

# HOBBIES WEEKLY

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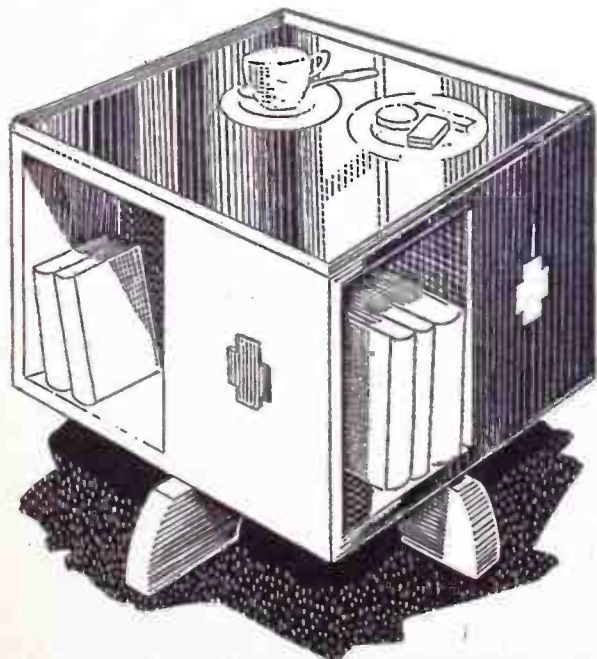
AUGUST 31st 1955

VOL. 120

NUMBER 3122

*This week's FREE DESIGN—A Revolving*

## BOOKCASE AND COFFEE TABLE



**O**f sturdy construction, this design for a combination revolving bookcase and coffee table offers the handyman the opportunity of making an attractive piece of furniture

for the home.

Especially suitable for the lounge, it serves a double purpose. The four compartments for books enable current reading matter to be easily selected

while resting in your favourite armchair, and also within easy reach is that inviting snack of coffee and biscuits.

The first step in construction is to make up sections (A) and (B) in pairs (1), which are dowelled together as

A fine piece of  
furniture for the home

shown on the design sheet (2). Next cut the bottom portions (D) which each measure  $17\frac{3}{4}$  ins. by  $8\frac{3}{4}$  ins. These are glued and nailed under the partitions (A) and (B) (4). Pieces (C) should now be nailed through (D) from underneath, and at the same time glued to the partition pieces (A) and (B).

The top pieces (D) of the same measurements as the bottom pieces, can

●Continued on page 340

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

*For Modellers, Fretworkers  
and Home Craftsmen*

**4<sup>D</sup>**

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# MAKING SUPER-HET COILS

By A. Fraser

ALTHOUGH the ordinary radio constructor has usually undertaken the task of winding his own coils for straight T.R.F. sets, the idea has probably not occurred to him that he can make his own super-het coils as well. Super-het sets are considered by most people to be a tough proposition, and this mental attitude applies equally to the subject of the coils. The truth is super-hets are not so difficult as some make out, and the same goes for the coils associated with them.

signal being received. The usual intermediate frequency nowadays is 465 kilocycles.

In the frequency-changing valve, to which the oscillator coil is connected, the signal frequency from the aerial coil is 'mixed' with the frequency from the oscillator section, and various frequencies emerge at the anode, including the sum and the difference of the two

It may be noted here that the ratios of maximum to minimum frequencies are different. This means the steady difference of 465 kcs. will be impossible by straight gauged condensers. In super-hets, therefore, special oscillator

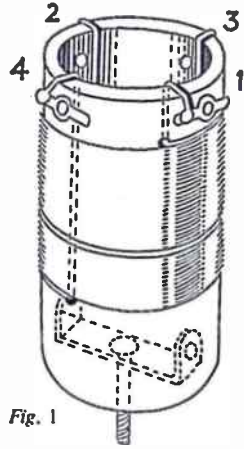


Fig. 1

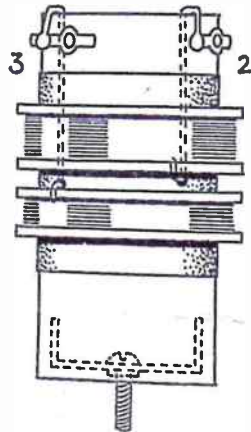


Fig. 2

- Tag 1 joined to top of secondary winding
- Tag 2 joined to bottom of secondary winding
- Tag 3 joined to top of reaction winding
- Tag 4 joined to bottom of reaction winding

If the reader can make coils for straight sets, then he should find the making of super-het coils well within his capacity.

The super-het set, like the T.R.F. set, needs aerial tuning coils, and often H.F. (high frequency) amplification coils. The constructor should have no difficulty with these, as they are all similar. So we will pass on to considering those coils which are peculiar to the super-het. These are the oscillator coils and the I.F. (intermediate frequency) transformers.

We will deal first with the oscillator coils, but before we broach the actual construction, a few words are necessary on their function.

The object of the oscillator coil is to produce, in conjunction with the oscillator valve, an oscillation which differs in frequency by a certain fixed amount from the frequency of the

frequencies which have been mixed. Of these, the difference frequency is the one most used.

So, to produce the 465 kilocycle intermediate frequency, the oscillator

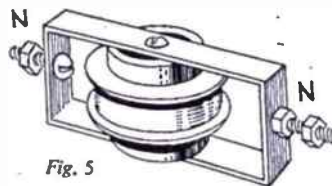


Fig. 5

must have a coil whose inductance is in a definite relation to that of the aerial coil. Thus, if the aerial coil tunes from 1,500 to 500 kilocycles, then the oscillator must tune from 1,965 to 965 kilocycles—the addition of 465 to the aerial values.

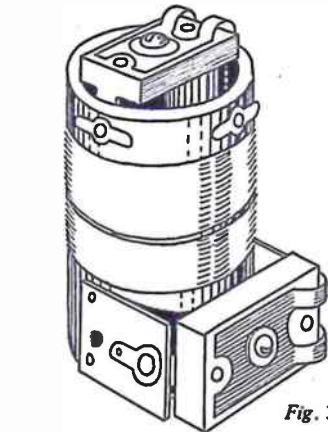


Fig. 3

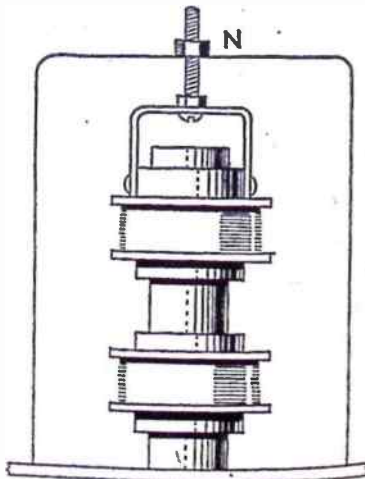


Fig. 4

sectioned condensers are used to correct this, and in addition a system of trimming and padding condensers is used. Matters are simplified, however, if a separate variable condenser is used for the oscillator, instead of the gauged method. Although this means another control knob, it is recommended to the ordinary reader.

To return to the actual coils. Having decided the frequency range of the oscillator, the next step is to determine the inductance. This is obtained from the formula or tables for LC/frequency. Dimensions and turns for medium-wave coils can be obtained from the formula

$$L = \frac{r^2 \times N^2}{9r + 10b}$$

where L—inductance, r the radius of coil, N the number of turns, and b is length of winding. (The formula for pile-wound long-wave coils occurs later.)

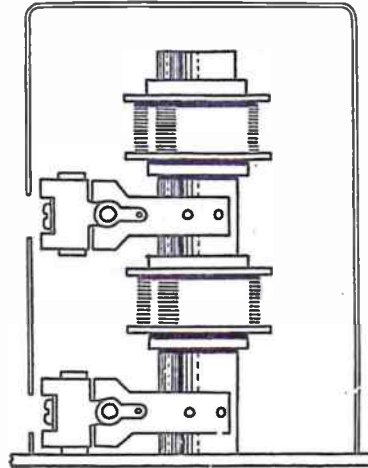


Fig. 6

However, the reader may prefer the following rule-of-thumb method. That is, for medium waves use three-quarters the number of turns as there are on the aerial coil. For long wave, use two-fifths of the turns on the aerial coil. This is rough computation and inaccuracies must be put right by attention to trimmers and padders if used. The reaction winding should have about half the turns of the main oscillator winding, and be wound close to it.

