

Hobbies

WEEKLY

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January 16th, 1952

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You can make this USEFUL BOX FOR PLAYING CARDS

(with Built-in Trump Indicator)

WE show at Fig. 1 a novelty box which might well be made up as a gift. It is made to contain two packs of playing cards, and the front is so constructed inside that a moving disc tells the particular trump required in the little cut-out 'window'. As will be seen in the illustration, the disc referred to projects slightly beyond the face of the box and is easily drawn round by the index finger when a change of trump is desired.

The lid of the box is made in two layers, and the whole, when made up, is cut through on a line drawn across the top layer. The lid is held closed by a small brass hook and eye at the back of the box.

Room for Two Packs

Inside the box there is a central partition of wood which holds the two packs of cards apart. The simple construction of the box and its mechanism inside is explained in the cut-away sectional diagram Fig. 2.

In making the box, start off with the base piece (A) which is $3\frac{3}{4}$ ins. long by $3\frac{3}{8}$ ins. wide and $\frac{1}{8}$ in. thick. All the wood used, incidentally, is $\frac{1}{8}$ in. thick.

Next, mark out and cut the two sides (B). Each is $3\frac{3}{4}$ ins. by $2\frac{3}{8}$ ins. One of them must have a recess cut in it 2 ins. long, as noted in Fig. 2. The width of the slot must be a full $\frac{1}{2}$ in. so as to allow the disc to protrude, and move round freely.

The front and back of the box, parts (C) are $3\frac{3}{4}$ ins. long by $3\frac{3}{8}$ ins. wide. The

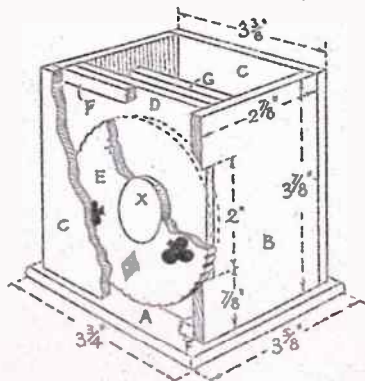


Fig. 2—Cutaway drawing, showing construction

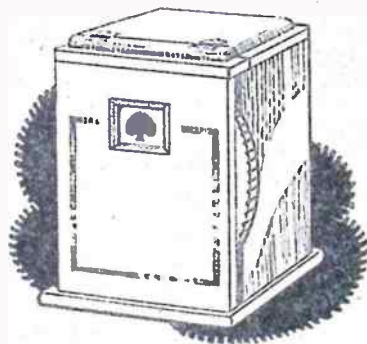


Fig. 1—The box ready for use

back is a plain piece but the front will have the 'window' cut in it according to the measurements shown in Fig. 3. The inner partition (D) will be a plain piece $3\frac{3}{4}$ ins. long by 3 ins. wide, and on this will be glued the small disc (X), round which the larger disc (E) will revolve.

Certain measurements must be set out on piece (D) to ascertain the centre from which the two circles, shown dotted, must be described. The smaller circle is $1\frac{1}{2}$ ins. in diameter, and this should be drawn on the wood as a guide, so that when the disc is cut out and cleaned, it may be glued accurately in this place. The large disc of wood, with the smaller one inside, should next be cut from the full-size diagram given. Carefully trace in the five trump outlines by means of carbon paper in the exact position and angle shown and paint them in with either oil paint or water colour.

Different Centres

It will be observed from Fig. 3 that the

SELECTING OR BUILDING AN INSTRUMENT

The old stand of this microscope cost only £1 some twenty years ago. Since then — A ×10 eyepiece has been added as an alternative to the ×5; an eyepiece micrometer has been added; a drawing prism (camera lucida) has been obtained; the old body tube has been shortened; a selection of objective lenses has been purchased; a triple nose-piece has been added to take any three of the objectives; a 'mechanical stage' has been built; a sub-stage has been built in, carrying an Abbe condenser and an iris diaphragm; a polariser and analyser have been adapted to be placed in the path of light when required; electric lighting has been added, dispensing with the mirror and having oblique lighting from above as an alternative to the sub-stage lighting.

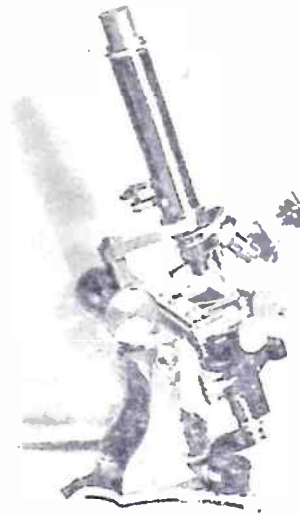
There are, obviously, other things that matter. It would be useless buying an old model of standard size with its parts rattling loose so that no sort of exact adjustment was possible. Rather buy a dependable miniature model than that. But good stands (as microscopes without their lenses are called) that have seen long service can be bought second-hand very cheaply, and a variety of lenses, second-hand or new, can be obtained to use with such stands.

Magnification

With low priced models, one is often told the 'number of times it will magnify', and here are two points worthy of our attention. In the first place, the degree of magnification is of less importance than the clarity of the enlarged image. A cheap lens will often magnify considerably but because it is not 'achromatic' it will give a halo of all the rainbow colours round any object being examined; or a cheap, badly made lens may distort the image or give a definition without any clear edge. Such faults should be looked for before any purchase is made.

The second point is regarding the degree of magnification. A salesman may say that the instrument magnifies a hundred times, and so it does, area for area, but microscope magnification is calculated in linear measure, not by

(Continued foot of page 242)



TO one who is going to make a hobby of microscopy, the selection of a suitable microscope is the most important item to be considered. Often, a choice has to be made between buying a new model, buying a second-hand one, or building a microscope for oneself. What are the guiding factors?

Naturally, the money available is a

primary consideration, but it is often cheaper to pay a little more and obtain a 'standard model', even if second-hand, than to buy a new one, the objective and eyepiece lenses of which are not of R.M.S. standard size, and are, therefore, not interchangeable with other standard lenses; for most microscopists seek to build up a collection of lenses of different magnification eventually.



Fig. 1



Fig. 2
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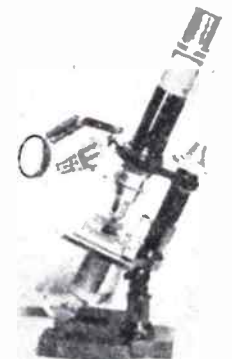


Fig. 3

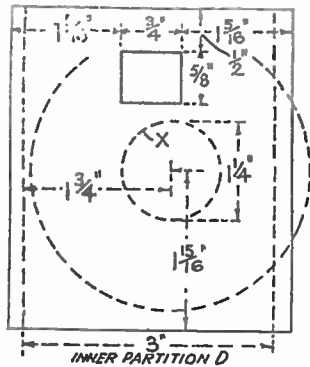


Fig. 3—Details of the front panel

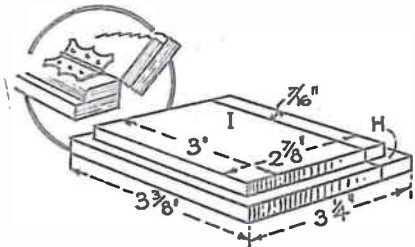
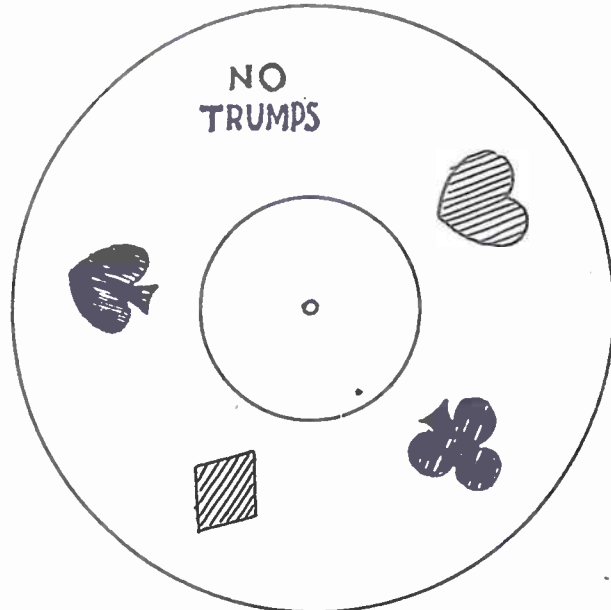


Fig. 4—The lid



Full-size diagram of the Indicator disc

angle to clear the disc nicely as shown.

