

# HOBBIES WEEKLY

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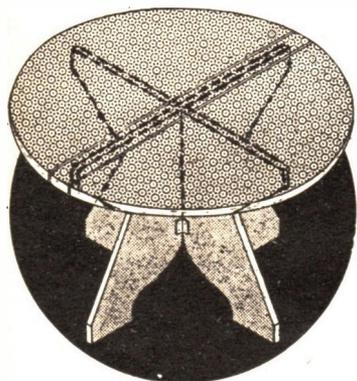


Fig. 1—Open for use

*Extremely  
useful  
where  
space is  
limited*

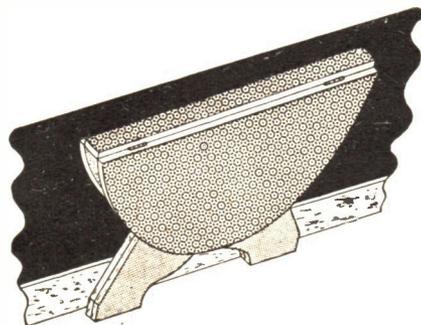


Fig. 2—Folded for storing

## FOLD-AWAY TABLE

IN the small house where space for essentials is often at a premium, additional furnishing improvements such as occasional tables have, of necessity, to be forgotten. But here is a design for a very simple yet pleasing accessory (Figs. 1 and 2) which folds away against the wall and occupies an area merely 2ft. long, 2½ins. wide! You can use it as a coffee table or, suitably covered with baize, as a card table. Covered with Formica or a similar plastic it will stand any amount of hard wear as an occasional table.

Start by cutting a circle of ½in. thick ply 2ft. in diameter. If there are no

trammels (beam compass) available for drawing this on the wood, use string with one end looped to a panel pin and the other tied to a sharp pencil. Swing the pencil at a 1ft. radius round the pin,

*By G. Allen*

which is temporarily tapped into the wood to act as a centre. When the table top has been cut, file the edge and finish completely smooth with glasspaper.

Now draw a thin pencil line right across it through the centre (marked by

the panel pin hole). Draw two more heavier lines parallel to the centre line each ¾in. away from it (Fig. 3). Saw down these lines carefully until you have three pieces — two table leaves and a centre strip 1½ins. wide. Smooth the edges as before.

Draw out the shape of the rigid support on to ½in. thick ply (using the squares in Fig. 4 as a guide) and cut it out with a fretsaw. Trim up the edges and mark the centre line in pencil on both faces. The right-hand portion of the rigid support, marked with diagonal lines in the diagram, gives the shape of each of the two swinging legs. Cut out

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*For Modellers, Fretworkers  
and Home Craftsmen*

**4½<sup>D</sup>**

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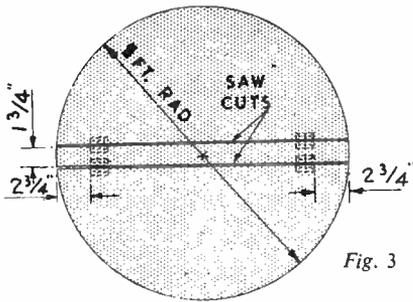


Fig. 3

two of these from  $\frac{1}{4}$  in. ply and finish as before.

Before fixing any of the hinges, return to work on the table top. First glue the centre strip to the top edge of the rigid support and make sure that it is quite square. When set, drill four equally spaced  $\frac{3}{8}$  in. diameter holes along the centre line of the strip and into the support. Then drive four countersink woodscrews  $1\frac{1}{2}$  ins. long into the holes and support, making sure that the heads are flush with the surface.

If you intend to cover the table top with Formica, cut three separate sheets of this, with a tenon saw held at a fairly 'flat' angle, each just big enough to cover the appropriate section of the top. Fix one piece at a time with a special glue prepared for bonding plastic

to timber. This should be spread evenly with a thin piece of wood, on each joining surface. After ten minutes the Formica panels are pressed into place. Bonding is instantaneous and permanent. Overlaps of plastic are cut flush with the edges of the components with the tenon saw. If desired, strips of Formica  $\frac{1}{4}$  in. wide and as long as your material permits can be fixed in a similar manner round the edge of the table top. They are butt joined.

If the table top is to be covered with baize, it is necessary to apply glue only to the table top. The baize is rolled up tightly and rolled into place a little at a time; then trimmed with scissors.

For cheapness, the table top may be stained, painted or polished to match the rest of the unit if desired.

Finally the various parts are assembled by fitting the hinges. These are  $1\frac{1}{4}$  ins. long and their positions are indicated on the diagrams. In all cases the leaves of the hinges are made flush with the timber by neatly cutting away the laminations of the ply. Note that the swinging legs fold in opposite directions; the hinges are, therefore, fitted accordingly.

If the table top has been covered with Formica or baize it is a good idea to finish the rest of the table in a contrasting colour. Hard gloss enamel is suitable.

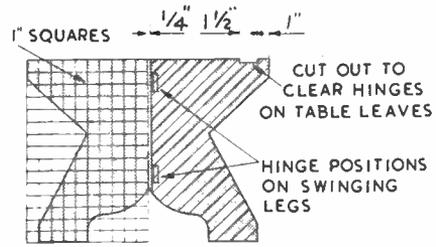


Fig. 4

NOTE: SHADED PORTION INDICATES SHAPE OF SWINGING LEGS

OF RIGID SUPPORT

## BOOKS TO READ

### The Book for the Home

MORE than 50 expert contributors have written on every conceivable subject about the home, from equipping a house, to making a garden, from planning menus to looking after children, in fact, there is something of interest for every member of the family.

The five comprehensive and practical volumes run to 4,500 pages, and are lavishly illustrated in colour, black and white, and line drawings.

### Importance of Hobbies

The Book for the Home will help all families towards a better way of living. It is a library for the home, which answers all your questions and shows the way to new skills and new pleasures. It is recognised that hobbies are so much an important part of our daily life, that a whole volume is devoted to these pursuits — some for men, some for women, and others for the children. Gardeners, T.V. and radio fans are also particularly well catered for.

At £17/12/6 this work represents good value, and an easy way to buy this complete library for the home, is to take advantage of the Caxton Publishing Company's instalment plan.

### Room-by-Room Decorating Series

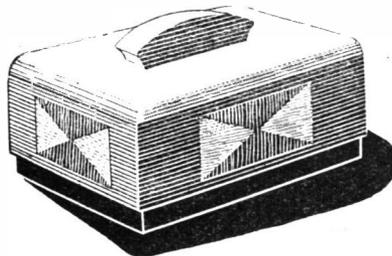
by Elinor Hilley

A series of five books, 10/6 each THE author brings a wealth of experience to the task of making decoration simple and clear for the average home maker, giving the basic

principles needed, with the step-by-step practical ideas to make them effective. The approach to the task is on the one room at a time principle — living room, kitchen, child's room, basement and attic and bedroom. The separate problems of each department of the home are dealt with in great detail.

Published by Angus & Robertson Ltd., 105 Gt. Russell Street, London, W.C.1.

## INLAY DECORATION



THE designs shown on page 175 may be used for decorating boxes of all descriptions. They are also useful for adding a touch of originality to small pieces of furniture.

The designs should be executed in

marquetry veneers, using contrasting grains, and burrs. The particular varieties are not indicated because it is intended that you should use oddments left over from previous projects. You can, of course, purchase assorted veneers.

Apart from knife marquetry, a combination of fretsaw inlay and overlay work could be used. The design should be cut in  $\frac{1}{8}$  in. inlay wood and then glued on to the surface of the article to be decorated. The motif will then take the form of an overlay which is in itself inlaid.

All these designs are simple enough in character to be enlarged or reduced as required. Further variations may be made by duplicating the patterns. (M.p.)

# Making Palette and Paints

IN the previous article, the preparation of painting surfaces was dealt with, and we may now turn to the rest of the oil painter's equipment.

Making one's own brushes is not a feasible proposition, so, unfortunately, these will have to be bought. A few words about them will be said later on, so we will pass on to palettes and paints. These latter certainly can be made with much saving of expense.

