

Hobbies

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NOVEL SCRAP OR GARDEN CART

THIS cart, unlike the previous one dealt with in these pages, is merely a chassis for a light apple barrel or even a dustbin or large oil-drum; it is easily made up, using only odds and ends of wood.

Moreover, the cart, although intended for the collection of scrap rubber, is ideal for other purposes, such as in respect to the equally-vital issue of collecting pig-food. On the other hand, a novel rubbish-carrying barrow is suggested by the cart for gardens and allotments.

To build the chassis, first prepare the shafts. These are shaped from packing case laths 3ft. 6ins. by 2ins. by $\frac{7}{8}$ in. or $\frac{3}{4}$ in. Shape the handle neatly with a bow-saw, rasp and glasspaper.

The side frames are then made. The axle support piece is 17 $\frac{1}{2}$ ins. by 6ins. by $\frac{7}{8}$ in. or $\frac{3}{4}$ in. Cut, or bore an 1 $\frac{1}{2}$ in. hole at the support bottom ends for the axle (a piece of old curtain pole 28ins. long by 1 $\frac{1}{2}$ in. diam.) which must revolve easily in them.

Having rounded the bottom ends, dowel the 2in. wide leg and crossrail pieces to each (see elevation at Fig. 2). The top ends of the supports and legs are dowelled to the shafts at the distances shown. It is advisable, of course, to set out the distances on the joining edges of the shafts, using

a set-square and pencil. The dowel positions are then carefully marked on the edges, then bored.

Use $\frac{3}{8}$ in. diam. dowels. Where the

2in. wide laths are concerned, have only two dowels. Three dowels, or four, could be put in the support piece, for this takes up most of the forward and backward straining. Work neatly, for when the chassis is assembled, the axle holes must be in alignment.

The trueness of the alignment can be determined by the connecting

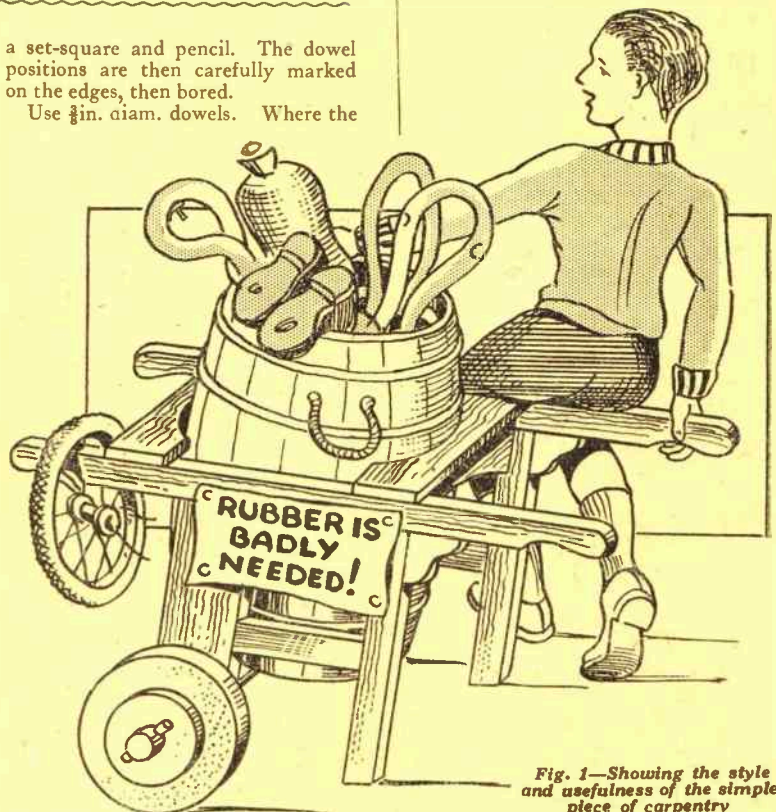


Fig. 1—Showing the style and usefulness of the simple piece of carpentry

crossrails, these being detailed at Fig. 3. The top crossrails are shaped first, using pieces of wood about 20ins. by 4ins. by $\frac{1}{2}$ in. or $\frac{3}{4}$ in.

These, you will notice, are given a central curvature having a radius of 9ins. It will thus be seen that the barrel (at its widest circumference) must not be more than 18ins. in diameter. Some barrels are only 18ins. in diameter, while most dustbins and oil-drums have a diameter of 16ins.

Attach the top crossrails to the shafts with nails or screws. Working from the fore shaft handles, 7ins.

where dowelled to the leg pieces, make two braces to the shape seen in the side view and illustration; these are glued and screwed in the corner formed by the leg and shaft.