Two fillets of wood 3ins. long and about 1/4in. wide should be glued, one at the top and one at the foot of partition (D) for the front to rest against, as seen in (F) Fig. 2.

The front of the box should now be fixed, and it may be glued on in the ordinary way or screwed with, say, four or six brass round-head screws. The partition (G) inside the box measures 3 1/2ins. long by 3ins. wide and this can simply be glued neatly after cutting it carefully so that it wedges firmly between the sides.

The Lid

Details of the lid have been given previously and little more need be said

about it. The two combined diagrams in Fig. 4 give the necessary details, the circled figure showing how the lid would appear when partly open and the type of hinge suggested for it. A pair of those 7/8in. long ornamental hinges, which are in brass, may be obtained for 5d. the pair from Hobbies, the number when ordering being 5308. The top number (I) of the lid should have its edges rounded over and made neat and smooth; indeed, all edges of the completed box should be just lightly glass-papered off.

Little can be said regarding the sort of wood suitable for this box. Any dark variety would answer, but it is suggested that a white wood be used for the disc which travels round behind the 'window', the trump signs showing up so much to advantage on such a wood. (234)

Fig. 3 shows a second-hand microscope that once belonged to a doctor, and which takes standard lenses. This was bought for a few pounds and it will do all the amateur will generally require.

With any such instrument as these described, an amateur microscopist has a whole world opened up before him, and thousands of interesting hours ahead. (167)

Another article on Amateur Microscopy is due soon.

centre of the 'window' does not coincide with that of the discs. This, then, accounts for the painted markings appearing slightly out-of-centre. The large disc must work freely round the smaller one, but must not be too loose—there should be just sufficient friction between disc (E) and the back partition (D) to hold the former rigidly in place after turning to the trump sign required.

Small cross grooves may be cut in round the edge of the large disc with a vee file to assist in turning with the finger. After fitting the discs and seeing that all is well, finally fix the partition (D) between the sides, noting that the projecting disc clears the slot in the side, the ends of this being cut at an

Amateur Microscopy—(Continued from page 243)

area. The 'hundred times' (written ×100) is really only a ×10 instrument, whilst a genuine ×100 model, in the hands of the same salesman would become a wonderful ×10,000 instrument!

It is often interesting to build your own model. The writer was once given a simple instrument, as in Fig. 1, and he built a wooden foot and body for it, with pivot to allow it to be bent into the most comfortable position for use, and with a small wooden stage, reproducing in hard wood a reasonable copy of a good microscope.

The success of this prompted him to build a rather more ambitious model, this time making wooden patterns for the foot and body, and having them cast in iron and aluminium respectively before building the complete microscope. Brass tubing of different sizes that would slide, one piece inside the other, was used, the top tube being of such size as to take standard eyepieces, and the cap of a standard objective lens being drilled through was soldered into the bottom of the lower one so that it will take standard objective lenses. This finished model is shown in Fig. 2.

For the '301 up' enthusiasts — A HANDY POCKET DARTS CASE AND SCORER

MANY players like to use their own favourite darts, and will appreciate having this handy little pocket case in which to keep them safely; especially as it incorporates a neat scoring device which can save a good deal of arithmetic. Full-size patterns for the case are given on the inside back cover, and the construction will be found to be quite straightforward.

Before making a start, however, it is as well to make quite sure that the darts to be used will fit the measurements given, since different makes vary slightly. The usual size is about 5½ ins. from point to end of flight. The measurements given will accommodate darts up to 6 ins. long, but anything more than this must be allowed for by extending the patterns for base, lid, sides and scoreboard, as necessary. Wood of ½ in. thickness is allowed for, but this also can be easily varied if required.

Having checked up the size, the patterns can be transferred to the wood. It will be noted that four of the pieces marked 'side' are required; also four of the 'ends', two of the 'base and lid' and two of the 'scoreboard support'.

Cut out the parts carefully and make the six saw-cuts in the scoreboard, as shown. The two pairs of longer slits are for the tens and units, and the two short slits for the hundreds. The actual score numbers are written in Indian ink direct on to the wood. Their position can be easily marked out with a ruler if it is noted that there is a space of exactly ½ in. between each mark, from 0 to 9 and 0 to 90 on the two longer scales and 0 to 300 on the short one.

For the pointers, cut six little pieces of thin sheet brass or tin (or plastic material if preferred), and have ready six small brass paper clips of the 'bend back' variety, with which to fix them on, as shown in the sketch.

Assembly

Glue or screw the two sides and two ends to the base and four similar pieces to the lid. Before deciding on the exact position for the two dart supports try them in with the three darts to be used. Note that two of the darts lie one way and one the other, so that the flights do not touch. Arrange the supports so that the darts can be lifted in and out easily; then glue or screw the supports into position. Glue the two scoreboard

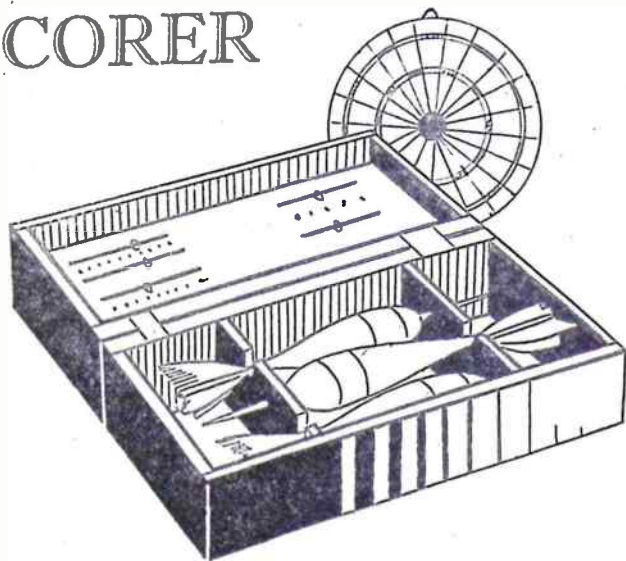
supports on to the insides of the lid but do not add the scoreboard until the calibrating has been done.

The Scoreboard

Draw a line centrally between each pair of slits, and mark it out in ½ in. spaces. Note that in each case the slits extend ½ in. beyond these figure-lines at each end. If a hard sharp pencil or scriber is used to do the marking-out this makes a slight indentation in the wood which can later be gone over and filled up with Indian ink, which makes a more lasting job than simply writing on the wood. Mark the top long line 0, 10, 20 and so on in tens up to 90, and the bottom line 0, 1, 2 in units up to 9. Draw a similar line between the two short slits and mark it 0, 100, 200 and 300.

