. With the card held at arm's length, the right eye closed, the objective is sighted by the left eye so that the end of the card and objective are seen in perfect alignment. Now close the left eye, open the right eye, reading the distance from the calibration recorded on the card. There is nothing to go wrong with this simple instrument and the following instructions will enable you to make one.

Some means must be found of calibrating the cardboard and the best way is to arrange for a marker in the form of a stick to be held at vertical, selected distances about a foot from a wall. Mark a place for a toe line so that all measurements are from this point each time, measuring off distances for placing the marker. Hold the card in the right hand at arm's length and here you will find it convenient to use the wall as a rest. Close the right eye, viewing the marker so that the left edge of the card appears in perfect alignment. Now close the left eye and on opening the right eye the marker will have assumed a position some distance from the left edge of the card. By moving the thumb holding the card to this position a pencil line can be made. For accuracy it is better to test the marking by repeating the process a second time.

The marker is now moved to the second position and another reading made by the same method. Normally it will be found that the most useful distances to record are 5ft., 6ft., 8ft., 10ft., 15ft., and 25ft., and all of these can be noted on our simple instrument. Of course if your camera has different distances on the scale you should prepare the rangefinder to fit. It will be seen from Fig. 1c that the distant object gives a reading more to the right. In these diagrams the distance between the two eyes and the size of the card remain constant, and although on a small scale when compared with actual practice, the difference can be seen when figures 1b and 1c are compared.

When all the measurements have been duly recorded on the strip of card, marks should be ruled in ink and the distances added as shown.

When the rangefinder is used it must always be held at arm's length, aimed straight at the object, and the measurements will be from the body, that is the eyes, to the object and *not* from the card. It is essential to bear this in mind if the camera happens to be fixed on a tripod, for a reading would be incorrect if taken some way in front or behind the camera position.



With a little practice you will be able to take readings quite quickly, the speed overcoming any unsteadiness of the hand holding the card. It then only remains for you to adjust the focusing scale of the camera to that distance and there will be no blurred out-of-focus pictures.

Many will say that they are able to judge short distances without the use of any instrument, but unfortunately it is these short distances which are the most difficult to estimate, and the nearer the subject to the camera the more necessity for accuracy. A rangefinder even of this simple type is far better than guessing. (S.H.L.)

Hanging Stands for Bird Cages

NOT many homes are without a pet bird, these days. But a great number of bird cages have no stand. Yet, they are quite easy to make.

The wire frame is made of ¼in. diam. round black bar, which any blacksmith or coachbuilder will stock. Being soft you can almost shape it by hand.

By E. Capper

Measure around the outside of your cage. Then bend the bar to make a similar outline as the cage but larger by 4ins. on each side and 6ins. at top and bottom. This is to allow clearance for seed boxes and for the drop made by the cage handle on its hook at the frame top.

The bird cage is suspended by a hook made of ¼in. diam. bar. It must hang exactly at the centre point across the top of the frame. It is prevented from 'wandering' by resting in a slight hollow filed across the top framing (A).

The main upright of the stand is made of 1¼in. prepared deal. A 4in. length of scrap tubing, with an inside diam. of between ⅜in.–1in., connects the framing to the upright. The two ends of the framing are inserted into the tube to a depth of approx. 2ins. Then the tube is flattened at this end only, in a vice or with hammer blows, to hold the two bar ends securely. The top of the deal upright is then rounded to make a drive fit into the other and round end of the tube, again to a depth of approx. 2ins.

