

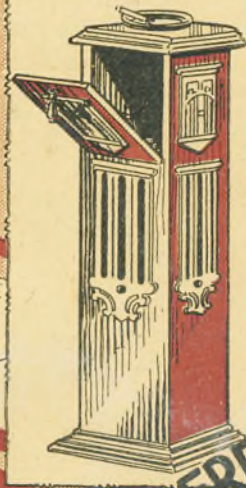
Hobbies

WEEKLY

How to make
an **ELECTRIC
BAGATELLE
BOARD!**



*Smoker's
Pedestal
Design*



FREE

January 12th. 1935

2^D

Vol. 79 No. 2047

**THE FRETWORKER'S AND
HOME CRAFTSMAN'S JOURNAL**

Full Size Designs for these Models

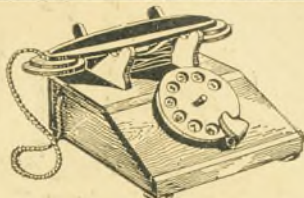
FREE

The best book for the home craftsman ever published, Hobbies 1935 Handbook has a large design chart (20ins. by 30ins.) for a real Model Fort, another set of designs for a Desk Telephone two colour calendar pictures and patterns for making a model flying boat. There are 268 pages with editorial articles on things to make and do. Amazing value and interest. The only book with designs worth 2/- presented free. Now on sale, price 6d. everywhere. Every keen reader needs a copy.

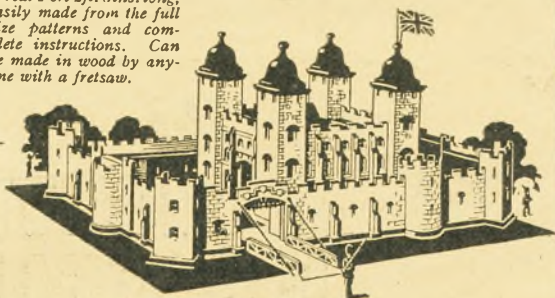
AND TWO COLOURED CALENDARS

With every copy are two special pictures prepared for Hobbies Handbook, printed in colours on strong paper. Quaint and original to make 1935 Calendar stands suitable for Xmas gifts.

A real Fort 2ft. 3ins. long, easily made from the full size patterns and complete instructions. Can be made in wood by anyone with a fretsaw.

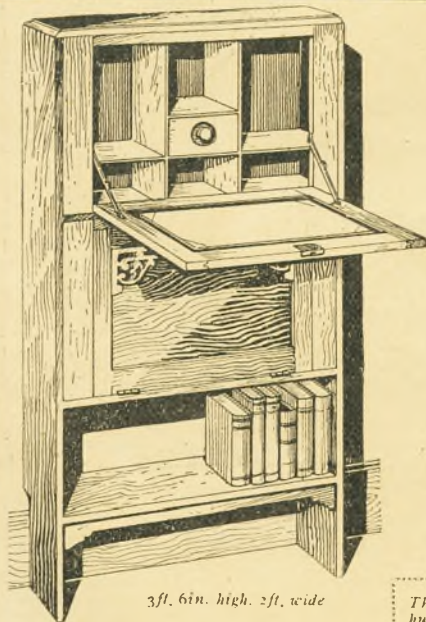


A working model of the model Desk Instruments. An excellent toy to make. Complete full size patterns are supplied.



HOBBIES 1935 HANDBOOK

From any newsagent, bookseller, ironmonger or Hobbies Branch. Or sent by post for 9d. from Hobbies Ltd. Dereham, Norfolk.



3ft. 6in. high. 2ft. wide

Design 1967, price 4d. Spanish Chestnut, with two oak doors, beading, etc., 20/- carriage forward. Lock, Ball Catches, Drop Handle, Lid Stays, Hinges, etc. 4/3; postage 3d. A complete parcel 24/- carriage forward.

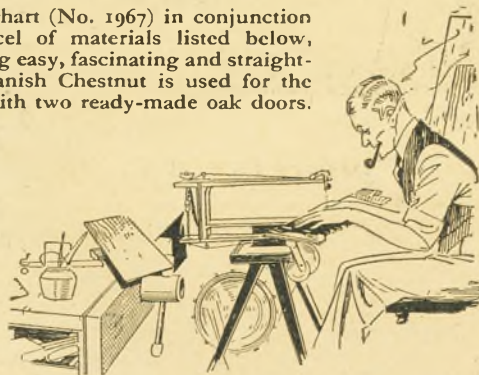
Make this Wall Cabinet for 24/-

Just the thing for the lounge! It does not project more than 5 inches from the wall, yet is a roomy, serviceable bureau, with a useful cabinet and shelf beneath.

Building Made Easy!

The design chart (No. 1967) in conjunction with the parcel of materials listed below, make building easy, fascinating and straightforward. Spanish Chestnut is used for the main parts with two ready-made oak doors.

This design and hundreds of others are shown in Hobbies 1935 Handbook, price 6d. post free 9d. from Hobbies Ltd. Dereham.





Hobbies

WEEKLY



January 12th. 1935

Letters should be addressed to
The Editor, Hobbies Weekly,
Dereham, Norfolk.

Vol. 79. No. 2047

ONE of my regular readers writes every year announcing his output in Toys and Calendars and he has just reported a gross total of £12 12s. 10d. This is £2 higher than his previous record. His spare time evidently, has been used very profitably since September, and details of his sales will no doubt interest others. The total mentioned is made up from 50 Calendars, 15 Games, 28 dozen Animals, 4 Farm Yard Sets, 5 Noah's Arks and 2 Ark Animal Sets, 7 Doll's Houses and 18 Suites of Furniture and 18 Match Holders. Just fancy, too, he has had an order already for a House for next Christmas. He also manages to make his own son's birthday and Christmas present!

NOTES of the WEEK

A Reader's Profit—Paid for Four Machines!—A Builder of the Fleet—A "Cock o' the North" Suggestion.

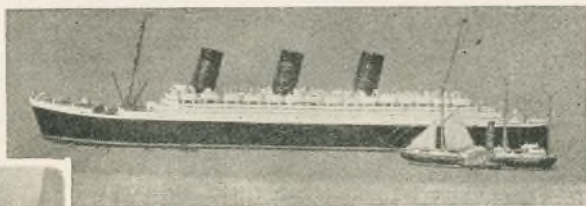
is "Queen Mary" compared with "Britannia" which was built on the Clyde in 1840. Some idea of the detail work can be obtained from the fact that there are 30 lifeboats on "Queen Mary" and each is only $\frac{3}{16}$ in. long!

HERE is a suggestion for those readers making the model "Cock o' the North" locomotive from the design given with the Christmas Number. It was submitted by F. Victor Wright, of Longsight, Manchester. The boiler, he says, could be coloured and lined before fixing, as a study of the Design Sheet and photos show that the boiler casing is practically the last item to be added. The boiler casing is

ANOTHER interesting point, showing how the keen worker can build up from his earnings is shown by the fact that this reader has had four machines since 1917—each purchased from his earnings. Now he has an Anchor, which he declares is the best of all. These hints will be worth bearing in mind by the enthusiastic user of the fretsaw. The reader concerned, by the way, is W. Allen of Trent Road, Luton.

thin enough to be pinned flat to a drawing board and the rings marked in their respective positions with a T square and hard pencil. After colouring the green portions, the white rings could be painted in and indian ink on a draughtsman's ruling pen, or a mapping pen, would be the best way of putting the necessary sharp thin black line inside the white ring. Painting the interior of the blinkers would also be easier at this stage. When dry a sheet of cellophane should be laid over the painted casing

THE picture is of the work of a ship-builder in Glasgow—not one on the waterfront, but in his workshop with fretsaw, wood and glasspaper. The water-line model steamers are all to a scale of 1in. to 120ft., the largest being $8\frac{1}{2}$ ins. long and the smallest $\frac{1}{4}$ in. ! The large steamer shown



and lapped right over the edge and gummed lightly to the inside of the casing. The casing is then fixed to the engines in the ordinary way, all finger marks caused by this operation being kept off the finished casing by the cellophane covering.

The Editor

For original Tips published the sender will receive one of Hobbies own Pocket Tape Measures. We cannot acknowledge or print all tips sent in.



Send your own simple tips to The Editor, Hobbies Weekly, Dereham, Norfolk. Keep them short and add rough pencil sketches if possible.

A Pen for Gothic Lettering

TAKE an old Box-wood Ruler or piece of similar wood and cut a piece off about 3ins. long and



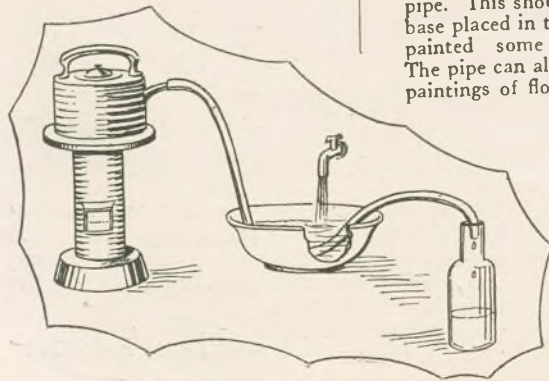
$\frac{1}{4}$ in. wide. Sharpen one end till it looks like a $\frac{1}{4}$ in. chisel. Then make a cut $\frac{1}{2}$ in. long down the middle. Now fit it into an ordinary penholder by cutting a slot 2ins. long in the holder and fixing with two fret pins. The pens can be made in several sizes.

Rust and Vinegar

IF you want to take off a rusty bolt apply a little vinegar to it, and leave overnight. Then it can easily be removed.

A Cheap Distilling Apparatus

THOSE interested in chemistry want distilled water, and for making it they require a household kettle, an oil stove or gas ring, about 4 feet of rubber tubing, a basin and a bottle. The method of making the distilled water is shown clearly in the picture and is quite simple.



Uses for Magnets

SOMETIMES the nails for fretworkers are so small that they cannot be held when hammering. Take a magnet and let it hold the nail. Again, when a needle falls and cannot be seen, the magnet will help to find it by attracting the needle to it. When repairing cycles, the ball-bearings are apt to roll about, and here again the magnet will help to retrieve them.

Cycling Safety Gloves

FIRST obtain a number of small red beads and sew them (with strong twine) to the backs of the gloves in the form of an arrow.



Thus when you put your hand out whilst cycling at night, the lights in the rear will reflect on the arrow and show which way you are turning.

An Umbrella Stand

A GOOD umbrella stand can be made from a large drain pipe. This should have a wooden base placed in the bottom, and be painted some suitable colour. The pipe can also be decorated by paintings of flowers or designs.

Soldering Zinc

ZINC may be soldered by using dilute hydrochloric acid ($\frac{1}{4}$ its bulk of rain water added) as flux instead of resin. Keep the soldering iron hot.

Making Goldfish Frisky

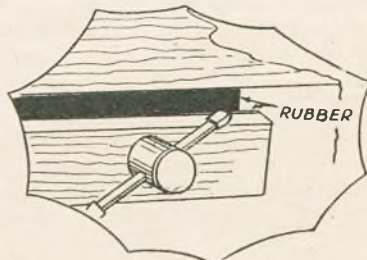
THOSE who have goldfish may have experienced the fact that the fish often lie lazily about. This is a good remedy. Into an



empty Fairy Dye Tube put some small brightly coloured beads so when the cork is replaced, the tube will float midway in the water in the bowl. The result is that the fish dart playfully about the tube, in this way cleaning their scales and the bowl also presenting a pretty appearance.

Prevents Marking

MOST bruises in wood are made when planing, with the wood in the vice. To prevent this obtain an old motor inner tube, clean it with petrol and cut a piece to the width of the vice.