Considering palettes first. The conventional palette is usually of mahogany. This was consistent when artists painted on dark brown grounds, but as most artists today use white grounds, it would appear illogical to use a dark brown palette. A white or grey palette is more sensible. Mixing the tone values is much easier on a white or grey palette, in any case. A colour tone mixed on a brown palette appears different when transferred to a white priming. This is due to the phenomenon of induced contrast.

By A. Fraser

Wood is the traditional material for palettes and a kind must be selected which suits the reader. The important thing is that it should be as light as possible in weight. The thickness need not be more than 5/32in. The bigger the palette, the thicker it should be to obviate bending. Plywood is very suitable, but ordinary panel board, if it is wide enough, will prove an excellent substitute.

Oblong palettes are the easiest to make. A shape 9 or 10ins. by 6 or 7ins. would be most useful. Fig. 1 shows the peculiar cut-out necessary for a palette. Make the thumb hole large enough for comfort in holding, and smooth the edges off well, especially at the part marked (A) on the drawing. The underside of the hole, across from point (A) should be similarly treated. This is point (B) underneath the palette. The outer edges of the palette and the corners are rounded off as well.

A thorough glasspapering, especially on the top, comes next. Dust off and give the whole palette, front and back, a thin coat of varnish. When this has dried out, the front of the palette can be treated to produce as near as possible the glass-like effect of a well-used specimen. Only years of use will give the palette this effect, but one can help it on the way by giving it a coat of wax dissolved in turpentine. Let this harden for two or three days, or longer, and then polish up with a smooth cloth or

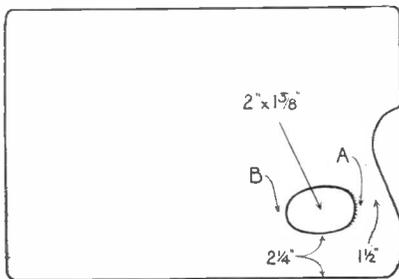


Fig. 1—Showing the peculiar cut-out for the palette

leather. This should be sufficient to start with, but if necessary another good coat can be put on and the polishing repeated (after the wax has set hard).

Where a white or grey palette is needed, then the wood needs to be painted with white paint, allowed to dry, glasspapered smooth, and painted again. A final sanding and then waxing completes the job.

For those who can afford it, plastic sheet will make a good palette. If it is thin, it can be glued to plywood. Aluminium also makes a good lightweight palette.

The best palette of all, in the writer's opinion, is one made from an ordinary sheet of glass. A piece of paper or card of the required colour is placed at the back and *passé partout* used to fix the paper to the glass, or the paper can be placed on a table and the glass just placed on top.

## Clean after Use

In the first case, although there is no thumb-hole to help in holding the palette, a little trial will show that it is quite easy to hold, if laid along the forearm and the first three finger tips used to grip the right-hand edge.

In using any of the palettes mentioned above, it must be made an unbroken rule to clean the palette thoroughly after use. First clear with the palette knife, then wipe over and over with a clean cloth. Never use turpentine, as this takes the polish off.

We now turn to the essential material of oil painting — the pigment. Bought paints, like bought canvas, are expensive, and the reader will find that making his own colours is decidedly more economical. The old masters started right from scratch, acquiring the new ones, etc., and grinding them up themselves, but the average person will not wish to do this today. It is much more convenient to buy the powder colours

and get straight on with the job of mixing the paint.

It is possible to buy comparatively cheap powder colours from the local paint shop. These, of course, are for house painting and have not the purity of real artist's powder colours. They can make excellent paint for the amateur artist, however, and it is worth finding out what colours are available and the prices.

For those who have difficulty in getting powder colours, or for those who would prefer starting with genuinely pure colours, a list is given of colours which will be found most useful in oil-painting. Against each colour is given the price. The column of percentages will be spoken of later.

These colours are available from C. Roberson and Co., 71 Parkway, London, N.W.1.

	Per tube	Per oz.	
Cadmium Red	3/6	8/-	30%
Crimson Alizarin	1/6	7/-	30%
Light Red	1/3	3/-	15%
Burnt Sienna	1/3	2/6	100%
Cobalt Blue	2/-	7/-	50%
Cerulean Blue	2/6	7/-	50%
Ultramarine	1/3	1/-	40%
Ivory Black	1/3	2/9	100%
Flake White	1/-	9d.	15%
Zinc White	1/-	9d.	20%
Terre Verte	1/6	2/6	50%
Raw Umber	1/6	3/9	60%
Yellow Ochre	1/-	1/9	50%
Chrome Yellow	1/3	1/-	30%
Cadmium Yellow	4/6	9/-	40%

The Cadmium Red and Cadmium Yellow would seem to be expensive, but this is deceptive. In actual fact, with these two colours, a little goes an exceedingly long way. Moreover, for permanency and brilliance, there is nothing to beat them. As far as the whites and the black are concerned, these should be bought in quantity (especially the whites), say, ½lb. or 1lb. at a time. A great deal of white is used in oil painting, and luckily, it is cheap.

## Prevents Hardening

The best medium for binding the powder colour is an equal mixture of linseed and poppy oil, or either of these oils by itself will do. The oil should have 5% pure beeswax added to it. This prevents premature hardening of the paint and gives protection and elasticity to it. Warming the oil gently will dissolve the wax and the medium should be stirred to distribute the wax evenly through the oil.

The powder and oil should be mixed

●Continued on page 165

# Carrier Wave Transmitter

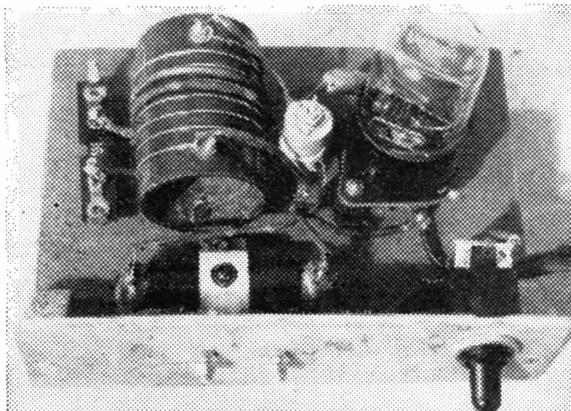
IT has been explained how the simplest method of controlling a model by radio uses a simple radio-frequency wave, or carrier, and this type of signal can be produced by a single valve, in a self-exciting oscillator circuit. This is the type of model control transmitter dealt with here. Its simplicity makes it low in cost and easy to

By F. G. Rayer

construct. The power radiated is not as great as from a larger transmitter, but is ample to control a boat on a model boating or sailing pond, which is the purpose in view.

The transmitter operates from dry batteries only, and the circuit is shown in Fig. 1. Only a few parts are required, and some latitude exists even in these. For best results, however, any departure from the values given should not be too great.

The 50pF fixed condenser should have mica insulation. The 10,000 ohm resistor is of the ordinary 1-watt carbon type. The  $\cdot 1\mu\text{F}$  condenser can be any paper type of 150 to 350 V working. An on/off switch is also necessary for L.T. switching.



One-valve model control transmitter

terminals) for leads from the control key.

A circuit of this kind will function with any type of valve, but to secure maximum power from the single valve, an output type is desirable. For all-dry operation, the 3D6 is among the most suitable. There is in actual fact no reason why other types of output valve should not be used, but few in the all-dry range are capable of giving as much

When other valves are employed it will, of course, be necessary to use a holder to suit, appropriately connected.

Provided the components are not too cramped, or so spread out that connections between them are long, the actual size of the baseboard upon which the transmitter is built is not important. It may be possible to make use of an existing case.