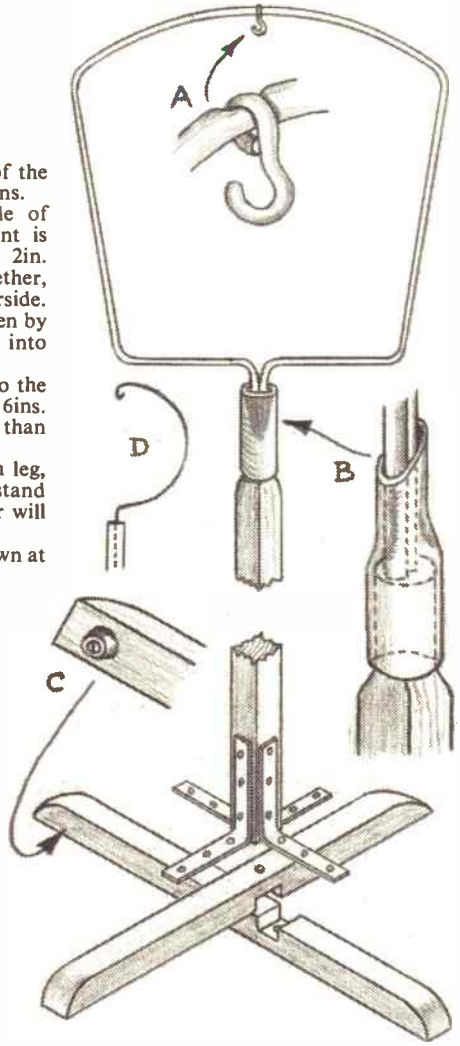
The crossed legs are also made of 1¼ins. deal. A simple halving joint is used at their intersection and a 2in. wood screw holds them together, screwed through from the underside. Added support to the upright is given by fixing four angle brackets, screwed into position as shown.

A convenient height from floor to the underside of the frame is 3ft. 6ins. The four legs should not be less than 12ins. in length.

Underneath the near-end of each leg, screw in a rubber foot (C). Your stand will be more steady and the rubber will prevent scratched floors.

An alternative frame shape is shown at (D). The round bar is then simply made a drive fit into a hole drilled in the top of the upright. This shape, however, does not look so well when carrying a large cage. Also, you may have to use a larger diameter bar because the weight of the cage is now carried by only half a frame; but less material is needed.

Yet another alternative is to fix a wooden platform across the top of the upright with the use of a further four angle brackets as used for the legs. Cut ⅜in. plywood to a size, 1in. larger all round than the bottom of the cage dimensions.



Collecting Cigar Bands

WHEN tobacco and cigars were introduced into Europe, the women thought it a novelty to smoke the new cigars. But the tobacco stained their fingers, so to avoid losing their female customers, enterprising manufacturers issued paper strips which were wrapped around the cigars to prevent the nicotine staining the smoker's fingers.

The idea caught on and manufacturers began to improve the shape, colour and design of their cigar bands. People saved them to decorate vases, jars, plates and so on, and these trinkets can sometimes be picked up at auction sales of household effects, at antique shops, or even on view at hobby shows.

About the year 1900 hobbyists began to collect seriously. Most early specimens became collector pieces. Today, America produces about half the bands used in the world. A set showing U.S. presidents from Washington to Eisenhower is in great demand. Issues are made in other countries, too; France, Germany, Belgium, Holland, to name but a few.

Cigar band production is a highly skilled job. Large presses are used and magnifying glasses are required to produce the beautiful and intricate designs.

And a word about the cigars themselves. The finest are made in Havana from tobacco raised in the island of Cuba, but many of those called Havanas come from the U.S.A. Cheroots, which are cut off square at each end, are made in the East Indies, chiefly at Manila in the Philippines; hence the name, Manilas.

And the boxes? These are made from Spanish cedar wood grown in the West Indies and Central America. The word 'cigar' by the way is from the Spanish *cigarro*, the name given at first to a kind of tobacco raised in Cuba, but afterwards used for any kind of tobacco made into a roll for smoking. (R.L.C.)

SEAGRASS SEATING

Described by S.H.L.

SEAGRASS is the ideal material for weaving the seating of small chairs as shown in our illustration. Moreover, it is quite inexpensive and by using two colours, you can make your own patterns. The method to be described can be accomplished with only a little practice. You will also observe that the resulting shape makes a more comfortable seat than the flat top.

For a small chair as shown, using No. 3, or $\frac{1}{16}$in. seagrass, from 1lb. to 1½ lbs. will be required. If it is proposed to make a design as shown in Fig. 2, 1 lb. of natural seagrass and ¼ lb. of brown is required. It will be appreciated that these amounts may vary a little according to the size of the seat, although they may be taken as a useful guide.

