

[54] **SANDING ARTICLE**

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[52] **U.S. Cl.**..... **51/391, 2/167**

[51] **Int. Cl.**..... **B24d 15/04**

[58] **Field of Search**..... 2/159-168;
51/391-394

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[57] **ABSTRACT**

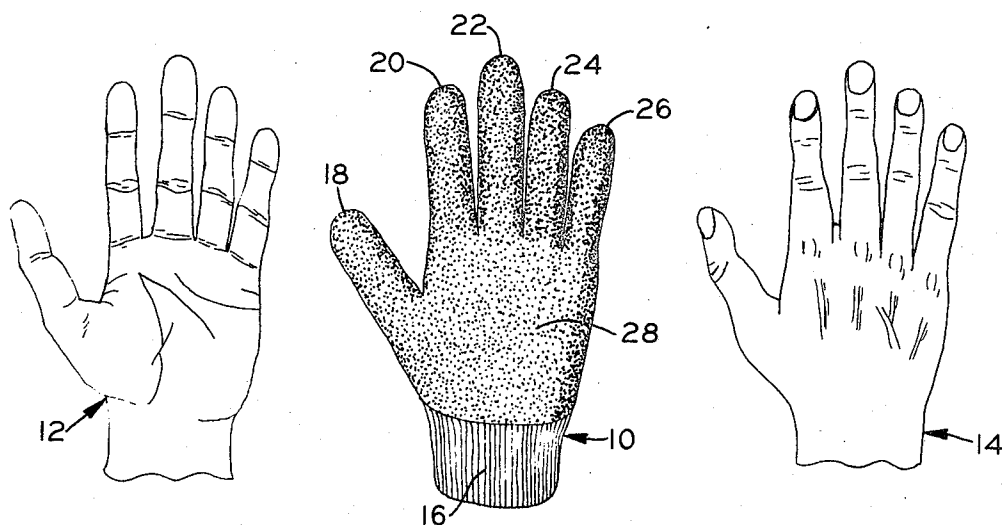
A glove, which may consist of paper, cotton twill or

the like, is first impregnated with an adhesive taken from the epoxy resin class and an abrasive is then coated over the adhesive lamination on each of the opposite sides of the glove including the digital, palm and back side sections. The glove is configured so that it can be worn on both the right and left hands making the palm and digital sections reversible. Thus, all portions of the glove contain working surfaces. Opposite sides of the glove can be coated with different grades and density of abrasive so that one side of the glove can serve as coarse and the other as fine finishing, either side can be brought into use by simply reversing the glove from one hand to the other, to present the proper working surface.