The Wheels

Good serviceable wheels can be made from $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick wood. You require four wheel discs 10ins. in diam., and the same number of hub discs 5ins. or 4ins. in diam.

Before cutting to shape, bore $1\frac{1}{2}$ in. (or $1\frac{3}{8}$ in. diam.) holes in their centres for the axle. The slightly larger holes will ensure plenty of freedom. When

procured, should be prepared, as follows. Remove all bent nails which may have been used for keeping the lid in place. Central hoops, if interfering with the entry of the barrel into the "well" of the chassis, can be removed without doing any great harm to the stability of the barrel staves.

To facilitate the lifting and carrying of the barrel, two handles, made from rope, could be fitted, as shown at Fig. 1. Simply drill suitable holes, insert the ends of the pieces of rope, then tie knots at the ends (at the inside) to keep the rope from pulling out.

If you do not wish to remove the barrel, it could be a permanent fixture

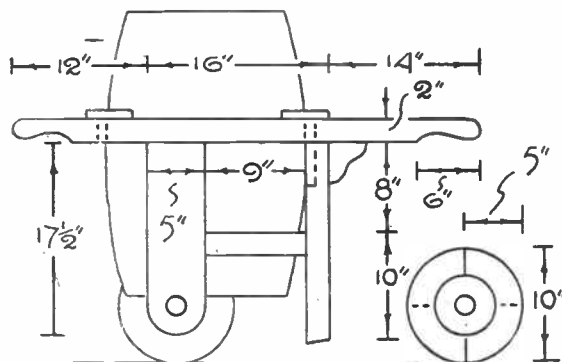


Fig. 2—An elevation with various dimensions

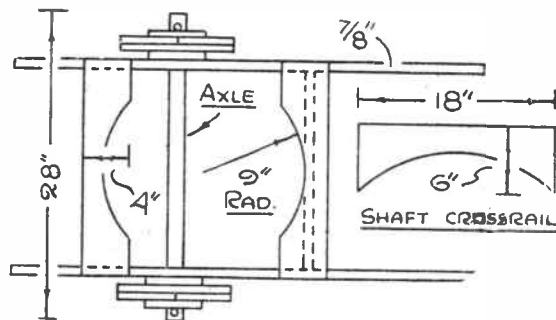


Fig. 3—Top plan of cart with detail of crossrail

inwards fix on the foremost rail. The opposite rail is attached 18ins. apart (measuring from the curvature edges).

When attached, cut out the shaft crossrail shown at Fig. 3 and nail it between the chassis leg pieces and the rear crossrail (see dotted lines). At the front end, incidentally, attach another crossrail 2ins. wide by the same length.

Fixing the Axle

The shaft crossrail (including the narrower one) helps to make the work more rigid and firm. This is supplemented by the axle which, at this juncture, is cut to length and glued and nailed to the supports to project evenly at each side, as shown by the top plan.

The inside distance is 18ins., the same as the connecting crossrails. To give additional strength to the shafts

cut to shape, attach the discs together with glue and nails.

When gluing the wheel discs together, have the grain of each running crosswise. Add the hub discs and see that all four discs of each wheel are truly assembled by trying them on the axle prior to adding the nails. If, on account of boring $1\frac{1}{2}$ in. holes, the wheels run somewhat stiffly, ease them by paring a few shavings off the axle ends.

The wheels are kept on the axle by means of dowel pins. Drill a suitable hole through for a single peg of dowel which is slightly tapering so it becomes wedged in the holes.

Such an arrangement might seem somewhat crude and primitive, but it is convenience we mostly consider. The cart, made as described, plus a coat of paint, is a useful article.

A light wooden apple barrel, if

in the cart. Screws could be driven into it via the axle, shafts and shaft crossrails.

For Heavy Loads

Doubtless you wonder at the "extra" handle grips at the fore end of the cart. These are provided to enable a heavy load to be lifted up over kerbs or, in fact, in raising the cart up against a collecting lorry for tilting the contents of the barrel into its tender.

If an old, battered oil-drum is obtained, it will likely be double-ended, meaning that one end will have to be completely removed, this being done with a sharp cold chisel, following which any ragged edges are hammered flat with the inside. Wire, or rope, handles could be attached, as explained. In this way you will have an excellent container.



Results of a Hobbies Club

NEARLY £300 has been handed to various War Charities from the activities of a Club run by the firm of A. Schrader's Son at Erdington, Birmingham. The club was formed for this excellent purpose and the Doll's House shown here realised over £75 at Christmas. The members gather together in spare time, pool their work, and have a competition for the resulting models. The particular point in this model is the detail with which it is finished. Notice the oar in the garage, the little plant pots in the porch, and the curtains in the windows. We hope to mention more activities of the club later.