A shuttle made from a strip of plywood 1½ins. wide by 8ins. long with V notches in each end is advisable for beginning the work of weaving. Wind about 20ft. of the seagrass on to the shuttle before beginning the work. Some workers prefer to soak the grass in water for about ten minutes to make it supple and to improve the tension, but this is optional. It is a wise precaution to wear an old pair of gloves whether the grass is dry or damp.

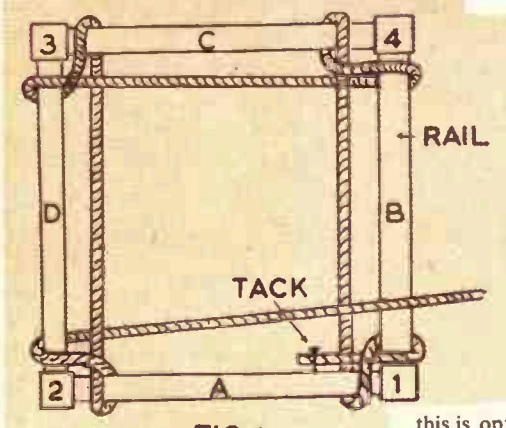


FIG 1

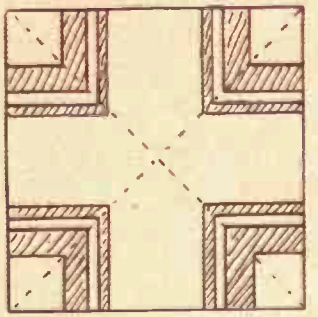


FIG 2

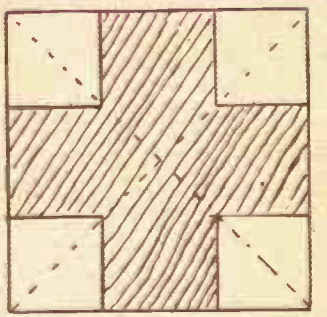


FIG 3

By referring to Fig. 1 you will see how the grass is woven round the top of the chair, over and under the side rails, from corner to corner.

Tie a knot in the end of the seagrass to prevent fraying, fastening to the front rail, as shown, with a tack. This should be fixed in the centre of the inside of the rail near the leg marked 1; take over and under the top rail (B), on the right, then over and under top rail (A) where started. The cord is then passed over and under top rail (C), over and under rail (B) and across to (D). The operation is similarly repeated from (D) to (C), back to (A) as shown in the diagram. Each long stroke must be pulled tightly as woven, but the cross-over stroke is made without undue tension in order to maintain a true angle at each corner. See that each row of grass is well pushed up to its neighbour, parallel with the rails and at right angles where it crosses. This will ensure perfect diagonals.

Should the chair not be perfectly square, and narrower at the back than at the front, an extra wrap round the front rail will compensate the difference, reducing length at the front until it coincides with the back rail. You will have to use your own judgment in connection with this reducing operation.

It will be appreciated that all joinings of the grass must not show on the top — where they would be most uncomfortable, besides unsightly — and new lengths of grass must be tied with a reef knot, so as to fall on the underside of the seating.

When about 3ins. of the work has been completed all the way round, turn the chair upside down and stuff the pockets which have been made, due to the thickness of the rails, with strips of corrugated paper. This also acts as a padding besides helping to form a

● **Continued on page 137**

'And the greatest of these . . .'

Tim Cain with over 250 puzzles he has made

WITH the members of the White Crusader Boys' Movement it is not a question of 'so many shopping days to Christmas' but 'so many gift-making days to Christmas' because the lads of this excellent youth organization create happiness for many orphaned and needy children each Christmas by sending them gifts of toys and jig-saw puzzles which they have made during the past year.