When the figure work is quite dry, bore a small hole in the head of each pointer and fix one into each slit with a paper clip, as shown in the sketch. They should slide along in the slits quite easily when pushed with the finger. If they do not, run an oddment of glass-paper down the slits a few times to make it a fraction wider. Then give each paper

Full-size patterns on
page 255



clip a gentle tap at the back, to ensure that it is closed up fairly tightly.

When the scoreboard has been made to work nicely, glue it down into position in the lid, resting on the two side bearers provided for it. Then fix the lid to the bottom half with a neat pair of hinges. The case and the score indicator can then be finished off in any way preferred. Black and red is a combination that looks very effective if well done, and matches the dartboard which is often in those colours.

Counting the Score

There is a right and wrong way to do this with this type of counter. The simplest method is to count back from the ten or hundred above, as the case may be (from 301, of course, to begin with). For instance, supposing A gets off first with double 17, that is 34. His pointers will be standing at 3 hundreds, 0 tens and 4 units. 34 from 101 is 67. So we reduce the hundreds to two, put the tens on 60 and the units on 7, to read 267. Then supposing he scores 104. Back goes the hundreds to 1 and the units to 3, to show 163. Next he gets 84. So we reduce the hundreds to 0 and add back the difference between 100 and 84 on the other two; i.e., we push the tens up one to 70 and the units up six to 9, to read 79.

With a little practice this method becomes almost automatic, and saves a lot of arithmetic with chalk or pencil.

There's no need to forget—make this novel BIRTHDAY REMINDER

WE all like our own birthday to be remembered when it rolls round; but often in these busy times, that of our friends gets forgotten until the day after—or the shops are closed. It is always embarrassing to have to make apologies. Here then is a useful novelty that solves the problem—and without disclosing (except to those in the know) that we have the aid of a memory 'tickler' at all.

In appearance it is an ordinary cut-out calendar of the perpetual type, that lasts for any number of years, whatever the date. But concealed under the roof of the house (which is a movable piece lifted up each day to change the calendar) is another little set of cards, which does the trick of bringing to our notice in good time the next birthday on our list. Each of these cards has on it one name and date—there can be as many as we are lucky enough to have friends—and by keeping them in date order and moving each one after it has done its job, from the front to the back of the pack, we are not likely to appear forgetful in this pleasant little act of friendship again.

A piece of plywood, or other thin wood, 8 ins. by 6 ins. is required for the cut-out background, and oddments of the same wood can be used for the pieces

making up the loose roof. The rebates holding the two sets of cards can be either of cardboard or wood, according to the number of cards used. The only other requirements then are the cards themselves, which can be cut from post-cards or similar white board, and some bright enamels with which to finish off the design.

Fig. 1 shows the outline of the design for house and postman, and is ruled in ½ in. squares for easy copying. Rule out the board, draw in the design, then cut round the outline carefully, making internal sawcuts for the principal parts of the postman but leaving the fine details to be added with a brush when we come to finish off.

As will be seen at Fig. 2, the loose roof piece is identical with the roof of the house itself. It fits in front of it, and is held in position with two struts glued on to the back of it. These strut pieces are marked (A). One of them is glued direct



on to the back of the loose roof, and its projecting corners, when appropriately painted, give the dormer window effect seen in the finished sketch.

Behind this front strut two triangular pieces, marked (B), are glued, one flush with each end. And on the back of these is glued the second strut, thus forming a means of hanging the loose roof over the pointed end of the gable on the main design.

The front strut of the loose roof piece rests, when in position, on the rebate holding the birthday cards, which are thus hidden from view except when the roof is lifted off. If the number of birthday reminders is not going to be more than, say, about twelve, a rebate made of two thicknesses of stout cardboard will hold them, and the corner pieces (B) will be of sufficient thickness if cut out of the ½ in. wood. But if the number of cards necessitates a rebate of plywood thickness, then the triangular (B) pieces will need to be cut double, or packed with extra cardboard—the idea being that the loose roof must hang level by having this rebate and the (B) corner pieces of the same thickness.

The Rebates

Fig. 3 shows the measurements for the rebates—two pieces being required for each. The dotted line in each case shows the additional width to cut the outer piece of each pair, giving the necessary groove for the cards to slide in and out from the top.

As explained, the two for the birthday cards can usually be cut from cardboard; but that for the calendar cards will need at least its inner piece to be cut from wood, to give sufficient space for the number of cards necessary. The dotted

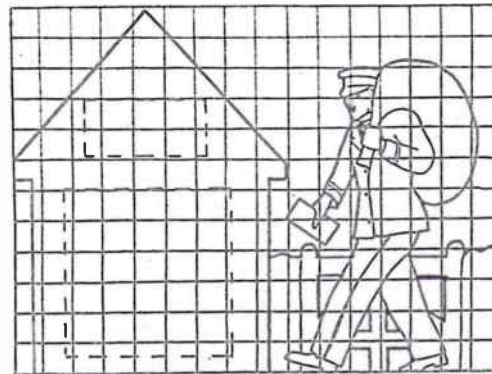


Fig. 1

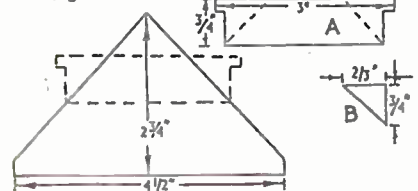


Fig. 2—The loose roof

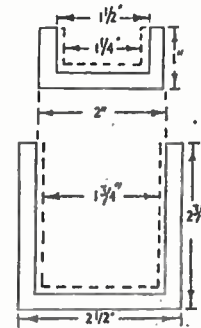


Fig. 3—The rebates

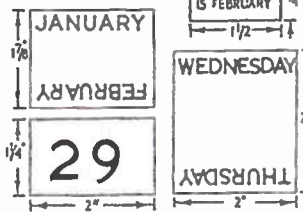


Fig. 4—The cards

Books to Read!

A review of interesting books for craftsmen which have been recently published. Obtainable through newsgents or book-sellers or direct from the publishers mentioned.

Small Electric Motor Construction

- by Gordon Hall

THIS book is a second edition of one published some 10 years ago, and for which there have been repeated requests for a reprint. It is doubly welcome at the moment as new motors (as distinct from ex-government stock, etc.) are not too easily obtainable. Although dynamo design is a complex subject and cannot readily be simplified, it has been possible in this book to give data and simple formulae enabling even those with limited electrical and mathematical knowledge, and modest equipment and skill, to design and construct motors giving results well up to their intention and expectation.

Published by Percival Marshall & Co. Ltd., 23 Gt. Queen Street, London, W.C.2—Price 5/-.

Soccer for Boys

by F. N. S. Creek

MOST of us at some time during our young lives have a desire to play football better than the majority of our fellows. Probably the desire is brought about by a wish to get into the school first eleven, but in some cases it may be a yearning to play for a professional team. Whatever your particular urge, this Junior Teach Yourself book is an ideal stepping stone to success. It is an exciting introduction to the most popular game in the world, and its instruction and pictures will set the reader on the

right road to becoming a fine player. Published by English University Press, St. Paul's House, Warwick Square, London, E.C.4.—Price 6/-

Model Railway Power Signalling and Point Operation

by E. F. Carter

ONCE again this 'back-room boy' of the model railway world gives all enthusiasts a book for which they have been waiting. It is the first really comprehensive work dealing with model railway power signalling, and point operation, and aims at covering the whole field in non-technical language and in such a way that even the enthusiast who is not technically minded should have no difficulty in understanding how to make and wire into his layout the apparatus necessary to enable his points and signals to be operated by power. As always, Mr. Carter has produced some highly original schemes and in particular a chapter on the possibility of electronic 'light ray' control is worthy of special note.

