

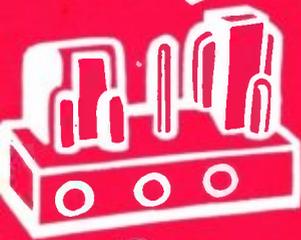
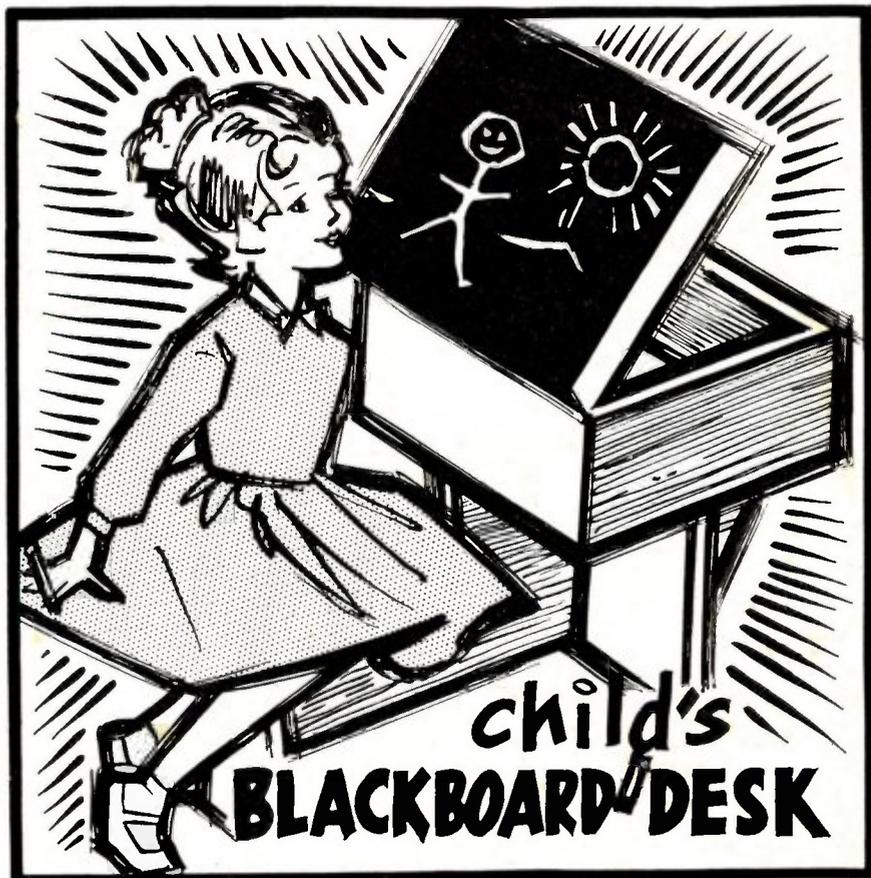
HOBBIES

weekly

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FOR CRAFTSMEN OF ALL AGES

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Stamp Collector's Corner

IN the first article on joined stamps we mentioned the many examples that came from Australia, the block of four different from Canada and also an unusual example from Belgium.

We show now a rather curious case from the Netherlands Indies. In 1934 they issued a set in aid of a charity which had a rather long name — 'The Netherlands Indies Social Bureau and Protestant Church Funds'. But on the stamps this is shortened to 'Social Bureau voor N.I.' Each stamp of the set carried a premium which was paid to the charity. The 2c stamp had a premium of 1c, on 3½c it was 1½c and the 7½c and 10c each had 2½c added, while the 20c stamp cost 25c — the 5c going to the charity.

It is really the 10c which interests us today because there were two such values joined together. The one had a picture of a European nurse and patient. The other which has practically the same design shows a native patient and nurse. Naturally it is very much more

interesting to show these two joined together and the value is considerably enhanced.

We mentioned some time ago when dealing with the stamps from South Africa the two types of name which appear on the same design. On one stamp the lettering is English — 'South Africa, Postage & Revenue' — and on the other it is Afrikaans — 'Suid-Afrika, posseel inkomste'. We mentioned then the desirability of having them in pairs.

MORE NOTES ON JOINED STAMPS

By L. P. V. Veale

Well, also from South Africa there are other stamps that should be collected in pairs or even in threes, and these are the very small stamps which were issued during the War.

Now some of these small stamps were issued in units of two or three stamps. They were perforated round the edges but between the stamps there was rouletting — that is a series of small slits. In the specimen illustrated (the 1d value) there are three stamps between the perforations and if possible these three should be mounted in the album together. The ½d., 1d., 3d., and 4d., were in threes and the 1½d., 2d., 6d., and 1s. were in pairs.

The same small-sized stamp was again issued in 1948 showing the gold mine; these pairs were vertical.



A rouletted set of three and an 'upside down' pair



Block of eight New Zealand triangulars



European and native nurses

It does occasionally happen that when perforating stamps one line of the perforations is missed. You would then have a pair of stamps with perforations on three sides but uncut paper between them and these are called 'Imperforate between'. Usually the price of a pair of such stamps is considerably higher than if they had been perforated correctly. For example, the ordinary King Edward VII Canada 2c is catalogued at 2d. yet two such stamps imperforate between would be worth 22s. 6d., while a 5c stamp of the same issue is catalogued at 1s. 3d. but a pair imperforate between would be priced at £35.

Another interesting mistake comes from Canada and again it is necessary to have the pair of stamps. You all know the quite common 10c. of 1950, the stamp showing the view of a tent pitched in the snow having three skins stretched out to dry on the trees. Well some of these stamps were overprinted with the letter 'G' to show that they were for official use, but in some of the sheets of the 10c. stamp one of the 'G.s.' was not printed so that it does occur that there are cases of one stamp having the 'G' and next to it there is a stamp which has no 'G'. A single 10c stamp used is catalogued at 2d., or a single stamp with the 'G' overprint is catalogued at 1s. But if you had a pair of these stamps — one with the 'G' and next to it the stamp without the letter — then the value is £50 used or unused. But they must be joined together.

When reading about stamps you may come across the term 'Tête Bêche'. This

is a French term and means that there are two stamps one upside down in relation to the other. The illustration which should make this clear, is of the 1921–1930 issue from Switzerland. Quite obviously if these two stamps were separated there would not be anything unusual between them, but joined together they are far from usual.

Sometimes some of the British stamps that have been prepared for booklets get sold to the public in this way. This is by no means frequent, but should you be the lucky buyer then you have a pair of stamps which would fetch a very nice figure if you put them on the market — something like £750.

Presumably all readers of Hobbies kept a block of four from the British Holiday 2s. booklet — the one prepared with nine 2½d. stamps and three ½d. stamps. There were two panels of four 2½d. stamps and one panel with three halfpenny stamps and one attached 2½d.

This was the last page of the booklet and is well worth keeping. When you have stamps of a different value attached to one another then you say they are 'se-tenant'.

An interesting item of a rather different nature is the illustration of the block of eight triangular stamps from New Zealand. It shows how the stamps appear in the sheet for the clerk to separate and naturally it would be very foolish to separate these.