Armed with their Hobbies Gem machines some of these gallant young workers have attained remarkable prowess in fretcutting interlocking jig-saw puzzles, and, undoubtedly, the most outstanding of these industrious teenagers is young Tim Cain. Aged 15, he has been a member of the club for four years, and, apart from sickness or holiday, has never missed a night of fretwork. In his sincere desire to help the orphans and children for whom Christmas would otherwise be just another day, he has made 17,520 jig-saw puzzles since he joined the club, including in this wonderful total, what are claimed to be the world's largest and smallest puzzles.

Quite naturally young Tim has attained great facility in his work, and, using one of the club's Gem machines, his speed has become quite remarkable. As an instance of this he is able to complete two interlocking jig-saw puzzles during the playing of one 78 r.p.m. record.

Tim Cain has frequently been challenged by other teenagers, each working on an identical Gem machine, but, so far, no one has beaten him for speed. It will be interesting to hear whether any young reader of *Hobbies Weekly* has attained such a noteworthy standard of speed combined with accuracy and neatness of work.

All this is yet another glowing instance of the great value of a hobby — something which keeps a youth from street corners and hours of dangerous idleness. A hobby which gives him an interest in creative work which satisfies his urge, however latent or apparently hidden, his urge to build, to make, to achieve — an urge, which denied or unfulfilled, may easily lead to frustration, lack of balance, distortion, hence unhappiness.

Tim Cain and his clubmates have found great happiness in making for others. They have found balance of mind and body for themselves through their practical charity. Theirs is a hobby endowed with great dignity and virtue.

Workshop ambition

The latest activities of the Movement have taken its young members into the evangelical field, and, under their leader and founder, 'Skip' Cliff Tillett, the boys have attended at various churches throughout the country. With their 'skipper' preaching in the churches visited, the boys are giving displays of jig-saw puzzle making from Gospel pictures, and their crusade has attracted great interest in Manchester, Warwick and centres as far removed from each other as Yorkshire and Kent.

Having lost their headquarters in Kensington, their 1957 quest is to acquire a large furniture van and convert this into a workshop on wheels. With this mobile unit they will park on bomb sites or car parks and train local lads to make gifts for the children.

We feel sure that all hobbyists will join with us in wishing these modern crusaders all the success they so richly deserve.

● **Continued from page 136**

Seagrass Seating

nicely bevelled finish to the seat.

After padding you may continue weaving as before, but as you approach the centre you may find it more difficult to use the simple shuttle. The alternative is to discard the shuttle making the grass into the form of a hank and pulling through, finally finishing underneath with a reef knot, tying the end to one of the cords on the other half of the seat, tucking away under adjoining cords.

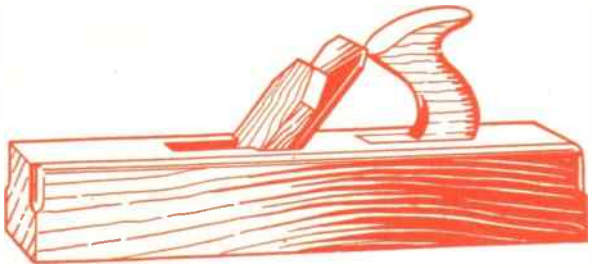
The finished seat of natural grass is shown in the photograph, but in Fig. 2 you are given an alternative. Here you would require 1 lb. of natural grass and ¼ lb. of the brown (or any shade selected for the secondary colour). The method of weaving is just the same but start with six rows of natural, four of brown, two in natural, two in brown and the balance in natural.

Fig. 3 shows another design, but here no specific number may be given. All that is necessary is to cover approximately one third of the rails, from one end, in one colour and the balance in another colour when the design shown will result.

The method is quite simple and more difficult to describe than perform. To make a successful job you should endeavour to maintain an even tension throughout. Keep the cords close and parallel, and if the work has to be laid aside before finishing, leave the cords tight by fastening the loose end to a leg.

In the Workshop

Care and Use of Planes



Hobbies' jack plane, 17ins. long with 2¼in. double iron, price 32/6

NO handyman's tool kit would be complete without the provision of at least one plane. This can either be a wooden or steel one as desired. Most people nowadays prefer to have steel planes because they are handier and more easily adjusted. However, there is no need to despise wooden planes on account of these points; if they are given regular attention and properly used they will give you good service.

