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A realistic and attractive model DOLL'S PIANO

THIS fine model is just the size to suit the average doll's house. It is realistic in appearance and will give much pleasure to a child especially an older child, desiring something to look like the real thing in doll's furniture. It is quite a simple piece of work. For the wood use fretwood, 3/16in. thick. There is not much choice nowadays, but oak or mahogany, if it can be got. White wood however, could be utilised if stained or ebonised.

Fig. 1 shows the sides of the piano, and front half only of the latter being given for reasons of space. The legs are tapered from 3/16 in. to $\frac{1}{2}$ in. at



the bottom. The mortise slots in the front are cut $\frac{1}{2}$ in. wide.

The panels above and below the slots, represented by rectangles, are suggested by cutting a thin shallow groove on the lines. This can easily be done either with a penknife or wide chisel.

Keyboard Base

Cut the bottom piece of the keyboard (A, Fig. 2). This should be planed down to in. thickness, and the tenons cut to fit the mortise slots in the front. Cut a piece of deal to the same dimensions as the front and plane it to a thickness of 13/16in. This is glued behind the front, the sides are then glued on and the piece A glued between.

The diagram, Fig. 3, shows the construction at this stage, with one side piece removed for clearness. A thin fretwork nail could be driven in through each side into part A if necessary, but if a tight fi is made this may be avoided—all the better as the wood is thin for nailing together.

as the wood is thin for nailing together. When the glue is hard, turn the work over and in the bottom of the carcase cut two grooves running from back to front, in. square, for the pedals to fit in. These are separated by in. at the centre.

Pedal Fitting

The pedals are pieces of in. square wood, 1 in. long. They are glued in place, and the bits projecting in front shaped up to look like the pedals on the real thing.

The bottom of the piano, Fig. 2, B, is cut to the shape, and is glued underneath. Do not forget to apply a spot of glue to the underpart of the legs. A thin nail could also be added to each, driven in underneath, of course. This necessitates some care to avoid splitting the wood. A pin would, perhaps, be safer to use here than a nail, it need only be driven partly in and the rest cut off level.

The top of the piano, not shown separately, is cut large enough to extend 1/16in. over the sides and otherwise a pair of in. by lin. hinges can be used if the leaves are cut down to 3/16in. wide and fresh screw holes drilled to suit the wood.

Cut another piece of the fretwood, in. wide and glue where shown at D. Now fix with glue and nail the cover to this : gluing it will be understood, the back piece of the cover, C, not the hinged front naturally. The end edges of this latter part should be glasspapered as may be necessary, so that the cover can be lifted up quite easily and not stick.

up well. This only leaves the keyboard itself to be made to complete the model.

The Keyboard

For this cut a strip of cardboard, or 1/16in. fretwood if such a thing is available to width given in Fig. 4, F. Stain it black and glue it to the bottom of the keyboard extension.

Take care this piece does not obstruct the proper shutting down of the hinged cover. Cut a second strip of cardboard, this time fin. wide.



Fig. 1-End and half front details.



Fig. 2 .- Keyboard and bottom portion.

front. It is level with the back, and has its sides and front edges just slightly curved.

At this stage the work can be glasspapered smooth all over, and any nails used that show punched down and stopped. Panel pins, or similar headless nails, should be used at top and bottom, these being driven into the deal backing, not the fretwood, front and sides.

Keyboard Cover

Fig. 4 shows a section through the keyboard part. The hinged cover, C, consists of a piece of fretwood, in. wide, and one 9/16in. wide, hinged together, as shown. To the wider piece a slip of fretwood is glued at the front, as will be seen, this is planed down to kin. thickness.

Glue this in position and cramp up until the glue sets hard to make a sound joint. The front corner is nicely rounded off to suit the curve of the side pieces.

When hinging, if a pair of suitably small hinges can be got all the better,





-Sectional and end view of keyboard and cover. Fig. 4

The whole model can

now be nicely finished off, staining the wood as may be desired and polishing or varnishing to a bright surface. A good effect is obtained by staining the grooves, cut to suggest panelling, black.

This can be easily done dy drawing a pen dipped in ink, or black stain, along them. The pedals can also be stained black, they will then show

- T/16



Fig. 5—Keyboard size]and marking.

To this paste a covering of white, glazed notepaper, not only over the top but also over the front edge and underneath.

Rub this well down and leave to dry. Now make a pencil line across

the centre and over this double lines, just 1/12in. apart. From here, and working away from the centre, mark off 23 divisions of 1/12in. each, both sides. Sink these in using indian ink for preference, making 47 keys. The black keys are then put in

with thicker strokes of the pen, as in Fig. 5. There will remain a space at each end, ink these in also. Now glue the keyboard in place to finish the model, in position at E.