Add realistic touches to your work with CARVING AND PLASTICS

THOSE who undertake normal model-making or fretwork will often find that the use of carving tools will considerably enhance the work, and even apart from the use of carving tools the same effect can frequently be obtained by means of a penknife judiciously used.

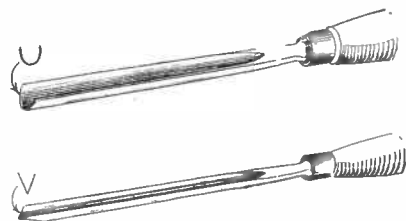
In making galleons, for instance, those of certain periods were elaborately decorated with wreaths and carving on the hull, sides and stern. Normally these can be painted on, of course, but they look very much better if cut in actual wood or in figurework of people and animals.

The rounded shaping of body and legs will make the whole result stand out much more strongly. Or again, in some of the work where leaves are incorporated, the actual marking and features of nature can be introduced quite well.

Tools Needed

Normally, of course, there are several tools used in wood carving apart from the straight chisels. There is the gouge, the parting tool and the fluter, all of which are illustrated here and which explain themselves. The ordinary chisel and gouge are part of a carpenter's tool set, but the other two are needful for special occasions.

In real wood carving the work is done carefully with a mallet (not a hammer) but in some of the small work necessary in model making or fretwork shaping, the hand pressure



Two useful shapes of carving tool

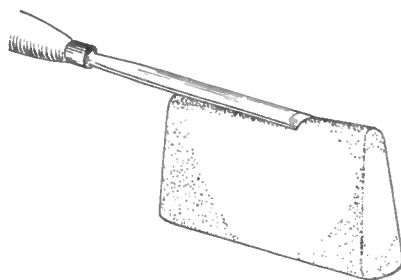
should be sufficient. The great essential of these tools is that they should be very sharp, because a clean cut is essential in all cases. If you get a jagged edge the whole effect is spoiled and it is impossible to finish it nicely with glasspaper.

Sharpening Tools

The usual stone is required for the sharpening, but for a gouge you must have what is known as a "slip." This is shown here, with the cutting blade at the angle required.

A strop, too, is quite useful for the ordinary tools and can be made quite easily. Just nail a strip of leather round a piece of wood and make it sufficiently soft and pliable by coating with tallow and emery dust.

Another essential for work of this kind is to hold the wood firmly in a vice. Where delicate shaping is concerned, it can be very disastrous if the wood slips at the crucial moment. The vice, therefore, will be very helpful. If all possible, too the carving should be done in a larger piece of wood and then the waste portions of it cut away finally.



Slip for sharpening a gouge

Like everything else, the handling of the tools needs practice. Before you start on a valuable piece of work try out on some similar wood with an odd pattern which will serve as an experiment.

Light and Shade

The whole effect of carving is obtained by the light and shade effect of raised and sunk portions. The normal sinking can be done with the gouge or fine lines made with a V-tool. A useful beginning can be made on a monogram which can be applied afterwards to a larger piece of work. They can be seen in position very often in many of the fretwork articles shown in the Hobbies Handbook.

Where the letters are supposed to overlap the others they are left flat, and those which appear to interlace underneath are lowered slightly and sunk a little more near where it passes under the other, as shown in the example herewith. Many of the wood carving designs published can be incorporated into other work. If not the whole of it then a portion can be put in and utilised in whatever job you have on hand.

Introducing Plastics

The carving of leaves, of course is usually confined to the veins running up the centre and spreading to the edges. If, however, you are making a conventional oak leaf pattern, you have considerably more work in shaping the many curves of the whole surface of the leaf.

In many cases, the work involved is too small or the material is unsuitable for the use of the carving tools in the manner described. In this case, one can frequently incorporate the use of some of the plastic

materials now available for the work. Indeed, many of the adjuncts to models can be realistically made in this way.

Guns for Galleons

As an example, the tiny guns on a galleon can be shaped and finished. Or an ordinary ship can have its small winches, or bollards, or even anchors completed from some of these materials. The use of Gesso material was mentioned recently in these pages, and although the details then given related to making crests, the same method can be applied in other work.

Then there is Plastic Wood which can be cut, carved and shaped before or even after it has set hard. It is supplied in tubes and squeezed out like toothpaste. It has the disadvantage, however, of setting almost as soon as air comes in contact with it. One has therefore to be very quick in getting the rough shaping required before it has become firm.

It is a composition which sets like wood, and in consequence can be cut with a knife and glasspaper in the ordinary way. On some occasions it is advisable to build the shaping up layer by layer, or a portion at a time. A penknife will cut into it and get the finished carving, or if you have tiny fretwork files they come in very useful.