Fig. 1 shows how the medium-wave oscillator coil can be set up. Soldering tags can be riveted or bolted to the coil-former. These should be preferably double-ended tags, so that the coil ends can be fixed to one side and the connections from the set to the other. A piece of thick tinned copper wire can be substituted, securing this by passing it through two holes about 1/4 in. apart. Or the winding wire itself can merely be secured through two such holes.

The coil-former can be fixed to the chassis by metal strip, or a piece of wood, joined across the bottom. A bolt passes through this to the chassis.

Fig. 2 shows the arrangement for a long-wave oscillator coil. First, put a strip of insulating tape round the

former, the width of the coil winding you require. Then add the washers to hold the wire. (These can be varnished cardboard, or better still, paxolin sheeting.) Lastly, secure these with further strips of insulating tape.

To reduce capacity losses, the coil can be split up into two or three sections, instead of one.

Trimmers and padders can be fitted most easily if coil formers of 1 in. or 1 1/4 ins. diameter are used. In this case, the condensers can be fitted in the top of the coil and at the side. In the latter case, metal strip must be used to fix the condenser to the tube. See Fig. 3.

The capacity of these condensers will depend on the size of the coil inductance, but for the average coil, a 75 pfd. trimmer and 500 pfd. padder should do for the medium band, and 100 pfd. and 150 pfd. for the long.

$$L = \frac{.2a^2N^2}{3a + 9b + 10c}$$

where a is the mean diameter of the coil, b the winding length, and c the radial depth of the winding.

The coil should be set up the same way as long-wave coils. The only difference is that some method must be provided to vary the coupling between the two parts. Altering the distance apart of the coils alters the band width covered, and so the selectivity (which is one of the principal advantages of the super-het set).

There are several devices for varying the coupling between the coils. The two most simple to understand are given here. The first method, shown in Fig. 4, consists of mounting the two coils on another former, or a piece of dowel rod. The upper coil former is a push-fit and

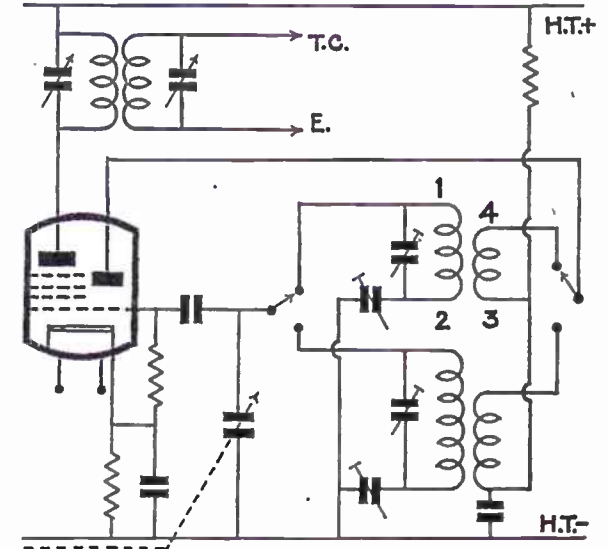


Fig. 7

We can turn now to the I.F. transformers. These are necessary to select the 465 kilocycle frequency appearing at the anode of the frequency changer valve especially, and they must be sharply tuned to this frequency.

The transformers consist of two identical coils, coupled together, and tuned by similar condensers, usually of the compression type.

The inductance required in each coil will be affected by the capacity of the condensers used. Condensers from .0001 to .0003 are useful. The inductance can be determined from the formula:

$$f = \frac{1,000,000}{2\pi\sqrt{LC}}$$

and the actual conditions of the coil from the formula for pile-wound coils:

can be moved up and down the centre tube or dowel, so varying the distance between the coils. A refinement is to fix a metal strip over the top coil former, through which a bolt passes. The position of the coil can be altered by moving this bolt up and down. A nut (N) will secure the position when satisfied. The advantage of this is that one does not have to remove the screening-can every time the coil is moved.

The other method is to rotate the coil so that its axis is brought out of alignment with the axis of the fixed coil, thus reducing the coupling. Fig. 5 shows one way of doing this. The nuts (N) secure the coil once the final position of the coil is determined.

Continued on page 341

## MODELLING A HEAD



**T**HIS series of articles describes how a head may be modelled in clay. The materials required are easily obtained, and are inexpensive when we think of the enjoyment to be found in this mode of self-expression. The basic material, clay, is in plentiful supply, as any gardener can confirm. The other necessities are the armature,



Mixing the clay

an old knife, a sheet of glass, some rags, a rule and a mirror. For those without a good eye for sizes, a pair of callipers might be useful, but they are not essential.

First make the armature. This acts as a foundation for the model and consists of a wooden block 5ins. square by 1in. thick, an upright, and a crosspiece. Secure them with panel pins or make glued joints.

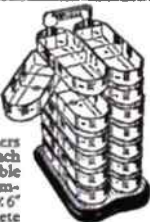
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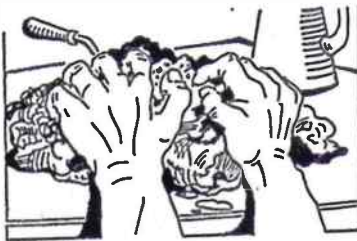
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## The first of a series of articles by T. McCreanor

The clay should be as fine as possible and free from lumps and grit. If you cannot find good clay locally it is best to buy a stone of terracotta powder, which, with the addition of water, makes the



Kneading

finest material for modelling. Mix the powder as you would cement, adding the water a little at a time. Knead the resultant clay on the sheet of glass until a putty consistency is reached. If your clay is too dry, it will crumble, and if too wet it is unworkable.

Now select your subject. A friend or member of your family will probably be your first model. Try to get someone with strongly defined features. Remember, the prettiest face does not necessarily make the best subject. Set him (or her) in a chair and observe his head from all angles. Imagine what it

would look like if it suddenly were turned into stone. Note how it projects and recedes. Tilt the head in various directions until you find an angle which seems characteristic. That is the angle at which to make your model.

To commence on the actual job of modelling. Set the lump of clay on the sheet of glass at your right hand, the armature in front of you and between you and the subject. Start at the foot of the upright, putting the clay on in small pieces with the knife. Pack it fairly tightly, otherwise cracks will form as it dries. The first stage is completed when you have covered the armature.



Beginning on the neck

Do not forget to cover both your model and the raw clay with damp rags when you are not working with them. And, of course, remember to wet the rags each day.

Continued from page 337

## Bookcase and Coffee Table

now be glued and nailed in position. Note that nailing is done to pieces (C) only where the heads will eventually be covered by beading to be placed round the edge. The feet are cut out and glued together as shown in detail 3 on the design sheet.

Bearing plates (F) are now cut out to the size given on the design sheet, and their edges nicely rounded. Secure one of these pieces to the underside of the bookcase and the other to the feet, using countersunk screws. Note it is essential that the screw-heads should not protrude beyond the surfaces.

The facing surfaces of these pieces (F) on which the bookcase will rotate should be treated with a generous application of melted candle grease, well rubbed in to give free and easy movement.

A hole is now bored through the centre of the feet and bearing plate (F), large enough to enable the pivot screw

### A KIT FOR 61/3

For making this piece of furniture you can obtain kit No. 3122 from any Hobbies branch, or post free from Hobbies Ltd., Dereham, Norfolk, price 61/3.

to revolve freely in the hole (4). Insert the screw from underneath and secure to the bookcase through the centre of the top bearing plate. To avoid splitting the wood, a hole must first be bored with a suitably sized drill.

Now the overlays can be cut from 1/4in. wood and glued in position. The tray on the top of the bookcase is formed by mitring round the edges Hobbies No. 34 1/4in. quarter-round beading.

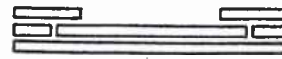
Finish will be at the discretion of the individual—i.e., stain and varnish, stain and polish, or plain waxing if a nicely grained wood has been used in the construction.

