

HOBBIES WEEKLY

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MARCH 16th 1955

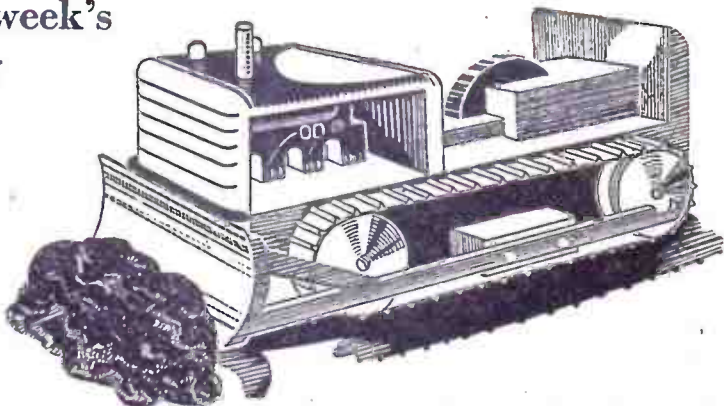
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★ Make it from this week's FREE DESIGN ★

CLEAR the way! Here comes junior with his model toy bulldozer, levelling off imaginary tracts of waste land and preparing runways for his 'planes to land on.

Or, perhaps, he wants to be a builder and use his bulldozer to prepare the site for the bricklayers, carpenters and plasterers. Whatever flight of fantasy he assumes, there is no doubt that he will have lots of fun with a push-along toy bulldozer. And mother need have no fear of her lino and carpets being ruined by such a heavy piece of 'machinery', as the tracks on which the one described here runs are made of rubber!



A TOY BULLDOZER

It's an easy job for the handyman to make with the fretsaw, and he should be able to complete the toy in a couple of spare evenings. The length of this model is 9ins., its height and width both being 4ins.

Transfer the Patterns

Start by transferring the patterns to the prescribed thicknesses of wood, making sure that the grain runs in the way indicated by the arrows, in order to avoid the possibility of splitting the wood. It will be seen that piece 1 is the

platform on to which most of the parts are built. Underneath this platform, glue the two pieces 2 along the sides. Piece 3, the front of the radiator, should now be glued on. This is rounded to sections as indicated on the design in order to create an authentic effect. The back of the radiator (piece 4) is now added, and after pieces 5 and 6 have been glued together, they can be glued to the platform in between the front and the back of the radiator. This forms the engine assembly. On top of this is glued the roof of the radiator (piece 11).

Before adding this make sure to cut the holes in which later will be inserted the funnels and exhaust pipe.

Next to assemble is the seat, which is formed by gluing on pieces 7, 8, 9 and 10. Note that piece 10 is chamfered at the top.

Fixing the Wheels

The wheels, of which there are four, consist of two pieces 12, with piece 13 glued in between. Before screwing on these wheels, pieces 14, of which there are four, cut from 3/16 in. wood, should be

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

*For Modellers, Fretworkers
and Home Craftsmen*

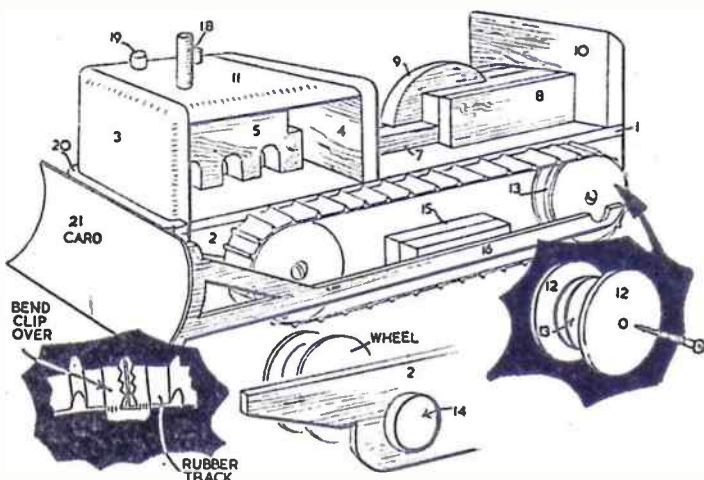
4^D

glued to the insides of pieces 2. These pieces 14 are added to take the full length of the screws which fix the wheels, in order to give full stability to the wheels. It will be appreciated that there will be a strain on these when the rubber track is added. The wheels should now be screwed on from the outside. A glance at the detailed drawing will give a clear indication of the wheel assembly.

The Track

Now the track can be added. Made of rubber, this is supplied with the kit. Cut off the two appropriate lengths to ensure a tight fit. It will be seen that the clip which connects the two cut ends of the track forms another raised tread. Cut the track close up to the sides of two raised treads, put the clip over these and bend the lug to the underside of the track with pliers. This gives a strong connection.

Pieces 15 are cut in two pairs which, after gluing together, should be pinned and glued to the side pieces (2). They form distance pieces on which are added the mounting for the scraper of the bulldozer. They should also be



This diagram will help you with the construction

pinned as well as glued, to give extra strength. Now piece 20, which consists of two pieces of 1/4 in. wood glued together, can be added to the front of the radiator. On the underside at the back between the ends of sides 2, glue piece 17 to complete the main structure.

All is now ready to add the fittings. The funnels (19) and exhaust (18) are cut from 1/4 in. square wood and shaped to fit. They are then glued into the holes in the top of the radiator (piece 11).

The scoop itself (piece 21) is cut from a piece of medium card and glued to the

front ends of pieces 16.

The finish consists of cleaning up with glasspaper, and the application of enamel. Orange is suggested as the main colour, with the funnels and radiator markings in black.

When thoroughly dry the toy is then ready for junior to start his 'levelling' operations. With it he can have lots of fun moving small heaps in a sandpit. When playing indoors, such light 'obstacles' as balls of wool and cotton reels can be pushed out of the path of the bulldozer.

handkerchiefs, neatly pleated for easy production, are placed in the secret box. The lid is placed on the jar and a glass jug of milk stands near.

In presenting the trick, remove the lid from the jar and give it a casual flick with the finger to indicate that it is what it appears to be—an empty glass jar. Take the jug of milk and pour it steadily into the jar at the front of the partition. Everyone will see the jar filling up in a perfectly natural way. Allow the milk to come nearly to the top of the secret box, then bring out the handkerchiefs rapidly one by one, throwing them into the air.

SIX WEEKS LEFT!

There is still time to enter Hobbies 1955 Grand Fretwork Competition—the closing date is April 30th. Do not miss this chance of winning a prize. Send your entries to the Competition Dept., Hobbies Ltd., Dereham, Norfolk.

COMPLETE KIT FOR 9/6

For making this toy you can obtain a complete kit (No. 3098) including rubber tracking and joining clips, from any Hobbies branch, or post free from Hobbies Ltd., Dereham, Norfolk, price 9/6.

Home-made Magic

MYSTIFYING MILK

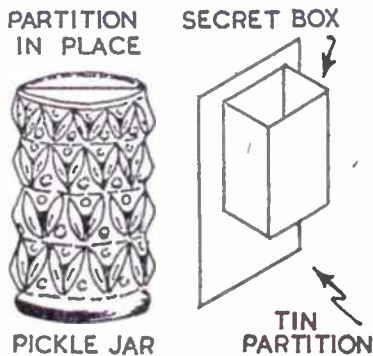
By R. W. Wood

A VERY startling effect is produced when the magician brings a host of coloured silk handkerchiefs—all quite dry—from a glass vase that has been shown empty and later filled with milk!

Obtain from a store a cheap imitation cut-glass pickle jar complete with lid. One about 5 ins. or 6 ins. high is suitable, and it must be straight-sided. Next cut a piece of tin to fit easily into the jar to form a central partition. This should come to within 1/4 in. from the top. A suitable piece of tin may be cut from any discarded canister.

Secret Box

On one side of the partition a small tin box is fixed with a touch of solder about 1/4 in. from the top of the tin partition. Finally polish the opposite side with metal polish until it gleams like a mirror. When it is in position, with the box turned away from the



audience, it will thus reflect the front half of the jar, giving the illusion that the jar is empty. A quantity of silk



THE island of Barbados, in the West Indies, is about the size of the Isle of Wight. It is a British possession and has a total population of 200,000, of whom the great majority are black. Barbados is mostly flat, the highest point being Mt. Hillaby (1150ft.).