Useful Plasticine

Plasticine also is a suitable medium for modelling, although this takes a very long while to become firm, and should be varnished over afterwards, to coat it satisfactorily. It has, however, the advantage of being very pliable so that one can shape it to almost any contour by means of a



A simple sunken carved monogram



Home-made tools for shaping plastics

sharpened matchstick, the end of a pencil or even a piece of wire.

Then there is a more recent plastic material known as Pyruma. This is quite pliable when used from the tin or tube, but it gradually sets very hard as stone. It must, therefore be shaped whilst in its plastic state,

(Continued foot of page 100)

Save yourself inconvenience by taking the proper CARE OF WATCHES

“WHAT is the best time to wind up a watch?” the writer asked a watch specialist, feeling that the procedure *might* have some bearing on the breakages of watch springs. It had—and much more!

“According to most skilled watch-makers,” was the reply, “it is better to wind a watch—or a clock, for that matter—first thing in the morning. There are several reasons for this. By winding a watch in the morning, it will keep going all day and throughout the night.”

It will not go “slow” on you, nor is it likely to stop—two things to be avoided if you depend solely on your watch for accurate time. The main reason, however, is that a low temperature has a bad effect on a tightly-wound spring—and the temperature is generally lowest at night!”

Points About Main-springs

While we find that the most sensitive part of a watch is the main-spring, it will be even more sensitive and fragile if belonging to a miniature wrist-watch. Indeed, while exercising every care in winding such main-springs which, incidentally, are approximately *half* the width and thickness of ordinary gents' wrist-watch main-springs, it must be remembered that they are doubly sensitive to sudden changes in temperature.

“Such watches,” according to one authority, “should be worn on the wrist both day and night, if possible.” That is going to extremes, but if one must remove the watch upon retiring it is not to be set on a marble shelf or an a cold, glass trinket tray. The best—and safest—place is under the pillow, near one's head. Seemingly, delicate watches, like delicate people, prefer warmth and comfort!

Avoid over-winding the main spring. Count the number of necessary turns. When you re-wind the spring again, leave one turn out. Over-winding

and harsh treatment when adjusting the watch hands is also bad for the winding-spindle.

It frequently happens that the “train” of cog-wheels operated by the winding-spindle is upset, or the “teeth” are ruined by enforced strain, or the winding-spindle may be pulled out.

Never Shake Your Watch

Never shake your watch in order to set the mechanism going. If it is a tiny ornamental type of wrist-watch, the danger of upsetting the fragile, microscopical cog-wheels is more imminent. Moreover, the coiled hair-spring actuating the balance-wheel may be broken or it may be thrown out of true laterally.

If, after winding a watch, it does not start ticking, re-move it from the wrist and, holding it horizontally, face upwards, in the fingers, twist your hand from side to side firmly, but gently. This is a safe, scientific way of setting the balance-wheel in motion.

Overhauling a Watch

On the subject of “over-hauling” watches, a jeweller said to the writer: “People bring me their watches for cleaning and oiling, and smilingly confess that they tried to do it themselves, knowing how busy I am these days! Dear me, if only such folk were less thoughtful I would have less work to do.

“For instance, they use all sorts of oil. They poke over the mechanism with pins; they wipe dust and dirt deeper into the parts, lose tiny, irreplaceable screws and plates, damage the hair-springs—and then expect me within a few days, to hand over perfectly-working, good-as-ever-new, watches!”

No Tampering

If you value your watch and want it back quick, be wise and avoid tampering with it. A watch should by the way, run perfectly for a number

of years without requiring oiling or cleaning; only minor adjustments may be necessary—or not at all.

Of course, there are some things an owner can do. Seeing that it is easy to lose a wrist-watch (probably an expensive model or one you cherish because of its sentimental value) on account of a faulty strap, the strap should be immediately replaced.

Other Useful Hints

Much depends on how you treat a watch, especially a wrist-watch. For example, if you wear it while gardening or while engaged on work which jars the wrist arm, it stands to reason that something is bound to happen to the “works” of the watch. Constant shakes and jerks will, in time, loosen many of the screws and parts in it, with serious results. Put it in a pocket, for prevention is always better than a cure.

Pocket watches, if kept in a pocket minus a transparent cover case, become dirty quickly. Dust and fluff readily accumulates in a pocket, especially a waist-coat pocket, and an excellent tip—supplied by a watch-maker—is to snip a small hole in a corner of the pocket lining so that the dust and fluff can escape. There is no danger of the hole getting bigger so the watch can drop through.

Winding Key

It is a bad thing to forget to press the winding-spindle back into place after you have adjusted the hands to the correct time of day. Make a habit of looking at the “head” of the spindle to see that it is not projecting, assuming it is the “self-locking” type, of course.

