Hobbies WEEKLY

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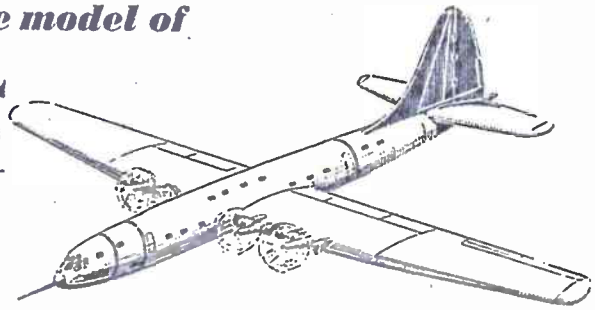
FREE DESIGN FOR BRISTOL BRABAZON 1

March 19th, 1952 Price Fourpence Vol. 113 No. 2942

Building a solid scale model of

THE BRISTOL BRABAZON 1



AMONG our model-making readers are a number who have asked for a design for the Bristol Brabazon, the largest civil aircraft in the world, and we are now able to satisfy this demand.

The design is actually of the Brabazon 1, which was the prototype aircraft. This will not go into service, but the Brabazon 2, when finished, is intended for B.O.A.C. use on the London/New York route. These aircraft accommodate 100 passengers with five stewards and a flight crew of seven. Altogether they are like an airborne hotel!

2 mm. Scale

The scale, as modellers will have noticed by reference to the design sheet, is 2 mm. to the foot, that is half of 4 mm. (OO) scale, or what is now known to ultra-miniature railway modellers as OOO gauge. Those who wish to incorporate one of these aircraft on a OO layout need only scale the design sheet up in the usual way, making every measurement twice as long. They should be warned, however, that this is a tremendous aircraft in real life, having a length of 177ft. and span of 230ft., and therefore would look enormous on the average OO gauge layout, unless the modeller has space to build a really large airport.

Construction is straightforward and need not take long. Begin by cutting the three pieces for the fuselage. These are the two side sections and the centre section. Glue them together and, when dry, shape them to the lines of the fuselage. This is circular right the way through except at the extreme tail end. The fin and rudder should also be shaped to the section shown on the design sheet.

Now cut the two main wings, shape them to section and glue into the recesses in the sides of the fuselage so that they butt together in the centre. It should be noted when shaping the wings that there is no dihedral, except that which is given the wing by the shaping. Each wing should be glued in quite horizontally to the fuselage.

A DESIGN for this Model FREE INSIDE!

Next make the two sections of the tailplane, shape them up and glue them into position. As will be seen from the design sheet, they joint together in the centre.

The eight engines are the next consideration, and are pieces (B) on the design sheet. These are cut to outline and shaped as shown until they fit nicely into the recesses in the wings and conform to the wing surfaces. When properly shaped they should be glued into position. Now cut the propeller shafts from ⅛in. round rod and shape as shown. When finished these, too, are glued into position.

The Propellers

Next, cut eight propellers from thin card or tin. Note the large hole in the centre of each, which allows them to be slipped over the propeller shafts and glued into position two on each shaft. Their exact positions can be clearly seen from the plan view of the aircraft on the design sheet. Those who wish the props to spin can cut them in the ordinary way but with only pin holes through their centres. The prop shafts can be divided into three sections and a pin run through the whole, so that the

two propellers on each shaft are separated by what is, in effect, a washer.

The aircraft should now be thoroughly cleaned up ready for painting. Before painting is tackled, however, the base should be made, as this will be useful for holding the model while the paint is applied.

As seen from the design sheet, the base is made up of three circular discs of wood 5ins., 4ins. and 3½ins. diameter respectively. These are glued together and a substantial metal pin (for example, a steel knitting needle) embedded in them with the point upwards. Find the point of balance of the aircraft and drill a suitable hole to take the knitting needle. This hole need not be dead centre of the aircraft. If it is drilled a little off centre and at an angle, the aircraft when placed on the pin will appear to be banking and will look much better for display purposes.

Except where shown, the whole of the aircraft is painted silver. The windows and the front cockpit should be painted black, and the latter should be lined in white to show the various panes. Other details, such as the door, ailerons, etc., are best put on with a lead pencil. They will then not be too conspicuous and will look more realistic.

The base can be finished in any way the modeller desires. Probably black enamel would give the best effect.

When the aircraft is quite dry, a needle should be run into the nose of the aircraft so that the point is protruding about 1in. as shown on the design sheet. This, of course, represents the air-speed indicator. To avoid accidents to those who handle it, however, it might be as well to blunt the needle point before the model is finally put on show.

A SIMPLE SKETCHING AID

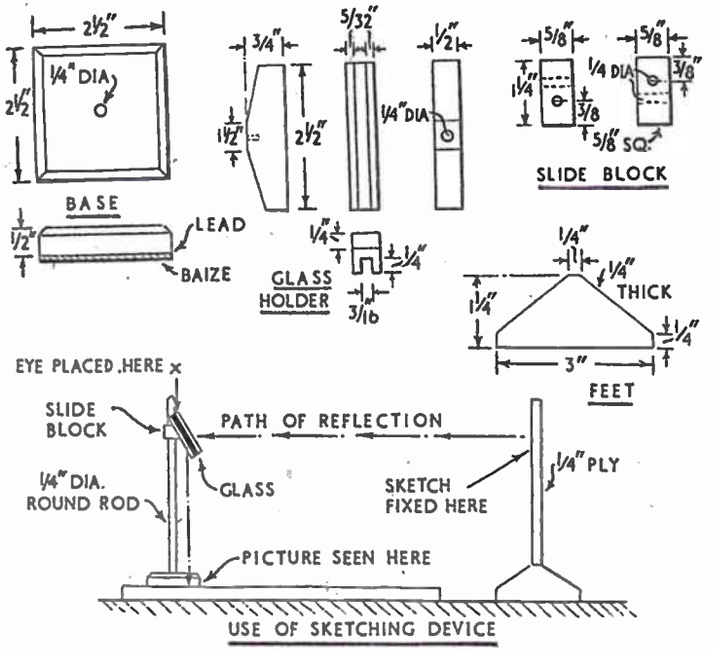
THE device shown here is easily made and enables the image of a picture or sketch to be reflected on to the drawing board so that one is able, by looking down through the edge of the reflector, to pencil or ink in the details as they actually appear in the original.

Wood used is mainly oak, but any hardwood will do just as well. Construction is as follows. A base 2½ins. square is cut, and a ¼in. hole drilled through the centre to take the upright slide rod, and a piece of lead ¼in. thick is fixed to the bottom to ensure steadiness. After fixing the lead in place by use of a few brads, a piece of baize is glued over the lead so that the device may be stood on any surface without fear of marking it.

The Reflector

The reflector is a piece of very clear glass 3ins. by 2½ins. by 1/16in. thick, which has its 2½in. edges painted black. It is fixed to a holder which is cut and slotted as in the drawing, and which has a ¼in. hole drilled in it ¼in. deep for the horizontal slide rod. A slide block is then cut and the two ¼in. holes drilled carefully through it, so that dowel rod of ¼in. diameter is a fairly tight sliding fit in them. Two feet, and a sketch-holding board, which is a piece of ¼in. ply 8ins. by 6ins. are finally cut and the gadget is ready for assembly.

Gluing up is carried out first, a piece of ¼in. diameter dowel rod 8ins. long being fixed into the base, and a 4½in. length of ¼in. dowel rod into the glass-holder. The reflector is then glued into the slot of the holder and the feet of the sket[illegible]der are fixed on. When the [illegible] the wood is smoothed off [illegible]d, a thin coat of button [illegible] given to impart a neat



How the device is made and used

In use, the glass holder dowel is slid through one hole of the slide block, and the block is then slid on to the upright rod by means of the second hole. A sketch or photograph is fixed to the holding board by pins, and the holder is stood at the farther end of the drawing board with the picture facing the draughtsman. The reflector assembly is placed on the board nearest the user and at his left hand, the glass is inclined to an angle of approximately 45 degrees toward the sketch, and the slide block is moved up or down the upright until the reflected image appears on the sketching paper beneath when an eye a few inches above is looking down through the uppermost edge of the glass.