Lastly we have the unusual case of two stamps from different countries appearing side by side to defray the cost of the postage on a letter. Obviously if they are removed from the envelope there would be nothing unusual. This is called a 'Combination Cover'.

These examples should be sufficient to indicate to readers the importance of stamps which are joined together being left so — in any case until further advice is obtained.



FRANKIE DAVIDSON

Frankie — he has been described as Australia's 'most talented all-rounder', — made his British stage debut at an Acker Bilk concert in Bournemouth. He has since worked in clubs and at American Forces' bases.

Born on 12th January 1935 in Melbourne, Frankie became interested in singing through listening to records. 'I found I could do impersonations and I particularly liked the Danny Kaye tongue-twisters. I started singing them in a hotel lounge.' His gift for mimicry became very popular at the hotel and when he eventually made his debut in a stage show, it was as an impressionist.

In Australia he worked as a freelance disc-jockey and became the king of rock 'n' roll singers in Melbourne.

He is 5 ft. 9 in. tall, has auburn hair and blue eyes and has only one ambition — 'To succeed in Britain, of course.'

When Frankie arrived in London he took a major step in living up to predictions when he signed a recording contract with HMV. His first release was *Broken Wings* and *Have You Ever Been To See London Town* (an Anglicized version of his Australian hit) on POP-1224.

Apart from his friendship with Cliff Richard, Helen Shapiro and Frank Ifield — he had worked with them back home — and an introduction to agent Ian Bevan, Frankie didn't know many people when he reached London.

'Frank was very helpful,' he says. 'We had a long chat and he put me right about the English scene. It was he who suggested that I should let EMI hear my Australian records.'

IN Australia, Frankie Davidson won a competition run by a Melbourne radio station to find 'The Entertainer Most Likely To Succeed In Britain.' It was a win which pleased this versatile singer-comedian-compere very well, for Frankie, who hit the top spot in the Australian Hit Parade with his own composition, *Have You Ever Been To See King's Cross* (Sydney's Soho area) had a feeling that he would like to see King's Cross (London).

'I won that competition at the right time in my life,' says Frankie. 'Every Australian performer wants to come to England and since I'd toured the country three times and played all the best shows, I thought it was about time that I faced up to a new challenge.'

BLACKBOARD DESK FOR A YOUNGSTER

THIS novel piece of nursery furniture is both useful and adaptable. It consists of three separate pieces which are slotted together and can be instantly dismantled for easy storage.

The lid of the desk is hinged, with a hinged strut at the back, and is tilted for use as a blackboard. With the lid lowered it is used as a desk, the interior being used for books, pencils etc.

The dimensions are given in Fig. 1 with all parts lettered to clarify the instructions. Note that the height of the desk and seat should be adapted to suit the age of child for which the desk is intended. It will be a simple matter to increase the height of the appropriate pieces.

Wood used is mainly $\frac{1}{2}$ in. thick, with the blackboard of $\frac{1}{2}$ in. plywood, framed by 1 in. by $1\frac{1}{2}$ in. stripwood. Pieces H, K, L and M should be plywood and the rest planed deal.

The sketch in Fig. 2 shows the construction of the desk, lid and hinged

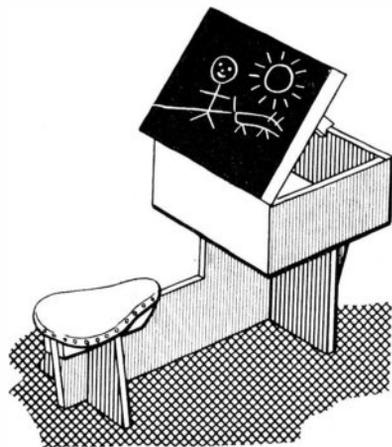
strut G. The hinged strut H is also shown in this diagram. Note that H fits into the forward slot in M.

The make-up of the seat is shown in Fig. 3. The seat is screwed and glued to piece L. Strengthening pieces I and J,

Diagrams on facing page

about 2 in. deep are then screwed and glued underneath, driving the screws through the seat. The pieces I and J should fit flush on either side of piece M when the desk is assembled. The piece M is marked out and sawn to the shape shown in Fig. 4, taking the measurements from Fig. 1.

The seat may be padded with foam rubber, cotton wool or kapok, covering with a suitable piece of hardwearing



material which is pinned round the edges as seen in Fig. 5. The pins could be covered with a length of decorative gimp glued in place. Finish off by cleaning up all parts preparatory to staining and varnishing.

The blackboard is covered with black-board black, which is a specially prepared jet black paint free from 'shine'. It can be obtained from Hobbies Ltd., Dereham, Norfolk, price 1s. 3d. per bottle (packing and carriage 9d. extra).

(M.h.)

Gadgets to find Centres

MANY ingenious devices have been invented to help a craftsman or home handyman to discover the geometrical centre of a disc or cylinder top.

We show a centre-finding aid made out of a 6 in. square wooden block, from which a deep 'V' cut, with equal

well beyond the slot, in such a manner that one of its edges bisects the right angle.

To determine the centre of a cylinder's end, begin by inserting the object into the slot, and keep its circumference pressed against the wood in two places while you rule a pencil line, level with the metal edge, across the surface of the cylinder.

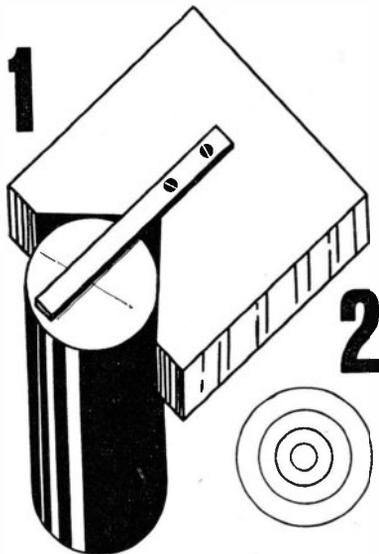
Rotate the cylinder through a quarter turn and rule a second line to intersect the first pencil mark, and thereby plot the centre point upon the surface.

The second contrivance illustrated is merely a series of concentric circles scratched with dividers upon a piece of transparent plastic or celluloid. The markings will enable you to judge the approximate location of the centre when you hold the device flat against a round surface. A pin pushed through the hole in the middle of the engraved circles will actually plot the point you wish to find.

By A. E. Ward

edges forming a right angle, has been sawn out.