Take good care of your watch, for you will miss it badly. To give you some idea of the amount of “movement” in a watch, it has been estimated that the balance-wheel moves more than 3,500 miles in a year—and there are 1,760 yards in a mile! This surprising fact should make you more careful in future.

Carving and Plastics—(Continued from page 99)

and dampened sufficiently to get to the required mould.

It can be made into any modelling type required, and is finally baked or can be allowed to harden off naturally. Once firm like this, it is almost impossible to do any more shaping afterwards.

The ordinary putty used by glaziers can also frequently be made use of in modelling, and here again it is used in its softened state and allowed to harden off firm. It can

be softened with linseed oil, turned or marked as required, and then allowed to set firm.

These materials, of course, are intended for use where the model will be painted over, because without they will not be the same shade of colouring as the main work. As most actual models, however, are finished in various colours, the addition of these little carved or shaped parts can be made, then the whole lot painted over satisfactorily.

One very popular and useful place in which these modelling materials can be used is in solid scale model aeroplane building. The material can be put, for instance, at the root of the wing to run up nicely to the fuselage where the streamline effect is needed. The curved or modelled retractable legs can frequently be made in these materials, whilst the tiny navigation lines in the wing, the details of the engine exhausts, etc. can well be made from any of the materials mentioned.

An amusing piece of work is this TUMBLING CLOWN

HOW'S this for an amusing piece of acrobatic mechanism? Turn the handle and our clown leaps in the air, stands on his head, glides gracefully over the bar and does all sorts of further queer feats.

Full size patterns are given on cover iv in this issue for the making of this simple working model from just a few pieces of odd fretwood. The illustration here shows the finished article, and it can be seen that a loose jointed figure swivels on a pivoted bar which is turned by a driving belt acting in two pulleys.

The Wood

All the parts are cut from 3/16in. wood excepting those of the figure of the clown, and these are 1/4in. thick. Besides the flat wood we shall require a piece of 1/4in. diam. dowelling 3 1/2ins. long, for the top main bar, another piece 1 1/2ins. long for the lower axle, and quite a short piece for the handle.

First examine carefully the sheet of patterns, and note that in one case (that of the side upright), only one has been given. It will be necessary either to trace off another pattern or to nail two pieces of wood together and to cut them both at once.

The Patterns

The pattern will be stuck down of course to the upper surface. Another way of duplicating the upright would be to cut one from the pattern, pasting this to take 3/16in. wood, and then, using this cut-out as a template for drawing round on the second piece of wood.

Remember in cutting the holes for the dowelling that the long top bar must revolve freely in holes C in the uprights, but that holes also C in the washer for the end and in the top pulley the holes must fit the dowelling tightly.

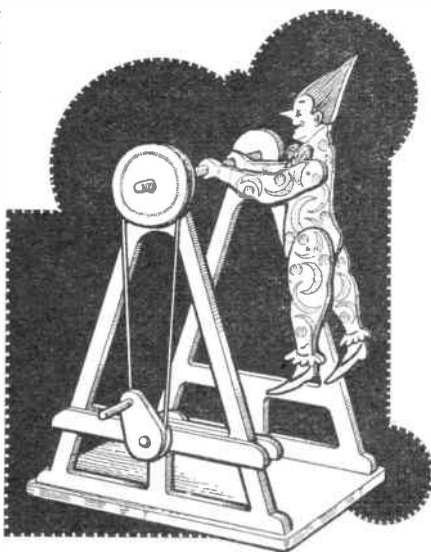
The shorter rod B must also revolve freely in the two cross bars and in the hole of the upright. In every case where the dowel rod is fixed to a pulley as well as in the hands of the clown it must be tight and should be glued securely.

A good fitting joint between the uprights and the base is also essential to make the whole thing rigid, so take care in cutting the tenons A on the uprights and the mortises in the base.

The Driving Pulleys

Glue the uprights in place first, then the two cross bars, one on each side of one of the uprights as shown by the dotted lines. The long rod C is put through the appropriate hole at the top of these uprights and one end projects enough to allow the top pulley to be glued on.

The holes in the hands of the clown



Patterns on Cover iv

must be threaded on to the bar and the final fixing washer added. The pulley wheels are made by filing round the edges of the two discs with a circular or rat-tail file as shown in the diagrams and sections on the pattern sheet.

All the parts for the figure are given, and the arms and the legs are to be pivoted loosely with wire cut to the necessary length for turning down at each end.

Colour Finish

The pattern on the dress of the clown can be painted in water-colour after the wood has been cleaned up. Or the paper could remain on if desired and then painted.