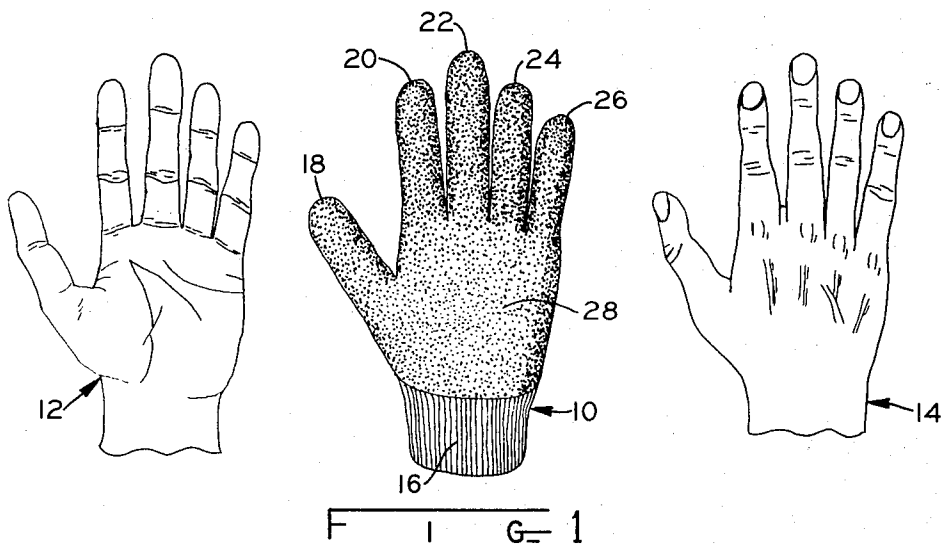
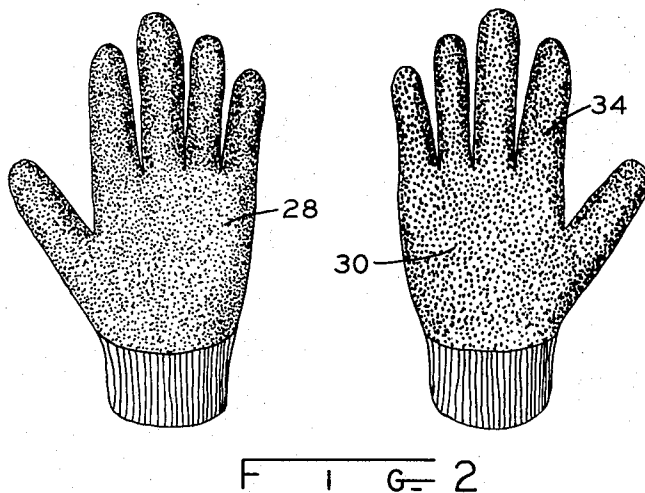
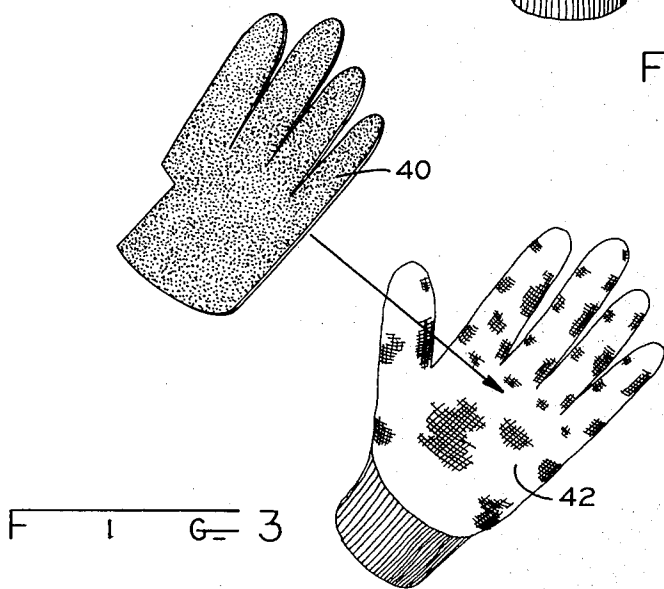
The abrasive can be applied by means of a cut-out form applied onto a pressure-sensitive surface of the glove; or the abrasive can be applied to an unpolymerized lamination of plastic material which is soaked into the surface of the glove; or the abrasive surface can form a part of a liner which is slipped over the glove.

The glove may either be dipped into the binder and the abrasive applied by spray coating or passing an impregnated glove through a suspension of particles.