Two of these pieces are needed, and if glued on the vice thus, it will save much disappointment as with an unsightly bruise.

A Cycling Clip Vice

WHEN a light cramp is needed to hold the work together temporarily, a spring open trouser cycling clip is just the thing. It is handy for gluing in fretwork or woodwork.

WOODCRAFT WITH A FRETSAW

THIS
WEEK'S
FREE
DESIGN
SHEET

FROM time to time we publish in these pages, articles which are specially designed for the home carpenter who is also a handyman with his fretsaw. Such work forms the ideal combination, for it involves the use of the ordinary carpentry tools, and then relieves the monotony of their use by bringing into play the fretsaw for decorative effect in overlay woods.

A Useful Job

An example of this is seen with the Smoker's Stand which forms the subject of the gift design No. 2047. The Stand is just the type of article which any smoker would appreciate, because it forms a movable companion no matter in which chair he is lounging, and provides him with a stand and cabinet in which all the necessary requisites are at hand.

The top carries the ashtray and the matchbox holder, whilst one side is provided with a drop door revealing a small interior cabinet in which pipe, supplies, and odds and ends can be kept at hand.

The completed Stand is just over 2ft. high, and occupies a floor space of 8½ ins. square. It is built, in the main, of a central column with an extended base, and a top forming a platform. The sides are provided with decorated pieces of work, but, of course, if preferred, colour transfers or even plain moulding and beading can be substituted.

The designs on the pattern sheet are principally concerned with the fretted overlays, because most of the other work is shown to scale and can be marked out direct on to the wood. By so doing it saves the trouble of glasspapering off the paper which would otherwise be pasted down.

Wood to Use

The Stand, of course, would look well in almost any wood, but we would recommend spanish chestnut for the main parts because this material

MATERIALS

For making this Stand, a parcel of Spanish Chestnut with Padouk for overlay is supplied (including sufficient No. 17 and 24 Moulding) for 9/6 or post free 10/6.

The fittings needed are a pair of lin. brass Hinges, Lid support (No. 5495) 4d., drop fancy Handle and Catch 10d. The set (post free) 1/5.

The whole lot are obtainable from Hobbies Ltd., and sent complete for 11/- post free.

A SMOKER'S COMPANION



has a grain which can quite easily be mistaken for oak, but which is easy to work, and quite light to handle. It is, moreover, cheaper than oak itself, so the whole Stand can therefore be

built up at quite a reasonable amount of cost.

In addition to the wood, certain lengths of fancy moulding are required to go round the base to form the top, and to decorate the fretted panels on the sides. The mouldings required are Nos. 17 and 24, the former being used both for the top and base. You may be able to get the boards from your local stores or Hobbies Branch, and in addition the moulding can also be obtained. It is, however, better to get the whole lot as a complete parcel, and for this Hobbies Ltd. put up all of it for 9/6, including special thin Padouk which is cut for the overlays on the sides, etc.

The Overlays

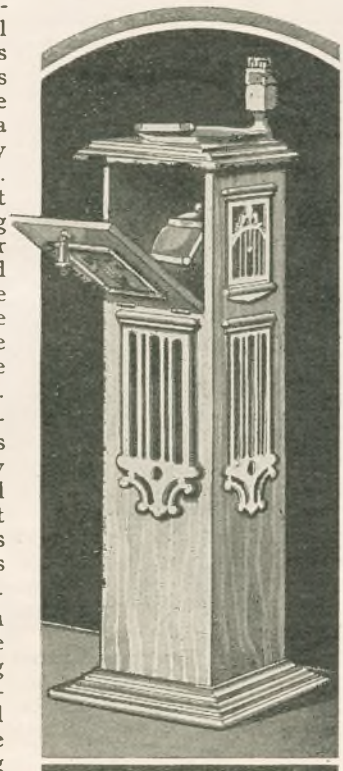
These overlays, in any case, should be of some wood which stands in contrast to the sides themselves, and as they are only in ¼ in. wood, the two can be cut

together—particularly if one has a machine.

In addition to the wood, one requires a few small fittings. There is a pair of lin. brass hinges for the drop door, with a suitable fancy handle and catch. Then, to prevent the door dropping too far, a proper gramophone lid hinge should be fixed, and the whole of these accessories are obtainable for 1/3.

The boards supplied by Hobbies are planed ready for use, and need only cutting out to the dimensions required. This saves a lot of time.

The main column is made up of four long sides fitted between a base and top. The sides are each 23½ ins. long



Smoker's Companion—(continued)

and two are $5\frac{1}{2}$ ins. wide, and the other two 6 ins. All are cut from $\frac{3}{4}$ in. material. On one of the narrow sides a piece is cut off $7\frac{1}{2}$ ins. from the top. This is the part which forms the drop door later.

The four pieces should be trued up and glued strongly together with blocking pieces fitted inside to make a good joint. The base is built up of a hollow frame of four pieces of $\frac{3}{4}$ in. wood mitred together at the corners. The pieces which are cut

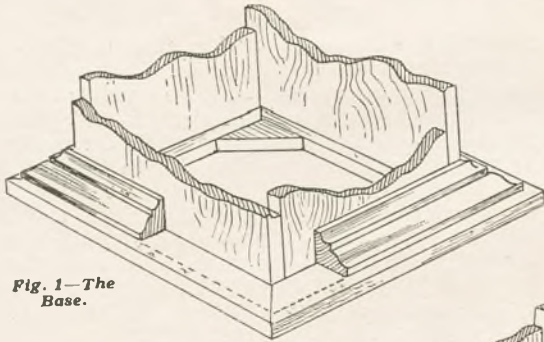


Fig. 1—The Base.

from the ends to make the mitre can be used as an angle block to strengthen the part up.

This hollow framework is then glued and screwed to the bottom edge of the column, and round the outside of it are fitted four strips of the fancy moulding (No. 17). The detail at Fig. 1 shows this construction clearly, and when completed the framework should be quite rigid. Be careful, of course, to get the moulding mitred at the corners correctly, so it fits round tight in the corner of the base and sides.

It will be advisable to fit in now, the floor to the cabinet. This comes inside the column just below the opening of the door. The top of it should be $7\frac{1}{2}$ ins. downwards, and it is supported on fillet strips glued all round the inside, as shown at Fig. 2. As the floor is $\frac{1}{2}$ in. thick these fillets must be glued $7\frac{3}{4}$ ins. full from the top. The floor is then stood in place, and a touch of glue added to the edges to fix it to the sides.

The Door

The door is formed of the piece which was taken off one side, and is replaced now by hinging it in position. Two little recesses must be cut for the plates of the hinge, and the door is then prevented from dropping by the strut hinge previously mentioned. Or it can, of course, be fixed with some of the ornamental chain also supplied by Hobbies Ltd.

The top of the door is fitted with a fancy ornamental drop handle and a catch. Be careful to see that the top edge of this board does not come above the edge of the other sides or it will "bind" when the top is fitted on.

The top of the column is really a combination of two pieces separated by the ornamental moulding, and the construction is clearly seen at Fig. 3. A piece of $\frac{3}{4}$ in. board is cut $7\frac{1}{2}$ ins. square, and glued and screwed centrally on the column. The framework of moulding (No. 17) is raised on it. The inside edge of this moulding is cut to a mitre $5\frac{1}{4}$ ins. long, and then glued centrally on the wood.

A Moulded Frame

The longer edge of the moulding is the face which is glued downwards. Inside the moulding and flush with the upper edge, little fixing fillets are glued along, as can also be seen in Fig. 3. These pieces and the moulding itself, form a platform on which the extreme top is fitted. This is a piece of $\frac{1}{4}$ in. wood $5\frac{1}{2}$ ins. square, which is glued securely to the parts below. The sectional detail on the design chart shows how the pieces are put together.

The Stand is now complete, so far as the main work is concerned, and it only remains to add the various ornamental frets on the side. These are cut to the design patterns shown, and then glued in line with each other to the sides. The first one should be glued immediately below the door hinges, as can be seen in the picture of the finished article, and then a line drawn round to ensure the others coming in the correct position on the other side.

A smaller panel is added on the door itself, and corresponding

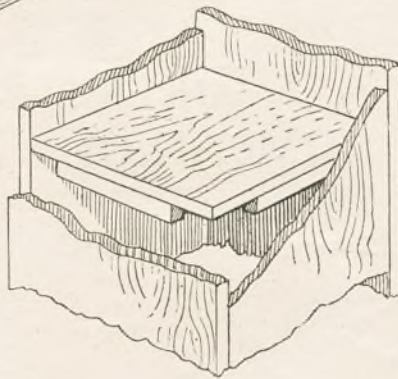


Fig. 2—The Floor.

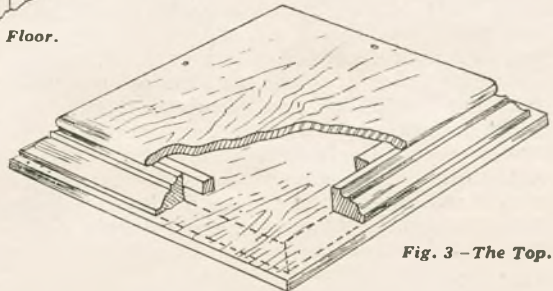


Fig. 3—The Top.

ones on the remaining three sides. Each of these panels is not only cut to the outline shown, but is decorated at the top with a short length of No. 24 moulding, and cut with returned ends the same shape as the fretted piece.

It will be advisable, if the Stand is to be polished, to do this finishing work before the overlays are added, staining and polishing the overlays themselves apart from the main Stand. Then they can be glued on, and also lightly fixed further with fret nails, the heads of which have been cut off flush with the wood.

The match holder shown in the picture is not, of course, supplied, but a suitable one can be bought at any of the cheap Stores, and forms a happy addition to the Stand.

The TRICKS WITH CARDS

The Amateur Conjuror

The last of three practical articles suitable for the party season.

Of course, you must know how to perform a good selection of tricks with playing cards; no conjurer worth his salt neglects this important branch of his hobby. For one thing, you can often carry out an impromptu entertainment, or fill in odd moments by this means. The fact that ninety per cent of card tricks deal with the finding of selected cards in no way detracts from their fascination. Here are a few of them that are a little out of the ordinary, and consequently not widely known.

"This is Your Card"

One of the easiest of these tricks is to ask a friend to select a card, to note what it is without

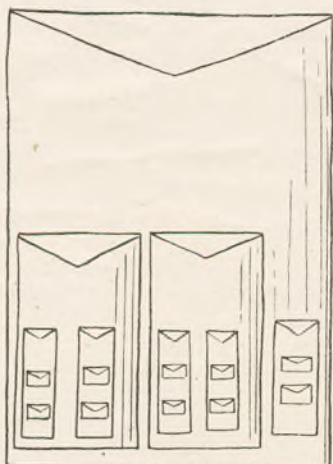


Diagram of the ten small envelopes with a card, placed in the large outer envelope.

telling you, and replace it in the pack; you then turn over the cards one by one and stop when you reach that which he selected. The secret lies in a little preparation beforehand.

Just sort the pack out into two heaps, all the odd numbers in one heap and the evens in the other. Queens are odd, Jacks and Kings even. You then place one pack upon the other, and watch carefully

when your friend chooses his card.

After he has looked at it, cut the pack and ask him to drop his card on to the stack that remains on the table. If he has taken his card from the top half, you see that he replaces it in the lower, and vice versa. It is then a very simple matter to pick out his card, as it is the only one of its kind, odd or even, in that part of the pack.

An Elaborate Trick

Having started with such a very simple effort, let us pass on to one that is far more spectacular. You display, fanwise, ten cards, and ask a member of the audience to memorise one. The cards are all visible, so there is no need for him to take his selection from you. You then move over to a table

or mantelpiece, and stand the small stack of cards upright against some support.