Although the island is only 13 degrees north of the Equator, the cool trade

traits of King Charles I and King George V.

The government of the island is carried out by the House of Assembly, containing 24 elected members and a Legislative Council of nine nominated members. The Governor is the head of the Government, the constitution thus resembling our own. The first Assembly was that of Governor Hawley in 1639



The seal of the colony

winds temper the heat and make it the healthiest island in the West Indies. The temperature all the year round rarely exceeds 85 degrees and rarely falls below 65 degrees. In addition there are no dangerous reptiles or insects, nor are there outbreaks of tropical fevers. However, the island is subject to hurricanes and earthquakes, though they are very rare.

The Barbadians are a quiet-living, somewhat lazy people, who are intensely proud that they belong to the British Empire. There exists a friendly rivalry with the neighbouring island of Trinidad, which is served by the Inter-Colonial Schooner service.

The Portuguese are believed to have visited Barbados in 1536. They named it Los Barbados after the 'bearded' fig trees which grow there. An English ship, the *Olive Blossom*, bound for British Guiana, came across the island and the crew landed and claimed the territory in the name of King James I in 1605. The ship is depicted on the 1906 1d. commemorating the Tercentenary of the Annexation.

British settlement on Barbados did not begin, however, until 1625, when an expedition led by Sir William Courteen, a rich London merchant, landed at Hole Town. The island was granted a Royal Charter by King Charles I in 1627. To mark the Tercentenary of settlement in 1927, a 1d. commemorative was issued bearing por-



Dover Fort



Sugar-cane cultivation



Public buildings



Nelson's Monument

and the Tercentenary of this body was commemorated in 1939 with a set of five values bearing miniature portraits of King Charles I and King George VI, and drawings of the chamber and mace.

The seal of the Colony is composed of a drawing of Britannia riding in her

chariot. It formed the central theme for the designs of most stamps until the 1950 issue.

Admiral Lord Nelson, who spent much of his junior service in the West Indies, visited Barbados several times. The story is told that while there he took a bite of the apple-like fruit of the manchineel tree. The juice is a deadly poison and it is said that Nelson never completely recovered from the stomach illness brought on by his action. The Nelson Monument in Trafalgar Square, Bridgetown, appears on the 1906 Nelson Centenary issue of seven values and also on the 1950 4c.

The capital of the colony is Bridgetown, which has a population of 20,000. There are wide streets and avenues and good shops. The town is proud of the fact that George Washington stayed there in 1751 and the house in

which he lodged is now one of the chief showpieces. The public buildings in Trafalgar Square, which appear on the 1950 3c., form an imposing group. They are built of locally hewn coral rock, as also is St. Michael's Cathedral nearby, which can be seen on the 1950 48c. The cathedral was erected on the site of the old building which was destroyed by a hurricane in 1780. The money for its construction was raised by a lottery sanctioned by the Government.

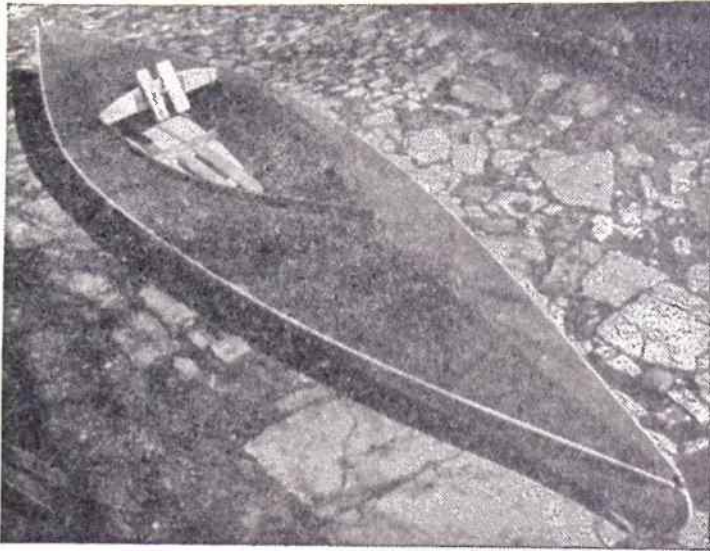
Reminders that the island was formerly a strong fortress are Dover Fort, seen on the 1950 1c., and the Old Main Guard Garrison, seen on the 1950 24c.

Barbados has no natural harbour but Carlisle Bay is sheltered. The small inner harbour of careenage is protected by the molehead. The 1950 60c. illustrates this.

The main product of the island is sugar and about 70,000 acres are devoted to cane cultivation. The average annual crop is 100,000 tons. Other

Continued on page 376

Completing the Single-Seat Canoe



By P. W. Blandford

middle towards the ends. Cut the canvas over the tops of frames. Where there is not room to swing a hammer, the tacks may be squeezed in with large pliers. If creases or puckers appear, work them out by pulling up their centres and tacking. Small puckers will flatten out under the rubbing strips.

If your canvas is too narrow to turn

OUR PLANS SERVICE

PBK10

A drawing showing the main frames and some other parts full-size is available from the Editor, 'Hobbies Weekly', Dereham, Norfolk, price 5s. 6d. post free. A drawing showing the construction of paddle, sailing gear, and other accessories is also available, price 2s.

The designer will answer questions concerning canoeing, providing a stamped addressed envelope is enclosed. The designer is the owner of the copyright in this canoe, but amateurs are permitted to build canoes for their own use.

MAKE the bottom boards to be a loose fit between the main frames, and put additional bearers on frames 3 and 5, with blocks and turn buttons (Fig. 3). Clean off any sharp edges on the framework.

The edges of the end posts may be thinned to $\frac{1}{2}$ in. Give the framework two or three coats of good household paint or marine varnish. The boat looks smartest if the wood is varnished. Remember that once the canoe is finished you will not be able to re-varnish the parts under the decks until the craft is due for re-covering, which should not be for up to 10 years, so be patient and do the job thoroughly at this stage.

Use Proofed Canvas

It is best to use proofed canvas for the skin, as proofing by the makers is more complete than you can achieve by brushing on a proofing solution. The great value of the proofing is in its protection against rot. Mark a chalk centre line on the hull canvas, and lay it over the inverted framework, with the centre over the hog. Tack temporarily to one end post, then stretch well and tack to the other end post. Stretching tightly along the hog will reduce the risk of puckers around the gunwales. Tack at about 9 ins. intervals along the hog.

At amidships strain the canvas to the gunwales and tack inside (Fig. 4). Put the boat the right way up. Tack at about 2 ins. intervals inside the gunwales. Use hand pressure for straining only, and do about 1 ft. at each side in turn, working outwards from the



Fixing the deck canvas to the coaming frames around the edges of the cockpit

over the gunwale at amidships, it is satisfactory to tack to the outsides of the gunwales there, but turn in as soon as the framework narrows sufficiently.

At the ends, tack the canvas securely to the bottom of each end post, then fold one side over and mark the line of the end with chalk. Trim about 1 1/2 ins. outside of this and make V cuts in the edge (Fig. 5). Stick this to the end post with Bostik 252 or C. Coat the wood and canvas with adhesive and leave it for about 30 minutes before pressing together. Fix the other side in the same way, over the first. Cover the joint with thin cloth, cut on the bias, stretched and stuck on.

Make the keel (I) and bilge keels (J). Taper them towards the ends. Paint where the wood and canvas will meet, then screw these parts on while the paint is still wet. Drive screws at about 15 ins. intervals from inside, except for one screw at each end driven from the outside.

Stretch the deck canvas over the canoe, and put a few tacks around the gunwales to see that it is evenly ten-

sioned, then tack at about 2 ins. intervals all round the gunwales. Cut out the cockpit opening and tack to the coaming frames (Fig. 4) and frame 6. Do not tack to the deck stringers or other frames. Cover the canvas joints around the gunwales with the rubbing strips (K), with screws at about 6 ins. intervals.

