

Cabinet Care

by M.A. QUALES

EVERY home constructor must have suffered the frustration of seeing his laboriously built equipment disparaged because—in the words of the critic—it has “an amateur finish”. Useless to argue that you are getting umpteen distortionless decibels if the distaff side has sniffed: “All those wires and things!” The only answer would seem to be a course on basic carpentry, followed by a study of polishing techniques.

There is no need to be discouraged; nor is it necessary to take such drastic steps. The amount of carpentry that the radio enthusiast needs to undertake will be quite small. This is not the place to discuss it at any great length. For any reader who wishes to follow the subject further, a regular subscription to *Practical Householder* is to be recommended. We are more concerned, at this point, with the art of the “finishing touch”.

Whether one is merely repairing the damage from a careless cigarette or polishing and finishing a complete set of equipment enclosures, there are some basic factors to consider. First, the method of work is determined by the material.

WOOD CABINETS

Most cabinet work is carried out in wood—which is rather like saying that every day is a weekday except Sunday! But there are many types of timber, and each type has its peculiarities. Moreover, the very many veneer and artificial finishes available at present give a bewildering choice to the constructor. Much depends on the required appearance of the piece of furniture we are building to house our electronic dreamchild.

Colour

The simple and obvious answer would seem to be a wood finish left in its natural colour—a trend that has had a recent renewal of life in furniture. But even this has its drawbacks. No timber remains indefinitely the same colour as when it is first cut. There is a gradual darkening with exposure to light, and as this is a chemical change, the type of finish that protects the wood will not prevent this natural tendency.

Any finish will tend to darken the wood slightly; a point that must be remembered when matching pieces. Whilst it is possible to bleach, it is by no

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means simple, either to carry out, or control. Far better to begin with a blonde wood, such as birch, in the first instance.

If it is intended to paint or enamel a piece of timber, to obtain the necessary match or to provide a certain decorative effect, the softwoods are best choices. Fir plywood or knotty pine is a common choice.

Preparation

Whatever the material, the first essential is its preparation. Too often, a neglect of this important phase of the work can spoil a finished job, and there's no way of overcoming the fault except to strip down and start all over.

Smoothing

The first thing is to plane and rub down the surface until it is smooth. Remember that the small groove or excrescence becomes alarmingly visible after the decorative finish is applied. This can be very noticeable if a high-gloss finish is used, and is the reason that some people advocate the use of solid core plywood instead of the cheaper veneered types, which may have more of a tendency for face veneers to transfer surface ripples from the core veneers.

If a plane is used for preliminary work, a very sharp iron and a smooth setting are required, so that by sighting along the bottom of the plane, only the merest whisker of iron protrudes. Finishing edges with a plane, especially the edges of some plywoods, can be difficult.

A right-angle block sander can be made, as shown in Fig. 1, which takes away some of the anxiety. Two blocks of wood are fastened at right-angles by shelf brackets, so that a space sufficient to take a medium grade sandpaper is left between the upper edge of the vertical block and the lower face of the horizontal block. The latter is fixed to the bracket so that it overlaps an inch or so.

The glass-paper is fastened as shown, and the device allows good edges to be rubbed down without the chipping and scarring that often results from inexpert use of a plane.

When sandpapering, use a coarse grade, followed by a finer grade, clearing dust with a fine brush between sanding operations. (Grades of sandpaper vary according to coarseness of abrasive surface—

the lower the number, the finer the particles. Normal grade for this work would be No. 2 medium for preliminary work, finishing with 0 or 00). The softer the wood, the finer the paper.

Rubbing down of plane surfaces should be done with the grain—usually along the length of a piece of timber. The easiest method of rubbing by hand is to wrap the glasspaper around a wooden block. Cork is an excellent base material for this work, having just that amount of "give" that helps toward a satiny finish.

Power Tools

Nowadays the handyman has a battery of powered tools at his disposal, and sandpapering can be less of a chore. But it should be stressed that some machines are quite unsuitable for delicate finishing.

A rotary sander, for example, must operate for part of its travel *across* the grain of the wood, and this is not advisable for the kind of work we are considering. Where there are ridges, mouldings, etc., it is always better to fashion a block to fit the shape of the moulding and rub down patiently by hand.

The importance of this rubbing down—and the next point to be mentioned—cannot be too strongly emphasised. A good finish will not be obtained unless the basic material is quite smooth.