"Now, would you mind telling me, and our friends here, the name of the card you memorised?" you ask your victim. "The two of clubs," he replies, for example. "Right," you say. "I will just get it for you."

And with that you walk back to the place where you have left the cards, pick them up, count them carefully in full view of your onlookers, and reveal to them that one card is missing. That causes a stir, for so far there had been not the slightest suspicion of trickery.

What Happens

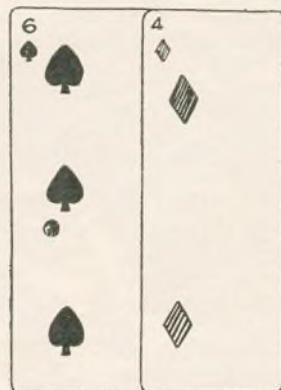
You then point out to the audience a large brown paper envelope, stuck down, heavily sealed, and tied round with string if you like. You pick this up from where it happens to be standing, on top of the piano or over in a corner, break the flap, undo all the trimmings, and extract a slightly smaller envelope.

Break this open, take from it an ordinary small envelope, hand it to your friend—and be ready to hold him up when he opens it and extracts the two of clubs! Now all this seems very complicated, but if you carry out the preliminaries carefully you can't go wrong.

How It Works

First of all, peel the backs from the fronts of nineteen cards, and stick sixteen of these fronts together, so that you possess eight double-fronted cards. Select low-numbered cards for this purpose, as they are always more difficult to memorise.

Now, to the back of one of the remaining fronts, stick a half of each of the other two, as shown in the sketch. When you hold the cards fanwise, this double card will appear as two distinct cards, thus giving your audience the impression that you hold ten cards in your hand.



What the double card looks like.

It is after showing them this fan of "ten" that you place the pack at one side, but later, when you

Card Tricks—(continued)

again pick up the pack and count them, you hold them the other way up, and there are only nine. That's clear enough, and now with regard to the card in the envelope, you work that in this way.

Before you commence the trick, you seal in ten small envelopes duplicates of your original ten cards, one card in each envelope. You then put these small sealed envelopes in pairs inside five larger envelopes.

Then put two pairs of the larger envelopes in two more still larger envelopes, and these go into your final very large envelope. You will have one of the smaller envelopes over, of course, but this can be dropped in by itself.

Seal down the final envelope and you are ready for the big trick. Don't forget, you *ask* which card has been selected, and with the aid of small secret pencil marks on the inside of the outside envelope, you can quickly and easily pick out the correct one.

Now you will have heard a great deal about "master cards" in card tricks. These are invaluable for keeping track of selected cards, and this is how you make one. Take any card, and cut away the plain white margin round its edge. Now paste this carefully on to the centre of the face of a duplicate card. To all appearances this is still quite a normal card, but it is very distinctive to the touch, being twice as thick.

This secret enables you to perform any number of card tricks. You ask a friend to select any card from the pack, while he is looking at it you cut the pack, then ask him to place his chosen card on top of the lower half. You make sure, of course, that the top card of this lower pack is your master, or alternatively the bottom card of the top half.

It is then a very simple matter to run through the cards and give back to your friend the one he selected. You can do this trick blindfold, if you want to heighten the effect, or put the pack in your pocket and take the correct card from there.

The Box Trick

Here is a trick of another kind. Pick up a pack of cards, shuffle them, then say: "Oh, you fellows might as well have a shuffle," and hand out the pack. It does not matter how many hands the cards pass through, or how many times they are shuffled.

The pack is eventually passed back to you, and you place it in a box, face downwards, and shut down the lid. Then you say: "Well, you chaps, owing to my long association with playing cards and the art of magic in general, I now guarantee to surprise you. The top card of the pack is the ace of diamonds."

The Distribution

You open the lid, pick up the top card, throw it out among your audience, and sure enough it is the card you have specified.

"In case you think there is some trickery about it, let me tell you that the next card is the nine of spades, and the next, the king of clubs." and so on, until you have distributed at random seven or eight cards from the pack.

"And now you can examine the cards, and the box." And you give the whole outfit over for scrutiny.

The secret is this. Most card boxes have lids that are the same thickness, or depth, as the lower half of the box, and are hollow. Into this lid you previously fit seven or eight cards, face downwards, and remember their exact order. When you close the lid, you slam it down rather heavily, but no suspicion will be aroused as this is quite a normal procedure.

The effect of this, however, is to cause the cards in the lid to fall down on to the top of the pack. When you re-open the box, you know what the top cards are, and dole them out accordingly. This is a very mystifying trick, but at the same time it is very simple in its execution.

Stripwood Footbridge—(continued from page 367)

merely a base piece with a guide at the back and a stop at one end. A fine saw cut is made at the correct distance from the stop end. The wood to be cut is laid in the jig, held firmly with one end against the stop

end while the fret-saw is worked through the saw-cut.

This could be faced with metal, but it is not essential as if the saw-blade is worked carefully it will not wear the slot sufficiently to matter.

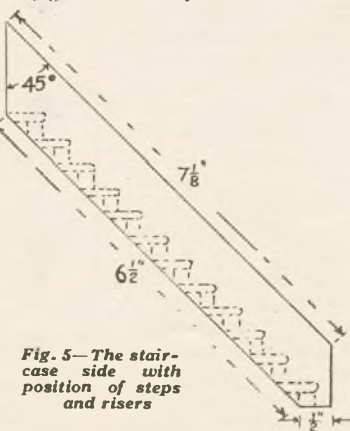


Fig. 5—The staircase side with position of steps and risers

risers, setting the edge of the tread or flat-part flush with the face of the riser of the first stair. The second riser is glued to the top back edge of the first tread as shown dotted in Fig. 5 and so on to the top. Then glue and pin the sides to the stairs, finally glue and nail the top of the stairs to the bridge span and add the diagonal braces of 1/2 in. by 1/4 in. stripwood, which completes the construction work.

Paint the bridge a grey colour and if desired leave the floor and stairs in their natural colour to represent the wood customarily used on those parts of a footbridge.

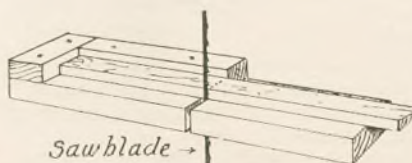


Fig. 6—A cutting jig for the treads.

Subsequent articles will deal with the easy making of signals, crossing gates, station buildings, wagons and other useful things for the Gauge O enthusiast.



Model Railway Accessories

GAUGE O



THE footbridge sketched in Fig. 1, is an attractive addition to any model railway and can be made quite easily by the use of Hobbies Stripwood. This material is accurately machined to size from best quality satin walnut, is sold in 2ft. or 3ft. lengths; its use greatly facilitates the making of many desirable additions to the model railway.

The material needed for the footbridge is set out at the foot of the adjoining column, and can be had from any of Messrs. Hobbies Ltd. agents or direct from Hobbies Ltd., Dercham, Norfolk.

Quantities stated allow for cutting and waste.

Commence work by making the bridge span, Fig. 2, which consists of two pieces of $\frac{1}{2}$ in. by $\frac{1}{8}$ in. placed side by side and glued together to form the floor.

When dry, glue cross pieces of $\frac{1}{2}$ in. by $\frac{1}{8}$ in. across the underside to represent the girders.

Glue and pin the $\frac{1}{4}$ in. by $\frac{1}{2}$ in. strips flat on to the top outer edge of the floor, and to the middle part at the "steps" or approach side. Mitre the corners neatly.

Next glue in the $\frac{1}{2}$ in. by $\frac{1}{2}$ in. strips setting them edgewise on the centre of the flat strips, and when dry, glue on the cappings of $\frac{1}{2}$ in. by $\frac{1}{4}$ in. stripwood, mitring at the corners as before.

Cut down the centre of a short length of $\frac{1}{2}$ in. by $\frac{1}{4}$ in. stripwood, round off the sawn edges; cut off pieces to length to fit closely between the flat strips on the bridge side—as in Fig. 3; these pieces being set vertical and representing the framing of the bridge sides.

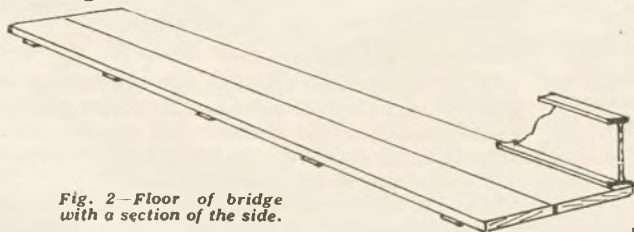


Fig. 2—Floor of bridge with a section of the side.

Three of these uprights on the long side will be sufficient and two on the approach side.

The next proceeding is to build the two piers or standards on which the bridge stands, which as shown in Fig. 4 are composed of uprights of $\frac{3}{4}$ in. by $\frac{3}{4}$ in. stripwood connected by cross-braces made of $\frac{1}{2}$ in. by $\frac{1}{2}$ in. stuff glued and pinned in position on the inside faces of the corner posts.

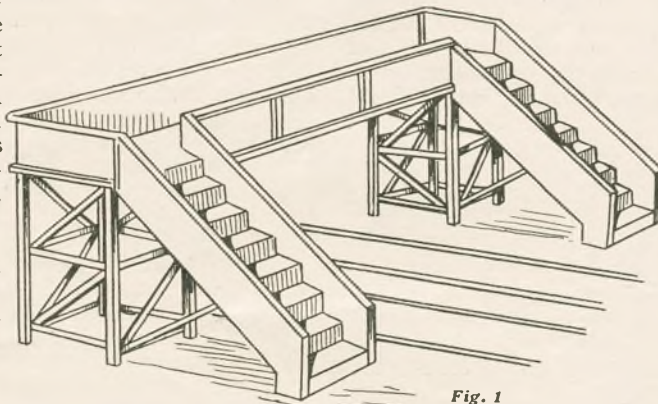


Fig. 1

STRIPWOOD FOOTBRIDGE

Next, glue and nail the bridge span to the top of the two standards taking care that everything is square and true.

Make the steps by first cutting the side pieces of $\frac{1}{2}$ in. by $\frac{1}{8}$ in. stripwood to shape as in Fig. 5, then proceed to cut the pieces for the stair "treads and risers." The 24 stair treads are made of $\frac{1}{2}$ in. by $\frac{1}{8}$ in. stripwood, each exactly the same length, that is, $1\frac{1}{2}$ in. long. The 26 risers are made of $\frac{1}{4}$ in. by

$\frac{1}{2}$ in. stripwood cut to the same length as the treads.

To ensure uniformity of length a simple cutting jig (as in Fig. 6) should be prepared. This is

(continued on page 366)

STRIPWOOD

- Six 2ft. lengths— $\frac{1}{2}$ in. by $\frac{1}{8}$ in.
- Eight 2ft. lengths— $\frac{1}{4}$ in. by $\frac{1}{8}$ in.
- Seven 2ft. lengths— $\frac{1}{2}$ in. by $\frac{1}{2}$ in.
- Four 2ft. lengths— $\frac{1}{2}$ in. by $\frac{1}{8}$ in.
- Two 2ft. lengths— $\frac{1}{2}$ in. by $\frac{1}{2}$ in.
- Small brass Fretwood pins.
- One tin Grey Crusoe Enamel.

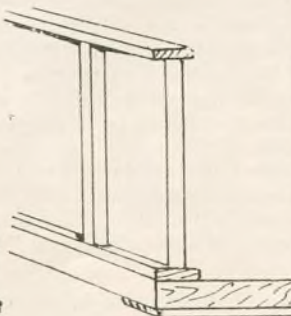


Fig. 3—A section of deck and sides.