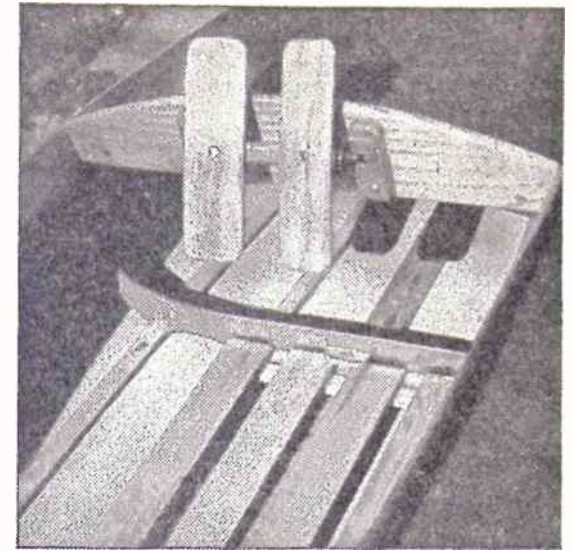
Brass Covering

A proofed canvas deck should not need any other treatment, but the hull should be given an undercoating and one or two applications of top coating, using an exterior or marine paint. It is worth while covering the ends with strips of brass, about $\frac{1}{2}$ in. x $\frac{1}{8}$ in. This protects the ends and provides a secure fitting for the rope painters (Fig. 5).

The coaming looks best if made of mahogany and varnished. Taper the sides from 3 ins. forward to 2 ins. aft. Fix to the coaming frames with screws at about 6 ins. intervals. Sheet brass around the corners will strengthen the joints.

The back rest pivots on two brass brackets (Fig. 6). This is more comfortable than a fixed rest. Curve the crossbar to fit the hollow of your back, and screw on the two slats. Use stout screws or $\frac{1}{2}$ in. rod for the pivots.

'Midge' is propelled with a double-



The back of the cockpit, with the bottom boards and back rest in position

bladed paddle 8 ft. long. This may be bought, or it can be made from the instructions on the accessory drawing,

which also shows how to make sailing gear, a trolley, spray covers and many other extras.



Weak Light from Dynamo

ON my cycle I have a Lucas 6 v dynamo which is three years old. When new, I got a good light at walking pace, but now I have to be going at a fairly good pace to get sufficient light. Is it due to the magnets in the dynamo getting weak, and if so, is it possible to remagnetise them at home? (T.L.—Cumnock.)

WEAKENING of the magnets could cause the trouble of which you complain. It is not feasible to remagnetise them at home. Possibly the makers would do this. You should ensure that no other cause is responsible for the poor light. See that the driving wheel does not slip, due to weakening of the pressure spring or other cause. Also ensure that the correct bulbs are used. If, for example, the correct low-consumption rear bulb has been replaced by an ordinary torch bulb, or bulb taking a higher current, this alone could cause the strength of the headlamp to be much reduced. The exact

bulbs specified by the makers should be used. In some cases, more light might be obtained by using a headlamp bulb of lower voltage, but there is the danger that this would 'blow' at maximum speed.

Perspex Show-case

I CONTEMPLATE the making of a show-case in Perspex and glass. As I have never worked in Perspex before, I would be obliged for some advice. Is Perspex easily bent? Will it hold small brackets for shelf rests? Is there a substance to be had which would look like transparent putty or filling for joining purposes? (P.B.—Dublin).

PERSPEX is a very easily worked plastic, and can be bent with ease if it is first heated and softened. For large shapes it is, obviously, a good plan to have some sort of former round which to bend the material. It is quite strong and brackets, etc., can be easily screwed into it, and would be quite secure for

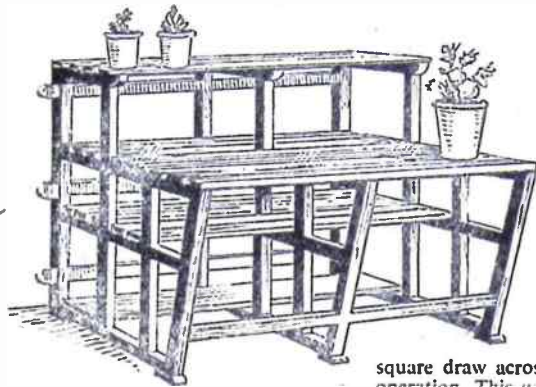
ordinary display work. For joining, you use Perspex cement, which is a solvent of the plastic itself, and which dries transparent and becomes part of the material itself.

Linen Transfers

PLEASE tell me of a way to make transfers for linen. I wish to copy a picture and transfer it to a piece of linen so it would be suitable for embroidering. (J.W.—Newcastle).

TRANSFERS for linen cannot be made at home, for they involve the use of a hot mixture of resin, wax and pigment, and so would solidify on the pen. The transfer 'ink' can only be applied by heated rollers. An easy plan is to draw the picture direct on the linen. You could try an ink consisting of 2 1/2 fluid ozs. water, 1 oz. gum arabic and enough ultramarine to colour. The ultramarine powder can be bought at a paint shop, or made from a Dolly blue by steeping one in hot water, filtering off the ultramarine and drying it in an oven. Soak the gum in the water until it has dissolved, stirring occasionally, and then stir in enough ultramarine. Draw with an ordinary pen. This ink gives a clear outline, does not run like ordinary ink (i.e. blotch), stands up to handling and washes out easily when the embroidery is finished.

Making Staging for Pot Plants



to set out the horizontal rails. Rail E is 21ins. long, rail F 23ins., rail G 24ins. and rail H 12ins. Cut these also in pairs.

Now lay all the uprights side by side and level at the foot, and proceed to set out the height measurements. Commencing at the foot they are: 1½ins., 14ins., 1½ins., 10½ins., 1½ins. and 10½ins. With a try-square draw across all the rails in one operation. This will make for accuracy later on when they are cut. Mark the horizontal rails exactly the same, and finally cut in the halvings so that they all fit together as in Fig. 3. Note that the vertical rails 'run through' on the outer face (Fig. 1). The halvings can be cut with a fine-tooth tenon saw, the waste wood being removed with a chisel.

Knock all the joints together, taking

SUITABLE flowerpot staging for a greenhouse or for standing against an outside wall is shown in our sketch. It is so designed that the first stage is made table-height and can, therefore, be used for potting and trimming, while the top stage may serve for exhibition purposes.

Useful dimensions for the staging are

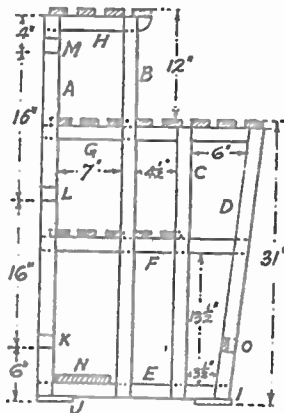


Fig. 1

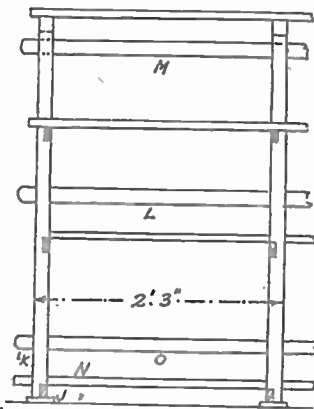


Fig. 2

given in Figs. 1 and 2, and it can be in either a single unit or a double unit as Fig. 2 shows. It is not necessary to keep strictly to the measurements given; the staging could be arranged to fit in a certain space if desired.

The upright or end supports of the staging consist of 1½in. square wood, each end being made up of two pieces, A and B, 41ins. long, one piece C, 29ins. long, and an outer piece D, about 30ins. long. Cut them in pairs accurately to length, and then proceed

care not to split any of the end joints, and glue and screw them securely. Now the upright rail D, being slightly on the slope, must be marked out as shown in Fig. 4. Lay the rail, previously cut to full length, on rails E, F and G, setting out a width of 3½ins. clear at the foot end and 6ins. at the top as in Fig. 1. This operation is plainly seen at XX in Fig. 4. Mark across with pencil at Y, on the inside of the rail D, but not on the outside as the waste wood here can be better cut off with the tenon saw after

the joint is made and the rail screwed in place.

