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METHOD OF FORMING TRIM PANELS

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FIG. 1.

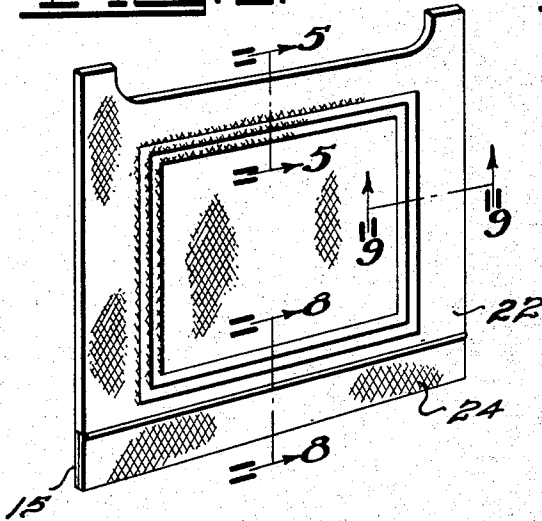
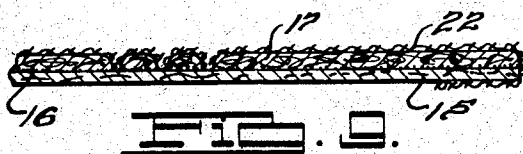
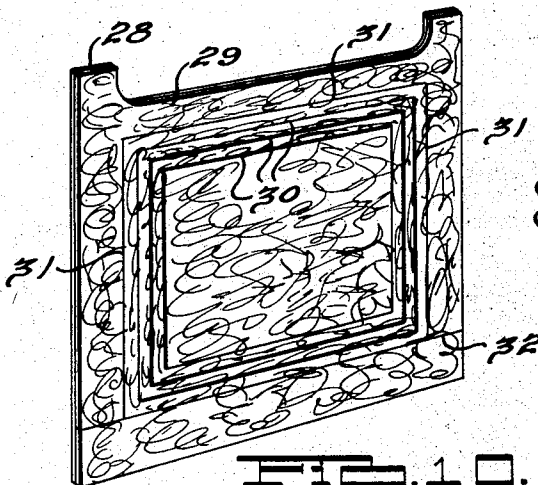
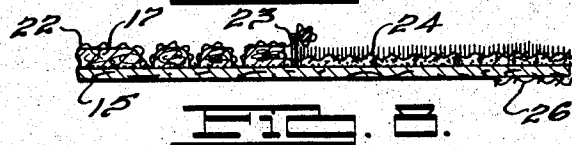
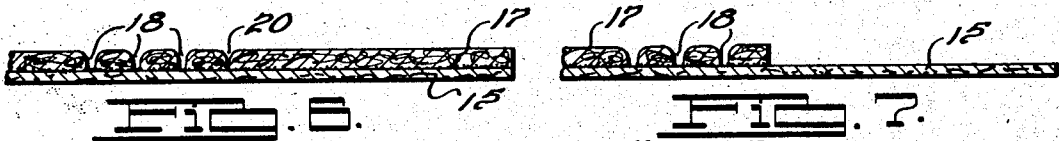
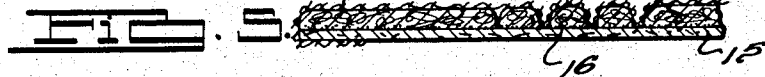
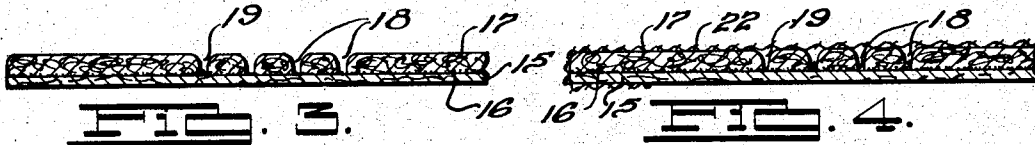
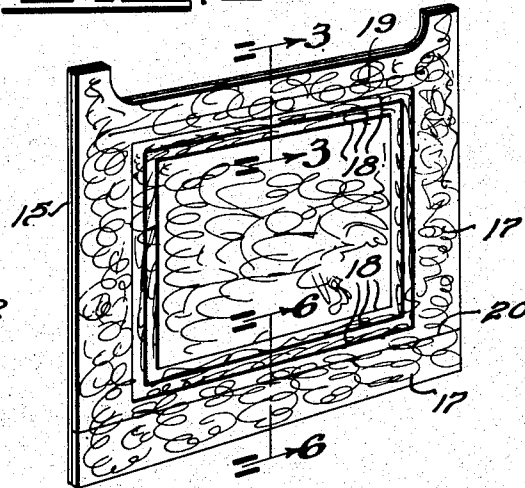


FIG. 2.



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METHOD OF FORMING TRIM PANELS

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4 Claims. (Cl. 154—2)

This invention relates to inner trim panels. More particularly it relates to a novel and improved method of forming inner trim panels, which panels have novel and particularly ornamental surface decorations provided thereon.