By Finlay Kerr

There are many different types of planes on the market each having a particular job to do. For the home handyman, however, two types are sufficient at the beginning: namely a jack plane and a smoothing plane. Other types of planes for special jobs such as grooving, moulding, rebating, etc., may be obtained later on as the need arises.

The jack plane is used for preparing wood from its rough state. A wooden jack plane is usually about 14ins. to 16ins. long, with a 2in. or 2⅜in. cutting iron. The sizes of steel jack planes are similar to wooden ones. When using a jack plane, grip the handle firmly with your right hand and press the nose down with your left hand, so that the cutting iron is always kept in close contact with the wood. The pressure should be gradually released towards the end of each stroke. Care should be taken to ensure that the plane is kept at right angles to your work, particularly when planing thin timber.

The second type of plane which is required by the handyman is a smoothing plane which is used for 'finishing off' your work after it has been 'trued up' with the jack plane. When using a wooden smoothing plane for the first time you may find it a little awkward to use, but this will soon vanish once you become more experienced with it. A steel smoothing plane is much easier to handle and should present no difficulty to the beginner. They are usually made about 10ins. long, with a 2in. or 2⅜in. cutting iron. A screw mechanism is fitted on the upper part to enable the blade to be easily adjusted.

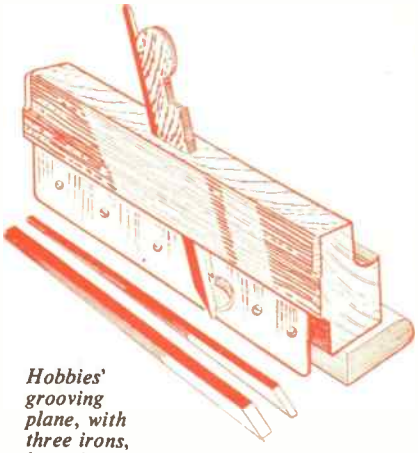
It is often a temptation to use a smoothing plane as an 'all-round-jobber', particularly by handymen who possess only one plane. This practice, however, is not to be recommended. The cutting blade of a smoothing plane is made much finer than the blade of a jack plane, so if it is used constantly for rough work it will wear more rapidly. It is better to keep your smoothing plane for fine work and to do all rough planing with your jack plane.

Hobbies' smoothing plane, 7½ins. long with 2in. double iron, price 17/6

Although it is not essential, a trying plane is sometimes very useful for 'shooting' the long edges of boards and for jointing. A trying plane is simply a larger and heavier version of a jack plane normally about 22ins. long, with a 2½in. blade.

Wooden planes are nearly always made from beech. After purchasing a wooden plane it should be thoroughly soaked in raw linseed oil before using. This keeps the wood in an excellent condition, and also gives it a shining appearance. Many tool stores soak the planes for their customers for a small fee.

If you want to get the maximum amount of service from your planes, then the cutting irons must be kept really sharp. The irons of steel planes can be removed for sharpening simply by unfastening the locking device on top. To remove the irons from a wooden jack plane, hold the plane in your left hand and strike the nose of the plane a sharp blow with a hammer or mallet on the upper surface. At the same time, pull out the holding wedge with the thumb of your left hand. Sometimes a wooden button is fitted at the front for striking with the hammer to prevent damage being caused to the plane. When removing the irons from a wooden smoothing plane, hold the plane in your left hand and strike the rear end sharply.



Hobbies' grooving plane, with three irons, ⅛in., 5/16in. and ¼in. wide, price 25/-

The cutting edge of a plane iron has two distinct angles; a grinding angle and a sharpening (or setting) angle. These are approximately 25 degrees and 35 degrees respectively, depending on the type of timber you are working with. A plane for use on softwoods requires to be sharpened more acutely than one that is to be used on hardwoods. New irons are always ground to the proper angle when they are bought, and under normal use, do not require regrinding for some time.