The detail at the bottom left-hand corner of the sheet shows how the lower pulley and crank are made and glued to the free axle when this latter has been threaded through the three thicknesses of wood.

A piece of fine string or an elastic band connects the two pulleys, sufficient grip being maintained to lift the figure and turn it without slip.

The paper pattern can, of course, be left on the wood of the clown, but it is better to clean it off and paint the wood. Take a tracing of the crescent and circle patterns first so you may transfer to the model again for painting.

The thickness of the wood should be painted on the edges the same colour as that used on the face.

The uprights and base should be suitably painted or enamelled in bright colours.

One of Hobbies standard panels of wood H3 will suffice for cutting all the 3/16in. parts and one G2 for cutting the figure of the clown.

The Editor's Notebook

ONE of the many efforts by model makers on behalf of Wings for Victory weeks was undertaken by Pte. R. Anderson whose Doll's House made from our Design No. 186 Special raised £28 in a Competition. The excellent piece of work was offered to the Birkenhead effort and attracted much attention when displayed in the Services Club in Grange Road. The fortunate winner was £28 better off in Saving Certificates and the fortunate possessor of an excellent model. Pte. Anderson did the whole of the work in three weeks of his spare time, using a hand-frame only. He has had 30 years experience with fretwork tools and is still enthusiastic, even in the Army.

CAN you imagine what model-making can mean to men aboard ship, where you cannot "go out for a stroll" or spend an hour at the pictures in your spare time. A bunch of back Hobbies has provided interest and enjoyment to many a ship's company. Here's a letter I have just received from Lieut. Nowell Hall, the Commanding Officer of one of the "little" ships which should be of interest to readers. "I have received safely the back numbers of Hobbies Weekly and have distributed them to my ratings. The men are delighted with them and will no doubt be very busy during their off-duty hours from now on. Little acts of kindness like this of yours go far to keeping a ship 'happy,' especially when the job can be so monotonous. On behalf of the whole ship's company I say: — 'Thank you'."

A READER—H. G. Scammell—from—but perhaps I had better not say where—recently wrote asking to replace his League Certificate and Badge which had been destroyed when his home was blitzed. As a P.S. he added, "My A1. Machine, dated 1920, survived bricks, concrete and blast!" And if I know anything of our readers—it was soon in use again!

The Editor

Last Week's Cross Word Puzzle

V	I	T	A	M	I	N	S	B
I	A	E	X	I	T	A		
M	A	R	G	E	N	E	A	R
L	O	T	T	E	R	R		
S	T	U	N	R	L	E	A	
E	E	V	E	N	I	N	G	
A	R	C	M	I	N	C	E	
M	L	U	M	B	A	G	O	
E	V	I	L	L	R	E		
N	A	P	S	E	T	T	E	

Everyday articles which can be converted into CHEMICAL APPARATUS

IN these trying times chemical apparatus is both inadequate and expensive, so a few hints as to improvising may be welcomed by the many readers who are interested in amateur laboratory work at home.

Firstly, a flower pot can easily be transformed into a useful beehive



Fig. 1—Beehive stone Fig. 2—A beehive shelf Fig. 3—A flask stopper

shelf if the bottom two inches of a large pot are cut off. This is accomplished by filing a deep cut all round it and gently tapping the top off. If necessary, these parts can be in pieces and with the use of a fret-work hammer

Next a half-circle must be made by rasping the lower edge at one place continually with a carborundum stone shaped as in Fig. 1. The rough edges can then be smoothed off with the same stone. Give the shelf a couple of coats of varnish to prevent absorption of water and the job is complete. The finished article is shown in Fig. 2.

Flask and Pipette

A small flask can be conjured from a 'dud' electric bulb with the help of a triangular file. Select a good-sized one and file round at the place indicated in Fig. 3.

Breaking off the metal part is a bit tricky, but when you have a deep enough cut gently ease the glass off. If sufficient care is taken it will come off easily. Then smooth the rough edges by rotating in a flame (preferably a bunsen) for a minute.

A host of apparatus may be manufactured from glass tubing including, for instance, a small capacity pipette. Take a tube a foot long and revolve the centre in a bunsen flame until red hot. Then, placing one finger over one end blow evenly into the other until a bulb one inch in diameter is obtained.

If the bulb is too thin repeat with thicker tubing. Let this cool and heat again 1 in. from one end. Pull it out to a point and break off the end.

Two thistle funnels may be made in a similar fashion. Heat the middle of a thick foot tube as before and

blow a bulb. The bulb must now be cut in half about a circumference at right angles to the tube and broken as with the light bulb. The edges being smoothed you have two funnels.

Several everyday things serve well unaltered as chemical equipment and need no conversion.