Published by Percival Marshall & Co. Ltd., 23 Gt. Queen Street, London, W.C.2—Price 9/6.

Craft of the Metal Worker

by R. Duddle

HERE is a book which will be welcomed by all who have a desire to become proficient in metal working. It describes and illustrates the principal

processes of the craft in a simple manner and pays special attention to the underlying principles involved in these processes. These processes have been grouped under five headings: marking out, cutting, forging, joining, and casting. A description of the processes of hardening and tempering has also been included and there is a chapter giving notes on the principal metals used by the craftsman.

Published by the Technical Press Ltd., Gloucester Road, Kingston Hill, Surrey—Price 17/6.

Amateur Photographer Diary 1952

THIS old friend in the photography world has now been on sale for some weeks, but a reference to it here will not be wasted as there are no doubt many of our readers who have not yet seen one. It is a handy size, 5½ ins. x 2¼ ins. and has 57 pages of reference material, plus the usual diary pages and seven pages for exposure records. The reference pages include valuable exposure tables, formulae, depth of focus tables and a host of information of use to the photographer whether he be amateur or professional. The diary is obtainable in two bindings, Morocco Leather and Rexine.

Published by Iliffe & Sons, Ltd., Dorset House, Stamford Street, London, S.E.1—Price 6/1½ (Morocco bound) and 4/3½ (Rexine bound).

month cards measuring 2 ins. by 1½ ins., and two day-of-the-week cards which measure 2 ins. by 2½ ins. The birthday cards measure 1½ ins. by ¾ in. Use good indian ink for the printing, and space the letters and figures out carefully, because calendars are made to be used for a long time, and bad work seems to grow worse with the daily familiarity, just as good work gives one a continual pleasure.

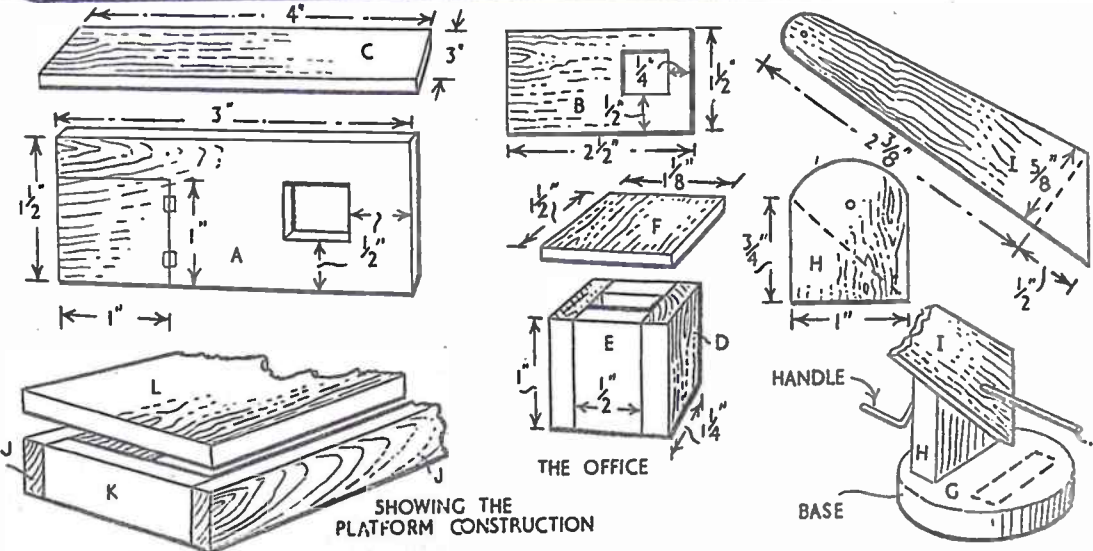
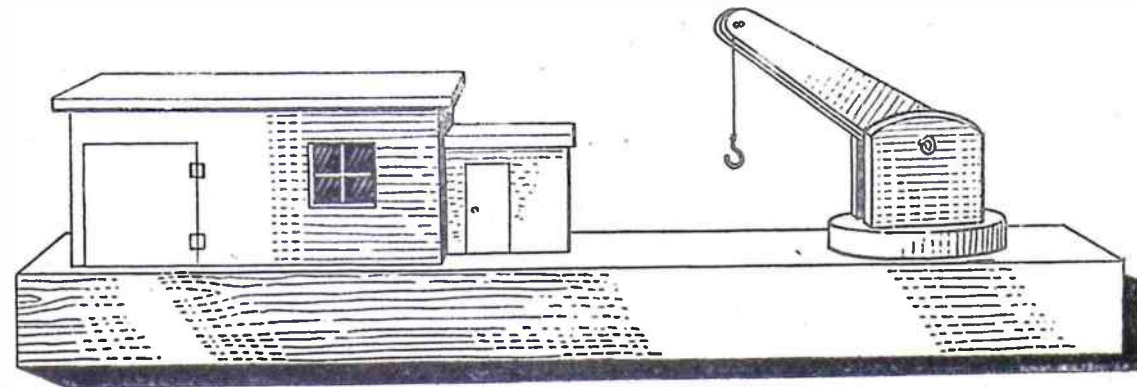
Finishing Off

As with the cards, it pays with this type of novelty to be particularly careful with the finishing off of the design. So take plenty of time over the brush work, allowing each colour to be thoroughly dry before adding the next. The postman's coat, hat and trousers will, of course, be blue, with a judicious use of

red lines to emphasise the design. The post-bag can be brown, with the strap in a darker shade; brown is also suitable for the gate, with the hedge in green.

The flesh parts of the postman will be pink or buff, with a few careful strokes a little darker for the features. The brick wall of the house is suggested by a red base with buff lines upon it; and the gables should be well brought out with dark brown, with a speckled grey for the pebble-dashing in between. Paint the top of the dormer windows black, for the roof, with small red brick work beneath. Then finish off by adding either a wooden strut at the back (if the calendar is to stand up) or, alternatively, a neat cord from the centre of the gable and the postman's hat, for hanging on a wall. (227)

A GOODS SHED AND CRANE FOR THE TOY RAILWAY



THE Toy Railway article this week deals with the construction of the Goods Layout pictured above. There is a shed and office, a large loading platform and a working crane.

Commence work by making the shed, consisting of pieces (A), (B) and (C). Two pieces of (A) are required and these are cut from ½ in. wood to the dimensions shown. The door is cut out and hinged back in place with either small brass hinges or pieces of tape. Pieces of transparent celluloid can be glued behind the window openings. The ends, pieces (B) are also cut from ½ in. wood and the front and back, pieces (A), are glued between them. The roof, piece (C), measures 4 ins. by 3 ins. by ¼ in. and is

glued securely in place. Pins or screws can be added if desired.

The small office is next made up. It consists of two pieces (D) and two pieces (E), which are of ½ in. wood. They are glued together and then glued to the end of the shed, so that pieces (E) face the back and front. The office roof, piece (F), which is cut from ½ in. wood, can now be glued in place. The door is painted on as shown in the sketch.

The Crane

The base is made from ½ in. wood and consists of a plain circle 1½ ins. diameter. Upon this are glued the pieces (H) also ½ in., which should be ¼ in. apart. Pins should be driven up from the underside of the base into pieces (H). Cut the

pieces (I) from ½ in. wood and glue to the inside of pieces (H). The handle is made from a piece of medium thickness wire—about 18 S.W.G., the end being bent into a loop after the handle is in place. The holes must be drilled large enough to allow the handle to turn freely. The top spindle is a fretpin pushed right through the two pieces (I). A piece of thread is now tied securely to the spindle part of the handle and passed up over the top spindle, terminating in the hook which is bent from an odd piece of wire.