The sketch-holding board is then moved backward or forward slightly until the clearest image is obtained and so may be copied on to the paper. (335)

Detailed instructions on

How to make a Flannelgraph

A 'FLANNELGRAPH' is a very useful thing. In small sizes it can be made up as an attractive present for a youngster and will give hours of amusement, while in bigger sizes it can be used by teachers and others for demonstration purposes.

The general idea is that there is a background showing roughly (in the simplest kinds) an expanse of sky with land beneath it. In the hands of an artistic person this background can become a scene of some sort with, say, a range of hills in the distance and clouds in the sky. There is no need, as will be seen, for foreground detail, but if a suggestion of undulating grassland can be readily secured, so much the better.

With this background goes an envelope full of figures and other items, and these, by slightly pressing on the background, will stick firmly wherever they are put. Thus a limitless number of pictures can be built up, both for amusement and instruction. In both fields it does not take much imagination to see that the flannelgraph holds out great possibilities. As described here, the flannelgraph is being made up as a present.

Requirements

First required is a sheet of stiff material—an old shop display advertisement will serve excellently. Or a piece of plywood can be used if this is easier to obtain. The size is immaterial, but the final flannelgraph should not be less than 1ft. 3ins. square for a present. (For class demonstrations a board of at least 2ft. 6ins. sides must be used).

Needed also is a square of flannel larger than the card or board. This is prepared with a blue and green dye. In the simplest background as (A) Fig. 1, just dip first one half then the other. To put in clouds, etc. (Fig. 2), stretch the flannel on some flat surface with drawing pins and apply the dye with a large brush, leaving the material untouched (if white) where you wish clouds to be.

Life can also be worked into the green part in the same way. It is all a matter of artistic application of the dyes. However, if you do not feel like doing all this, just the half-and-half will serve quite all right and give a good background for a lot of different pictures.

Let the flannel dry well out and then paint the front of the card or board with glue and stretch the cloth over it. Glue more heavily the edges that will turn over the back. To make things neat, cover the rear side with a square of some brightly coloured material as (B). This hides the edges and also makes everything more secure.

To prevent any danger of the board warping and to give a finished appearance, the background can be supplied with a simple frame. This is easiest done by making up each side with two strips (a) and (b) Fig. 2, the one rather

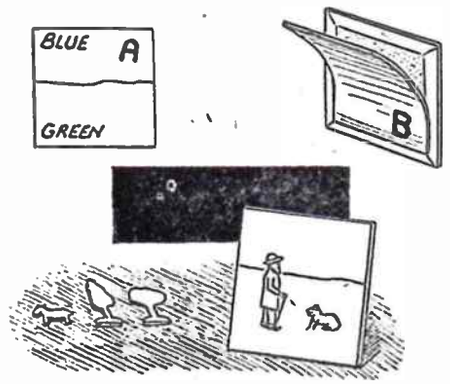


Fig. 1

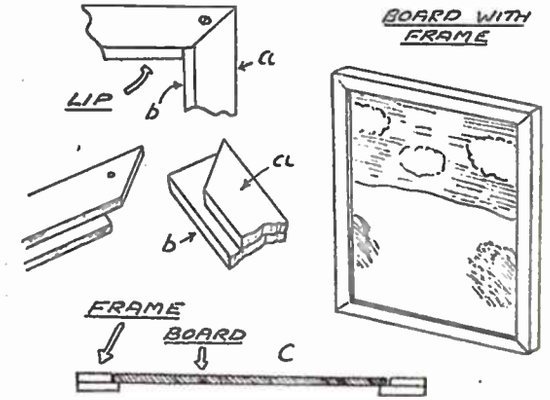


Fig. 2

wider than the other. Cut so that there is an alternating overlap at the ends as shown. These pieces are placed tightly round the edges of the covered base and a short screw put in each corner after the overlaps have been strongly glued.

The covered board lies on the inner lip as (C) and is held by a series of fine model-makers pins at intervals right round. The whole back can now be neatened by another square of material glued on, and which, in this case, can come over the wood to about ¼in. of the outer edge. Thus finished, the background is neat and rigid and all danger of bending is eliminated.

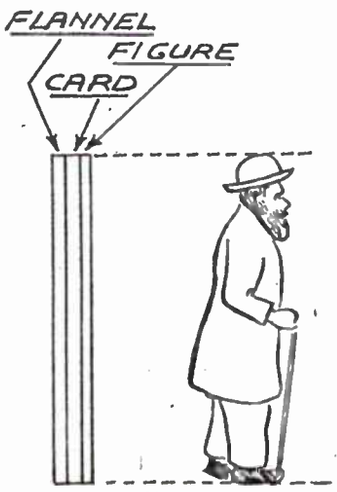


Fig. 3

Adding Colour

Now cut some coloured items (Fig. 3) from discarded children's annuals o funny papers. Comic men, animals, trees and houses, indeed, anything will do as long as it is colourful. If you are artistic you can, of course, draw these thing

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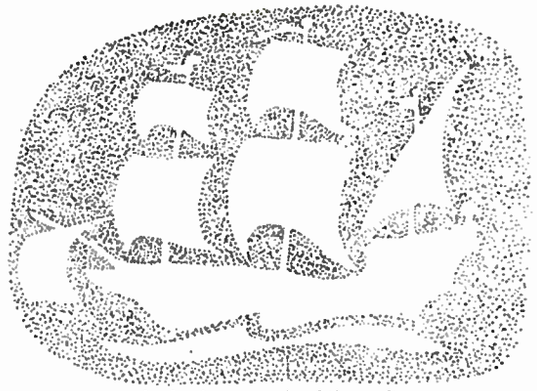
Learn a little about making

SHADOW GRAPHS



A pleasing example of the craft

THE craft of making shadow graphs is an extremely fascinating one. It is especially useful to those hobbyists who experience difficulty in evolving attractive and original decorative motifs for their finished craftwork.

Briefly stated the craft consists of producing a stencilled silhouette with a 'spattered' background. Natural media such as ferns, sprays of leaves, pressed flowers, etc., and pictures cut from old magazines or greeting cards, can be most effectively employed.

Blotters, book-jackets, panels of lamp shades and fire screens, etc., may all be tastefully decorated with the maximum of ease and in the minimum of time.

How It's Done

The ferns, flowers, or magazine cut-outs are carefully pinned into position on the work which has to be decorated, and it is then subjected to a fine spray through a diffuser. When the original is removed it will be found to have left behind it a neat silhouette.

The illustration at Fig. 1 shows an attractive galleon silhouette obtained by cutting out a magazine illustration and pinning the cut-out in position on the work. Always use fine pins or needles for this pinning operation. Drawing pins always cause rather unsightly holes. Ensure that the pins are so placed that they will not cast a silhouette, themselves, and so distort the outline of your shadow graph.

An excellent little diffuser can be made from an old scent bottle with a bulb attachment. If you are unable to obtain a scent spray, a diffused effect can be obtained by charging an old tooth brush with colour and brushing it over a comb held at a suitable distance from the work. By altering the distance of the comb and brush from the work, a differing density can be achieved with the coloured spray.

Assuming that your cut-out has been pinned into the correct position and is lying perfectly flat on the material that has to be decorated, fill your scent spray with coloured, waterproof ink and direct a spray of the liquid at the design. Try to get a heavy diffusion around the outline of the pattern, gradually becoming lighter as you work away from the cut-out. Colour as large an area as desired, and then carefully remove the pattern. An excellent shadow graph should have been produced at your first attempt. The craft is as simple as that!

May need Pressing

As already mentioned, such natural media as ferns, sprays of leaves, and even feathers, can be used to provide some really attractive effects. You may find it necessary to press these natural decorations in a heavy book, or between two sheets of cardboard or plywood with weights on them. If a clean sharp outline is to be obtained it is imperative that the original pattern lies perfectly flat.

Sprays of holly, yew, mistletoe, etc., should first have their berries removed before pressing. Afterwards, small cardboard shapes may be pinned into the correct positions on the work so that the completed shadow graph will be shown bearing its full complement of 'fruit'.