## USEFUL GADGET FOR PHOTOGRAPHERS

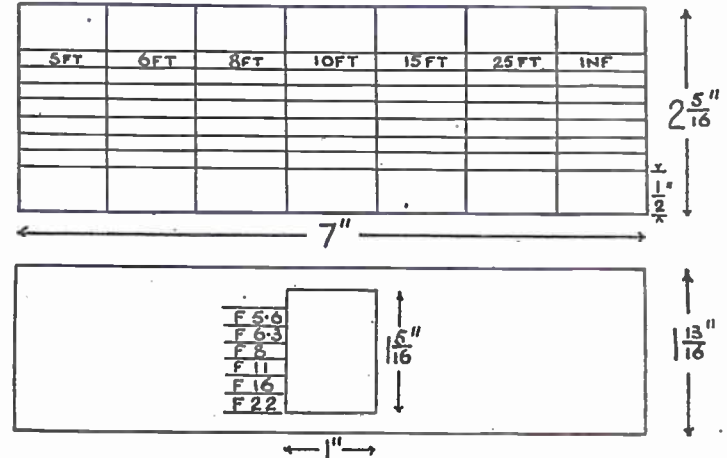
# A Depth of Field Sliding Scale

**A** DEPTH of field scale is extremely useful for knowing exactly which stop to use to bring the principal object into sharp focus whilst leaving the rest diffused, or alternatively knowing which stop to use to bring everything into sharp focus. The extent of sharp focus increases as the lens is stopped down but compensating exposure is necessary.

Stiff white cardboard is used for making this scale to the measurements shown. Columns 1in. in width are ruled according to the focusing scale on the camera. Lines 1/4in. apart are ruled across the card for inserting the data. The sliding part has a window cut out with the lens apertures marked



SECTION



f	5ft.	6ft.	8ft.	10ft.	15ft.	25ft.	Infinity
5.6	4' 8"-5' 5"	5' 6"-6' 7"	7' 1"-9' 1"	8' 7"-12' 0"	12' 1"-19' 8"	17' 0"-41' 8"	61' 0"-Inf.
6.3	4' 6"-5' 6"	5' 5"-6' 8"	7' 0"-9' 3"	8' 5"-12' 3"	11' 8"-20' 10"	16' 11"-47' 4"	53' 4"-Inf.
8	4' 6"-5' 7"	5' 3"-6' 11"	6' 9"-9' 8"	8' 2"-12' 0"	11' 2"-22' 9"	15' 11"-50' 0"	43' 0"-Inf.
11	4' 4"-5' 10"	5' 11"-7' 3"	6' 5"-10' 7"	7' 7"-14' 5"	10' 3"-28' 2"	14' 0"-118' 0"	31' 0"-Inf.
16	4' 1"-6' 4"	4' 9"-8' 4"	5' 10"-11' 0"	6' 11"-18' 1"	8' 11"-46' 0"	11' 8"-Inf.	28' 7"-Inf.
22	3' 6"-8' 9"	3' 11"-12' 7"	4' 8"-27' 8"	5' 3"-97' 0"	6' 4"-Inf.	7' 7"-Inf.	10' 9"-Inf.

at one side. This is better done after the assembly to ensure correct alignment of all lines. Two strips of card 1/4in. wide are glued to the base, the slide inserted and two overlapping strips 1/4in. wide glued to the

1/4in. strips, keeping the slide in position.

The accompanying table gives data for cameras of 4-4 1/4in. focal length using 2 1/4in. by 2 1/4in. or 2 1/4in. by 3 1/4in. negatives. For other sizes reference to a

standard text book is recommended. All objects between the near and far distances are in sharp focus at the given aperture with the camera set to the distance scale. (S.H.L.)

Continued from page 339

## Making Super-Het Coils

In the examples mentioned the constructor should set the two coils about 1in. apart, as a beginning.

There are also different ways of fixing in the condensers which tune the coils, and here the constructor can use his own ingenuity. It is necessary, however, for the condensers to be well isolated from the screening-can, and secondly, they should be accessible for trimming purposes. A method as good as any is to attach the condensers to the coil tube or dowel rod by means of strips, preferably of insulating material such as paxolin or bakelite. The screw of the condenser should be left about 1/4in. short of the wall of the screening-

can, and holes should be cut in this to allow the insertion of the trimming tool. Details are shown in Fig. 6.

It should be noted that the ends of the holding strips are broad enough to enable the condensers to sit firmly. Nothing is more annoying than adjusting wobbly trimmers. The condensers are held to the strips with 6 B.A. bolts and soldering tags.

A few final remarks. The lower fixed coil can be secured with either insulating tape or an adhesive like Durofix.

The transformer can be attached to the chassis with a bolt through a metal strip fixed to the former, or with a screw through the dowel end, which-

ever is appropriate. See, however, that the trimmers face outward and are readily accessible.

Make the screening-cans as large as possible because small ones reduce the efficiency of coils. Lastly, remember to make the leads from the upper trimmer long enough to allow the upper coil sufficient movement upward.

Fig. 7, with numbered coil connections, should make things clear to the reader.

The reader may like to know that coils made as in this article worked out at approximately 3d. each. The total cost, using new materials, for a set of coils with an H.F. stage, i.e., 9 coils, covering three wavebands, was 2/3. The performance was excellent and at least equal to bought coils costing twelve times as much as the home-made ones.

# 1955 Fretwork Competition Results

SOME of the best fretcutting ever centered for a Hobbies competition was the unanimous verdict of the judges when deciding the awards for Hobbies 1955 Fretwork Competition, the names of the main winners in which are given on the opposite page.

And what a hard task it was trying to place in order of merit the many finely executed trinket boxes, the subject of our competition design No. 3070 and the popularity of which was proved by the hundreds of entries.

Thanks to the extra protection given by the carton which was included in the

### Still 'In Touch'

THE last occasion on which Mr. W. H. Woodrow entered a Hobbies competition was in 1932, when he gained 2nd prize of an A1 machine. And now after an interval of 23 years he has again been placed 2nd. Obviously he has not 'lost his touch' despite the fact that he has not done much cutting lately.

design kit, most of the trinket boxes arrived safely at Dereham for judging. In one or two instances, pieces of the fretwork overlay had 'come adrift' from the article, but this was taken into consideration, and no points were lost on this account. As emphasised in the rules, the competition was judged primarily on the quality of the fretcutting, and then on the excellence of the finish.

### Judges' Hard Task

In many instances it seemed impossible to differentiate between two or even more entries, and the articles had to be subjected to the most detailed scrutiny before a decision could be made. A slightly irregular shape, an imperfect circle, a lid that did not quite fit—all such minor deficiencies had to be weighed one against the other in the task of sorting, eliminating and grading.

But many thanks, competitors. It was a real pleasure to spend so many hours among such high-grade workmanship.

No doubt you, too, derived a great deal of satisfaction from your efforts and in the finished article. To the successful ones—heartiest congratulations. To those not in the prize list—be sure that your entry received every consideration. Some of those who were among the 'also rans' in previous Hobbies competitions have this year gained major awards, proving that in



Master Gordon Powell, who won the first prize in the Junior Section.

fretcutting 'Practice makes perfect'. This, then, must also be your motto.

A representative selection of the winning entries, together with the Silver Challenge Cup and replica which go with the main award, will be on show at Hobbies Stand, No. 16, at the Third International Handicrafts, Home-crafts and Hobbies Exhibition, Earl's Court, London, from September 22nd to October 1st. Many of our readers will, no doubt, pay us a visit there and admire the high standard attained by the competitors.

### Immaculate Cutting

Immaculate fretcutting gained for Mr. John Burbeck the first prize in the open section. In this respect it could not be faulted. For a time it seemed that Mr. W. H. Woodrow's trinket box

### Aged 9 and 89

NOT among the winners named, but who deserve special praise for their keenness, were Ian Blair of Longlevens, Glos., and Alaric Lawrence of Port Erin, Isle of Man, both aged 9. Also noted was the name of Mr. G. Chadwick of Bridlington, Yorkshire. His age? A mere 89!

would gain the major award. With a clear varnish finish over whitewood, and the overlays and stand in a rich shade of brown, it looked just perfect for my lady's dressing-table. A slight irregularity in the cutting, however, turned the scales in Mr. Burbeck's favour.