Small Flaws

If there are small flaws, cracks or crevices, these should be filled. Large holes can be stopped with a putty filler, or one of the water-mix powders on sale for plaster-filling, or with plastic wood.

A point to note is that putty has a linseed oil base. The oil will soak into the wood as the putty dries out and the stopping shrinks. Similarly, the powder mixtures dry and shrink, and being softer than the basic material will tend to drag from the stopping when re-sanded, leaving a noticeable blemish.

Best method of preparation is to impress the stopping firmly, leaving it proud of the main surface, allowing it to dry (the plaster-of-paris mixtures and the newer polymer preparations dry out very quickly—too quickly, as one finds when too much is mixed at one time!) After this, the protruding surface of the stopping is cut down to the level of the wood, and the whole surface sandpapered until no difference can be felt to the level.

If the hole to be stopped is fairly big, or a crack deep, it may be necessary to make two or three stoppings, or the outer skin of the material used for the stopping hardens, preventing the softer inner core from drying out.

This is similar to the filling carried out to even the roughness of hardwood finishes, preparatory to staining and polishing. Depending on the type of timber, and the direction of cut that gives it the characteristic grain, the amount of rubbing

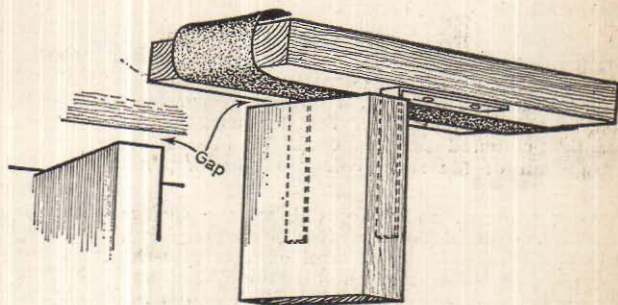


Fig. 1: Rubbing block for sand-papering edges of timber. Note gap between blocks to permit easy replacement of glass-paper.

down that can be done will vary. Before taking this operation too far, it is necessary to decide on colouring and type of finish.

Basic Methods

There are three principal methods of finishing a hardwood surface: oil polishing, french polishing and wax polishing. Unless it is required to keep the natural colour of the wood, perhaps protecting it with a clear varnish or a french polish alone, a stain will first be worked into the wood.

It is often necessary to match this colouring very carefully, and the choice of stain depends upon the wood, as well as the effect that is being striven after. Although there are three types of stain available (alcohol, water and oil-based) it is usually the last two which find most popular employment by the amateur.

In general, oil stains do not penetrate the wood as readily as water stains. On a hard, or close-grained wood, water stain may be quicker and easier to use, whereas on soft woods, such as pine or fir, oil stains may be easier to control for colour matching.

Water stains are usually supplied as crystals, mixed as you require, but oil-based, or naphtha-based stains are more often ready mixed. A cheap water stain can be made by dissolving crystals of potassium permanganate in water.

Using a water stain requires patience. A little is applied at a time, until the shade you require has been achieved. Application tends to raise the grain of the wood, and it is often necessary to rub down again after it has been used.

Oil stain is laid on fairly quickly with a well loaded brush, to cover the whole work, then surplus stain wiped off until the right shade is obtained. If the wood is porous, it will be necessary to wipe off fairly quickly to keep the tone even, especially on a surface of any appreciable area.

Care must be taken when staining the end grain of a workpiece, as this is more porous, and will soak up the stain more quickly, resulting in a darker finish.

Grain Filling

The next stage, after staining, is the filling of the grain. A patent filler can be used, and is perhaps a better method for small surfaces, but if a larger amount is required, a powder plaster filler can be mixed as required. The dampening agent for light-coloured surfaces could be linseed oil, or a stain of the same colour as the prepared surface.

After staining, and before filling, the surface should be rubbed down with a fine glass-paper. The object of filling is to level off the ridge-like irregularities of the grain, and thus the filler should be applied with a pad of rough cloth *across the grain*.

The usual method is to begin lightly, over a small area, working until the powder of the filler is used up, recharging the pad until the surface is covered, then going back over the surface in small sections with a circular movement.

As the filler commences to dry, change to a dry pad and wipe all surplus powder from across the grain and at edges and in crevices. After the filler is completely hard—usually an overnight process, even for the quick-drying preparations—the surface can be wiped over with a pad moistened in linseed oil.