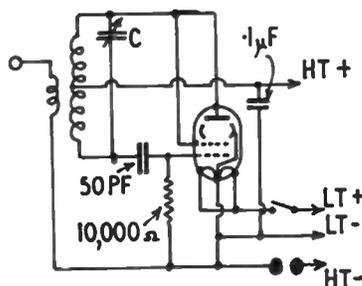


Fig. 1

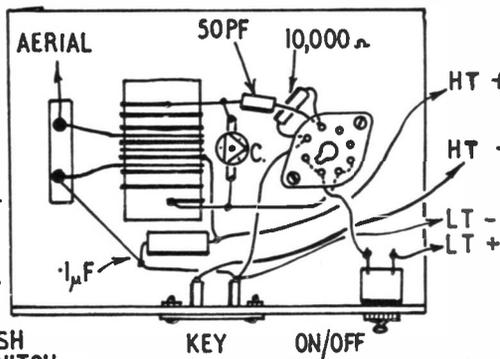


Fig. 2

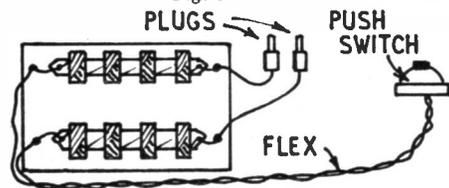


Fig. 4

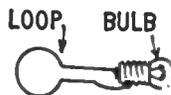


Fig. 3

For condenser 'C' an air-spaced preset condenser is best, and these can be obtained quite easily. The value of this type is about 30pF, but a condenser of between 25pF and 50pF can be used. A tag strip is also necessary to support the aerial coupling coil ends and connections, and a 2-way socket (or pair of

output as the 3D6. They may, however, deliver enough power, according to the maximum range wanted.

In the 2 V range, quite a number of powerful output pentodes exist. There is no reason whatever why one of these should not be used, if a 2 V accumulator is available for filament supply.

## Simple Layout

If a case is to be made to suit, then the baseboard can be 4ins. by 5½ins. and the panel 5½ins. by 4ins. high. The layout of parts can then be arranged as in Fig. 2, and the whole will be quite compact. The batteries themselves will occupy more space than this part of the equipment. Whether or not the case is made large enough to carry them also is a matter of personal choice, and makes no difference to the working of the apparatus. It is in some ways convenient to have the batteries separate, because it

is not then always necessary to use the same shape or kind, in order to fit them in the case.

## Tuning Coil

This is wound with bare 20 S.W.G. wire upon a paxolin former 2ins. long and 1½ins. in diameter. Seven turns are required, wound as tightly as possible, so that the turns will not slip, and these seven turns occupy a winding length of 1¼ins. on the tube. The ends may be anchored by passing the wire through pairs of small holes, or can be secured to small 8 B.A. bolts. A centre-tap is necessary on the coil, and this will come

underneath, at  $3\frac{1}{2}$  turns from each end. It is made by soldering on a short length of connecting wire, to take to the  $\cdot 1\mu\text{F}$  condenser and H.T. positive.

The aerial loop is two turns of rubber insulated wire, or connecting wire passed through insulating sleeving, and these two turns are wound at the middle of the 7-turn winding, between the turns of the latter.

The coil is mounted by means of thin  $\frac{1}{4}$  in. wood-screws, and insulated sleeves about  $\frac{1}{4}$  in. long, between coil and base-board. The two ends of the aerial loop are then drawn tight and soldered to tags on a 2-way tag-strip, as in Fig. 2.

The valveholder is mounted about  $\frac{1}{4}$  in. above the baseboard by means of long screws and spacing sleeves, and it is important to note that connections in Fig. 2 are correct when looking at the top of the holder. If the valve base is looked up in a valve book, etc., pin connections will be exactly opposite to those in Fig. 2, because they are given for the valve when viewed from below. But in the present instance it is simpler to mount the valve on spacing sleeves, thereby avoiding a chassis, with leads both above and below it. Valveholder tags should thus be wired up exactly as given in Fig. 2.

The trimming condenser 'C' is wired straight across the coil circuit, one lead being to fixed plates, and the other to moving plates.

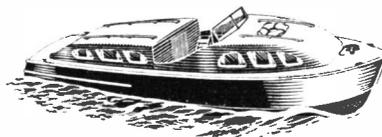
All connections should be short and direct, and 20 S.W.G. wire, with insulated sleeving, is most convenient. Flex is used for battery connections, and these should not be longer than necessary. This also applies to the key connections. If it is not convenient to have the key near the transmitter, then a short-wave H.F. Choke should be included in each lead. Such chokes are illustrated in Fig. 4, mounted in a small box, with plugs to insert in the key sockets of the transmitter. The actual type of 'key' is not important, provided it makes good contact when operated.

### Setting Up

For the valve mentioned, a 1.4 V filament supply is required. Any single dry cell, or dry cells wired in parallel, will be suitable. On no account must the cells be wired in series, as this will give more voltage.

The H.T. battery voltage can depend on the power wanted. For short range, a 90 V battery is satisfactory. Range will be increased with a 120 V battery, and up to 135 V can be used with the specified valve. With some 2 V types of output valve it is in order to use up to 150 V H.T. when maximum power is required. One 90 V battery and one 60 V battery, in series, will provide this.

The lamp loop shown in Fig. 3 will show if radio frequency power is being generated. A  $\cdot 04$  amp. bulb is necessary,



**Hobbies Motor Cruiser 'Crusader' which can be fitted for radio control. Kit No. 3154 to make the 'Crusader' can be obtained from branches, stockists, etc. or post free from Hobbies Ltd., Dereham, Norfolk, price 45/-.**

as the current is not enough to light an ordinary type of torch bulb. One or two turns of connecting wire,  $\frac{1}{4}$  in. to lin. in diameter, and with projecting ends, form the loop, and it is soldered directly to the bulb.

With all batteries connected, but no aerial, the transmitter is engaged by the L.T. switch. When the key is closed (or the key sockets shorted by a piece of wire) a signal should be generated. This is strongest near the ends of the coil. If the lamp loop is brought near this the bulb should light. If it does not, connections need checking as some defect must be present.

When an aerial is connected this will draw power, and the bulb may not

light. For the aerial, flexible or solid wire can be used, or self-supporting metal tubes. The latter are most convenient, as the aerial needs to be vertical. They can be purchased in 1ft. interlocking sections, and are easy to carry and erect. For short range, the length of the aerial is not of much importance, but a fairly long aerial is necessary for the full range which the one valve can give — 8ft. 6ins. is suggested, since this is roughly resonant at the frequency used.

Wire aerials will need supporting by a wooden rod or other means. The strength of the actual signal radiated can easily be measured by a field-strength meter.

The transmitter must be tuned so that the signal falls within the 27 mc/s band, or between 26.96 and 27.28 mc/s. For tuning, a length of ebonite rod or tube is necessary, with its end cut to engage the trimmer. A metal tool cannot be used. The frequency can be found from an existing transmitter, from an oscillator, or from a frequency meter, and the trimmer is rotated until the radiated signal is in the band mentioned. Tuning with a frequency meter is simplest. The meter is set to 27 mc/s, and the transmitter is then tuned until maximum signal is shown on the meter. Such a meter will be described in another article.

● Continued from page 163

## Making Oil Paints

together on a thick sheet of glass or slate. The percentage of oil to powder is given in the list, but this is only roughly indicative because it can be altered to suit one's own needs, as some prefer a pigment which is fairly fluid, while others like it stiff to various degrees.

A palette knife is best for mixing the powder and oil. The oil is worked into the powder with a circular movement, spreading it out. Then the pigment is scraped together into a heap and worked again. This goes on, adding oil or powder, as the case may be, until a smooth, somewhat stiff, paste is the result. This should be heaped up at the corner of the glass and allowed to stand the night. It will usually be found that the next day the paste has become more fluid and can then have more powder mixed into it.

The finished paste can be stored in small wide-necked glass jars and covered with water to prevent hardening.

The white pigment should be a mixture of Flake and Zinc whites, about half and half. Here, a warning must be given about Flake white. This is a lead white and is extremely poisonous. Care should be used in handling. Dust breathed in is very dangerous and the hands

should be carefully washed afterwards.