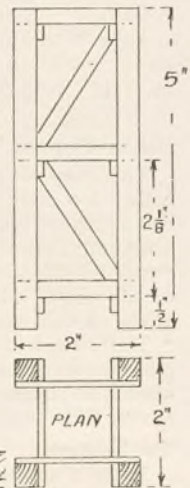


Fig. 4

The standards.

**SOME
EXPERIMENTS
OF MUCH
INTEREST**

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regular features

HOME CHEMISTRY



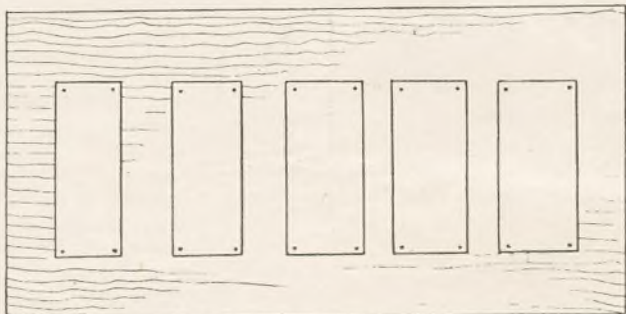
How to make your own photographic materials

IN many ways the science of chemistry is very closely associated with that of photography, the latter, of course, having become possible only through the research work of early chemists. The basis of the sensitive paper we buy and use is chloride of silver, and it is out of the fact that light has a peculiar action on this compound that modern photography has been built up.

One of the first important experiments carried out with chloride of silver was to note the action of light on paper coated with it, by placing coins, lace or similar objects on it and allowing the light

5 ozs. of water, afterwards straining. Now mix 2 ozs. of the former solution with $2\frac{1}{2}$ ozs. of the latter and add sufficient moist water colour to give the mixture a tint. You now have a solution which, after being subjected to the action of strong light, will become insoluble in water.

To prepare the paper, take some sheets of drawing paper, the size of the prints required, and pin them one by one on to a board. Paint each one with the mixture, using quick, even strokes. It is very important, if good results are to be obtained, that you brush as evenly as possible, and when you have been over the paper once you must go over it again with the brush almost dry, and smooth the surface quickly to get rid of lines.



How to make your own printing paper is described below to act upon it, darkening the paper all round and leaving the shape of the article clearly defined.

It is interesting, even now, to experiment in the same way. Take an ordinary leaf, carefully remove all the fleshy parts, leaving the outline and veins intact, then place the skeleton so obtained on a piece of ordinary sensitised paper and make a print as though you were making a photographic print in the ordinary way. You will then get a perfect copy of the skeleton leaf.

Making Printing Paper

The preparing of ordinary sensitised paper is rather too complicated a process for the amateur chemistry enthusiast. It is interesting to note, however, that it is possible to prepare a printing paper which does not depend on chloride of silver for its effect. Moreover, it can be developed quite easily in cold water.

The chemical used in this instance is a compound of potassium, chromium and oxygen, known as potassium dichromate. Like chloride of silver, this compound is also sensitive to light.

The Solution

Make a solution of dichromate in water in the proportion of one in ten. Then make up a gum solution by dissolving $1\frac{1}{2}$ ozs. of gum arabic in

The Process

Place each piece of paper in a dark, warm place to dry and keep it in the dark until required. The method of printing, and the length of time required, are roughly the same as for ordinary daylight paper. The image, however, must not be allowed to get too dark since it will be developed fully when laid face downwards



*Turning a photographic print
into a pen and ink sketch.*

in a dish of cold water for a few minutes, and then turned face upwards and rocked gently.

The high lights will dissolve in the water readily, but the shadows and half tones will dissolve to a certain degree only, and in this way the image is built up.

A Bleaching Solution

If the waste colour does not move easily you will know at once that the print has been over exposed. In the same way, if it comes off too easily, the print is under exposed. To harden the print, place it in alum and water, rinse and dry.

Another interesting chemical, photographically, is thiocarbamide. Mixed with nitric acid and

Home Chemistry—(continued)

water it makes a bleaching solution which will remove a photographic image. It will not, however, touch Indian ink, and by its aid it is thus possible to change ordinary photographs into black and white pen sketches.



A print of a skeleton leaf on sensitized paper.

The mixture is made up of thiocarbamide, 120 grains, nitric acid, 2 drams, and water, 10 ozs. The same mixture may be used again and again providing it is kept clean and is poured back into the bottle after use.

Make a print of a subject which does not contain too much detail on bromide paper. This has a rough surface and is more suitable than glossy paper since it takes the ink better. Go over the print carefully with a mapping pen and Indian ink. Vary the thickness of the lines according to the amount of detail. Fill in the shadows by drawing a number of very fine lines very close together. If a shadow is very deep, cross the lines, and in extreme cases fill the shadow right in.

The Print

Allow the print to get quite dry and then place it face downwards in the solution. Gradually the photographic image will disappear, and after a few minutes nothing will be left but the drawing. Wash the print thoroughly in cold water and leave it in a warm place to dry.

Whilst on the subject of chemistry in relation to photography, it may be of interest to readers to know how they may prepare their own photographic chemicals, and the knowledge enabling the saving of money.

Making Hypo

One of the most common of these substances, known to every boy who has dabbled in photography even to only a small degree, is hypo, which serves an essential purpose as a fixing agent. The proper chemical name for this is sodium thiosulphate, and it is an engaging experiment to prepare a supply by the following method.

Dissolve some sodium sulphite in about four times its weight of water, which should be previously warmed, and add a small amount (about a quarter of the weight of the sulphite) of our old

friend—flowers of sulphur. If, however, you have some roll sulphur by you, use some of this, finely powdered in a mortar, as it will mix better than the flowers.

Put some of this mixture in a flask (making sure that the cork is not tightly fitted) and keep it in a warm place for several days, giving it an occasional shake-up.

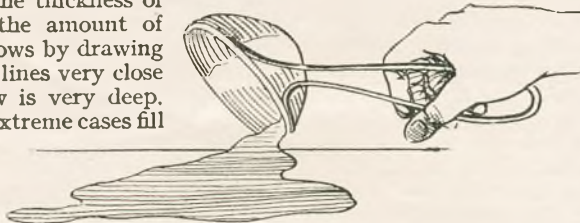
After Evaporation

You can then extract the undissolved sulphur by filtering the solution, after which boil the remaining liquid in an evaporating dish until it is about half its original volume, and allow it to cool. You will find crystals of sodium sulphite deposited, but don't worry about this, just transfer the liquid to another dish and evaporate it still further. After allowing this to cool, it is then that you discover your crystals of sodium thiosulphate, which can be collected and dried in the usual way on filter paper.

Liver of Sulphur

Space will permit of only one more experiment, so for a change we will take the making of potassium sulphide. Actually, there are several distinct forms of the sulphur compounds of potassium, but probably the best known from a photographic point of view is that commonly called liver of sulphur.

To prepare this, mix just over 3 ozs. of thoroughly dried potassium carbonate with an ounce of flowers of



Pouring out molten potassium sulphide.

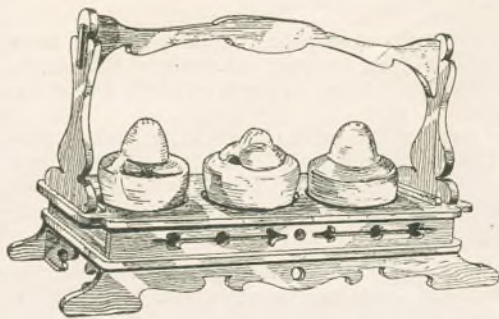
sulphur. Heat to redness a clay crucible, then pour in a little of the mixture, and place the lid (which must also be red-hot) on the crucible. The mixture will melt immediately, but keep doing this until the receptacle is more than two-thirds full.

Carbon dioxide will be given off, and the heat must be continued until all this is expelled. Finally, lift the crucible out of the fire with your tongs and pour out the molten liquid on to a clean surface. This is potassium sulphide, which can be broken up when cold and kept in a tightly-corked bottle.



The evaporating process for obtaining hypo.

Please enclose a stamped addressed envelope if you write to the Editor and want a reply by post.



IN the centre pages of this issue are to be found the necessary patterns for making the Breakfast Cruet, illustrated herewith. It can be cut out in fretwood or plywood by even a beginner, because the parts concerned are only quite small, in thin wood, and are easy to put together.

Moreover, a suitable set of cruets are supplied by Hobbies Ltd., to fit this design. This cruet set is in handsome green glazed earthenware of quite modern style, and superior to some of the cheap fittings which are really not worthy of the piece of work when it is executed.

The Wood

The thickness of the wood required for the various pieces is shown against each, and in pasting the patterns down, remember to keep the grain of the wood in the direction of the arrows. This is important because otherwise the narrow linking pieces between the joints and the end of the board will be made very weak. Note, too, that in the pattern of the floor are included two of the small pieces of the ends. The paper pattern of these ends must be cut from the larger part, of course, and pasted on to a separate piece of wood.

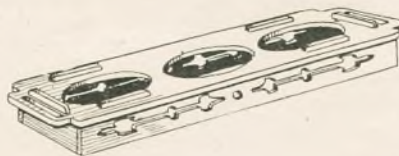


The base.

The construction is shown in the three details. A few general remarks may be helpful to the beginner. In order to make proper construction, good joints are essential. Use a fine saw and keep definitely on the pattern line marked in the various joints. Get the corners of the mortises at right-angles and test each tenon out with its corresponding slot or mortise to ensure a good fit.

Marking Out

Having obtained a proper fit, make a slight pencil mark on the two parts, so they may be returned to the same place when finally glued. Notice that the tenons marked A which come in the fancy sides, project above the top, and have their corners slightly rounded. The same remarks



The centre section.

A FRETWOOD CRUET

Full size patterns on the centre pages.

apply to the handle crosspiece. Mortise and tenon joints should fit together by hand, and should not need to be forced in with a mallet.

Take particular care with the mortises coming on parts which are not very wide, but against the grain. Examples are given at B, E and F. Cut these holes carefully and see the mortises fit in comfortably. They must not be forced together or the wood across the end will snap. Remember, too, to clean off any pattern remains before actually testing the parts in place, and once having got a good joint, do not glasspaper any more.

Good Joints Essential

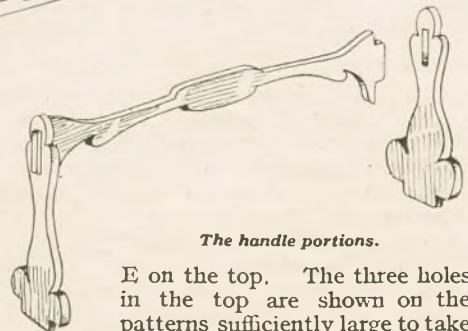
All joints should be glued, the glue being added round the inside of the mortise thinly. A good plan is to cut all the parts out first, and put them together in the various stages shown temporarily. When finally a satisfactory construction has been made, the whole parts can be glued together. The illustrations show the construction, and little further need be said.

All the parts are in $\frac{1}{4}$ in. wood with the exception of the three pieces forming the handle, and they are in $\frac{3}{16}$ in. wood.

The Floor

The floor is fitted to the two long side feet, and the two shorter end feet by the joints F and C. The second portion is made with the top into which the fretted sides and ends are fitted at A and B. The whole of this piece is then glued down to the floor of the first piece made. Little odd blocks of waste wood can be glued to secure the side to the floor, if necessary.

The remaining stage is the addition of the handle. The cross piece is halved into the mortise at D, and then the whole thing fitted into the joints



The handle portions.

E on the top. The three holes in the top are shown on the patterns sufficiently large to take the condiment set supplied by Hobbies Ltd., and they drop through and stand on the lower platform. If any other cruets are used, this opening in the top must be made according to the requirements of that set.