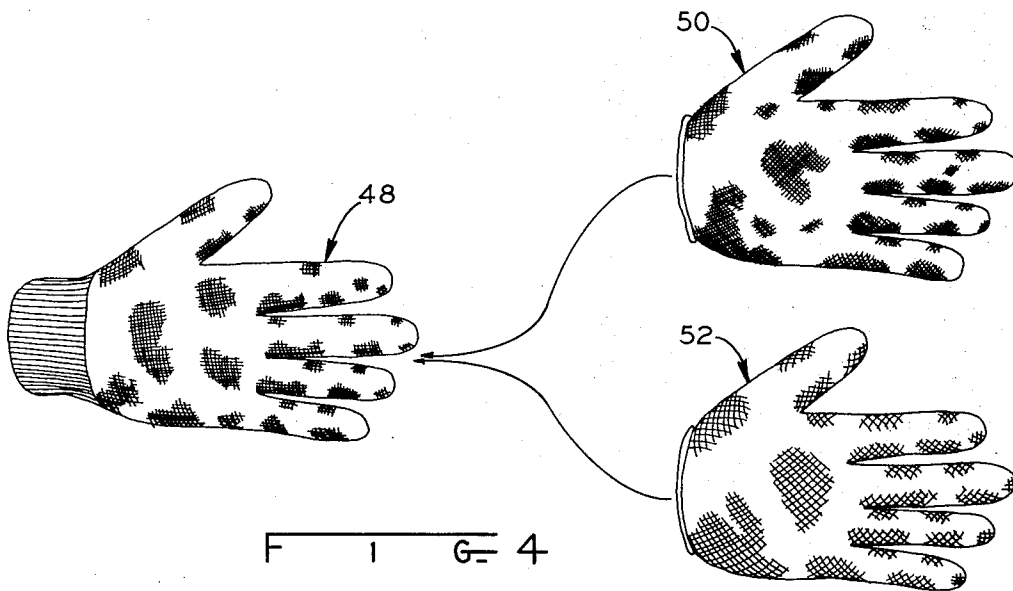
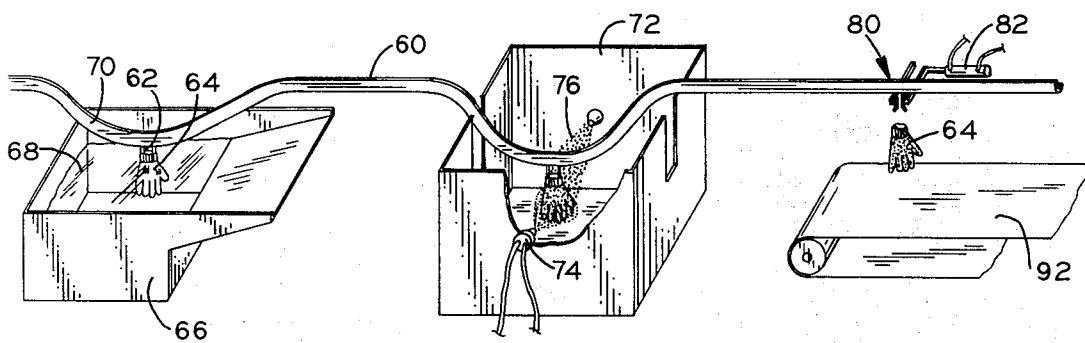
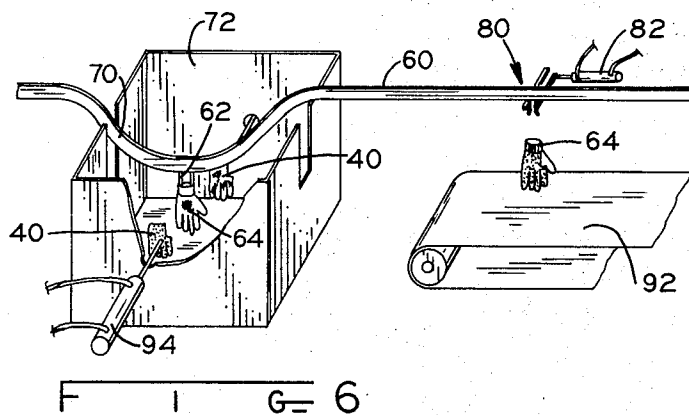
3 Claims, 6 Drawing Figures



2 Sheets-Sheet 1



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SANDING ARTICLE

BACKGROUND OF THE INVENTION

Gloves have been proposed in the prior art which can be surfaced in various ways and for many different applications. Such gloves have been proposed for finishing furniture, for depillatory use, for sports such as football, etc., and removing the skin or covering of vegetables.

Those wearing apparel gloves which are so treated and which I am familiar with are covered only on one side or have only one effective surface for performing sanding or finishing operations.