For sketching purposes, all the colours can be 'cut' or extended by the addition of ordinary whiting. The mixed white can take up to its own volume in whiting, making a considerable saving.

With intense colours such as Cadmium red and Ultramarine, etc., it will be found that these are seldom used in their primary state, and nearly always weakened with white, etc. Consequently these deep colours can be mixed ready weakened with Zinc-Flake white. Ordinary whiting can also be added, for sketching purposes.

When painting with the colours, the traditional practice is to use brushes and thin the pigment with some medium. There are many different media and choice is determined by the effect one wishes to create, but for the average person a very satisfactory medium consists of one part turpentine, one part mastic or dammar varnish and one part linseed oil.

For a matt effect, the turpentine proportion can be increased and the varnish reduced or omitted altogether. For gloss effects, the turpentine content can be reduced, and the varnish increased.

# BELL INDICATORS

**Y**OU have seen how to connect up a simple electric bell circuit. If you require two or more bell pushes in various places to operate the electric bell, then you must use some type of bell indicator to show which bell push has been used. A model of one type of indicator is shown in Fig. 9, together with the method of including it in the circuit.

operated is to arrange for electromagnets in the various circuits to make gongs or tubes vibrate. These give different sounds according to which circuit has been used. These gongs sound once only when each circuit is completed and often they are not as effective as a bell which can be made to ring as loudly as desired, and an indicator which keeps on swinging to and fro long after the circuit has been broken.

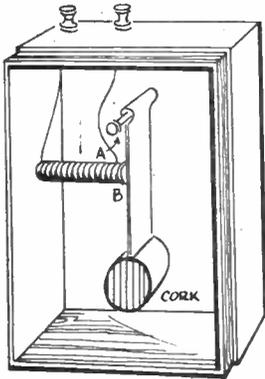
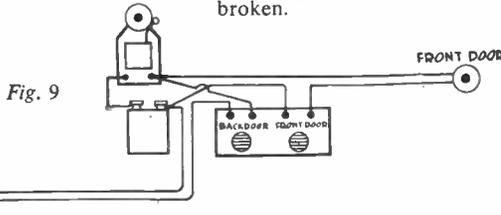


Fig. 10

For the model bell indicator you require a cigar box, or similar wooden box, with a circular hole in the lid, so that you can observe the movement of the indicator (Fig. 10). Bend one end of a strip of tin plate round a large iron nail and then pass the nail (A) through the support thus made, and fix it to the inside of the bottom of the box. The other end of the strip is pushed into a slit made in a large cork. (B) is another iron nail fixed to the inside of the box, round which about 3 or 4yds. of insulated wire are wrapped. Fix the ends of this wire to the two terminals. Cut a piece of gummed paper to fit over the end of the cork, draw red lines on this as shown and stick it to the cork. Close the lid of the box and connect the indicator in circuit to observe how it works.

One of the modern methods of indicating which bell push has been

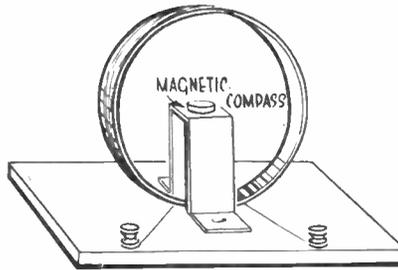


Fig. 11

## Electric Current Detector and Current Reverser

**W**ITH this sensitive current detector (Fig. 11) you can test your cells and batteries, and you can also check the direction of flow of the electric current, quite apart from investigating the fascinating relationship between electricity and magnetism. In this model an electric current flowing round a circular conductor creates a magnetic field which deflects the small magnetic compass needle, the amount of the deflection being proportional to the strength of the current.

Bend a long strip of stout cardboard about 1 in. wide into the shape of a cylinder about 6 ins. in diameter. Allow the ends to overlap slightly and stick them together. Then wrap about twenty turns of insulated wire round the cylinder. Fix it to the wooden base, and join the two ends of the wire to the terminals on the wooden base. Cut and bend another strip of cardboard and fix

it in position, so that it supports a compass needle at the centre of the cardboard cylinder. Turn the base round until the coil of insulated wire is in line with the compass needle.

Next make a current reverser as shown in Fig. 12. This will enable you to reverse the direction of the electric current round the compass needle without reversing connections to the battery. You will then find that when the current flows in a clockwise direction, the north seeking pole of the compass needle is

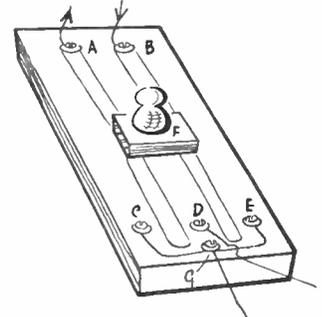


Fig. 12

deflected to the right looking in the direction of the north seeking pole and when the current flows in an anti-clockwise direction it is deflected to the left.

The method of assembling the reverser will be clear from the illustration. The round-headed brass screws (A), (B), (C), (D) and (E) should all be fixed to the wooden base at equal distances apart, so that, by moving the brass or tin plate strips, the screws (A) and (B) can be connected to (C) and (D) or (D) and (E). (F) is a small wooden strip to which the metal strips and the clothes peg top are fixed with screws from underneath. The screws holding the metal strips to the wooden strip should not be screwed up tightly. (A) and (B) are connected to the battery and the screws (C) and (E) are connected to the screw (G). (D) and (G) are connected to the current detector or other appliance which is to be worked. You will find this current reverser useful later when you are experimenting with electric motors.

### NEW GALLEON

Next week's issue will contain **FREE DESIGN** for Hobbies' latest miniature galleon The Warwick. Make sure of your copy.

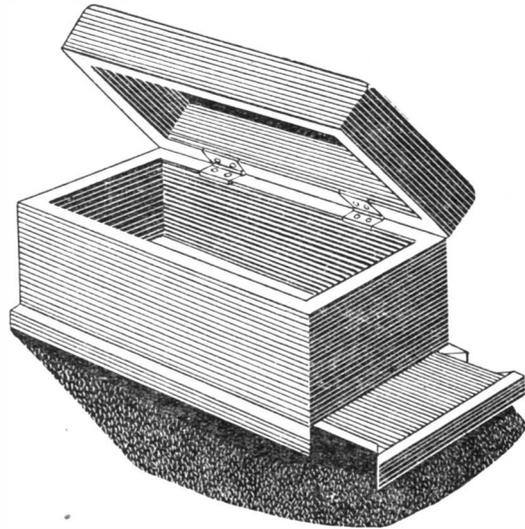
# There's a Secret in This Box

**P**UZZLE your friends with this little novelty, or use it for a more serious purpose. You might keep loose change or trinkets in the box and paper money in the secret compartment. No one picking up the box would notice anything unusual about it and the paper money would be undiscovered.

## Ensure perfect fit

Of course much depends upon the way the box is made. A badly fitting mitre, obviously loose, would give the game away immediately. All joints must fit perfectly, and the floor must fit tight enough to move with a good strong pull, but not with ordinary pressure.

The first step in construction is to make up the main body of the box. The diagrams in Figs. 1 and 2 show the main dimensions and the wood will be  $\frac{1}{2}$  in. thick. Glue a fillet of  $\frac{1}{8}$  in. by  $\frac{1}{2}$  in. wood along the inside of each side as shown in Figs. 1 and 2. Upon this is glued the false floor, measuring 6 in. by 4 in. by  $\frac{1}{2}$  in. Note that the bottom edge of the fillet coincides with that of the side in each case.