There is plenty of scope for originality in this craft. Most beginners will be content with single colour effects until they become a little more proficient. It is possible, however, to achieve some striking multi-coloured designs that look amazingly professional.

You must first decide upon the colour combination required. Each colour is sprayed on separately, pieces of cardboard being used to mask those portions of the design that have either already been sprayed or are awaiting their turn for the next colour. It is best to have several diffusers, keeping each one for a certain colour. If you only have one diffuser, however, you must ensure that it is thoroughly cleaned by spraying a quantity of clean water, before filling it with the second colour.

Practice Brings Speed

With a little practice you will find that it is possible to complete quantities of these shadow graphs in a surprisingly short space of time. If you already have, or are able to find a ready market for small items of craftwork, the decorative process can be greatly speeded up by using this shadow graph method to decorate your work. (334)

MAKING A FLANNELGRAPH

(*Continued from page 387*)

yourself, but in the annual and funny paper cut-outs you have them ready made.

Mount the items carefully on thin card, the kind you find behind writing pads, and then back each with flannel, as indicated. Use a Dextrine type of paste (sold in jars) for the mounting, as it is not of a wet nature and sticks very well. When mounted and the flannel is at the back, put the item under pressure till quite dry and then trim the outlines neatly with a really sharp pair of scissors.

The final mounted items will not be thick enough to require any special edge treatment.

To give as a present the figures should all be put in a cellophane envelope and the whole board and envelope then wrapped in a sheet of the same material—all being tied round with some colourful string.

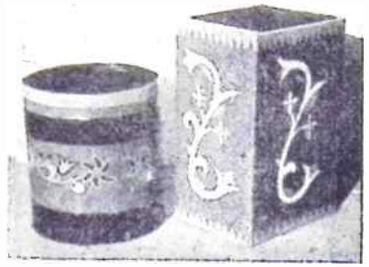
The figures, it should be noted, adhere well to the background, even though the board is propped up in the vertical position—this being due to the characteristic flannel has of binding on itself. It is just a matter of slightly pressing the figures on to get them to stay exactly as placed. (265)

CIGARETTE END INSECTICIDE

Save cigarette ends for making nicotine insecticide. In the Spring, put the ends in a jar of water, place the jar in a saucepan of water and simmer for six hours. An ounce of ends may be diluted in order to make eight gallons of insecticide.

Instructions for making useful

TUBS AND TIDIES



THERE are very few rooms that could not do with such a tidy as we show here—a simple tub or box, suitably decorated—to take the little oddments that accumulate: the spent matches, hair combings, toffee papers and such like. For the benefit of those who like to commercialise their hobby, it might be mentioned that very few hotel or boarding house rooms have such a tidy, so here is plenty of scope for pushing sales.

The tidies can either be specially made or adapted from existing tubs and boxes. The round tub shown in the photograph was one of a dozen or more obtained, free of charge, from the back door of a large restaurant. They are of metal, about 10ins. high and 8½ins. across, and held dripping, etc. They needed, of course, a good clean up and some needed gentle tapping with a hammer to take out dents. It is not suggested that readers will be able to get tubs *exactly* like this, but it will serve to show the *type* of thing to look out for.

The other tub, shown in the photograph was made of oddments of wood, simply nailed together. It measures about 12ins tall by 8½ins. by 7ins., which has proved to be a useful size, but it was one dictated partly by oddments of wood available. Two facing sides were about ⅝in. thick and the other two sides about ⅜in. thick. This enabled the nails to 'take' more easily than if thin wood was being nailed to thin.

Using Cardboard

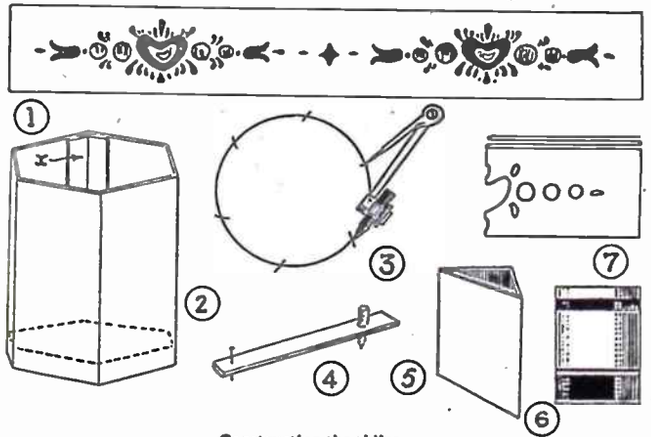
It is possible to have triangular tidies as in Fig. 5, and these fit very snugly in a corner. *Very stout* cardboard (of the 'leatherboard' variety) can be used. Make sure that it *is* tough, as much cardboard sold nowadays is of a very poor quality. Such card can be used to form tidies of an hexagonal form if so desired (Fig. 2). Although very well known, it might be useful to remind some readers that the way to make a hexagon (six-sided figure) is to draw a circle with a pair of compasses and then, keeping them open to the same radius, start at any point on the circumference of a circle and step off the distance (Fig. 3). It will 'go' exactly six times and the marks can be joined with straight lines. If, as is probable, one has no compasses large enough, the simple device illustrated (Fig. 4) will serve quite well. A strip of card is all that is required. The pin is easily adjusted.

When bending card, lightly score (i.e. make a shallow cut with a knife or razor blade of the *Star* type) on the outer side of the bend. A card tub will usually have a thickish wooden bottom to which the card sides can be nailed. At the join, *glue* several thicknesses of strong brown paper, applied in neat strips, or utilise the method shown at (X) in Fig. 2 where an extra angled strip of card has been glued on.

Cardboard tubs should be given a coat of size. Wooden tubs should be well glasspapered and a priming coat given. All signs of rust, etc., should be cleaned from metal tubs. Then the insides should be painted. A fairly inexpensive paint can be used for this. The writer used some rather dismal red-brown 'oxide' paint that was being sold off cheaply as Government surplus. Good quality paint is reserved for the outside of the tubs.

The reader will, of course, select his own colour scheme, especially if the tidy has to match an existing interior decoration, but the two tidies shown in the photo were first given a coat of any

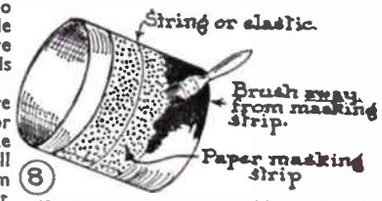
(*Continued on page 391*)



Constructing the tidies

R=red. Y=yellow. B=blue. O=orange. P=pink
G=green LG=light green

Suggested colour schemes in 'Peasant Art' decoration



How to use a paper masking strip when painting the tubs

March — The beginning of

ANOTHER PHOTOGRAPHIC YEAR

SOME readers will, no doubt, wonder why March has been selected as the month for beginning another year of camera work. What is the matter with January, is the question running through their minds.

I am quite ready to agree that we should not wait until March, and I congratulate the keen amateurs who recognise that every month of the year produces subjects capable of good photographic results; but, unfortunately, we have to acknowledge that the very great majority of camera owners never give a single thought to their hobby from about September until April. It is for the benefit of this vast number that this contribution is written.

Many, realising that Easter is not until the middle of next month, will probably feel there is no immediate hurry to prepare, but I would put forward at least two very important points for careful thought. First, if you are contemplating a few days' holiday or a ramble or two in your own locality, and intend to use your camera, when are you going to get a supply of films?

Shortage Possible

It is possible that the shortage of films and material generally will be fairly acute again this year and, if you leave getting your quota until a few days before Easter, you are likely to meet with disappointment. Dealers all over the country will have been getting supplies before now and will have advised their regular customers accordingly. To avoid being turned down, you should make an immediate call on your usual supply house, especially if you want your usual brand of film. Do not wait until all the good makes have been sold and all that is left in stock is a brand that you have never tried. And most certainly do not expect to find plenty of film in stock in the town where you anticipate spending the holiday. This often means failure.

