

### Staining and Polishing

is found necessary to use a brush), and the latter are for use on narrow moulds, quirks, or any part where the mop would be too large to use without incurring the danger of overlapping on to another portion of the work.

It will also be found advisable to have a small bag for holding fine pumice-stone powder, and which is called a pounce-bag. To make this, procure a piece of muslin or some clean rag of moderately open texture, and cut to about 6 ins. square. Lay it out on the bench or table and put a small handful of pumice powder in the centre. Gather up the corners together, give a slight twist, and then tie a length of string tightly round the neck of the bag. Do not fasten the pumice up tight, but let the bag proper be slack, so that when dabbed on to the work a quantity of the powder will be shaken through the rag. It is essential that the bag be kept perfectly clean, and not allowed to lie about on the bench, or it will pick up dirt. To prevent this it is advisable, when tying on the string, to leave a loop so that the bag may be hung up on a nail in a clean place. Fig. 15 (page 48) shows the kind of bag to be used.

#### THE POLISHING RUBBER.

A large employer of labour once remarked to the writer that he could tell if a man was a competent French polisher the moment he saw him wrap up his rubber. There is certainly much truth in this statement, because, should the rag covering not be neatly folded and twisted up, thus keeping the rubber free from creases, the surface of the work to which it is applied will, when finished, be "ropey" "stringy," and full of ridges.

**Moulding the Rubber.**—The wad or rubber proper (Fig. 7) is made by taking a piece of white sheet wadding about 4 ins. by 2 ¾ ins., and carefully removing the skin. Double it in half and squeeze it in the hand until it is moulded to a similar shape to that shown at Fig. 8. Next lay it on another piece of white wadding about 4 ins. by

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3 ins., as at Fig. 8, and proceed to wrap it up in exactly the same manner as though the outer layer of wadding was a rag covering; but, instead of twisting up the ends when arriving at stage Fig. n, simply fold them on top of the pad you have already formed and press all into a good shape. Rubbers, of course, will vary in size.



FIG. 7.—THE POLISHING RUBBER WRAPPED IN RAG; IT SHOULD BE PEAR-SHAPED AND

FIG. 7.—THE POLISHING RUBBER WRAPPED IN RAG; IT SHOULD BE PEAR-SHAPED AND NEATLY FORMED AS INDICATED.

FIG. 8.—THE RUBBER PLACED ON ITS RAG.

**Wrapping the Rubber.**—Place the rubber as at Fig 8 on a piece of fine well washed rag about 6 ins. by 4 ins. taking care that the rag is free from lint and dust. Now turn



FIG. 9.—FIRST STAGE OF WRAPPING.

over the rag on to the cotton wad as at Fig. 9, and press it down close to the rubber at each side of the wad as

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indicated by the shading. Next take the part marked A, Fig. 9, and fold it over the rubber as shown at Fig. 10. The part marked B in Fig. 10 is now folded over A, and the result is seen at Fig. n. The whole of the rag at the back

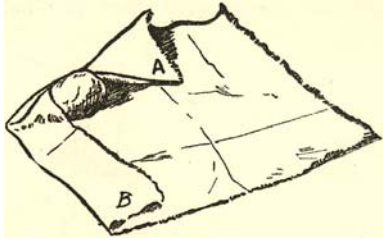


FIG. 10.—SECOND STAGE OF WRAPPING.

of the rubber is then twisted up, and the familiar polishing rubber as shown at Fig. 13 is the result. Fig. 12 shows the method of holding a rubber charged with polish, the single line indicating the circular path given to the rubber whilst in use.

For ordinary purposes two rubbers will be sufficient, one for fattening and bodying-up, and the other for spiriting-off.

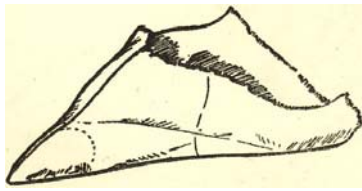


FIG. 11.—THIRD STAGE OF WRAPPING.

**Charging the Rubber with Polish.**—To charge a rubber with polish the rag covering should always be removed, and the polish dropped on to the wadding. A good method

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is to keep the polish in an ordinary medicine bottle and to cork the bottle with a sprinkler top cork as used in scent bottles. Failing this, cut a small groove at each side of the ordinary cork so as to allow a little of the liquid to exude

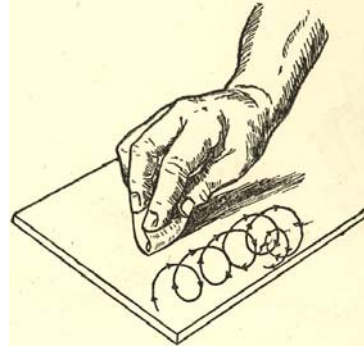


FIG. 12.—HOW TO HOLD THE RUBBER.

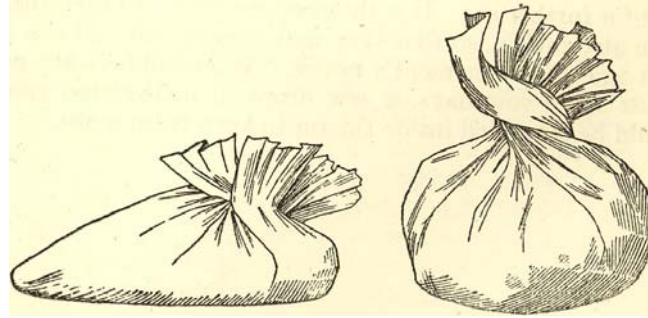


FIG. 13.—CORRECT SHAPE OF RUBBER.

from the bottle as is required. Only sufficient polish should be put upon the wad to moisten it, and to just appear through the rag when pressure is applied; the polish may

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FIG. 14.—WRONG SHAPE OF RUBBER.

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be evenly distributed throughout the rubber by pressing it with the ball of the thumb.

If, after the rubbers have been in use, they are left lying about and exposed to the air, they will become hard and

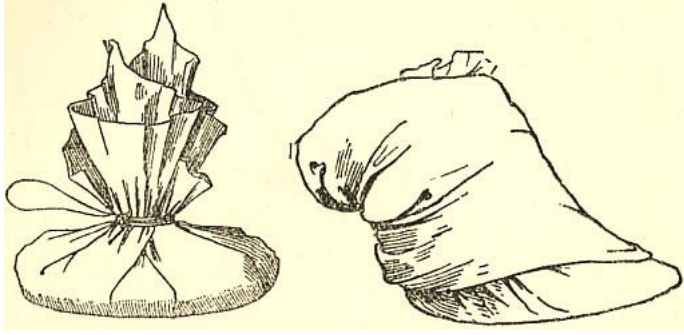


Fig. 15.—POUNCE BAG, Fig. 16.—SIDE VIEW OF RUBBER

unfit for further use. It is therefore necessary to keep them in an airtight tin, so that they may remain soft and can be used again at a moment's notice. When rubbers are not in use for a few days, a few drops of methylated spirit should be sprinkled inside the tin to keep them moist.

## PREPARING FURNITURE FOR FRENCH POLISHING PREPARING SURFACES—PREPARING NEW WOOD—WAX STOPPING—FILLERS AND FILLING

THE success of polishing very largely depends upon having a good sweep for the manipulation of the rubbers. Where corners have to be got into there is a momentary stoppage between putting the rubber in and taking it out, during which the polish is liable

to pick up or adhere to the rubber, and it is therefore necessary to take the work to pieces as far as is practicable. In furniture of good quality and design the construction is so arranged as to admit of the parts being separated in order that repolishing can be properly done. In the fixing of the smaller parts of good furniture screws are used instead of the nails and glue found in cheap grade work.

**All Brasswork**, such as handles, hinges, etc., should be removed from work being polished, and mirrors and glass should be taken out. All doors, panels, shelves, and parts which can be removed without injury to the article are more easily worked up on the bench, and therefore should be separated from the carcass work. Dressing tables fitted with trinket drawers, etc., should have the framings which hold the drawers removed from the top board in order to provide a flat run on the top, which, if screwed up from underneath, should be removed.

In cases where overlay carvings are used, these will have to be taken off carefully to avoid splitting them; a wide chisel, with a piece of thin wood put underneath the blade to act as a fulcrum and prevent the surface being damaged, will be found the best means of raising overlay ornaments. In cases where it is possible to remove mouldings and headings without fear of injury this should

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be done, as it is then far easier to carry out the polishing. In the very best classes of new work the moulds and beads are cut and fitted, but left unfixed, so that the polishers can almost finish them before they are in position.