Playing musical Glasses

MPLE tunes can be played by arrangement and practice Swith Musical Glasses. A set of eight thin goblet type (large wineglass) glasses are held to a board by strips across their feet. Water is poured into them until each has the right pitch so the set form an octave in the major scale. A full set of 22 glasses will give you the three octaves. To play them, moisten the rims with water in which you have put vinegar or acetic acid, applying until the edge feels rough to the fingers when rubbed. By placing the tips of the fingers flat an the rim and rubbing round the edge, the friction sets up vibration and the glass will emit a musical note.

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World Radio History

Add to your Exhibition Railway model with a WAGON AND VAN

A Spromised, here are two further models designed to suit the L.M.S. Tank locomotive published in our issue of June 14th. Both models are simple and easily made and, considering their size, one . can introduce quite a lot of detail.

We give a single page of patterns

sides in their mortises in the bottom, the axle "springing" being actually a tenon. Should the latter be slightly thicker than the mortises, rub down by glasspapering, doing this with the work supported on a flat surface and with the glasspaper wrapped around a flat block of wood or the proper glasspapering block.

Before inserting the sides in the bottom, fit the central roof sup port piece between them. The end pieces are added, taking care to have a



Fig. 4-The completed models, painted with owners names

(on Cover iv) for making wagon and van, both being almost identical in construction. It is, then, just a matter of cutting out repeats of the patterns given, as instructed on the pattern page.

One can, incidentally, make official rolling stock or, if desired make privately-owned rolling stock, or a mixture of both. The side elevations at Fig. 2 is an example of a privatelyowned wagon and van. An official L.M.S. wagon is shown at Fig. 2. To make the van similar, it is only necessary to add the letters "L.M.S." at each side.

Making the Van

To make the van, cut out its parts carefully from wood the thickness stated. The roof support piece, of course, belongs to the van. The support strips are cut from in. wood, four being required, including two ventilator pieces, these being cut from in. wood and bevelled away to the section.

Having prepared the van bottom sides, ends and roof support, try the



smearing of glue on the tenons and up the edges.

If properly glued, no nailing should be necessary. We do not advise adding nails to keep the sides to the ends owing to the risk of splitting the wood. When glued therefore, bind with gummed tape at the corners or wind cord about the work or hold the sides against the ends by means of fretwork cramps.

Fitting the Roof

When the glue sets, the top edges of the sides must be chamfered to suit the "arc" cut in the end pieces so the roof piece will lie flat when put on. The chamfering can be done with coarse glasspaper held in the block, the top shape of the ends and centre piece serving as a guide.

centre piece serving as a guide. You need, for a roof, a piece of 1/16in. wood or cardboard 3§ins. long by 2½ins. wide. Glue the top edges of the van body and press the roof upon same, being careful to see that its ends and edges project evenly. If found essential, the bend in the roof picce can be maintained by binding the work with tape or cord; a better plan is to force a bend into the wood or cardboard with the fingers, or better still, bend it around some cylindrical object, such as a straight-sided mug.

Support Strips and Ventilators

At this stage, make the ventilator

blocks and glue them, one at each end under the roof, in the middle. The strips, two at each end, are attached, at each side (see end view at Fig. 2). The end support

The end support strips for the wagon, by the way, are kept the same distance,

i.e., about <u>i</u>in. These strips are cut from <u>i</u>in. wood and are shorter in length than the van type.

Fixing the Wheels

The wheels consist of a flange disc (cut from 1/16in. wood) and a hub piece (cut from in, wood) in the form of two small rings of wood. The latter, when cut, are glued centrally on the flange (see pattern page for end view).

Having made the required number of wheels (eight), drill them for a wire axle 13ins. long by 1/16in. diam. The axle must be a neat, tight fit in the wheels.

To fix the wheels between the axle 'springing, first push the wire half through the axle holes, slip on two wheels, keeping the flanges to the inside, then push the end of the axle into the other axle hole. See that it is flush at the outside, then adjust the wheels so they are suitably apart, remembering that the inside of the

(continued foot of next page)



Fig. 2-Side and end views showing plain painted linemark as finish

For a friend's bedroom table you should make a LADY'S DRESSING BOX

ERE is a simple box which can be made from a few odd pieces of fretwood. The box in itself is novel in design, and if made up in white wood it could be enamelled or painted up artistically as the illustration shows.

The overall measurements of the box are, length 7§ins., width 41ins., and height 2§ins., and in addition to the lid, the front is hinged to fall forward, which gives plenty of room for getting at things within.