The Camera

The next important matter concerns the condition of your camera. Probably the last time you saw the apparatus was when you were putting it away in a cupboard or drawer after your return from the summer holiday, or it may even have been after the August bank holiday. Did you by any chance think to give it an overhaul at the time? Did you think to wipe the metal parts, the lens, the bellows and the interior with a dry cloth? It will prove very well worth while spending a few minutes doing this spring cleaning now, just to be sure that the shutter is functioning satisfactorily, that the iris diaphragm works easily, that the front slides smoothly, that the changing arrangement is in perfect order, and, finally, that there is no dust left in the interior. On this last item, it is most surprising what finds its way into the inside of folding or box cameras.

A friend approached me some months ago with a fairly large batch of prints, the results of a long holiday spent in Switzerland. He asked if I could explain the reason for the numerous markings which occurred on all the prints. These blemishes were so bad that the prints were really useless. As the marks were quite irregular, and appeared at varying parts of the prints, I asked if he could show me the negatives. On seeing these, I knew that the trouble was in the camera. When I received the camera I opened the back and placed a piece of white paper under it. Then I gave the body of the camera three or four firm but gentle taps with my fingers. On removing the apparatus, a whole lot of dust particles and even two or three tiny scraps of paper were revealed. Obviously these were the cause of the trouble and the reason why a dozen spools of film were spoiled.

Although your camera may not be as bad as the example, an overhaul can do no harm.

Spring photography requires some careful thought as regards exposure times. You must bear in mind that, so far as the value or power of the light is concerned, you are at a period when this can be most changeable and, therefore, difficult to calculate without using a meter with which you have already had some experience.

Light Values

It is truly remarkable the variation of light values at different times of the year and also of each day. Let us, therefore, consider the approximate changes occurring at February, June and September. Assuming that the subject to be taken is a fairly open landscape without too many heavy clumps of trees, the time of day is 12 noon, and the lens stop is *f*/8. The film is one of the same grade and speed as a Selochrome. In February the exposure time would be about 1/100th of a second, while in June it would be 1/300th, and in September 1/200th would be about the correct time. If the light in February was tested by exposure meter at different times of the day it would surprise most people, for there is a constant variation, not only during this month but throughout the whole of the spring months, and it is not until we arrive at summer time that we get anything like a consistent light value for a few hours each day.

Experienced photographers know the difficulty of correctly judging the exposure times for different subjects at different times of the day and under varying conditions of daylight, and that is why they depend so much on the modern type of photo-electric exposure meter, and although I am not suggesting that we amateurs must get one of these, yet I do most certainly advise every reader of *Hobbies*, to try to get a meter of some sort and to use it on every occasion. It need not be an expensive one. There are many excellent pocket ones costing only a few shillings and it is really surprising how successfully they judge the light value, or calculate from a given number of factors, such as speed of film, stop, time of day and subject. Remember, every time you make use of such a means of judging this critical stage in the taking of a picture you are doing away with that bad habit of 'chancing it'—or what is mostly known as 'the haphazard work of the lazy amateur'.

Now that we have dealt with some of the preliminaries, let us give a little time to discussing the question of subjects for this period of the year. Some may think that there are not many subjects that make an appeal to us, but, while I am quite ready to admit that the lighting is rather inferior for a number of subjects in the spring, compared to summer and autumn, yet I must remind everybody that the spring sunshine is splendid in bringing out the pictorial in our woods and wherever there are trees. The very softness of the light is a characteristic that we all so much desire in our results and is something we can count on at this time. Again, have you ever noticed how much more pictorial our trees are now as compared to later on when they are so full of foliage. Nature certainly helps us picture makers at this time when we can include the delightful tracery of the boughs and the delicate filigree work of the twigs, and, perhaps, the jauntiness of the bursting buds.

Watch the Flowers

We must be careful not to keep our eyes looking upwards all the time we are on our rambles, otherwise the wild flowers at our feet may be missed. If any reader has the good fortune to be spending the few days in a part where there are woods, then let him go prepared to make some special studies of wild flowers in their natural surroundings. For this work you will find that a tripod is of considerable service, not only because a number of the exposures have to be 'time', but also because the bunches of flowers are sometimes in awkward places, necessitating placing the camera at unusual angles. You will also require the advice of the exposure meter.

In your rambles, and especially when passing through a village or town, always be on the lookout for the unusual. It may be a building that has recently been in the news, or one of very ancient and historic interest. If you are keen on street scenes, you will, naturally, want to take a record of something in the High Street which will serve to remind you at a later date of this particular visit. I am sure you all recognise that considerable changes are taking place all over the country, partly as a result of the increase in motor traffic which is demanding more width in our village and town roads. This, of course, means the removal of some of the buildings and other landmarks, and so, before it is too late, we photographers should get busy and add to our collection of record photographs. In a few years these particular snaps will be of considerable interest, and possibly of value, as a reminder of the past.

In conclusion, let me again remind you of the real value of specialising on a particular subject for your photography. I think now is a suitable time for making a new resolution and for deciding for yourself what subject has the greatest appeal and gives you the most pleasure. If you can come to a genuine and undeniable decision that it is landscapes, water scenes, interiors, architecture or any other theme on which you can concentrate the use of your camera and hobby, then you will be well advised to give that subject some serious attention and devote some of your time to reading text-books dealing with this branch of the art. And also pay a few visits to the local picture galleries in order to teach yourself something about composition and picture-making. I can assure you that this will not be time wasted. On the contrary, you will find your photographs attaining a much higher standard of technique, and the percentage of failures will be steadily reduced. (339)

Spring and — — Summer

These pictures illustrate clearly the difference between landscapes taken in spring and summer. Both have their own attractions

USEFUL TUBS AND TIDIES

(*Continued from page 389*)

colour priming paint and then, when dry, a coat of mid-green was applied. The round tub then had two bands of red and one of yellow put on. The size and position of these were really dictated by the presence of corrugations on the metal. For preference, the writer would have chosen some such arrangement as that in Fig. 6 with the wide band at the bottom.

To paint the bands evenly, strips of paper were placed round, as shown in Fig. 8. Great care should be taken not to let paint seep under the masking strips. As you approach the edges, use a rather 'starved' brush.

'Peasant art' decoration seems admirably suited to such tidies and has the advantage that it can be considerably 'cut' as regards proportion, without looking wrong. It is painted entirely freehand. Figs. 9 and 10 give some idea of suitable designs with hints as to colour, though it is impossible, in such a diagram, to convey the charming effect of the colour.

Where a dozen or more tubs are to be treated, however, it pays to make a stencil to give the main lines and shapes, which are then gone over with a brush, free-hand. To use a mere stencil and spray gun decoration usually results in a very cheap-looking job.

Take a wide strip of tough brown paper and wrap it round the tub and trim it so that it exactly goes round (or, perhaps, with a very slight overlap). Now fold in half and in half again, and on the quarter-strip remaining, draw *in simplified form* one half of your design Fig. 7. Now, in the manner of stencils (keeping the necessary 'ties') cut out most of your design, using the corner of a *Star* type razor blade and going through four thicknesses of paper. When opened out you will find that you have a symmetrical design, twice repeated. This is then placed round a tub and paint is sparingly dabbed on. White paint will be quite suitable. When the stencil is removed, the white stencilled parts act as a guide for the hand-painted colour work (Fig. 1). For these, coloured enamels are very suitable. For flat-sided tubs, a single flat stencil is all that is needed.

The resulting tidies are as colourful as they are useful. With cardboard tubs, it is possible to paste on fancy paper by way of decoration. When dry, give such paper a coat of picture varnish or 'map varnish'—not ordinary copal. (307)

Constructional details for

A CHILD'S COT

THIS child's cot is designed to a standard pattern, and is quite easily made, being just a plain job of woodwork. It can be made at comparatively small expense, and considering what a factory-made article would cost nowadays, is well worth the trouble. Oak or beech would be about the best timber to use for its construction, but a serviceable article could be made of good quality deal.

Sizes of timbers are given in the cutting list, and need not be repeated here, but, of course, any diversion from these sizes will make some amendments necessary. Details as to width and length are given in Fig. 1, and should be strictly adhered to, as these are standard, and suitable to the sizes of cot mattresses and springs sold in the shops.