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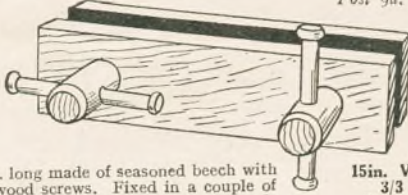
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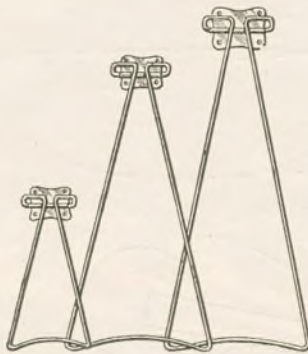
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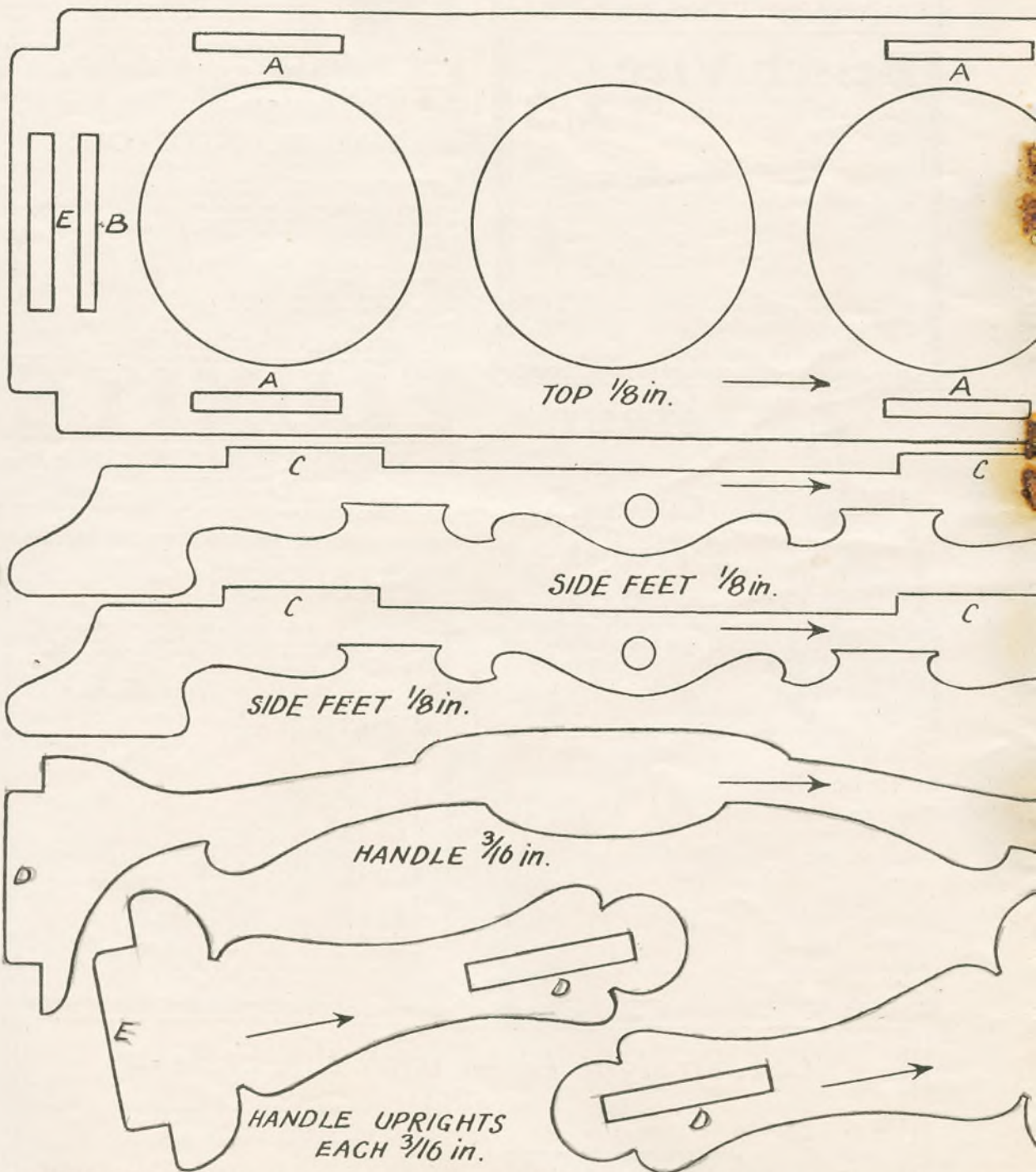


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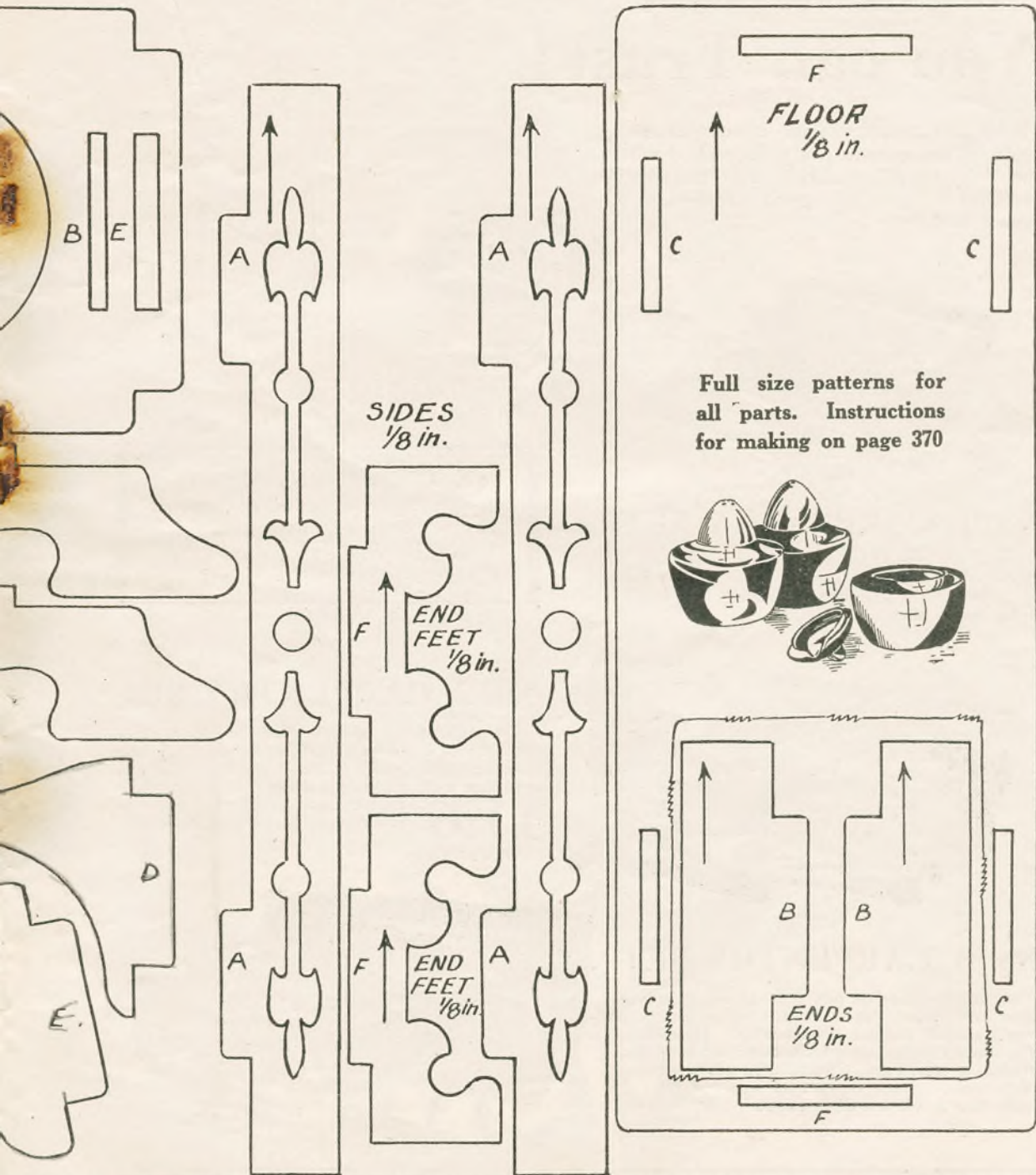
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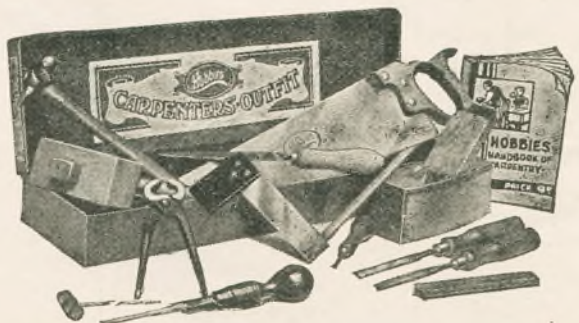
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AN ELECTRIC BAGATELLE

THE Bagatelle pin games are, at the present time, the most popular of all indoor games and show every sign of remaining so.

The model described has an added innovation of being electrified so when the highest score is obtained a loud buzz indicates the fact. The two next highest are arranged to light up coloured glass panels at the bottom of the board, and in addition to this, a metal gate is designed to return automatically the balls for replay according to the rules of the game.

The Construction

The reader may begin to think that the game is expensive to make but this is not so. The total cost is under ten shillings, and considering what is obtained for the money, it is remarkably cheap. The construction of the board is quite simple so long as the instructions given are followed and no difficulties should be encountered by anyone. When completed, it is a full sized game 35ins. long, 15ins. wide and 3ins. deep.

The materials required are listed in full, and readers are recommended to keep to the measurements given, any alterations will be likely to

upset the working of the parts and so spoil the effect.

The woodwork must be carried out first. Mark out the various pieces as indicated in Fig. 1, and cut out carefully. Glasspaper all the edges smooth and nail and screw the parts together as

shown in the figures. Note that the two runways A and B must slope in the correct directions. All the parts are lettered so their relational positions as to each other are easily seen.

The long strip of thin plywood has to be steamed round the curve at the top of the board and is fixed so it has a 1 inch width at the top all the way round. After having been fixed, the overlapping ends are cut off flush with the end.

Full Size Plan

Before any more of the work is done, draw a full sized plan of the top of the board on a sheet of paper with the exact positions of all the nails and holes.

The details required for this are all given in Fig. 2. Pin this paper over the baseboard and mark with a sharp point the exact centre of each cup hole. These can now be drilled, but the exact size of the drill to be used cannot be given as some of the cups vary slightly in size.

Do not drill right through the wood; through four of the seven plys will be enough. Do not insert the nails or cups yet, this will give a lot of trouble when painting the board owing to having to dodge so many nails.

A Finish

The board can now be finished to suit personal taste. The original was carried out in two greens and this looks very neat when finished. Do not forget to cut the small hole in the side for the balls to come out. The whole board must be very carefully glasspapered before the finish is applied and let the finish dry thoroughly before doing any more to the board.