## Make It Up—and Puzzle Friends

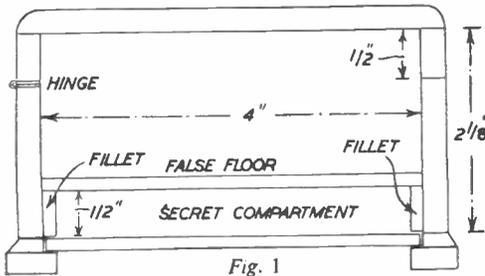


Fig. 1

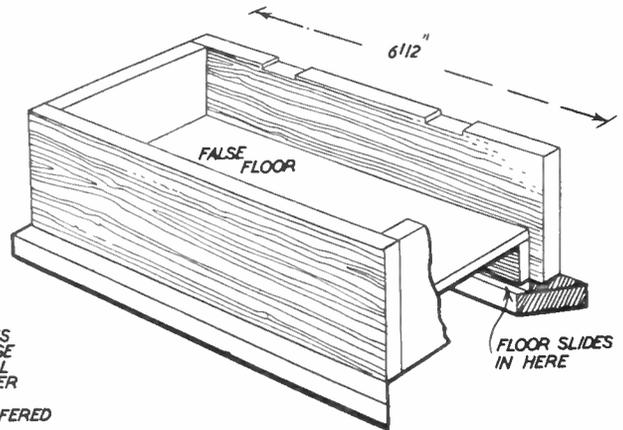


Fig. 2

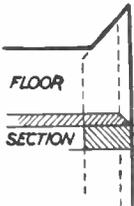


Fig. 3

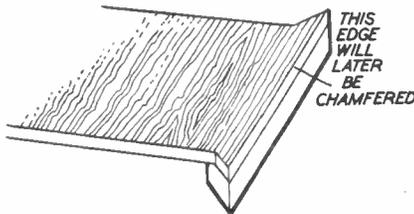


Fig. 4

The hinges for the lid are recessed as shown in the diagram Fig. 2. They should also be recessed in the lid and countersunk screws used to secure them.

The section in Fig. 1 shows how strips of  $\frac{1}{8}$  in. thick wood are mitred round the base of the box on three sides. These strips are  $\frac{1}{2}$  in. wide, allowing a projection of  $\frac{1}{8}$  in. on the outside as shown.

Underneath these are mitred  $\frac{1}{8}$  in. by  $\frac{1}{8}$  in. strips to form a groove in which the false floor will slide. The fourth section of the mitred strips is formed by gluing a piece of  $\frac{1}{8}$  in. by  $\frac{1}{8}$  in. strip under the shaped end of the floor as shown in Figs. 3 and 4. Note from Fig. 4 that the grain runs across the floor. This is to ensure that the  $\frac{1}{8}$  in. mitred strip matches

the one at the opposite end of the box.

The two mitres of the sliding section should fit nicely so that no clue will be given that this piece is separate from the rest. To add further to the illusion you could glue four feet in position, taking care, of course, they are not fixed in any way to the moving portions.

The box should be cleaned up and finished off with stain and varnish or with plastic enamel paint. A lock can be added if desired, or a simple catch fitted.

(M.h.)

# A Camera at the Seaside

**H**OLIDAY time at the seaside brings out the family camera, whether the photographer is a keen amateur or just a casual holiday-time 'snapper'. The casual 'snapper' wants a record of a happy time and worries little about photographic quality; the keener amateur also often tolerates holiday snaps in his album which fall short of his usual standards — simply because holiday snaps are happy snaps and evoke pleasant memories.

The following hints may help to obtain prints that evoke happy memories and are a credit to the album:

**EXPOSURE.** The ideal seaside holiday has its full quota of brilliant sunshine; scenes are wide and open and there is much reflection and sparkle from water and glistening sand. It is fatally easy to over-expose and so obtain dense or over-contrasty negatives that are difficult to enlarge. The user of an exposure meter should not be mizzled by taking a general reading of an open beach scene — overall brightness will be great and yet the main subject may be under-exposed. Take a meter reading close up on the main subject. It is easier to enlarge satisfactorily with the main subject correctly exposed, and over-exposure of the background or

foreground corrected by 'burning in' of these areas during enlargement by giving them additional exposure on the enlarger easel.

Owing to the general high level of brightness a very fast film is not necessary, and a slower low contrast pan film helps in producing negatives of manageable contrast for enlarging — as well as taking care that negative grain is kept unobtrusive. Prints with large areas of broad tonal values — such as expanses of sand, or sea and sky — suffer visually more from obtrusive negative grain than 'fussy' detailed negatives.

A light or 2X yellow filter is useful for cloud effect and reflections — and is particularly useful to regulate exposure speed for the owner of the simpler box or family folding-type camera. Most of these cameras have only one instantaneous speed — usually around 1/50 sec. or 1/75 sec. value. And lens aperture is usually equivalent to f8 or even f11 — sometimes two positions are provided around these normal values. A 2X yellow filter means that in general use exposure has to be doubled with the filter on the lens. In reverse, it means that leaving the speed unchanged has the effect of giving half the rated speed. So a 2X filter on a fixed-speed box



Fig. 1—*Bold trimming removes cluttered background*

camera will cut the effective speed. The fixed instantaneous 1/50–1/75 sec. is effectively only 1/100–1/150 sec. And these speed values will be necessary in the brilliant lighting even with a slower pan film.

## Cheap Filter

Some modern box and folding family cameras have such a filter built-in or ready to slip over the lens mount. Your dealer can easily fit a cheap gelatine filter for you behind the lens aperture — or squares of gelatine can be bought at any photographic dealer's and fixed yourself. Remember that gelatine is easily marked by the finger. Cut a larger circle than your lens aperture, handle it by tweezers at the edge and simply fasten behind the lens mount with a touch of adhesive. A gelatine filter so fitted behind the lens is inside the camera body and protected, is always there for use during beach snapping and does not affect the definition characteristics of the lens. Glass cemented filters get scratched by being carried in pockets and slipped on and off the front of the lens mount, or suffer from distortion if in a screwed mount unless treated with care. This simple precaution will save box cameras from giving grossly over-exposed negatives on the beach.

**ANGLE OF SUN.** At noon, with the sun at its zenith, lighting is of an overall brightness with short hard shadows — it causes patches of hard contrast on faces and light coloured beach wear, and screwed up eyes (Fig. 1).

Earlier in the morning, or later afternoon and evening, brings side lighting with longer softer shadows and less difficult contrasts.

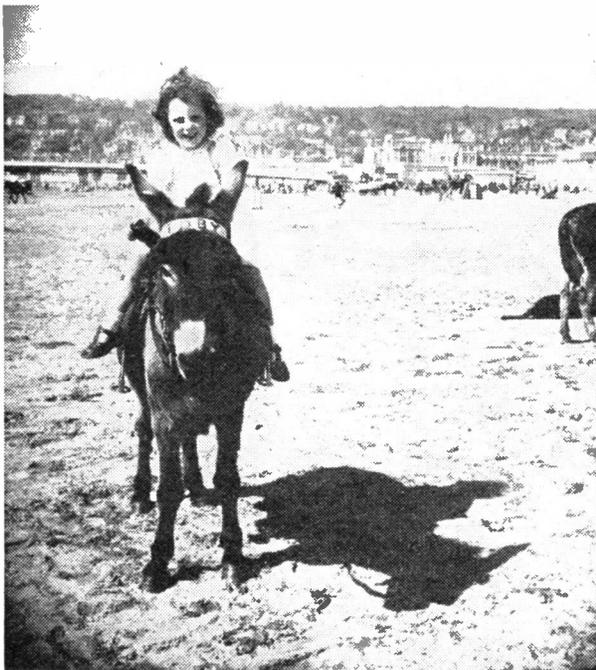


Fig. 2—*The children's friend. Afternoon side lighting and local colour background*

A measure of side lighting also helps to throw up sand formation and ripples into relief instead of producing a dead-pan overall whiteness (Fig. 2).

Against the light exposures are best with the sun off its zenith, for silhouettes and the back-lighted sparkle of waves and spray — here exposure can be longer as tonal values are shortened and detail of less importance in the shadows, with interest concentrated on deep silhouettes and high sparkling high-lights.

**LOCAL COLOUR.** Do not forget that, although the family is the main subject, your prints will gain in memory value if some of the local beach background is included — it proves it was a holiday snap at such and such a remembered beach. A not too obtrusive seaside background often adds to the interest of the main subject (Fig. 2).