Cut the four legs to length, and set out the position of the mortises for the horizontal rails. These are ½in. wide, 1½ins. long and 1in. deep. Note that no mortises are required for the drop front, as this is an independent unit. Cut the end rails to length given, plus 1in. each end for tenons. The tenons are cut ½in. by 1½ins. to suit the mortises, of course. The rails for the fixed side are cut to the length given in Fig. 1, the ends being tenoned as before. Now try the rails in their respective mortises for fit. It will be seen that the tenons for side and ends will have to be mitred, as at (B) Fig. 3, to meet together, that will be apparent, of course, when fitting them together.

The vertical pales are next cut. These are to be fixed between the rails with a mortise and tenon joint, as at (A). Quite short tenons only are necessary, say, ½in. long and ¼in. deep. Try to get these uniform by cutting several together, and see they are correctly cut as to length to ensure no ugly gaps appearing when the rails are glued to the legs. The necessary mortises for the pales can now be set out, and cut in the rails. These are positioned at 4in. centres, so should present no difficulty in marking out. Now glue the pales into the end rails, and the rails into the legs, and set aside for the glue to harden. Leave the fixed side for the moment.

A mattress frame is now to be made. This is shown in Fig. 2. Glue and screw together, with a rebated corner joint, as illustrated, and stiffen the corners with blocks. It might be as well, too, to add a stretcher rod across the middle to ease the strain on the frame when webbing it. Now tack the webbing over, using five tacks to each end of every strand, and drawing it as tightly across as possible. The cross strands are interwoven as shown.

The mattress is now fixed between the ends of the cot with screws or iron bolts, being fixed to the lower rails of

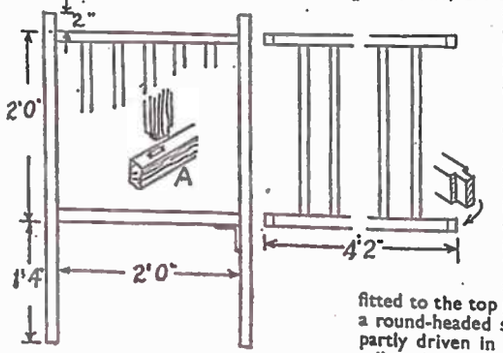


Fig. 1

the end parts. Take apart, then glue the pales to the fixed side rails, glue in the rails, and rescrew the mattress across. In the angles between front legs and rails, screw 4in. steel furniture brackets, as shown in Fig. 1, to stiffen the legs at the open side of the cot. It will be wise here to measure across the open side to make sure the legs are truly vertical, or the drop side will not fit well.

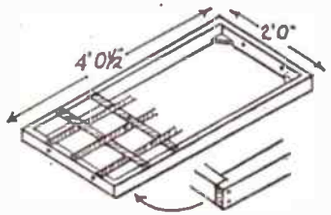


Fig. 2

The rails and pales for the drop side of the cot are made up exactly as those for the fixed side, except that the length will be 4ft., as the extra for the tenons will not be wanted. The ends of the rails are, however, grooved vertically, ¾in. deep and wide, to work along a

CUTTING LIST

Legs (4)—3ft. 6ins. by 1½ins. by 1½ins.
End rails (4)—2ft. 2ins. by 1½ins. by 1in.
Side rails (2)—4ft. 2ins. by 1½ins. by 1in.
Side rails (2)—4ft. by 1½ins. by 1in.
Vertical pales (32)—1ft. 9½ins. by 1in. by ¾in.
Mattress frame (2)—4ft. ¾in. by 1½ins. by 1½ins.
Mattress frame (2)—1ft. 10½ins. by 1½ins. by 1½ins.

guide strip of wood fixed to each leg, as in plan detail (C) Fig. 3. The guide strips are ¾in. square and preferably of hardwood. They are 3ft. 5ins. long, and glued and nailed to the centre of the inside of the front legs. A little glasspapering here will be needed to ensure the drop side moving up and down easily.

A pair of metal catches will be needed to keep this drop side in its normal 'up' position. These are shown in detail (D), and can be cut or filed up from stout sheet metal, and fitted to the top portion of each leg with a round-headed screw. A screw is also partly driven in each end of the upper rail, and projects to sit upon the catch. Against the outside edge of the catch, a nail is driven in to prevent the catch being pushed back by the weight of the drop side.

The top ends of the legs can be cut to a shallow pyramid shape, as seen in (D), and it will save much scraping of the floor if a steel furniture dome is driven in the bottom of each leg. The mattress frame is best covered with a strong canvas or waterproof material. The completed cot is then stained and varnished oak or walnut colour. (331)

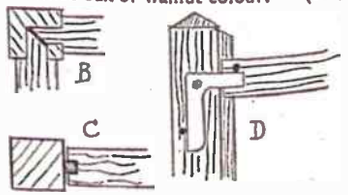


Fig. 3

SOME NEW ISSUES AND NOTES

ALTHOUGH the Canterbury Centennial set has been issued some months and many readers of *Hobbies Weekly* will have specimens of the stamps, we are very pleased to hear from Mr. G. Donaldson, of Wellington, who has sent not only the set of stamps but also a most interesting folder which has been designed by James Berry, who was responsible for the designing of three of the stamps—the 1d., which is a picture of the Anglican Cathedral at Christchurch, the 6d. showing Canterbury University College, Christchurch, and the 1/- which shows the City and Port of Timaru, South Canterbury.

The folder has spaces for each of the values comprising the set, and below each stamp there is an interesting description of the design. At the bottom of the folder there is a pictorial representation of the advance in transport from the sailing ship of 1850 to the sea liner and air liner of today. On the other side of the folder we have a map and items of interest against the relevant date; for instance, '1856 First wool sent from Lyttelton to England', 1901 Capt. Scott visited Lyttelton in Discovery'. '1910 Second expedition left Lyttelton to the South Pole'.

It is a very good idea to issue a folder describing the stamps. A similar type was issued for the Lighthouse set of 1947.

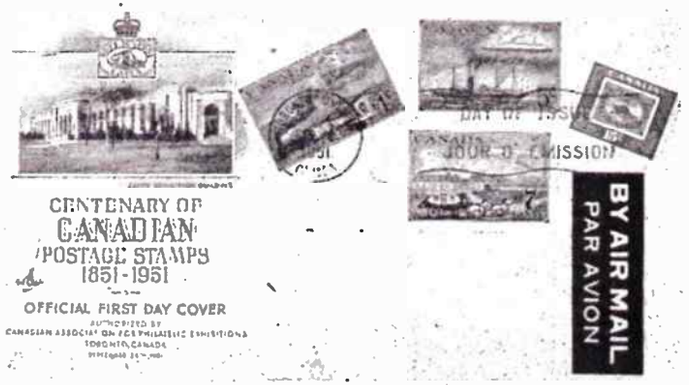
Mr. Reg Gibbs, of Hamilton, very kindly sends an official First Day Cover authorised by the Canadian Association for Philatelic Exhibition. The four stamps are valued 4c., 5c., 7c. and 15c. and were issued on the 24th September to commemorate the centenary of the transfer of the administration of the postal service from Britain to British North America.

The first three stamps show the development of communications by land, water and air, the fourth stamp reproduces the first postage stamp of Canada. The first three stamps are large but the fourth is small, and this seems a pity as it means the reproduction is still smaller than it need be.

Australia has just issued a couple of stamps in connection with the centenary of the discovery of gold at Bathurst and also the centenary of responsible government in Victoria. These two stamps have been printed se-tenant; that is to say, there are two different stamps joined together. The first shows a portrait of Edward Hammond Hargreaves flanked by the tools used in gold digging—a spade and pick—and the other a portrait of Charles Joseph Latrobe, the first Governor of Victoria.

Only a little while ago, in commemoration of the 50th anniversary of the foundation of the Commonwealth of Australia, four stamps were issued. Two, each 3d. in value, show Sir Henry Parkes, who at one time was Premier of New South Wales, and Sir Edmund Barton, who was the first Prime Minister of the Commonwealth. These two were also issued se-tenant. The 5½d. value depicts King George V, when he was Duke of York, opening the first Federal Parliament at Melbourne, and the 1/6 value shows the Federal Parliament House at Canberra.

