United States Patent [19]

Stephens

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[54] **REFINISH PAINTING METHOD**

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Related U.S. Application Data

[63] Continuation of Ser. No. 271,294, July 31, 1972, abandoned.

[52] **U.S. Cl.** **427/142;** 427/207; 427/282; 427/285; 427/287; 427/331; 427/372; 427/421

[51] **Int. Cl.²** **C09J 7/04**

[58] **Field of Search** .... 117/38, 104, 122 P, 122 PF; 264/309, 261; 427/140, 142, 207, 331, 372, 421, 282, 285, 287

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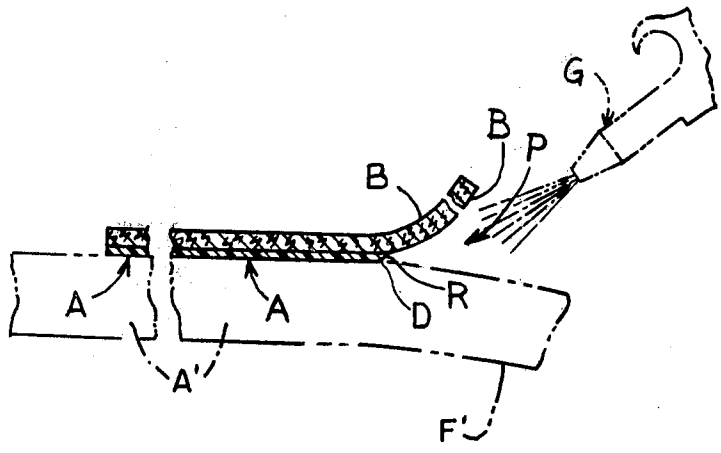
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Primary Examiner—Bernard D. Pianalto

[57] **ABSTRACT**

The method is very specifically directed to the refinish painting of automobile door panels, in particular a panel which is sub-divided along a longitudinal demarcation zone into two surface sections, in which an adhesive backed non-metallic protective tape is applied to one of said sections along a so-called character or break zone or line in such manner that it adheres to one of said sections and affords a tapered outwardly opening pocket diverging from a surface section. Paint is sprayed or otherwise applied into said pocket as a layer inwardly terminating at the edge of the demarcation zone.