OBJECTS OF THE INVENTION

One of the principal objects of this invention is to provide a sanding tool in the form of a glove which can be worn on either the right or left hands whereby both of opposite surfaces of the glove, including the palm and digital sections, can contain abrasive material and can be of different abrasive quality, so that multiple finishing operations can be performed.

Another object of the present invention is to provide a glove which may consist of cotton, paper or other permeable material and include a resin binder such as epoxy, silastic resin, or the like, which will effectively bond a grit of the preferred density and abrasiveness to the glove surface.

A still further object of the present invention is to provide replacement abrasive surfaces for the original glove and that such replacement surfaces can either be in the form of replacement panels or an entirely new lamination glove liner can be slipped over the original glove.

It is a further object of the present invention to provide a new and improved method for producing the aforescribed glove.

Other objects and features of the present invention will become apparent from a consideration of the following description which proceeds with reference to the drawings.

DRAWINGS

FIG. 1 is an isometric view showing a glove located between the right and left hands of the user, illustrating how it can be reversed from one hand to the other to utilize both the front and back sides;

FIG. 2 illustrates the glove in FIG. 1 illustrating how on the one side the abrasive is coarse and on the other side the abrasive is fine;

FIG. 3 illustrates the glove in which a panel of abrasive is adhesively attached to the palm and digital sections at one side thereof;

FIG. 4 illustrates a further embodiment of the invention in which replaceable liners can be slipped onto the original glove when the liners are worn;

FIG. 5 illustrates the method for producing the glove shown in FIGS. 1 and 2; and

FIG. 6 illustrates the process for making the glove illustrated in FIG. 3.

DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a glove designated generally by reference numeral 10 can be worn by a left hand 12 or right hand 14. Glove 10 has a wrist band 16 which holds the glove in place once it is slipped on the hand. There is a thumb 18 and additional finger sections 20,

22, 24 and 26. When the glove is worn on the left hand 12 the section 28 is the palm section and when the right hand 14 wears the glove, section 30 is the palm section. The glove is typically of cotton twill construction and it has impregnated within it an epoxy resin to which has been applied a coarse layer 34 of silica grit and on palm 28 is a fine layer of silica grit. The idea is to provide a sanding surface which can be easily and conveniently applied over wood or other surfaces to be abraded.

The glove when it is worn, has a working surface and it is easier to effect sanding when the working surface is part of the glove, since the glove serves both to protect the hand and to provide the feel for the surface being sanded so that some idea of the smoothness of finish can be detected by the hand during the sanding operation. Also, the sanding is more efficient since there is less chance of slippage of abrasive paper and the digits and palm can be used to sand or finish surfaces. The digit sections can be used for inaccessible surfaces so long as they will admit the finger section.

After the preliminary sanding which is obtained by surface 30 with the glove on the right hand 14, the glove is then reversed to the left hand 12 and the finishing completed with the finer abrasive on the palm 28.

The abrasive and the binder material are applied in such quantities that the glove is flexible and can be used without interference from excessive stiffening of digit and palm sections of the glove which are relatively free to manipulate around and over the surface to be finished.

The glove can be made in a range of sizes to fit various size hands from small through medium and large.

As indicated in FIG. 3, the glove can include a replaceable panel 40 which is applied to the palm 42 of the glove through pressure adhesive contained on the palm 42 and digit sections. The replaceable panels 40 consist typically of a paper backing with an adhesive lamination and granules of adhesive applied through the adhesive to the paper backing. The panel is cut out to match the glove with the exception of the thumb section 46. The panel 40 when it is worn, can be peeled off and replaced with a fresh panel as the need arises. The purpose of omitting the thumb section 46 is to give greater flexibility to the user's hand during use. Panel 40 can be applied either to the palm 42 or the reverse palm side for left handed use.

Referring next to the embodiment shown in FIG. 4, glove 48 can use different replacement sections 50 or 52, these sections 50, 52 being hollow and fitting over the glove 48. Typically, these sections or shells are comprised of a flexible fabric having an impregnated resin lamination and a coating of abrasive thereover.