The work of making the box is simplified by using the cutting list and the illustration Fig. 1. All the sizes and thicknesses can be taken direct for each piece of wood and plotted out with set square and rule.

In gluing up the base, sides and back of the box see all surfaces are

The top lid F of the box should receive special care in rounding off its four edges. A wood rasp will take off most of the wood at first and this should be followed by coarse and fine glasspaper to bring it to a really smooth surface for enamelling or painting.

Hinged Front

When the front of the box D has been cut and fitted with hinges it should be attached as shown in

Fig. 2. The recesses to take hinges are cut sufficiently deep in the floor A to take both flaps so the first thing in fixing the hinges is to screw them direct to the falling front D about 14ins. from the ends. Then set this in position and mark where the hinges come so the recesses are in

Fig. 2-Drop front hinges



shown and afterwards glued on The projecting pieces E on the front lid are merely plain blocks glued on. The feet H again are quite plain strips with the top front and back edges carefully rounded off. They are glued and screwed to the floor of the box.

> In Fig. 3 the scheme of decoration is given for the front, whilst that on the lid follows very closely. First pencil in the design. Then choose your colour scheme and lay on the enamel or paint with a fine brush.

Keep the colours bright and keep well to the lines which may be gone over again afterwards fine pointed brush. A with a

suitable small brass lid catch is fitted on as shown. It is also advisable to fit a piece of fancy riboon

1-Showing construction of box and dimensions

ends of the axles.

flush. In this case it is suggested that when these parts are together and the glue has had time to harden, all the outer surfaces are rubbed down on a fairly coarse glasspaper, which has been previously pinned to a stout flat board.

The jointing after this should look neat, and in fact, if the box has been cramped up or even weighted during the hardening of the glue, the joints should be almost invisible.

Wagon and Van (Continued from previous page)

wheel track must never be more or less than 14ins.

As it will now be seen, it is the axles which turn in the axle springing and not the wheels turning on the axle. The ends of the axles should not project in any way from the outside of the axle springing, for to add effect, small grease boxes (cut from 1/16in. wood) are glued to the front of the springing, as shown in the correct places. By working carefully like this the front will fit closely to the floor and will therefore

The same method will be adopted in of hinge flaps.

be of neat appearance.

fitting the hinges on the top lid. Here again the hinges are screwed to the lid and recesses cut in the back of the box to receive both thicknesses

The overlays on the ends of the box are cut to the sizes given, and the top edge only of each piece rounded as

the elevations, thereby covering the

Buffers and coupling are fitted, these having been fully described

before. In respect to the wagon, it

To complete the models, they can be painted grey and lined with black.

The axle springing and wheels could

is similarly made, minus a roof.

7 3 Fig. 3-Details of front and decoration

> CUTTING LIST CUTTING LIST A-1 piece 74ins. by 34ins. by 3/16in. B-1 piece 74ins. by 2ins. by 3/16in. C-2 pieces 74ins. by 2ins. by 3/16in. E-2 pieces 74ins. by 2ins. by 3/16in. E-2 pieces 2ins. by 1in. by 3/16in. F-1 pieces 74ins. by 34ins. by 3/16in. H-2 pieces 44ins. by 24ins. by 4in.

to prevent the lid from falling back and straining the hinges. Fix it on the inside of the ends near the underside of the lid near the edge.

to include privately-owned rolling stock, as shown at Fig. 1, should paint the models dark grey, the letters being red, with white outlines.

Do not worry unduly if the models do not run freely. As stated before, these models are intended for exhibition only on a long board having a suitable wheel track. It does not thus matter greatly if the models are not too mobile.

be black, or the wheels could be done grey, with silver rims. Those desiring 116 World Radio History



3d. Bit Boxes

ONEY boxes, small, light, compact and not conspicuous, are easily made from discarded bakelite shaving soap containers, as illustrated herewith. Such money boxes are particularly ideal for the new threepenny pieces which, somehow or other, seem to accumulate in the pocket until they are a dead weight.

There is, of course, a shortage of pennies, with an overdose of the brass threepenny pieces. Why not save them up? Threepence at a time! The shillings soon mount up and you get rid of the "weight" in a novel way.

Shaving Soap Holders

The containers hold several shillingsworth of 3d. bits at a time. When the box can hold no more, it is exciting to unscrew the bottom and



find how much cash you have saved up. There is nothing to break open. Moreover, the appearance of the money box is disguised, especially if you keep the box in the shaving cabinet along with the other accessorries.

