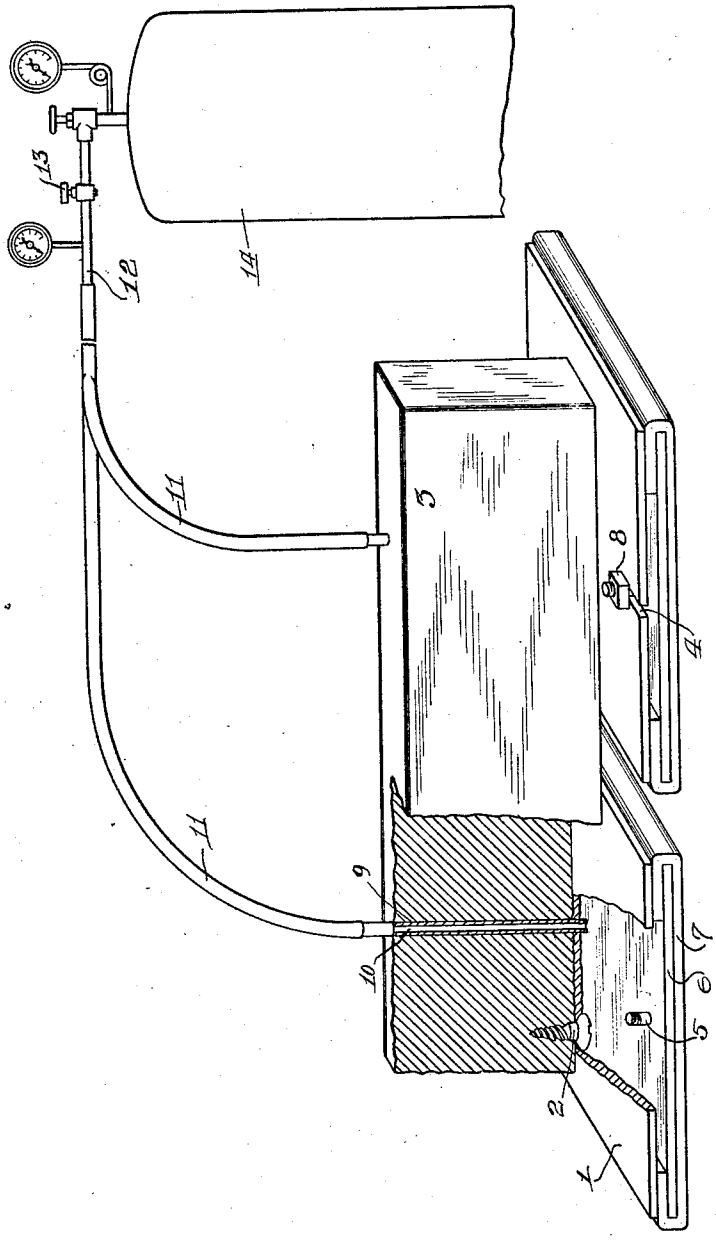
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MEANS FOR RUBBING COATED SURFACES

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MEANS FOR RUBBING COATED SURFACES

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This invention relates to means for rubbing surfaces coated with a varnish or lacquer and its object is to provide means by which this method can be carried into effect.

The finishing of varnished or lacquered articles is a fine art, full of difficulties, which can only be avoided by patient work and keen observation of certain details. To bring out for instance the natural beauty of wood by giving the finish what is called "depth," it is necessary that the natural gloss of the various undercoats of varnish be dulled and this result cannot be obtained in any other way than by properly preparing the surface. The "surfacer", performing this operation, must do good work and if he fails, all the subsequent work of varnishing, lacquering, striping, lettering, etc., would be lost. So this work requires great care. Varnish, for instance, should stand approximately six days, depending on the atmosphere, before it can be rubbed with safety. The experienced rubber always tests a surface to find out whether it is still too soft or "too green" to rub. The conditions are similar with the quick drying lacquers so much now in vogue. The trend in the industry is to accelerate production at an ever increasing rate and it is therefore desirable to find means and ways which will allow to rub varnished or lacquered surfaces sooner than was heretofore possible, at the same time bringing out a better surface by avoiding the evil results encountered in the prior art if the rubbing was started too early. In the following I shall describe how this result is obtained and shall illustrate in the accompany drawing the means by which I carry my new method into effect. In the said drawing, which is in part a perspective view and in part a vertical sectional view of the means applied, 1 denotes metal plates of exactly the same dimensions secured by means of wood screws 2 to a wooden handle or board 3 standing on edge. The metal plates 1 are provided with slots 4 in the front and rear in about their middle so as to receive a threaded bolt 5 (shown only in the front) to which a metal plate 6, of the same dimensions as 1, is rigidly secured. A strip of felt 7 of the same width as the metal plates 1 and 6 is stretched across the lower side of plate 6 and its over-lapping ends are pushed between the plates 1 and 6 whereupon the same are tightened upon each other by turning the nut 8 engaging the thread of the bolt 5. On each side the board 3 is provided with a channel 9 extending perpendicularly through the same and a tube 10 of any suitable material, made preferably of metal, is introduced through said channel downwardly until it terminates immediately above the metal plate 6. The upper end of the metal tubes 10 is continued by elastic metal tubes 11 which ultimately join in the pipe 12 which is connected with a pressure regulator 13 of a source of compressed carbonic acid gas, for instance the steel bottle 14 containing such gas. I wish to emphasize that the orifice of the tubes 10 is a relatively fine one so as to have the stream of carbonic acid gas large enough and can in itself act as a regulator for the flow of carbonic acid gas.