Then came a group of entries in which there was again little to choose

between. Mr. F. Webster, the winner of the 1954 competition, who this time was placed 5th, again showed his great facility for cutting. Both Mr. Webster, who is 64, and Mr. Sherrard Hamilton, aged 67, the runner-up last year and 12th this time, deserve special commendation for their consistency. Their years of experience obviously stand them in good stead.

Mention must be made, too, of Mr. R. M. Edwards, aged 19, who was placed 8th this time after coming 6th in 1954. His entry had no special finish, but the cutting was almost perfection.

### Consistency

MR. H. R. YOUNG, who won third prize of a Mark II Bench Lathe, cut his trinket box on a Hobbies Triumph fretmachine won in a previous competition, and he is also still proudly riding the B.S.A. motor-cycle won in the 1939 competition. After congratulating those who beat him this time, he adds in a letter to the Editor, 'I hope to be with them in the next competition'.

Three of the main prize winners who were obviously encouraged by minor successes last year, when they gained consolation awards, were Mr. Burbeck (1st), Mr. R. Martin (9th), and Mr. P. Livesey (10th).

### Extra Prizes

So high was the general standard of the entries, that it was decided to extend the prize list and give 24 vouchers for £1 to obtain Hobbies goods for good fretcutting, and 12 other £1 vouchers for excellence of finish and ingenuity. In the former category were placed R. McKenzie, D. Gibson, and T. E. R. Taylor, all aged 16, along with Mr. C. J. Fettes (72), Mr. J. W. Renshaw (67), and Mr. F. Pook (74). Others in this section were in the middle age groups, proving conclusively that fretwork is a hobby for all ages. Nobody is too young—or too old.

Incidentally, it should be noted that T. E. R. Taylor was placed 1st in the Junior Section in 1954. Look to your laurels, Mr. Burbeck—young Thomas has his eyes on that handsome silver cup!

In the special class for finish and ingenuity there were some really eye-catching entries. Mr. G. Cattanaich's

Continued on page 345

## AWARD WINNERS

### OPEN SECTION

#### FIRST PRIZE

Silver Challenge Cup and Replica and Hobbies Lathe and Fretsaw, value £15 5 0  
**JOHN BURBECK, BROOK COTTAGE, AVENBURY, BROMYARD, HEREFORDSHIRE**

#### Second Prize

Triumph Machine, value £12 5 0  
**W. H. Woodrow, 69 Peveril Avenue, Scunthorpe, Lincs.**

#### Third Prize

Mark II Bench Lathe, value £10 10 0  
**H. R. Young, 62 Mostyn Avenue, Syston, Leicester.**

#### Fourth Prize

A1 Machine, value £7 19 6  
**A. G. B. Ellis, 659 Chester Road, Sutton Coldfield, Nr. Birmingham.**

#### Fifth Prize

Handy Bench Lathe, value £5 5 0  
**F. Webster, 110 Princess Avenue, St. Helens, Lincs.**

#### Sixth Prize

Gem Machine, value £4 19 6  
**D. H. Goddard, 157 Gunnersbury Park, Ealing, W.5.**

### FRETWORK OUTFITS, VALUE £1 7 6 EACH

7th G. J. Gibbins, 43 Green Leys Estate, St. Ives, Hunts.  
 8th R. M. Edwards, 37 Palmerstone Road, Earley, Reading, Berks.  
 9th R. Martin, No. 2 Cottage, Reeves Rest, High Road, Nr. Chipstead, Surrey.

10th P. N. Livesey, 7 Fulwell Close, Abingdon, Berkshire.  
 11th W. J. Castle, 63 Knight Avenue, London Rd. Estate, Canterbury, Kent.  
 12th Sherrard Hamilton, 277 Badminton Road, Downend, Bristol.

### SPECIAL AWARDS FOR SUPERIOR FINISH

G. Cattanaich (Enfield)  
 F. G. Christmas (Enfield)  
 D. Head (Cillynydd, Nr. Pontypridd)

D. J. Hartwell (Swilly, Devon)  
 Ronald S. Wood (Edinburgh)  
 C. Southwell (Wisbech)

R. Wines (Bristol)  
 E. G. Hearse (Llanelli)  
 W. A. Davis (Tooting)  
 A. Leightley (Littlehampton)

T. Boxley (Bromham Hospital, Nr. Bedford)  
 A. Day (St. Croydon)

### SPECIAL AWARDS FOR FRET CUTTING

E. A. Hurford (Sherborne, Dorset)  
 R. Curtice (Torrington, N. Devon)  
 R. McKenzie (Kelso)  
 H. Eley (Hixon, Nr. Stafford)  
 E. F. W. James (Dunstable)  
 Ernest Lewin, Jr. (Liverpool)

P. J. Page (Bridport)  
 David Gibson (Darlington)  
 W. Luckett (Banbury)  
 C. J. Fettes (Northampton)  
 A. G. Stacey (Henley-on-Thames)  
 S. Kellest (Selby)

Arthur Shonleben (Aldbury, Nr. Tring)  
 J. W. Renshaw (Birkenhead)  
 W. J. Magill (London, N.19)  
 J. A. Price (Headington)  
 C. P. Rose (London, N.12)  
 L. R. Gill (New Malden)

Ronald Bolt (Co. Antrim, N. Ireland)  
 F. Pook (Tunbridge Wells)  
 Peter A. Cobbett (Lincoln)  
 J. Hanson (Bradford)  
 T. E. R. Taylor (Penrith)  
 R. Wakelin (Botley)

## JUNIOR SECTION

### FIRST PRIZE

Companion Lathe and Fretsaw, value £12 15 0

**GORDON POWELL, ELM COTTAGE, LLANGROVE, ROSS-ON-WYE, HFDs.**

#### Second Prize

A1 Machine, value £7 19 6  
**Ian Robertson, Westbank, Roseisle, Burghhead, Morayshire.**

#### Third Prize

Gem Machine, value £4 19 6  
**Arnold Douglas Caddy, 34 North Street, Bridgton, Cannock, Staffs.**

#### Fourth Prize

A3 Outfit, value £3 2 6  
**Kenneth Bristow, Drumhirk, Newtownards, Co. Down, N. Ireland.**

### CARPENTRY OUTFITS, VALUE £1 7 6 EACH

5th Neil Tiller, Walton Common, Walton Highway, Nr. Wisbech, Cambs.  
 6th J. M. Gomersall, 2 Officers' Quarters, Grovehill Crescent, Falmouth.  
 7th D. Cronin, Coolinarnay, Millstreet, Co. Cork, Eire.

8th J. Gullebaud, 27 Lansdowne Road, Muswell Hill, London, N.10.  
 9th Trevor O. Jones, Bryn Farm, Nantmawr, Nr. Oswestry.  
 10th David Willans, Street Cottage, Worth, Nr. Crawley, Sussex.

Many other entrants in both sections were awarded consolation prizes, and the winners named above also received a handsome certificate of merit, first or second class, according to the decision of the judges.

# How to Modernise Old Furniture

By K. Blackburn

THE appearance of a piece of furniture depends largely upon its fittings, and many old pieces could be restored to respectability by replacing the original handles with others of more up-to-date design. Nor is it a long job if they are made in a row on one piece of wood, as shown in the photograph.

An attractive appearance can be obtained by making the handles in a wood which contrasts with the colour



Making handles from one piece of wood

of the furniture. Sycamore is the wood to use if a white handle is required, while any close-grained hardwood, such as beech, may be stained to a dark shade before polishing.

### Marking Out

Decide first on the distance the handles are to project from the door or drawer front, and also the number required. This will determine the length of wood needed. If the handles are to be jointed in like the ones illustrated, allowance must be made for these joints;  $\frac{1}{4}$  in. is sufficient for each tenon. A little extra should be allowed, too, so that the last handle may be worked comfortably with the waste piece gripped in the vice.

The length of the finished handle gives the width of wood required, and the thickness should be in proportion. The one illustrated measures  $2\frac{1}{2}$  ins. by  $1\frac{1}{2}$  ins. by  $\frac{3}{8}$  in. without the joint. Screws can be used, of course, instead of the mortise and tenon, in which case the marking out will be simplified.

Plane the piece of wood to the size required, and mark out as shown in Fig. 1. The two lines on the edges of the wood to indicate the thickness of the tenon are drawn with a marking gauge. Saw down the pairs of pencil lines to the

gauge line, and remove the waste with a chisel.