Nails and Cups

The next work can be the inserting of the nails and cups. For this work it will be found much better to place three piles of wood on the bench each about 2½ins. high and to place the underside of the baseboard on top of them so the strain of

MATERIALS

A splendid game for the amateur electrician to make. Quite easy, and quite cheap, as the rough cost given below shows.

	s.	d.
Piece ½in. ply 4ft. by 15ins.	2	0
Piece ½in. Ply 2ft. by 6in.	0	4
Piece 3/16in. ply 7ft. by 3in.	0	6
Small buzzer	0	6
20 Steel ½in. Bagatelle balls	2	0
1 dozen brass Bagatelle cups	0	5
½lb. brass ½in. Bagatelle nails	0	4
2 flashlamp bulbs 3.5 volts	0	3
2 holders for same	0	3
1ft. dowelling ½in.	0	1
10ft. Glazite wire	0	6
1 special steel pin	0	1
2 small pieces of glass	0	3
2 small switches	1	0
Total	8	6

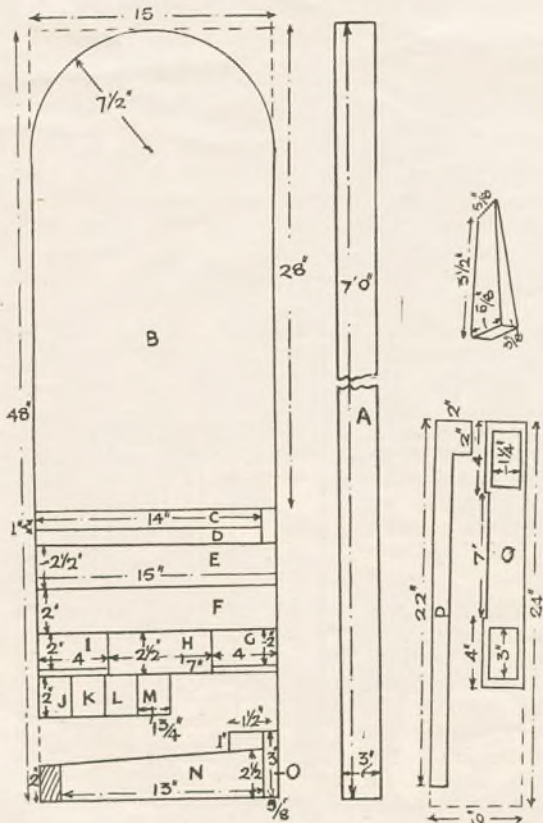
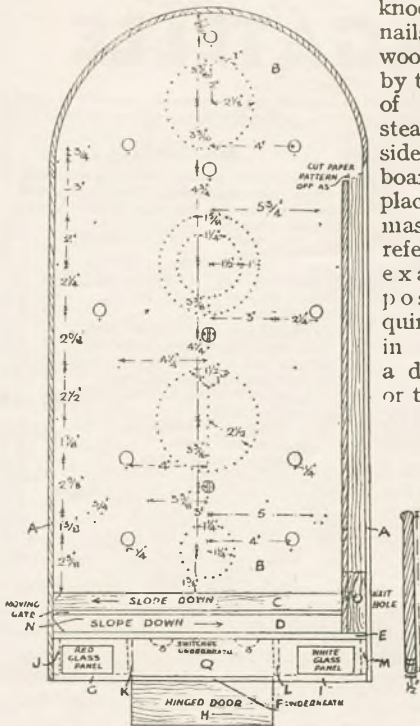


Fig. 1



Then knock all the nails in through the paper, taking care to get them upright and even, at slightly more than $\frac{3}{8}$ in. apart, just one inch of the nails is left above the board, just right to stop the points from going through the wood.

The six bottom nails in the 125 hole are knocked through a little more so the points protrude slightly underneath. The three nails to the left of the 125 hole are also knocked in slightly in the same way and, if desired, those opposite for the 5 score can be done as well so as to match the board.

The special steel pin mentioned in the fittings is put in at "Y" as shown at Fig. 2.

This practically completes the board and we can now fix some of the fittings in place underneath. Screw the two bulb holders in their boxes at the base of the board and drill two holes in the bottom for the wires. Fix the switches in place on the wall of the box, as shown in the diagrams, and drill holes for these also. Screw the buzzer in place and fix the batteries in place with small pieces of metal as shown.

It will be noticed that the 150 and 130 sockets are cut in half and a very thin piece filed away. These are then fixed with a $\frac{3}{8}$ in. screw through each to project as the few special nails do.

To make the gate apparatus, take a piece of fairly stiff tin plate and cut to the shape indicated in Fig. 4; also a fairly thick piece of brass and cut to

knocking the nails in to the wood is taken by these pieces of wood instead of the sides of the board. Now place the paper mask already referred to in exactly the position required and fix in place with a drawing pin or two.

shape. Solder both together with a short brass collar or boss at one end and bend as required. A $\frac{1}{2}$ in. length of brass tubing will do if a brass collar is not available.

Fix this on the piece of wood also shown in Fig. 4 using a screw as a spindle. The bobbins from an old bell or buzzer, or a bobbin wound on a piece of soft iron, are fixed to pull the gate over and then the whole is screwed in place so the gate comes up through its slot without touching the sides.

A little patience will be required to do this properly, but it must be done accurately. In the original only, one bobbin was used to do this work, but as this was an exceptionally powerful one, two are recommended and should be used unless a very powerful one is available.

A very light spring is attached to push the gate back into the closed position on its own accord and screws and nails are placed to limit the movement. They are so positioned that they will allow the gate to open just sufficient to let the balls slip through. A small piece of soft iron clamped over the piece of tin

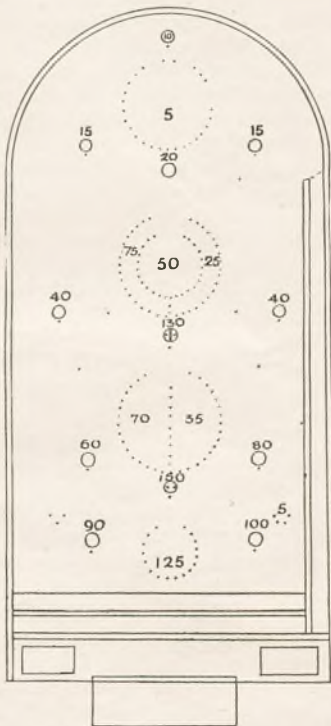


Fig. 2 (and above) Two details of the board and how to mark it out.

just by the end of the magnet will help its action if it is inclined to be weak.

The next part of the work is to wire up with the Glazite and one coil should be sufficient for the whole job. The full details for this can be seen in Fig. 3, and can be



Fig. 3a—The cups for 130 and 150.

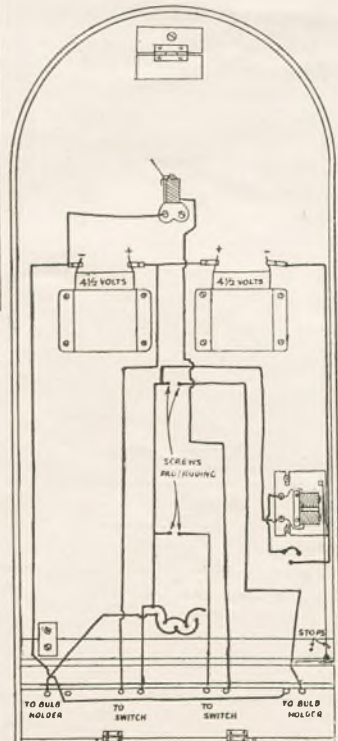


Fig. 3—An underneath view of the wiring.

Electric Bagatelle—(continued)

followed quite easily. The joining together of the 125 nails on the underneath is very important as this will allow the lights to come on, no matter how the ball stops on the nails in this hole.

Study the diagrams carefully and no difficulties will arise. The tips of the 130 and 150 cups should be bent inwards slightly to make certain of good contact with the balls.

The board should now be tested out and any slight adjustments made. Then, when all is in order, the two small pieces of glass are put over the the bulbs and the covering piece screwed

in place over them. It will be better if one of the pieces of glass is painted over on the underneath in white, the other in red and if each has a paper number stuck underneath, the number will shine through when it lights up.

The number must, of course, be cut out backwards if they are to be stuck on the underneath, they will be reversed when seen through the glass.

Two $4\frac{1}{2}$ volt batteries are used and although the whole board can be worked with one, two will be found more economical in the long run, all the work on one battery is too much strain and causes it to run down quickly.

As regards the switches, the left-hand switch puts off the buzzer only and the right-hand puts off the whole electrical system.

It will be found convenient to be able to switch off the buzzer, as it becomes annoying to have to listen to a loud buzz all the time if the 150 should be scored at the beginning of the game. By using a separate switch for this purpose only, as incorporated in

the board, the difficulty is overcome satisfactorily.

RULES

Any number of players can play at the same time. If any ball goes in the "W" the previously

lost balls are returned for play and the score added to the ordinary score. 20 balls are used for the full game but fewer can be used if several are played at once.

The score is added up at the end of each turn.

Any ball which should happen to stop on the board without scoring or running into the lost slot, is given back to the player for replay.

The best game is to have three turns each and add up the total scores so seeing who has the highest for the three games.

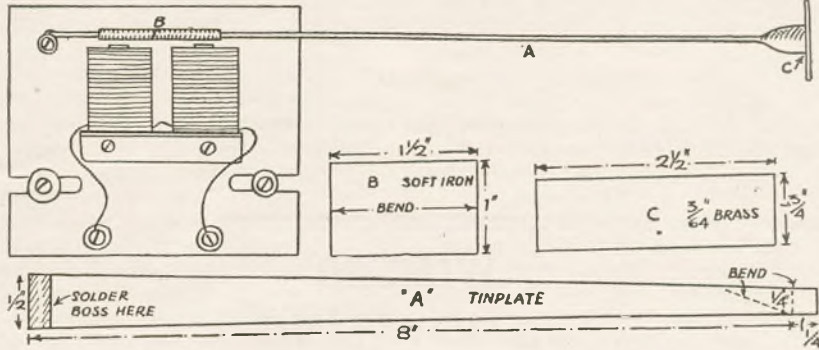


Fig. 4—Showing details of the gate mechanism to be made.

Renovating the Bicycle—(continued from next page)

clean with petrol or turpentine, before applying the first coat of enamel. When a frame or the mudguards are treated so, you will probably need to apply three coats of enamel besides the finishing coat.

When the enamel is thoroughly hard and dry you can reassemble the machine, replacing the wheels first, with tyres half-inflated. Before doing so, however, see that all the spokes are adjusted properly and the wheel perfectly true.

Care in Adjustment

Be careful in making your adjustments of brakes, three-speed gear, etc. See that the wheels are in correct position, exactly in track and quite straight. Adjust so that they have no side play, yet allowing the wheels to revolve quite freely. See that the back wheel is adjusted so that the chain, when replaced, is at its correct tension, neither too loose and "saggy" nor too tight and stiff. Adjust so that you can just "waggle" the top part of chain about half an inch up and down. When the

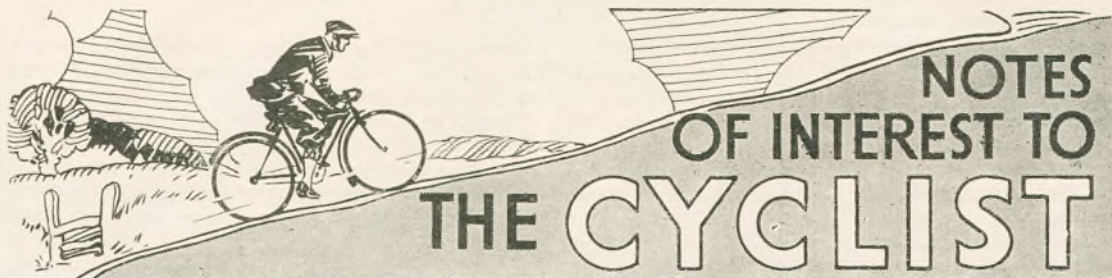
machine is completely re-assembled again, test the brakes carefully, and give the bearings a spot or two of good lubricating oil.

If for some reason you cannot do much riding in winter, and decide to store the machine away for a time, it is advisable to grease all the bright parts—nickel parts, that is—with vaseline.