Afterwards a straight-edged metal strip has been secured with screws to the top face of the block. The strip projects



Diagrams to help you to make the Desk with Blackboard

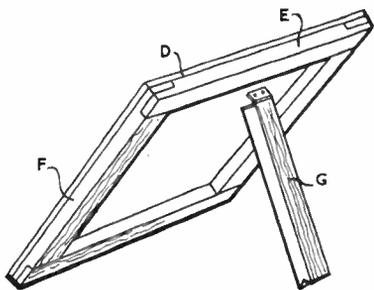


Fig. 2

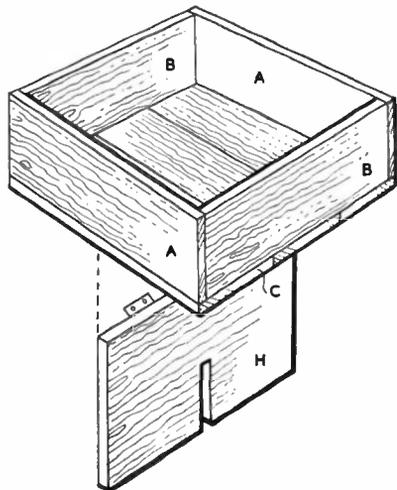


Fig. 3

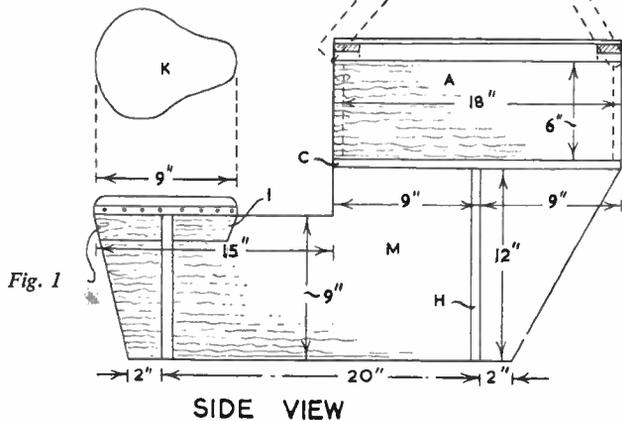
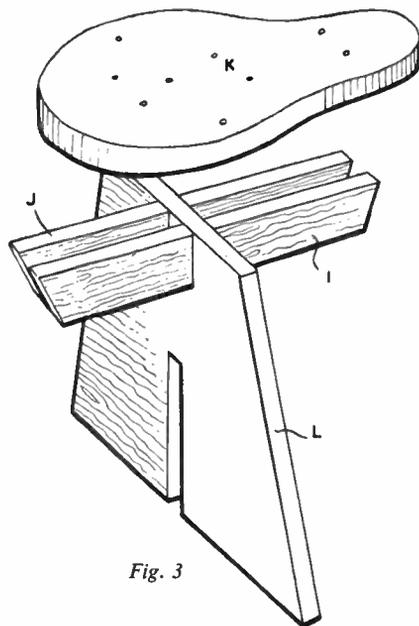


Fig. 4

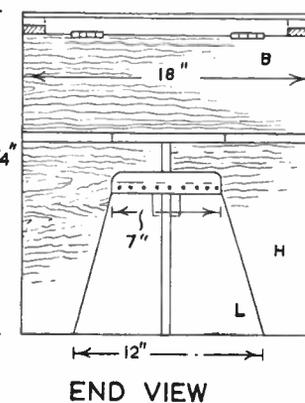
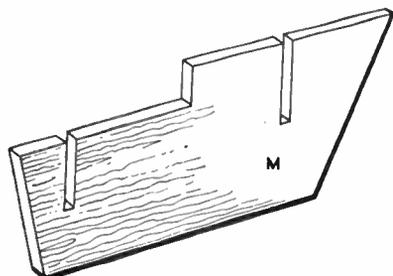
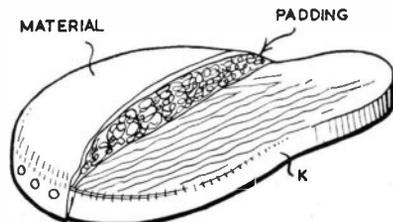


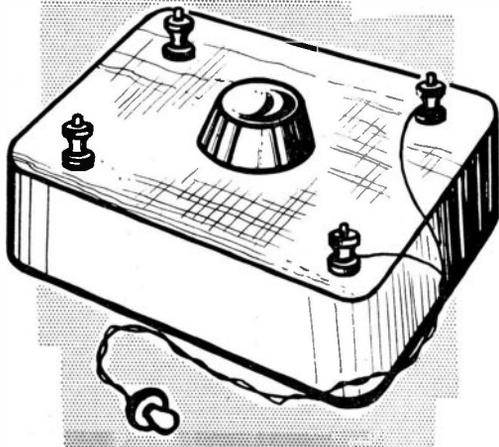
Fig. 5



Simple even for beginners

CRYSTAL RADIO AND TUNER

By
*'Radio
Mech'*



THIS radio needs no batteries or mains supplies, and will normally give good headphone reception in most localities. It may also be used as a tuner, so that local station programmes can be reproduced through an amplifier and loudspeaker.

The circuit is very simple indeed, and is shown in Fig. 1. Details are given for winding the coil, but there is no reason why a ready-made tuning coil should not be fitted instead, if preferred. The coil can have a ferrite core, and this helps increase efficiency, and is recommended.

The tuning capacitor is 500pF, but if a capacitor of about 300pF to 500pF is to hand, this can be used. A crystal diode acts as detector, and this item is readily obtained. An extremely cheap surplus diode is not recommended, as it may not give very good volume. A new crystal diode, of proper efficiency, is quite inexpensive, and worth using.

Case

This is a plastic box, and can be obtained easily from many large stores. Its size is not important, provided the parts used can be accommodated. Popular boxes of this kind are about 4 in. by 6 in., and about 1½ in. deep.

If the box is transparent plastic, it can be given a good finish by painting it on the *inside*. Any ordinary oil paint is suitable, or enamel may be used.

A case could also be made from thin wood, pinned and glued. This should be well glasspapered, when the glue is hard, and it is then varnished.

A satisfactory box or case may already be to hand, and it can be of any insulated material. It must not be metal.

Four 6BA or 4BA ½ in. or ⅝ in. bolts are used for aerial, earth, and phone connections. Holes for the bolts are drilled as in Fig. 2. A ⅜ in. dia. hole is also drilled for the tuning capacitor, which is secured with a nut. The con-

trol knob is fixed with a grub screw. Some plastic boxes are rather brittle, and should be drilled carefully.

Wiring

Fig. 2 is the underside of the box lid, and shows all connections inside the radio. Pieces of thin flex, or bell wire, may be used for leads. Insulation is removed from all wires, where connections are to be made, and good joints will be more easily provided if washers are placed under the terminal bolt heads.

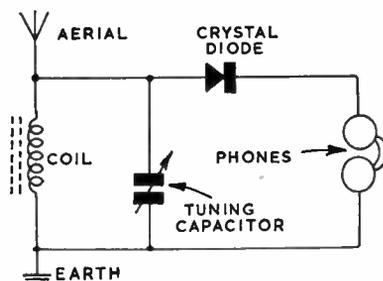


Fig. 1—Receiver circuit

Aerial, earth, and phone connections will be on top of the radio, and the four bolts thus need extra nuts, or terminal heads.

Tuning coil

If this is ready made, connect it as shown by the manufacturer's circuit leaflet. A ready made coil may be for medium waves only, or for both medium and long waves.

A coil can be easily wound on a piece of ferrite slab about ½ in. by ½ in., or ⅝ in. by ⅝ in., and about 2½ in. to 3 in. long. Or a piece of ferrite rod about ⅜ in. or ½ in. in diameter, and 2½ in. to 3 in. long, may be used instead. There is no need for the ferrite to be of any particular size, but if the rod or slab is much smaller or larger than mentioned, the number of turns on the coil may need changing.