When sharpening a plane iron, use a good quality oilstone. The best type of oilstone for the handyman to get is a two-sided stone; one side coarse and the other side fine. Apply a few drops of thin oil to the stone and then rub the

● **Continued on page 140**

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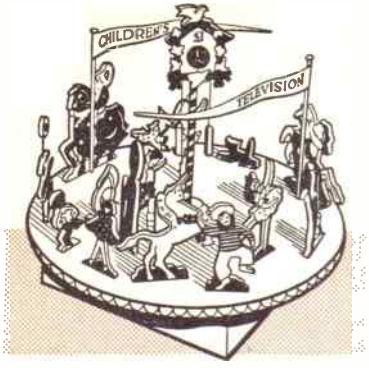

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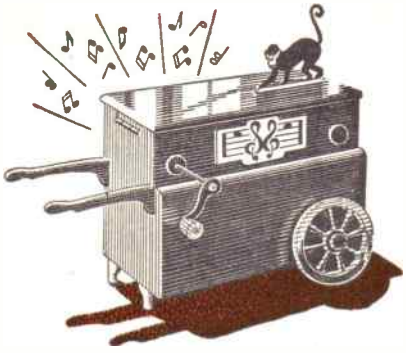

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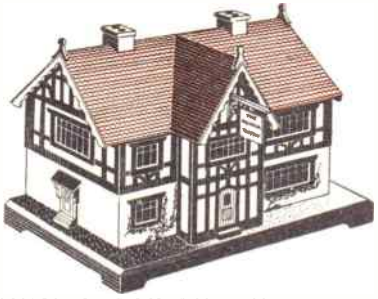

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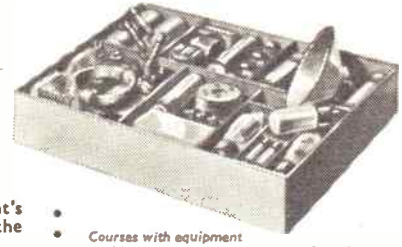

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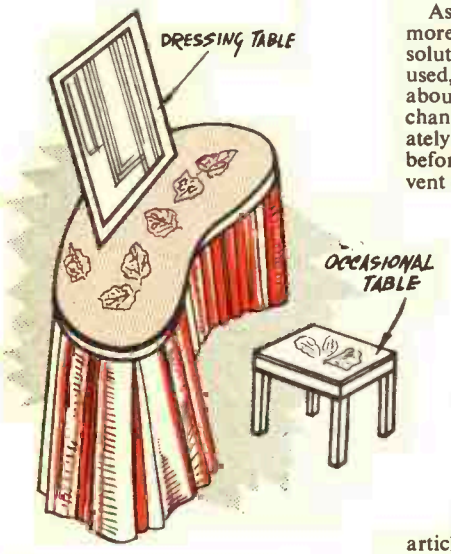
Bleached Skeleton Leaves



ANYONE who likes the countryside can always find something in nature in which to take an active interest. How many people, for instance, would believe that some leaves, after they have changed colour and dropped off the branches, if left to the elements, shed their covering and reveal the delicate pattern of the veins, making beautiful skeleton leaves, as dainty as lace.

February onwards is the best time to look for the leaves, with the outer covering washed off by the winter weather. They are often found near the trees, blown into little clumps.

As they are brown in colour and look more effective if bleached white, a dilute solution of 'Parazone' or similar can be used, leaving the leaf in the mixture for about three to five minutes or until it changes colour. It should then immediately be rinsed thoroughly in clean water, before drying. This is necessary to prevent deterioration.

An unusual effect is obtained if varnish is sprayed onto the leaf. A spray diffuser should be used, because unless the varnish is very thin the leaf will fall to pieces when it is lifted out of the solution. Tweezers are best used to handle the leaf.

If a coloured picture is painted or stencilled on the varnished surface, or a transfer is used a very decorative effect can be imparted to glass topped articles like handmade wood tables and dressing tables or sideboards.

Table mats are another ornamental medium for your finished leaf.