**Pianos** are always considered to be the most difficult of all furniture to polish, owing to the fact that the finish on these instruments has always to be of the finest. In piano work it is essential that all removable obstructions should be separated from the main part. The top lid, if in one piece, should be taken off and the hinges removed, or if it is what is termed a halved lid the front piece should be removed and the hinge taken off. The top door has to be taken from the carcase and divested of sconces, panels and mouldings, unless the latter are at the extreme ends and not fixed by screws, when no attempt should be made to remove them. The fall which covers the keys, together with its continuation to the back, must come out and the two pieces separated by undoing the hinge. The desk must also be unscrewed from its support and the bottom door underneath the keys should receive a treatment similar to that bestowed upon the top door. This practically completes the taking to pieces of a piano, unless it is preferred that the keys be removed. This will necessitate taking the action out first—which should not be attempted unless the worker understands the interior mechanism of pianos. Any polish which may get on the edges of the keys can be easily removed by the application of a little methylated spirit.

**Upholstered Furniture** should be polished before the covering is put on, as it is far more convenient to handle, and the risk of damaging the cover is thus done away with. If, however, it is necessary to carry out the polishing while the coverings are on, remove the gimp or banding, and run pieces of paper between the cover and the back legs, so that the rubber can be worked well down to the cover. Pin-cushion work, which is finished off with brass nails,

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can have the polish rubbed off the nails with methylated spirit applied with a piece of rag and a stick of wood as a support. Cane-seat chairs should, where possible, have the caning (or recaning) done just before the polishing is finished off.

#### PREPARING NEW WOOD FOR POLISHING.

**Scraping.**—Woodwork—as it leaves the cabinet-maker's hands—is often unfit for polishing, owing to the presence on its surface of tiny irregularities, such as plane marks and roughnesses, which, although practically unnoticeable when the goods are in "the white" (*i.e.* unpolished), show up clearly when the work is polished. All these irregularities have to be removed, and the surface of the work subjected to scraping. Cabinet-scrapers are pieces of flat steel, about 1-32nd in. thick, on the blades of which are worked up burr edges, these being sufficiently sharp to scrape off a thin paring from the wood. In order that the corners of the scraper may not dig into the wood and form scratches, they should be slightly rounded. To correctly set a cabinet-scraper requires practice, and unless it is properly sharpened it will be useless for the purpose for which it is required.

In use, the scraper is held obliquely away from the operator at an angle of about 45 degs., an even pressure being exerted and the scraper worked in a forward direction,

**Glass-papering.**—After the work has been cleaned up with the scraper it is finished off with glass-paper firstly using No. 1 size, and lastly No. 0. In glass-papering it should be borne in mind that sharp edges are easily spoilt if the work is carried out roughly, and the paper should always be used on a sandpapering block. The paper is cut up in pieces of the required length and wrapped round the cork block in order that a hold can be obtained. In shaped and turned work, the use of the cork has to be dispensed

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with, the paper being supported by the fingers, except when shaped corks are available.

**Stopping Holes.**—In the renovating trade, and also in handling new work, wax will be found practically indispensable for filling up small holes, open joints, or defects in the surface of the work, such as bad knots, etc. Some polishers use ordinary yellow wax or beeswax as a stopping, colouring the wax down with spirit stains to match the surrounding woodwork ; but, except in the case of very small cracks, which can be readily filled in by having a piece of wax vigorously nibbed across them, the use of a stopping which requires staining after it is in the wood is liable to result in a patchy appearance. Ordinary wax is not hard enough, and is consequently liable to dent or scratch quickly.

**Wax Stopping.**—The material known as hard stopping or " Beaumont age " (see page 14), sets hard and solid, and when of the same shade as the woodwork is difficult to distinguish, when polished, from the actual wood. Dealers in polish sell stopping ready-made in a number of colours, such as white, yellow, brown, red, black, green, etc., in imitation of the various hardwoods, the sticks of wax being of a handy size for use; but the purchase of ready-made wax has a drawback in that the range of colours obtainable is limited, whereas if the worker were to make his own—a task which he will not find difficult—he could, by adding various quantities of colouring matter, obtain a variety of shades suitable for any class of job. The groundwork of hard stopping is made up of beeswax, 1 part; powdered resin, 1 part; and orange shellac, 18 parts ; the whole being melted together by gentle heat, and care being taken that the mixture does not boil, otherwise it will be liable to chip away from the wood by reason of its thus being rendered too brittle.

In making up a quantity of colours two vessels should be used—one for the stock solution, and the other for adding

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the various stains, a sufficient quantity of the stock being transferred to the mixing pot, the colour then being added and the material heated up. If the light -coloured **wax** be made first, the darker shades can be worked up in the same vessel until the darkest one is arrived at; but if the black were made up first, it would be impossible to obtain the lighter shades without cleaning out the vessel—a none too pleasant task.

The following stains, which are the powdered dry colours used by painters, etc., should be added to the shellac base for making the various coloured waxes, viz. ;—

**White Wax.**—Add powdered whiting and a little ultramarine blue to check the yellowish tone.

*Pale Yellow.*—Lemon chrome,

*Deep Yellow.*—Yellow ochre.

*Light Brown.*—Yellow ochre and brown umber in equal parts.

*Medium Brown.*—Brown umber.

*Dark Brown.*—Brown umber and lamp- or gas-black.

*Light Red.*—Venetian red and yellow ochre,

*Medium Red.*—Venetian red.

*Dark Red.*—Venetian red and gas- or lamp-black,

*Dark Reddish Brown.*—Venetian red and dark purple brown,

*Greens.* — Brunswick green — lightened with lemon chrome or yellow ochre, darkened with gas- or lamp-black.

*Black.*—Gas-black or lamp-black,

**Using the Wax.**—Provided that the size of the sticks of wax is within reasonable proportions, the shape matters but little. The best way to work them up into convenient shape is to get a couple of pieces of polished iron or brass, about 6 ins. by 9 ins., and, making them warm by immersing in hot water, run a line of the melted wax on one of them, using the other to lay on the stick ; by running the top piece backwards and forwards while both wax and metal are hot,

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sticks will be formed which, if not round, will be quite near enough for our purpose.

The wax is used for filling up fissures in the wood, to which it has to be applied very hot. The best method of running the wax in is to grind the roughing from the end of a worn-out file, and, making this hot enough to melt the wax to running point, hold the end of the stick on the smooth portion of the file, allowing the wax to *run* into the hole to be filled up. Take care to keep the file from coming in contact with the wood, or trouble may ensue. After the wax has set firm, which takes but a few seconds, the roughness can be cleaned off with chisel, scraper, and glass-paper. A ready method of applying the wax where perhaps only a small hole has to be filled up is to melt it with the heat of a match or taper, taking care that the wax does not blacken,

In filling up smooth dents with wax, the surface to be covered should have a few holes cut in it with a chisel or bradawl, in order that the stopping may have something to adhere to. In cases where little bits of veneer have become chipped off, a little wax is often found useful, as, instead of having to wait while a fresh piece is put in and becomes dry, the polishing can be proceeded with immediately the wax has been cleaned off. It should be borne in mind that hard stopping is soluble in methylated spirit, and therefore this liquid should not be applied too freely to the surface of the wax.

#### WOOD-FILLERS AND FILLING IN.

Most woods have a certain openness of grain, which has to be filled in either by the application of a wood-filler or by a plentiful application of polish or varnish, American oak, ash, and elm are typical examples of hungry or open-grained woods, whilst mahogany, walnut, and rosewood have usually but moderately open grain. Birch, satinwood, maple and sycamore may be cited as typical examples

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of the close-grained woods. The use of a wood-filler is to fill up the pores of the timber so as to give a smooth, transparent and elastic surface on which the polish may be applied ; it also reduces the number of coats of polish required and eliminates a great amount of labour in the rubbing down of the successive coats.

Thus, before we can proceed to polish the work the grain of the wood must be filled up. Of course the wood can be polished without if so desired (see page 57), but walnut and mahogany, oak and ash, - should be filled, as their grain is so open. With fine, close-grained woods filling may be dispensed with, but it is advisable to undertake the work for almost every wood,

**Fillers.**—It is possible now to obtain a number of different ready-prepared wood-fillers which require but the addition of a solvent, **such** as turpentine or methylated spirit, in order to render them ready for use, the colouring being added by the manufacturers. But by far the most common wood-filler is a mixture of fine plaster-of-paris and water or methylated spirit—the latter for preference, as water has a tendency to raise the grain of the wood, which necessitates a good deal of glass-papering, which in turn tends to rub the filler out of the wood, resulting in a further application being required. **The** water or methylated spirit and the plaster are better kept apart, dipping the wad of coarse rag—**with** which the filler should be applied—into the liquid first, and then taking **up** a sufficient quantity of the powder on the moistened rag. This is better than forming a mixture, as plaster dries very quickly and cannot be remoistened with any degree of certainty as to its being soft and free from lumps, which is very essential in treating the surface of wood, any little scratches showing up plainly when the polishing is done.

The grain-filler, whether it be plaster-of-paris or any other material, should be rubbed in across the grain of the wood, any superfluous stuff being wiped off before it has set. When the filler has become hard the surface of the

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wood should be lightly glass-papered in order to remove the superfluous filling from the surface. Number 0 glass-paper is best for this purpose, the movement of the paper being in the direction of the grain of the wood. The colour of plaster being white, it is necessary when dealing with the darker-coloured wood to stain the filling, this being done by adding to the powder certain dry colours, according to the shade required,

**The following Colours** are required for the various woods:—

Yellow Ochre for oak, ash, elm, satinwood, birch, maple, whitewood, etc,

Brown umber for walnut, teak, amboyna, etc.