4 Claims, 4 Drawing Figures



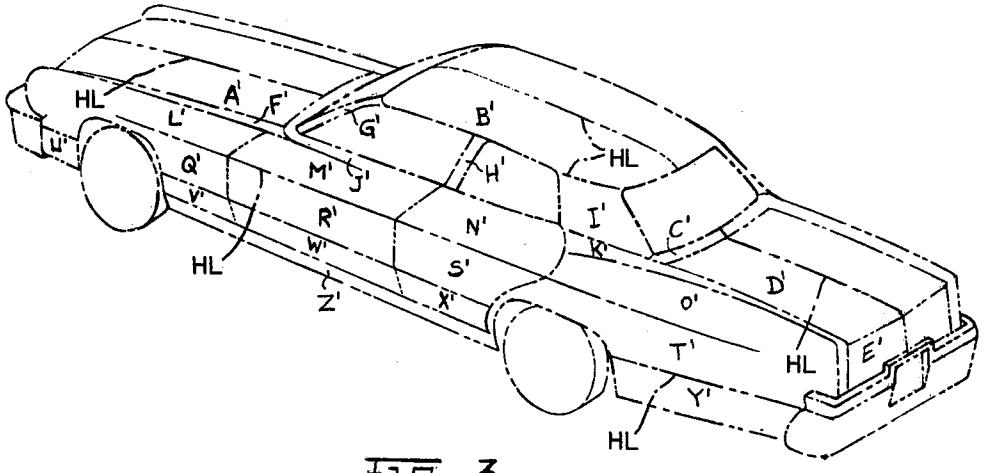


Fig - 3

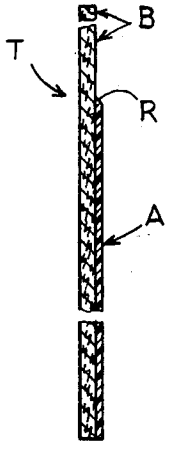


Fig - 2

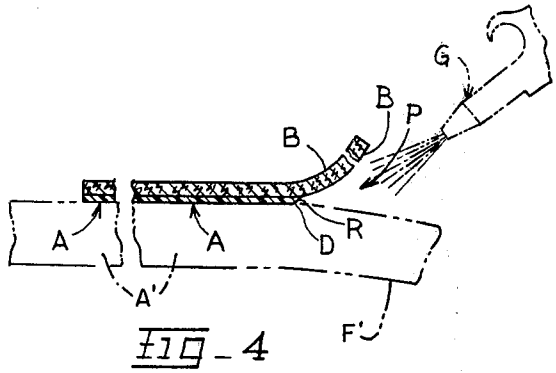


Fig - 4

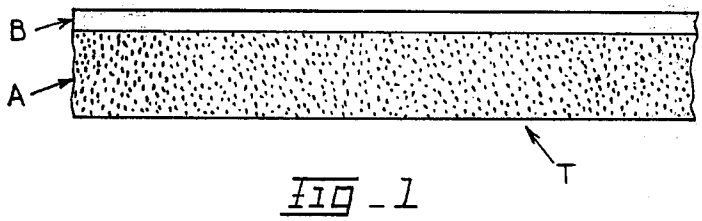


Fig - 1

REFINISH PAINTING METHOD

This application is a continuation of my copending application, Ser. No. 271,294, filed July 31, 1972 and now abandoned.

My invention relates to refinish painting.

The principal object of my invention is to provide a refinish painting system for refinish painting of surfaces, particularly vehicle bodies, so as to successfully blend newly painted areas with already painted areas, whereby to diminish the extent of refinish painting required with concomitant savings in paint materials and labor.

The foregoing object of my invention and the advantages thereof will become apparent during the course of the following description, taken in conjunction with the accompanying drawings, in which:

FIGS. 1 and 2 are, respectively, front elevational and vertical sectional views of masking tape employed in my painting system; and

FIGS. 3 and 4 are, respectively, perspective and sectional views illustrating my refinish painting system.

Referring to the drawings in greater detail, T generally designates said masking tape which is constructed with a major widthwise adhesive area A thereof (about three-fourths of total width) having pressure sensitive adhesive thereover, with a minor widthwise non-adhesive area B thereof (about one-fourth of total width) having no adhesive whatsoever thereover and with a straight longitudinal junction line dividing the areas A and B from each other and forming a paint demarcation line D. During manufacture of the tape T the adhesive tends to form a tapered ramp R due to blocking of the adhesive as it is applied to the paper backing of the tape T and due to the liquid-like (or semi-liquid-like) consistency of said adhesive as it is being applied. The minor nonadhesive area B forms a tapered pocket P which, pocket, when the tape is operatively applied to a surface of an object to be coated (dot-dash line in FIG. 4) opens divergently and acutely angularly outwardly of said surface; said pocket with said demarcation line D, is utilized in feathering the paint applied through the open mouth of the pocket, as will be described herein. Said demarcation line D is formed at the top of the ramp R where it meets the surface to be refinish painted method of making adhesive tape with clear margins on each side of the tape. This same method can be used to make masking tape usable in my invention by modifying the Scholl method in accordance with my invention to make a ramp R along said junction line by blocking application of adhesive to the area B at the time adhesive is being applied to the area A. There may be one such junction line dividing areas A and B from each other as shown or two such junction lines dividing two areas B from one area A as shown in the Scholl patent except that in accordance with my invention a ramp R is formed along each such junction line. The minor non-adhesive area B allows the tape T to be applied to surfaces to be refinish painted so that the said demarcation line D can be disposed in either straight or curved lines depending upon the particular application. If the demarcation line D is to be concave on the surface to be painted some stretching of the adhesive major area A occurs during application of the tape T to the prefinished surface while if the demarcation line D is convex some compression and folding over upon itself of said adhesive major area A occurs. The fact that the minor non-adhesive area B does not

adhere to the prefinished surface allows the tape T to be disposed with considerable accuracy along any desired paint demarcation line irrespective of the curvature or bending required. In every case the non-adhesive area B can be fluffed up so that the same upstands from the surface to be painted in a tapered disposition forming said tapered pocket P as shown in FIG. 4. The taper of the ramp R generally tends to be in alignment with the taper of the pocket P so that at the paint demarcation line D the applied paint tapers substantially to zero mil thicknesses. I have found that an overall width of about ¾ inches is ideal for the tape T particularly in respect to making it conform to any desired curvature for the paint demarcation line D. The adhesive area A will be about 9/16 inch in width for a ¾ inch tape T and the non-adhesive area B will be about 3/16 inch in width. If two non-adhesive areas B are used then there will each be about 3/16 inch in width and the adhesive area A will be about ⅜ inch in width.

