

HOBBIES WEEKLY

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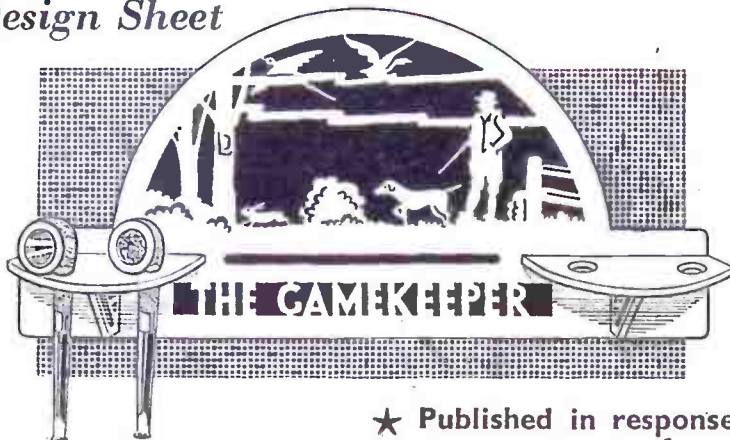
NUMBER 3100

This week's FREE Design Sheet

THIS attractive 'landscape' design will appeal to lovers of the art of fretwork, and when made up as a pipe rack or as a bracket on which to place vases of flowers it will be an admirable companion to the 'Ploughman' bracket, which has proved to be a popular Hobbies design.

Following the same 'out-of-doors' theme, the 'Gamekeeper' bracket will bring a permanent breath of fresh air into the home of the owner. With care taken in cutting out, the silhouettes are enhanced by a colourful background to form a pleasing scene.

As will be seen by reference to the design sheet, the whole of the bracket is cut from one panel of wood. Those purchasing a kit will receive this panel, plus two No. 121 eye brackets for fixing



A WALL BRACKET OR PIPE RACK

the finished article to the wall, and a piece of coloured imitation-linen paper to back the picture, as shown on the design sheet.

Keep the Saw Upright

First decide whether you intend to make a plain bracket or a pipe rack, and select the appropriate shelf pieces

accordingly. Then lay out the various parts on the panel as shown on the design sheet. Cut them out carefully, paying particular attention to the fretted parts and mortises of the main piece (A), and the tenons of pieces (B). Cut the interior frets of piece (A) before cutting round the outline. At all times remember to keep the saw up-

★ Published in response to many requests for a companion to our Ploughman Bracket ★

right. This is very essential in work of this nature.

Clean up the pieces, using fine glass-paper, and make a test assembly to see that all the parts fit correctly. Then glue the parts together, using sufficient glue to make a firm job, but not so much that an excess is squeezed out on to the face of the bracket. Set aside to harden.

Paint or Stain

Before the imitation-linen backing is

● Continued on page 402

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

For Modellers, Fretworkers
and Home Craftsmen



A Folding-Flap Emergency Table

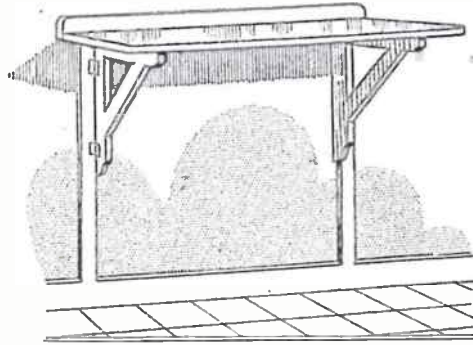


Fig. 1

THE form of table shown in Fig. 1 might almost be called an emergency table as it can be raised at will and when lowered folds flat against the wall. Two sturdy brackets on hinges which are brought forward and serve as adequate support for the top, also fold flat against the wall and are out of sight when not in use.

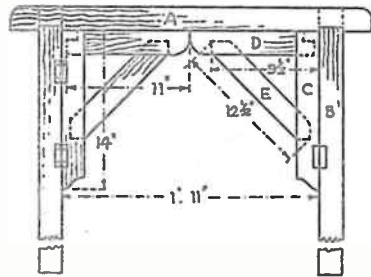


Fig. 2

It will be seen at once how handy such a table would be for occasional use, and where space is limited. Such a table, too, would be admirable in the kitchen fixed just below the serving-hatch.

If the table is intended for use in the kitchen, then it could be made from ordinary deal and painted to match other fittings. If, on the other hand, it is required for the dining-room, then mahogany or oak would be more appropriate, with a finish to suit the other furniture. A suitable size for the table top would be 32ins. long by 15ins. wide, but, of course, these measurements can be varied to suit the position in which the table is to be fixed. The height of the table above the floor should be about 30ins., or more, per-

haps, if it is to suit a certain height of kitchen serving-hatch.

The whole fitting consists of the wall frame, the two bracket supports and the table top. Simple mortise and tenon joints, which need only careful setting out and cutting, are used throughout. In Fig. 2 a clear idea of the back frame and the brackets is given, with all necessary measurements. In Fig. 3 a cross-section of the table shows how the top is hinged to the frame rail, etc. The joints in Figs. 4 to

7 are explained as each item is dealt with.

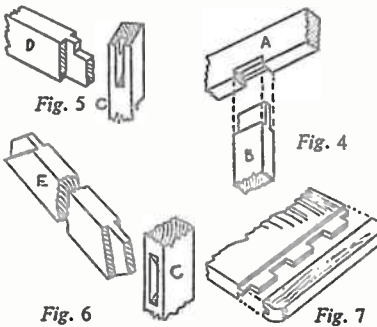
The first part to construct will be the wall frame, consisting of rails A and B. The former is 32ins. long by 2ins. wide by 1/2in. thick, and the two rails B are also 2ins. wide by 1/2in. thick, with a length to suit. If there is a skirting in the room, then these two uprights can be made to rest on it in the manner shown in Fig. 1.

The joints between A and B will be as in Fig. 4. Note how the uprights are recessed into the top rail. The two bracket supports are made to the measurements shown in Fig. 2, and are

attached to the uprights of the wall frame by brass hinges placed as seen in the detail. The upright rail (C) and the top rail (D) are tenoned together as in Fig. 5, while the sloping rail (E) has tenons each end running into rails C and D as in Fig. 6.

There are two ways of making the table top. It can be made up in two or three widths of wood grooved and tongued together and cross-battened at the ends on the underside, or the pieces can be framed together with mortise and tenon joints to a cross-batten, as seen in Fig. 7. The latter joint will take some careful working, but it makes by far the neater job. The wall frame is held securely by screws driven through the rails into wood plugs let into the wall and cemented.

It should be noted that in Figs. 4, 5, 6, and 7 the thicknesses of wood are exaggerated to better illustrate the formation of the joints. (S.W.C.)



Continued from page 401

The Gamekeeper Bracket

glued in place, the bracket should be painted or stained and polished according to choice. Much will depend upon the existing fittings in the room in which the bracket is to hang. If paint is used, make sure it is good, quality enamel, and do not be afraid to glass-paper down lightly, when dry, between coats.

If the wood used is oak or other fairly light stock, one of the nicest finishes for such work is clear wax polish. This will give a richness to the wood, yet leave it materially its natural colour.

Finally, glue the linen paper to the back of the article and fix the eye

brackets. These operations are shown in detail on the design sheet. The bracket can then be fixed in position on the wall, and will prove a useful and eye-catching decoration.

COMPLETE KIT FOR 2/9

For making this attractive bracket, you can obtain Kit No. 3100 from any Hobbies branch, or post free from Hobbies Ltd., Dereham, Norfolk, price 2/9.

A ROCKING DUCK TOY

A ROCKING duck is a most useful toy and requires no great amount of labour to construct. It will give endless hours of pleasure to the very young and can be handed down to following members of the family. The sides are made from plywood, which is easy to work with a fretsaw and has the added advantage of being light.

Two pieces of 1/4in. plywood (25ins. by 19ins.), three 13in. lengths of 6ins. by 3/4in. flooring—plain boarding will do—a piece of hardwood 4ft. 6ins. by 2ins. by 1 1/2ins., a piece of rexine 20ins. by 13ins., or other seat covering material, and 16 1in. No. 10 screws comprise all the materials needed. The rexine can be made up of two pieces 10ins. by 13ins.

Ash would be the best hardwood to use. A 4ft. 6in. length is sufficient for both rockers. A coach or caravan builder might supply cheaply two lengths of 27ins. and as so much of their timber is shaped, it might be possible to get two pieces near to rocker shape. Failing that, each of the two rockers can be built up in three pieces.

area 25ins. long by 19ins. high, which is divided into 1in. squares.

