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PROCESS FOR MAKING PILE FABRIC

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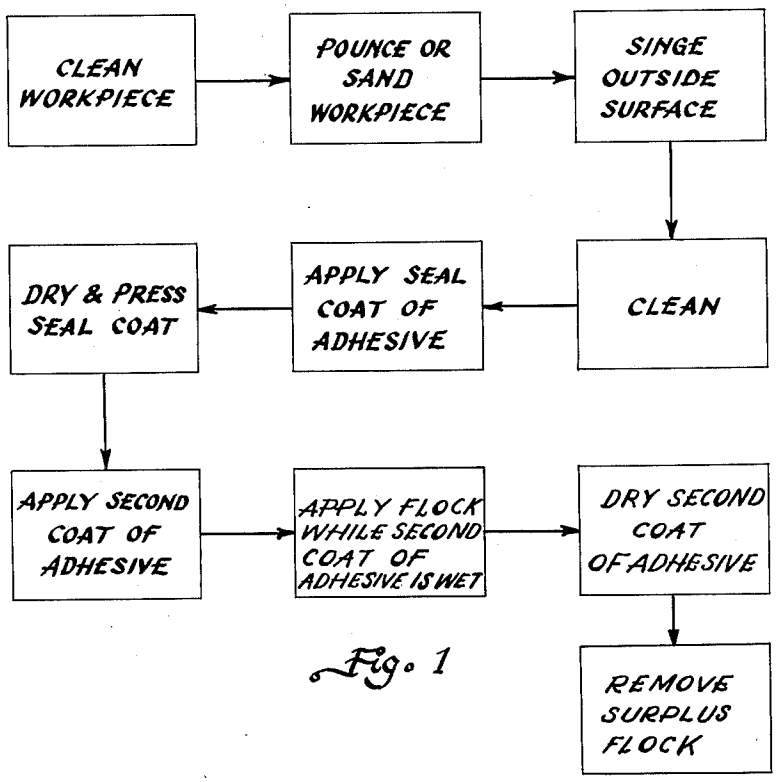


Fig. 1

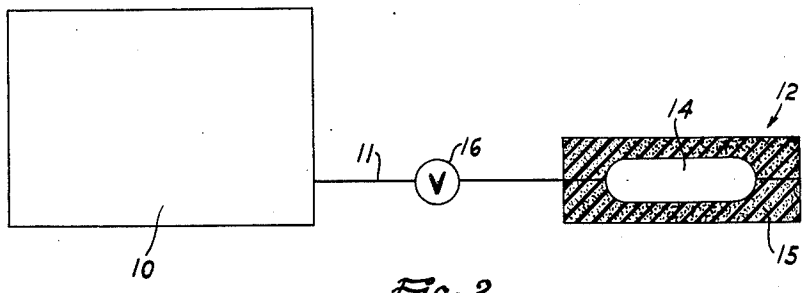


Fig. 2

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PROCESS FOR MAKING PILE FABRIC

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This invention relates to a process for making pile fabric.

One object of this invention is to improve a process for flocking millinery, hat body shapes, and the like.

Another object of this invention is to provide a flocking process which will produce a straight pile surface finish of desirable stability, richness of appearance and fur-like feel.

Another object of this invention is to provide a process for flocking which will enable the production of finished products of uniform quality.

Another object of this invention is to provide a flocking process which involves a novel preparation of the base material so that the final product will have maximum smoothness.

A further object of this invention is to provide a flocking process involving maximum economy of material.

A still further object of this invention is to provide a flocking process of the character described in which the amount of adhesive applied to successive workpieces is closely controlled and the quantity used is kept to a minimum.

A still further object of this invention is to provide a flocking process which will produce an end product of high quality at a low cost.

Other objects of this invention will be apparent hereafter from the specification and from the recital in the appended claims.

In the drawing:

FIG. 1 is a flow diagram of the process; and

FIG. 2 is a diagrammatic view of a device for applying the adhesive used in the process.

In carrying out the process of this invention, light weight felt hoods of wool or other substitute fibers are used as the base material. A given workpiece is vacuum cleaned to remove dust, surface lint and the like. Then the surface of the felt is made as smooth as possible by pouncing or sanding both surfaces and by singeing the outside, or flocking surface, with a gas flame. Such surface is then vacuum cleaned to remove loose material.

After such initial preparation, the workpiece is further prepared for flocking by applying a permanent seal coat of suitable resin emulsion to the flocking surface. The emulsion is thickened sufficiently to prevent it from penetrating the workpiece excessively. Moreover, instead of applying the adhesive haphazardly, a metered amount is applied to each workpiece using the device shown in FIG. 2.

A pressure vessel 10 contains liquid adhesive. Extending therefrom is a flexible outlet tube 11 which communicates with an applicator 12. Such applicator has a reservoir 14 of such size that it will hold the proper amount of adhesive for one workpiece. Reservoir 14 is formed in a sponge 15 of fine grained, open celled polyurethane. Interposed between vessel 10 and applicator 12 is a manually operable valve 16 by which the filling of reservoir 14 can be controlled.