The number of designs it is possible to make is limitless, but although only the one shown in the photograph is dealt with, the method of working is similar with all types. A few other suggested shapes are shown in Fig. 2.

It should be noted at this stage that the handle for a cupboard door would

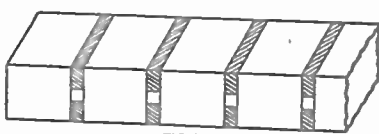


FIG. 1



FIG. 3

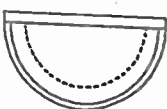


FIG. 4

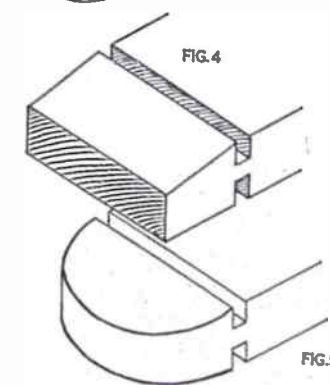


FIG. 5

normally be tapered on both sides; the one shown is intended for a drawer.

Three elevations are shown in Fig. 3. Working on the first handle, mark out the taper by gauging a line on the end and draw the slopes on one side with a pencil. The slope is planed with a finely set smoothing plane, giving the result shown in Fig. 4.

The next job is to draw the curve. This can be cut by chiselling vertically downwards with the wood resting flat on a piece of wastewood. It is then finished

off with glasspaper, which should be wrapped round a block of wood, so that the corners of the handle are not rounded off. The work at this stage is shown in Fig. 5.

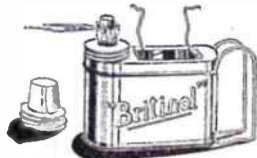


FIG. 2

The chamfer is marked out with a pencil and worked with a chisel, cutting from the joint to the end of the wood. The recessed part underneath which provides a grip for the fingers is marked on to the underside of the handle, and is cut with a firmer gouge. The recess is shown by the dotted line in the three elevations.

The handle is cleaned up with a fine grade of glasspaper before separating it from the rest of the wood. A neater joint is obtained if  $\frac{1}{4}$  in. is sawn away from each side of the tenon. There is a danger, otherwise, of an imperfectly cut mortise showing at the side of the handle. A coat of wax polish provides a serviceable finish.

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# Fit Rising Butts to Your Doors

says J. R. Burt

HOW often have you fitted a new carpet, to find that you must cut away the underfelt near the door so that it will close? When it does close, usually with great reluctance, you have carpet wear from the door, and no protection from the underfelt in the one place where it is most needed.

The answer is rising butt hinges fitted to your door. These are special hinges that allow the door to rise as it opens, so that it rises clear of felt and carpet. On closing it fits correctly into its original position.

A rising butt hinge has two other advantages over the normal hinge. The door will always swing gently shut on its own, and the door can at any time be easily lifted out of place, which is a big advantage when moving tricky furniture from room to room. The cost is only a few shillings—and an odd hour of

the average handyman's time.

First it is important when you go to buy your hinges, that you inform your ironmonger which way your door opens, as the hinges are sold in left or right pairs. Unscrew the door from its jamb. Owing to the constant movement of the door, it is unusual for these screws to be excessively obstinate, but it is advisable to get someone to support the weight of the door while you remove it.

Next plug the old screw holes with plastic wood, or thin pieces of wood. Matchsticks will often serve the purpose. Fortunately rising butts are so designed that they are slightly wider than the usual hinge, and the new screw holes will be in a different place.

Take the two hinges apart, the two

halves with projecting axis pins are placed on the door jamb in exactly the same position as the original hinges. They will almost certainly be the same in length, but mark round them carefully with a pencil. With hammer and chisel, chip away the wood to take the slightly extra width. Remember to position them with the pin projecting toward the top of the door. The other two halves are then fixed in the same way on the door edge where the old hinges were.

Now with a tenon saw mitre across the inside corner of the door to a depth of  $\frac{1}{4}$  in. and 2 ins. across the width. This may need adjustment, but it is necessary to allow the corner rise of the door.

With all four hinges fixed, it is a simple matter to engage the door hinges on to their projecting pins, but do it with the door in a wide open position.

Continued from page 342

# Fretwork Competition Results

looked delightful in black and gold lacquer with the interior sprayed with velvet flock. For appearance alone this would have been a main award consideration. Mr. F. G. Christmas had a lovely bird inlay underneath the lid, while others excelled in the interior padding, beautiful contrast in good colourings, and mirror-like finishes.

### Novel Presentation

A too-heavy application of lacquer had spoiled the sharpness of the cutting on Mr. R. Wood's box, but otherwise his finish was immaculate. Mr. Wood, by the way, was 4th in 1954, and also in this section was placed Mr. C. Southwell who was 5th last year and is yet only 18.

Two novel presentations were submitted by Mr. A. Leightley. Each trinket box was housed in a container which opened at the centre-top and folded right over on hinges, and in the meantime the trinket box itself rose on a platform by an ingenious use of wire runners in slots. We hope to incorporate this action in a future design in *Hobbies Weekly*.

So good was the entry of G. Powell, the winner of the Junior Section, that it can be safely said it would have gained a high place in the Open Competition—a really fine effort.

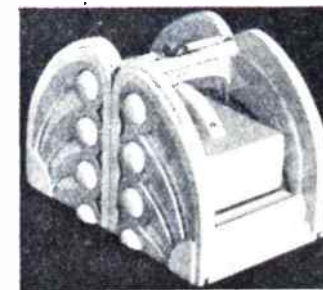
The workmanship of A. D. Caddy (3rd), who is only 12, was very little behind that of I. Robertson, whose entry arrived with pieces of the lid unstuck,

but this in no way affected the judging and he was placed 2nd. It was apparent in this section that the best efforts came from boys around the 15 mark, which is only to be expected. For this reason, D. D. Willans, aged 11, can be very proud of his achievement in being

given the option of having a voucher for goods to be obtained from Hobbies Ltd. to the value of their prize. Mr. Burbeck was one who took advantage of this offer, as he already has a lathe and fretsaw, and, accordingly, he has chosen other goods to the value of £15 5s.

### Your Next Chance

Now for the 1956 Competition, details and design of which will appear



Mr. Leightley's entries, described in this article

placed 10th. If the standard of their entries in this case is any criterion, many of these young fretworkers will be competing for high places when they go into the Senior Section.

### Voucher for £15 5s.

In addition to the prizes detailed, numerous other entrants received consolation awards. Certificates of Merit were also sent to those whose work was particularly good. In accordance with the rules, main award winners were

in the September 14th issue of *Hobbies Weekly*.

The prize value will be increased to over £200 and the main awards will consist of vouchers enabling the winners to choose Hobbies goods to their value. There will again be two sections—Senior and Junior—with the Silver Challenge Cup and replica for the Senior Section winner in addition to a voucher for £15 5s.

Watch out for Design No. 3124 on September 14th.



### Making a Projector

I HAVE some strip film and would like to make a projector. The film is 35 mm. and is marked Kodak 7 Safety Film; it is intended to run horizontally. Kindly let me know the kind of bulb and battery to use, also the kind of lens and the distance between the film and the lens. (K.C.—Kilkee.)

A BATTERY projector would only give comparatively small, dim pictures. Such projectors are of 'toy' type and may use any ordinary torch battery and bulb. A condenser lens should be included between bulb and film, to concentrate light on the film. Much brighter pictures would be obtained from a mains lamp. These are usually 100 watt in the smallest projectors, increased to 250 to 500 watts in larger projectors. The more powerful the lamp, the brighter will the picture be. If you are only making a small toy projector, a simple magnifying type lens would do. A lens of about 2½ ins. to 3½ ins. focal length is usual for 35 mm. film. The lens must be in an adjustable mount, so that the picture may be focused sharply by varying the distance

between lens and film. The larger the diameter of the lens, the brighter will the picture be. For really good results, a proper projector lens is best. The condenser between lamp and film is very necessary, for maximum illumination. If you hope to obtain a large picture, then very powerful lighting is necessary.

### Amyl Acetate

WHAT is amyl acetate used for, and how can I bring pieces of Perspex and plastic to liquid form? (J.M.—Dover.)