The two end frames are now connected by the horizontal rails K, L and M, at the back, and by the rail O at the front. Set out the three measurements shown in Fig. 1 as 6ins., 1½ins., 16ins., 1½ins., 16ins. and 1½ins. and cut in the halvings as in Fig. 3. Now make the rails to fit these halvings, the length of

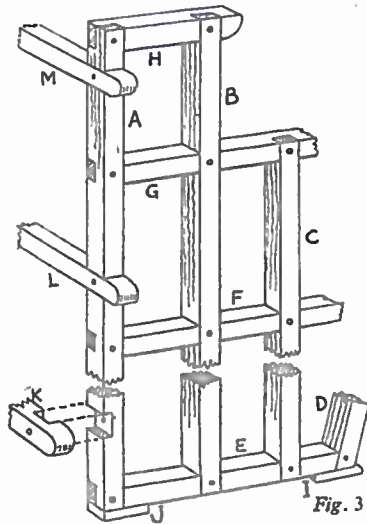


Fig. 3

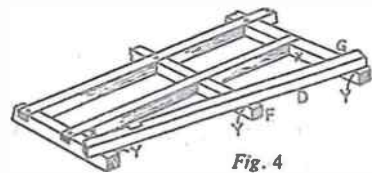


Fig. 4

the rails being made to suit the spacing of the uprights. The width of 27ins. is suggested as being suitable for the single rack (see Fig. 2). Round off the ends of the three rails just dealt with.

The feet (I and J) may be of ½in. thick wood and about 4ins. by 2½ins. The platform board N is 6ins. wide and is screwed to the rails. The cross-slats, 17 in number, are 2ins. by ½in. cut and fitted round the uprights and with their ends projecting a little. Sound deal should be used for all the work, and for finish a priming coat should be followed by two coats of good oil paint.

(S.W.C.)

Hints on Using a Folding Camera

By F. G. Rayer

BECAUSE of its versatility and small size when closed, the folding camera is among the most popular types in general use. Many cameras of this kind are even more 'pocketable' than the 35mm. miniature. The popular 120 or 620 film is almost exclusively used, however, giving eight negatives 2½ins. by 3½ins., twelve negatives 2½ins. square, or sixteen negatives 1½ins. by 2½ins. An understanding of its advantages and limitations will prove helpful to anyone considering the purchase of such a camera.

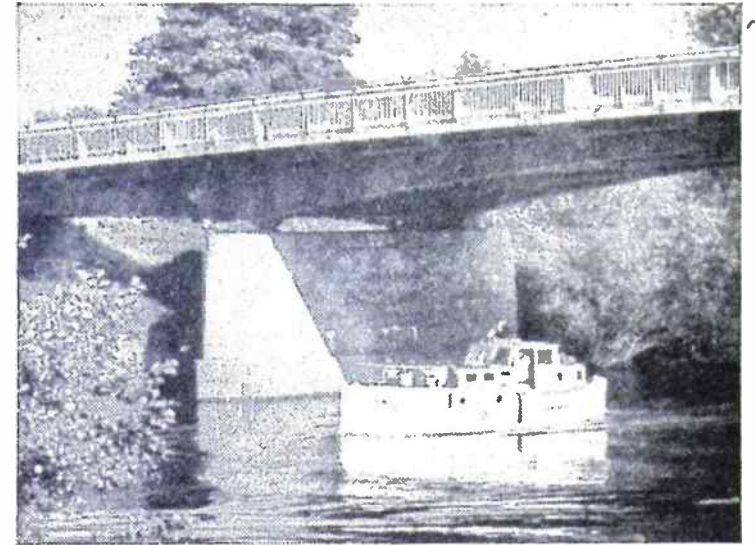
Others may be carried in the pocket with no inconvenience, which is impossible with any other type giving a negative of similar size. This fact alone is often important. It can have a lens and shutter equal to those used on twin-lens reflex or other larger cameras. When it is closed, lens, etc., will be protected. Among its disadvantages may be listed the need to rely on some type of small viewfinder, and its unsuitability for easy close-up photography. For these reasons it is best for general snapshotting where the subject will never be closer than about 3ft.

Types of Lenses

Cheap folding cameras have simple single-glass lenses of about f11 to f16, and these are intended for snapshotting in sunshine or good daylight. The negatives obtained with such lenses are satisfactory for contact prints or small enlargements, but not for big enlargements. As an aperture of f11 to f16 is sufficient for flash photography, even very cheap folding cameras can be purchased with flash contacts. Shots may then be taken indoors with the aid of photographic flash-bulbs.

Slightly more expensive models have lenses of about f6-8, and these allow shots to be taken in relatively poor light. Such lenses also give better definition, so that big enlargements are possible. Many of the more expensive folding cameras have f4-5 lenses, while some have f2-8 lenses. The light admitted by these large lenses is so great that snapshots may be taken in very poor light, or by artificial light which would require a time exposure to be made at 11 or 16.

The rather larger lens thus has advantages, giving much more scope. But very large apertures, such as f2-8, would very seldom be used in ordinary work, and the additional expense of such a lens is not always justified. It



The folding camera is ideal for outdoor general subjects such as this

would rarely be used at full aperture. If it were, focusing would be very critical, as depth of focus falls as the aperture is increased. Such large lenses are thus more suitable for reflex cameras.

Shutters

The simple models will have a shutter with 'B' and 'I' settings, giving Brief Time and Instantaneous exposures. The latter is usually about 1/25th second. Such a shutter is suitable for snapping subjects where there is no rapid movement.

The better models usually have shutters with several speeds, such as 1/25th, 1/50th and 1/100th second. When lighting conditions permit, the rapid speeds may be used to 'half' motion. Even better are the shutters going up to 1/250th second or more, and many moving objects can be taken with these.

On higher-priced models, 'slow' shutter speeds are also provided—usually 1/10th, 1/5th, ¼, and 1 second. These allow shots of still subjects to be taken in very dim light. If the shutter has no slow speeds, exposures longer than 1/25th second will have to be made with the 'Brief Time' setting. This is satisfactory with long exposures, but it is impossible to time exposures of less than 1 second accurately by this means.

A 'Delayed Action Release' or self-

timer may also be present. This is an additional lever which can be cocked, and which allows about 10 to 15 seconds to elapse between the pressing of the shutter release and the actual opening of the shutter. Its main purpose is to enable the photographer to include himself in the picture, the camera being on a tripod or other support.

Finally, the shutter may be flash-synchronised. If so, contacts will be fitted internally, and will touch just as the shutter is opening. Flash-bulbs can thus be fired simultaneously with the opening of the shutter. If no such contacts are fitted, flash shots can only be taken by opening the shutter, firing the bulb, then closing the shutter. This is only satisfactory if the ordinary lighting is dim.

Viewfinders

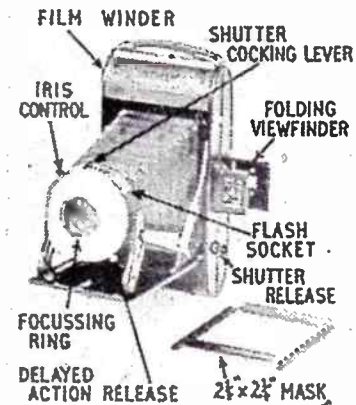
Compared with reflex and other larger cameras, the folding camera must have a very small finder. This may consist of an eye-level frame, through which the user must look, or consist of a miniature reflector finder, like those in cheap box cameras. Such finders give an indication of the scene which will be present on the negative, but are very poor compared with the large reflex-type finders.

The more expensive folding camera usually has an optical finder, fitted with

two lenses and used at eye level. These are fairly accurate, but the photographer still has to use his own judgment in composing the scene. Spectacle wearers may find difficulty in using such finders. This is a limitation imposed by the need for small size.

Focusing

The cheap camera will have a fixed-focus lens, or adjustment for distant and group pictures. Such settings give sharp focus at about 60ft. and 12 to 15ft. Because of the small lens aperture, all other objects from about 7ft. to infinity will be in quite sharp focus. The larger camera can be used in this way by



The parts of a typical folding camera of moderate cost

setting the aperture at $f/16$ and the lens at 60ft. or 12ft. for landscape or groups.

With the larger lenses, means of continuous focusing from infinity to about 3ft. will be provided. The larger the lens aperture used, the more critical

● Continued from page 371

Stamp Collector's Corner

products are coffee, bananas, cocoa and coconuts. Sugar-cane activities are shown on the 1950 2c.

The natives catch fish by casting nets by the shores, as illustrated on the 1950 6c. Fish abounding in the waters are swordfish, kingfish, barracuda, mackerel, yellow tail and flying fish (on the 1950 12c.).