Cut out this shape and tack it lightly on to the plywood or draw round with a pencil. Have both pieces of plywood tacked together when cutting out the body shape, and when finished, smooth off with glasspaper.

position. The other method is to screw the piece 2ins. by 1 1/2ins. on first and then cut away excess timber. For those without a bench or vice, the second method would be preferable. Remember, though, if the piece 2ins. by 1 1/2ins. is completely straight it will have to be cut and jointed to follow round the bottom

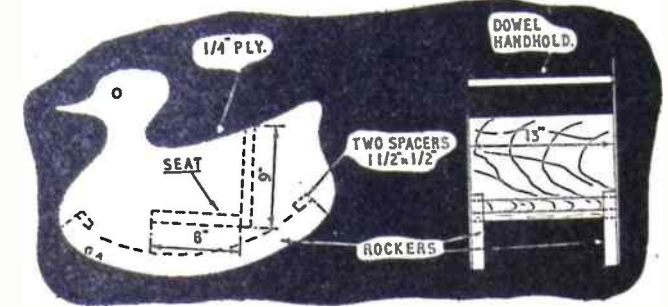


Fig. 2

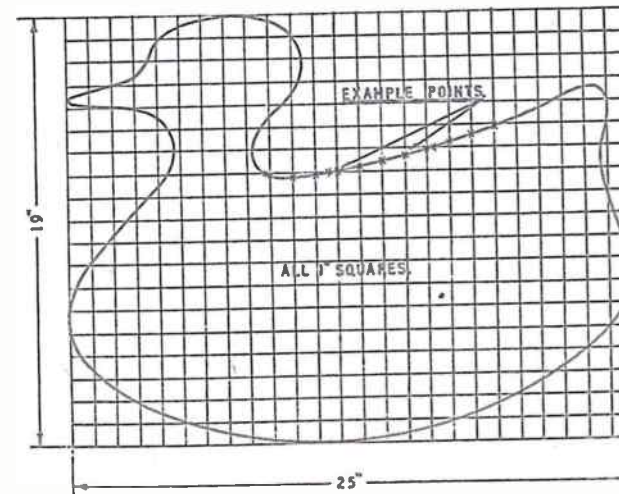
line. This means two cuts, giving three pieces.

A suitable size for the seat (Fig. 2) would be of 8ins. in depth with a width of 13ins. and a back height of 9ins. Strip the groove from one 13ins. by 6ins. by 3/4in. floorboard and smooth with a plane. From the groove of another 13in. length, measure a strip 2 1/2ins. wide and saw down this line. Nail this strip to one 6in. width, punch back the nails slightly and smooth the edge. Remove the feather from the third 13ins. by 6ins. piece and smooth the edge. Mark a 3ins. strip from the back edge of the length already ripped and nail it to the third piece with the feather removed. The 3ins. does not include the feather. This engages in the groove of the 6ins. pieces and strengthens the joint. Nail this 9ins. by 13ins. combined board to the back edge of the 8ins. width, plane off the edges top and front and the seat is completed. To support and carry it when in position, nail a 1 1/2ins. by 3/4in. piece along the seat bottom at both sides and two more on the back height.

Tilt the Seat

Now place the seat between the body sides, keeping the top edge level with the body height at a distance back of 18ins. from the beak and tilt from level for comfortable sitting. A tilt back of 3in. should be sufficient. Screw into the 13ins. by 3/4in. supports through the sides. Two screws, bottom and back

Continued on page 410



WHERE OUTLINE OF SHAPE INTERSECTS ALL HORIZONTAL & VERTICAL LINES POINTS ARE MARKED THUS -X. THESE POINTS ARE COPIED FROM ABOVE DIAGRAM ON TO 1" SQUARED PAPER.

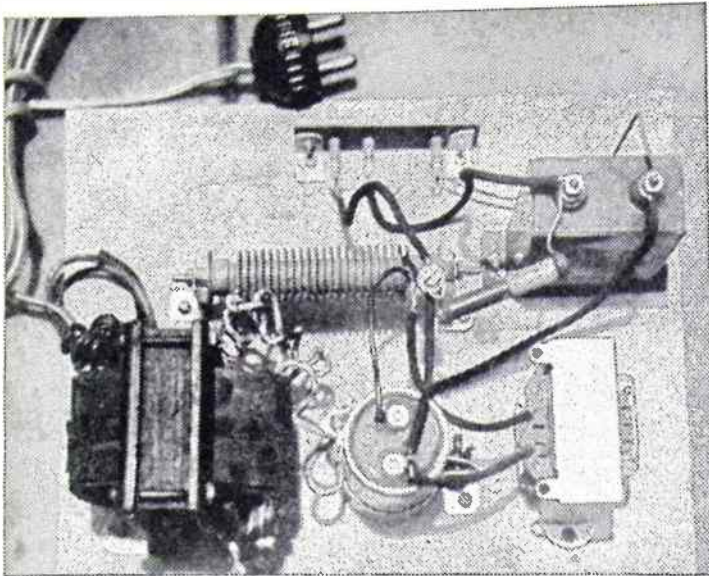
Fig. 1

To avoid any chance of a mishap to plywood, ordinary wrapping paper will do for setting out the body outline. It is simply a matter of drawing the outline of a duck by plotting the approximate points (as shown in Fig. 1) inside an

The next step is fixing on the rockers. These are screwed on from the face of the plywood. There are two ways of shaping the rockers. One is to cut two lengths of 2ft. 3ins. to fit round the plywood at bottom and then screw in

How to Construct an Eliminator

By F. G. Rayer



off, the current consumed by the eliminator will usually be insufficient to turn the meter!

Components Required

Little difficulty need arise in wiring up, but some guidance on the components is necessary. The transformer may be for the actual house supply voltage, or have tapings for 200/250 V. Alternatively, a 250 V transformer can be used on any voltage up to this figure. Assuming up to 120 V H.T. output will be required, the transformer can have a 125 V H.T. secondary. (And desired lower H.T. voltages can be obtained by using a resistance.) The winding may be rated at 25 milliamps. Any current up to this maximum figure can then be drawn.

The rectifier is a half-wave 125 V type. It also can be rated at about 25 ma. Alternatively, the 40 or 60 ma rectifiers sold for mains sets can be used equally well, though much smaller currents will be drawn by battery sets.

The smoothing choke can be of any usual mains-receiver type. As the current is small, even the smallest type of choke designed for mains sets can be used. These are usually rated at 40 ma. With small 1 or 2 valve sets, a 5000 ohm

AN eliminator of this type is intended to replace or 'eliminate' the high tension battery which is required with a battery-operated receiver, so that H.T. current can be obtained from the mains.

Among the advantages of such a unit may be mentioned very low running costs compared with H.T. battery replacements, and the convenience of dispensing with the battery. The total cost of the parts for such an eliminator is greater than the cost of an H.T. battery, but as the eliminator will give many years of service, a large saving finally results.

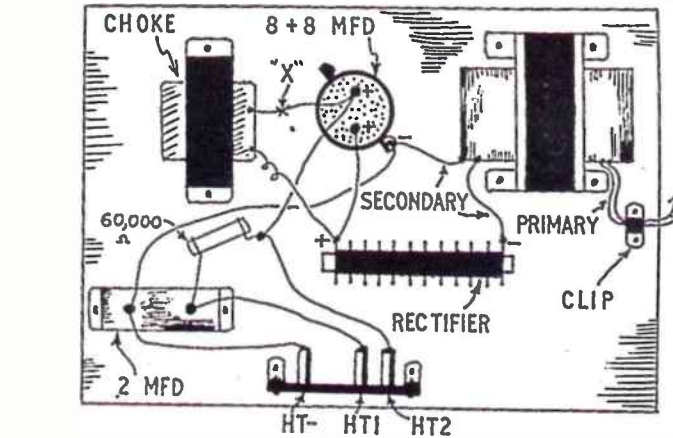
Transformer Used

Though H.T. eliminators can be made without a transformer, this component is employed because it allows the H.T. circuit to be isolated from the mains, which would not otherwise be so. The unit can be operated from 200/250 V A.C. mains. The output can be adjusted between wide limits, as will be explained. It is suitable for any 1, 2, 3 or 4 valve set, either of the 'all dry' type, or of the accumulator type normally using a 120 V H.T. battery.

Such a unit is particularly useful with portables which use small dry batteries, the life of which is short. For general listening during the winter, the eliminator may be used, with a big reduction

in running costs, a battery being used only during the summer, or when the receiver is used elsewhere.

It is difficult to make an average estimation of the cost of H.T. current



The wiring plan of the eliminator

from batteries, but this will usually range from about £1 to £3 a year. The cost of current consumed by an eliminator of this type will not normally exceed 2/6 a year. In actual fact, if other equipment in the house is switched

resistor can be used instead of the choke.

For smoothing, a double condenser is shown, but single condensers are equally suitable. The capacity may be 8 μF each, and this is not critical. The

condensers may be of 250 V to 350 V working rating. The 2 μF condenser can be of the smaller 125 V paper type. This, again, is not critical. Where voltage dropping resistors are necessary, these can be of the usual carbon type, which cost only a few pence each.

Points on Construction

Wiring will be apparent from the plan. Special care is required with the transformer primary and mains leads, which should be fully insulated and of good flex. No bare joints or connections should be left, or shocks may be experienced from these.

Some types of condenser may require a fixing clip. With electrolytic condensers the polarity will be marked, and this must be observed, positive leads or tags going to the H.T. positive and choke side of the circuit.

Where a dropper resistor is to be included, loops and small bolts permit the valve to be changed readily. The H.T. output leads should terminate in a suitable socket strip. With all-dry sets, the socket strip from an exhausted H.T. battery is suitable, and will allow the H.T. plug of the receiver to be inserted. With larger sets using separate H.T. plugs, sockets large enough to take these are required.

The completed eliminator may be enclosed in a wooden box for protection. If leads are attached to the eliminator to take to the receiver these should not be allowed to short-circuit to each other, or rectifier, choke or transformer may be damaged. An H.T. fuse may be included in the H.T. circuit if

there is much possibility of such shorts arising.