This should be done lightly, so as to just form a seal on the surface, combining with the powder filler. Again, leave the work to dry, then rub down with a fine glass-paper, or a worn piece of O-grade, finally dusting to remove all loose particles of filler.

Oil Polishing

Oil polishing is simple to carry out, but it does take time. It is absolutely vital that the work be left undisturbed between rubbings.

The oil used is raw linseed oil, and it is worked well into the wood by a soft cloth with a firm surface, varying the direction of movement of the pad as the surface is covered. Between polishings, the surface may be rubbed down with a soft brush to burnish it slightly. Heating the oil a little improves the penetration.

The finish is attractively "deep", without the high surface shine of a hard polish, and re-oiling every six months or so is all that is needed to maintain the work.

French Polishing

French polishing is a different proposition, and the beginner would be well advised to practice on spare pieces of timber before committing himself to the precious cabinet he has constructed. The work is prepared in the same way as before, with the filling done after staining and the surface rubbed down with a fine-grade glass-paper.

There are four kinds of French polish in general use, and different qualities of these polishes. The types are determined by the shellac used as a base, dissolved in methylated spirit. The preparations

ready bottled are in the right proportions, but the professional prefers to mix his own. The following notes are intended only as a guide for the constructor who wishes to experiment.

Finishes

Garnet polish has a rich, greenish-brown colour. It is normally used on dark woods, but may be employed to darken the colour of a piece—although this needs some experience to achieve both a quality finish and a colour match. Six ounces of garnet shellac dissolved in a pint of methylated spirit gives the correct proportion.

Button polish is not quite so dark, having a golden-brown finish, suitable for medium colour woods. It has a slightly cloudy appearance and is rather harder than the other types. Six ounces to one pint.

Orange polish may be used on lightly stained or unstained woods, the latter method giving a pale yellow finish. Again, six ounces to a pint of spirit.

White polish is almost colourless, and can be used on unstained woods, or where it is necessary to preserve the lightness of tone. Eight ounces of bleached shellac are dissolved in a pint of spirit.

The four kinds may be mixed to give intermediate tones. The shellac should be put in a bottle containing the required amount of spirit, tightly corked, and left for several days to dissolve, with an occasional vigorous shaking to help things along. Because of its highly volatile nature, the usual precautions against fire must be taken and the bottle should always be tightly corked.

It is a good idea to groove a cork as in Fig. 2, and substitute this for the stopper when working. This allows a better control of the amount being poured, and limits evaporation. A further precaution is to keep the work well away from any dust.

If possible, work in a warm dry room, where there is likely to be no disturbance; and if it is possible to place the work in front of a window, the bringing-up of the surface can best be gauged.

Fadding

First step is "fadding" with a pear-shaped pad of wadding—unbleached—prepared by first soaking the wadding in the polish, allowing it to dry, then making it into the pad shape, pouring just enough polish on the pad to wet it, without setting up a drip, tapping off any surplus polish on a sheet of paper, then applying directly to the wood.

Fadding seals the timber, giving a good foundation, and the pad should be worked evenly and quickly over the whole surface, with the grain at first, taking care to overlap the edges so as to prevent the building up of light-catching ridges at later stages of polishing. When the first rubbing has dried and hardened, it should be sanded-down with a grade-O glass-paper, then well dusted.

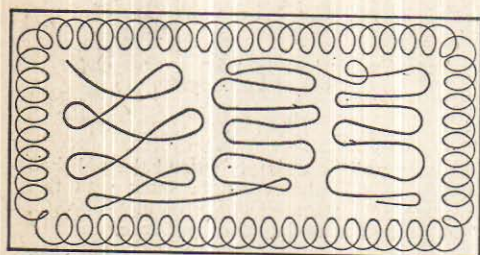
This operation should be repeated several times,

building up the base of protective polish. The spirit dries out in a few minutes.

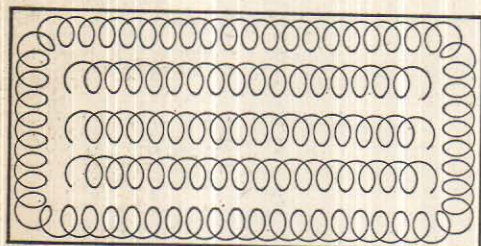
Next step is to oil the pad with either a white mineral oil for light pieces or boiled linseed oil for darker wood. Only a small amount of oil is applied to the work surface to act as a lubricant, while the polish is used to dampen the pad as before.