The coil winding is 50 turns of 26 SWG enamelled wire. A strip of paper is wound on the rod, and the turns are placed side by side on the paper. The ends are secured with sealing-wax, adhesive, or thread, so that the coil does not come unwound.

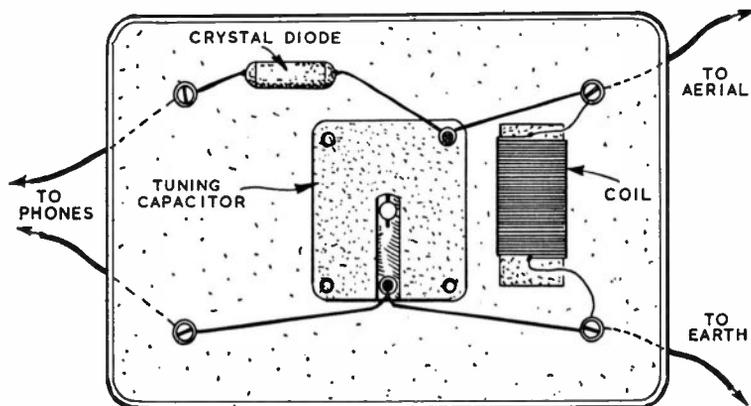


Fig. 2—Wiring, etc., under the box lid

The ends of the coil are bared, and connected as in Fig. 2. A little adhesive holds the coil to the box lid.

If no ferrite is available, a coil can be wound on a cardboard or Paxolin tube 1 in. in diameter. This coil will need 75 turns of 32 swg enamelled wire, turns being side by side. Such a coil will work satisfactorily, but is a little less efficient than the ferrite cored coil.

As radio

The receiver can be used with a small personal earphone, or with a single ordinary earphone attached to a length of thin twin flex. Twin headphones, with headband, may also be used, and are better for long periods of listening. Any phones to be used should be of medium or high impedance. Phones intended for crystal sets will be satisfactory. But some cheap surplus phones are low impedance, and would only give weak reception.

If possible, the earth lead is taken to a metal object which is in contact with the ground. A cold water pipe is satisfactory. A separate earth can be provided, if necessary, by taking the earth

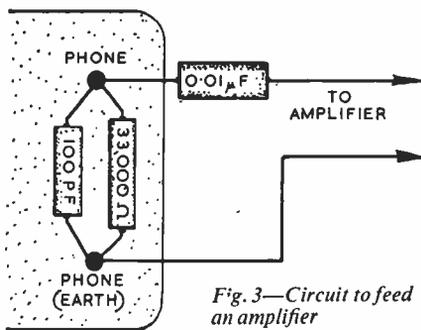


Fig. 3—Circuit to feed an amplifier

lead to a metal earthing spike, driven in the ground.

In most localities, the aerial need not be particularly long. Outdoor aerials give best results, but an indoor aerial may give enough signal strength. An outdoor aerial is suspended as far from walls and other earthed objects as possible, and will be very good if it is high and reasonably long. One or two small egg insulators can be used at each suspension point.

An indoor aerial can be made from any thin, insulated wire. It is fixed along two walls of the room, near the ceiling. Such an aerial often works quite well in a bedroom, but may also be satisfactory in a ground-floor room.

As tuner

If an amplifier is available, programmes may be reproduced through this. A coupling circuit, to use between the crystal radio and amplifier, is shown in Fig. 3. The component values are not in any way critical. The resistor may be anything from about 20,000 ohms to 50,000 ohms. The small capacitor in parallel with the resistor can be omitted without much influencing results, or may be 200pF or 300pF instead of 100pF. The coupling capacitor may be anything from about 0.01μF to 0.1μF.

If the leads from the radio to the amplifier are long, a screened cable is necessary, exactly as when connecting a microphone or record player pick-up. The outer braiding of this cable forms the 'earth' conductor, and the inner lead provides the connection from 0.01μF capacitor to the amplifier.

Educational Productions have produced a new filmstrip in colour entitled 'Book Craft' in which emphasis is placed on the arts of illustration and calligraphy as well as the less imaginative craft of binding.

NEW FILMSTRIP ON BOOKCRAFT

This filmstrip is intended to help boys and girls so to co-ordinate their interests that the artistic activities, explorations, collections and experiments which satisfy their natural cravings may enrich their academic work, and vice versa.

The frames fall naturally into two sets. Nos. 1 to 22 deal with enterprises which might appeal to beginners. Nos. 23 to 40 suggest fields for research which could lead to the making of books. A course of this kind could be introduced at any stage in a Secondary School or offered in a Training College.

The author of the filmstrip which costs 30s. Od. and has 40 frames was Hilary Davidson, B. A., lecturer in the University of London Institute of Education.

Solution to the Pyramid Puzzle

START

A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
2	1	3	2	1	3	2	1	3	2	1	3	2	1	3	2	1	3
3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2
4	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2
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21	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2
22	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2

Repeat the moves to F to finish.

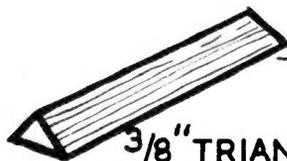
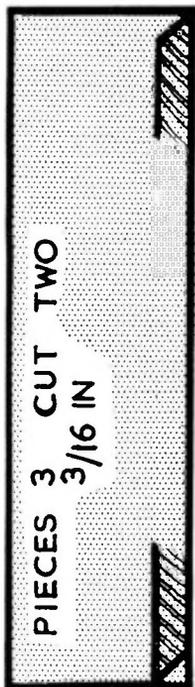
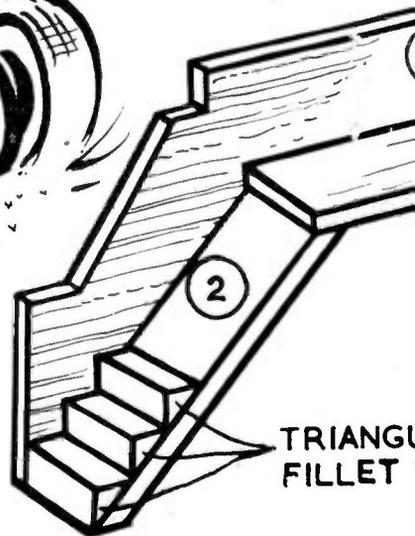
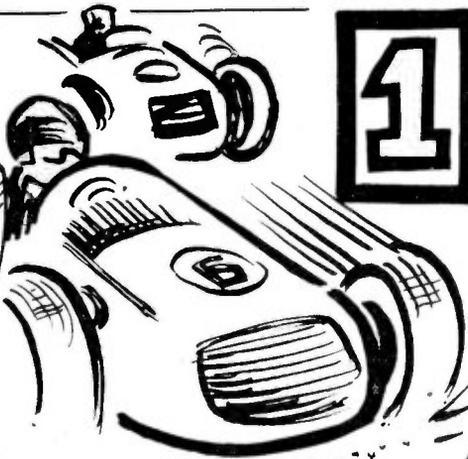
Last week we published details for making a Pyramid Puzzle in which the object was to transfer a set of discs from peg A to peg C. Here is how the discs are switched from peg to peg in order to complete the puzzle. (T.S.R.)