**CROWDED QUARTERS.** Resorts are crowded at holiday time, and you want a snap of *your* family — yet your viewfinder persists in showing half the world crowded around them! One dodge here is to get the camera as high as possible and tilt it downwards, so lowering the angle of view of the lens and cutting off the crowded beach and sun-bathing forms and deck-chairs surrounding your subject. Sometimes a worm's-eye view with your subject against the sky-line will do the trick. Sometimes neither will work — and 'junior' is snapped with bucket and

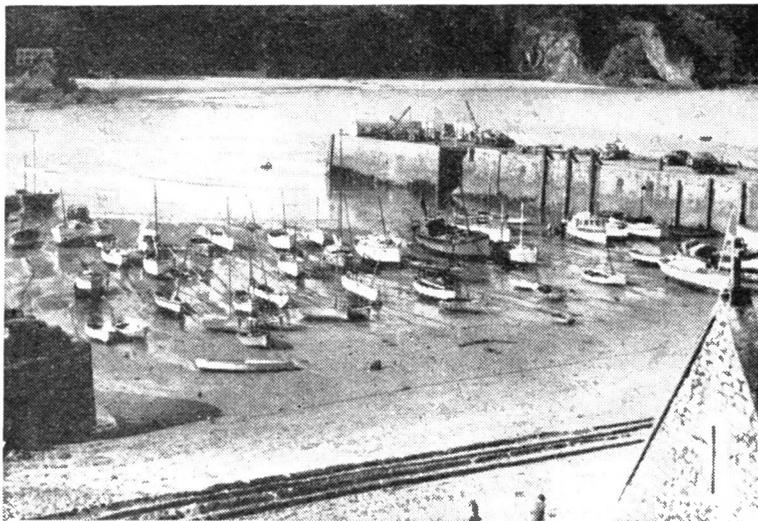


Fig. 3—Forget the family sometimes

spade against a confused medley of legs, recumbent forms and intruding deck-chairs. He is lost almost in the final print! Be bold — take scissors or razor blade and carefully cut around 'junior' to remove the cluttered surroundings. This will save a print you cannot re-take, and has the effect of adding interest to your album by its unusual trimming (Fig. 1).

Finally, sand can play havoc with any camera, causing scratched lens and film. Don't leave the camera on the beach, don't carry it out of its case except when in use or, if in an ever-ready case, keep the case closed when not exposing. And salt water will damage the finish and deposit crystals on an unprotected lens — don't get it wet; keep it covered from spray.

## On foot and a-wheel

# Don't Groan under a Heavy Pack

**T**HERE are plenty of places in the countryside where it is possible to pitch a bivouac tent, two-man size. For this particular form of tramp-camping you require a compact outfit. The tent should be lightweight, waterproofed, and not too large in bulk. The chief thing in tramp-camping is the load — select equipment all of the lightest weight, compact and portable and easily packed in the rucksack.

No tramp-camper should groan under a heavy kit — it will spoil his holiday. Take along only essentials. Tent, groundsheet, camp blanket or sleeping-bag, rucksack, macintosh, cooking utensils, pyjamas, toilet requisites, torch, matches, map of your route, and small first-aid outfit. A sweater to slip on in the evenings and mornings when it is cool, will be found useful.

### Tramping by the Map

It is advisable to select your nightly pitches *en route* and settle down well before dark. The next day you pack up immediately after breakfast and move on, gipsy fashion, to a fresh spot in the next valley.

It is always best to choose a point to make for and select one route out and a different way home. To help over monotonous distances it is wise to contact train or bus to some chosen starting-point, and after that follow the map to a selected station on the home-ward journey.

The best kind of map is the O.S. (Ordnance Survey) lin. to 1 mile scale. Tramp by the map instead of trusting entirely to main roads and signposts. Avoid the busy highways and trunk roads, and stick to the country byways and field-paths.

Having planned out your tramp with tent on back (the load can be shared equally if there are two or three in a party), follow a system. Before starting out on trek each morning, see that you get a good breakfast, then you will be alright until noon, when you can arrange for a suitable snack for lunch, leaving the main meal until evening, when the trek for the day is finished. Then you can either cook for yourselves or eat at a café or refreshment house.

In between, snacks to keep you going can be enjoyed — raisins, dates, choco-

late, bananas, apples and other fruits in season. Beware of too many 'fizzy' drinks on the road. But a cup of tea in the afternoon is to be recommended.

### Cycle Touring

Another excellent way of spending your leisure is by bicycle. You may either take along a lightweight camping outfit similar to that recommended for the hike-camper, or you can rely on lodgings each night. In this connection do not overlook the possibilities of the numerous Youth Hostels. By becoming a member of the Y.H. Association many advantages are available, also valuable advice and help if needed.

Anyone possessing a suitable lightweight 'tourist' model with a medium rear carrier is already well equipped for such a tour. But be sure your whole outfit is compact and light, and can be packed on the machine in pannier or other suitable bag. Assure yourself that the touring bicycle is in capital order, well equipped for carrying extra strain. Take an extra inner tube, repair outfit, and lighting kit. A cycling cape will also prove its worth in showery weather. (A.S.)

# Combustion Tube Holders

TO hold a combustion tube in a stable position calls for two retort stands and clamps — expensive items these days. For the outlay of a few pence on wing-nuts and bolts, you can quickly make two stands which are quite as effective. The scrap box will supply the other requirements.

The stands are shown in use in Fig. 1, the inlet and outlet tubes of the com-

bustion tube being connected up with the usual generating apparatus. The principle of the stands is readily seen. The combustion tube rests on a short length of halved metal tube securely screwed on to a slotted pillar. By loosening the wing-nut, the upper pillar may be moved up or down to the desired height and then retightened.

By making stands to the dimensions

cut  $3\frac{1}{4}$  ins. long and is  $\frac{1}{4}$  in. wide. An average small wing-nut and bolt will fit this width with comfort. The top of the pillar is hollowed to a depth of about  $\frac{1}{4}$  in. to form a seating for the halved metal tube.

The metal tube should be  $1\frac{1}{4}$  ins. to  $1\frac{1}{2}$  ins. diameter. Cut off a  $1\frac{1}{2}$  in. length and saw it down lengthwise with a hacksaw. Clean up any saw burr and drill a countersunk hole to take the screw which will hold it in the hollow pillar.

The lower pillar (right) is 6 ins. long, the bottom being shouldered as shown, to cement firmly into the base. The bolt hole is again  $\frac{1}{4}$  in. wide.

The base (Fig. 3) is cut from good stout wood,  $1\frac{1}{2}$  in. thickness being preferable. This section is 4 ins. square, with an optional  $\frac{1}{4}$  in. chamfer. The broken centring lines will help in marking off the slot which is to take the end of the lower pillar.

The sections are now ready for assembly. Use cellulose cement to fix the lower pillars in the bases, for this is proof against laboratory damp and spilled liquids. After inserting the wing-nuts and bolts between the pillars, the stands are ready for use. A recommended finish for the wood sections is aluminium paint. Unlike ordinary paint or enamel, this does not cause sticking under the bolt pressure. An orange shellac-meths lacquer will keep the metal parts bright and give a pleasant contrast to the aluminium finish.

(I..A.F.)

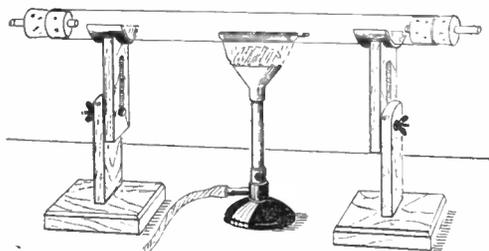


Fig. 1

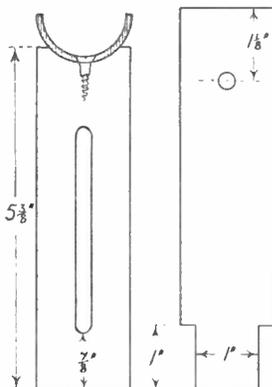


Fig. 2

given in this article adjustment can be made from a height of 6 ins. to 9 ins., which is ample coverage for combustion tube experiments.