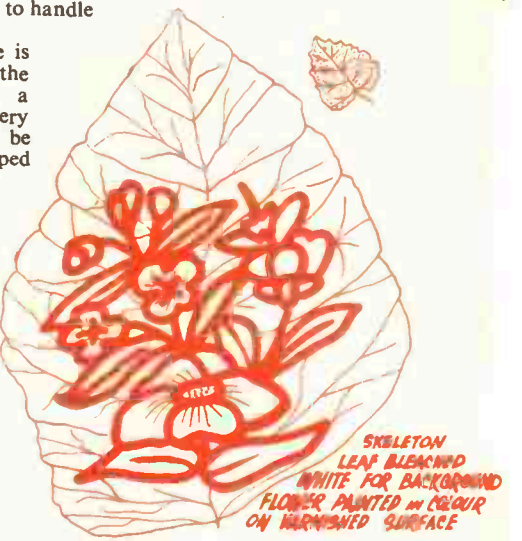
Lampshades with a plain surface are an ever popular item which show this craft to advantage.

Wood or painted tins to be used for litter can be enlivened by using these pictures glued on the surface.

A different type of greetings card and calendar can be made by attaching your leaf or leaves in your own design to cards made by yourself or to the plain ones sold ready for this purpose.

Experiments should be made with different paints to determine the best medium as some do not cover successfully over the varnished leaf. A thin transparent cellulose type of glue is best for sticking the varnished leaves on to the various articles.

Silver birch, oak, blackberry and blackcurrant leaves are some to look out for. You need not wait for them to shed their covering, but collect them in the autumn and have them out in the open. Thus you should eventually store up a reserve supply of skeleton leaves. (M.C.)



● **Continued from page 138**

The Care of Planes

iron backwards and forwards several times, remembering to keep it at the required sharpening angle. If you find it rather difficult to keep the iron held at the proper angle, then special sharpening guides can be purchased to help you overcome this difficulty. These are obtainable from any tool store. After this, turn the iron over, lay it flat on the oilstone and give it a few light strokes to remove the burr from the back.

It should be noted that the shape of the cutting edge is very important. For a jack plane, the cutting edge should be rounded off very slightly, so that the effective part of the iron is at the centre, and there is no chance of the corners tearing into the wood. For smoothing planes, however, the cutting edge should be square and straight except for a very slight rounding off of each corner.

When a plane is not being used, the cutting iron should always be retracted to avoid accidental damage. Alternatively, lay it down on its side. Remember, unnecessary blunting means unnecessary sharpening.

Before planing, ensure that your timber is free from nails, bolts, etc., which may damage your plane. This precaution is particularly important when working with second-hand timber. Painted surfaces should always be scraped first before being planed.

Finally, always keep your planes well oiled. Not only will this keep them looking their best, but it will make your planing much easier. Like any other tool, a plane which is well kept and functions efficiently, is always a joy to use and a credit to its owner.

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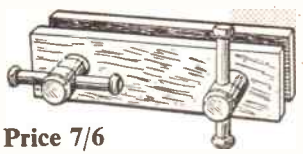

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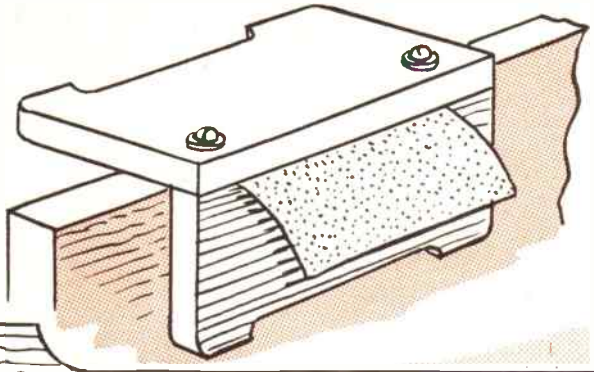