Output Adjustments

Wired as described, the H.T.2 point will give a voltage suitable for the type of receiver which normally uses a battery of about 120 V. Some sets employ a 90 V battery; others a 67½ V battery. In such cases the H.T.2 socket voltage must be dropped to these figures, as some types of valves employed in portables must not receive higher voltages. The voltage is dropped by wiring a resistor in at the point marked 'X' in the plan. If the value of this resistor is to be higher than about 3000 ohms, then the smoothing choke can be omitted altogether.

With the value shown, the H.T.1 socket will deliver 60 V at 1 ma. This is suitable for most detector stages where a separate H.T. plug is inserted in a 48 to 72 V socket on the battery. If a different voltage is required, this can be obtained by using a resistor of a different value.

The required resistance value can easily be found from Ohm's Law. First decide on the voltage to be dropped in the resistor. This will be found by taking the required H.T. voltage from 120. For example, if a 90 V H.T. supply is wanted, 30 V will have to be dropped. Similarly, if 67½ V is required, about 53 V need to be dropped.

The H.T. current consumption of the set should then be found. This can be done by measurement, or by looking up

the valves in a valve book and adding together the H.T. currents of them all. Or the following figures can be used as a guide:—

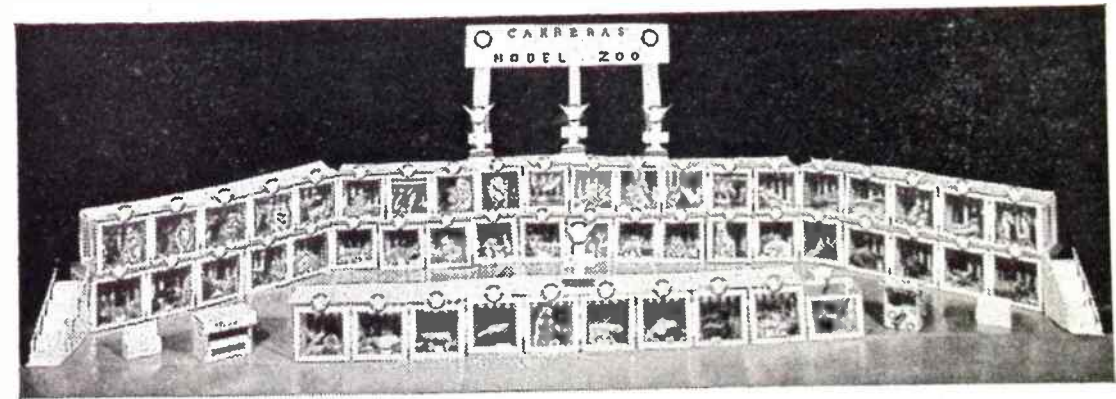
- 1-valver, consumption about 1 ma.
- Detector/L.F. 2-valver, about 4 to 6 ma.
- Detector/Output 2-valver, about 8 to 10 ma.
- 'All-dry' 4 valve portables, about 8 to 10 ma.
- Average 3 and 4 valve table set, 10 to 12 ma.

To find the resistance required, divide the voltage to be dropped by the current flowing, the latter being expressed as a fraction of an amp. As 1000 ma equal 1 amp., 10 ma would be .01 amp., and so on. To check any possible error, the following table can be consulted:—

Voltage to Drop	Current Flowing	Resistance Required
30	5 ma	6000 ohms
53	5 ma	10000 ohms approx.
30	10 ma	3000 ohms
53	10 ma	5000 ohms approx.
60	1 ma	60000 ohms
60	2 ma	30000 ohms
60	½ ma	120000 ohms

The rectifier must also be connected in the polarity shown on the diagram. The usual positive and negative signs may be present, or red and black markings to indicate positive and negative respectively.

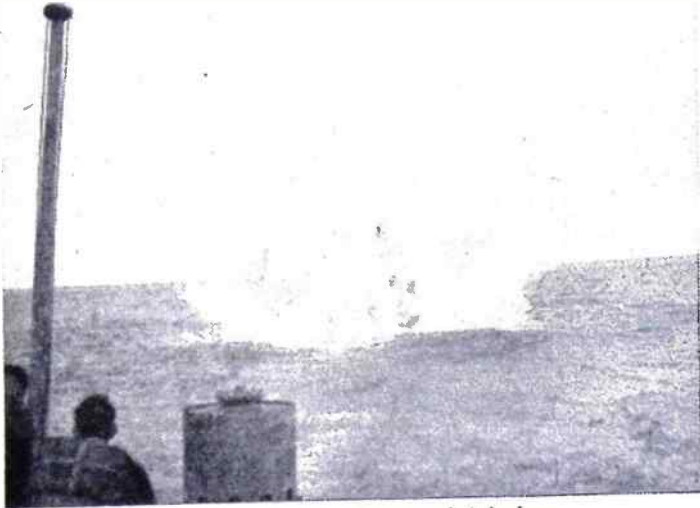
A Miniature Zoo from Cigarette Packets



This photograph shows a complete miniature zoo of 50 animals, made from pictures printed on the backs of inside slides of packets of Turf cigarettes—a very good example of applied ingenuity.

How to Avoid 'Fuzzy Troubles'

By E. G. Gaze



Rhythmic motion of ship correctly judged

FUZZY negatives due to incorrect focusing are not the subject of this article—they are readily recognisable because of general 'woolliness' of the image, though some planes may be sharply defined. And differential focusing—focusing so that your main object is sharp, while foreground or background is out of focus—is a well-known device to attract attention to your main object.

No, we're looking at negatives 'fuzzed' through movement—and this can come through movement of subject matter or movement of the camera at the moment of exposure. These two are clearly differentiated.

Take the first. You snap a train or car or a child who just won't stay still—result, the main object is blurred, though other details are sharp. In this case, of course, you need a higher shutter speed to off-set subject movement. And this brings in other problems: your correct exposure is regulated by shutter speed and the amount of light reaching the negative through the lens aperture, its *f* No. or stop. Increasing your shutter speed means that with a given amount of light falling on your subject, you have to open the lens aperture, to use more light. And you know that depth of focus alters as you increase or decrease the lens aperture. With your lens open wider you may not be able to get sufficient depth of focus—

but you're not beaten! For these difficult cases you can have a faster film, use a developer that will make the most of your film's speed rating.

Now take the second type of fuzziness—camera movement or shake at the very moment of exposure. This is deadly, it can cancel out all your care in focusing, selecting a suitable aperture and high shutter speed!

Make Test Exposures

'But I never get camera shake', you say! I wonder? Recent investigation of this seems to suggest that at speeds slower than 1/50 sec.—even, maybe, slower than 1/100 sec.—camera shake is a bogey. Remember, the shake that doesn't show itself on a contact print can be readily detectable on big enlargements. Make some test exposures around 1/25. to 1/100 sec. with the camera hand-held, then do the same with the camera on a tripod. And examine the negatives critically through a magnifier, or make large scale enlargements of portions of each set of negatives. The results may well surprise you.

But who wants to lug a tripod around? It's inconvenient, takes time to set up, gets in the way, and generally gets left at home! So what can we do to minimise this bogey—and leave the tripod at home?

The first thing is, obviously, to hold

your camera so that it is as rock-steady as possible during exposure. The eye-level camera, with both hands gripping its body and only a finger tip poised to press the shutter release, can gain additional anchorage by being pressed firmly against your face or forehead. The waist-level reflex type with a focusing screen can be steadied by shortening the neck or shoulder straps, so that the camera is supported against your chest, with the strap firmly pressing against the back of your neck. In either case you aid your hand-grip for steadying purposes.

Constant Practice

Both of these hints are common-place in photographic manuals and camera instruction leaflets. But they need practice—practise your hold on the camera before you use it, just as you familiarise yourself with the shutter and focusing settings. And find your own most comfortably held position. A hold that is uncomfortable for you is wrong for you—whatever anyone else does.

Remember, you're trying to turn yourself into a human tripod—but a hold that is uncomfortable becomes a strain, and a strain causes nervous reaction. It must be a cultivated hold that becomes part of your 'snapping' technique almost without conscious effort—strain and too much conscious effort is like trying to hold a rifle's sights on the target bull for too long. You defeat your own ends.

So practise until you do it unconsciously—that rock-steady hold.

But 'hold' by itself isn't enough. Your pressure on the shutter release must be sweet and smooth, no jerk. Think of squeezing a rifle trigger—a first pressure, and then the final squeeze. A smooth first pressure—then the final follow through, so that the shutter trips almost of its own accord. Again—it's practice! And how important this shutter technique can be is emphasised by the very fact that special balanced releases can be obtained for some cameras—so that the shutter is held almost on a hair line for pressure.