Venetian red and a little rose pink for mahogany.

Venetian red and lamp black for rosewood,

Lamp-black or gas-black for ebony.

The worker will be able to judge from experiment the exact quantity of stain he will require to add to his plaster in order to obtain the desired effect, much depending upon the colour of the wood being polished.

**Other Fillers.**—In addition to ready-made fillers, the following may be noted by those who intend to make their own ; Get some plaster-of-paris, saturate a rag with methylated spirits, dip it into the plaster, and rub vigorously across the grain of the wood. Some use finely-crushed whiting mixed with turpentine. In this case add a little pumice powder, which forms the necessary grit. Paraffin or benzoline should never be used as solvents for either whiting or plaster. Another filler is made by taking a portion of either china clay or cornflour, and adding boiled linseed oil, making a mixture of the consistency of putty. Then add a little patent drier, and thin with turpentine. Another alternative is the use of Russian (not "Town") tallow, to which is added whiting or fine plaster, as preferred. The tallow and powder are well mixed, and the filler worked into the pores of the wood, any superfluity being wiped off.

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A reliable and inexpensive filler may be made by mixing finely-ground-*dry* whiting and plaster-of-paris in equal proportions. Bring these powders in their dry state to the colour of the wood by mixing with them a little brown umber and rose pink; then thoroughly amalgamate and crush out all the lumps. The whiting used for the purpose should be previously dried, as its natural tendency is to absorb moisture. Mix turpentine with this until the filler acquires the consistency of thick paint, and then add a little gold size to act as a binder.

Plaster-of-paris can now be procured specially finely ground. It is made and used principally for the dental profession, being as fine as flour and used for modelling purposes. **If** this type of plaster can be obtained it is far superior for the purpose than the rough commercial variety usually sold.

Many other recipes could be given, but those having a vegetable basis such as cornflour are best avoided. Whatever filler is used it should be tinted with the dry colours already mentioned.

**The Method of Applying** the wood filler is as follows :

Paint it liberally on the timber with an ordinary paint brush or piece of old rag. Let it stand for a few minutes until partly dry, when the surface may be rubbed across the grain with an open woven rag or fine canvas, such as upholsterer's scrim. By rubbing across the grain the filler is worked well into the pores, and the surplus amount is then wiped away.

After filling in the work should be set aside, and if possible it should be allowed to stand overnight to enable it to thoroughly harden up the pores of the wood.

**DIRECT FILLING WITH POLISH.**

**Direct Filling with Polish** can be substituted for the paste grain-fillers, but this process, while being the best,

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proves more costly and takes up more time. To fill with polish direct, the wood should be oiled with raw linseed oil and set aside for an hour or so to bring up the figure of the wood, using the oil sparingly. The wood is then covered with French polish, applied across the grain with a brush or a piece of wadding saturated with polish and covered with a piece of soft rag. The first two or three applications of polish will soak right into the wood, which will now require to be set aside to dry for about a couple of hours. In best work the brush is not used after the first application of polish, the rubber doing the rest. When the first coat has become dry give the wood another coat across the grain, keeping the rubber fairly moist and taking care that the first coat does not pick up. Again set the work aside for a couple of hours, or longer if the polish is tacky.

The next step is to procure some finely-ground pumice-stone powder and a piece of muslin, placing the powder in the muslin and tying up the ends so as to form a bag, in order that the pumice may be pounced on to the polish a little at a time. With the rubber which was used for the first two coats of polish we have now to apply a coat of half polish and half methylated spirit, more spirit being used if the work sticks. The pumice is dusted on the surface of the wood from time to time as it is worked into the grain with the rubber, which should be rubbed lightly with a circular motion, adding polish and spirit to the rubber as it becomes dry. The work should not be continued after the polish shows a tendency to pick up, but should stand aside to dry for a short time. The pumice powder acts as a filler for the grain of the wood and consequently more is required in open woods than in close-grained ones.

When the wood is found to be filled up—a process which may require a goodly number of applications of polish, etc.—the work should be set aside to harden thoroughly, after which it can be well glass-papered until thoroughly smooth, using a few spots of linseed oil on the face of the glass-paper to prevent sticking, or the polish rubbing.

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The surface of the wood should now present an absolutely level, dull surface, showing no dents or blemishes,

In the cheaper-class varnished work, wood-fillers are often dispensed with altogether, brown or white hard spirit varnish being applied to the wood with a brush. The varnish, being thick, quickly fills up the pores of the wood, leaving at the same time a glossy surface. Spirit varnishes contain a far greater amount of gum than does ordinary French polish, and as alcohol is used as a solvent they dry off very rapidly, with the result that great care has to be exercised in their application, otherwise they become ropey—*i.e.*, dry off in ridges on the wood,

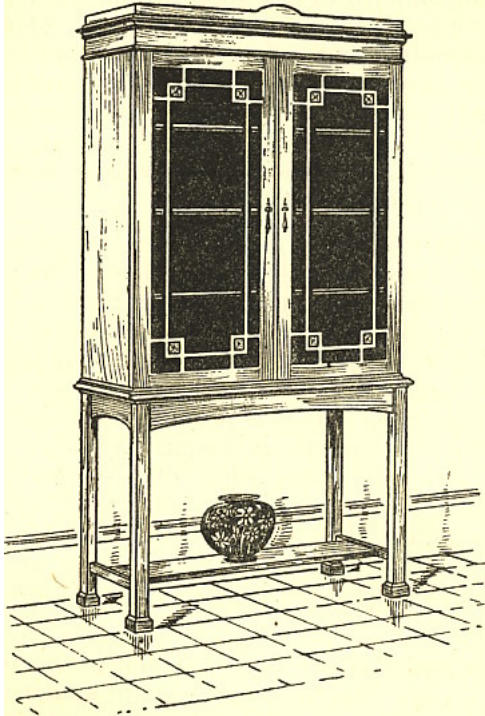
**The Brush** used should be that known as a gilder's mop, which is made from short, soft hair. New brushes should be soaked in water for a couple of hours previous to use, in order that the hairs may swell, which will prevent them falling out; but before the brush is used for putting on the varnish or polish it must be thoroughly dry, otherwise the work will suffer. If it is desired to dry the brush off quickly, dip it in methylated spirit for a few minutes, which will have the desired effect of hastening the drying. Once a brush has been used for spirit varnish or French polish, it should not be immersed in water, but washed with methylated spirit. Brushes should be kept in a tin, the same one answering for both rubbers and brushes if sufficiently large,

**Varnish and Polish** in combination in the proportion of 1 part varnish (brown or white hard spirit) to 3 parts French polish, are also used as a filler, the mixture being laid on with a brush or with a rubber, using no oil in the latter case, but keeping the rubber well moistened in order that the work may not pick up, and taking care not to go over the same ground until the last coat of filler has set a little. *When* the work is filled in, which may require three or four separate applications, it should be set aside to thoroughly harden, after which it is well ground down with glass-

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paper (No 1 first and then No. o), when it will be ready for bodying-in, a process which is described in the next chapter,

The use of varnish for filling in, although hastening the process of polishing, can always be detected by those who



BOOKCASE OR CHINA CABINET SUITABLE FOR A SHERATON  
MAHOGANY TREATMENT,

understand the work, as the ultimate finish is never so good or lasting as when the work has been what may be called correctly worked up—that is to say, with the ordinary paste grain-fillers or French polish applied with the rubber.

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### FRENCH POLISHING

FATTING OR BODYING-IN—BODYING-UP OR WORKING-UP  
— COLOURING — SPIRITING — SUPPORTING  
WORK FOR POLISHING.

THE CONSTITUENTS of French polish vary according to the kind of wood for which the polish is required and also according to the class of work for which it is intended. For light woods, such as holly, sycamore, ash, light oak, satin walnut, etc., white polish should be used. This is made from bleached shellac dissolved in

methylated spirits, and is almost colourless. Ordinary polish is made with ordinary orange shellac as a base, other gums, such as tragacanth, mastic, sandarach, etc., being sometimes added for special purposes (see under SHELLAC, page 39). The ingredients of the ready-made polishes sold by the different manufacturing firms vary according to the maker, some adding certain gums or resins, but shellac is the principal ingredient. Some add one gum to give increased elasticity, while another may be added to harden the film, and so forth. It is therefore safest when ordering ready-made polishes to state the particular kind of polish required.

For a reliable home-made polish the following is recommended, and is suitable for most work : Dissolve 5 or 6 ozs. of shellac in 1 pint of methylated spirits. The shellac will dissolve readily in the spirits without the necessity of heating, an occasional shaking of the bottle or agitating with a stick being all that is required. If it be found necessary to guess the proportions, half fill a bottle with the broken shellac and then fill right up with the spirits.