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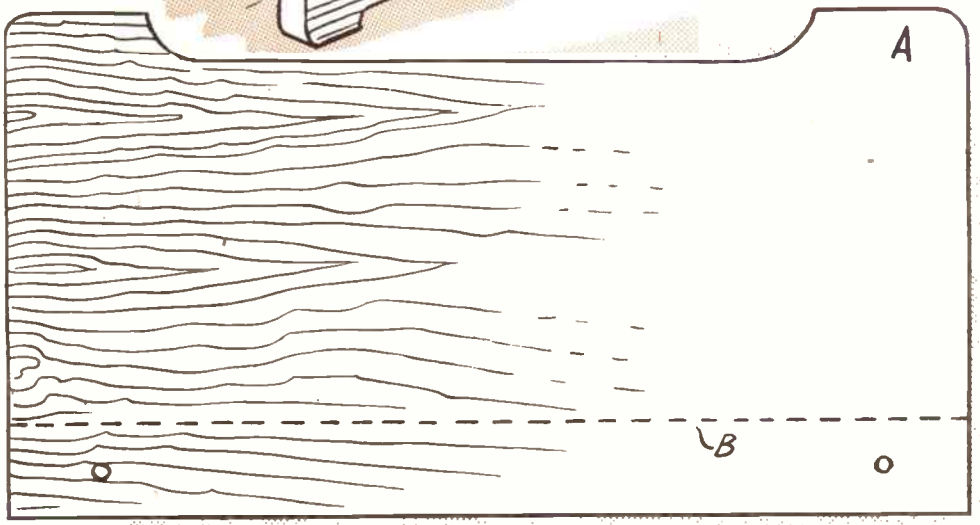

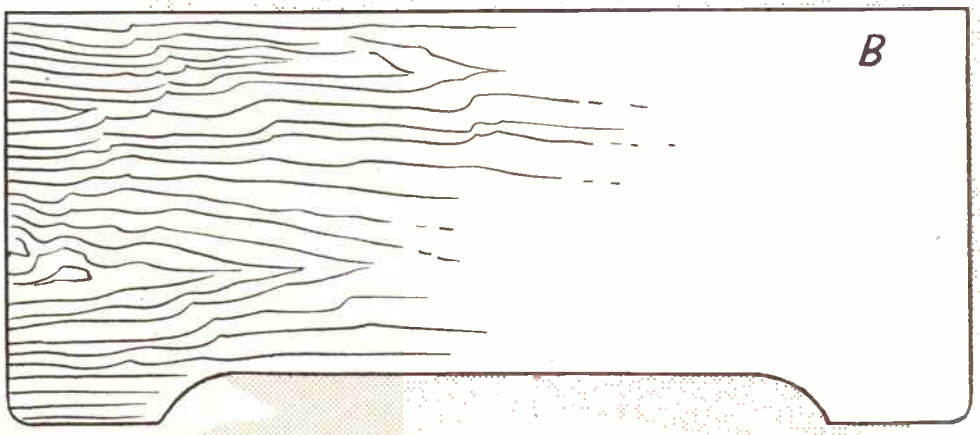

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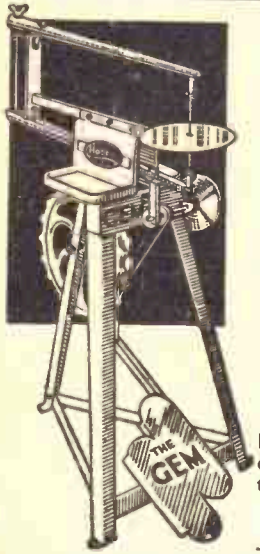

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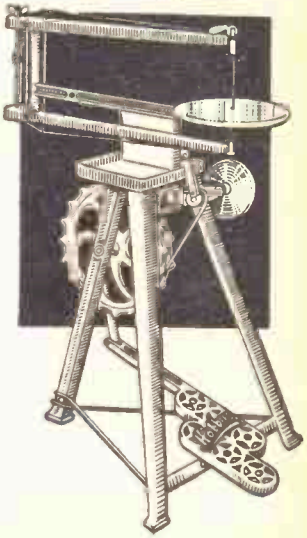

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