Electric RACE TRACK

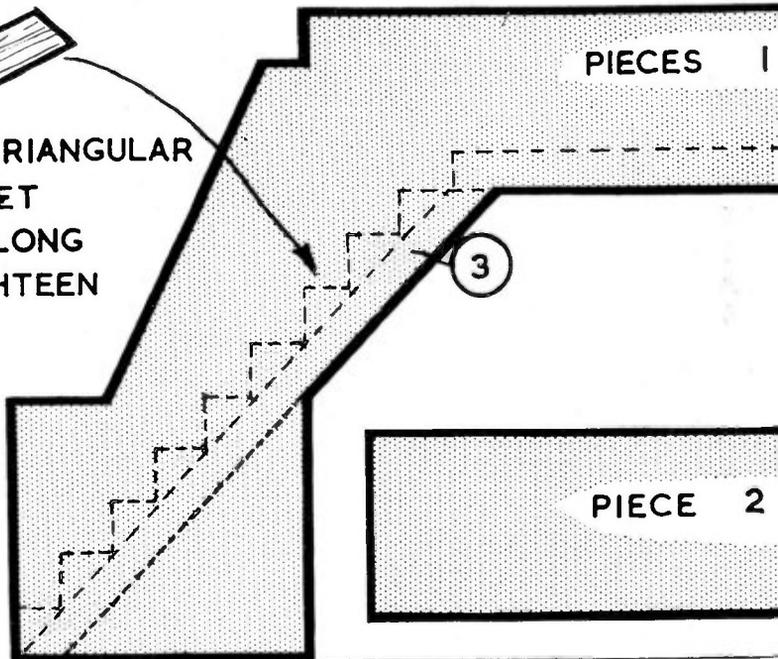
ACCESSORIES

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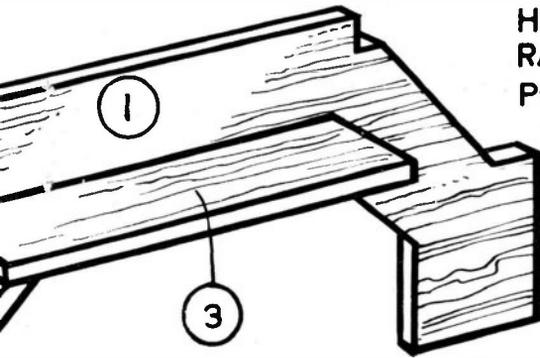
BRIDGE



$\frac{3}{8}$ " TRIANGULAR
FILLET
1 IN. LONG
CUT EIGHTEEN



EDGE TO SPAN RACETRACK



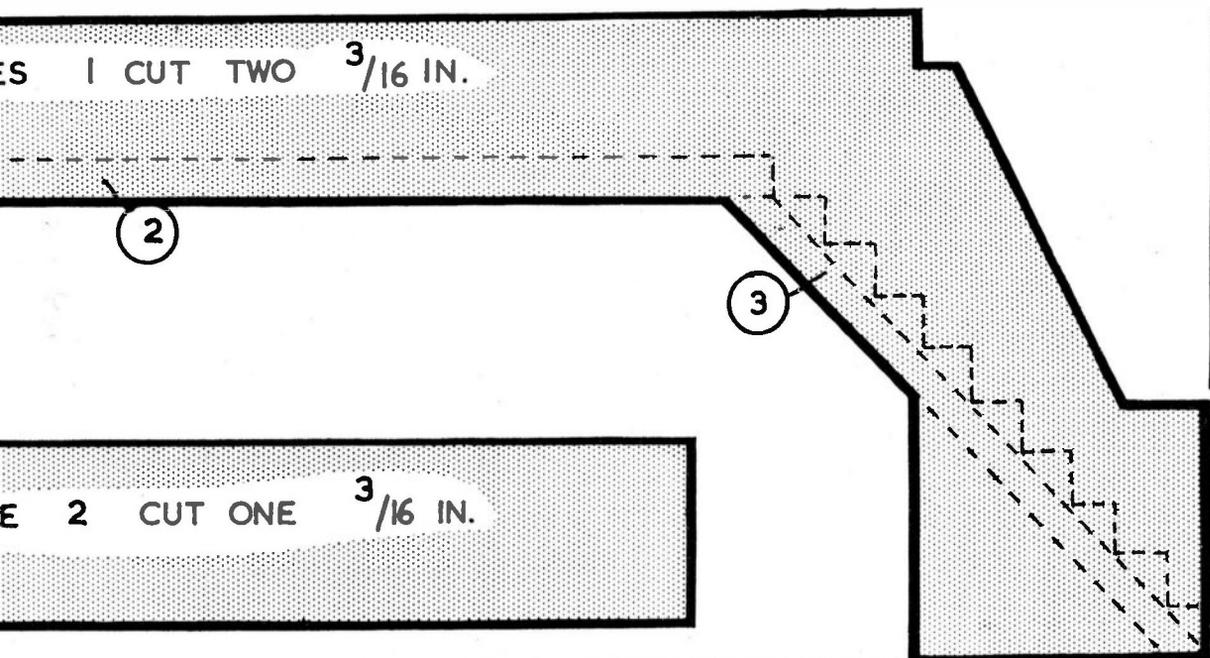
HOBBIES
RACE TRACK
POSTERS

PRICE 1/2
PER SHEET
POSTAGE

3c.



TRIANGULAR
BULLET



A new Hobby for the Summer

HONEY bees are unique. Of more than 700,000 species of insects, they are the only ones which, in the adult stage, are domesticated by man.

It is truly fascinating to manage such a centre of activity as a hive of bees, where, during the summer months, 60,000 or more work ceaselessly to ensure the survival and well-being of the colony.

Indeed, bees are worth keeping for their interest alone. But most beekeepers are concerned primarily with managing their bees for profit, obtaining an income from honey production, pollination, and, to a lesser degree, from beeswax and its products. Also, it is possible to make increase from the colonies themselves, either by natural swarms or planned division. These, whether sold as nuclei or retained for honey production, ultimately provide additional income.

To the hobbyist, bees have an attractive advantage over other livestock — they do not require daily attention. However, beekeeping does not consist merely of taking honey once a year. To manage bees efficiently, certain operations must be carried out regularly. It is only by evolving a system of management based upon the bees' natural activities that success is assured.

Beekeeping is indeed a craft. No intending beekeeper should acquire bees before he has had some practical experience in handling them and can satisfy himself that he is competent and temperamentally suited.

So, firstly, join the local Beekeepers' Association. The General Secretary of the British Beekeepers' Association, Cmdr. G. Dixon, Rides, Eastchurch, Sheerness, Kent, will gladly put you in touch with the secretary. By joining such a body, you will be sure of expert guidance and will have opportunities to manipulate bees belonging to other members.

Another source of help is the County Beekeeping Instructor who may be contacted through your Local Education Authority. He is able to provide practical advice and facilities for handling bees under supervision. Often short courses are arranged, usually at Evening Institutes.