It is a primary object of the present invention to provide an inner trim panel having a decorated surface and one which is particularly adapted for the attachment and mounting of a section of carpeting throughout the lower portion thereof in order to provide a surface more resistant to wear in the lower portion of the trim panel. Trim panels of this generic type are primarily utilized for the purpose of providing a decorative finish for the inner surface of vehicle doors beneath the window openings therein and in certain types of panels it has been found desirable to cover the lower portion thereof with a section of carpeting or other suitable similar material in order that the inner surface of the door receiving the maximum of wear will be adequately protected.

Inner trim panels of the general type with which the present invention is primarily concerned include a relatively stiff cardboard backing sheet having a layer of padding material adhesively secured thereto. This padding material is cut after its application to the backing sheet along predetermined lines to provide grooves in the surface thereof. A sheet of fabric finish material is stretched over the surface of the padded backing sheet and is urged into and adhesively secured in certain of said grooves in order to provide an ornamental surface configuration for the resultant panel.

The present invention contemplates a method in which the cutting of the fibrous material serves not only to provide the necessary surface ornamentation for the panel but also serves to accurately define the marginal edge of the padding material which mates with the carpeting covering the lower portion of the door.

It is an object of the present invention to provide a type of surface decoration upon the padding material such that the fabric finish material subsequently applied thereto may easily and conveniently conform to the desired surface configuration, thus providing an exceptionally uniform and attractive resultant product.

Many other and further objects, advantages and features of the present invention will become clearly apparent from the following specification when considered in connection with the accompanying drawing forming a part thereof.

In the drawing—

Figure 1 is a perspective view of a completed inner trim panel manufactured in accordance with the teachings of the present invention.

Figure 2 is a perspective view, similar to Fig. 1, showing a padded backing sheet and illustrating the manner in which the padding thereon is cut to produce the improved inner trim panel.

Figure 3 is an enlarged fragmentary sectional view taken substantially on the line 3—3 of Figure 2, illustrating the manner in which the padding material is cut.

Figure 4 is an enlarged fragmentary sectional view similar to Figure 3 illustrating the manner in which the fabric finish material is applied to the backing sheet showing the same prior to the tensioning of the fabric finish material.

Figure 5 is an enlarged fragmentary sectional view taken substantially on the line 5—5 of Figure 1 illustrating the manner in which the fabric finish material is tensioned and conformed to the surface configuration of the padding material.

Figure 6 is an enlarged fragmentary sectional view taken substantially on the line 6—6 of Figure 2 illustrating in detail the manner in which the padding material is cut at the bottom portion of the panel.

Figure 7 is a fragmentary sectional view similar to Figure 6 showing the manner in which a portion of the padding material is removed in order to make room for the installation of the carpeting.

Figure 8 is an enlarged fragmentary sectional view taken substantially on the line 8—8 of Figure 1 illustrating the manner in which the carpeting and fabric finish material are mounted upon the panel adjacent the bottom thereof.

Figure 9 is an enlarged fragmentary sectional view taken substantially on the line 9—9 of Figure 1 illustrating in detail the construction of the panel in one of the side portions thereof.

Figure 10 is a perspective view of a padded backing sheet having the padding thereon cut in a modified manner.

In manufacturing inner trim panels in accordance with the method of the present invention a backing sheet 15 formed of cardboard or other suitable relatively stiff material is blanked out to the configuration of the inner trim panel which it is desired to produce. This backing sheet is then sprayed with a coating 16 of liquid adhesive, such for example as latex, and then a relatively thick layer of non-woven loosely felted fibrous material 17 is applied thereto. This padding material 17 is preferably formed of loosely felted jute fibers although many other similar types of fibrous padding material may be used as may be desired.

This padding material is preferably formed prior to its application to the backing sheet to a configuration substantially congruent with the backing sheet to which it is adhesively secured.

5 While the adhesive material 16 which secures this padding material in position is still wet the padded backing sheet is placed in a press which has a plurality of V-shaped knives which knives engage the padding material and cut a plurality
10 of grooves 18 therein which grooves in the form of the invention shown in the drawing are generally rectangular in form and which provide on the surface of the padded backing sheet a plurality of adjacently disposed concentric rectangles
15 which, as will hereinafter be seen, produce a paneled effect upon the finished panel. In addition the press has knives which form a groove 19 extending along the upper surface of the trim panel substantially parallel to the uppermost of
20 the grooves 18 and spaced slightly therefrom. The die of the press also forms a groove 20 which extends throughout the entire transverse width of the panel spaced a substantial distance from the bottom thereof and extending substantially
25 parallel to the bottom of the trim panel.

The knives which serve to cut these grooves are preferably generally V-shaped in cross section and are mounted in the press in such a manner that as the ram of the press descends
30 the padding material will be cut substantially entirely through to the backing sheet but the backing sheet will not be cut. The fact that the knives are V-shaped in cross section serves not only to form the padding material to provide
35 rounded beads between the grooves but also serves to urge the ends of the fibers cut downwardly toward the backing sheet where these ends will come in contact with the adhesive 16
40 which, as has been explained above, is still wet while the cutting operation is being performed, and will serve to bond the ends of these fibers, thus permanently retaining the grooves in the desired configuration.