The cable release, if one is used, must be smooth in all its travel. Some folks find it a great help towards smooth release, and get over the common fault of having to take one hand from the camera—hence breaking up their first

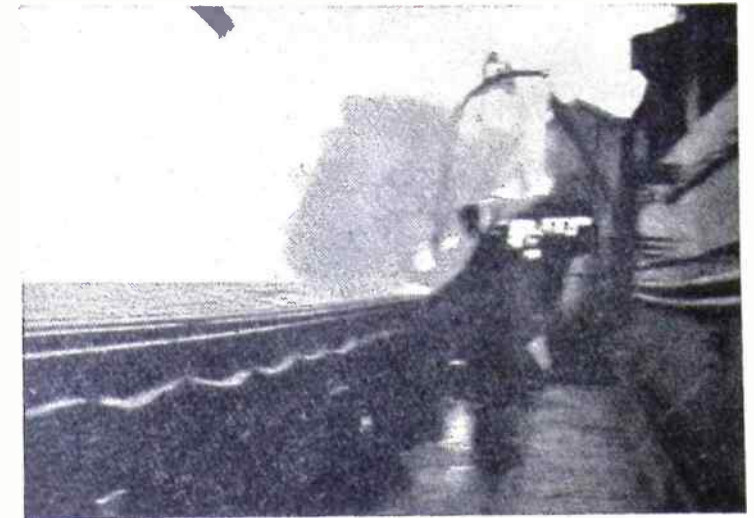
rule of rock-steady hold—by fixing the cable to the camera body by a clip, so that only one, or two, fingers operate the release. If your camera is complete with a delayed action you can set this to a short delay, hold rock steady—and let the shutter trip by pure internal mechanism; but this has a drawback—when you *must* expose at a moment under your own control, as when taking a moving object.

Wait for the Lull

Another snag to watch for, and often overlooked, is the *wind*. Outdoors on a windy day you are buffeted—so is a tripod unless it is of really solid construction and reasonably heavy—no use doing your rock-steady hold and soft release if you're swaying like a shaken reed! But wind usually has a rhythm, a series of steady blasts and lulls—watch for the lull, or the steady pressure that you can brace against—then expose.

Sensing the rhythm of any movement acting upon you is also necessary if you are on a moving object and photographing from it. The motion of a train, a car, even of a ship in a normal 'sea' has a rhythmic quality—a regularity, an even spacing of the motion, often rising and falling to a momentarily reached lull when equilibrium is reached. This moment may be only for a fraction of a second, but so usually is your exposure speed—sense that moment and expose at that moment.

But there is one type of movement which is deadly—vibration! A train, a



Vibration—descriptive of an explosion

car, a ship, is mechanically propelled—it is easy for vibration to run over every portion of it, including right under your feet. And it only makes matters worse to brace more of your body against part of the structure—you receive a bigger dose of those vibrations, they run right over you, including your camera!

So a firm stance, your best rock-

steady hold and gentle shutter release—and insulate yourself against vibration by having as little bodily contact with it as possible! And use your highest shutter speed that film and light will allow.

Sometimes Useful

Even vibration can be of use photographically—when you want to show that very type of movement on your print. The occasion may not often arise, but when it does it can be used.

The two illustrations show how to make use of a rhythmic motion, and a use for vibration.

The first was taken when the rhythmic motion of the ship, carrying the photographer, was correctly judged and exposure made at that time—the snap of the depth-charge explosion shows a clear-cut image of the fountain of water heaved upwards from the sea.

The second was timed as near as possible at the *moment* of firing a depth-charge from the ship—its explosive assisted take-off, in fact—and the photographer braced against the superstructure received the vibrations, so did his camera! Result—a fuzzed negative, yet the very fuzziness is descriptive of vibration, of the force of an explosion. The stem of the depth-charge is just caught, hurtling out of the picture frame.

So, remember—fuzzy negative can be cured. Practise camera hold, practise shutter release, till both become unconsciously firm and smooth. If you are in movement, then sense the rhythm of it and time your moment of exposure in accord. And, occasionally, you may find some photographic use for vibration,

Making a Simple Foot Switch

THE main advantage of a foot switch is that the hands are left free for manipulative purposes when engaged in contact printing or enlarging. During the latter process it is frequently necessary to burn-in some portion or hold back another, when one feels that four hands would be very

provide a means of return. A stop is also attached to the base to prevent the foot-piece being depressed too heavily and breaking the switch.

The switch itself is one of those small push-on, push-off type used for table lamps, which can be bought cheaply. It is possible that the switch may require

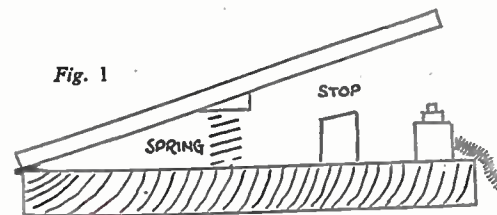


Fig. 1

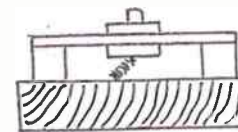


Fig. 2

useful!

Construction of a foot switch (Fig. 1) is simple. A piece of lin. shelving is cut for the base measuring 3ins. by 9ins. The footpiece is prepared from a piece of plywood or hardboard of the same dimensions and hinged to the base. A wedge-shaped block is attached to the footpiece with a suitable spring to

mounting on a thin piece of plywood attached to blocks, as in Fig. 2.

While the sketch shows the simple arrangement to produce a practical gadget it may be mentioned that sides could be fitted to make a better job. In this case the footpiece must be cut wider to engage with the sides, which will also obviate the need for a stop. (S.H.L.)

GLUES FOR HOBBY WORK

Because glue is such an essential feature of the equipment of woodworkers and model makers, we have asked our contributor, R. H. Warring, to describe the different types obtainable and their uses. In Part 1 he writes on 'natural' glues. In subsequent issues he will describe synthetic and rubber-base adhesives.

THIS is the era of the synthetic glue and yet, despite the advent of what amounts to a vast, new industry, the 'traditional' types of glues continue to survive and be used alongside their modern counterparts.

To a certain extent this is due to the fact that the enhanced performance of the synthetic adhesives is often only obtained at greater expense and more complicated or more difficult manner of usage. Some have but limited storage life, making them particularly unattractive for the small users. Others may also require both heat and pressure to set properly—a complication often not justified in the home workshop.

Difficult to Classify

Yet since the properties of some of these modern adhesives may be just what is wanted for a particular application, the amateur worker should know something about them. Unfortunately, they are now so numerous in number and type that it is difficult, at first, to classify them in some suitable arrangement based on type, performance, etc. Technically, too, it is difficult to differentiate between various forms of modern synthetic resins without introducing long, strange-sounding names which have little meaning to the majority of people. These articles are mainly concerned with sorting out the various glue types in a practical manner and, as such, will gloss over technicalities. If more information is required on such a subject, then the reader is advised to consult the glue manufacturers concerned, who are usually most co-operative.

Very broadly, glues and adhesives may be sub-divided into two main groups—those derived from 'natural' materials, and those from synthetics. Into the former category come the vegetable, fish and animal glues or the bulk of what are now termed the 'traditional' glues. According to the particular composition such glues are suitable for cold or hot use and can give quite excellent joint strengths, particularly in the joining of wood and porous materials. They are also easily mixed and easily used. Among their disadvantages are relatively slow drying (often requiring the use of clamps to hold in place until set); poor stability of the glued joint exposed to water or moisture (which tends to redissolve the

glue), or heat (which may 'craze' or cause a chemical change in the dried glue); and unsuitability for joining non-porous materials, more and more of which come into the hands of the present-day hobby worker.

That is not to say that the useful life of such glues is finished. Far from it. In a good many cases they are quite suitable for the job and, being cheap and easy to use, there is no need to look further for a suitable adhesive. Furthermore, many modern glues of this type can be used for joining non-porous surfaces where *absolute* joint strength is not a critical factor.

To simplify matters we can say that 'natural' glues are normally of one or two types, according to the origin—vegetable or animal (including fish). The solvent in both cases is water and hence such glued joints are not waterproof, although, depending on the formulation, they may be water-resistant (i.e. water or moisture softens the glue joint by tending to re-dissolve the solid glue, which sets again when dried out). Thus they may stand up to occasional exposure to damp, but will fail under continual exposure to water.

No Lumps

The main use of vegetable glues, such as gum arabic, is for gluing paper to wood, and gluing papers and card together, etc. The glue can be made quite thin and retain excellent drying properties. Thus it is easy to smear on with the finger, apply by brush, etc., without producing lumps or 'jelly spots' which might prove difficult to work level when one of the materials being joined is relatively fragile. One of the handiest gadgets in this field is the LePage 'Gripspreeder'—a slotted rubber nozzle which fits the top of the glue bottle and enables the gum to be spread direct without having to remove a cork or cap, or use a brush. The type of glue used in the LePage's 'Gripspreeder' is gum arabic. It is an excellent medium for applying glue to full-size patterns, etc., ready for pasting down on to wood, as, of course, is any other vegetable glue applied by any other means.

Animal glues tend generally to be rather thicker and again, broadly speaking, are of two main types—those which can be used cold and those which have to be heated to render them liquid

enough to use. The latter are normally solid at room temperatures, either in the form of a rigid jelly or a hard, brittle mass. The main reason for using a hot glue, which requires the complication of a glue pot to bring to working temperature, is that such animal glues set quicker, generally give maximum strength for the type, i.e. the resulting joint strength is slightly higher than that obtained from cold animal glues, or those which remain liquid at room temperatures, although this is no universal rule.

Packed in Tubes

A specific advantage of the cold animal glues, however, is that since they are ready for use they can be packaged in tubes for convenience of use. Where only small quantities of glue are required, and use is only occasional, a tube of glue is much easier to use than a tin, which necessitates the glue being spread by brush or similar means.