AMYL acetate is a chemical which is a solvent for many things, particularly some of the plastics. It will dissolve celluloid completely and soften Perspex. With celluloid dissolved in it, it is sold as balsa cement, with the

characteristic pear-drop smell. Perspex cannot be made into a liquid. Once it is set in manufacture it cannot be melted again. By heating to about 150 C. you can soften it sufficiently to form into shapes. The makers supply Diakon, which is the same thing in powder form, for casting into shapes, but this is normally only available to industry. Celluloid can be dissolved, but most of the other plastics are in the same class as Perspex.

### Discoloured Bricks

WHAT can be done to certain bricks in my yard which seem to go grey after lime-washing? I use lump lime, tallow and blue, but certain bricks will not dry white. Is there anything to apply to the bricks before lime-washing which will remedy this fault? (J.W.—Birkenhead.)

LIME does not take well to all bricks, variations in the clay probably being the cause. Scrape the affected bricks clean, and then apply several coats of painter's knotting to them. This may seal the pores against the action of the lime and prevent discoloration.

### HANDLING AND USE OF WOODWORK TOOLS

## Chiselling a Groove



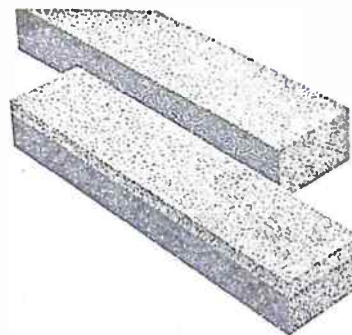
WHEN removing the waste-wood from between two saw-cuts, as, for example, when making a groove or a halving joint, the chisel is gripped in the left hand as shown in the photograph.

The closer the hand is to the business end of the chisel, the more control one has over it. The left elbow and forearm

rest on the bench, and the ball of the right hand is used for striking the end of the chisel handle.

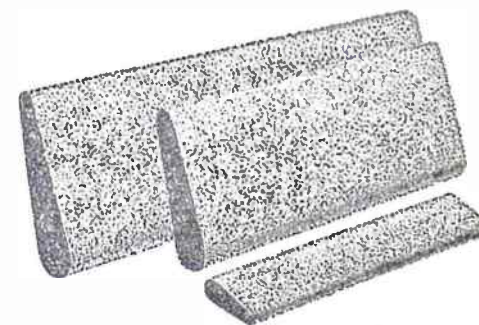
Note how the chisel slopes upwards slightly. The groove is cut from both sides in this way, and the resulting lump in the middle is removed by using the chisel horizontally.

(K.B.)



### 1. FOR CHISELS AND PLANE IRONS

Flat stones suitable for sharpening any flat-bladed tool, and for outside-bevelled gouges. In coarse or fine grits of silicon carbide or ALOXITE (aluminium oxide). Combination (coarse and fine) stones also available.



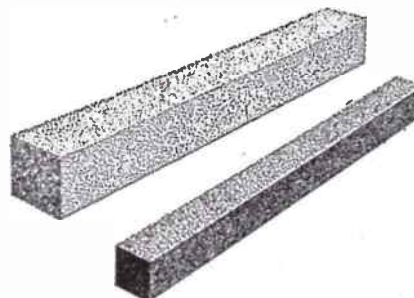
### 2. FOR GOUGES WITH INSIDE BEVEL

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### 4. FOR SHARPENING AUGER BITS

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H. Topping describes

# A Picnic Box which also

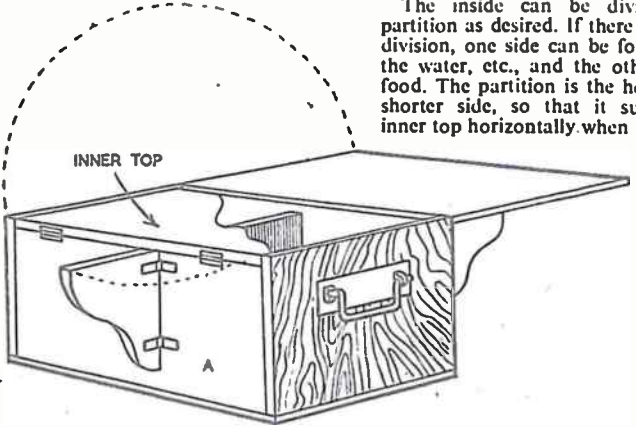
## Serves as a Table

THE picnic box illustrated will prove its worth on many a pleasant afternoon. It is just the thing to carry all the food, stove and everything else for such an occasion; but its greatest asset is that it serves as a table when opened. On a camping holiday, or when touring, it is indispensable.

It is made from 3/4 in. plywood, and the writer's was constructed just large enough to fit into the boot of the car. When closed, it measures 20ins. by 14ins. by 10ins. No joints were used other than plain glued butt joints, reinforced with lin. panel pins. Other joints can be made at the discretion of the reader, but when properly made, the former type are both strong and light.

The diagrams are self-explanatory and the dimensions can be decided to suit the individual.

It will be noticed that there are two tops to be used as tables when opened out, the inner one fitting inside the box, while the outer one covers the entire top. In Fig. 1 the inner top in the closed position is cut away to show the partition. The swinging supports fold against the sides when not being used to



The inside can be divided by a partition as desired. If there is only one division, one side can be for the stove, the water, etc., and the other side for food. The partition is the height of the shorter side, so that it supports the inner top horizontally when folded in.

support the tops when they are used as tables. Two folding handles enable the chest to be carried easily.

The shorter side, marked (A) in the diagram, is less than the height of the other sides of the box by the thickness of the inner top.

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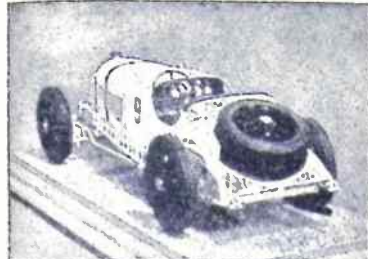
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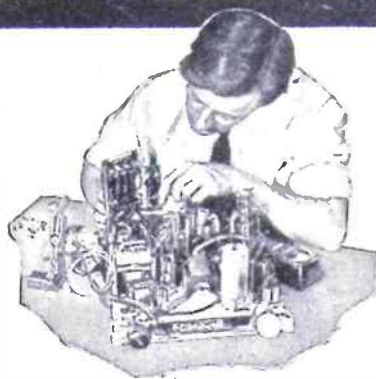
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### ELECTRIC PAINT SPRAYER

Cash 75/-. Or 4/- deposit and 6 monthly payments of 13/6



Paint easily, evenly, twice as fast with the Burgess Electric Sprayer. Sprays paint, varnish, etc. Complete with sturdy glass container, flex, nozzles for ceiling spraying and extra nozzle discs for different liquids. A.C.—state your actual voltage. Fully guaranteed. Leaflet free.



A first-class tool, the Black & Decker U-1 Portable Electric Drill saves hours on home and workshop jobs. Drills wood, steel, brick, etc. Steel capacity up to 2". Also drives sanding discs, polisher pads, etc. Weighs 3 1/2 lb. Fully suppressed. £5.19.6 or 12/- deposit and 6 monthly payments of £1. Sent on receipt of the deposit. A.C./D.C. motor, voltages 110 to 250. State your actual voltage.

### PHILISHAVE

14 DAYS' FREE TRIAL

Try the wonderful Philishave Electric Dry Shaver FREE for 14 days. Send only 5/- deposit (returnable if not satisfied). Two shaving heads with two 6-bladed cutters have unique rotary action which genuinely shaves—doesn't just snip at the hairs. Result—better, quicker shave. Operates 110/250 volts. A.C./D.C. £7.9.3 cash less your deposit. Or 5/- deposit can be first payment, followed by 8 monthly payments of £1. 12 months' guarantee.



### ELECTRIC PAINT STRIPPER

4/- DEPOSIT

and 4 monthly payments of 7/6



Old paint peels off like magic with the Horvell electric paint stripper. Easy, even strokes remove paint, varnish, etc. Four-sided blade for angles and corners. A.C./D.C.—state actual voltage. Cash 30/-, P & P 1/- Extra flex 1/- a yard. Spare element 5/6. Leaflet free.