In 1951 all the British West Indian islands issued sets of two values to commemorate the inauguration of the University College of the British West Indies. The University is in Jamaica, but Barbados has its own colleges. They are Codrington College in the north of the



A flash shot with a folding camera—Jack Archer (right) of the B.B.C. Archers, presenting a prize cup

does focusing become. When using a large aperture, it is thus essential to judge the distance correctly, or to use a rangefinder, especially for near objects. Incorrect estimation of distance at $f/11$ or other small apertures will not matter much. But at apertures of $f/2.8$ to $f/4.5$, incorrect setting of the distance may give pictures so blurred as to be wholly useless.

Wrong focus is among the most frequent causes of failure with such cameras, and as much practice in judging distances as possible should be put in, to overcome this. A rangefinder, fitted internally in the more expensive folding cameras, may also be used. By adjusting this until two images coincide, the finder will show how far away the subject is. This distance can then be used as a guide when setting the lens.

Negative Sizes

If contact prints are to be made, the

larger negative size (8 on 120 or 620 film) is best, though the $2\frac{1}{2}$ ins. square size is quite all right. The smaller negatives really require enlarging, however, and are thus generally provided on the more expensive cameras only, where the lens will be of sufficient quality to permit this.

Many folding cameras have removable masks inside, so that the same camera may be used for 16, 12 or 8 shots, as desired. This is an advantage, as it gives more scope for variety. For example, 8 shots could be taken on the spool, for contact prints, or the mask, inserted to give 12 or 16 smaller negatives, when enlarging is to be done. There is also the possibility of having a range of contact prints of different sizes, or only using the '8 on' size ($2\frac{1}{2}$ ins. by $3\frac{1}{2}$ ins.) when large groups or scenes are to be taken.

Other Points

Close-up shots can be taken with such cameras, but only with difficulty, compared with the reflex or focusing-screen type. For close-up work, it is necessary to use an additional lens, and to measure the exact distance of the subject. Due allowance must also be made for the fact that the viewfinder will be some inches away from the lens. If not, then all the subject may not be included on the actual negative.

If these points are checked carefully, good close-up shots are possible. But the folding camera is not really intended for such work, and a single-lens reflex would be better.

The folding camera, then, is good for general use, but not for specialised purposes. It is light, small, robust, and obtainable in an exceedingly great variety of models, extending over a large range of prices.

Bring out the wine from

A NOVEL BARREL CABINET

By A. F. Taylor

BESIDES their primary use as storage containers for wines and ales, barrels are frequently used for many other purposes. Cutting them through the centre and using the halves in which to grow plants and shrubs is probably the most popular form.

By keeping the barrel whole, drilling a number of holes round the sides and filling it with earth you can have a really charming 'garden'. Strawberry plants, for instance, will grow very well and produce an abundance of fruit quite easily, the roots of the young plants being inserted in the holes, starting from the bottom as the barrel is filled with good soil.

Garden furniture made from old barrels is also quite popular. By cutting away part of the barrel and inserting a seat in the centre the result is a very comfortable easy chair. Different-sized barrels can be used to suit the various members of the family.

Although old barrels have been used for many purposes there is one aspect, however, which seems to have received but little attention. Cabinets of a large variety of kinds can be made very easily and there is great scope here for the resourceful designer.

Size of Barrel

The use to which the cabinet is to be put will determine to some extent the best size to obtain. A popular choice would be a cocktail cabinet, especially now many people are again making their own wine.

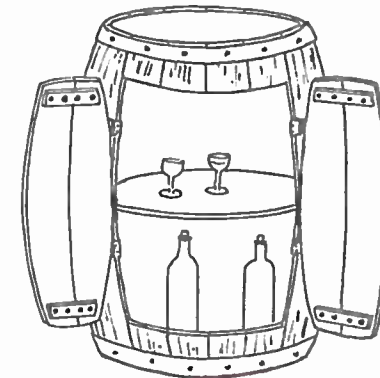
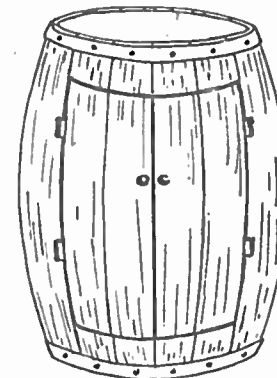
When only a small quantity is kept a small barrel will accommodate a few bottles together with the appropriate wine glasses. A larger barrel, however, can be fitted with one, or perhaps two, shelves and this will enable the glasses to be kept separate with less risk of them getting broken.

A smoker's companion which can be placed beside an easy chair would be very popular and may be made with any of the smaller barrels. There is plenty of room on the 'ground floor' for a few bottles, while the shelf above could contain glasses, tobacco, cigarettes and matches. A pipe rack fixed to the inside of one or both doors would complete a very useful cabinet.

With a little thought cabinets can be adapted from barrels for practically any purpose — for holding knitting, needlework, stationery, or as storage for games and other articles.

All wine or ale barrels should be thoroughly cleaned before being used to make into a cabinet. The best way to do this is to knock off the hoops and take

the barrel to pieces. The curved pieces of wood forming the sides are called staves and these should be marked so that they may be reassembled in the same order.



The state of the barrel will determine the amount of cleaning necessary. In most cases a good scrubbing in hot soapy or soda water will do the trick, and after well rinsing with cold water the wood should be dried slowly without heat.

Oak is the wood generally used for barrels and if it is in good condition, smoothing with glasspaper and french polishing or varnishing will give the best finish. If the wood is somewhat rough it may be necessary to plane it first before finishing off with glasspaper.

Glue the Staves

When reassembling it is not necessary to replace all the hoops—only the top and bottom ones. This is made possible by gluing the staves together. Glue is also used on the top and bottom circles of the barrel. Fine panel pins can then be driven in to hold all firmly together. It is advisable to drill small holes in the staves first, as the wood will generally be found rather tough and liable to bend the fine pins.

All the nail holes will be covered by the top and bottom hoops, and if these are rough or in poor condition, they can be replaced by brass or copper bands. Either 16 or 18 S.W.G. sheet metal can be easily shaped to fit the barrel and will take a nice polish.

The doors must be cut before the staves are assembled and it is a good idea to mark out carefully the position of these before the barrel is taken to pieces for cleaning.

The width of the staves will determine the number to be used for each door. If they are fairly wide only one will be

necessary, but with narrow staves two can be glued together. Crossbars may be fixed on the inside of the doors to strengthen them if thought necessary.

Fixing the Hinges

Owing to the curved nature of the staves the hinges must be longer than usual and project somewhat on the outside. If they are fitted flush with the barrel the doors will not open properly. The amount of projection is measured by the shape of the staves; the greater the curvature the more they must project.

If a shelf is to be fitted inside the barrel it must be cut and fixed in position as the staves are being reassembled around the top and bottom ends.

Unless the barrel is to stand on a low table it is a good idea to make a stool to raise it off the floor. It is easy to cut a circle of wood that will fit inside the recessed bottom and fit three or four short legs into this. An alternative method is to fix the legs into the actual bottom of the barrel and this is best done before it is reassembled.

French polishing or varnishing the natural wood gives the neatest finish and looks very well with polished copper hoops. Paint or enamel finishes are also quite attractive and will fit in with many furnishing schemes.

Now is the time to

Overhaul Your Lawn-Mower

WITH the return of spring, gardening activities take on a renewed interest, and an appraisal of the condition of the gardening equipment is, perhaps, called for. The lawn-mower is probably the most likely to have suffered from neglect and exposure, especially if it was put away after the final autumn mowing without being properly cleaned and the cutting blades protected by oil or grease.

If the cutting blades are badly rusted, it is very probable that the shearing or cutting edges have been destroyed, and regrinding will be necessary to restore the original condition.

On many machines this can be done by removing the side-wheels, which are usually located into position by split pins, then removing the freewheel pinions and changing over from right to left. This will enable the drive to be taken up in the reverse direction by the cutting cylinders. The side-wheels are then replaced, and care should be taken to see that the internal teeth engage smoothly with those on the pinion, and are not forced into position.

The nuts locking the bottom plate into position—usually four—are then released and the bottom plate adjusted so that the cutting blades just clear it. The locking nuts are then retightened.