There are numerous glues of this type, packaged both in tubes (for small or occasional use) and tins, ranging in size from 4 ounces up to 28lbs. (for the large scale user). Both Croid Universal glue and LePage's Liquid glue (fish-type) are marketed in these forms. Other proprietary animal glues of the cold type are sold in tubes, e.g. Seccotine, while the hot glues are, of course, invariably sold in solid packages, such as tins.

While such glues (hot or cold) may be used for gluing paper to wood, etc., their main application is for making wood joints. As such they are the 'general purpose' glues of the amateur carpenter and woodworker, for all jointing, veneering, general woodworking, etc. Hot-type glues are sometimes preferred where quick setting is required. The strength of some of the present cold type formulations is comparable with that of the best of the hot glues. The main difference in performance between the best of the hot and cold (liquid) types is in setting time, the hot glues being much quicker setting (4-8 hours average, as compared with 8-24 hours).

Cold liquid animal glues are also used for sticking leather, paper, cardboard and similar porous materials, and also to a more limited extent for sticking laminated plastics, etc. Both hot and cold animal glues have a wide

industrial as well as amateur application, and may be employed for such severe duties as sticking emery discs to grinding wheels, etc. Their industrial application in the furniture trade is now, however, seriously challenged by the modern synthetic resin adhesives.

Possibly nearest to the natural glues in type are the dextrin adhesives, usually manufactured in the form of a thick, sometimes almost solid, white paste. They are clean and easy to use, spread well and dry quickly. They are particularly suitable for affixing thin, porous materials to a porous backing, such as mounting photographs, or sticking papers or card, etc. A number of dextrin adhesives are packaged in tubes (e.g. Croid No. 22), although it is more usual to find them in squat wide-topped jars or tins (Gripfix, Bondfix, etc.). In the latter case a good shelf life is ensured by covering the top of the paste with a waxed seal before fitting the lid. When this seal is removed, i.e. when the jar is opened for use, the exposed paste will continue slowly to

'NATURAL' GLUES SUMMARISED		
Type	Formation	Typical Properties
Vegetable	Gum Arabic, etc. In water solutions.	Office Type Glues. Sticking paper to wood, etc.
Animal	Mammal and Fish Glues. (i) In solution (cold). (ii) Solid (hot).	General purpose Woodworking Adhesives. Joint strengths generally comparable. Hot glues, quick setting. Cold glues, slow setting.
Dextrin	Gum Starch (Dextrin). Solutions and Pastes. White colour — water soluble.	Office and Photographic Pastes, etc. Especially useful for sticking paper to wood, etc.
Protein (Casein)	Casein—Water solution. Made up when required for use.	Semi-waterproof, strong setting. Improved performance for wood-working joints, etc. Improved specific adhesion to other surfaces.

harden and solidify, even when re-capped. However, provided the paste is never allowed to dry into hard, solid lumps, it can always be re-worked to the required consistency by adding a little water and then mixing or whipping up as thick cream. For certain applications, in fact, such as gluing paper to wood or sticking tissue to model aircraft frames (particularly over sheet

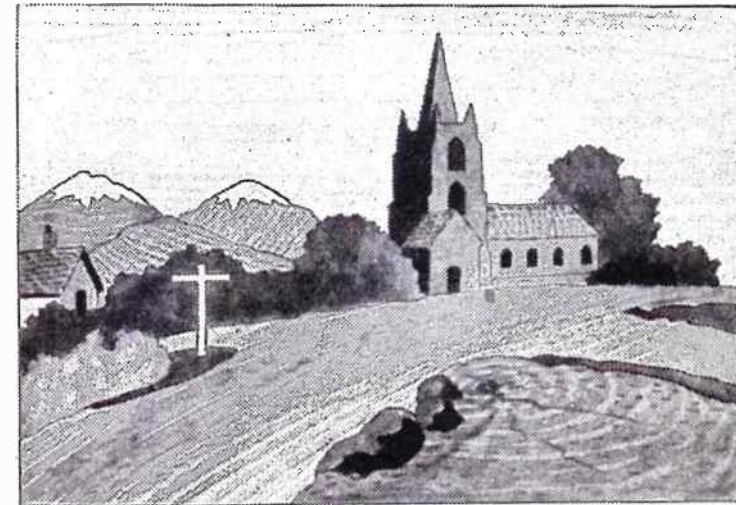
balsa), it is advisable to thin the normally solid dextrin paste with water before use. It then goes on more evenly and easily.

Dextrin is still a natural material in that it is, essentially, a starch gum. Similarly casein is a protein found in milk (and one of the principle constituents of cheese), but a natural product which can be used to develop a rather different type of adhesive. Reduced to powder form it dissolves readily in water to produce a glue which sets by chemical action, this action being irreversible. Thus a typical casein glue, although made up as a water solution, produces a highly water-resistant joint on setting. It is also largely unaffected by heat.

Casein glues of this type have excellent joint strength values used on wood (generally superior to animal glues), plus this advantage of being waterproof. They are suitable for gluing a wider range of materials, including wood to metal, laminated plastics to wood, etc. They are also gap-filling to a certain extent, which property can be enhanced by mixing a proportion of sawdust, flour and whipping with the liquid solution.

No casein glue is completely waterproof, however. If a joint is subject to prolonged immersion the joint will soften, regaining full strength if removed and dried. Under continual immersion softening would continue until the joint eventually failed. In this respect it is inferior to the synthetic resin type, although it possesses the advantage over these types of being non-sensitive to temperature as regards setting time. Like the synthetic resins, though, deterioration of the glue powder gradually takes place with time during storage, but normal shelf life is usually quite long, at least a year. Once made up into solution, of course, pot life is limited. This may be a matter of an hour or so, or overnight, according to the formulation. An industrial-type casein glue (e.g. Casco A.1) enables surplus glue from one day's working to be mixed with a fresh lot prepared on the following day.

A New Design for an Inlay Picture



HERE is another design which will be welcomed by all fretsaw inlay and marquetry enthusiasts. The picture can be cut in four basic colours—using a No. 1 set of inlay panels as supplied by Hobbies Ltd. at 3/6.

The picture could, of course, be carried out in knife-cut veneers and in this case the reader could adapt the design to suit his own particular fancy, and

incorporate a larger number of colours. Fretsaw inlay is a comparatively easy method of producing skilful inlay work, the only requisites being a fretsaw and some fine sawblades.

For the benefit of newcomers to inlay work, the Editor will be pleased to supply, free of charge, a copy of our comprehensive leaflet 'Making Pictures in Wood'. Please enclose a stamped addressed envelope. (M.p.)

The Picture is shown full size on page 415

Why not go Hiking at Easter?

By Arthur Sharp

PERHAPS it is not easy to decide upon that grand walking tour you are hoping to enjoy this year. It is an important business—this choosing a route. So many parts of this country are full of good things; every byway and bridle road crammed with potential joys; every road a call of its own; every district its attractions. A wide choice of good walking country is yours.

To plan is not quite as simple as it may seem. It is often difficult for the beginner, especially if he intends to go alone. If with one or more companions, then it is possible to go into 'committee' and pool ideas.

Avoid Main Roads

Let us briefly glance at some of the possibilities. First a few tips—plan your trip to avoid, wherever you can, the main trunk and arterial roads. If necessary, and it often is, do the early stages by 'bus or train, which will take you to a selected starting-point. The 'bus especially is the hiker's friend, for by its aid one can get right into the heart of the country clear of built-up areas—and this cuts out a lot of monotonous foot-slogging. The railways, too, cater splendidly for walkers, and there is no difficulty in choosing a walking tour in conjunction with a train journey out and home.

Stick to the byways, bridle roads, field paths, and moorland tracks. It is good fun to explore the old greeny-by-lanes that radiate from many country hamlets; it is possible to find a way from village to village, and never have to do more than cross over a main highway. With a bit of care when

plotting by the O.S. map you may discover and trace out many such routes.

Walk at a regular steady pace; rest for a short time at intervals, or do a little sightseeing where a 'surprise' view or some interesting village calls for a little exploration. Try and arrange to include interesting things *en route*—ancient castles and churches, moated houses, and so on. Carry only the necessities in your rucksack—to reduce the load. Wear easy clothing suitable for the occasion, for it is well said that 'half the pleasure of rambling is lost if unsuitable clothes are worn. A little care at the outset will save a great deal of trouble later on'.

Footwear for Comfort

The hiker cannot be happy and enjoy every step of the route unless he or she gives more than a passing thought to footwear. Obtain a pair of stout, but not too cumbersome, well-made boots or shoes. For hill walks and mountains, boots are preferable. It is quite impossible to enjoy your holiday if your feet become sore and tender. A blistered heel can be an awful nuisance—and painful!

See, then, that your footwear is comfortable. There must be room in your boots or shoes for the toes to move, but the heel should not slip, as this will cause blisters. It is bad economy to buy inferior hiking wear. Always endeavour to get your boots or shoes 'broken in' before starting on a long

tour. Wear them on short walks, so that they get bedded, as it were, to your feet. Keep them well-dubbed, to keep the leather soft. For cross-country and hills have footwear well studded.

Wear good, fairly thick wool stockings or socks. Thin stuff will soon wear into holes and cause blisters. Some ramblers find it a wise plan to wear two pairs at a time, one pair—the inner—being thinner than the outer. Take a spare pair when on a long trek.

