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METHOD OF COATING GLOVES

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1 Claim. (Cl. 91—68)

This invention relates to a method of producing a roughened or suede-like surface upon the exterior or selected parts of the exterior of articles of wearing apparel, such as work clothing, and is especially intended for the application of such surface to gloves.

For many years gloves used by physicians and surgeons and in various industrial arts have been formed of seamless rubber. At an early date it was found that the smoothness of the glove, as commonly made, was objectionable, a more positive and efficient gripping or non-slip surface being needed, particularly on the fingers and palm. In order to provide such adequate gripping surfaces, rubber gloves were treated to roughen the surface or a part of the surface.

Various roughening treatments have been proposed and used. The action is generally effected during the process of preparing the rubber gloves from aqueous dispersions of rubber latex and most commonly involves the use of electrodeposition, well known coagulation methods or equally well known swelling methods. By dipping in swelling agents a wrinkled or wavy roughened outer surface of peculiar appearance is obtained. The numerous methods which use a coagulant, include spraying with wet latex or a combination of latex and coagulant to obtain a rough or pebble-like surface. It has also been proposed to deposit a layer of comminuted material and a layer of rubber latex upon a layer of coagulant on a support and remove the layers from the support when they have adhered.

One of the earliest methods proposed for giving a rubber glove a roughened surface was by sifting or dusting powdered rubber over the surface of the fingers, thumb and palm of the glove, and subsequently dipping the glove in liquid rubber in order to compel the adherence of the fine particles.

In recent years considerable attention has been given the coating of textile fabric gloves with rubber. The customary coating method involves impregnation or coating by dipping the glove in a bath of latex, the operation being repeated for the building up of a plurality of layers to produce a thicker coating.

In attempting to provide a rubber-coated fabric glove with a roughened surface, the well known use of cotton flock or linters in the processing of artificial leather fabrics has been generally relied upon. In the place of cotton flock it has been suggested that other materials of a fibrous nature might be suitable. Although mention has been made of the adaptability of powdered rubber or ground rubber particles, it has heretofore been considered necessary, because of the irregular configuration of the glove, to apply the fibrous matter in the form of a bath of latex having the fibrous flock dispersed or suspended in it. The treatment, as heretofore proposed, is essentially a dipping process, but, however the flock may be applied, it is always intimately mixed with and covered by the liquid latex and, in consequence, produces a surface texture and effect which, although uneven and roughened, is predominantly a latex coating, has smooth spaces between spaced lumps and is distinctly different in texture and appearance from a surface formed by deposited particles of ground rubber, devoid of latex or other suspension or dispersion medium.

One of the principal objects of my invention is the production of a true suede or leather appearance and efficient non-slip surface to gloves of canvas or other textile fabric.

Another object of the invention is the provision of a practical, easy and economical method of applying a suede or leather finish coating to fabric gloves, either to gloves completely covered with rubber or to gloves which have rubber only on selected portions, such as fingers and palm.

Another object is the provision of an economical and efficient method of producing a roughened exterior surface upon gloves, whether of leather or rubber, or of fabric.

My method, although applicable to rubber gloves, is primarily intended for the coating of canvas or other textile fabric gloves, and contemplates the coating of either the entire surface of the gloves or selected portions.

Broadly, stated, my method comprises applying one or more foundation coatings of latex rubber to the exterior surface of a glove and forcibly depositing dry or substantially dry particles of rubber upon the final surface coat while the surface is wet or tacky.

The foundation coating or coatings may be applied in any suitable way, generally by spraying when my method is to affect only a part or parts of the surface, but otherwise preferably by dipping or submerging the fabric glove one or more times in a bath of latex rubber. Instead of dipping the glove in rubber it may be sprayed with an adhesive material, e. g., rubber cement or latex. Or the foundation or body coat of latex may be applied by both dipping and spraying before putting on the roughening coating.

After the glove has been fabricated and coated with latex, either by dipping or spraying or both,

and while the final latex coating is still wet or tacky, particles of rubber, preferably in the form of finely ground or shredded rubber scrap, obtained from reclaimed rubber or old tire carcasses or other suitable source, are deposited upon it. These particles, when thus deposited, are in dry or substantially dry condition and unmixed with liquid latex or other vehicle or suspension medium. If deposited upon the latex coating by strewing or sifting them over the surface, either manually or by mechanical means, or in any way other than by positive and forcible contact of the ground material with the surface, adhesion is uncertain, uneven and inadequate, a considerable proportion of the particles either failing to attach themselves to some parts of the latext coating or becoming attached only lightly and insecurely. The resulting finish coat is lacking in the desired degree of roughness and permanency, many of the particles applied in this manner quickly sloughing off when the glove is put into use. In order to form a surface most closely resembling suede and having the desired roughness, stability and serviceability, I have found it necessary to embed the particles in the wet or tacky latex coating either completely or to a greater extent than can be obtained through ordinary sprinkling, sifting or strewing methods.

This I accomplish by the use of force or pressure in depositing the particles, the preferred method being to spray the ground particles against the wet or tacky latex surface by one or more compressed air spray guns. These may be arranged at suitable points and angles in a chamber or tunnel into or through which the gloves to be coated may be passed, to create a more or less violent swirling or turbulence of the ground particles therein. Or the air guns may be disposed to discharge the particles directly against the surface of the glove under an air pressure of preferably from forty to one hundred pounds, dependent upon the size of the rubber particles. However arranged, the air guns, to be efficient in the operation of my process, must create a sufficient carrying power to cause a forcible propulsion of the particles against the surface. By varying the air pressure (within the limits which will provide a sufficient carrying power, as explained) different suede effects can be obtained. Variations in color or shade and, to a certain extent, in texture of the surface may be effected by use of rubber of different colors and by mixing with the ground rubber ground or shredded particles of fibre or leather in different relative quantities, the proportionate quantity of fibre or leather being preferably small, relative to the quantity of ground rubber.

After the roughening coat is applied the glove is allowed to dry thoroughly, or, to hasten the completion of the process, may be dried in a drying oven or by any other suitable means. The glove, with its roughened coating, may be vulcanized in the manner usually employed in the production of rubber gloves and other dipped articles. The vulcanizing forms no part of my invention, however, and may be omitted if desired.

If, upon completion of the glove with its suede or roughened surface, it is found that it has attached to it surplus material that has not properly adhered to the latex coat, the surplus particles may be blown off by means of the compressed air gun, or may be removed by tumbling the glove in a revolving drum or cage.

As the result of actual tests and practical use of gloves produced by my improved method, it has been found that they provide a much better gripping surface, either dry or wet, than an ordinary smooth all rubber or latex coated fabric glove, which is extremely slippery when wet or when used for handling wet surfaces. Similarly, superior gripping effect is obtained with gloves produced by my method, as compared with rubber or fabric gloves provided with a surface coat of leather or cotton flock, or even ground rubber, mixed with a latex or other suspension medium and applied either by dipping or spraying.

I claim:

The method of producing a glove which consists in forming the glove in the desired shape, submerging the glove in liquid latex, and, while the said latex surface is wet or tacky, spraying particles of dry ground rubber thereon by a compressed air spray gun.

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