The Platform

The sketch in the lower left-hand corner shows how it is put together.

(Continued foot of page 248)

It isn't hard to make an ELECTRIC NERVE TESTER

As a side-show for fêtes the device described below should prove useful. The 'Nerve Tester' consists of a brass or copper tube, about 3ft. long and 1½ins. outside diameter, encircled by a metal ring mounted on a handle. There is about ¼in. clearance between the ring and the tube, and the idea is to move the ring the length of the tube, without coming into contact with it. Should this happen an electric bell rings. Few people, especially when excited, have a really steady hand, whilst owing to the well-known mechanical law of levers (the arm and the handle

tin-foil or thin copper bent round and nailed on will suffice. The present writer made use of this latter expedient. The tube is supported by wooden trestles, about 3ft. 6ins. high. The front and back runners may be bolted on so as to allow the stand to be packed and stored flat. Probably the best way of securing the tube is to screw it on, making sure that all is well insulated.

The ring can either be of rectangular section, as illustrated, or made of round rod. It is mounted on an insulated handle. This latter has a hole down the centre, through which a piece of flex is run and soldered to the ring. This flex

end of the tube is insulated for the length of 1in. or 2ins., so that the ring can hang on it without causing the bell to sound.

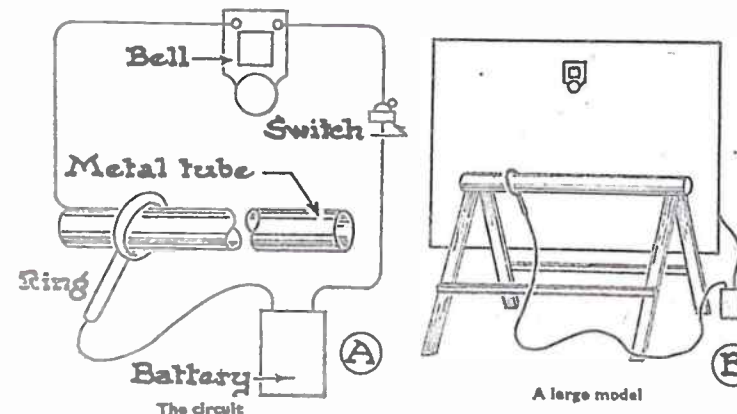
The bell can be mounted on a plywood panel fixed to the wall or the back of a booth. This board will be highly decorated in the manner of side-shows.

A smaller edition of the foregoing can easily be made for use at home, and should prove an entertaining novelty at parties and entertainments. It will not be necessary to make large trestles. Two blocks of wood resting on a table will suffice. For use at public affairs such as bazaars, etc., the apparatus should be as solid and as imposing as possible.

Instead of having a straight tube or wire, we can have a wire bent into curious shapes, as shown. A really novel idea would be to have the wire bent in the form of, say, an outline map of England. Another novel idea would be to have the ring and stick separated by a somewhat weak coil spring so that the ring had a decided wobble.

It will be appreciated that the trestle, etc., arrangement, shown in the diagrams is just a foundation support. Such a utilitarian arrangement is, afterwards, well disguised.

The amateur electrician can arrange matters so that if the ring makes contact with the rod, not only the bell rings but the holder gets a mild electric shock (from a shocking coil incorporated in the

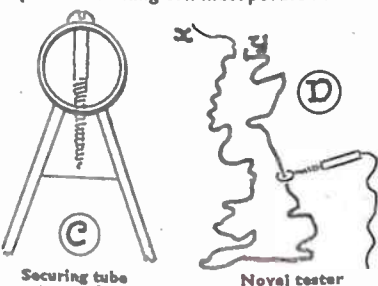


acting as a lever), a tremble of the hand is magnified, making the accomplishment of getting the ring to the end of the tube by no means easy, though, of course, by no means impossible. Made up as a side-show for a fair or bazaar, this apparatus is bound to attract attention, and as the odds are in favour of the promoters a good profit is assured.

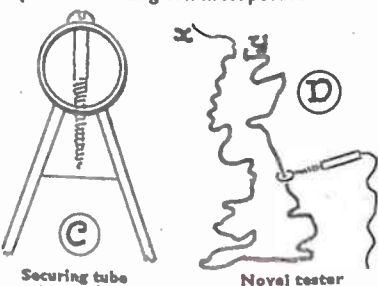
As it is presumed that the maker will utilise odd pieces of material, no definite dimensions are needed. The most difficult part to obtain will be the tube. If the cost of a new tube is prohibitive and a search in the junk stores proves fruitless, a wooden rod covered with

leads to one pole of a battery. Any good bell battery will do, though care should be taken to see that it is fully charged. This battery is placed somewhere behind the scenes, and sufficient flex allowed so that the ring can be moved without hindrance.

From the diagram it will be seen that a wire is led from one end of the tube to a terminal of an ordinary electric bell, whilst the other wire leads from the other pole of the battery to the other terminal of the bell, being broken by a small switch. The switch is only closed when the apparatus is not in use—during an interval, for example. The left-hand



Securing tube to trestle (C). But make sure this is a very mild shock—a mere tickle or tingle—and not a real shock. (178)



A Goods Shed and Crane—(Continued from page 247)

The short end pieces (K) go between the long pieces (J). These are cut from ½in. wood. The platform top (L), also cut from ½in. wood, is simply glued on the top of these. The measurements are (J)—9ins. by ½in., (K)—3½ins. by ½in., (L)—9ins. by 4ins.

The shed and office can be screwed to

the platform and the crane secured by drilling a hole in the platform and running a round-head screw up into the base (G). This enables the crane to swivel and also holds it securely in place. Finish off by painting in bright colours as advised in previous articles. (228)

The demand for 'Hobbies Weekly' is constantly increasing. Make sure of your copy by placing a firm order with your newsagent.

Here are some practical FITMENTS FOR THE HOME

THERE are plenty of improvements one can make in the home, and in some of them one can use up boxes obtained from the grocers.

In Fig. 1 you will see a totally new idea for a corner recess fitment. For this, one can use what are known as 'fat' boxes, and they cost 6d. to 9d. at the local grocer's. They are just the correct size and contain some very good wood. Take out the nails, as these are rather

The outer edges can be fitted with half-round beading which will cover up all the joints and can be mitred into the corners. In planning this unit you may consider a little illumination, and this should be worked out before it is all fitted up.

Bedside Shelf

For a small room one often finds that they cannot fit in a bedside shelf due to there not being sufficient space. As shown in the sketch, one can work in two very good shelves which can be allowed to overhang quite a bit to suit the goods you intend to have. In the side at the edge of the fireplace one can fit in a space for books.

Note that this fitment is built up first on a wooden frame so that you do not damage the existing structural part of the room. Wood used for this should be 2ins. by 1in. The short panel will make an ideal spot for a small hanging clock. Hardboard can be used for the sides and

explained for the first fitment. If you use this, build it up off the floor by about 3ins. so that dust and dirt will not harm the books or articles.

Decoration Is Important

Decoration plays a great part in the success of these fitments, and always avoid heavy shades on articles of this type. Some art shops stock wood grained paper which is very effective for lining boxes. It suits the display of china and illuminates well.

Pale shades of blue for the edges of the wood will also improve it and this can be blended with a pale pink background. Provided you do not use it too lavishly, the introduction of silver is another innovation.