This can be readily removed when you required the machine again by washing it off with paraffin on a cloth, afterwards wiping dry. If your machine is standing for considerable periods during winter it is advisable to turn it upside down, with a piece of cloth or old newspaper under saddle and handlebars.

Sling It!

Or a better plan is to sling it up off the ground, if you have a shed or room available. Keep the tyres half-inflated. Never allow a cycle to stand for long periods on deflated tyres, as it does the latter much harm.



WINTER is a good period for renovating your bicycle. If you have been riding regularly all through the summer months and the autumn, the machine will doubtless need "touching up" and "tuning up" ready for spring again.

The really keen cyclist is never satisfied until he knows all that is worth knowing about his "mount." How to take the machine down, how to adjust the chain, the brakes, saddle, free wheel, the spokes of the wheels, and other movable parts, is always worth the learning. Now, if you have never done any of these jobs, but have a chum with some experience, it is just as well to get him to show you how best to do them.

Cut Tyres

Examine your tyres, and if there are any cuts in the covers treat them with some sort of filling. A deep cut can only be successfully dealt with by some good tyre stopping, such as the "Chemico" preparation. The cut or gash should be thoroughly cleaned, and then treated with rubber solution, which must be well rubbed in and allowed to become thoroughly dry; then give a second coating, after which the filling is applied and worked into the cut with a blunt instrument while the second coat of rubber solution is still "tacky."

The repair should then be allowed to stand as long as possible before the machine is used again, so that it becomes thoroughly hardened.

Movable Parts

When renovating a cycle, it is better to remove all the movable parts from it—that is, the chain, wheels, brakes, handlebar, mudguards, etc. Paraffin is a good asset in cleaning out all hubs and bearings. Afterwards allow them to dry well and wipe clean with a cloth.

You must be careful with all the nuts and screws removed, for they have an annoying habit of disappearing.

It is a good plan to spread a big sheet of brown paper—or newspaper will do—on the floor of the room where you are working, and under the machine—to catch any small parts that may become detached. Place all nuts and small parts in a box so that you do not misplace any and be unable to lay fingers on them when wanted.

Immerse the chain in a shallow dish of paraffin or petrol until all dirt has disappeared from it—you will have to give it a rub down with a cloth soaked in paraffin. When thoroughly clean, give it an oil bath; but before replacing chain when re-assembling machine wipe off all surplus oil.

It is a pleasant task to enamel a bike that shows old wear and tear, and when the frame and mudguards have become badly scratched and knocked. One of the best enamels is Robbialac, which may be obtained in various colours. Black is, however, one of the best colours for a bike.

Provided that the old enamel is in fairly good condition, you can re-enamel after first cleaning the frame with petrol or turpentine, taking care to thoroughly remove all dirt and grease. Any bare patches showing should be first covered with enamel and allowed to dry.

The Coats Required

Now proceed with the job, giving the frame a first coat all over, applied evenly with a suitable brush. Let the coating get quite hard, then lightly scour with pumice stone, and give a second coat of enamel. You can make a nice and complete renovation by then finishing off with a thin coat of "Transparent Finish." Be sure and apply evenly and work your brush well; apply thinly, so it does not run.

If the old enamel is in bad condition it is advisable to scrape it all off, scouring over the frame with emery cloth, and afterwards washing

(Continued on page 377)

WINTER RENOVATING

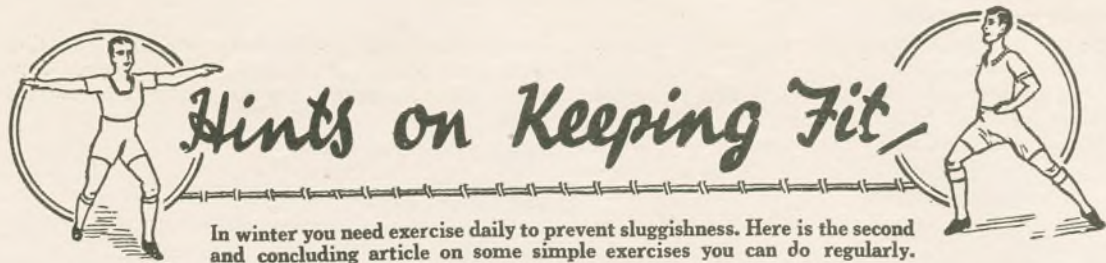
An 18in. Handsaw for 1/9

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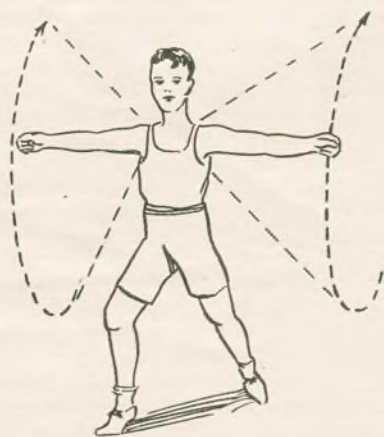


Hints on Keeping Fit

In winter you need exercise daily to prevent sluggishness. Here is the second and concluding article on some simple exercises you can do regularly.

BESIDES the general features of exercise and health care, described in our last article, you will undoubtedly like to have a few special 'jerks' suited for your personal needs. In this article, therefore, are described exercises beneficial to particular parts of the body, and from these you can choose the few which most appeal to you. By adding a judicious selection to the basic work dealt with previously, you may devise a thorough, all-round system of your own.

It should be remembered that some people find



Arm Swinging.

change your entire programme occasionally—and, of course, you will get exercise also whenever possible, in the form of sport or game.

Fingers

Finger Thump. Place the finger tips on the table, both hands, exactly as if you intend to play the piano. Then, raise each finger in turn, both hands working simultaneously, and tap it back on the table with utmost vigour. Lift very high every time, and do a dozen quick taps.

Lone Finger Bends. Use only a single finger at a time, so that it may have full attention. Hold the hand up in front of you, palm towards the face. Let hand be flat and rigid, fingers straight. Then bend each finger forward in turn, trying to touch palm, without disturbing others.

Thumb and Finger Press. Keeping the hand up as in the last exercise, bring the little finger and thumb inwards until their tips come together and they press hard against each other. Open them

out to their original positions, and repeat. Both hands can be done together.

Wrists

Hand Swing. Hold the forearms vertically in front of you, and let the hands droop inwards, so that their backs are horizontal and the fingers are hanging down. Hold each set of fingers together, stiffened. Swing the hands forward and backward as far as they can go without disturbing arms. The hands thus pivot vigorously on the wrists.

Dip and Rise. Hold the arms and hands in the same position as for the last exercise, keeping fingers and palms flat. Fling the hands up until they are in line with the forearms, then dip them again as far as they will go. Continue, with vigour.

Arms

Arm Press. Lie prone, face downwards, with the hands flat on the floor near the shoulders. Press down on the hands, thus forcing up the stiff body until the arms are at full stretch. Then lower, but press up again without letting chest touch the floor. Keep on, until arms will push you up no more.

Up and Down Wrists. Hold arms to the front at full stretch, fists clenched. Flick fists sharply up and down, without moving arms—until wrists ache.



For the back and abdomen.

Arm Revolving. Hold arms and fists in same position as for the last exercise, but this time twist wrists round first to the right then to the left, so that full arms revolve up to the shoulders.

Back and Abdomen

Prone Trunk Lifting. Lie at full stretch on your back, preferably with your toes tucked under a chest of drawers or something that will similarly anchor the feet. With hands on hips, and without curling the back forward, raise the trunk until

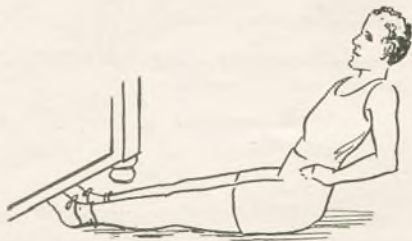


For the legs and thighs.

Keeping Fit—(continued)

you are in a sitting position ; then lower yourself steadily.

Leg Circling. In the same preliminary position, but without feet under anything, begin by raising the legs stiffly. Circle them outwards as widely as



A trial for the back.

possible then carry them in together again. Continue this circling without letting them touch the floor.

Touch Toes. From the same position, with anchored feet, and arms beyond head, raise the trunk and reach forward until fingers touch toes, without knees bending. Go back, and repeat.

Circulation

Rubbing. Rub the entire surface of the body, vigorously, using both hands, and rubbing towards the heart.

Running on the Spot. Keeping on the same spot, run hard, lifting knees high, and using arms as in normal running.

Chest

Funnel Arm Swinging. Stand with one foot forward at the lunge position, arms spread in line with the shoulders. Swing arms in vigorous circles, as if each were going round the broadening top of a funnel. Repeat backwards. Both arms work simultaneously.

Arms Up and Over. Stand lunged as before with arms slightly raised forward. Fling the arms

upwards and over the head, keeping them parallel with each other. Then swing them down. Continue without pause. Do not let body be carried back.

Lungs

Deep Breathing described last week, is of course, best of all.

Sing whenever you can, especially in the open air. This makes the lungs work most usefully.

Legs

Foot Twirl. Sit in a chair, with both legs stretched straight out to the front, well up from the floor. Twirl the feet round in big circles, on the ankles—first outward, then inward. Do a dozen strenuous twirls each way.

Kicking. Stand sideways to a chair or table, steadying yourself with the near hand. Raise yourself on the toes of the same foot, and swing the



The neck exercises mentioned.

other leg backwards and forwards, kicking with utmost energy, and raising the leg as far as possible both at the front and the back. Then turn about for other leg.

Neck

Chin Up. Stand upright, arms at sides. Draw chin back into neck, then raise it, upwards and forwards as far as it will go. Bring it down again. Repeat strenuously, without pause.

Small Trays—(continued from page 381)

at one side, showing the relative positions of the rails, etc.

There are various ways of finishing the trays, they may be stained with dark oak stain all over and either polished or varnished or they may be simply oiled up and rubbed with wax polish.

To do the polishing effectually, it should be carried out before the "rims" or rails are put on. A clean sweep with the polishing bob can thus be made, and a quicker and more even surface obtained.

Some of our readers who are of an artistic

turn of mind, may like to add some sort of simple decoration to the trays, and Fig. 5 illustrates a modern touch that could be carried out in colour

stains or poker work. The type of decoration shown is most easily drawn on the wood direct and the stains laid on, of course, before any polishing or varnishing is carried out.

A parcel of oak for making up the three trays, just as shown, may be got from Hobbies for 5/3 and in ordering, ask for parcel No.273. Stains, polishes or varnish required, may be sent with the wood, as desired, to save the postage.

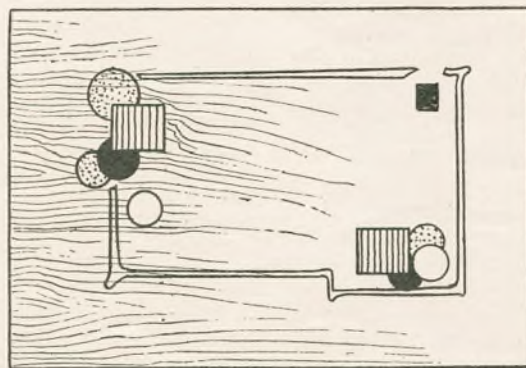
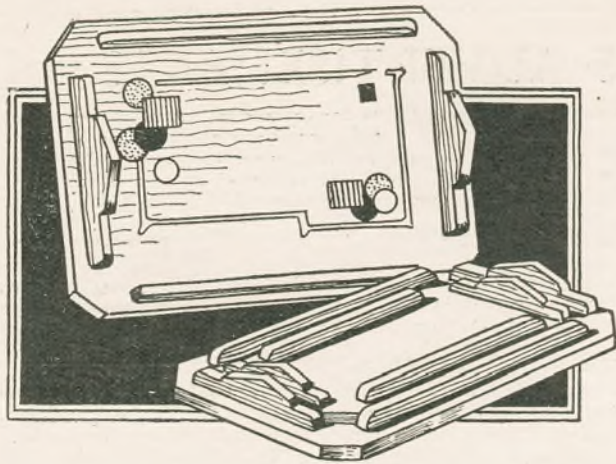


Fig. 5—A simple but effective decoration.