You may bathe your feet in salt water to harden them, before setting off on the Easter tour. Keep toe-nails cut fairly short and square. If at the end of the first day's tramp, you discover tender spots or blisters on your feet, apply vaseline or boric ointment to the affected parts. To prevent blisters rub a little vaseline over and in between the toes and heels prior to putting on your socks or stockings; or smear the inside of them with plain yellow soap, wetted. Rubbing the feet with methylated spirit is said to harden the skin.

Be Prepared

It is wise to be prepared for a cold spell at Eastertime, while the Spring is still young. Therefore, carry a woollen sweater or pullover in case of chilly winds, and a light mackintosh which can be neatly folded. Or take a weather-proof cape, cut full to cover the rucksack or pack without tightness and fitted with straps that enable the wearer to throw back the cape to hang loosely down the back. A compact first-aid outfit may come in useful in case of accident.

Don't clutter yourself with a lot of non-essentials. Keep your luggage down to the minimum. There's no fun in hiking loaded like a pack mule.

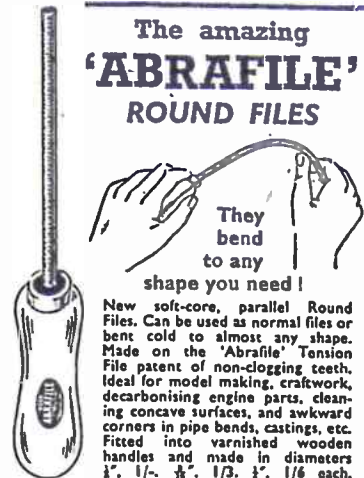
Y.H.A. Hostels

Remember that if you are a member of the Youth Hostels Association you need have no fear of not being able to secure decent accommodation at night. But—and this is rather important—remember it is essential, or at least, much wiser—to make your arrangements in advance, if possible, especially at such holiday seasons as Easter and Whitsuntide.

Having selected the district you desire to explore, it is a good notion to procure a local Guide Book covering the region, and look through it for particulars of accommodation and refreshment available, particularly if you desire to keep independent of organisations, and go rambling alone. If you prefer company join a rambling club or the Ramblers' Association.

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Continued from page 403

Rocking Duck Toy

each side, will do, and for easy placing mark the outline of 1 1/2 ins. strips on the inside, remove seat, bore through to the outside, and you have the exact position of the screws.

The seat and seat back can now be covered. The covering can be fixed on with brass round-headed nails or chromium cup-headed screws. The screws are more distinctive. A little padding would add to the comfort. Anything reasonable will do, such as cotton wool, an old sock cut up or even soft paper or dried moss.

To strengthen the duck when rocking, a 1 1/2 ins. by 1/2 in. spar is screwed on the front and back. The front spar can be used as a foot rest and fixed to suit the

child. They are screwed down to the rockers.

A handhold is all that is needed to complete the toy. This can be made from a discarded brush handle. Cut to fit in between the sides at head height. It is held in place by a screw through each side. The position of the handhold may have to be altered to suit the stretch of the child.

A flat cream to all parts, except the bill, is quite a satisfactory finish. For the bill, a bright red, although unorthodox, gives a marked contrast and its colour is highly pleasing to a child.

Beady eyes are obtained from round-head screws. The shortest No. 6 your dealer can supply are required. (A.D.)



REPLIES OF INTEREST

Amplifier Required

How could a microphone be fitted from a harmonica leading to a loudspeaker? (D.L.—Kingsthorpe.)

FOR the purpose mentioned, you would require a small microphone to mount on the harmonica, an amplifier, and a loudspeaker. The amplifier would be the most costly item; its cost would depend upon whether it is mains or battery operated, and the volume required. Also upon whether it is purchased readymade, or as a kit of parts to make up, from one of the suppliers of these. The approximate cost of a small set of such equipment would be about £6, with microphone and speaker. If considerable volume is required, for a large hall, dancing, or some such purpose, a more powerful amplifier would be required. If a radio receiver with pick-up sockets is available, this could be used as an amplifier. The volume obtained in this case would depend upon how much amplification the receiver chanced to provide. With a small receiver, the amplification would probably be insufficient. But any standard microphone amplifier equipment should prove satisfactory.

Harmful to Goldfish

Is plastic (i.e. plastic articles and small plastic chippings) in any way injurious to goldfish? After cleaning out my aquarium, I installed a couple of small plastic toys and some coloured plastic chippings. Since this operation I have lost all my goldfish. They showed no apparent signs of illness and to all appearances were good healthy fish. You may be able to offer an alternative reason why these fish, after years of good health, should die so suddenly. (C.A.G.—Rainham.)

IT would appear that there is some injurious element about the plastic toys that contaminated the water of your aquarium. Definitely we do not hold with putting anything of that nature into an aquarium. It would be much better if suitable aquarium rocks and arches were employed for ornamentation. These and shells may be used and can be had from most aquarium dealers. Before restocking your aquarium, give it a good cleaning out, rinsing it well with several lots of fresh water. When

setting the tank out again, with suitable plants, etc., keep nothing that you had in it before the disaster. Put in fresh plants and materials only. For the bed of tank use well-washed shingle or Pratt's aquarium compost.

Cabinet for Sewing Machine

I HAVE an old-fashioned Singer treadle sewing machine. Can you suggest a way of making it appear more modern? I have in mind a sort of cabinet, and the head of the machine to drop inside. (G.W.—Sheffield.)

A CABINET can be made with framed up ends and plywood panels, plywood back and framed up doors at front, all being firmly fitted to a stout wood base on which the machine can be screwed. The original base of the machine may suit as the top of the cabinet, but if too small, add a wood ledge to the cabinet at its top to make up the space. We do not think the fitting of a 'drop' arrangement is feasible, in-

terior space, perhaps, not being sufficient, but we do suggest you contact Singers through one of their branch shops and ascertain definitely about that. They may supply the necessary apparatus.

Chemically Impossible

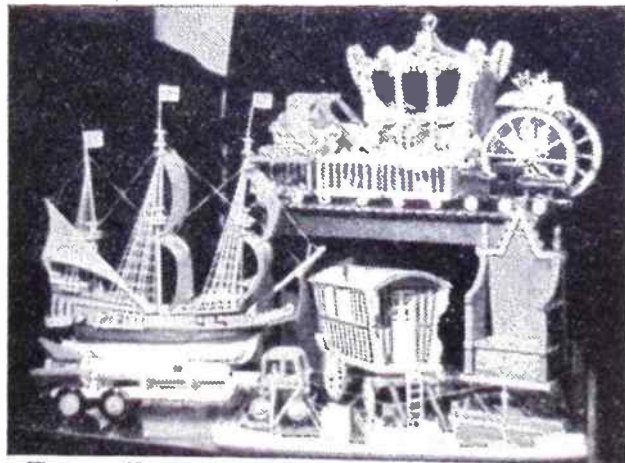
Is it possible to mix copper sulphate and paraffin? (L.M.—Tredgar.)

YOU evidently mean, can you dissolve copper sulphate in paraffin oil (kerosene). Unfortunately this is chemically impossible, even on heating the paraffin, and there is no other means of inducing it to dissolve. If you mean is it safe to mix solid copper sulphate and paraffin to a paste, the answer is yes, for they have no chemical affinity and consequently nothing untoward can occur.

Rust Holes in Tank

My water storage tank in the roof has slight indications of rust pinholes coming through the galvanising. Is there anything I can do to prevent rusting through—e.g., by painting? The tank feeds a hot water tank. (J.M.—Bath.)

EMPTY tank, dry, and then fill up with pinholes with cold solder, a tube of which can be bought at most oilshops.



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The Coronation Coach took Mr. Knoetze 10 months to make in his spare time. The tyres were made of plastic flex, and the crown of metal strapping and fine ball chain. Though he deviated slightly from our plans in some of the detailed work, Mr. Knoetze says that the venture, though 'risky', proved highly successful.

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This famous Razor is now offered on easy terms. Each set contains sharpening mechanism (strop and hone) to keep the blade keenly edged for years. The most economical safety razor yet made. Cash price 53/3, or terms as above. Also in leather pouch with spare blade 79/6, or 5/- down and 8 payments of 10/6.

Brochure of this and other shavers free.

BARGAIN DISTRIBUTORS
(Dept. 124), 5 Silver Street, Luton

PHILISHAVE



14 DAYS' FREE TRIAL

Try the wonderful Philishave Electric Dry Shaver FREE for 14 days. Send only 5/- deposit (returnable if not satisfied). Two shaving heads with two 6-bladed cutters have unique rotary action which genuinely shaves - doesn't just snip at the hairs. Result - better shaver shave. Operates 110/250 volts. A.C./D.C. 50/60. Cash less your deposit. Or 5/- deposit can be first payment after trial, followed by 8 monthly payments of £1. 12 months' guarantee.



For Fretwork Requisites . . .

and everything for the Modeller, Craftsman and Handyman

FRETSAW BLADES RENOWNED FOR TOUGHNESS

BLUE Label	10d. doz. 9/6 gross. Grades 00 (fine), 0, 1, 2, 3, 4, 5, 6.	Grades 00
YELLOW Label	1/2 doz. 13/6 gross. Grades 00 (fine), 0, 1, 2, 3, 4, 5, 6.	Grades 00
HEAVY Saws	Heavy-duty Fretsaws for cutting thick wood. 1/6 doz. 17/6 gross.	
TOYMAKERS'	For extra-heavy cutting we supply Toymakers' Heavy Saws. 1/9 doz. 20/6 gross.	
METAL Cutting	For Sheet Metal of all kinds. 1/3 doz. 14/6 gross. Fine or medium grade.	