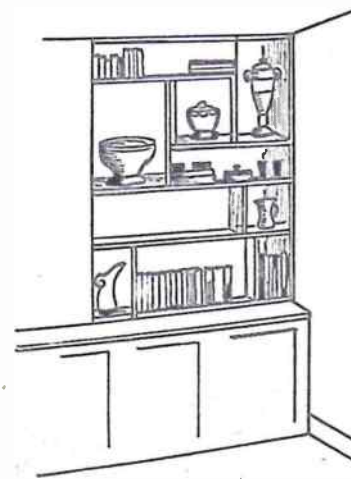


Fig. 1—Fitment for a corner recess

unsightly, and replace with some thinner nails to hold the board together. You may be able to reverse some of the boards and put the better sides inside where they will show.

Designed for a Purpose

As you will see, this fitment is designed more to suit the articles you have than to just grace the room. Plan what you are going to have in it and then draw it out on graph paper. You can then balance it up by using some ordinary boards for the more straight parts. The design is pleasing, practical and unusual, and does not look too much of a set pattern. All the space is used up to advantage and the books, not always a good picture, are interwoven with the design.

You can line the boxes with stiff art paper put on with paste, and shades of pink and blue could be used to set it off. Where it is likely to be worn, one can use some oddments of plain linoleum tacked on the base of the box or shelf. This is better than paper.

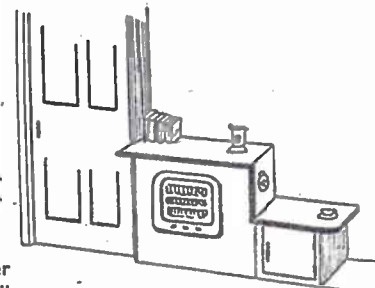


Fig. 2—A useful bedside arrangement

the top. Here again, finish off with half-round beading which is easy to use and not too ornate for the furnishings of the room.

Space permitting, one could use a box from the grocers for the small part as

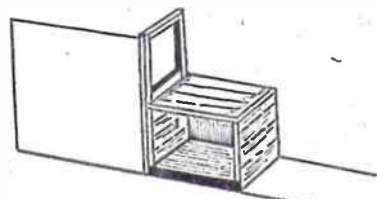


Fig. 3—How the fitment in Fig. 2 is made up

Sheets of pastel shade plastic may be a little expensive, but as you have saved expense on the cost of the fitment you can afford to have some of this sheeting cut and it lasts a lifetime. It can be fitted by the use of clips or plastic cement. Filling this, a little depth on the beading above the shelf will hold it and then the panels can be removed for cleaning.

On sharp bends such as shown on the lower shelf in the bedroom shelves the beading can be cut slightly on the flat side at intervals of ¼in. This will then allow it to bend to shape. (214)

The 'Suratel' Suppressors

Some time ago, Messrs. Wolf Electric Tools announced the introduction of "Suratel" radio and television suppressors for the Wolf Cub Home Constructor Drill. Both suppressors were the result of prolonged experiment and research work in close collaboration with G.P.O. Engineers, and have proved highly successful in use.

The "Suratel" radio suppressor, illustrated here, is guaranteed to eliminate interference on the B.B.C. Broadcast wave lengths. It is of a special neat streamlined design in an attractive black wrinkle finish and weighs approximately 6ozs. Properly connected it will eliminate interference even with a poor aerial installation. It is priced at 21/6 and is obtainable from Wolf Stockists and dealers throughout the country.

Unlike the radio unit the "Suratel" television suppressors are fitted inside the Cub Drill body. Owners should return their machines to the nearest Wolf Service Depot where a "Suratel" will be fitted for 5/6.



The Radio model



BRITISH PEOPLE ON STAMPS (PART 2)

ONE great statesman who, although he does not in person appear on a postage stamp, has his name on the 3d. value of the 1933 issue of Sierra Leone—the stamp which shows a native girl carrying a large basket of fruit on her head—is Sir William Wilberforce. He it was who brought about the abolition of slavery. The Bill did not become law until just after his death in 1833. He was buried in Westminster Abbey.

Cecil Rhodes, a name so well known in matters African, was for a very long time only commemorated by the name of the country, Rhodesia. In 1940, however, Southern Rhodesia issued a set in commemoration of the British South Africa Company's Golden Jubilee. The 1½d. value shows a portrait of Cecil John Rhodes and the 6d. a statue of Sir Charles Coghlan. Two more statesmen appear as very small portraits, parts of groups—Anthony Eden in the 1936 Anglo-Egyptian Treaty Commemorative and W. C. Cowie on the 4c. of the 1909 set, showing the Sultan of Sulu (who was the first chairman of the Company), together with his staff.

The explorers Gilbert and Guy are both on the stamps from Newfoundland, and all should have copies of these. Then we have Stanley—not on a British Colonial stamp but on a Belgian Congo stamp (1928) issued for the 50th anniversary of the Exploration of the Congo. Probably the best known explorer of all is Captain Cook, so we must mention him here. But we will not dwell on him, as surely everyone must have a specimen stamp, and also a full knowledge of the work he did.

The Services

Now, we pass on to the Services. Lord Nelson, could we mention a more famous name? Turn to the stamps of Barbados. In 1906 there was the set in commemoration of the centenary of Nelson. It should have come out the previous year because Nelson was killed on board the Victory in October, 1805. Nelson made a number of visits to the West Indies. In 1787 while in the West Indies he married Frances Nisbet, so it is

not surprising that we have his statue on their stamps.

On the 7c. of the 1908 issue of Canada we have the portraits of Generals Montcalm and Wolfe. It was General James Wolfe who was killed at the age of 32 while storming Quebec. The story of the taking of Quebec starts with Wolfe taking up a position on the heights on the opposite bank from which he bombarded it for two months. Then he transferred his forces to ships and landed close to Quebec. Montcalm, whose portrait appears on the stamp opposite to that of Wolfe, was trapped into making a counter attack. This was not successful and Quebec was won, but Wolfe was killed at the height of the battle.

Another British General is portrayed on the stamps of the Sudan issued in 1935 to commemorate the 50th anni-

versary of the death of General Gordon. Other stamps which were used during the siege were the stamps of the Cape of Good Hope and also the stamps of British Bechuanaland with a surcharge 'Mafeking Besieged 3d.' It was in 1908 that Baden Powell started the Scout Movement and the first camp was on Brownsea Island.

An English Admiral appearing on a Greek stamp of 1927 is Sir Edward Codrington. He fought throughout the Napoleonic Wars and was in command at the battle of Navarino, a picture of which appears on the stamps of the same country.

Sir Walter Raleigh appears on one of the most beautiful stamps printed, the 6c. of the 1935 and the 6c. of the 1938 sets of Trinidad and Tobago, and again on the 96 cents of the British Guiana sets of



The explorer Stanley depicted on a stamp of the Belgian Congo

The first statue in memory of Nelson, shown on a Barbados stamp

A Trinidad and Tobago issue showing the discovery of Lake Asphalt by Sir Walter Raleigh

An Australian stamp honouring Capt. Charles Sturt

1934 and 1938. In the latter case it is a picture of the statue of Sir Walter Raleigh and his son. He was born near Budleigh Salterton in Devon in about the year 1552. Little is known about him until his exploratory voyage in 1578 with Sir Humphrey Gilbert. In 1584 he attempted to colonise Virginia and N. Carolina and so lost favour at Court. In 1592 he was committed to the Tower of London, but later released. Again in 1603 he was sent to the Tower, but on his offering to go in search of El Dorado, he was again released. Unfortunately for Sir Walter, he was not successful in his search, and on his return in 1618 he went to the Tower for the last time—to be beheaded.