### SANDER POLISHER (ELECTRIC)

5/- DEPOSIT

The J. & G. Electric Sander Polisher does the job ten times faster than by hand with no effort. Sands wood, furniture burnishes metal, polishes cars, furniture, silver. A.C. only 220/250v. State your actual voltage. Cash 75/-, or send 5/- deposit and 6 monthly payments of 13/6.



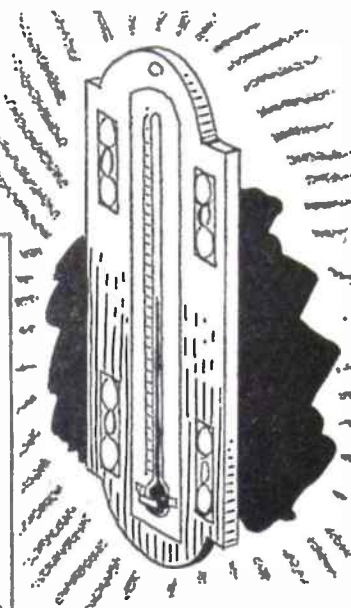
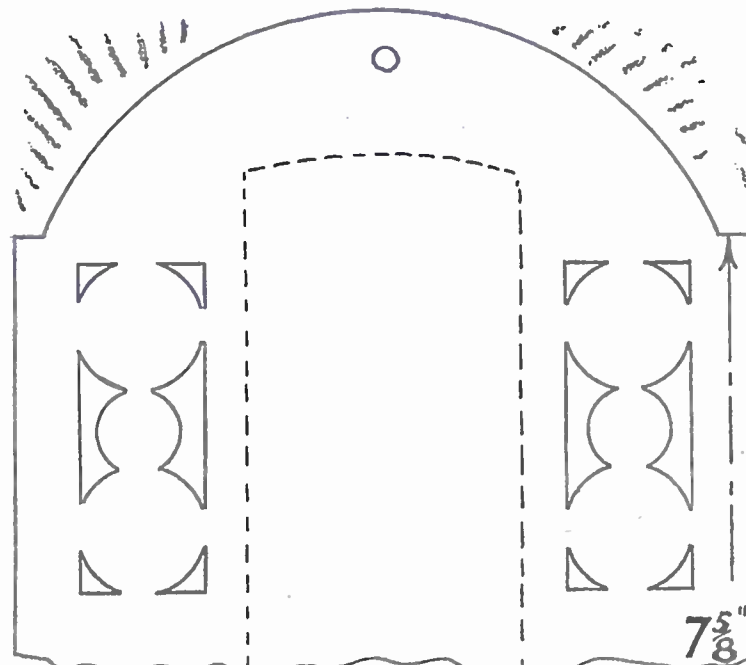
### This U.50 BLACK & DECKER KIT for ONLY £1 deposit

With this Kit you can clean, buff, burnish, grind and drill. Comprises Sander, Polisher Rubber pad, Lamswool bonnet, 3 sanding discs, one 2" chuck, Allen key, wax and polish. Cash £9.17.6 or £1 deposit and 8 monthly payments of 25/-. With chuck, becomes all-purpose drill. Can also be used as driving unit for lathe and saw attachments. Fully suppressed. State your actual voltage.



## SIMPLE FRETWORK

# A THERMOMETER HOLDER



CUT from one piece of wood, this thermometer is just the thing for the schoolboy to try. It is quite simple to make and can be quickly cut with a fretsaw.

Extend the drawing, to the measurement shown, when you are transferring it to 1/2 in. wood. Cut out the decorative frets before cutting the outline.

Clean up and paint before fixing the metal scale thermometer in position with three small screws or fretpins. The whole article can be screwed firmly to the wall wherever it is required.

The thermometer, No. 5014, is obtainable from Hobbies Ltd, Dereham, Norfolk, price 2/9 post free.

**SOMETHING FOR THE BOYS TO MAKE**



# THIS IS THE TOOL I'VE BEEN LOOKING FOR

says *W. P. Matthew,*  
*the T/V handyman*

## IT'S THE REVOLUTIONARY NEW **SURFORM**

*'SURFORM IS A TOOL THAT OUGHT TO GO  
INTO EVERY HANDYMAN'S TOOL KIT. IT  
DOES A LOT OF JOBS ON A LOT OF MATERIALS  
—AND IT DOES THEM QUICKLY AND WELL.'*



**SURFORM** is the nearest approach yet to a general-purpose hand-surfacing tool. It smooths down rough wood like a plane. On red deal, for example, it works twelve times faster than a rasp. On convex curves, it's easier than a spokeshave.

But that's only part of the story. You can use SURFORM on rubber, leather, plastics, "Formica," "Warcrite," plywood, hardboard, fibre, non-ferrous metals, and mild steel too. On all these materials it works faster than any other surfacing tool, and gives a fine finish.



tempered carbon steel cutting strip which is a patented product of Firth Brown Tools Ltd. of Sheffield. These teeth really cut the material instead of just tearing it away. And they can't get clogged up, because in front of each tooth is a hole through which the cuttings pass.

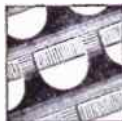


**SURFORM 'Plane' Type 17/6.**

'File' type 12/6.

*Replacement for the long-lasting cutting strip 3/6, from your local ironmonger or hardware store. If you have any difficulty, write to us and we'll tell you the name of your nearest stockist.*

Manufactured by **SIMMONDS AEROCESSORIES LTD.**  
TREForest • PONTYPRIDD • GLAMORGAN  
A MEMBER OF THE FIRTH CLEVELAND GROUP



### THE SECRET'S IN THE CUTTING STRIP

SURFORM has 500 tough razor-sharp teeth set in a hardened and

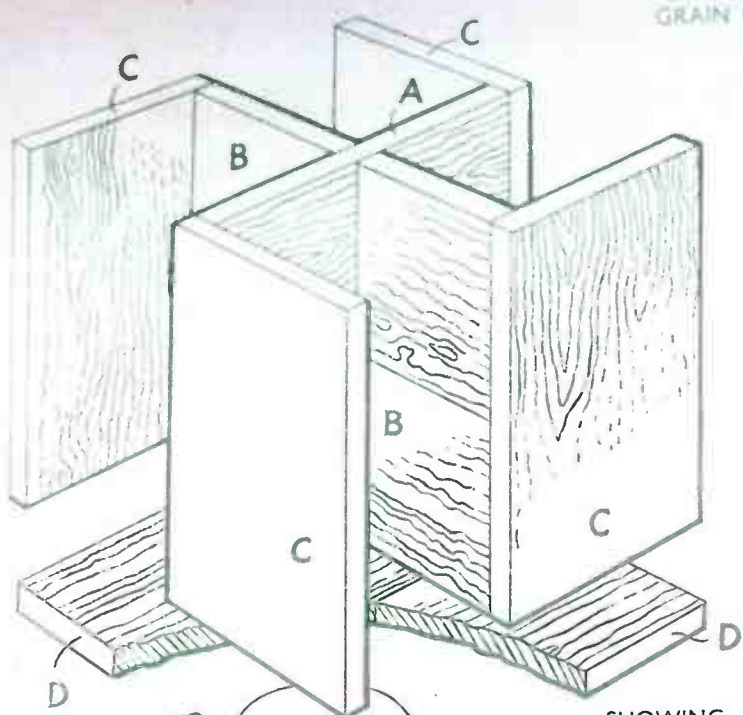
# "SURFORM"