Making a start

At an early stage, decide which type of hive is most suitable. Whichever make is chosen, it should be standard, with hive parts inter-changeable throughout the apiary.

If new equipment is bought, the initial costs of beekeeping are high, but usually good second-hand equipment is avail-

able at more reasonable prices. But, a word of caution! Have both the bees and equipment examined by a competent person, ideally the County Beekeeping Instructor or a Bee Disease Officer of the Ministry of Agriculture.

By B. R. Bleazard

Start in a small way. A good idea is to obtain a swarm or a nucleus, as these are small units which will gather strength as their owner gains experience. But, if buying established colonies, restrict the number to two or three, and learn to manage these efficiently before expanding. Then, it will not be difficult to make increase from the existing colonies.

Harvesting the yield

Although beekeeping is essentially a rural craft, high crops of honey are often obtained from urban areas. In fact, apiaries in some of the larger towns sometimes produce a good honey crop when there is a dearth of honey elsewhere.

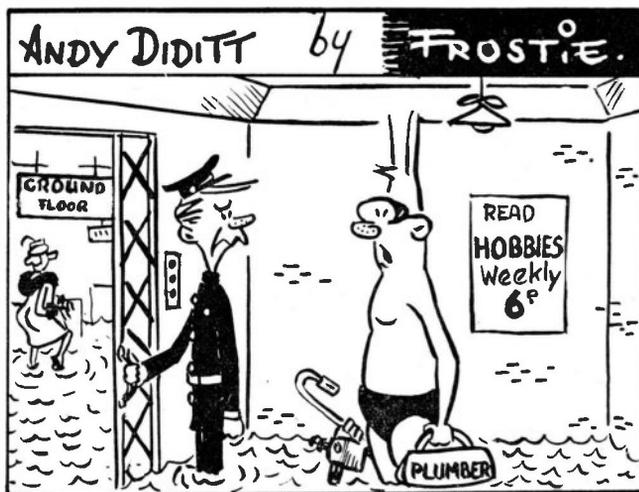
Honey yield is affected by many fac-

tors. One of the main liabilities is our climate. Many nectar-producing plants, especially white clover, require long warm spells before they yield, and it does not follow that where there are large areas of honey plants there will necessarily be a heavy secretion of nectar. The nature of the soil (and subsoil) influences nectar secretion to a greater extent than is generally realized. In most areas, however, beekeepers can expect an average crop of 30-35 lb. per colony.

At the end of the active season, usually in August, surplus honey has to be taken and extracted from the combs. Thorough cleanliness is essential and the honey must be carefully strained to remove all wax and other extraneous matter.

After preparing colonies for the winter, there is little work to do on the bees themselves. But, even in winter, there is plenty to occupy the beekeeper. Equipment must be overhauled, new appliances assembled, and everything prepared in readiness for the following season. Demand for honey increases during the winter and there should be little difficulty in selling your product. Try to build up a regular market, where your honey can be disposed of throughout the year.

Success in beekeeping cannot be gained overnight, but from small sound beginnings a profitable hobby can be developed which, to a person with intelligent curiosity, will be full of interest.



"BASEMENT PLEASE!"

Make this Useful Spotlight

A SPOTLIGHT is extremely useful for indoor photography, enabling one to illuminate a background, a dark corner or to emphasize the highlights in the hair when taking a portrait.

In the following description of how to make a simple spotlight, it should be noted that the size can be modified as you wish. By using small tin containers, like cocoa tins, we make a convenient, portable spotlight or you may use larger tins if preferred.

the condenser. The latter is the lens and need only be a cheap, moulded condenser of 2 in. or 2½ in. diameter to fit to our spotlight, but larger tins will accept a larger size.

This aperture is cut out from the fixed end of the tin and you will find a tension file suitable for this purpose. The lens can be held in position on the outside of the container by means of four lugs made from a ¼ in. strip of tin. Cut off short pieces from this strip, solder to the outside of the tin and turn over when the condenser has been placed in position.

You will also need some method of supporting the spotlight on a stand and at this stage we should mention the necessity for two holes drilled centrally down the side of the container. These holes should be prepared to fit those of a 2 in. angle bracket which is fastened in this position by nuts and bolts.

We now turn our attention to the other tin in which a hole 1 in. in diameter is cut in the centre of the bottom to accept a standard electric lampholder. It is also advisable to surround this aperture with a series of ⅜ in. holes about ½ in. apart for ventilation purposes.

It will be remembered that the other half of the spotlight will have two bolts protruding on the inside and that both tins are of the same dimensions. To overcome this difficulty we now cut out a wedge-shaped portion starting 1 in. wide and diminishing to ½ in. but stopping approximately 1½ in. from the end. If this portion is removed the tin will spring inside the other, sliding backwards and forwards sufficiently for focusing the beam but without fouling the bolts. (Fig. 2.)

After this preparation you may now attach the 2 in. angle bracket with small nuts and bolts. A piece of 1 in. square section 3 in. long is now screwed to the angle bracket as shown in Fig. 1 but this should be first prepared with a half-joint rounded at the end to make a free knuckle joint. This is shown quite clearly in Fig. 3. Drill a ¼ in. hole as shown for a wing nut and bolt.

A similar piece of square section is prepared, i.e. half-jointed and rounded, but at the other end it is advisable to drill a hole so that this holder will then fit on the end of the tube, or rod, of your lighting stand. This hole must be drilled to fit the rod.

If the two pieces of woodwork are fastened with a wing nut and bolt the light can be directed at any angle. Focusing of the beam, which will make a

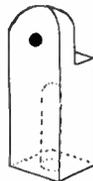
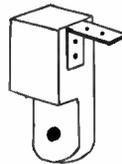


FIG 3

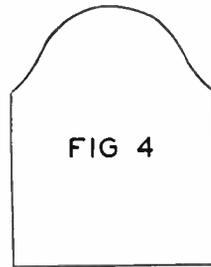


FIG 4

By S. H. Longbottom

Two empty tins of equal size are required so that one will push inside the other for focusing the beam of light. The smallest size of tin we can employ must be large enough to accommodate a photoflood lamp, that is a lamp about the size of, say, a normal 60 watt electric lamp.

Discard the lids and prepare one of the containers by cutting out a circular aperture from the fixed bottom for

large or small circle of light, is done by sliding the inner container forwards or backwards.

It is sometimes a decided advantage to fit a guard on the spotlight to prevent stray light reaching the camera lens. This can be shaped from tin as shown in Fig. 4, curved to shape and fitted over the outer container. It is suggested that you prepare a paper template to the correct size before cutting out. Note that this guard should not be soldered or fixed since it is better that it should be free to turn or be removed if desired.

Finally, you will require a length of flex from the lampholder to your normal lighting socket.

A 2½ in. moulded condenser will cost about 2s. 6d. and be quite suitable for this purpose since extreme accuracy is not important. Larger ones cost a little bit more. You will realise that the smaller variety is light in weight, is easily carried about yet extremely useful for portrait work when the beam may be directed on the hair or the background to give a much better result.