Legend and Fact
Many legends surround his name.

(Continued foot of page 251)



Painting Chinaware

I HAVE tried unsuccessfully to paint china and pottery with sealing wax melted in meths.; the fault being that the wax never really hardens, and washes off within a week. Could you explain a more reliable method and ingredients used to give a waterproof finish, or where have I gone wrong with the wax? (G.B.M.—Aberdeen).

THE addition of methylated spirit to ordinary sealing wax is to partly dissolve the hardening constituents in the wax, but in no case can sealing wax be considered as a good medium for painting on glass. Absolute permanence is best obtained by using suitable powdered earths or minerals as pigments, and 'firing' them into the glass in a furnace. However, any good enamel paint—not cellulose—will apply to glass, and after two or three days in a warm dry place, will have hardened thoroughly and will then withstand daily handling and washing for several years. Some colours are more transparent than others, and in such case, two coats may be needed to give sufficient density and body.

Working with Horn

I FIND that horn can be moulded and flattened by heat. I have tried same with boiling water, but it does not seem to get soft enough. On the other hand, when I put it in the gas stove it is inclined to burn. Can you tell me if my methods of heating are at fault? Also, can brick dust and putty powder be bought? (R.W.—Kilmarnock).

A NIMAL horn varies considerably in composition and structure, for example, the heads of deer are bone, the

horns of oxen are epidermic tissue; quite different from the 'bone' horns. Consequently a good treatment for one kind may not give satisfactory results with another. In most cases the bone is cleaned and cut into pieces as thin as possible, heating is often achieved by steaming, especially in a suitable and safe closed vessel, such as a pressure cooker. The horn is placed on a gauze wire or similar support, in the steam not in the water, because the steam temperature is higher than that of boiling water. Putty powder and the like can generally be had from a good builder's merchant or an engineers' sundriesman. You can also use Rottenstone, whiting and other fine abrasive obtainable from the same source.

Colouring Perspex

WHERE can I get dyes for colouring Perspex engraved floral brooches? I have tried Tintex dyes mixed with water and acetone, but it is not too good. (B.J.W.—Southampton).

SO far as we are aware there are no dyes which can be used locally to colour Perspex; it is coloured during manufacture. Aniline spirit dye dissolved in chloroform and brushed on, will probably be satisfactory, but a licence to use the chloroform would be needed, also an efficient gas mask, or you would become unconscious! You could try using any of the Perspex solvents and adding the required colouring matter to it in the form of aniline dye. An alternative is to use any good grade of cellulose colour (if you can obtain it) or failing that, try Robbialac or any good proprietary brand of synthetic paint.

British People on Stamps—(Continued from page 250)

such as that of his spreading his cloak for the Queen to step upon, and of his being the first man to smoke tobacco. But it was no legend that he was a good writer, and his books 'The Discovery of Guiana' and also the first volume of 'The History of the World' both show his ability in this respect.

Discoverers appear in great quantity on postage stamps. Such names as MacArthur who took sheep to Australia, and whose memory is kept alive by the present 5d. stamp as well as the set of three issued in 1934; and William Farrer, the biologist, who bred wheat and in consequence has his portrait on the 2½d. value of 1948, Sir Thomas Mitchell

Plaster Modelling

I MAKE plaster of paris moulds and models, but find they tend to crack or chip. Is there anything I could add to the plaster to stop this? (S.C.W.—North Wembley).

PROBABLY the cause of the cracking of the plaster is due to insufficient care in the mixing, or to serious variations in the thickness of the models. Where this happens, one part will dry and shrink faster than the neighbouring parts. The remedy for this is to fill out the model so that the cross sectional variations are reduced as much as possible. Another help is to use dental or superfine plaster of paris; there is nothing that can be added to the plaster to prevent cracking.

Removing Cellulose

I WISH to french polish a bedroom suite, but first I should like to know how I can remove the cellulose finish. (W.J.D.—Walthamstow).

A GOOD solvent is a mixture of petrol, acetone and methylated spirits in equal parts. This should be well swabbed over the wood and the softened cellulose scraped away. The solution is highly inflammable and must not be used near a naked light, in fact, it would be as well to keep it clear from any light or fire at all. When the work is dry, glasspapering and polishing can take place.

Suppressor Required

I HAVE a lathe working off a ½ h.p. 230 v. A.C. electric motor which is interfering with my neighbour's wireless reception. Can I do anything to stop this? (H.B.—Birmingham).

IT would appear you need to have a suppressor to stop your motor interfering with your neighbour's wireless reception. The post office or your local electrical stores will be pleased to advise you on the right suppressor for your case.

Lt. Bligh on the 2d. value.

Well that is quite a large selection of famous Englishmen whose portraits have appeared on stamps. There are others, and it should prove quite an interesting matter to go through the stamp album and see how many of those mentioned you have, and also see how many you have that have not been mentioned. Look up as much as you possibly can about the famous people—why their portraits have been put on the stamp and why that country rather than another. It will add tremendously to the interest that you already get from your hobby. (225)

THE green crystals of nickel sulphate contain more than just nickel sulphate. We can soon prove this by heating them.

Drop a pinch of the crystals into a hard glass test tube, tap them well into the bottom and clamp the test tube horizontally in your retort stand. Push in a little anhydrous copper sulphate until it is about 1½ ins. from the nickel sulphate (Fig. 1).

On heating the nickel sulphate it will begin to change colour. At the same time drops of a colourless liquid will

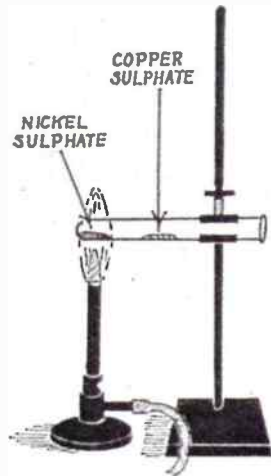


Fig. 1

condense a short distance from it and as they touch the anhydrous copper sulphate will turn the latter blue. This shows the liquid to be water.

Continue heating until no more water is formed. The nickel sulphate is now an anhydrous yellow mass and has lost its crystalline form. This experiment shows that nickel sulphate owes its green colour and crystalline form to its combination with water and that 100 per cent nickel sulphate is yellow.

If you now scrape out the copper sulphate from the cooled tube and add water to the yellow anhydrous nickel sulphate you will find that it dissolves with great difficulty—even on boiling. On the other hand, ordinary green crystalline nickel sulphate dissolves easily in cold water.

Nickel, like many metals, forms an insoluble hydroxide. This is easily prepared by adding sodium hydroxide solution to nickel sulphate solution, when it is thrown down as a bulky green precipitate.

Add the sodium hydroxide in small portions, stirring well, until a drop of the mixture turns red litmus blue. This indicates that a slight excess of sodium

Nickel Sulphate in HOME CHEMISTRY

hydroxide has been added and that the reaction is at an end.

Like all bulky precipitates, nickel hydroxide needs large volumes of water to wash it. This may be done by decantation in a big bottle, but that way a little of the precipitate is usually lost in each wash water.

Much more convenient is to make a simple precipitate washer such as that shown sectionally in Fig. 2. It works on the syphon principle. (A) and (B) are glass tubes; (C) a rubber tube whose lower end must be below the bottom of the bottle.

The precipitate is shaken up in the bottle with water and allowed to settle. Tube (B) is then slid up or down in the cork until its lower end is about ½ in. from the precipitate. On blowing down (A) the wash water will emerge at the lower end of (C). If you remove your lips from (A) the water will continue running out of its own accord, finally leaving only the precipitate and a little water in the bottle.