In French polishing the surface is worked up by subjecting the work to a number of coats, each of which must be thoroughly set before the next one is put on. An article may, however, be started and finished in one day ; but if

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good and lasting results are desired, a week should be allowed for the work,

**Preliminary Oiling.**—Some woods are often improved and enriched by oiling. The work is given a thin coating of linseed oil, which brings out the figure of the wood, and to a certain extent darkens and mellows it. The oiling should take place before the polishing, and after the staining when a stain is employed. The oil must be applied very sparingly as too much would prevent the polish from being worked up properly, and might possibly cause the work to subsequently sweat and crack. Mahogany should be oiled with what is termed red oil. This is made by steeping 2 or 3 ozs. of alkanet root in 1 pint of raw linseed oil for twenty-four hours, the proportions varying slightly according to the depth of tone required, Afterwards, when the oil is quite dry, rub down again with glass-paper. The work is then ready for polishing.

The process of French polishing is divided into three stages, The initial stage is termed "fatting-in," "fadding-in" or "slapping-in"; the second stage is known as "building-up" or "bodying-up"; and the final stage is called "spiriting-out."

#### "BODYING-IN."

By "Bodying-in" or "fatting" (sometimes also called "sizing-in") is meant the building up on the surface of wood of a film of polish, which, when dry, is worked up to its finished brilliancy. It is not necessary that the film should be thick, but the polish should completely fill the open pores of the wood, which, although they will have been treated with a paste-filler, are nevertheless still absorbent.

In the initial applications of polish, the rubber, which may be made of a wad of cotton-wool having a soft calico or rag covering, or may be a piece of old flannel used without a rag covering, should be used fairly wet with the polish, which latter may be poured into an open china containing-vessel,

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and have the wad dipped into it when charging. At first the direction taken with the rubber on the wood should be across the grain, the pressure exerted being light, A common pitfall is the working of the rubber upon an over-wet surface which picks up the film. Care should therefore be exercised, and a part once treated should be allowed a sufficient time to harden before being worked upon again. Within reason, of course, the polish cannot become too hard, and it is better to err on the point of having the work unnecessarily dry rather than to risk picking up the surface.

It is advisable to commence using the rubber in a circular direction as early as possible, gradually working over the entire surface with a combined circular and traversing movement. It will be found inconvenient to do this until the timber has absorbed a certain amount of polish, and this is why we commence our strokes of the rubber backwards and forwards in the first instance,

The polish will be quickly absorbed after the first application of polish, and in a few minutes a second coat can be applied, again working across the grain. The object of this is to fill up the pores better. In this manner give the work three or four coats before setting aside for a few hours. Always allow sufficient time in between the coats for the polish to dry, or it will work up when applying the subsequent coat, and an uneven surface result, which will prove fatal to the making of a good finish, In working it will be found that the wood rapidly absorbs the polish from the rubber, and when the latter has become dry it should be recharged in the manner above described. Do not work at this stage with a dry rubber, but keep it well moistened. The work should now be laid aside for five or six hours, if so much time can be spared; but in any case two hours must be allowed.

On resuming the work it will be noticed that the polish has soaked into the wood a little. Rub it down with very fine glass-paper, and give two more coats across the grain, allowing a few minutes to intervene between each applica-

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tion. Use the same rubber as before, provided that it is still soft and that the rag covering- has not -become clogged. When not in use, these rubbers should be placed in the air-tight canister, which, as previously stated (page 48), should be kept for this purpose. A few drops of spirits over the rubbers will further help in keeping them nice and soft. If the covering has become worn or abraded on the sole of the rubber, it must be discarded and a new one procured. After giving the work these two coats, it should be allowed to stand aside again, this time longer than before. If a day can be spared, so much the better.

When it has properly set, paper it down lightly again, but this time put a few drops of linseed oil on the surface of the paper, in order to prevent it scratching the surface or picking up the polish, which will not be too hard. The appearance of the wood will now have changed, and a better body will be noticed. It is well at this point to examine the work for holes, lumps, or any irregularities of surface, which should now be attended to. Any lumps must be brought down with glass-paper, but care must be taken to see that the polish does not get rubbed up in the process. If a small hole is detected this must be filled up by rubbing a bit of wax across it, and the surplus carefully cleaned off. Should the work still appear patchy, owing to an insufficient body of polish, it should receive another coat, or may be two, in the same manner as the previous ones. The fatting-in process is now completed, and when the work has stood a day and become quite hard it will be ready for the second stage, namely bodying-up, or working-up.

**In handling Oak** and woods of a like open-grained nature, more body will be needed than in dealing, say, with satin walnut, so that the worker must use his own judgment as to the exact amount of bodying-in he allows upon the work in hand. Generally speaking, however, a good film should be worked up without the use of oil, not by continued application of the rubber to the surface, but by going over it at intervals, so that the film may harden off. To

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avoid lumpiness, it is desirable that the wood be gone over from time to time during the process with fine glass-paper, upon the face of which should be sprinkled a few drops of raw linseed oil. A little oil rubbed over the wood with a piece of rag previous to polish being used has the effect of toning down colour **and** enriching figure ; but after oiling, the work should be set aside for a while before the polishing is commenced.

#### **BODYING-UP OR WORKING-UP.**

With the second stage of French polishing, termed working-up or bodying-up, great care must be exercised, as ultimate success depends very largely upon this process. The surface of the work should be glass-papered down until quite flat and dead ; no shine should appear. Dust carefully, and commence by wiping the work over with a rag dipped in linseed oil; but only a very small quantity should be put on, as it is only to prevent the rubber from sticking to the last coat of polish. An old rubber is better than a new one for bodying-up, so that the one used for fatting-in should be used, provided it has been kept soft and clean. Or a new rubber made of wadding—shaped on its sole, and worked up to the shape shown on page 48 (Fig. 16)—may be used instead. The rubber is covered with a piece of fine soft rag, which must be quite free from creases where it covers the sole of the rubber, and the ends of which should be pulled up to the top of the rubber and there wrapped round, so as to be out of the way. Fig. 17 (page 66) illustrates the method of holding the rubber,

Charge the rubber with the same polish as was used previously, and in the same manner, but this time put a few spots of oil on the surface of the rubber with the finger-tips. Give the work a good coat all over, moving the rubber round with a circular motion and not in straight long sweeps. No precise rules can be laid down regarding

### Staining and Polishing

the working of -the rubber, as much depends upon the size and character of the wood. But the path of the rubber should somewhat follow the direction of the lines shown in Fig. 18, which can, however, be varied a little at the discretion of the polisher. In starting do not bang the rubber on to the wood, but work it on gently, and in finishing take it off gradually, or the place will show where the rubbing has terminated abruptly. *Never allow the*

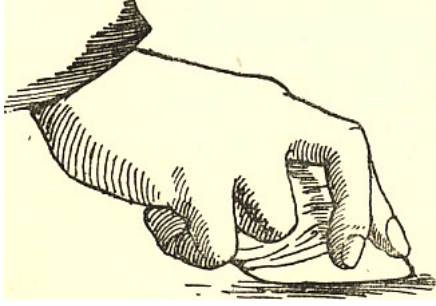


FIG. 17.—HOW TO HOLD THE RUBBER.

*rubber to stand on the work*, but always keep it in motion when **in** contact with a polished surface.

A little polish goes a long way, and the beginner must carefully avoid making the rubber too wet. It should not be more than fairly moist. It is wrong to suppose that the more polish used the quicker will the result be obtained, as too much will inevitably cause the surface to be ridgy and irregular, instead of smooth and even. On the other hand, the rubber must not be worked too *dry*, but should contain just sufficient polish to keep it from dragging, **In** practice the worker will find that the rubber soon begins **to** drag, and when it gets so that it cannot be worked properly across the surface of the wood a few drops of raw linseed oil should be applied to the sole of the rubber to make it go easier. It may sometimes be due to the

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want of polish, or to polish which is too thick, and this will probably be the case if a new rubber is being used, so that a recharge should be made instead of applying oil. Remember that the oil is only used as a lubricant and forms no part of the polish. Too much of it is fatal to the work, and only when absolutely necessary should it be used. The oil comes up in the form of smears, all traces of which have got to be removed in the spiriting-out or

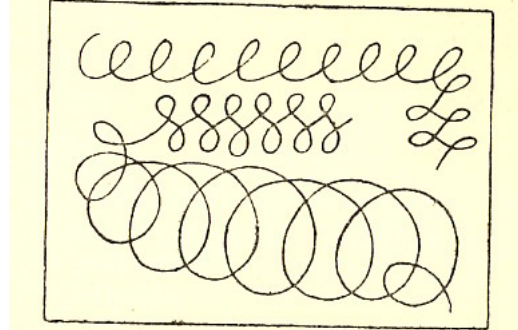


FIG. 18.—SHOWING MOVEMENTS OF RUBBER.

finishing process. If on examining the face of the rubber it appears shiny, too much oil is being used. Hence the more sparingly it is used the better.

Many workers prefer poppy oil to linseed oil for lubricating the polishing rubber, especially those who use the acid finish.