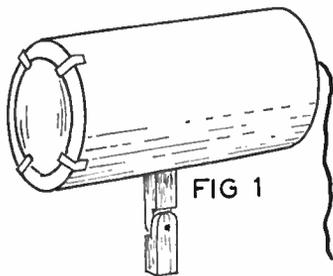


FIG 1

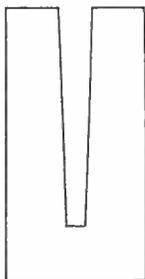


FIG 2

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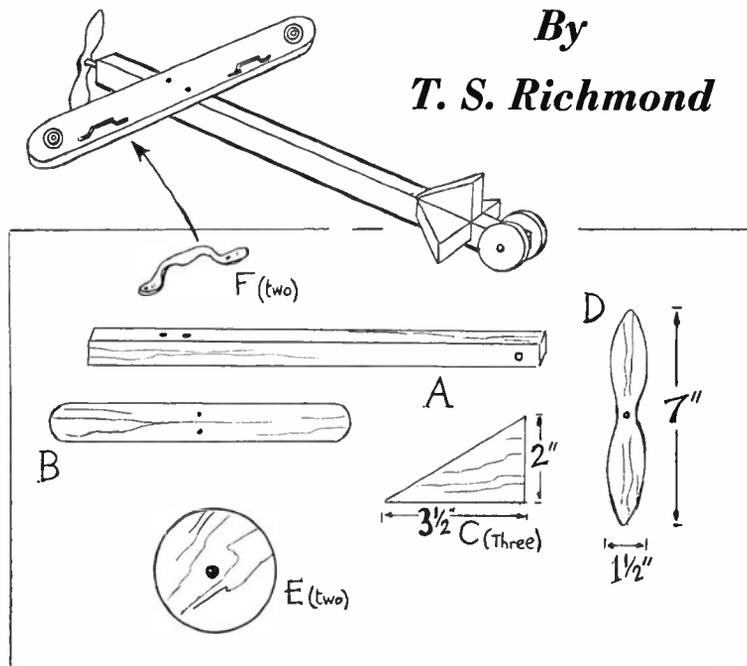
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For an active youngster

Make a Hobby 'Plane'

By

T. S. Richmond



THIS toy is intended to be used like a hobby horse and the aeroplane theme will make it attractive to modern youngsters.

Use 2 in. by 1 in. timber for the straddle-bar A. The length will be about 30 in. bearing in mind the height of the child who will 'ride' the finished 'plane.'

Cut the wing piece B 20 in. by 4 in., with rounded ends. Screw it firmly across the bar A, about 4 in. from the end. Screw on two metal draw-pulls for hand-grips F.

Cut three pieces C from 1/4 in. wood. Glue them in position 3 in. from the end of the bar, as illustrated, for the tail.

Cut two 3 in. diameter wheels from 1/2 in. thick wood, E or use a pair of turned-wood wheels. Fix the wheels by placing one on each side of the straddle-bar and pushing a metal bolt through the pivot holes in the wheels and bar. Add metal washers, and see that the wheels turn freely before screwing up the nut.

Use your fretsaw to cut out a plywood propeller D. Bore the centre hole and fix to a wood screw at the front of the 'plane' so that it can be turned by the child's hand.

Paint in bright colours. Silver or pale blue is suggested; with the propeller yellow, and wheels red. Paint on the roundels on the wings — red, white and blue.

The young 'pilot' straddles across the 'plane, and holds on to the handles while walking.

DUPLICATING

A NOSE

MAYBE Aristotle, the great Greek natural philosopher, amused his friends by suggesting they had two noses. And to prove his point he could have shown them how to feel this unnatural duplication for themselves.

Centuries before Christian times Aristotle wrote about a curious experiment with a ball wherein the human nervous system can be misled into sensing one solid object as two.

Copy this odd sensory trick by crossing your fingers and pressing the tips against a pingpong ball.

Close your eyes and rely entirely upon touch to investigate the ball. Curiously enough you will interpret your touch sensations as if your fingers rested upon two balls!

By means of the same trick you can feel two noses on yourself.

Sensory impulses travel to your brain along unaccustomed nerve paths to produce these illusory impressions in the mind. (A.E.W.)

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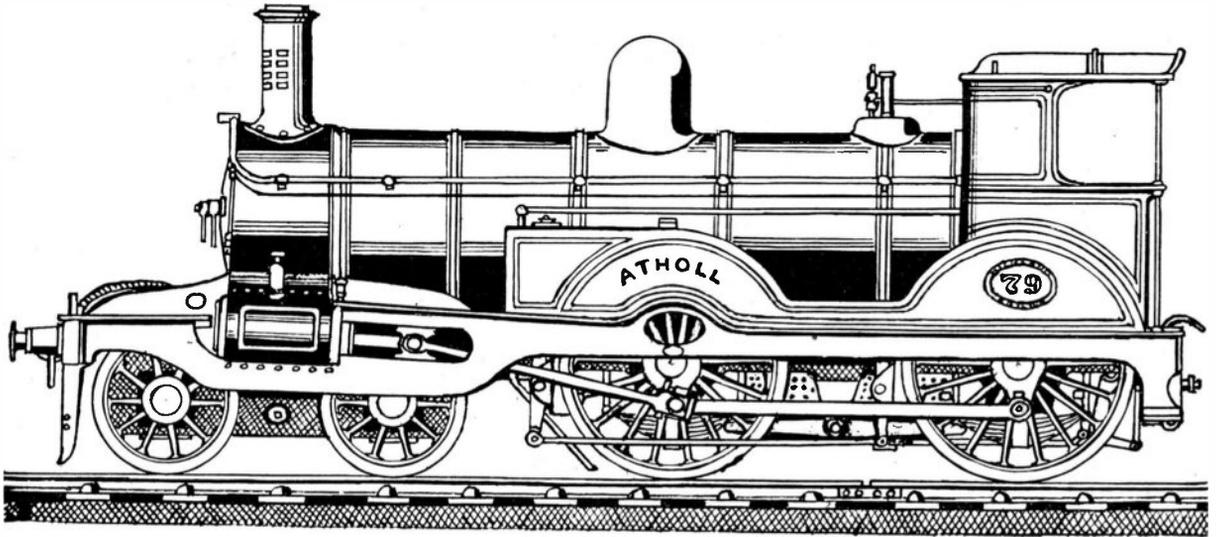
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The Highland Railway 'Duke' Class



Highland Railway 6 ft. 3 in. bogie passenger locomotive No. 79, 'Atholl' built by Clyde Locomotive Works, 1886. Maker's No. 4

THE Duke' class of bogie 4-4-0 passenger engines were designed by David Jones for the Highland Railway in 1874. Before finally deciding upon this bogie design, however, Mr Jones in 1873 converted one of the earlier H.R. 2-4-0 Crewe type engines by removing the leading axle with its outside bearings, and substituting an Adams bogie.

The purpose of this bogie design was primarily for working over the long branch from Dingwall to Strome Ferry, on which the curves were much too severe for the use of engines with rigid leading axles. The converted engine proving satisfactory, Mr Jones built 25 new ones of the larger ('Duke') design.