The process is repeated until a sample of the wash water gives no reaction for dissolved matter—in this case of nickel hydroxide, for sulphate, by means of the barium chloride test. Filter off the washed nickel hydroxide sludge and dry it in a moderate oven.

Useful Carbonates

It is worth while making laboratory stocks of the carbonates of most metals, for they are useful for preparing other salts of a metal. Basic nickel carbonate is no exception to the rule.

To prepare it, add sodium carbonate solution in small portions to nickel sulphate solution until a drop of the mixture is alkaline to litmus. Then wash the pale green precipitate of basic nickel carbonate either in a precipitate washer or by decantation in a big bottle. Test the wash waters with barium chloride until one water does not give a white turbidity. Filter off a small portion of the sludge and dry it in the oven for your specimen collection. Keep the rest in the form of sludge, for it reacts quicker with acids than when dry.

By adding dilute hydrochloric acid to some of this sludge, it will effervesce and become a clear green solution of nickel chloride. If you now evaporate to small bulk over gauze and then to dryness on the water bath you will obtain the solid salt. Keep it in a tightly corked bottle, as it is deliquescent.

Metallic nickel is too familiar for us to need mention its everyday uses. Not so generally known, however, is that nickel

is frequently found in shooting stars or meteorites. Of interest to the home chemist is that the metal is used as a catalyst in making one of the chemicals necessary to nylon manufacture. Some fats, too, are hardened by means of a nickel catalyst.

Using nickel sulphate as a starting point, the metal is easy to make on a small scale, and is obtained in powder form. Our first step is to prepare nickel oxalate by mixing solutions of nickel sulphate and ammonium oxalate—preferably hot. Nothing happens at first, but gradually the green liquid becomes more and more turbid, throwing down a light green precipitate of nickel oxalate.

If you used cold solutions, let the whole stand overnight, so that the reaction may complete itself. The reaction with hot solutions is usually complete in half an hour. Wash the nickel oxalate on the filter until the wash waters no longer produce a turbidity with barium chloride solution. Then dry

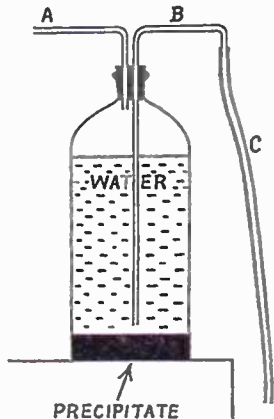


Fig. 2

it in the oven. Keep half for your chemical stock.

Heat the remainder in a crucible. The crucible must be closed with a lid. Otherwise the nickel produced will oxidise. Occasionally lift the lid off quickly with crucible tongs and examine the mass. When it has shrunk no more, let the crucible cool—still with the lid on, for even when the flame is removed the black powder will suddenly glow red hot again as it oxidises.

When the crucible is quite cold, empty out the nickel powder. Before bottling it, bring a magnet near to it. It will be attracted in the same way as iron and steel. (217)

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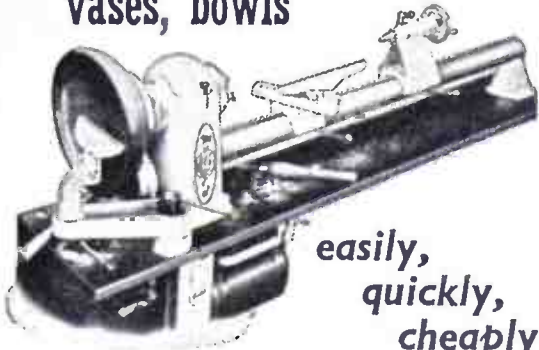
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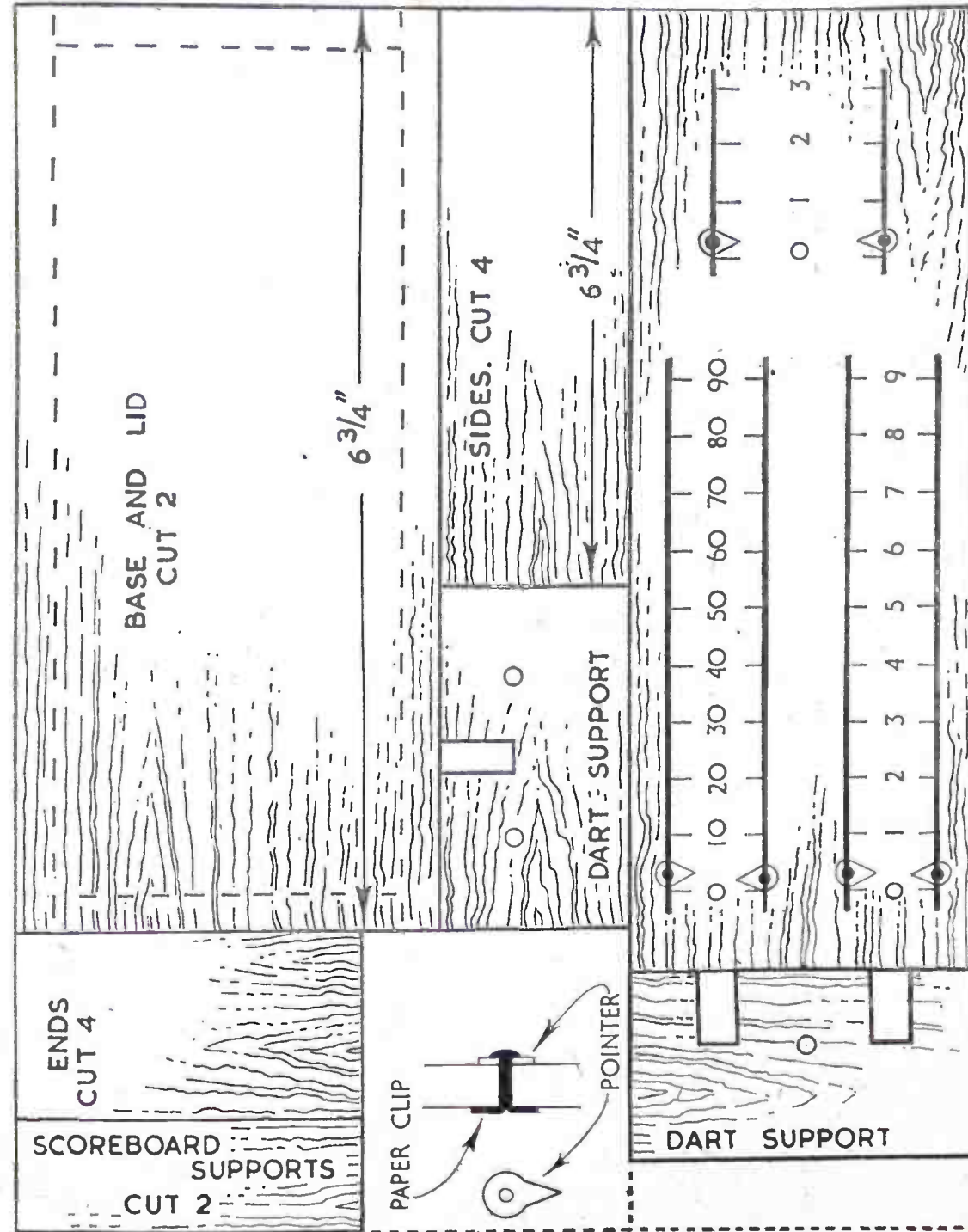
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