Simple Substitutes

As an example, spectacle lenses may be utilised as small watch glasses for weighing very small quantities, etc. Discarded lenses may sometimes be had from any optician for a few pence or you may be presented with them.

Many readers have at some time or another had a mortar and pestle but the mortar has got broken or suffered some other mishap. A small pudding

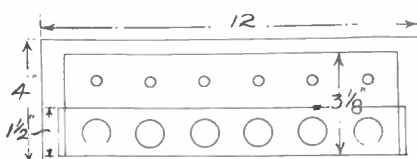


Fig. 4—Plan details of test-tube stand

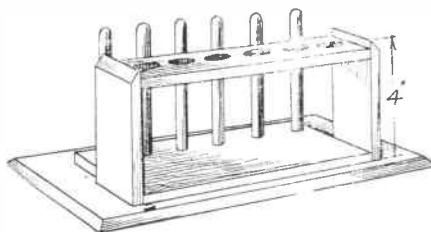


Fig. 5—The finished holder

basin makes a good substitute and proves quite efficient as a mortar.

Many items of laboratory equipment can be constructed of wood and dowel.

A Test-tube Holder

The indispensable test-tube stand is one of these. This rack is made from all $\frac{1}{4}$ in. wood with the exception of the top which is $\frac{3}{8}$ in. Details shown at Figs. 4 and 5 will help in the construction. The base is bevelled all round and throughout its whole thickness.

The tops of the supports are also bevelled as shown. Holes are drilled in piece A to hold $3\frac{1}{2}$ ins. lengths of dowel used to dry the tubes. Holes in the top must be drilled to suit the reader's requirements but $\frac{7}{8}$ in. ones serve most purposes amply.

Piece A is then screwed to the base and the whole cleaned and varnished.

Paint could be used but varnish is more suitable as it does not stain and tarnish so easily.

Funnel Stand

A funnel stand may also be made. The construction is simple and may be carried out with the help of details at Figs. 6 and 7. The hole is drilled half through and a nail holds the dowel in position. The part in Fig. 8 may be moved about anywhere on the stand. The nut and bolt is any $2-2\frac{1}{2}$ in. one.

Care should be taken when drilling the hole for this for the $\frac{1}{2}$ in. wood will easily split. The slit up the centre should be $\frac{1}{8}$ in. wide at a maximum but it should never need to close right up to grip the stand. If the dowel gets so thin as that renew it at once.

Drying Rack

Another essential of laboratory apparatus is a drying rack. One of these is made of a back and dowels. The size must be according to the requirements of the user but a twenty-peg one is usually ample.

In this case make the back 12 ins. by 10 ins. by $\frac{1}{2}$ in. Mark out the position of the pegs and fix it in four rows of five so they come two inches apart.

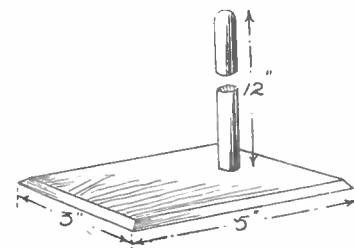


Fig. 6—The stand for a funnel holder

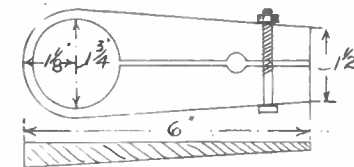


Fig. 7—Plan of the jaws for the funnel

Then drill holes at an angle of 45° about $\frac{1}{2}$ in. deep.

Next cut 20 rods of dowel five inches long and round off the tops. This takes a bit of time but it is better than breaking flasks and things on sharp edges. Glue these into the holes securely and your rack is finished.

Large Design for a Model Cruiser next week

A modern style counter and dice game to make is the 'HURRICANE' RACE GAME

THE various board games are valuable in passing the leisure hours interestingly. Readers who happen to be perhaps just a little tired of Draughts, Snakes and Ladders and similar games may welcome a new one, especially as it has a topical flavour, so here is one which, for want of a better title, is called the "Hurricane" Race Game.

This novel game is well worth making—it can be quite exciting and amusing. It is played with counters and a dice, something like the ever popular Ludo, a game which everybody knows.

The counters represent the "Hurricanes," and travel the course according to the number thrown by the dice. Two players take part, each having four counters.

Take-Off

These are placed on the starting squares, 1, 2, 3 and 4 which represent the dispersal points of an aerodrome. The course they take is shown by the dotted lines and the arrows. When they land on a square marked "Take off" they are removed from the board.

When all four counters have taken off, they can start again on the home run, headed by the square marked "Land."

If a counter lands on "Crash", it must return to its original starting point and commence the race afresh, if on P.S. (Petrol Station) or R.S. (Repair Station) it must go back to those points and start again from there.