Grinding Paste

Obtain some medium grade carborundum or emery paste—the kind used for grinding-in motor valves is very suitable—and spread it along the cutting edge of the bottom plate. If the paste is rather stiff, it can be thinned to working consistency with a little paraffin but do not overthin as it may then tend to run from the cutting edges. The mower is then pushed slowly backwards on a smooth, hard, level surface, such as a tiled or concrete path, occasionally stopping and adding more paste as the grinding proceeds. The bottom plate will also have to be readjusted several times to ensure that there is a minimum of clearance between its cutting edges and those of the cylinder blades.

When a satisfactory edge is obtained, the residue of the grinding paste is removed with copious applications of paraffin, taking great care that none is washed into the bearings. The bottom plate is then finally adjusted. A conclusive test to make to ensure that the blades are correctly sharpened is to insert a piece of newspaper between the cutting edge of the bottom plate and a cylinder blade, then to rotate it in a forward motion with a finger. The paper should be cleanly cut.

If the grinding is satisfactory, the side-wheels can be removed, the free-wheel pinions replaced in their correct positions and the side-wheels reinstalled, taking care to securely locate into position with the split-pins. If the latter are much bent or broken, they should be replaced with new ones.

Where a mower has seen much service, the drive to the cutting cylinders often slips, especially if the going is hard as when cutting long or tough grass. This is usually caused through wear occurring on the teeth of the free-wheel pinion, or on the driving pawl. By removing the side-wheels, the trouble can be quickly found, and if the pinion shows signs of wear, a replacement can be easily and quickly made. When ordering replacements, the model and serial number should, if possible, be quoted. Failing this, the original part should be sent with the order to ensure that the replacement is correct.

The driving pawl should have the edges of the driving face perfectly clean-cut and square, while the opposite faces which engage in the slipping cam profile, thus providing the free-wheel action, should have rounded edges. If the edges of the driving face have become rounded through wear, slip will occur between the pawl and the driving portion of the pinion, and in these circumstances the pawl should be renewed. The pawl is in most instances of quite simple construction, merely consisting of a flat shaped cotter which is a fairly tight fit in a slot cut in the cylinder shaft. The pawl should be free to move in a vertical direction in the shaft, to allow of the free-wheel action, and if jammed or rusted up will permanently lock the mechanism and prevent the free-wheel from functioning.

Pack with Grease

The small oil cups, especially on those models with plain bearings, become very quickly choked with small grass cuttings and earth, and are of very little use for their prime purpose. The best way to ensure that these bearings are adequately lubricated is to pack them with grease. Bearings thus lubricated will require no further attention with the oilcan, are protected against the ingress of foreign matter and will last several seasons without further attention.

To grease the bearings, the side-wheels and driving pawls are removed, together with the bottom plate. The side-wheel casings are usually mounted on a framework consisting of spacer rods which are secured to the casings by two or three bolts. By removing these bolts,

the casings can be drawn away from the cylinder blade shaft. The interior of the bearings, and the shaft, should be well washed in paraffin. Wipe clean on a non-fluffy cloth. A small quantity of heavy motor grease—preferably graphite impregnated—is then inserted in the bearings, and the mower reassembled. Before attaching the side-wheels, grease should be liberally applied to the interior cog formation to ensure adequate and trouble-free lubrication at this vital point. With the reassembly of the mower, some grease will exude from the bearings. This should be removed with a clean cloth. This grease treatment will make the machine surprisingly quiet in operation, and will ensure easy running for many months to come.

Curing End-float

Before taking the mower down it is a good idea to see if the rotating cylinder has any excessive end-float through wear or under-lubrication. If this has occurred, one or two thin washers placed between the bearing and the cylinder shaft will take up the unwanted play.

Where the cylinder shaft bearings have become badly worn, a certain amount of vertical movement occurs between the rotating blades and the cutting edge of the bottom plate, and in consequence the cutting or shearing action of the respective blades is badly impaired, and will result in an unsatisfactory performance. Adjustment is sometimes possible by slightly screwing down an adjustment bolt located on the bearing itself, but where this refinement is absent, then the entire set of bearings will have to be replaced. Do not replace one bearing without the other, otherwise the cutting blades will be thrown out of alignment and will not function correctly.

The function of the small rear wood roller is to predetermine the cutting height of the blades, and if the roller or its brackets and bearings are damaged in any way, replacements should be made.

The approximate correct height for the bottom plate to be set in relation to the grass or turf is $\frac{1}{4}$ in. and this is arranged by setting the back-roller accordingly. Raising the roller towards the machine increases the cutting depth, while lowering it makes for a more closely-mown lawn.

When putting the machine away after use, always clean off any grass cuttings, and with a cloth well impregnated with lubricating oil, give a quick wipe over the cutting faces of the blades and bottom plate to check any rust formation. (E.S.B.)

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Some Fire-Preventing Formulas

THE simple application of solutions of common chemicals can prevent many fires. The term 'fireproofing' is convenient, but essentially wrong. Combustible substances, such as textiles, wood and paper, decompose and take fire when heated. No proofing will prevent them decomposing under the action of heat. It will only alter the extent of decomposition. They will char, but not take fire.

What is really meant is kindle-proofing. That chance flame licking the tip of a curtain becomes harmless; the sudden flare-up, developing into an uncontrollable blaze, is avoided.

Test First

Before undertaking the fireproofing of a whole article it is always advisable to make a trial with a small piece, so as to be sure the texture, and in the case of a coloured article, the dye, is not affected.

A formula for fireproofing curtains consists of: Ammonium phosphate 1 pound; ammonium chloride 2 pounds; water 1½ gallons. Dissolve the two ammonium salts in the water, dip the curtains and turn them about with a smooth stick so that all parts are evenly soaked. Let the curtains continue soaking for about a quarter of an hour. Then wring them lightly but evenly and hang them to dry without rinsing. Any slight surface formation of white particles may be brushed off. This formula may also be used for canvas.

For delicate curtains, and other light fabrics generally, the following formula is more suitable: Borax 10 ounces; boric acid 8 ounces; water 1 gallon. As boric acid is not easily soluble in cold water, about half the above quantity of water should be heated and the acid stirred in. When it has dissolved, add the borax and stir until this, too, has dissolved. Add the rest of the water and let the whole cool. Dip the cloth and proceed as in the first method.

A variation of the last formula makes it applicable to textiles generally: Borax 20 ounces; boric acid 8 ounces; water 8½ pints. Dissolve and apply as before.

A cheap French method for cotton makes use of aluminium sulphate and water glass: *Solution A.*—Aluminium sulphate 1 ounce; water 2½ pints. *Solution B.*—Water glass 2½ ounces; water 2½ pints. Dissolve the aluminium sulphate and water glass each in its own portion of water, mix the two solutions and soak the cloth. When saturated, lift, wring lightly and hang to dry without rinsing.

Readers in the tropics may welcome a

fireproofing method for mosquito netting. Ammonium sulphate only is needed for this. In each pint of water dissolve 4 ounces of ammonium sulphate. Steep the material until thoroughly saturated. Lift and hang it without wringing to dry out somewhat. When still damp, iron it.

All the above methods will not resist washing. The proofing must be renewed after the usual washing, rinsing and drying. Wash-resistant methods are necessarily more elaborate and expensive, but one can be undertaken at home if Baumé hydrometers are available.

The ingredients are dissolved little by little in the quantity of water needed to cover the material, until the Baumé hydrometer indicates the right degree. First make a solution of sodium stannate of 14 degrees Baumé, immerse the material until saturated, lift and dry.

Next make solutions of the following ingredients at the specified Baumé strengths: Zinc acetate 17 degrees; sodium tungstate 35 degrees; ammonium chloride 4 degrees; acetic acid 9 degrees. Mix them in the proportions: Zinc acetate 2 volumes; Sodium tungstate 4 volumes; ammonium chloride 3 volumes; acetic acid 1 volume. Immerse the sodium stannate treated

cloth in this mixture, lift, wring evenly and hang to dry in a warm place. When the smell of acetic acid has disappeared the process is finished.

Wood Treatment

Flame-proofed wood is desirable in work sheds and garages. To make the fireproofing solution there will be needed: Sodium acetate 2 pounds; sodium phosphate 4 ounces; water 1 gallon. Dissolve the solids in the water and brush the solution on the previously moistened wood. Adequate proofing demands that half a pint of this solution shall be absorbed by each square yard of wood. Therefore, coats should be applied until this is so. Let each coat soak in well before applying the next.