The Fiji Charity Stamp — The New Tonga Issue — The se-tenant Australian Stamps



The Canadian Centenary Official First Day Cover

Virgin Islands Stamps

The British Virgin Islands send three stamps, 6c., 12c., and 24c., each of the same design—a map of the region. This map has the merit of being accurate, the lines of latitude and longitude are shown so that one can tell just where the land is situated and also its size.

British Somaliland has changed its currency from annas and rupees to cents and shillings, so that the old stamps showing sheep, antelope head, and map are all surcharged with the new values.

Tonga issued six stamps to celebrate the Treaty of Friendship with the United Kingdom. The ½d. value shows a

(*Continued on page 394*)

For modelmakers and handymen—

MAKING USEFUL SMALL SAWS

SMALL saws can be extremely useful to the handyman or model maker. It often happens when you are building an intricate model that there are some very awkward corners to get into, and it is then that a tiny saw would be very welcome.

It is not possible to buy these small tools at the ordinary ironmongers, but it is extremely easy to make them to suit your special requirements.

A set of different shaped saws would make a splendid addition to the tool kit of a craftsman, and a few neatly packed into a box would provide a very attractive present for your handyman friend.

All that is needed is a broken hacksaw or two, a piece of dowel rod and a few nuts and bolts. Make the handles of ¼in. or ⅜in. dowel rod about 5ins. long. One end is left square while the other end is rounded off so that it is easier to hold.

Using a fine saw make a cut about 2ins. long down the square cut end. At right angles to this cut, drill the holes for the two fixing screws, which can be brass or iron 2 B.A. or 4 B.A. with nuts to fit.

Figs. A and B give two views of the saw and show clearly how it is made. The hacksaw blade is broken into lengths of 2ins. or 3ins. and the ragged ends ground off smooth.

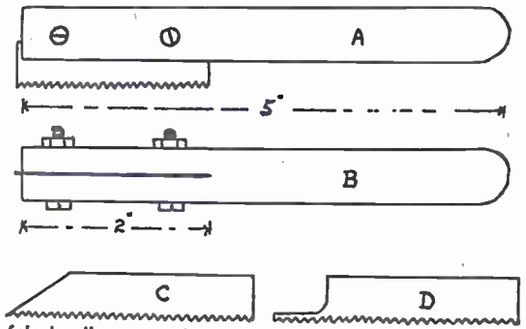
Cuts Either Way

The saw shown at A is for general use and can be inserted in the handle so that it will cut either way.

It is sometimes very handy to be able to cut on the pulling stroke like a fretsaw instead of the more usual pushing stroke.

By cutting the end off at an angle as shown at C you will be making what will probably prove to be the most useful shape in the whole set. The blade can be about 3ins. long and will therefore project beyond the front of the handle.

For working in very shallow places the blade shaped as D will be very suitable.



It is also possible to fix two blades in the slot opposite each other thus forming a double tool — a half turn of the handle giving either a fine or coarse set of teeth as desired.

The three shapes illustrated will form a very useful set, but there will doubtless be others which will occur to you from time to time. Cutting the slots in screw heads is one of the many uses to which these saws can be put. (273)

STAMP COLLECTOR'S CORNER

(Continued from page 393)

map of the islands, together with a map of the British Isles. There is also a scale given, but this only confuses because the scale refers to the islands and not to the British Isles; it would have been better if the scale had been the same for both. The Palace at Nuku'alofa appears on the 1d.; a beach scene on the 2½d.; H.M.N.Z.S. Bellona on the 3d.; the Tonga flag on the 5d.; and the arms of Tonga and Gt. Britain on the 1/-.

Dominica has also changed her currency—in her case from pence and shillings to cents and dollars—and has taken the opportunity of changing her stamps, retaining only three designs of the old set on the new. The old ones retained are Fresh Water Lake, Layou River, and the Boiling Lake. The new designs are a little more commercial—drying cocoa, making Carib baskets, a lime plantation, drying vanilla beans and bananas. Each has a portrait of the late King George VI in a medallion.

Canada, in addition to the Centenary stamps previously mentioned, has commemorated two former Prime Ministers, Mr. Mackenzie King (1874-1950) and Sir Robert L. Borden (1854-1937).

Ceylon shows a definite departure from her old type of stamp with her picture of palm trees on the new 10c. stamp.

From Montserrat

There is a very nice set which has come from Montserrat. Cotton, which is the most important export—the best cotton in the world is grown here—is represented on three stamps. The 2c. shows a cotton plantation, while the 8c. and the 60c. show pictures of the cotton being ginned. The 4c. and 24c. show pictures of tomato picking, and the 3c. has a map of the Presidency.

Pitcairn Islands also have two more stamps, new values as well as new designs. The values are 4d. and 8d., and show respectively a Bible and a school.

Fiji has taken a leaf out of the New Zealand album by starting to issue charity stamps. There are two with postal values of 1d. and 2d., and in each case there is a charity premium of 1d. The lower value shows a group of children bathing, while one of the number is engaged in pouring water over another. The rather curious thing is that it appears to be a teapot from which he is pouring the water. The fellow having the shower looks a little grim, but the rest seem very happy. The 2d. shows a rugby footballer placing the ball preparatory to kicking.

Lastly we must chronicle the Sudan set. The lower values have pictures of such animals as Ibex, the shoebill and giraffe, while the higher values show scenes such as weaving, wrestling, farming, gum-tapping. This is an interesting contrast, because one can compare the attractiveness of a simple picture against the appeal of a scene of action, and most people will agree that the action pictures are by far the better. (333)

TINNING A SOLDERING IRON

When using an ordinary soldering iron and solder (not the resin-cored variety), unless the tip of the iron is coated with a silvery covering of solder it will not solder properly. To tin it, it should be got red hot and put on a stone, such as a doorstep and each of the faces filed. Then heat again and dip into some flux and stroke the tip with a stick of solder. An evenly applied thin deposit which reaches to about an inch from the tip is required.

HOME CHEMISTRY

Some Experiments with Milk

AS skimmed and sour milk may be used in the following experiments, no inroad need be made on the larder!

Unskimmed cow milk contains on average 88 per cent of water and 12 per cent of solids. The solids are:—

Casein	...	3·00 per cent
Albumin	...	0·40 per cent
Butter fat	...	3·74 per cent
Lactose	...	4·70 per cent
Various salts	...	0·75 per cent

The butter fat content is the most variable.

The casein and lactose are of most interest to the home chemist, and are produced as by-products in large quantities in creameries.

Casein exists in solution in milk but can be precipitated by adding acids. This is what happens when milk curdles after becoming sour, for sour milk contains lactic acid.

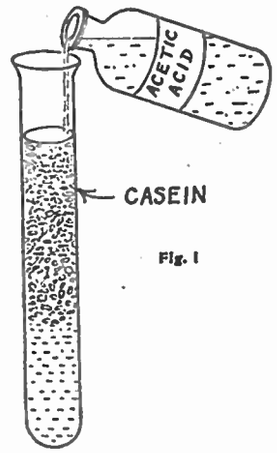


Fig. 1

Add some strong acetic acid to a few ccs. of skimmed milk. It will curdle (Fig. 1). On standing a while, the curd will sink to the bottom of the vessel.

A Better Method

We could prepare casein by this method, but it is better to use rennet, for then the milk filtered from the curd can be used to extract lactose. Small bottles of rennet can be bought from most grocers.

Warm half a pint of skimmed milk to 36 to 41 degrees Centigrade and add half a teaspoonful of rennet (or the quantity directed on the bottle label). Maintain the temperature for twenty minutes. The casein will separate as curds. Then raise the temperature to 60 degrees and stir well to break up the curd.

The casein is now ready for filtering and purifying. As filtration through filter paper is extremely difficult, owing to the casein blocking up the pores of the paper, cloth should be used.

The white mass of casein remaining on the filter cloth contains a little fat. This can be removed by dissolving the casein in sodium carbonate solution (about 40 ccs. of a 15 per cent solution). The fat then rises to the surface in a few hours and is best removed by using a separating funnel (Fig. 2).