As the pad becomes dry, recharge with oil, working always with small amounts, and covering the whole surface with a sweeping figure-of-eight movement, and the edges with small, regular circles or loops, so that the whole work is covered evenly. Fig. 2 a and b.

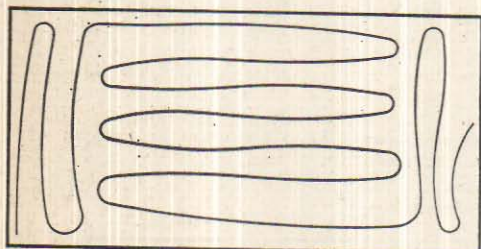
When this operation is concluded, view the surface toward the light to make sure that no irregularities remain. Then leave to harden and rub



(a)



(b)



(c)

Fig. 2: Rubbing movements for polishing: (a) fadding; (b) loop pattern to cover whole surface, used in latter stages of fadding and first stages of rubbing—the small outer loops carry the polish right to the edge; (c) broad, light sweeps in last stages of rubbing, gradually straightening as the polish becomes harder.

down with OO grade glass-paper, carefully removing all dust with a soft brush.

Bodying

After oiling, "bodying" is carried out; this is a build-up of several layers of polish, and again, oil is used to lubricate the rubber, which is made of a piece of white linen over a pad of unbleached cotton wool.

First stage of the bodying is a straight backwards and forwards movement of the rubber, lifting it cleanly at the ends so as not to scrape the edges, and using a very light touch. As the surface begins to gleam, recharge the rubber and change the directional movements, using long sweeping loops. Fig. 2c.

Do this several times, after each operation leaving the work to harden for 24 hours between rubbings.

Spiriting-off

The final process is "spiriting-off" with a rubber half-charged with methylated spirit and half with polish. This rubber is taken over the surface in a series of oval movements which graduate to straight strokes as in Fig. 2c.

Reduce the polish content with each application, until the last rub is made with a rubber completely charged with methylated spirit only (but take note: very lightly charged).

This burnishes the surface, which can be rubbed over afterwards with a soft cloth, dusted with Vienna chalk.

Wax Polishing

Wax polishing is comparatively simple. A polish can be bought ready-made, or prepared from a mixture of beeswax and turpentine. Dissolve 4oz. beeswax in $\frac{1}{2}$ pint turpentine, cutting the wax into thin slivers and allowing the mixture to stand until the beeswax dissolves.

The process is accelerated by heat, but care must be taken not to ignite the polish. Colouring is adjusted by adding dry powder colour to the turpentine before the wax is shredded into it, then decanting the turps into another container through a fine mesh cloth strainer.

The polish can be applied quite vigorously, and as many times as required, until a gleaming surface is obtained.

RENOVATING WOOD CABINETS

This is all very fine for the new piece—that virgin cabinet with the flawless surface—but more often we are concerned with "touching-up" operations, and here there may be several short-cuts.

Various scratch removers, stains and retouching polishes are available, and sticks of shellac are readily obtainable. A rubbing compound is a use-

ful finishing aid. Minor scratches, which result in a "tired" look, can be quickly polished out with a rubbing compound used on a gloss finish. For the satin finish, or dull sheen look, a pumice and oil is more suitable, or even fine steel wool.

Deep Scratches

Deeper scratches require individual treatment. If the chipping or scratching lies deeper than the polish, burning in or French polishing will be needed. First, the damaged area must be cleaned up, any loose chips or splinters removed, and the rough edges stained for a colour match.

Then, the application of a shellac stick, with a little heat applied from an alcohol lamp or heated palette knife is employed to fill the depression, finally smoothing out the protruding shellac, rubbing down and polishing as described before.

Shallow Scratches

If the mark is wide but shallow, it may be preferable to French polish with white shellac, rubbing the shellac and spirit mixture with a fairly well damped pad into the depression, gradually building up the level until it matches the surrounding surface, then spreading the polishing area to obtain an even finish.

This requires a little practice, but can give excellent results. Even bad-looking burns can be camouflaged by this method—but it should be remembered that burnt or charred wood must be scraped away before the polishing begins, or it will leave an eventual discoloration.