Paper can be fireproofed with: ammonium sulphate 4 ounces; boric acid 1½ ounces; borax 1 ounce; water 2½ pints. Dissolve the solids in the water. To use the solution, heat it to 50 degrees Centigrade (122 degrees Fahrenheit), dip the paper into it and hang it to dry. Any wrinkles can be ironed out. If a copy press is available, a better plan is to allow the paper to half dry and then complete the drying in the press. (L.A.F.)

Use your fretsaw to make A Puzzle in Wood

A full-size pattern is on page 383

MANY people enjoy working out a good puzzle and this one will prove both interesting and tantalising.

The puzzle consists of a shallow tray in which are fitted odd-shaped pieces of wood. The idea is to fit the pieces together so that the three circles are in line above each other as shown on page 383. Parts are full size, so you will have no need to work out measurements.

Cut a baseboard from ½ in. wood and glue four strips round the edges as shown to form the tray. These strips are mitred at the corners and are cut from ½ in. wood.

The puzzle is cut from ½ in. wood, using a coarse fretsaw blade. Clean up the pieces with glasspaper and paint them all to hide the grain. The three circles are painted black and the other parts can be any colour desired. The mitred edges can also be painted,

especially if the puzzle is intended as a gift, and you want it to look nice.

Use the pattern as a guide if you find the puzzle impossible to assemble, but you will find that with practice it will be comparatively easy to do. Jumble the pieces up again—and then try it out on your friends in turn. (M.P.)