After a coat has been laid on and the polish begun to set, get the rubber to work again, and go over the surface gently until a semi-lustrous surface is worked up, taking care not to work on the surface long enough to get the under polish wet and liable to pick up. When the polish feels to be pulling on the rubber, give the work a rest for a little time, and go over it again when it has begun to set. It is much better when several articles have to be polished at once, as the operator can then pass from one

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to the -other, and allow sufficient time for each to set before giving a further coat; besides, there is no time wasted in waiting.

The number of times the work requires to be bodied will depend on circumstances. The fine, close-grained woods will not require so many applications as the more open-grained ones, but as a general rule three bodies, or at the outside four, will be found sufficient for a good job,

FIG. 19.—INCORRECT MOVEMENT OF RUBBER.

An interval of at least one day should elapse between the successive bodies, the chief object of waiting being to let them sink in as much as they will. This will, however, be regulated according to circumstances, but it should be borne in mind that the longer the time allowed between coats the better will the finished surface be. In any case the polish must be set before another coat is put on, or there will be danger of working it up again.

When resuming the work it should receive a slight rubbing down with spent glass-paper. If no paper can be found which has been previously used, and only the new is at hand, rub two pieces together to remove the sharpness and modify the cutting power, so as to prevent scratching the polish. The bodying process may be considered com-

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plete when the polish no longer seems to sink in, even after a few days' lapse. There will be a slight gloss on the surface, but it will be streaky and full of rubber marks which will show very distinctly. All these marks will be removed later on.

If, however, the polish has a lumpy or stringy appearance it must be levelled down at this stage. To do this effectively, the pounce bag (described on page 44) must be called into requisition. Give the work a few taps with the bag, and proceed to polish as before, but adding spirits instead of polish to the rubber. Apply also a few spots of oil to the work. A new rubber must not be used for this purpose, but one well charged with the polish, to the extent of almost being clogged up with it. The spirits will work it out, and leave the rubber soft and pliable. Do not attempt to use the pumice with thick polish, or the movement of the rubber will gather the pumice into a heap. Repeat the process several times, giving the work an occasional tap with the pumice bag, adding a little spirits to the rubber and a few drops of oil to enable the rubber to work freely. After the bodying-in is completed the work should be set aside for a day or so, and covered carefully over with sheets to keep out the dust. The work is then ready for the final polishing, termed *spiriting-out*, unless colouring up or matching has to be done.

### COLOURING.

**Colouring** up the work is almost always necessary, even in the best selected timber, and to obtain the exact shade everything depends upon the skill of the workman *plus* a good eye for colour,

The method generally in use is to mix one part of polish and two parts of spirits, and strain this liquid through a combination of suitably coloured pigments. In this case a rag containing a little dry powdered Vandyke brown, bismarck brown, and a little vegetable- or lamp-black

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will be found suitable. This will give the polish any desired tint by altering the proportion of dry colours and the number of times the polish is strained through the powders.

Take a fine camel hair or sable mop brush and dip it into the colour ; work out any excess of the liquid on the side of the pot, and literally paint over the light portions, working the brush with the grain of the wood. Do not attempt to go over the same place twice until thoroughly dry ; it is much better to get the desired shade by two or even three applications of the colour than by applying one coat of thick, dark, patchy polish.

When dry, skim the surface of the work with an old piece of No. 0 glass-paper to take off the dust nibs, bearing in mind that the paper must be used very lightly.

The required colour having been obtained, it is necessary to fasten it, and this is accomplished by taking the same brush and giving the whole surface one coat of thin white polish, using the brush similarly as when colouring up. The surface should now be allowed to harden up for some hours, and on taking up the work it will be required to again skim the surface of the work with old glass-paper and proceed to again body up the work.

The number of times the work will be required to be bodied **up** depends upon the texture and porosity of the timber ; three or four times in all is rarely exceeded.

For further hints on colouring see page 90, under MATCHING-UP.

#### SPIRITING.

Spiriting-out is the operation by which the gloss is put on the body previously applied. Bodying is the important process for getting a good film of polish on to the work and so making it durable ; but spiriting is most important with regard to finish, **It** is this operation which has to remove all the smears and rubber marks, and present that beautiful surface which is the distinguishing feature of

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French polish. Failure in spiriting-out will to a considerable extent render previous efforts vain, and it is at this stage that more skill is required than in any other portion of the polisher's art, excepting perhaps the process of darkening and staining, with which every good polisher should be acquainted, the beginning of the process of spiriting-out is really bodying-in, and the end is spiriting. The two processes really merge one into the other, there being no abrupt break as between fattening and bodying.

**A -Spirit Rubber** is made from cotton wadding which has been dipped in spirits, All excess moisture is squeezed out, and it is a good plan to make the rubber a day before it is required and place it overnight in an airtight tin. When using the spirit rubber, not less than two thicknesses of rag should be used to cover it ; needless to add, the rag must be clean, soft and free from lint. A nice old well-washed pocket-handkerchief is as good as anything that can be obtained.

When spiriting-out, the beginner can hardly err by using too little spirits'; the rubber should simply be moist and damp, The path of the rubber should be the same as when bodying-up, and pressure should at first be light and gradually increased as the spirit dries out of the rubber. The direction of the rubber, when Just on the point of finishing, is in the direction of the grain of the wood.

Many polishers prefer to dispense with the spirit rubber. and, after gradually thinning down the last bodying rubber until nearly all marks have vanished, they take a piece of nice soft cloth, fold it in the form of a pad, sprinkle a little spirits on the palm of the left hand, and dab the pad upon this so as to slightly damp the surface. The pad is used backwards and forwards on the work until the final burnishing is completed, Another method of finishing work, especially where the ends of sideboards, etc., are not required to be spirited out, is known as "stiffing-up."

**Stiffing-up.—After** thinning down the last body

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rubber, a new rubber is taken and charged with "top-pings" and this is worked out fairly dry in the direction of the grain. Toppings is obtained by pouring off the semi-transparent fluid which accumulates on the top of white polish, after it has stood a few days in the bottle. The toppings should be carefully poured off the polish and bottled separately. It is a much superior and more lasting finish than can be obtained by glaze. Toppings can be treated with the spirit pad with very good results, but on no account use oil when applying toppings or glaze.

**Glaze**, dealt with in another section (page\_77), is prepared by crushing gum benzoin and dissolving it in spirits; it is used for finishing small articles which cannot be spirited out, such as brackets and chair rails, etc. Glaze should be carefully strained through fine rag and kept bottled ready for use. The method of applying glaze is by using it on a rubber or sponge; it is applied fairly wet on to the polished surface, the latter of course being free from oil before its application. Glazing is nothing more or less than spreading a thin varnish on a body of polish; whereas spiriting-out is burnishing up the body proper.

#### REFINED OR ACID FINISH.

**The Refined or Acid Method** of finishing polished work is principally used abroad, although many British polishers now use the same method. Instead of spiriting-out the work with a spirit rubber, it is treated as follows: Pounce Vienna chalk (not French chalk as suggested by some writers; chemically speaking, they are different substances) liberally over the polished surface, and have at hand a suitable earthenware or glass vessel containing a mixture of sulphuric acid diluted with from eight to ten parts of water. Dip the palm of the perfectly clean hand in the acid solution and proceed to rub the chalk with a circular or straight motion, applying sufficient of the acid solution so as to make the chalk become a creamy paste;

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continue with the rubbing until the chalk dries off in fine powder. In making up this solution, the acid should be added to the water drop by drop. The acid has the effect of hardening the film of shellac, whilst the chalk brings away any oil that may be on the surface of the work. Instead of using the bare hand some workers prefer a small piece of soft chamois leather.

**Pianos.**—Another method, used to finish pianos, is by means of clarified ox-gall, used on a piece of soft rag after the spiriting-out or acid finish has been completed. A bladder containing ox-gall is purchased from the butcher, and the ox-gall is filtered as follows: Take a large clean jar and fold clean white blotting-paper so as to make a funnel; place into the funnel about one pennyworth of crushed bone charcoal and allow the ox-gall to be filtered through it. Apply the filtered ox-gall immediately after the acid finish or spiriting-out process has been completed.

#### SUPPORTING WORK FOR POLISHING.

Polishing is a trade which can be taken up by one-handed, one-armed or otherwise disabled men. Such workers require to adopt methods of holding and supporting work whilst polishing, and in any case it is often an advantage for the able-bodied polisher to adopt some such methods of support. For instance, at Fig. 20 the method of polishing turned work, such as sideboard pillars, etc., is shown. Two small blocks with V-shaped notches in them are kept for this particular purpose, and the turned pins

- on the pillar rest in these notches, thus allowing the pillar to be revolved with one hand whilst the polish rubber is applied with the other. If the turned work has no wooden pins or dowels the difficulty is overcome by driving a 3-in. round wire nail into each end of the work to act as temporary supports. The small supporting brackets are made in pairs of suitable heights to suit all classes of general work, say, one pair 3 ins. high, one pair 5 ins. high, and one pair

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taking some other part of the work as a pattern to go by.