If you now gradually add acetic acid until the casein solution shows a slightly acid reaction with litmus paper, the casein will be reprecipitated. Filter through cloth as before, and wash it well with warm water. Then dry it in the oven.

White Crumbs

The dry casein will be in the form of brittle white crumbs. Cheese consists largely of casein. In industry it is of great importance, for after hardening treatment with formaldehyde, it is converted into the plastic called Galalith, which is used to make buttons, artificial horn and tortoise shell. By squirting its alkaline solution through fine holes into formaldehyde, the artificial fibre Lanital is produced, which is almost identical with wool. 'Cream laid' paper is made by coating paper with casein.

To prepare lactose you need merely evaporate the filtrate to a syrup. If any solid matter separates during the heating, filter, and then continue the evaporation. Lactose will be deposited on cooling and standing. Purify it by recrystallisation from hot water. This is white and is a sugar. If you taste some of it you will find it is much less sweet than cane sugar.

When milk is left to stand, minute organisms present in the air, and known as the lactic ferment, enter the milk and fermentation starts. The milk goes sour and lactic acid is formed. Using this process we can prepare lactic acid. But as the quantity of lactic acid increases, the ferment is killed by it and the process stops.

To obviate this, precipitated chalk is added to neutralise the acid and to form calcium lactate. From the latter the free acid is prepared. Sugar in the form of golden syrup is added to increase the yield, too, and a little rotten cheese helps to feed the ferment.

The best yield is obtained by using the following proportions:—

50 grams golden syrup.
215 ccs. water.
2 grams rotten cheese.
66 ccs. sour milk.
25 grams precipitated chalk.

Place the mixture in a loosely covered jar, and arrange it on top of the domestic oven so that it is kept at a temperature of 30 to 35 degrees Centigrade. Stir it up every day. Occasionally add water to make up for that lost by evaporation.

Sets Solid

In about a week (sometimes longer) the whole mass sets solid with calcium lactate. Squeeze out the liquid through cloth and extract the mass with several lots of boiling water until no more appears to dissolve.

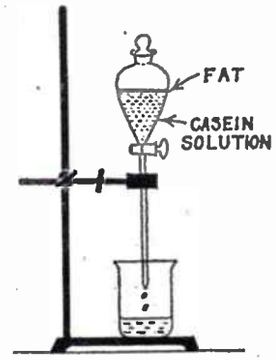


Fig. 2

Evaporate the extract to small bulk and allow it to stand overnight. The warty-looking crystals of calcium lactate formed should be drained on a porous tile and purified by recrystallisation from the smallest possible quantity of hot water. Keep a small portion for your chemical stock.

Preparing Lactic Acid

To prepare lactic acid, dissolve the other remainder in warm water and add oxalic acid solution until it *just* ceases to give a white precipitate of calcium oxalate. Filter off the latter, wash it, and after drying in the oven, keep it for your chemical stock. The filtrate consists of dilute lactic acid and usually contains a small quantity of mannite, but will be pure enough for general use. Concentrated lactic acid is a syrupy sour-tasting liquid.

(Continued on page 396)

It's easy to make

NOVELTY WINDOW WEDGES

A WINDOW that rattles on a windy night can be most annoying and keep one awake for hours. It is of course quite easy to screw up a wad of paper and stuff in the crack, but this is just a slip-shod method and not at all attractive.

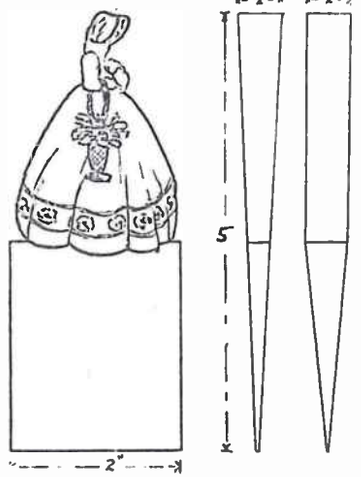
Double Purpose

The gay little window ledge described on this page fulfils the double purpose of being both useful and in keeping with the artistic layout of the room. It can be coloured in shades to match the furnishings of the room, and is well worth the time spent in making it.

Besides the crinoline lady there are heaps of other designs that could be made to appeal to the inhabitants of the various rooms. Animals or birds for instance are suitable for children's bedrooms, the crinoline type of period costumes or a butterfly for sister's room and a sporting pose for brother Ted.

Designing and painting these different figures would form an excellent hobby for the long winter nights.

Any good straight-grained wood is suitable for the job, preferably a hardwood such as walnut, mahogany or sycamore. The sizes given need not be strictly adhered to although for general purposes these would not be far out. Our drawing shows an overall length of 5ins. and a width of 2ins.



A suggested design and alternative end sections

Two different patterns are shown for the wedge shape — one tapers down from ¼in. at the top to almost nothing, while for a window with a wide gap, the pattern part is kept to the same width and then it tapers off as before.

A piece of wood about ⅝in. thick can be carefully cut obliquely to form two wedges, and this method will save a considerable amount of wood especially if many are being made at a time.

Always in Demand

Small novelties such as these wedges are always in demand for presents or at sales of work, and it is possible that quite an income could be made by making them and selling to art shops.

Carefully cut round the drawn outline with a fretsaw and then thoroughly glasspaper quite smooth. The edges of the figures are painted black, and this is best done before the actual painting of the figures.

There are many methods that may be used for the colouring, and probably the best results are obtained by the use of oil paints. Poster colours are easy to apply and give very good results but the picture must be varnished after colouring to preserve it.

Whatever method is adopted it would be a good idea to varnish the entire wedge in order to give it a good finish. (274)

EXPERIMENTS WITH MILK

(*Continued from page 395*)

Butyric Acid

Butyric acid may also be prepared by using the same fermentation mixture as for lactic acid. The only difference in the method is that the fermentation is allowed to go on longer, and that after the mass has set solid the temperature is kept a shade higher (35 to 45 degrees).

The mass now becomes slowly liquid and gives off hydrogen and carbon dioxide for a few weeks. When gas evolution ceases, filter the liquid through cloth. The filtrate contains calcium butyrate.

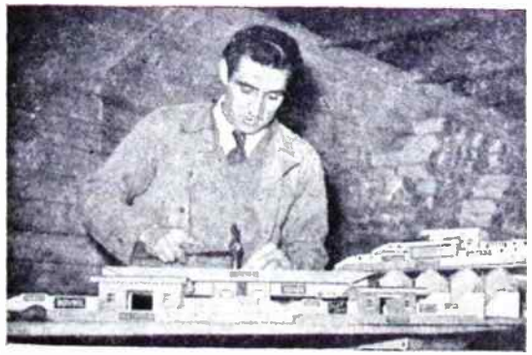
Soluble in Cold Water

Now butyrate is more soluble in cold than in hot water. Therefore, to separate it, evaporate the solution until it is fairly thick with solid matter, filter *hot* and evaporate the filtrate again until more crystals form, and so on, until only a little liquid remains.

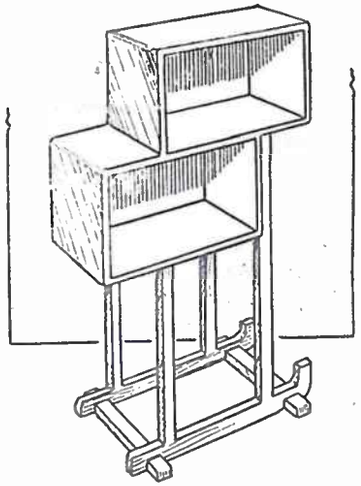
Dry a small portion of the calcium butyrate on a porous tile for your chemical stock. To separate the butyric acid from the remainder, dissolve it in cold water and add oxalic acid solution until it just ceases to give a white precipitate of calcium oxalate. Then filter.