To apply the adhesive, the operator mounts the workpiece on a rotating, upright lathe. Valve 16 is opened to fill reservoir 14; then the valve is closed. As the workpiece rotates, the sponge is applied to the outside, flocking surface. The operator applies the adhesive uniformly to all portions of the surface and gradually the sponge dries down. Because it is thickened, there is only limited

penetration of the adhesive. The constant movement of the workpiece and the gradual, metered application of the adhesive avoids streaks and stop marks which would affect the final product.

The coated workpiece is then removed from the lathe and dried and pressed in a heated air actuated press. This produces a smooth, continuous, film surface suitable for a final product of maximum smoothness and uniformity. The first application of adhesive comprises the seal coat, the pressing producing a better seal against penetration of the adhesive still to be applied.

The seal coated, pressed hood is again mounted on a slowly rotating lathe and a second coating of the same adhesive emulsion is applied. The second coating is also applied in a metered amount and in the same manner as the first coat. The hood is then immediately removed from the lathe and mounted on a rotatable flocking fixture of a conventional electrostatic flocking chamber. Flock of a suitable, desired size is applied to a moving, grounded metallic apron by means of a hopper, worm and sieve mechanism or the like. The apron and the flock on it passes under the flocking fixture carrying the workpiece. Through electrostatic means the flock is transferred from the apron to the wet adhesive on the flocking surface, the workpiece being rotated and properly presented to the apron so that all portions of the workpiece are presented in turn. As is conventional, the flocking material will pass rapidly between the apron and the workpiece and affix itself into the adhesive in essentially parallel alignment. The moving apron supplies new flock as flock is discharged into the adhesive.

After the flock has been applied, the workpiece is removed from the fixture. Then the adhesive is dried and cured by passing the hood through a conveyorized oven of suitable temperature. Thereafter, the workpiece is vacuum cleaned, not only to remove surplus, unattached flock but to recover such flock for use on subsequent workpieces.

The end product thus produced has a fine, stable, uniform, pile surface finish, rich in appearance and fur-like feel.

The method of applying the first or seal coat of adhesive keeps the penetration of the emulsion down to a minimum. Once the seal coat has been dried and pressed it provides the desired surface for the second adhesive coat which is to retain the applied flock. The metering device insures that substantially the same amount of adhesive will be applied to each and every workpiece. Further, because of the manner in which the adhesive is applied there will be no streaks or stop marks. The recovery of surplus flock from each workpiece at the end of the process and the uniform use of adhesive provides maximum economy of material.

While the invention has been described in connection with a particu'ar embodiment thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the princ'ples of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains, and as fall within the scope of the invention or the limits of the appended claims.

Having thus described my invention what I claim is:

1. A process for making pile fabric comprising applying to a fiber workpiece a metered amount of liquid adhesive of such thickness that there is limited penetration of the adhesive into the workpiece, then drying and pressing the adhesive to form a permanent smooth seal coat, then applying a second coat of adhesive to the seal coat and before said second coat dries applying flock thereto, and then drying the second coat.

2. A process for making pile fabric comprising singeing the surface of a fiber workpiece, then cleaning the workpiece of loose material, then applying to the workpiece a metered amount of liquid adhesive of such thickness that there is limited penetration of the adhesive into the workpiece, then drying and pressing the adhesive to form a permanent smooth seal coat, then applying a second coat of similar adhesive to the seal coat and before said second coat dries applying flock thereto, and then drying the second coat.

3. A process for making pile fabric comprising pouncing a fiber workpiece, then singeing the outside, then cleaning the workpiece of all loose surface material, then applying a metered amount of liquid adhesive of such thickness that there is limited penetration of the adhesive into the workpiece, then drying and pressing the adhesive to form a permanent smooth seal coat, then applying a second coat of similar adhesive to the seal coat and before said second coat dries applying flock thereto, and then drying the second coat.

4. A process for making pile fabric comprising sanding a fiber workpiece, then singeing the outside, then cleaning the workpiece of all loose surface material, then applying a metered amount of liquid adhesive emulsion of such thickness that there is limited penetration of the adhesive into the workpiece, then drying and pressing the adhesive to form a permanent smooth seal coat, then applying a second coat of similar adhesive to the seal coat and before said second coat dries applying flock thereto, then drying and curing the second coat, and then recovering surplus flock from the workpiece.

5. A process for making a pile fabric on a fiber workpiece of wool or the like comprising sanding the workpiece, then singeing, then cleaning the workpiece of all loose material, then rotating the workpiece and while it is moving applying a metered amount of liquid adhesive thereto, the adhesive being of such thickness that there is only limited penetration of the adhesive, then drying and pressing the workpiece to form a smooth, seal coat, then rotating the workpiece while applying a second adhesive coat of the same adhesive, and before the second coat dries applying flock thereto.

6. A process for making a pile fabric as recited in claim 5 wherein both coats of adhesive are sponged onto the rotating workpiece, and after the second coat of adhesive dries surplus flock is recovered from the workpiece.

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