No counter must jump over another, if unavoidable the throw must be lost. If a counter lands upon another

counter, either of its own colour or its opponent's, a "crash" occurs and both must go back to their starting points.

The winner is the one getting all his counters home to their original starting points first.

Now to make the board. For the board, get a square of cardboard, 12½ ins. each way. Strawboard, of stout thickness, will do nicely, or medium millboard, as used by book binders.

Thin stuff is not serviceable as it soon cockles up or breaks. If only thin cardboard, like boot box stuff for instance, is available, then glue two thicknesses together.

Making the Card

Cut this into two equal pieces across the centre, and place together. Get a similar square of brown, or fancy paper, and paste this to the cardboard while still doubled, rubbing it well down to the back edges, as in Fig. 2. A.

Open the cardboard out; this may cause the brown paper on the centre edges to bulge outwards, so run the blunt edge of a table knife down the crack to push it back again, as at B.

Turn the cardboard over and down the centre, glue, or paste, a strip of tape or linen for a hinge, as shown in Fig. 3. Now cut a square of white paper, the same size as the board, and paste over it. The board should now be left to dry. It is then ready for marking out into squares.

One half of the board is shown in Fig. 1. The first thing to do is to rule a border, ½ in. wide all round the board, then to divide the remainder into ½ in. squares. Do this lightly in pencil.

The diagram, Fig. 1 shows the righthand side of the board, and how to mark it after the squares are drawn.

The left-hand side is similar, but upside down, to suit a player sitting opposite. No confusion need arise here if the diagram is reversed, or, if after drawing the right-hand half the board itself is reversed, and the left side drawn from the

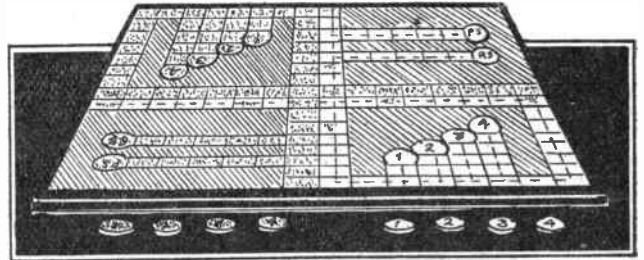


diagram as it is. The view of the finished board will help to make this clear.

The markings should be drawn in ink, indian ink for choice. Put the lettering in as neatly as possible. The runways, etc. (indicated by dotted lines) should be coloured to suit the colours of the counters, yellow and red being a good suggestion.

This colouring can be done with water colours, crayons or coloured inks, as convenient. The intervening spaces should also be coloured, to show up the runways.

Green would be a suitable colour and would suggest the grassland to be seen between the runways of an actual aerodrome.

Binding Edge

Finally, paste or gum, a binding strip all round the edges of the board, as in Fig. 3. This strip can be coloured or black passe partout, or black paper tape as used for mending music and other purposes. A roll can usually be bought at a stationers.

Brown paper would do a pinch, cut 1 in. wide. Whatever is used it should be laid to cover the ½ in. border of the board, then pressed over the edges and down to the back. If properly made, the board will now lie flat, or fold up, like a draught board, or other game board.

The counters and dice are best bought from toy shops and stationers. Of course, as far as the counters are concerned, they could be cut from cardboard and covered with coloured paper.

Numbered Counters

The counters should be numbered 1 to 4, to coincide with the numbered dispersal points. A small tin would serve to hold the counters and dice and serve as a dice cup as well. A tin or holder for shaving soap is just the type being round and upright and therefore handy for shaking the dice in play.

It will be understood that the rules of the game need not be considered arbitrary at all. Ingenious readers can make their own and possibly effect some improvement or perhaps, added interest.

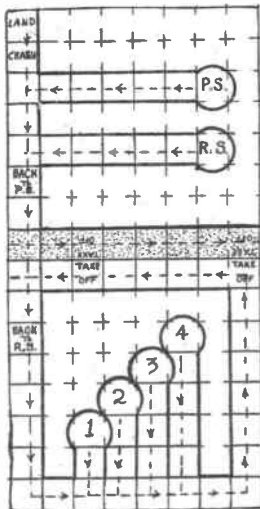


Fig. 1—Marking the board out

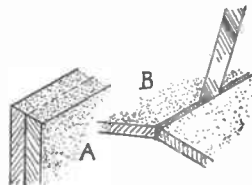


Fig. 2—Joining the parts

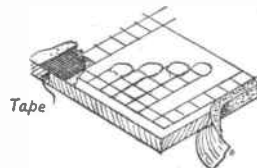


Fig. 3—Binding edges

THE PERFORMING - CLOWN