The filtrate is a solution of dilute butyric acid. Its smell resembles both acetic acid and rancid butter. In fact, rancid butter owes its smell to butyric acid. (304)

A Change from Footballing



Recognise the chap making model stations? Yes, it's Jess Willard, well-known Brighton and Hove Albion footballer, and he's seen here working on the HAILEY model stations and other models so popular with miniature railway enthusiasts. When interviewed, Jess told a reporter he thoroughly enjoyed this work during his spare time, and during the 'off' season. Keep up the good work, Jess.



Here's a novel design for

A BOOK CASE

THIS design of bookcase has a distinctly modernistic appearance, with a touch of futurism about it. While its capacity is somewhat limited, it will still hold quite a number of books and for those whose library is select, rather than extensive, it is just suitable.

How to Begin

A front view, Fig. 1, and side view, Fig. 2, show all needful measurements, and an appended cutting list will help those who need to purchase the wood. Begin construction by making the actual bookcase or cases, as there are two of them. Both are made as one unit, and ½in. wood is suggested as being the best thickness of timber to employ, not too thick, yet strong enough to carry the weight of books easily. It will be seen that the bottom of the top case also forms the top of the lower case. Get out all three parts, that is bottom, middle and top ones first. In the top and bottom ones rebate the ends to half the thickness of wood, and in the middle one, at spots marked (A), cut grooves across for the end pieces of each case to fit in. These will, of course, be ½in. wide and ½in. deep.

The joints at all six corners are as shown at (C) in Fig. 3, and the grooved joints at (A), as shown at (A), also in Fig. 3. Now nail and glue all together, nailing with oval nails through the ends, not the tops. Make preliminary holes for these nails with a bradawl, to minimise any danger of splitting the wood, and give the holes a slight upward angle. Glue the joints well before nailing, and then punch the nails well below the surface. Nail the ends into their respective grooves first.

As the backs of the cases form an integral part of the structure, they should be cut from stout wood, say, of the same thickness as the rest, i.e. ½in. wood. Plane them a close fit and glue and nail them in. When the glue is set hard, round off all the corners neatly with a file, and give the whole a good rub over with medium glasspaper.

Now cut the floor members to the length given, less 2ins., the latter being made up with a glued-on shaped piece, shown at (F) and again at (F) in Fig. 4. It is cut from a 2in. wide strip of wood, 1in. thick and 3½ins. long, and dowelled to the right end of each floor member. It is then trimmed to a curved shape, finishing 1½ins. wide, to conform to the rest. The legs, from 1in. square wood, are cut to length, the short pair being ½in. longer only, as each is to be provided at its top end with a tenon, as at (B) in Fig. 3. The mortises for these are cut in the bottom of the lower case, and should be ⅜in. in from front and back edges. They must be cut before the cases are assembled.

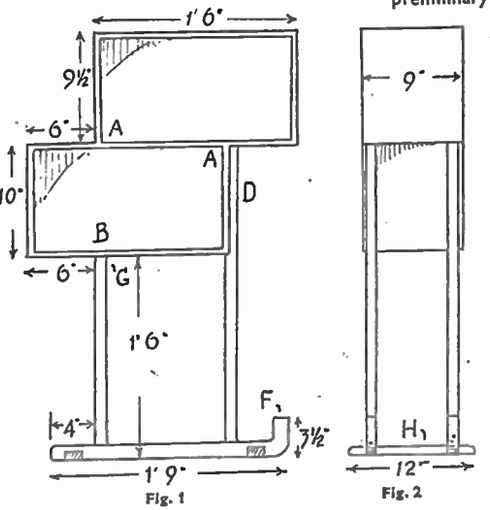


Fig. 1

Fig. 2

The long pair of legs are reduced at their upper ends to ⅜in. thick, for those parts that are to be fixed to the lower bookcase, as in detail (D). All four legs are halved at their bottom ends to fit over the floor members, as at (E).

Cut the grooves for the short legs first, then fit the legs in both floor member and bookcase. Place the long legs in position, and carefully mark where they contact the floor members to ensure cutting the grooves for them in the exact places. See, when positioning the legs, to fit them a little back from the edges of the bookcase, to be in line with the short legs. Two cross pieces (H) are now cut. These are halved into the floor members, where shown in the drawings, and in detail (E).

When screwing the legs, bore a preliminary hole about ⅜in. diameter and ⅛in. deep first, then continue the holes with a smaller bit to suit the screws. The screws will then sink in, and can be afterwards hidden by stopping the holes level. Now nail and glue the whole assembly to the bookcase. The ends of (H) are rounded off for neatness. To strengthen the structure at its weakest part, screw in the angle at (G) one of those steel furniture brackets, sold at the hardware shops. Though not absolutely necessary, it would make a much neater job if the bracket were recessed in level. (255)

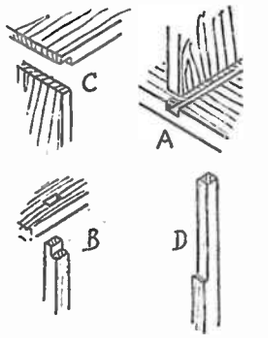


Fig. 3

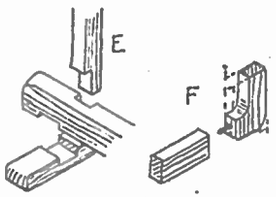


Fig. 4

CUTTING LIST

Bookcase tops, etc. (3)—1ft. 6ins. by 9ins. by ½in.
Bookcase ends (4)—9½ins. by 9ins. by ½in.
Bookcase backs (2)—1ft. 5ins. by 9ins. by ½in.
Short legs (2)—1ft. 6½ins. by 1½in. by 1½in.
Long legs (2)—2ft. 3½ins. by 1½in. by 1½in.
Floor members (2)—1ft. 7ins. by 1½ins. by 1½in.
Floor members (H) (2)—1ft. by 1½ins. by 1½in.

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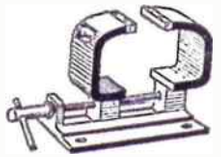

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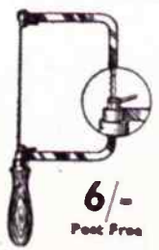

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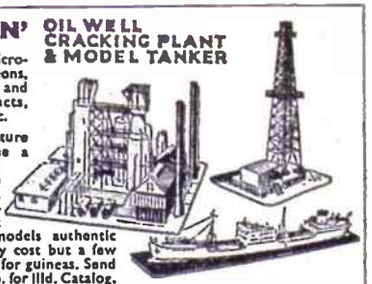

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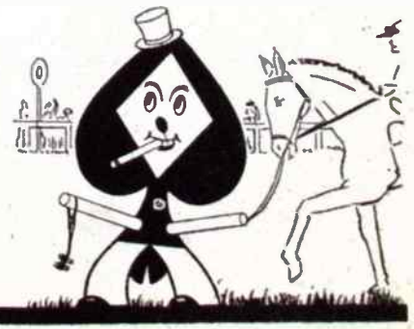

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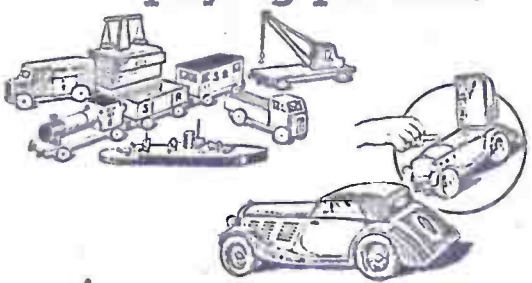

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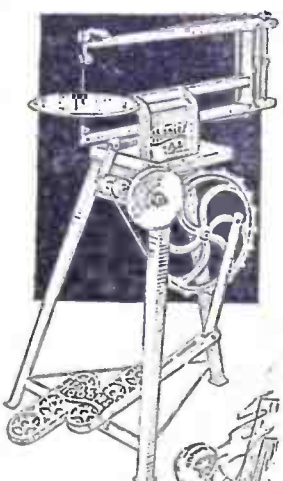

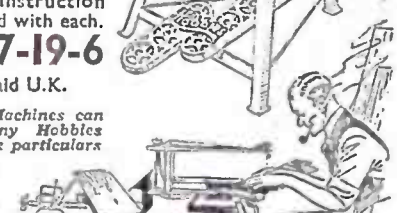

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