As indicated in FIG. 5 which illustrates the process of making the glove of FIGS. 1 and 2, a rail 60 includes a mounting roller 62 on which is mounted a glove 64. Tank 66 having a quantity of resin 68 therein is located below the dip section 70 of the track 60 so that as the glove travels down the track, the palm and digital sections are dipped into the resin 68 and are impregnated therewith, glove 64 is next transferred to an applying station 72 where there is an applicator gun 74, one at each side of the station which directs the stream of grit 76, on each side of the glove. The grit can either be of the same abrasive quality or different, depending upon the configuration desired.

Referring to the embodiment shown in FIG. 1, the grit applied on side 30 may be a coarser grit and the grit

applied on side 28 may be a finer grit. After having the grit material applied by the gun applicator as indicated in FIG. 5, the resin is then cured and the glove is transferred to station 80 where solenoid-operated air cylinder 82 disengages the carrier from the glove which drops onto a conveyor 92. The process described is continuous and is capable of making substantial quantities of the glove indicated in FIGS. 1 and 2 and may also vary the combinations of coarse and fine grain on opposite sides of the glove, and also can vary the physical size of the glove, the composition of glove, the composition of resin and a combination of other parameters as well.

Referring to the embodiment of FIG. 6, at the applying station 72, instead of applying the grit by means of a spray as indicated in FIG. 4, a panel 40 is applied by means of the applicator cylinder 94, and which is thereafter dropped onto the conveyor 92 in the same manner as previously described in FIG. 4.

In shipping the product, there is usually a stiffening member of cardboard or the like which is inserted in the glove to keep it from bending and becoming damaged, and such insert may be kept within the glove during use if so desired in order to achieve a flatter and stiffer sanding surface.

An important aspect of the present invention is that with a single glove, I can achieve dual hand usage, replacement of one sanding surface for another by merely changing hands and effecting easy and convenient replacement of worn surfaces, and also it is possible to obtain more precise and sensitive sanding operation which is especially useful in such fine operations as watchmaking, where the finished surface must be sensitive to the feel of the user, not only in finished condition during the sanding operation itself. By means of the present invention, it is possible to impart to the user a feel for the sanding operation as it occurs. Also, the user has a greater degree of control and improved convenience and comfort of use.

The resin used may consist, for example, of an epoxy resin of a self curing mass comprised of a curable epi-

chlorohydrin-bisphenol reaction product. A cure promoting agent may be added selected from alkyl glycidyl ether, phenol glycidyl ether and chloroethyl vinyl ether with a curing agent comprising 95-75 percent triethyl-ene tetramine and 5-25 percent triethanolamine.

While the present invention has been illustrated and described in connection with a few selected example embodiments, it will be understood that these are illustrative of the invention and are by no means restrictive thereof. It is reasonably to be expected that those skilled in this art can make numerous revisions and adaptations of the invention and it is intended that such revisions and adaptations of the invention will be included within the scope of the following claims as equivalents of the invention.

I claim:

1. A hand-worn glove having palm and digital sections comprised of a flexible fabric which forms a protective covering for the entire hand, an adhesive bonding medium forming a continuous lamination over the entirety of the glove including the palm, back side and digital sections of said glove, and an abrasive received on said lamination and bonded to said glove whereby manipulation of the digital and palm sections can perform finishing operations on hard surfaces such as wood, steel and the like, said glove being worn on both the right and left hands to reverse the palm and back side sections respectively to provide fresh abrading surfaces, said abrasive applied on each of opposite sides of said glove being of different abrasive and coarseness quality to provide for coarse and finishing operations respectively.

2. The article in accordance with claim 1 wherein the glove sections are replaceable fabric liners having grit bonded thereto and which are slipped over a glove for use and subsequent discarding thereof.

3. The article in accordance with claim 1 wherein said adhesive is comprised of an epoxy, silastic or rubber elastomeric material.

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