In the particular type of panel which is formed
45 by the method of the present invention the lower portion of the panel is adapted to be composed of carpeting and this carpeting is of such thickness that it is essential that the padding material be removed from the lower portion of the
50 panel. The groove or line of cut 20 serves to define the portion of the padding material to be removed and serves to provide a clean, neat edge against which the carpeting may abut when subsequently applied. After the cutting operation
55 has been completed the padding material 17 beneath the line of cut 20 is removed from the panel, as is clearly seen in Figure 7 of the drawing.

The fabric finish material which is used to
60 cover the padded backing sheet thus provided preferably includes a section of woven cloth 22, the lower marginal edge of which is stretched along the line 23 to a section of carpeting material 24 of a size and shape adapted to fill the
65 lower portion of the trim panel from which the padding material has been removed as described above. The carpet material 24 has a strip of fabric material 26 projecting from the marginal edge thereof which, as will hereinafter be seen,
70 serves to aid in securing the fabric finish material as a whole in position upon the padded backing sheet.

Prior to the application of the fabric finish material to the padded backing sheet latex or
75 similar adhesive material is sprayed into the

bases of the grooves 18 and this may be disseminated through the adjacent fibrous material by means of a blast of air in order to prevent the latex material from saturating the cloth subsequently applied. The lower exposed surface of
5 the backing sheet is sprayed with adhesive material and the section of carpet is placed in position thereon. The marginal portions of the reverse side of the backing sheet 15 are sprayed
10 with adhesive material and the fabric 22 is stretched over the surface of the padded backing sheet and has its marginal edges secured in position to the reverse side of the backing sheet. The projecting fabric material 26 which, as has been explained above, is secured to the carpet
15 24, and is folded around the marginal edge of the backing sheet and secured thereto as is seen in Figure 8.

After the fabric finish material has thus been applied to the padded backing sheet the whole
20 trim panel is placed in a press which has blades adapted to enter the grooves 18. As this press descends the fabric finish material will be tensioned uniformly throughout the surface of the trim panel and will be urged into the grooves 18
25 where it will be retained by the adhesive material which has been applied in the bases of these grooves, thus conforming the fabric finish material to the configuration of the padding material and providing the desired decorative effects
30 on the surface thereof. It will be noted that the fabric finish material is stretched over the groove 19 and is not urged thereinto, consequently permitting slight lateral displacement of the tufts between the grooves 18 without causing wrinkling or substantial deformation of the body of the padding material as a whole. The provision
35 of this groove 19 is regarded as a particularly important feature of the present invention inasmuch as it permits the accurate conforming of the fabric finish material to the configuration of the padding material so that a neat and uniform resultant product is obtained.

In the modified form of the invention shown in Figure 10, substantially the same inventive
45 principles are utilized. In this form of the invention a padded backing sheet 28 has a layer of fibrous padding material 29 adhesively secured thereto. This padding material is cut along lines
50 30 which define the surface decorations ultimately to be produced upon the finished trim panel and outside of these lines cuts 31 are formed which serve substantially the same function as the cut 19 described above. In addition, the padding material is cut along the line 32
55 throughout its entire transverse extent to permit the removal of the padding material from the bottom portion of the sheet, thus providing for the installation of the carpeting.

The above described embodiments of the invention are merely illustrative of the generic inventive concept presented in this application. Many other and further modifications thereof falling within the scope of the invention as defined in the subjoined claims will be clearly
65 apparent to those skilled in the art.

What I claim is:

1. The method of forming inner trim panels which includes adhesively securing a section of padding material to a backing sheet, cutting a
70 plurality of grooves in said padding material, stretching fabric finish material over said padded backing sheet and urging said fabric finish material into one of said grooves to tension the same over another of said grooves.
75

2. The method of manufacturing inner trim panels which includes adhesively securing a layer of padding material upon a relatively stiff backing sheet, cutting said padding material along
5 predetermined lines to form surface decorations therein and at the same time cutting said padding material additionally adjacent said first mentioned lines of cut, tensioning fabric finish material over the surface of said padded backing
10 sheet and urging the same inwardly into said first mentioned lines of cut.

3. The method of manufacturing inner trim panels which includes adhesively securing a layer of padding material upon a relatively stiff backing sheet, cutting said padding material along
15 predetermined lines to form surface decorations therein and at the same time cutting said padding material additionally adjacent said first mentioned lines of cut, tensioning fabric finish material over the surface of said padded backing
20 sheet and adhesively securing said fabric

finish material in the bases of said first mentioned lines of cut, said fabric finish material being tensioned over said last mentioned lines of cut to provide for a uniform distribution of said padding material.

4. The method of manufacturing inner trim panels which includes adhesively securing a layer of padding material to a relatively stiff backing sheet, cutting said padding material along predetermined lines while thus secured, said cutting
5 operation including a line of cut extending throughout the entire transverse width of said panel adjacent the bottom thereof, removing the padding material below said last mentioned line
10 of cut, adhesively securing a section of carpeting material to the area from which said padding has been removed, tensioning fabric finish material over the padded portion of said panel and
15 urging said fabric finish material into the first mentioned lines of cut.
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