Hobbies Tools are obtainable at all good stores, ironmongers, or Hobbies Branches, or post free from Hobbies Ltd., Dereham, Norfolk

Miscellaneous Advertisements (Continued)

TRANSFER Graining Paper—Oaks, Walnuts; 1 Samples, 1/-; Complete range, 3/-; Roll, 16/10.—H. Decano Co., 20 Clarendon Rd., Jersey.

'SHIPS in Bottles and Electric Light Bulbs'. Plans and instructions 3/-. Toy plans included free.—W. Phillips, 47a Linden Gardens, Chiswick, W.4.

AMATEUR woodworkers—why not turn your hobby into substantial income? S.A.E. for full particulars.—Goodwood Crafts, Cross Street, Leamington Spa.

PERFORATION gauge and 50 stamps, free to all approval applicants enclosing 21d. stamp.—Cliffe West (H2), 61 Wynyard Rd., Sheffield, 6.

STAMPS—send postage for 12 page bargain lists to—J. T. Hilton, 2 Junction Road, Deane, Bolton, Lancs.

PACKET of Stamps Free, to all requesting approvals.—T. T. Savage, 14 New Road, Linslade, Leighton Buzzard, Beds.

RADIO components, bargain parcel at 5/- post. 3d. Contains crystal, resistors, condensers, transformer, crocodile clips, sockets, switches; worth 15/-.—VI-RAD, 6 Twyford Rd., Eastleigh, Hants.

STAMPS FREE!! Twenty unused (21d.).—G. H. Barnett, Limington, Somerset.

SET obsolete Leeward Isle stamps free and post free. Just request approvals.—S. Eade, Truckshall, Newington, Nr. Folkestone, Kent.

BRITISH Colonials, all periods, bargain prices. One country or mixed selections on approval. Discount allowed.—L. Newell, 6 St. Mary Road, Walthamstow, E.17.

100 DIFFERENT stamps free! 1d. upwards approvals.—Bush, 53 Newlyn Way, Parkstone Dorset.

MODELS. You can make lasting stone-hard models with Sankey's Pyrama Plastic Cement. Supplied in tins by Ironmongers, Hardwaremen and Builders' Merchants. Ask for instruction leaflet.

PLYWOOD — HARDBOARD — at amazing low prices. Send S.A.E. for samples and prices to—N. Gerver, 10 Mare Street, Hackney, London, E.8.

TOY CASTING MOULDS. Soldiers, sailors, Tairmen, etc. 1,000 varieties from 3/- each. Rubber moulding compound for flexible moulds, granulated ready for use. 8/6 per lb. Aluminium moulds for plaster work. S.A.E. for list. Catalogue 9d.—P. W. Nuthall, 69 St. Mark's Road, Hanwell, London, W.7.

SWISS MUSICAL Mechanisms for cigarette boxes, etc., 18/- post free. S.A.E. for illustration and list of tunes available.—Dept. HW, Melwood Accessories, Church St., Wolverton, Bucks. (Trade supplied.)

'PAINTSPRAYING' HANDBOOK (1954 Ed.). Covers Car, Industrial & Flock Spraying. 3/6, post free, including catalogue of our Cellulose and Synthetic Paints and all Allied Sundries and Plant Hire.—Leonard Brooks Ltd., 81 Oak Road, Harold Wood, Essex.

AMERICAN MAGAZINE Subscriptions. One Year Popular Mechanics 32/-. Popular Science 28/6. Homecraftman 16/6. Homecraft 18/-. DeltaGram 10/6. Free booklet quoting others.—Willen Ltd. (Dept. 57), 101 Fleet St., London, E.C.4.

SHORTHAND in 1 week. Test lesson, 21d. Stamp.—Dutton's (HB/SV), 93 Gt. Russell St., London, W.C.1.

LEARN it as you do it—we provide practical equipment combined with instruction in Radio, Television, Electricity, Mechanics, Chemistry, Photography, etc. Write for full details to—E.M.I. Institutes, Dept. HW.47, London, W.4.

DOLL'S HOUSE fittings and papers. Send S.A.E. for list. Doll's House plan, special, send 2/6. Trade supplied.—Zimplan, 88 Ware Road, Hoddesdon.

STAMPS FREE—Empire Packet including Pictorials and Victorians with approvals.—Robert J. Peck, 7A Kemp Road, Bournemouth.

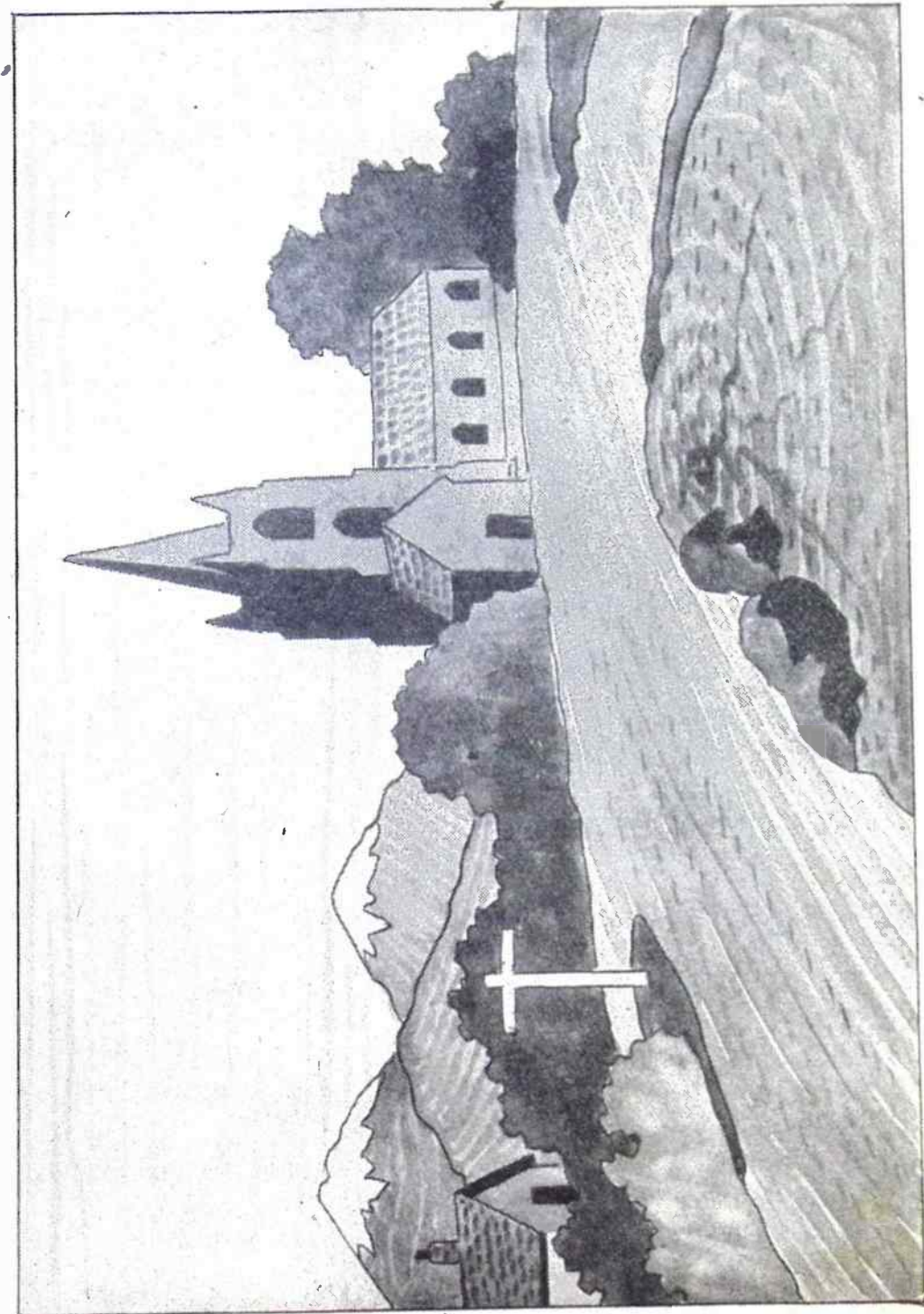
ULSTER HANDICRAFTS, Downshire Place, Great Victoria Street, Belfast, supply craftworkers with Stanley tools, Handicrafts, Marquetry, Veneers, Acrolite, Musical Movements, Lamp Frames, Paints, etc.

RUBBER MOULDS for plaster casting. Sample 3/11. Trade supplied. S.A.E.—Burlleigh Supplies, 13 Burlleigh Street, Hull.

MAGIC Jumping Card and wonderful Catalogue 1/-.—DeHempsey, 363 Sandycombe, Kew Gardens, Surrey.

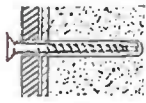
EARN £££'s WEEKLY in Sparetime. Hundreds of tested ways. Details free.—S.P. Ltd., 28 (HB) Dean Rd., London, N.W.2.