A SET OF SMALL TRAYS

A simple job for the owner of a fretsaw to make these. Their lengths are $16\frac{1}{2}$ ins., $14\frac{1}{2}$ ins. and 13 ins., each fitted with a plain piece of edging.

HERE are three useful trays of novel design and all made to fit one upon the other. The sketch on this page shows two of the trays laid together, the third, and larger tray, standing up at the back to show how simply they can be decorated.

They would be best made in oak, the edging strips and handle pieces all being from this wood. The great advantage these trays have over the usual type of moulded-edged tray, is that by having the edge pieces and ends cut off "short" there are no mitres at all to worry about in marking out and cutting.

Fancy Edging

With the type of tray shown here then, all that is necessary for each is a flat base and four simple straight pieces glued and screwed on.

In Fig. 1 is shown a plan of the three base pieces. All must be carefully squared up to the measurements given, the two larger bases being of $\frac{1}{2}$ -in. thick wood, while the smaller one measures 13 ins. by 8 ins. and should be $\frac{3}{4}$ in. in thickness. Clean off the edges with glasspaper after sawing, and then mark and cut off the

those for the short sides are $1\frac{1}{2}$ ins. wide. Cut off two pieces for the large tray therefore 13 ins. long, two $11\frac{1}{2}$ ins. long for the middle size tray and two 10 ins. long for the small tray. Round off the upper edges and mark where the centres come so the simple decoration along to the tops may be set out.

The upper diagram in Fig. 2 gives the appearance of the top, and Fig. 3 shows this in detail with the widths and positions of the centres for marking them on the wood with a pair of compasses. The notches—for that is really what they amount to—will be cut in with the fretsaw and afterwards cleaned off with glasspaper.

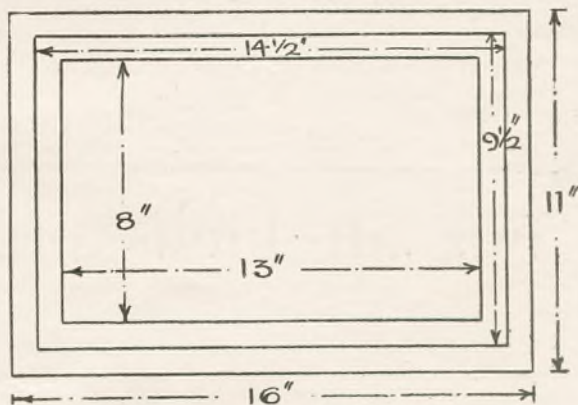


Fig. 1—Dimensions of the three trays.

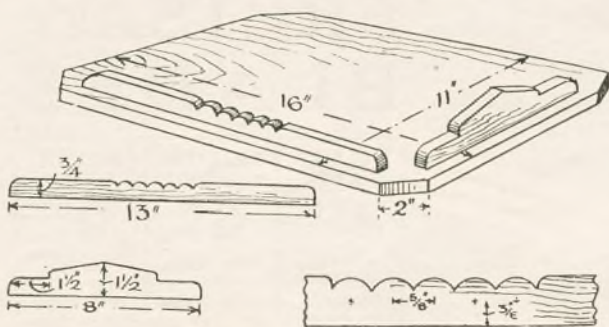


Fig. 2—The base and its two side rails.

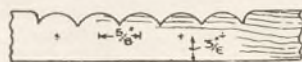


Fig. 3—The edging.



Fig. 4—A section showing how they fit into each other.

The Side Rails

Having all six of the rails cut and cleaned up, a margin of $\frac{1}{4}$ in. should be drawn in from the edges of the bases and the rails then glued on, two screws being put through each after the glue has hardened. The shorter, or hand rails will next be marked out and cut according to the lower diagram in Fig. 2. The shape of the centre raised portion can be used as a template for drawing round to get other five rails to the same outline. The position of all these short rails and the fixing will be the same as for the longer rails.

Figure 4 is an enlarged section through the trays

four corners of each piece. The width of the corner after cutting should be 2 ins.

The upright rails of the trays are all of $\frac{3}{4}$ in. thick wood, those for the long sides being $\frac{3}{4}$ in. wide while

MISCELLANEOUS ADVERTISEMENTS

The small "to sell" or "wanted" announcements appearing below are accepted from readers who want to sell anything except fretwork goods, or from usual advertisers of bargains of interest. The advertisements are inserted at the rate of 2d. per word. Name and address are counted, but initials or groups, such as E.P.S. or £1/1/6 are accepted as one word. Postal Orders and Stamps must accompany the order.

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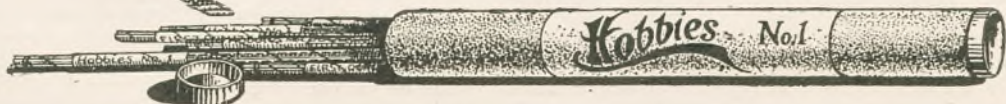
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ON the 1st of February 1928, Cyprus issued a set of ten pictorial stamps to commemorate the 50th anniversary of British Rule, and no doubt many readers of Hobbies Weekly have specimens of this set in their collections. These readers would almost certainly have expressed sorrow on January 31st 1929 when they found that the pictorial stamps were no longer available and that



A Cyprus Stamp.



In Memoriam.



An Unemployment Stamp.

the island had gone back to the old issue, the design of which was the same for all values.

Now Cyprus has again come forward with a pictorial set, this time of eleven values with eleven different designs, most of which are ancient monuments.

The stamp chosen to represent this set is the 1½ piastres, and the design shows the Kyrenia Castle and Harbour. A very brief survey of the history of the Island will show the importance of the castle in ancient times. Suppose we start with the coming of Christianity brought to the Island by Barnabas and St. Paul. The prosperity of the island was wrecked by Saracen raids and then later on Byzantine misrule added injury to insult. In 1191 it was occupied by Richard Coeur de Lion and his statue appeared as the main theme on one of the 1928 issue.

The island was then sold to the Templars, and later to the King of Jerusalem whose dynasty gave place to Venetian rule in the latter years of the 15th century. It was during this Venetian rule that Kyrenia Castle was built. The set was issued on December 1st, and on that date the set with the portrait of King George was withdrawn.

NEW ISSUES

LITTLE need be said about the mourning stamp issued by Jugo-slavia in memory of King Alexandra who was assassinated only a short time ago. There are no less than 14 values in this set,

which will probably be on sale for six months. The stamps are all of the same design, similar to that issued in 1931, except there is the black border.

STAMPS are now used to aid so many various societies and funds by some countries of the World--that it will not come as a surprise to readers to learn unemployment funds are assisted by this means. Actually this is not the first unemployment stamp



From Germany.



And the Saar.

which has been issued by Peru. This country in the past had two very appropriately designed stamps for the purpose. In 1931 and again in 1932.

Germany was one of the first in the market with her charity stamps and last year she chose to illustrate some of the common ways of earning a living. The set com-



prises nine stamps ranging from 3 pf. (plus 2 pf. for charity) to 40 pf. (and 35 pf. for charity) and the subjects are as follows; clerk, blacksmith, mason, coal miner, architect, farm labourer, scientist, sculptor, and judge.

Germany seems to be very keen on miners as subjects for stamp designs. These were depicted in the issue of 1921 and again in 1922, and if you compare the issues, the latter appears to be just the reverse of the former.

The Saar Plebiscite which is taking place on Sunday, Jan. 13th, is advertised by overprinting the issue "Volksabstimmung 1935."

The stamps of this territory should be well worth a little extra care. They are not expensive, but the various issues will, in a little while, be of great interest, so collectors should get together a representative collection while the prices are still low.

OFFICE boys seeing the stamp which comes from Cirenica will be extremely thankful that Great Britain does not go in for such 'posters.' The size of the stamp is 4.8 cms. by 4 cms., while the British 1½d. is only 2.4 cms. by 2 cms., so that it is exactly four times as big. Some idea of the relative size is given in the illustration



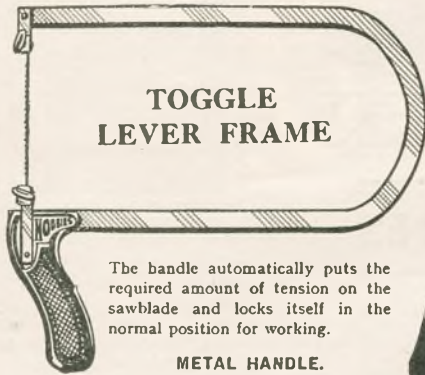
A Red Cross Stamp.

above, compared with the others.

The last stamp was very kindly sent by Mr. E. Hayes of Romford, and is one of an issue of four from Japan. It was issued in connection with the 15th General Meeting of the Red Cross Society, and shows a view of the building in which the meeting took place.

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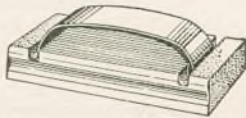
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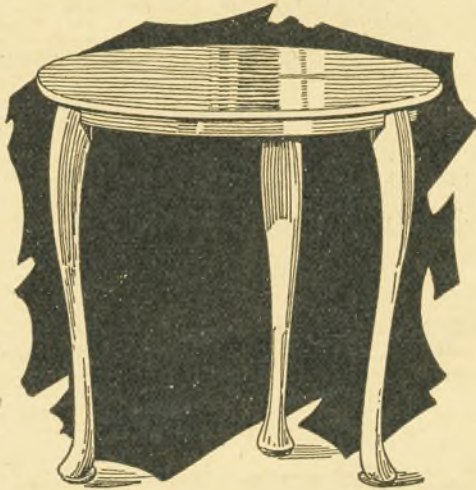
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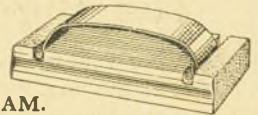


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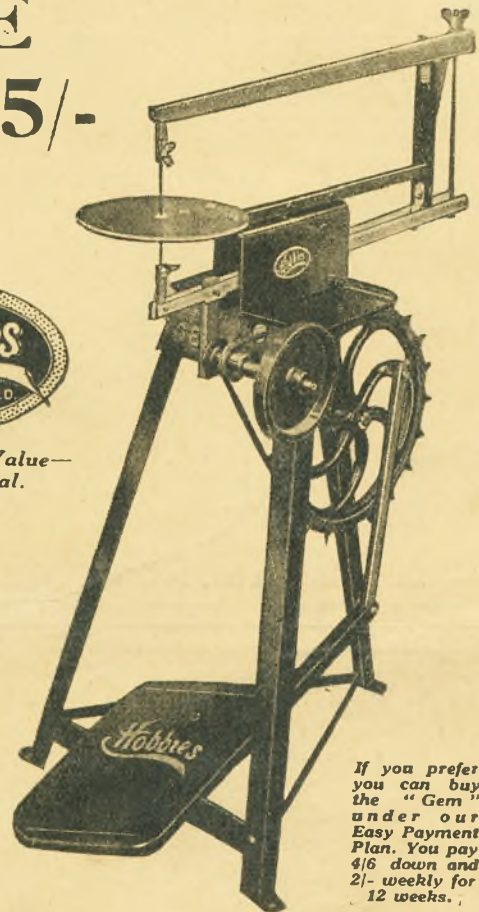
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