A special rubber must be used for applying dyed polishes and another rubber should be used to finish with clear polish. When finishing off, any trace of greasiness may be removed by well rubbing with a swab of clear rag, damped with spirits, on the face of which is spotted a few drops of glaze.

#### RE-POLISHING OLD FURNITURE.

The re-polishing of old furniture is akin to matching-up and improving, yet sufficiently distinct to merit treatment in a separate section. For some time there has been a growing tendency to re-cover and restore to their former position articles of furniture, etc., which, for many years had only been found in lumber rooms and other out-of-the-way places. Many of the choicest specimens, which to-day realise high prices, have been picked up at country auction sales.

It should always be borne in mind that any article which was originally made correct to design cannot be improved upon, and that it is a mistake when restoring to add inlay where inlay was not intended, to carve the panels etc which were previously plain, or to add ornamental brass work where it had been of a simple character, unless the restorer is thoroughly acquainted with the various styles. Above all, the colour of the wood should not, as a rule be made darker.

**The Aim of the Restorer** should be to restore, as far as possible, everything as it was when first made, the only exception being that the colour should remain exactly as time had made it. One frequently sees very fine specimens of old oak panelling and carving completely spoilt by giving a coat of very dark stain, and then varnishing, when the proper course would have been to thoroughly clean, repair where faulty, match any new wood to the old, and oil or wax-polish. Any quantity of Chippendale work has had

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inlay applied to the panels and legs, and turned ornaments added wherever possible, whereas inlay is never used in true Chippendale work. Then, who has not seen advertised—" Splendid carved oak grandfather clock " ? The case, without doubt, is old ; but the carving has been done very recently, for if you rub your hand over the carving the edges will almost cut your fingers, and the colour will be almost black. If the clock had been left alone, it would have been quite a plain oak case, with plain bold mouldings, and, except where dirt may have accumulated, the colour would be a dark brown.

#### REMOVING OLD POLISH.

In the best class of re-polishing it is necessary to remove the greater part of the old polish previous to applying the fresh, as new polish rarely takes nicely to the old. Where a perfect surface has to be dealt with, it is not advisable to scrape the work, as that would necessitate the use of a grain filler in order to fill up the pores of the wood ; while, if the polish is cleaned off by some other method, the old filling would not be removed, and the surface of the work would thus be left in a condition suitable for the immediate commencement of the application of the new polish. There are on the market a number of different preparations for removing old polish, and, although they may be a trifle expensive, their use saves a lot of time, and they can be recommended for efficiency,

Among the old-time methods of polish-removing, which it may be sometimes necessary to adopt, is that of saturating the surface of the work with methylated spirit in order to soften the lac. The work is well scoured with fine glass-paper, and the methylated spirit continually applied in order that the polish may not become lumpy under the glass-paper and so damage the surface of the wood. When all the polish has been softened, the work should be gone over with a piece of coarse rag saturated with spirit, in

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order to remove any remaining polish. A final rub over with No. 0 glass-paper leaves the work ready for polishing. If it is desired to remove but a part of the old polish, leaving the remainder in order to save time in bodying-in, the surface of the work should be gone over first with No. 1 and secondly with No. 0 glass-paper, using raw linseed oil as a lubricant on the face of the paper. When the work has been cut down sufficiently it can be gone over with a little methylated spirit on a piece of rag, in order to remove the superfluous oil, and the work will then be ready to receive its first coat of new polish.

#### REMOVING OLD VARNISH.

If it be desired to polish some old work, which has previously been varnished, the varnish must be removed. For this purpose there are many patent varnish removers, but as these are usually sold by the gallon (which will probably be more than the average reader will require) small quantities may be obtained from any painter, who always stocks these things for his own use. An old brush or a piece of rag should be used to put on the remover, which should be applied liberally, but kept on the surface of the article only, as it will damage anything it comes in contact with. Care should be taken to see that none of it gets on the clothes, or holes will quickly be burnt in by the destructive liquid. It will also burn the hands if allowed to stay on any time, and it will cause much pain, especially if it gets under the finger-nails. Two or three applications may be necessary, according to the quality and thickness of the varnished surface.

Ample time should be allowed for the liquid to soften up the gums, but no specified time can be given, as this depends upon the strength of the remover. This can be determined by a practical test. When sufficiently soft the varnish can be scraped off with a knife, a decorator's scraper being the best for flat surfaces. Commence at the

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bottom of the article and work upwards, getting well into corners. If the varnish remover has been at all effective, the varnish should peel off readily as the knife touches it. Any mouldings or carved work are best cleaned out with shave-hooks, which can be had in various shapes. In Fig. 27 are illustrated two shapes, which will be found most convenient for this particular class of work. The head or blade may be ground to any desired shape, so as to fit any special hollow or projection. These tools are not pushed along

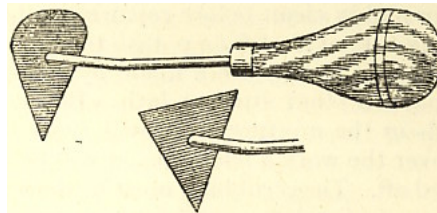


FIG. 27.—SHAVE-HOOKS,

like the scraper, but are dragged along. After all the varnish has been removed, and the work well cleaned off, it is the safest plan to wipe down with vinegar to kill any acid which may be left in the wood. Some firms, however, guarantee that no acid is used in their remover, and in these cases there is no need to use vinegar afterwards. Still, it is the safer plan to adopt.

**A reliable Remover** can be made by anyone by dissolving 1 part each of American potash or black ash, rock ammonia and soft soap, and a parts of common soda, in boiling water. The same instructions and advice as given above for patent removers apply also to this mixture. This must be followed by swilling down with dean water and then with vinegar. If care is not taken with this, however, the potash will darken the wood. When the work is dry, oil, fill-in if necessary, and then polish. Sometimes an application of strong,

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hot soda solution will prove effective, and more so if some oxalic acid is added to it.

**Spirit Varnish** can usually be removed by simply washing with methylated spirit, which re-dissolves the lac. It is rather a long job by this method, but there is no fear of the wood being darkened by it, or of any subsequent action taking place.

#### RE-POLISHING.

**Old Oak.**—To restore very dirty old oak furniture it is best to thoroughly clean before repairing, which may be done by adding 1 lb, of American potash to 3 pints of boiling water, and apply it with a swab made by tying a piece of coarse rag round a stout stick or lath. Be careful not to put the hands in the mixture, or it will burn the skin off. After going over the work a few times, it will be soft enough to be scrubbed off. The scrubbing must be done with a fibre brush, as the potash mixture will make a hair brush soft. When all the dirt has been removed, the work must be allowed to get thoroughly dry, when it will be ready for repairing- and cleaning up. Fine No. 2 glass-paper will be found the best for cleaning up old oak. Any new parts must be stained to match the old as far as possible,

The work can now be oiled and given a coat of yellow polish. When this is dry, paper with fine glass-paper, and shade where required by mixing a little vandyke brown with yellow polish and gas-black, if necessary, laid on with a camel-hair brush. The Work may then be wax-polished, or given a few rubbers of yellow polish, tinted with a little vandyke brown. The brasswork, which should be removed before the woodwork is cleaned, should be placed in the hot potash for half-an-hour, and cleaned with a hard brush and ground emery or pumice stone, and then given a coat of light lacquer and placed in a warm oven for a few minutes. If the fittings are iron, they should be simply cleaned with the potash, and given a coat of Berlin black

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**Very Old Oak** which has been preserved from dust and dirt on the surface will be found to be of a rich brown colour, and as this is a natural colour great care should be taken that it is not spoilt in any way. In this case the article should be repaired first, and if it is possible to obtain old pieces of oak they would answer much better for repairing than new wood. When the repairing is finished, the surface should be oiled with linseed oil, and if by chance there should be any soiled parts the linseed oil will expose them. Should any be discovered, the parts should be scoured lightly with linseed oil and powdered pumice stone. The parts which have been repaired can be tinted to match the other wood by mixing raw umber, vandyke brown, or any other dry colour which will make a match, with yellow polish, and applied with a camel-hair brush. The whole of the work must now be rubbed over with a little turpentine (this is done to dry off the linseed oil), and then wax-polished. The polish used must not be very thick, and must be well rubbed in with clean dry cloths. This is a simple yet very efficient method to restore old woodwork, and articles treated in this manner will always attract the attention of good judges.

**Cleaning Old Woodwork.**—Furniture which had been in use for some time naturally becomes dirty, more especially in parts which dusters cannot reach properly, such as incomers of mouldings, carvings, etc. When, too, furniture cream has been used on the articles it works into quirks and corners, and, remaining partially soluble for a time, attracts dust and dirt, which, together with the furniture cream, has to be got rid of before re-polishing can be commenced by washing the work with warm water to which soda has been added in the proportion say, of a fair-sized handful of soda to half a gallon of water. With a moderately stiff brush, but one not stiff enough to damage the woodwork, scrub the old polish until clean, afterwards swilling the whole with cold water, but taking care not to use enough water to make any of the parts warp. Even

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if the bulk of the work has to be scraped previous to polishing, it is just as well to remove all the dirt by scouring, but it should be borne in mind that soda, if brought into direct contact with certain kinds of wood, has a tendency to darken their colour. After the old work has been washed any repairs necessary should be done previous to scraping.