The Pattern for the Inlay Picture (see page 409)



RAWPLUGS

— for speedy screw-fixing



For simple and speedy fixing of equipment, racks, motors, etc. to brick, stone or concrete—use Rawplugs! There's a Rawplug for every size of screw, and Rawplug easy-to-use Tools for speedy hole boring. Popular Outfit 2/6d., Household Outfit 6/-, Handyman Outfit 9/6d., each complete with Rawplugs, Screws, Hooks and 16-page booklet "Hints on Fixing".



TIPPED DRILLS

— for fastest-ever masonry drilling



There's nothing to equal the astonishing speed of these drills in penetrating brick, stone, tiles, etc. The Durium new process carbide tip is harder than any metal or alloy, giving fifty times more life than ordinary drills. In sizes from 5/32" to 1" diameter—can be used in hand or electric drills.



TRADE ENQUIRIES INVITED

0472

THE RAWPLUG COMPANY LIMITED, LONDON, S.W.7



*Proof
against
Boiling
Water*

VALSPAR

2-4 Hour LACQUER • VARNISH • WOOD STAIN

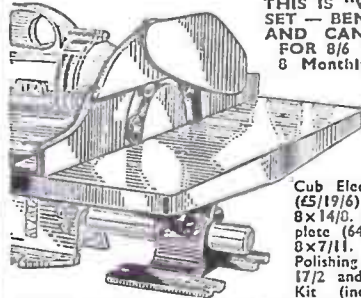
- ★ NO PRIMING OR UNDERCOATING REQUIRED
- ★ EASILY APPLIED, EASY TO KEEP CLEAN
- ★ SUITABLE FOR ALL SURFACES—EVEN TILES
- ★ DRIES IN 2-4 HOURS



Write for booklet and name of stockist to the Sole Manufacturers U.K.

GOODLASS, WALL & CO., LTD.
179/185, (A.C.A.) Gt. Portland St. W.I. Est. 1840

EASY PAYMENT CORNER



THIS IS "WOLF" No. 10 SET — BENCH PLANER — CAN BE YOURS FOR 8/6 DEPOSIT. And 8 Monthly Payments of the same amount. (£3/9/6 Cash)

OTHER "WOLF" EQUIPMENT

Cub Electric Drill (4in.) (£5/19/6) or 1 1/8 and 8x14/0. Drill Stand Complete (64/6) or 7/11 and 8x7/11. Sanding and Polishing Kit (£7/1/6) or 17/2 and 8x17/2. Latho Kit (inc. Tools etc.) (£10/17/-) or 26/7 and 8x26/7. Saw Kit (£10/5/-) or 25/11 and 8x25/11. No. 5 Saw Set (£2/19/6) or 7/4 and 8x7/4. No. 8 Fretsaw Set (£3/15/-) or 9/2 and 8x9/2. Fretwork Kit (£10/19/6) or 26/10 and 8x26/10. Complete Outfit (exc. Fretsaw) (£16/17/6) or 41/3 and 8x41/3. No. 9 Bench Sander Set (£1/19/6) or 4/8 and 8x4/8.

B & D EQUIPMENT AS FOLLOWS: 4in. Drill 13/11 and 8x13/11 (£5/19/6 cash). 4in. Drill Kit 27/11 and 8x27/11 (£11/17/6 cash). B & D Craftsman Latho 12/3 deposit and 8 monthly payments of 12/3 (£5/5/- cash). 4in. Bench Drill Stand 7/11 and 8x7/11 (£3/7/6). No. 44 Sander 29/2 and 8x29/2 (£12/10/-). 5in. Sander-Polisher Kit 23/- and 8x23/- (£9/17/6). 4in. Por-

table Electric Drill 28/11 and 8x28/11 (£12/7/6). Abrasive Kit 3/4 and 8x3/4 (27/6). Disc Sanding Table Attachment 3/11 and 8x3/11 (32/6). 4in. Bench Stand 12/11 and 8x12/11 (£5/10/-). 6in. H.D. Electric Saw 40/3 and 8x40/3 (£17/5/-). 5in. Portable Saw Attachment 7/7 and 8x7/7 (£3/5/-) and Latho Saw Table 6/5 and 8x6/5 (£2/15/-).

Desk 144, LAFCO COMPOUNDS LTD
3 CORBETTS PASSAGE, ROTHERHITHE NEW ROAD,
BERMONDSEY, S.E.16 BERMONDSEY 4341. EXTN 1

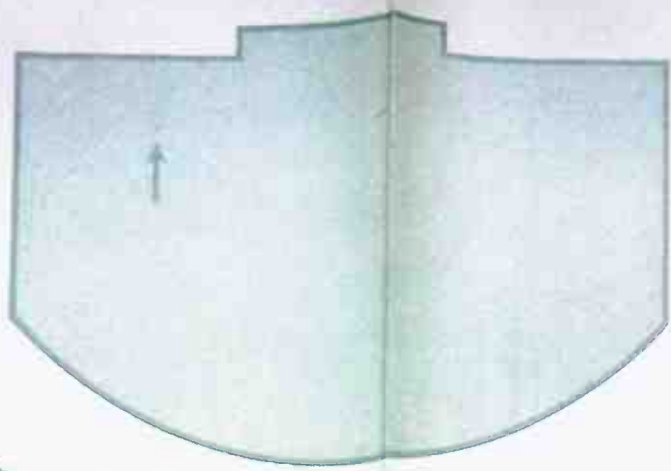
THE 'GAMEKEEPER' BRACKET or PIPE RACK

COMPANION TO THE 'PLOUGHMAN' BRACKET

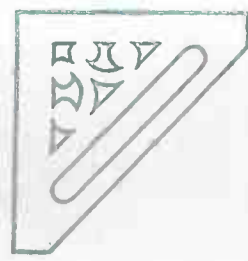
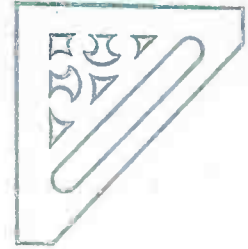


Materials required for this design
WOOD One piece 14ins. x 7ins. x 3/16in. (Hobbies H3)
 Two 3/8in. Bracket Eyes (Hobbies No. 121)
 One piece backing material, 15ins. x 7ins.
 A complete kit of the above materials can be obtained from
HOBBIES LTD., DEREHAM, NORFOLK

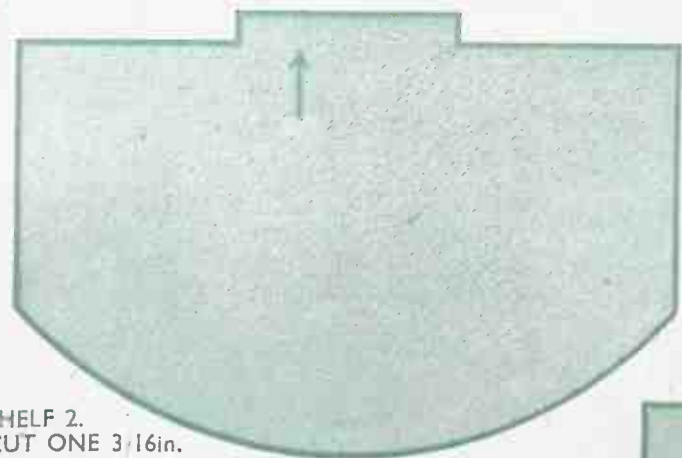
Did You Know
 . . . That details of hundreds of designs and kits, chosen from among the best of those produced during the past few years, are given in . . .
HOBBIES Annual HANDBOOK
 In addition, there is an extensive editorial section full of "how-to-make" articles, a large FREE Design, and a comprehensive . . .
 The Handbook is published at the beginning of August each year, and is obtainable from newsgents or Hobbies stockists, or by post from Hobbies Ltd., Dereham, Norfolk.



SHELF 2. CUT ONE 3/16in.



SHELF SUPPORTS 3. CUT ONE OF EACH 3/16in.

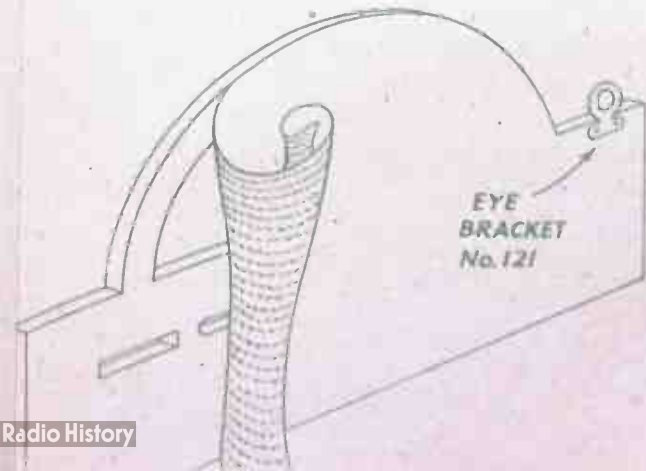


SHELF 2. CUT ONE 3/16in.

THE ARROWS INDICATE THE DIRECTION OF GRAIN OF WOOD.

SIZE.
 LENGTH 13 3/4ins.
 HEIGHT 6 1/2ins.

SHOWING HOW VARIOUS PARTS ARE MARKED ON PANEL.



EYE BRACKET No. 121