Stains

Water or beverage stains—those annoying rings that remain after the party has broken up—are often quite shallow, and will succumb to judicious rubbing with steel wool or pumice. If stubborn, the stain may be treated with a pad lightly damped with ammonia, brushed lightly over the affected area. Lacquer finishes require a touch of lacquer thinners, but great care must be taken not to remove the actual polish, or the end result will be a complete polishing job.

It is extremely difficult to "patch" this kind of work, and a careless rub may mean completely removing the finish and starting again—if you will pardon the pun—from scratch!

PLASTIC CABINETS

Plastic cabinets require a different treatment. Scratches are often quite easy to deal with. The colour of the material is the same all through, so that removing scratches is usually a matter of polishing them out with a flattening paste and metal polish.

To minimise the effect of the slight depression that is noticeable on a flat surface where a small

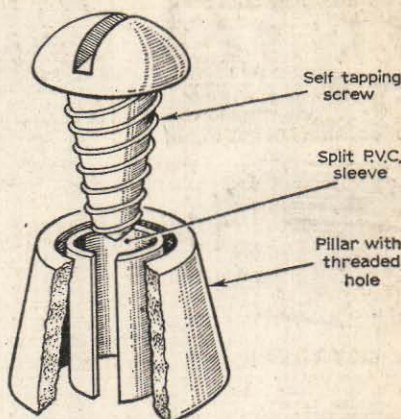


Fig. 3: Method of overcoming worn threads in plastic cabinets and mountings.

area has been polished, simply extend the polished area. Quite deep scratches can be dealt with this way, needing only the application of metal polish, elbow grease and a modicum of patience.

Methylated spirit is a useful cleaning medium for soiled plastic cabinets. The dull smear that it leaves as it evaporates is easily polished away with a dry cloth. But care must be taken, when using methylated spirit, or even warm water and household detergent, which can be effective, if messy; the danger is that painted or leaf-painted lettering will rub off.

It may be necessary to mask the area of lettering, cleaning the main body of the work, then treating the small spaces around the lettering individually with a rag around an orange-stick, or even a fine paint-brush.

Dust

A film of dust rapidly builds up on plastic surfaces left unattended. Much is due to electrostatic attraction. A good cure is a rub over with an anti-static preparation, or a wipe with a record-cleaning cloth—several of which can be obtained on the open market.

Never use a dirty cloth for polishing wood or plastic, and always keep the cloth in a paper or plastic bag when not in use.

Deep Scratches

Particular problems are deeper scratches, broken knobs, and dirt in ridges and milled edges. The latter problem is again a matter of patient cleaning—this time with soapy water and a soft nail-brush, scrubbed across the ribs of a speaker louver or the milled edge of a knob, toward the open end.

Take care that the fabric behind a speaker louver does not get discoloured or stretched—it is often

—continued on page 378

Cabinet Care

—continued from page 354

quicker and easier to remove it and refasten after cleaning. Always use a quick-drying cement, fasten one edge, allow to dry, then stretch to shape.

The deeper scratch may be filled, as with shellac filling of woodwork, but this time a weld is necessary to make the filler hold. If the filler is a piece of similar plastic, this can be chipped to a fine powder, then pressed into the crack, moistening the inner edges of the crack with carbon-tetrachloride—(CTC) which is the basis of most switch cleaners and a solvent for many plastics.

Great care must be taken not to allow the CTC to drip on the exposed surface of the plastic, and the filling should be such that it can be polished down to the normal surface. A break can be treated in a similar way, the raw edges of the crack being brushed with CTC and the parts held together until the solvent evaporates.

This is by no means a perfect joint, and can hardly be expected to take great strain, but gentle care will often save the cost of a new—and expensive—cabinet.

Worn Screws

Worn screw threads when self-tapping screws have been removed and re-inserted too often can give a lot of trouble. The common mistake is to use a larger screw. This is no good—for the hole must be exactly drilled to clearance first, or the plastic will crack. A better way is to make a plug of sleeving, to fit the hole easily and take up the slackness of the screw.

Use p.v.c. sleeving, and slit it along its length, so that the screw can get a good start and as it tightens it will press the p.v.c. to the walls of the hole and ensure a good fit. See Fig. 3.

Special plastic cements are available, for different kinds of material, but a good general purpose contact adhesive is often as effective for both wood and plastic breakages, where no strain has to be placed on the mended parts. ■