To prepare the money box, clean it in warm water, scrubbing away all traces of soap inside and outside. The screw threads need to be well scrubbed. Wipe dry, then mark a slot at the top edge, as shown.

The Money Slot

The slot must not be more than fin. long by fin. wide. It can be first cut with a hacksaw, then filed neatly with a fine flat file. In fact, the slot could be easily made with an fin. thick flat file having a cutting edge, i.e., a serrated edge for filing purposes.

The usual size of shaving soap container is shown. The coin slot must not be lower then §in. from the top end. The finish of these shaving soap containers is usually black, with a blue-coloured screw-off base end.

Having cut the slot, the money box is made. Nothing else requires to be done with it. Try inserting a few of the coins to see if they go in easily enough.

A Wall Chisel

JUMPER plugging chisels are better than ordinary-pointed plugging chisels. One can, in about ten minutes, make a neat hole in brick or concrete wall. This is due to the toothed end of the chisel and the cavity within the chisel shank which "holds' loose particles of cement or brick for a time, the dust escaping via a small outlet hole in the side of the chisel shank.

Such a chisel can be easily inade from a length of solid iron or mild steel rod about $\frac{2}{3}$ in. or $\frac{1}{2}$ in. in diameter. Alternatively, one may use tubing—indeed, you may prefer it, as you will not have to "bore" the business end, as shown.

Assuming it is a solid rod you will use, file the end flat, centre it with a

punch, then commence to drill a suitable "bore" about 1½ ins. deep. This boring will have to be done straight and centrally. The rod should be clamped in a vice and the drill put in the chuck of a geared hand-brace.

Filing the Teeth

When bored, the teeth are filed. Still keeping the rod clamped in the vice, make a first cut, as shown, using a triangular file. Make the second cut, then the third and fourth. If, as may be likely, there is sufficient space between the cuts for additional cuts, making eight cuts in all, include them, for blunt points must be avoided.

An isin. hole is drilled in the side of the shank, near the lower end of the bore, so brick dust can escape. The hole could be drilled right through each side, if desired.

Happy Hospital Hobbies

GREAT progress has been made in the art of restoring to normal activity those who suffer infirmities which would previously have been thought incurable. Hospitals and convalescent camps, both for civilians and services, where this is undertaken are known as rehabilitation centres the long word merely meaning to restore to former possibilities and activities.

Much of the work involves use of muscles and limbs which have been unused or damaged through accident or ill health, and takes the form of some interesting hobby. Thus, not only is much of the usual boredom of hospital life cut out, but the time passed so pleasantly is actually improving the progress towards health and normal life.

A Variety of Pastimes

Painting, needlework, clay modelling are all obviously a splendid method of regaining suppleness of the fingers and are useful in cases of dermatitis of the hands, stiff joints, etc.

The legs, ankles and feet are also made to work by the use of the treadle fretsaw, and we are delighted to find so many of the Hobbies Machines at present being put to this use. We know a Centre for incapacitated miners where they are so used with great success. The picture herewith (by permission of the "News Chronicle") shows a machine in use by an army cook in hospital for arthritis of the feet. Weaving is another pastime undertaken, whilst a special pedalling arrangement on the stationary cycling principle is another splendid aid to foot and leg work.

Instead of lying in bed thinking, worrying and sleeping, these patients now employ themselves happily and get back their health quicker. Although at present these specialized centres are not general all over the country, there is no doubt that their value will cause them to be available to every patient in course of time.



How the reader can build up for himself A HOME LIBRARY

T may seem rather a far cry from woodwork to book collecting, but many of our readers will find a great deal of interest in combining the two pastimes. They differ in so far as one is a manual and the other a mental recreation, but the change frequently provides greater relaxation than the laborious continuation of one only.

Moreover, during the war the increase in book reading has been astonishingly pronounced, and undoubtedly many of our own workers have found themselves greater readers than ever before.

Why not then consider the question of forming a little home library for yourself? It will not possibly be a very ambitious scheme, but even if you are taking time in its building up, then it is as well to start right, and to have some definite policy and plan in mind.

How to Keep Them

There is, we know, a shortage of new books generally, but there are still sufficiently large numbers and variety to make it possible for anyone to build up a useful and comprehensive set of bookshelves.

Perhaps a word first would be advisable on the actual shelves themselves. If you have a blank wall in your own private room or can have the loan of one in another room and decide on this as the position the shelves need not be ornate, but merely plain shelves with ends.

The best plan is to keep the sets of shelves reasonably compact and standardise them so you can add a further section on top or by the side of the others. The unit itself can be about 6ft. high with a distance varying from 9 to 12ins. between each shelf. Remember to have the bottom shelf about 6ins. from the floor, and to vary the depth between each, accommodating the tallest and heaviest at the bottom.