**Washing Furniture.**—Very few people know that furniture ought to be washed. One should take a bucket of tepid rain water and make a suds with a good pure soap, Then, with a soft piece of cheese-cloth, all the woodwork should be washed. It is astonishing how much dirt will come off. A second piece of cheese-cloth should be wrung dry out of hot water, and on this should be poured a teaspoonful of furniture polish or reviver. The heat will spread the polish through the cloth. Next, the furniture should be gone over with the second cloth. There will be no need of putting on more polish, for that much will do all one needs. Too many persons make the mistake of using too much polish and leaving it thick on the furniture, where it looks dauby and where it gathers more dirt. There is furniture in homes to-day that is cast off because of its appearance, when it might be brought back to its original freshness by this simple process of washing. Many persons do not know that a fine bit of mahogany is improved by careful washing, and hundreds of pianos have never been more than dusted in years. A square of cheese-cloth for the washing and another for the polishing will do the work.

**Repairs.**—In a handbook on Staining and Polishing the question of furniture repairing cannot be dealt with, although it is essentially an all-important part in restoration. Repairs, too, which are likely to be necessary can hardly be conjectured, as furniture repairers are required to set right every conceivable kind of damage. The most common faults are broken parts which either have to be supplied afresh or repaired, and the way the work has to be done about depends upon the nature of the damage.

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#### VENEERED WORK.

**In Veneered Work**, for instance, one often finds that little pieces are broken off, or that blisters appear where the original, glue failed to stick properly or has become soft by exposure to damp, etc. Where pieces of veneer are broken away fresh will have to be inserted, the jagged edges of the old being squared up in order to facilitate cutting a fresh piece to fit exactly the part to be covered. After the space has been cleared out to a reasonable shape carefully cut out the old glue which is adhering to the wood with the assistance of a keen-edged chisel, but taking care not to cut the actual wood more than is absolutely necessary.

To fill up the hole a piece of veneer should be selected rather *thicker* than the original, which it should match in colour and figure as nearly as possible in order to save labour in matching-up stains.

**Blisters** of almost every conceivable size and shape are found in veneered work, and for setting these down there are a variety of different methods, each worker having his own way of dealing with them. A method which invariably works out satisfactorily is to cut away by means of a sharp-pointed knife the piece of veneer which has become unstuck, keeping the line of cutting as irregular as possible and avoiding sharp corners. After this the piece of veneer so loosened is removed bodily, the old glue carefully scraped off both veneer and groundwork, and the two re-glued and brought under pressure until dry. If the piece of blistered wood is very much swelled, it may be necessary to take a very fine shaving off in order to allow it to lie down flat again ; but in doing this great care should be taken that too much is not pared away, as the swelling is certain to be very small and consequently very little of the veneer has to be removed. Small blisters may be pricked with a damping needle in two or three places, after which warm glue may be rubbed in with the finger tip and pressure applied.

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Another good method is to cut a nick in the blister with a thin penknife blade and insert a little glue under the blister.

**Dents** are nasty things to deal with, and if they are deep it is oftentimes better to let in a piece of veneer or thin wood than to attempt to raise them, while if they are shallow scraping the work will often take them out. However; if it is necessary that they be raised, the best plan to follow is to dissolve the polish on, them with methylated spirit or one of the polish solvents which are obtainable from wholesale dealers in materials, and by repeated applications of hot water swell the wood to its original height.

Restoring the surface of the wood in this way generally necessitates scraping the whole surface of the piece so treated.

**Scratches** are usually best got out by scraping, although, if they are deep and the article is veneered with thin veneer, care should be taken that this is not scraped down too far. It will not be necessary in the case of narrow scratches to entirely remove them so long as the polish is scraped off the surface, as the process of filling in and polishing will help to disguise them,

**Burns**, if shallow, may be scraped away ; but if deep, will require cutting out, a piece of similar wood being let in to level the surface up.

**Pieces chipped** off or out of woodwork, provided they are of any size, should be squared up and another piece of wood let in, while tiny holes may be filled up with wax.

**Damaged Carved Portions** can often have pieces of fresh wood let into them to take the place of the broken portions, which latter should of course be cleaned up square in order to admit of another piece of wood being fitted thereto, and the new piece being carved out to match the existing ornamentation,

## DEFECTS IN POLISHING AND THEIR REMEDIES

SWEATING — CRACKS—BRUISES—BLISTERS—DULNESS—  
FINGER-MARKS—FADING—SCRATCHES—WHITENESS—  
PATCHINESS —STAINS —WATER-MARKS—SALT-  
MARKS

**A**S the beginner in French polishing may in his practice come across certain undesirable conditions which will need to be either cured entirely or at least improved in character, it will be necessary to deal with them here, though necessarily in a somewhat brief manner. There are many defects arising out of French polishing, some of which are due to bad workmanship, whilst others are caused by various other things. Sometimes the cause of failure may lie in the polish, while in other cases it may be caused by bad wood, poor tools, etc. A number of the evils which we here intend to deal with will be encountered on old polished work, which it is intended to re-polish; the rest may be experienced in the actual polishing process, either on new or old work,

### SWEATING.

**Sweating** is perhaps the most common of all the defects to be found in French polished work, and is caused by the too liberal use of oil in the process of working. The oil ultimately breaks through the lac surface, and is noticeable by innumerable little fine lines. These lines become visible through the dust settling on the exuding oil. The sweating cannot be stopped entirely at once, as the oil will continue to force its way through on to the surface, and will probably take some months to cease. The disfigurement

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### OUTDOOR POLISHED AND VARNISHED WORK.

During the last few years wheelwrights, coach and railway carriage builders **and** tramcar makers have with advantage bodied up much **of** their work, such as panels, etc., with French polish. After this treatment they are coated with the best pale carriage varnish, owing to the fact that ordinary polish will not stand the weather. Many shop fronts are now treated in this manner. The timber is filled m, bodied **up**, coloured, and fastened, after which a good outside varnish is used to finish up the work. This prevents the unsightly bare patches so often seen on outside work when only polish has been used,

### FLATTING VARNISH.

This is a varnish that really belongs to the class of spirit varnishes, and is one that dries quickly, but without gloss. It produces what is termed a flat or matt finish, which gives a very nch appearance to some woods, particularly the darker varieties. Flatting varnish may be made by adding white **wax** to ordinary copal varnish, and thinning out with turpentine. Both the varnish and the wax should be heated for this purpose, and also the turpentine should be warmed a little before adding to the varnish. Heating the several ingredients assists in the amalgamation,

This varnish is applied in the same manner as ordinary spirit varnish, as it dries quickly. It is, however, usually done upon a full-gloss oil varnish, and thus requires expert handling in order to avoid bright flashes or patches, caused by not properly covering up the glossy surface underneath. Should the edges of the varnish be allowed to set before joining up, such parts will look partially bright when dry. The varnish is a thin one, and is consequently easily applied. With practice it may be laid upon the work with much speed, which it requires.

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## FAULTS IN VARNISHING AND THEIR REMEDIES

### COMMON FAULTS—GENERAL HINTS ON VARNISHING,

**BLOOM**.—Perhaps the most prevalent of defects in varnishing is what has already been termed " bloom " (page 166.) The varnish takes on a whitish film or sort of mist, which may come and go, or may remain permanent. The defect is more common among the better class of varnishes than among

the cheaper ones. The smooth, glossy surface offered to the air by good varnish induces the condensation upon it of the moisture in the atmosphere. If this takes place before the varnish is thoroughly hard, bloom is certain to result. It is, however, sometimes caused by water in the varnish—that is, moisture in the gum from which it is made, and which has not been properly eliminated. Vapour arising from a damp floor is also liable to cause blooming. Varnish which has been left uncorked for some time, or which has been stored in some damp place, will also bloom.

**To avoid Blooming** the work must be freely ventilated (but without draughts), so as to hasten the drying as far as possible. An even temperature should also, if at all possible, be kept in the room where the varnishing is taking place. Blooming due to moisture or -frost may be removed by warmth, washing and brisk rubbing with warm water, or rubbing with a wad and olive oil. It is sometimes cured by rubbing with oil and vinegar, afterwards wiping quite dry. But when it is due to the varnish itself, it can seldom be entirely eradicated without re-varnishing, \_ In some cases it may be necessary to clean the varnish right off before revarnishing, and this might be done with ammonia.