For the pillars (Fig. 2)  $1\frac{1}{4}$  ins. by  $\frac{1}{4}$  in. stripwood is used. The slot in the upper pillar (left) should be

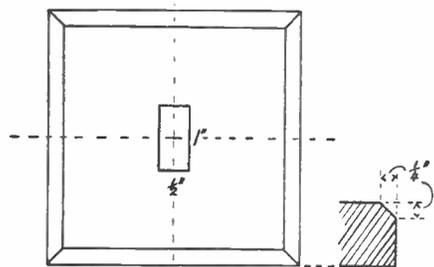


Fig. 3—Marking off the base

## Fix Bolts Securely

THE effective fixing of screws and bolts into a brick or concrete wall or floor can be quite a problem and needs careful consideration. A lathe or some other piece of light machinery or even a work bench should be securely fastened to the floor in order to obtain the best results.

Certain wall fixings also call for security. The usual method is to drill a hole in the brickwork or concrete, and then fix the bolt with cement, but this is not always satisfactory. In the case of wall fixing it may be difficult to get cement into the hole in a satisfactory manner.

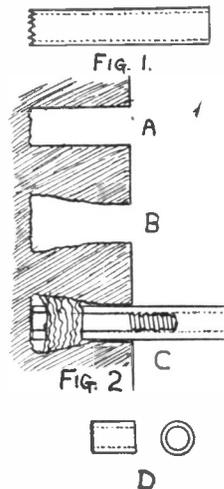
Here, then, is an effective method. First cut the hole in the wall or floor just large enough to take the screw or bolt head. You can do this with a length of steel or iron tubing as shown in Fig. 1. Cut a series of V's on one end with a triangular file and use with a

slowly rotating motion as you tap it with a hammer.

Fairly light taps will generally do the job better than heavy blows. The hollow tube will enable the dust which is cut away to come out as you proceed. Next the back of the hole must be made considerably larger as at (B) Fig. 2, and should be done without interfering with the front opening. A cold chisel will probably do this job quite effectively if used carefully. Again gentle taps should be used, so as not to crack the surrounding surface.

Fig. 2 (C) shows how to fix the bolt. Cut a number of short ferrules from a piece of lead or compo pipe Fig. 2 (D). These are placed one at a time over the bolt and well hammered home with a piece of tube. The lead will swell out and fill every crevice and the hammering will harden the lead somewhat.

Do not fill the hole with lead, but leave a little space which is finished off flush with the wall with cement. (A.F.T.)



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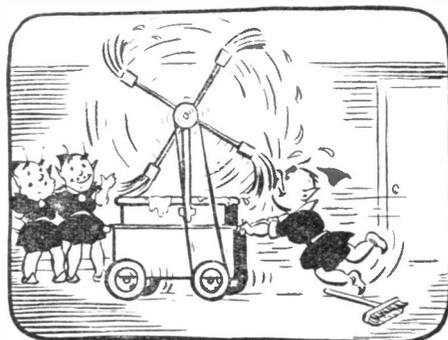


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## Make a neat job

# SPLICING ROPE ENDS

**M**OST of us use rope at various times, and a knowledge of the correct way to work it will help to do a craftsmanlike job. In making a swing, for instance, eye splices and whippings are needed to do the job properly. If we are interested in boating, proficient ropework is very important. In practice, eye splices and whippings are the things that matter in most jobs. No rope should be left without a whipping or splice, otherwise it soon frays, and a part of the rope has to be cut off and wasted.

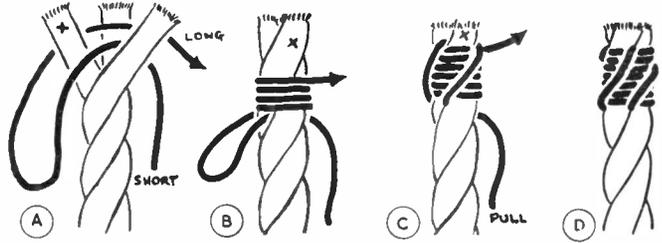
Whipping should be done with quite thin line. For the average rope, the thinnest string is too thick. A stout thread is better. The type used for sewing canvas or carpets is ideal. It is best to draw the thread through a lump of beeswax or a piece of candle before use. This waterproofs the thread and strengthens it by sticking down all the stray fibres.

There are many methods of whipping, but the best one for three-strand rope is the sailmaker's. In this the line goes through the rope as well as around it. The whipping was devised for the ends of reef points on a sail, where the con-

Hold the loop and the short end down the rope and put on several turns with the long end (B). Do not make whipping longer than the thickness of the rope.

Lift the loop and put it over the end of the strand it is already encircling and pull

on which the end strands point across the lay of the main strands as the front (E). Lay the end strands across, so that two convenient ones are at the front and the third held out of the way. Take the front strand furthest from the



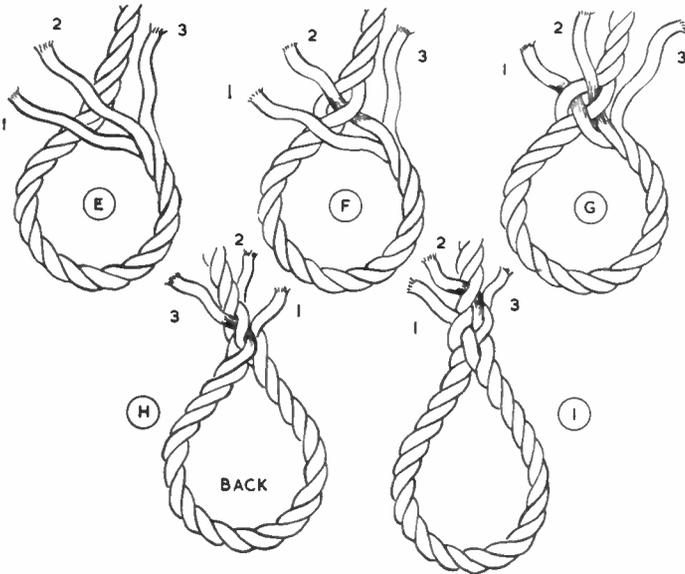
the short end to tighten it (C). The two sides of the loop will follow up the lines of the spaces between the strands, and the short end will be projecting from the only space without one of these outside 'snaking' strands. Take the short end up over the vacant space and into the middle of the rope where the long end is tied to it and the surplus cut off (D).

An eye splice makes a permanent loop in the end of a rope. It may be made

eye and put it under the nearest main strand (F). With hard rope a spike may be needed to open the rope. Take the other front strand and tuck it under the next main strand, going in the space where the previous one comes out (G).

Turn the splice over and find the remaining main strand which is without an end strand under it. Tuck the third end strand under it, but go in the same direction as the others (H). You should now have an end strand projecting from every space in the main rope. Pull up the strands evenly and arrange them at about the same level around the rope.

The next steps are rather like weaving. Take each strand in turn and work it over the adjoining main strand and under the next one (I). Pull up tight after all three are tucked, then do the same again. This total of three tucks is enough for most purposes. For neatness half of the fibres can be scraped off of each strand, then another tuck made and the surplus cut off. The tucks may be evened up by rolling the splice between two boards. Do not cut off the strands too close, or they may work back under strain. (P.W.)



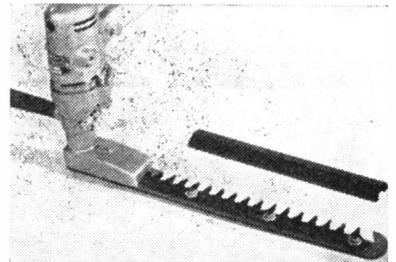
stant flapping would shake loose any inferior whipping.