REGD. TRADE MARK

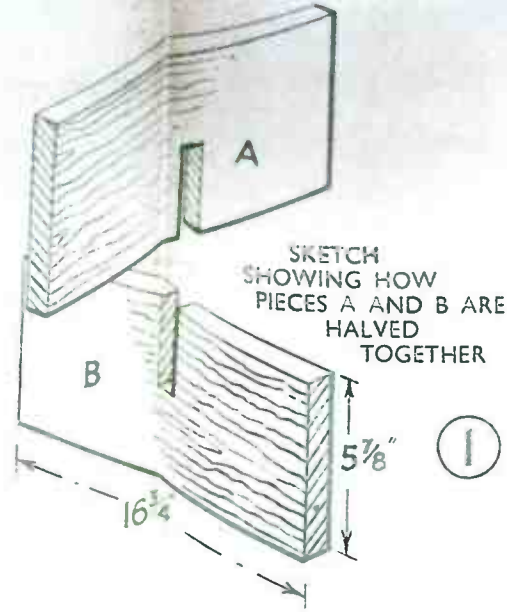
CBC 3/50

# REVOLVING BOOKCASE AND COFFEE TABLE

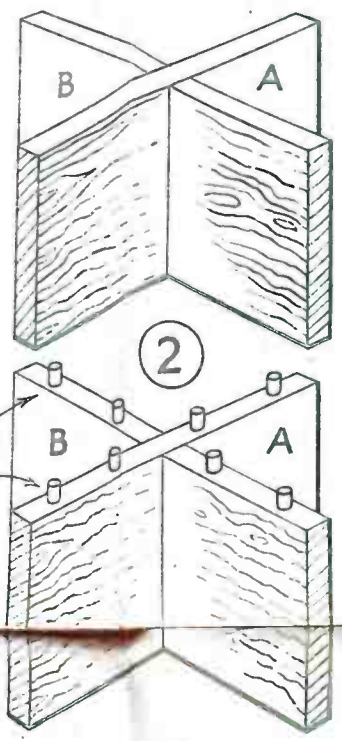
THE ARROWS INDICATE DIRECTION OF GRAIN OF WOOD.



SHOWING GENERAL CONSTRUCTION OF BOOKCASE AND FEET.

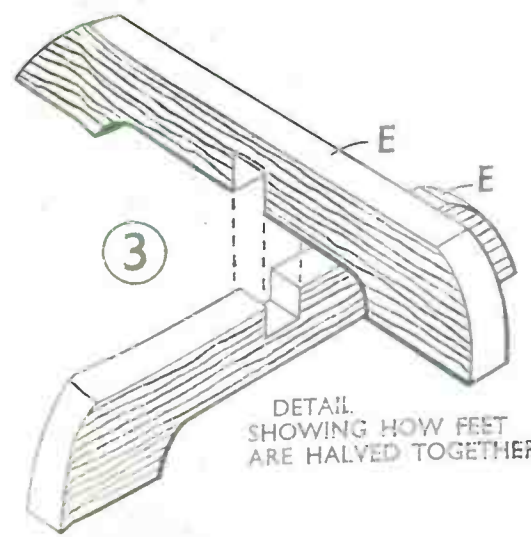
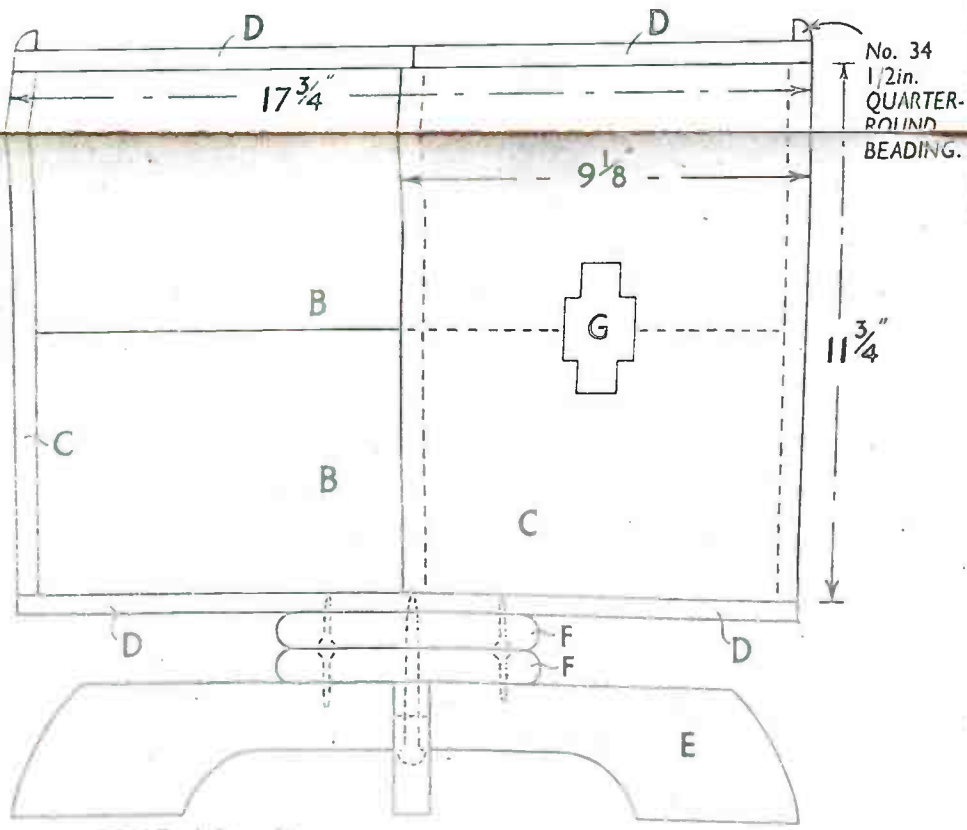


SIZE—  
18ins. SQUARE.  
17 1/2ins. HIGH.



DOWEL PINS. MAKE EIGHT FROM 1/4in. ROUND ROD.

DIAGRAM LEFT, SHOWS HOW PIECES A AND B ARE DOWELLED TOGETHER.



- Materials required for this design**
- WOOD** Two pieces 36ins. x 6ins. x 1/2in. (Hobbies R8)  
 Three pieces 36ins. x 10ins. x 1/2in. (Hobbies S8)  
 One piece 18ins. x 10ins. x 1/2in.  
 One piece 36ins. x 6ins. x 3/4in. (Hobbies R12)  
 One piece 12ins. x 5 1/2ins. x 1/8in. (Hobbies Q2)
- FITTINGS**  
 Four pieces 1/2in. 1/4-round beading 18ins. long (Hobbies No. 34)  
 One piece 1/4in. dia. round rod, 12ins. long  
 One 3 1/2ins. x 14 gauge roundhead screw  
 Eight 1 1/4ins. x 8 gauge countersunk screws
- A complete kit of the above materials can be obtained from **HOBBIES LTD., DEREHAM, NORFOLK**

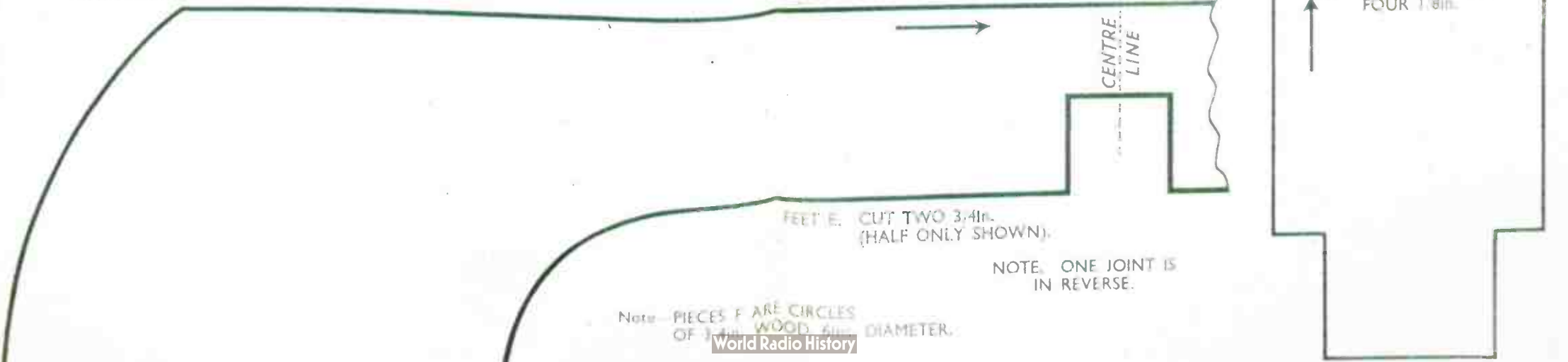
Glue it with **Croid**

**Universal Glue** for use cold straight from the tube or tin from 1/- each.

**Aero Glue** in the Home Outfit or in tins from 1/3 each for quicker setting.

Available from all branches of Hobbies Ltd.

SCALE—1/4in.—1in.



Note—PIECES F ARE CIRCLES OF 1/4in. WOOD 3/4in. DIAMETER.