**Dead or Sleepy Patches**.—These terms imply that the varnish is lacking its full lustre in certain places, The.

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causes may be unseasoned timber, soft undercoats, or through the ground being very porous, and abnormal suction taking place. An unequal distribution of the varnish will cause the same defects, for where it is barely applied there will naturally be less gloss than where it is freely applied. Another good coat of varnish is necessary as a remedy,

**Blistering.**—The varnish rising in places like blisters is caused by heat playing on the surface and softening the undercoats; or when moisture is imprisoned underneath the varnish, the heat on the surface causes the water to form into vapour, and this, expanding, lifts the varnish. To remedy, clean off and re-varnish.

**Cracking.**—This is produced by using a hard varnish over an elastic one, or by coating over paint which is only partly dry. The soft undercoats expand and contract with the varying temperatures, and so pull apart in places the upper hard varnish, which does not respond to the same influences. Diluting the varnish with too much turpentine will also cause cracking. If not too badly cracked, it may be remedied by rubbing down and giving another coat of varnish. Cracking often occurs on varnished bakers' vans, owing to hot bread being placed inside the van.

**Pinholing and Cissing.**—These are caused by a recession of the varnish from a given point, usually a grease spot or a minute hole. This must be provided against by thorough rubbing down and wash-leathering before varnishing.

**Poet Marks or Pitting.**—These are marks or indentations which do not extend to the ground (as in cissing), but are in the varnish itself. They are caused by the presence of steam or smoke or hot moist air in the room when the varnish is applied. They may also be caused by turps in the varnish brush. These marks can only be removed by rubbing down and re-varnishing.

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### *Faults in Varnishing and their Remedies*

**Flaking and Peeling.**—This consists in portions of the varnish separating from the ground. These faults are not very frequent, but when they do occur it is very probable that they are caused by a lack of cohesion between the different coats of varnish, or between the varnish and ground, or by the undercoats being greasy, or by drying too hard. Or they may be caused by moisture in the wood by poor vehicles, or by bad pigments.

**Grittiness.**—This is sometimes caused in the varnish by its being stored in a cold, damp atmosphere, by frost upon the cans during transit, or by chill to the varnish. Sometimes the fault lies in using a varnish of a too new manufacture. Dirty brushes and dirty methods of working are all too prevalent causes of grittiness.

**Specks.**—These are formed in varnish by similar conditions. No cure is possible other than grinding down and re-varnishing.

**Perishing, or Gradual Loss of Lustre.**—These troubles are invariably caused by too frequent washing with hot water, or from the influence of damp, ammonia, coal gas, salt sea air, or limestone.

**Wrinkles or Crinking.**—This defect occurs from too heavy a coat of varnish, or when it has not been sufficiently brushed out.

**Creeping.**—This is a similar defect, the result of similar causes. It is also caused by the presence of oily patches on the groundwork, or by varnishing in too low a temperature. As the result is an uneven surface, the varnish should be cleaned off, after being rubbed down smooth with pumice stone and water.

**Streakiness** in the varnish may be caused by the imperfect mixing of driers, oil, or turpentine with the varnish. When it appears on unpainted wood, it may be due to uneven planing or filling-up. Very often an extra coat of varnish will put the thing right.

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**Varnish not Drying.**—Much of the cheap, poor quality varnishes it will very rarely occur, unless there has been some fault in the preparation of the surface or in the manner of applying. Varnish will not dry on a greasy surface. When it is desired to varnish some old work which is probably greasy, an application of weak lime laid over the greasy parts, allowed to dry and then brushed off, will kill the grease. A solution of common washing soda or benzolene will also suffice. Neglect of these precautions (the use of a brush that is not perfectly clean, or of a brush that has been suspended in oil and the oil not eradicated, the use of varnish that has been left uncorked or otherwise exposed to atmospheric influences for a long period) will prevent oil varnish from drying properly,

Varnish that remains quite wet on the article in hand should be cleaned off with turpentine and cotton rag. On no account should flannel or other woollen cloths be used for this purpose. If the varnish is merely tacky—that is, sticky to the touch, but not properly wet—then a coat of terebine (liquid drier) should be given to the work, and afterwards another coat of varnish.

**Ropey Surface.**—Much apparently unexplainable trouble arises from the fact that varnish is thoughtlessly exposed to different temperatures before use. Varnish is certain to turn out "ropey" and "curdling" when it has been standing for some time in a cold, damp place, and has been brought straight into a warm room and used. On the other hand, it will look poor and thin if brought out of a hot, stuffy place and used straight away on a cold job, such as outside on a cold or damp day.

**Finger-marks** may sometimes be removed from varnished work by saturating a piece of chamois leather with sweet oil and applying it gently to them.

**Dull Varnished Surfaces** can often be brightened by

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washing with clean cold water or a mixture of equal parts of vinegar, turpentine, and raw linseed oil, and finally polishing with a piece of chamois leather or soft flannel. Another mixture consists of 1 gill of spirits, 1 pint of raw linseed oil, 1 gill of vinegar, and 1 oz. of butter of antimony. This must be applied very quickly. A vigorous rubbing with a wash-leather is, however, a more desirable means of heightening the lustre of varnish than the use of the above mixtures, as there is then no fear of any ill after-effects, such as the cracking of the varnish, which may occur as a result of a too liberal use of these mixtures or by employing inferior materials.

### TESTING VARNISHES.

Varnishes may be tested by spreading them upon a piece of plate glass, and by using them upon a flat, white painted ground, or a white piece of wood well sized to prevent absorption. The former method is the test for hardness, drying and tenacity ; the latter for colour, fineness, body and flow. One of the good qualities of varnish is that it should dry throughout, and not merely skin over hard on the surface. This may be tested by using the varnish as if it were gold-size, putting it on rather freely, and as soon as tacky gilding it. If it is a varnish that dries superficially first, it will cause the gold to wrinkle in a few hours, and the greater this wrinkling the more faulty the varnish is in this respect. This is, however, by no means the most important point to consider in a good varnish, as some of the best have this fault, especially finishing varnishes. A method of testing the elasticity of a varnish is to apply two coats of it on a piece of tin, and when dry to bend the tin ; or coat a sheet of parchment paper or linen, and after it has properly dried try its flexibility or tendency to chip off by crumpling the material between the hands,

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#### GENERAL HINTS ON VARNISHING.

In applying varnish to the work the following points must be attended to, Flow on a good body of varnish, and do not rub it out barely ; rather put on as much as you can without allowing it to run,

**Uniformity.**—Be careful to lay it equally over the whole surface, not thinner in one part than another. Do not allow it to accumulate in corners, crevices, quirks, or mouldings, and all such places where it will gather and wrinkle, even if it does not flow out over the adjoining piece of plain surface and produce unsightly runs. Do not work it about unnecessarily ; it must not be crossed and re-crossed, but judgment must be used to place it exactly where required straight away, without any unnecessary after-spreading.

**Undercoats.**—When giving undercoats of varnish which are to be rubbed down, it is best to use less than for a finishing coat, as if the coat be a thick heavy one it will take too long to harden sufficiently to rub down with safety and certainty. The edges of the wet varnish must not be allowed to set before attempting to join on with another patch, but must be kept well alive. A perfect job of varnishing cannot be produced with less than three coats, of which the first must be well felt down with pumice stone.

**Mixtures.**—Do not mix varnishes of different makes, unless it is known by experience what the result will be. There is no danger, however, in mixing two varnishes of a similar class ; for instance, flattening varnish may be mixed with copal varnish (full gloss) to obtain medium or egg-shell gloss. Japan black may be mixed with copal varnish to obtain a thin transparent stained varnish. Many other mixtures are both desirable and useful. But ordinary spirit varnishes should never be mixed with oil varnishes or lacquers. Free turpentine or raw linseed oil should not be added to varnish.

**Light** is necessary to the proper hardening of varnish,

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as well as air. After newly-varnished work is dry it may be hardened somewhat by well sousing it with clean cold water; the water contains a high percentage of oxygen, which is given out to the varnish.

**Double-Coating.**—In ordinary practice it is sometimes useful to double-coat work instead of felting down and re-varnishing. A very fine gloss can be got in this way. Give the work a medium coat of varnish, and when this is tacky (not dry) repeat a coat of the same varnish, working very lightly and rapidly, taking care not to work up the undercoating. Great care and skill are required to do this perfectly, as the less hard the undercoat is the finer will the gloss and finish be. No preparation of any kind must be used between the two coats.

**In Selecting Varnishes** for various kinds of work, care and experience are necessary. In work intended to be felted down, a good quality hard oil varnish is desirable; quick hard varnishes rub up chalky, and scratch readily. The paleness of a varnish is not always a criterion of its value, and the palest varnishes are not the best for general work. For light work, of course, they are necessary on account of their paleness.

**Straining.**—Varnish ought not to require straining, but if by reason of accidental agitation or other cause it does require it, the straining is best accomplished by lightly plugging a wide-nosed funnel with about an inch and a half of cotton wadding, and tying a bit of coarse muslin over the nozzle to keep it in ; the varnish is then allowed to trickle through of its own weight. A fine cambric or linen handkerchief makes a fairly good strainer, if the varnish is allowed to find its way through without any stirring or forcing.