The first 10 H.R. Nos. (60-69) were built by Dübs & Co. in 1874, maker's Nos. 714-723. The next 7 at the H.R. Lochgorn Works in 1876 and 1883-8; and 8 (H.R. Nos. 76-83) at the Clyde Locomotive Company's Works, maker's Nos. 1 to 8, in 1886. These being the first engines manufactured by this firm, the first one, H.R. No. 76, 'Bruce' was shown at the Edinburgh Exhibition of 1886 before being put into service.

These three series differed somewhat in minor details. The Dübs and Lochgorn engines had 140 lb. per sq. in. working pressure, later raised to 150 lb., but the Clyde series were built at 160 lb. pressure. The Allan outside Crewe-type framing was retained for the purpose of securing

the cylinders between it and the inside frame. The cylinders were 18 in. diameter and 24 in. stroke, inclined at 1 in 12, diameter of coupled wheels, 6 ft. 3 in. and bogie 3 ft. 9½ in. The wheelbase was 6 ft. 0 in. + 6 ft. 9 in. + 8 ft. 9 in., total 21 ft. 6 in. Heating surface, tubes 1,132 sq. ft., firebox, 96 sq. ft., total 1,228 sq. ft. Grate area 16½ sq. ft. Weight in working order, on bogie 14½ tons, and on coupled wheels 26½ tons, total 41 tons. The frames were of wrought iron having horn blocks of cast steel. The firebox was stayed by three girders on each side and two rows of direct roof stays in the middle. The valve gear was Allan's straight link and the connecting and coupling rods were of best Yorkshire iron, the ends being

case-hardened, no bushes being used for the coupling rods.

The chimney which Mr Jones used on all his designs was double, the outer casing being provided with louvres in front in order to increase the draught when running fast with an early cut-off. The neat and roomy cab was fairly large for these engines, and was the same as provided for his big 4-6-0 Goods engines of 1894, (The first British 4-6-0 type) as described in an earlier article in our series.

Withdrawal of the 'Duke' class began in 1907, the last one to remain in service being No. 82A, 'Fife'. She was broken up in 1930 as L.M.&S.R. No. 14278, and was the seventh engine of the Clyde Loco series. (A.J.R.)

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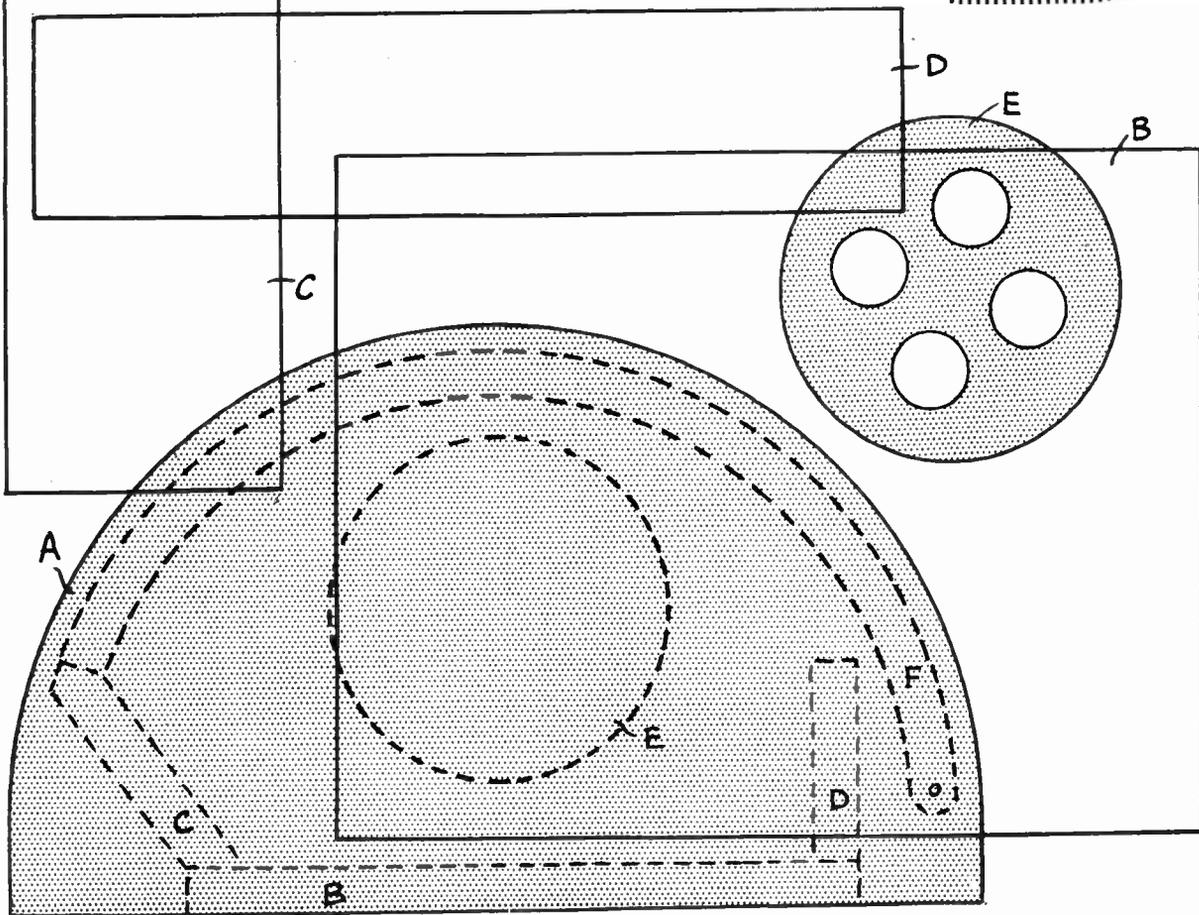
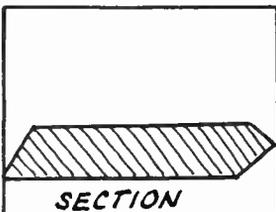
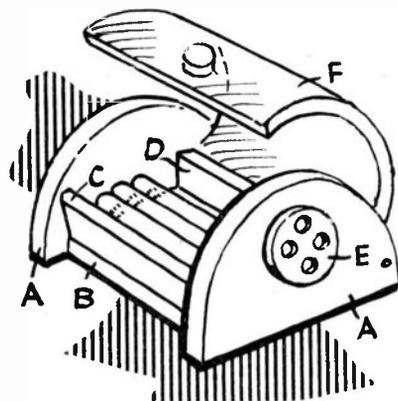
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Cigarette Box with Perspex Lid

CUT two of A, one of B, C and D from $\frac{1}{4}$ in. wood, using a fretsaw. The two pieces E are cut from $\frac{1}{4}$ in. wood and the lid F from $\frac{1}{4}$ in. clear perspex.

Glue the pieces A, B, C and D together, shaping the edges of C to the section. The lid is drilled and pivoted in place by means of two small round head brass screws. It can be bent to shape in hot water. The overlays E are glued to the ends. Finish off by painting the wooden parts. Add a small button of perspex glued in place to form a knob. (M.p.)





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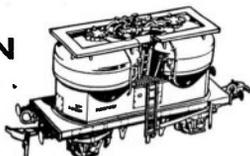
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