A Unit Bookcase

Such a unit 2ft. or 2ft. 6ins. wide would hold quite a number of books, be plain and serviceable in itself, and yet have the possibility of another section being added by the side of it as the library grows.

The making of a book cabinet such as this would form a useful piece of carpentry. Have the wood thick enough to carry the weight without bending and remember to let the ends of the shelves into the side uprights to provide a good joint and shoulder. The bookcase should be fixed to the wall by little brass wall brackets near the top to prevent any suggestion of the whole thing being top heavy and falling forward. So far as the books themselves are

So far as the books themselves are concerned, you may not be able to afford all new copies, but many secondhand ones can be obtained quite reasonably and in sufficiently good condition to warrant a place on your shelves.

Sources of Supply

Keep an eye on these secondhand book shops and, indeed, on any shop likely to provide you with additions. Then possibly your friends may be able to help you if you tell them your needs.

Your library, to be complete, should cover several headings classical—books of reference—fiction, etc. As your library grows, so, of course, you can increase the sections of it by incorporating historical, geographical, science, detective stories, educational, etc.

As the books are not likely to be of a standard binding, it is a good plan to cover each with brown paper. Before you start, buy a fair quantity of this in fairly large sheets so that you may have the same backing for all, and not a variety of colours for the binding. Then you will have to have a small label pasted on the back or spine bearing the name and author of the book itself.

It may be, too, as the library grows you will want a catalogue to form an index for easy reference, and in that case a number will have to be added to the name. Thus your index can be followed through from the actual name of the book and from the number as well to make it easy to find.

Types to Include

The catalogue can, again, be cross indexed under subjects, which in turn will make for easy reference.

You should certainly include some of the ordinary classics like those of Thackeray, Dickens, Sir Walter Scott, etc., and some may like to add a section of poetical volumes. Fiction should be kept by itself, and here you will need an index of authors as well as titles.

You will find the building of such a library a fascinating creation because you gradually get to looking for new books in all sorts of odd places when you are out, in an endeavour to add to your variety and wealth of reading matter.

A USEFUL MEASURING ROD

ARD sticks are more convenient to use for measuring long pieces of material than a folding 3ft. rule. Quite a good substitute yard stick can be made from an old measuring tape and a 3ft. length of wood.

In regard to the strip of wood, an old window blind lath is ideal. However, if you have a piece of wood 3ft. long, it is possible to cut out a suitable lath, putting a bevel on one edge side as shown in the illustration.

When neatly planed and glasspapered, the tape is adhered along the surface, using tube glue. The bevel, as you will note, is made to suit the width of the measuring tape, this being indicated by the sectional end view.

If you wish, the inch division can be carried down the bevel. The divisions are best marked with a small set-square and a sharppointed copying-ink pencil. The bevel surface could be lightly damped so the pencil marks become indelible and lasting.

Another plan, by the way, is to plane a bevel on the top side of the lath to take the width of the tape. The tape is glued along the bevel, thus dispensing with the work of "ticking" off the inches on the wood itself. In fact, as the tape is pliable, it could be adhered over a small bevel



(such as the bevel shown in the section) and the top part of the lath.

The reason for the bevelled edge is that one can more easily mark off the inches when the lath is laid on the wood or other material being measured. Alternatively, to obtain absolute trueness in the measuring, the stick should be set up on its edge (the bevelled edge) and the marking done.

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Model Railway Wagon and Van See Page 115



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TYDIST

SHOP ASSIST

COOK



SOLDIER

GARDENER

SCHOOL BOY

CLERGYMAN FISHER MAN



DOCTOR

FARMER

NAMNIE

MOTORIST

OLEFR

SCHOOL GURL

Perox Chlor is the Magic Nail Cleaner and Hand Beautifier. It takes out the dirt, makes the tips Ivory White and leaves the hands SOFT, WHITE AND FRAGRANT

Your nails and hands will always look well groumed when using this NEW SCIENTIFIC TREATMENT. NO MESS !! NO BOTHER !! Just squceze a little on your nail brush and shampoo your nails and hands. Presto !! Your nails and hands become immaculate immediately

Thousands, use Perox Chlor every day And what a boon it is to surgeons. doctors, gardeners. motorists. housewives, typists, nurses, sailors, soldiers, firemen. farmers and many more besides.

1/91, 4/4 in tubes and jars. From all Chemists and Stores.



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SWEEP

MINER

POSTMAN

TRAVELLER