To make a sailmaker's whipping, open the rope for a short distance (A) and lay in a loop of thread, so that one strand is encircled and the two ends come out of the opposite gap. Have a short and a long end, and do not pull the loop tight. Twist up the strands of the rope again.

around a metal thimble or left loose. With the common three-strand rope the three end strands are woven into the main part of the rope over and under the main strands three or four times. To do this it is necessary to unlay a good length — at least ten times the thickness of the rope.

Bend up the loop and regard the side

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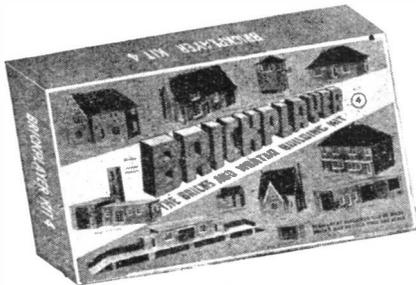
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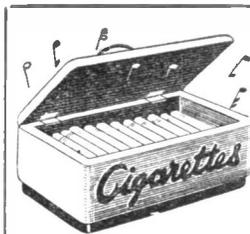
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# The Farthing Puzzle

THE puzzle consists of dropping a farthing into the opening — marked IN on diagram 1 — and then trying to release it by twisting and shaking. The secret of how it is done will be revealed by examination of the diagrams and in the process of making.

paper. It is useful to pencil guide lines through the slots made in number 1 card. Then another card is made as in Fig. 3, again allowing easy passage for the coin.

When the four cards have been prepared, place in the order shown, gluing

3 on to 4, 2 on to 3 and 1 on top. Leave under pressure until dry, and bind with passé partout round the edges.

It will be seen that to release the farthing at the lower outlet (which is on the underneath side) it is necessary to manipulate the puzzle so that the farthing travels to the top of the middle slot, then right to fall to the base.

(S.H.L.)

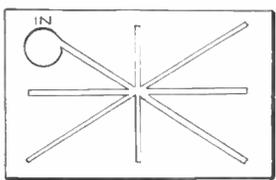


Fig. 1

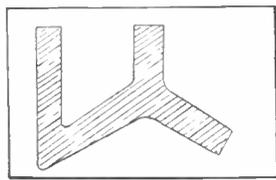


Fig. 2

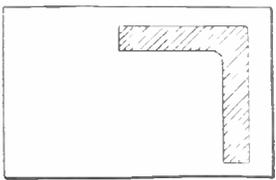


Fig. 3

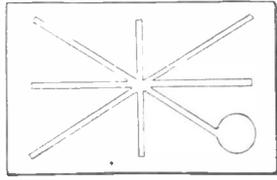


Fig. 4

Four pieces of cardboard are required slightly thicker than a farthing and measuring 5ins. by 3½ins. First of all mark out cards similar to diagrams 1 and 4, cutting slots about ¼in. wide. At the top of one card (Fig. 1) a hole is cut just large enough to accept a farthing, while at the bottom end of the other (Fig. 4) a similar hole is made.

On another piece of card mark out the shape of the channels as shown in Fig. 2. These should be wide enough to allow free passage of the farthing in its travels and smoothed off with glass-

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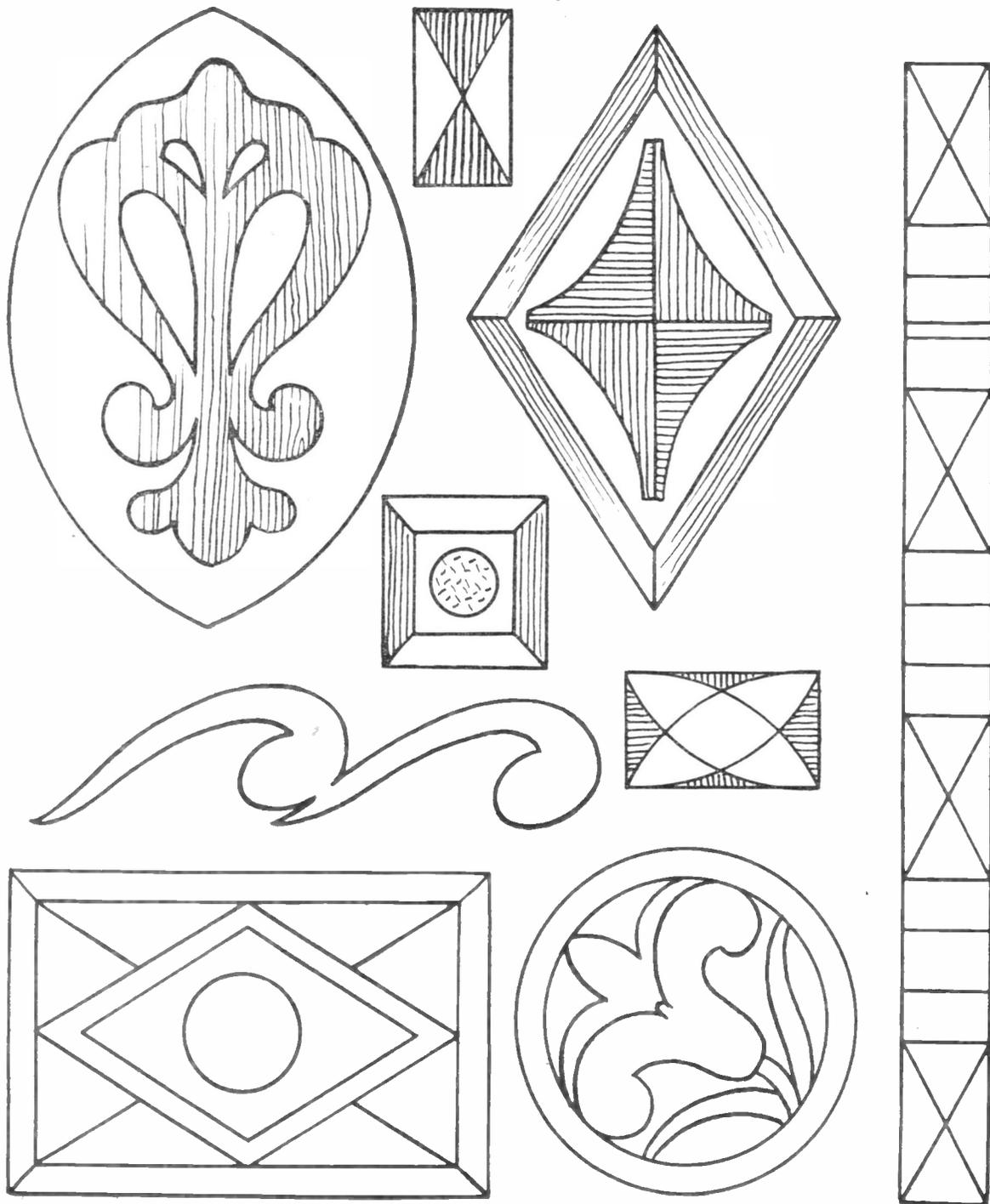
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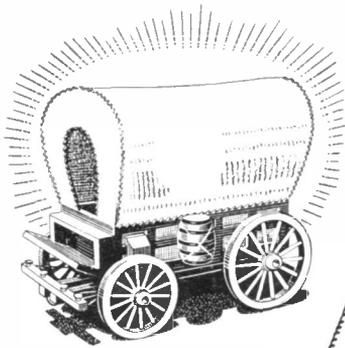


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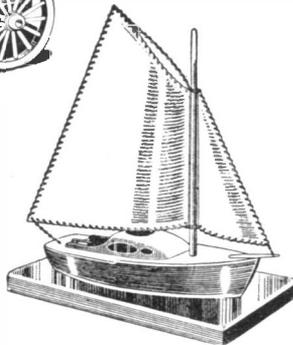


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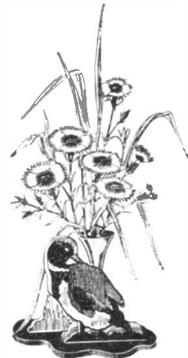


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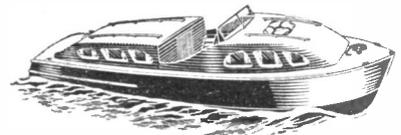
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