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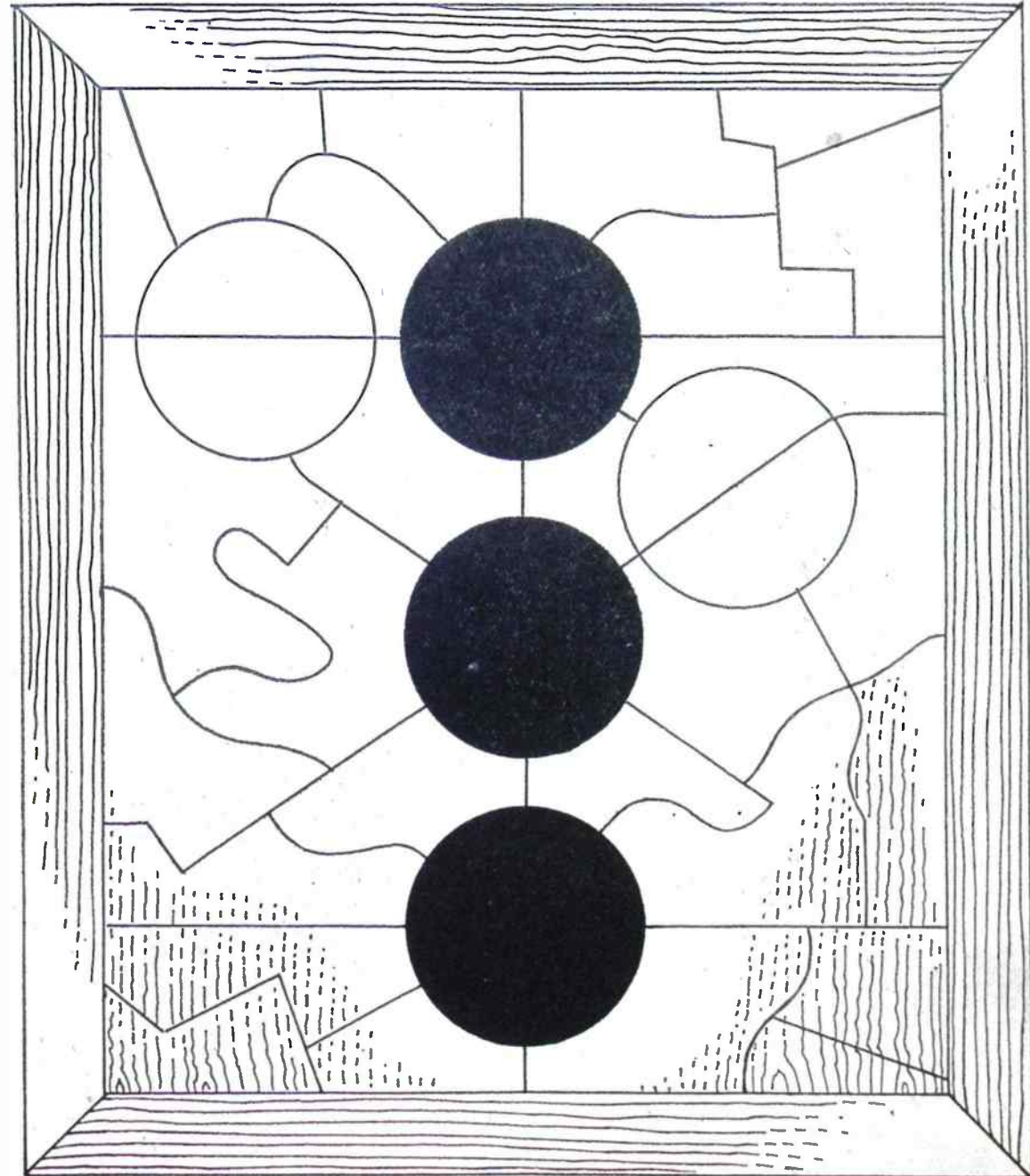
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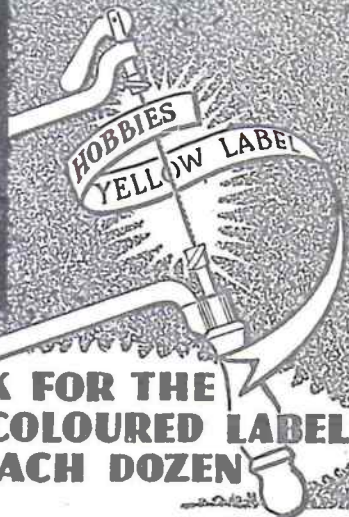
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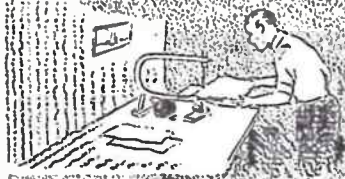
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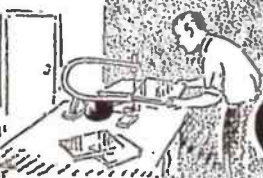
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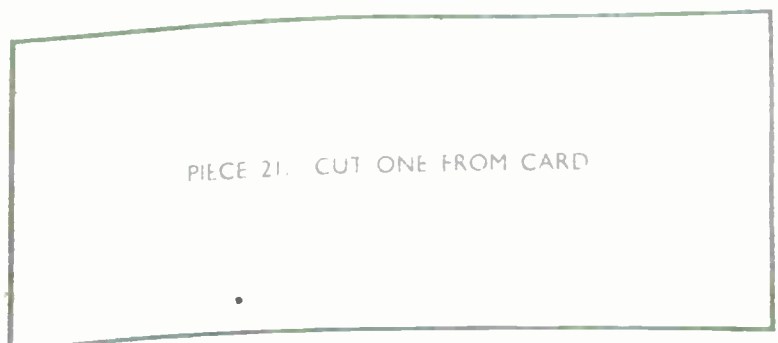
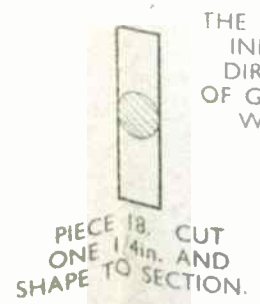
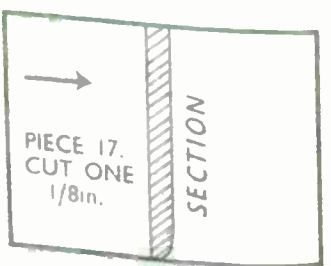
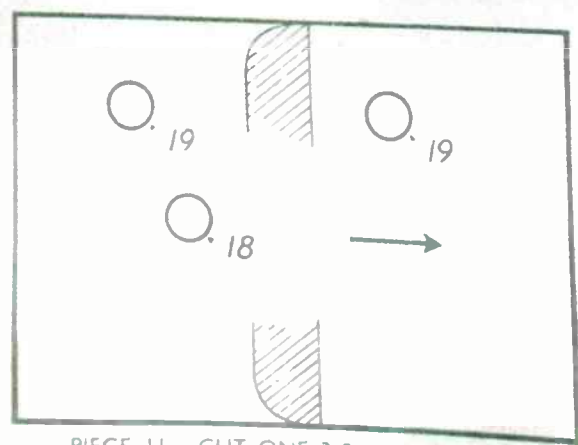
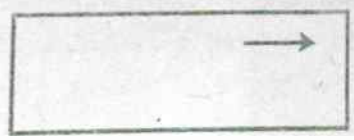
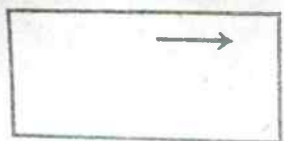
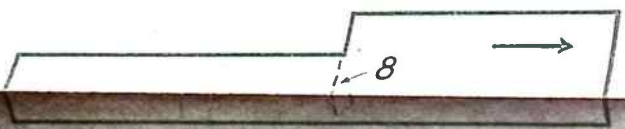
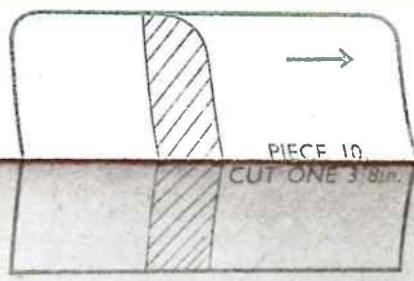
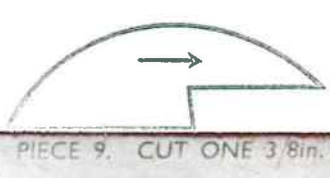
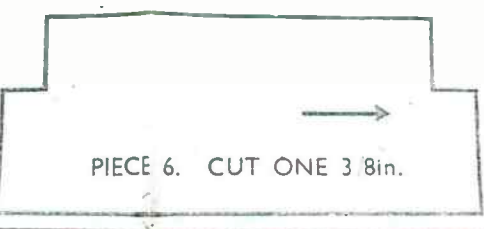
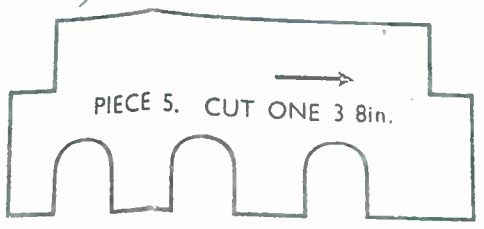
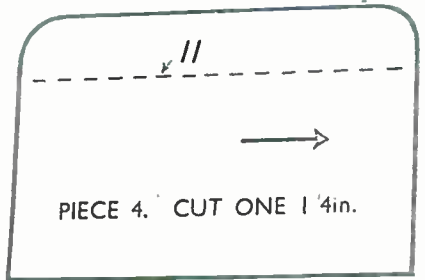
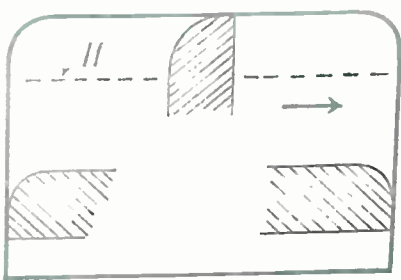
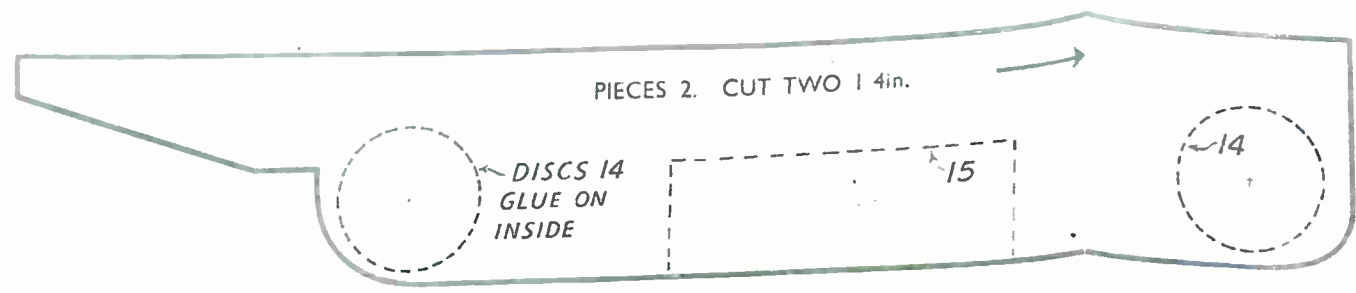
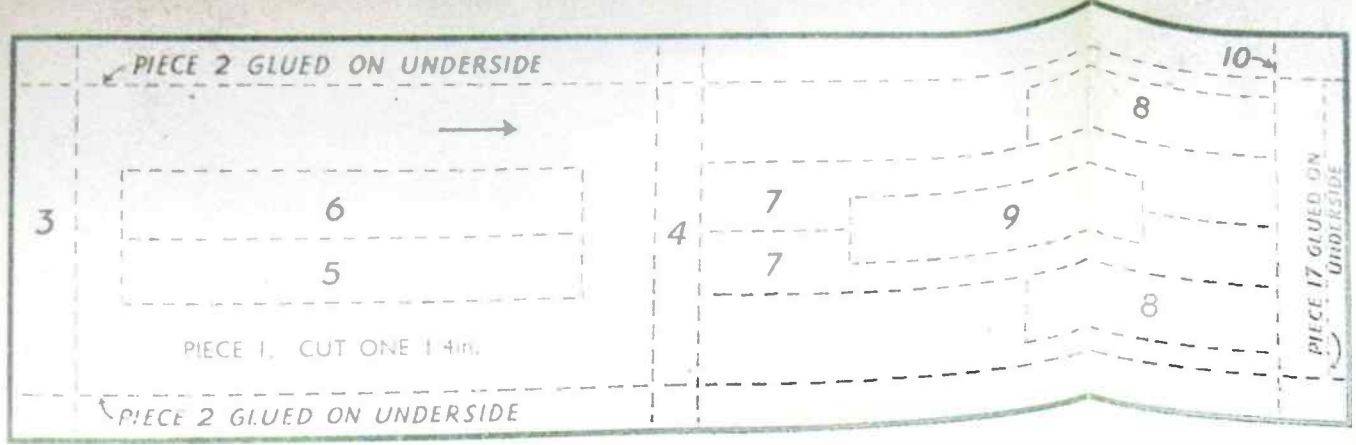
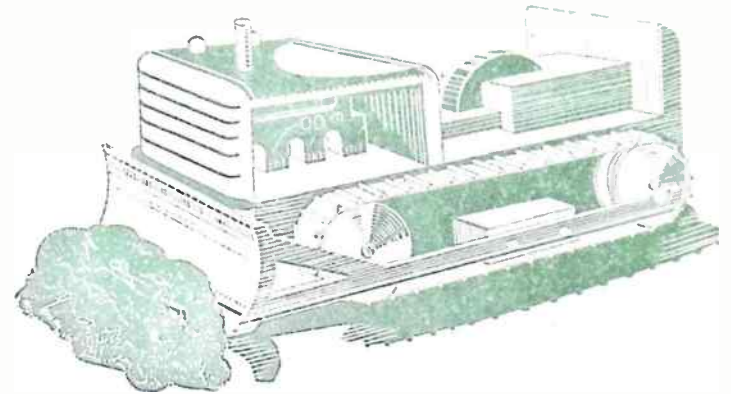
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TOY BULLDOZER

SIZE LENGTH 9 1/2 in.
HEIGHT 4 in.



Materials required for this design
WOOD Two pieces 9ins. x 4ins. x 3 8in. (Hobbies GD6)
 Two pieces 9ins. x 4ins. x 1 8in. (Hobbies G2)
 One piece 14ins. x 7ins. x 1 4in. (Hobbies H4)
 Four 1 1 4ins. x 4 round-head steel screws
 Two 16ins. lengths rubber track
 Two joining clips for rubber track
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THE ARROWS INDICATE DIRECTION OF GRAIN OF WOOD.