The construction as shown above is only an example of how my invention can be carried into effect and it is obvious that I can apply a plurality of tubes 10 terminating above each of the plates 1, that the construction of the device holding the felt pads 7 in its grip can be shaped or arranged and that, in case such a holding device should not comprise a metal plate 6, I may mount the orifice of the tubes 10 immediately above the felt pads 7 and that therefore for the purposes of the invention the combination of the metal plates 6 and of the felt pads 7 stands as a unit for the felt pad per se. It is obvious that my invention can be installed in any rubbing pad known to the art.

Assuming that a surface has to be treated with oil, for instance linseed oil, and pumice stone, I use the rubbing device, illustrated in the drawing; as far as its manual or mechanical operation is concerned, it is similar to that of the devices known for this purpose, but in addition thereto I turn on the valves of the steel bottle 14 and of the pressure regulator 13 and pass a vigorous current of carbonic acid gas through the tubes 10 over the metal plates 6 holding the felt pads 7. Inasmuch as the liquid carbonic acid gas

stands in the cylinder 14 under a considerable pressure its expansion from tube 10 reduces considerably the temperature of its surrounding and particularly that of the metal plate 6 and of the underlying felt pad 7 and therewith that of the oil contained in the same. The lower temperature brought about by the expansion of the carbonic acid gas is thus also spread to the varnished or lacquered surface which is thereby hardened and can be rubbed much sooner than was heretofore possible. The hardening of the varnished or lacquered surface also protects the same from "greying" which is due to oil and the fine particles of pumice getting into the surface of the varnish or lacquer. It is also of importance that the finely powdered pumice stone can exert a sharp cutting action on the cooled and thereby hardened surface and on account of this quicker cutting a better effect on the lacquered surface is obtained without running the risk of having the varnish or lacquer pull into folds or the like undesirable disfigurations.

It will be understood that the operation of carrying my invention into effect, as described above, is only an example of the same and that this operation may be diversified within the scope of the appended claim; for instance the compressed carbonic acid gas, which was cited because it serves my purposes well and can be readily obtained, may be substituted by compressed nitrogen, air, or any other compressed gas which is inert to the coated surface to be treated; it may for instance happen that one kind of compressed gas is better to be applied to one coat and must be excluded with another coat. It is by no means necessary that the felt pad be secured to the wooden board 3, it may also be secured to any other suitable means serving as a handle to hold the felt pad, or other rubbing means, in the plane in which the rubbing has to be done, the condition being that the upper part, or back of this felt pad is sufficiently free so as to allow a current of gas, inert to the coat, to escape under pressure from a nozzle or orifice of a tube terminating or being disposed immediately above said felt pad and to pass in all radial directions over the same. Only one or a plurality of felt pads may be joined in the rubbing device just as the occasion may require. The felt pad may be substituted by any suitable rubbing means or agent, such as a flat piece of pumice and may be secured to the board 3 or its equivalent by any suitable means without resorting to such metal plates as 1 and 6 therefore the plates 1 and 6 may be considered collectively as a unit of means securing the felt pad or other rubbing means to the wooden handle 3 or any other suitable holder.

What I claim is:

In a device for rubbing down coated surfaces, the combination of a handle portion and a flat head plate secured thereto, of a metallic cooling plate spaced from said head plate and detachably secured thereto, a felt pad extending in contact with the bottom of said cooling plate and having its opposite ends extending inwardly a slight distance between said head plate and cooling plate and clamped therebetween, the space between said plates forming an expansion chamber having oppositely disposed gas discharging nozzle slots adapted to discharge a cooling gas directly upon the coated surface being rubbed down, and a source of carbonic acid gas having a direct connection through the handle portion of the device and terminating in a discharge nozzle immediately above the surface of the cooling plate, whereby the plate and felt pad will be cooled when the gas is liberated, and a flow of the gas will be discharged directly upon the work from the opposed nozzle slots to effect the setting of the coating upon the surface of the work.

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