FIGS. 3 and 4 illustrate the use of the tape T in my refinish painting system for painting surfaces, such as an already painted vehicle body which needs to be refinish painted. The term refinish painting is used herein to include painting any previously painted surface which needs repainting. A previously painted surface may need repainting because of a paint flaw or because the previously painted surface had to be metal finished. This may occur during or following the assembly process in the vehicle factory or at any time after the vehicle has left the factory. Any painting after the original painting is refinish painting within the term as used herein. The tape T is pressed via the area A thereof onto the vehicle body along highlight lines thereof (also known in the industry as character, break or crown lines) as much as possible so that the demarcation line D coincides with said highlight line (designated HL), and so that said tapered pocket P faces the area which needs to be refinish painted. The non-adhesive area B is fluffed up so that it upstands from the surface to be painted to form a tapered pocket P. FIG. 3 shows a vehicle body having panels, one half of which on the near side are designated alphabetically A' through Z' as shown and which are slightly curved and defined by highlight lines which are crowned lines crowned by bending or rolling either sharply or slightly. That is, the highlight zone or break zone will be a longitudinal zone of angular demarcation of one section of a panel surface from another section of the same surface, whether the zone is of a cross-section at 90° in a sharply defined obtuse angle or is of rounded arcuate sectional contour. The tape T can be applied along any of these highlight lines and any entire panel may be refinish painted in accordance with my invention. The tape T can be applied to any parts of any panel not along a highlight line so as to divide any such panel into a smaller section to be refinish painted so as to decrease the area needed to be painted with savings in primer surfacers, primer sealers, solvent, color or finish paint, masking tape, paper shielding, rubbing compounds, polishes and abrasives used in sanding and savings in concomittant labor decrease. Different lengths of the tape T are applied to the vehicle body in lengthwise abutting manner, each to another, so as to form a continuous length of the tapered pocket P which frames the area to be refinish painted. In some cases the length of the pocket P can completely frame the area to be repainted in a circular, elliptical, polygonal or other closed figure. In some cases no tape T may be needed

along one or more edges of the area to be repainted such as along outside edges of the vehicle body or molding which are termed breaking lines. My refinish painting system is intended to be used in conjunction with the conventional paper shielding applied with ordinary masking tape which may be used as needed, as for example, along molding strips or to cover windows or bumpers or any other areas which do not need to be painted. After application of the tape T as needed to frame the area to be painted and after subsequent application of paper shielding and ordinary masking tape as needed, the area to be refinish painted is then painted in a conventional manner, as by spray painting with a paint spray gun G, except that during such painting paint is applied into and along the length of said tapered pocket with a last coating of solvent for the paint to feather the paint down along the paint demarcation line D to minimal mil thicknesses so that when the paint drys and the tape T is removed the painted area blends successfully with the remainder of the already painted areas. Any possible edge line which may appear along the paint demarcation line D can be rubbed out with suitable rubbing compound. Since the ramp R tends to be in alignment with the taper of the pocket P the ramp R facilitates feathering down of the applied paint. Heretofore it has been the practice to repaint one or more entire panels of a vehicle because of the difficulty in trying to blend a freshly painted area with a previously painted area. With my refinish painting system the edges of the applied paint are feathered down to substantially zero mil thicknesses along a paint demarcation line D by virtue of said tapered pocket P so that only that part of the vehicle body actually needing re-work or painting need be refinish painted. By painting between highlight lines color matching problems are lessened since there is less blending required.

It will thus be seen that there has been provided by my invention a refinish painting system in which the object hereinabove set forth, together with many thoroughly practical advantages, has been successfully achieved. My refinish painting system can be used in both OEM(original equipment manufacture) and aftermarket applications. Where high temperature bake ovens are employed the tape T is made of a different paper backing and a different adhesive than for air dry applications is used so that the adhesive will not transfer to the vehicle body. When bake ovens are employed less or no solvent is needed for a last coating because of the decrease from the heat in viscosity of the applied paint. While a preferred embodiment of my invention has been shown and described it is to be understood that variations and changes may be resorted to without departing from the spirit of my invention as defined by the appended claims.

What is claimed is:

1. A method of refinish painting a panel surface which is sub-divided generally along a longitudinal demarcation zone into two surface sections, which demarcation zone coincides with a highlight of said panel surface being refinish painted, comprising applying to said panel surface a protective tape having an adhesive coating on a portion of one side surface thereof, the application being in such manner that said surface portion adheres to one panel surface section over a substantial area and along an edge of said demarcation zone, and that another portion of said tape side surface which lacks an adhesive coating, while facing the other panel surface section, diverges outwardly and non-adherently to the latter at an acute angle thereto, said divergent uncoated portion coacting with said other panel surface section in forming a tapered outwardly opening pocket to one side of the adhered tape area and demarcation zone, the adhesive coating of said one side surface portion being such that a ramp-like portion of the adhesive coating is formed along the junction line of the adhesive-coated and adhesive-lacking tape surface portions, and applying to said other panel surface section through the outward opening of said pocket a layer of refinish paint, which layer inwardly terminates as to said other panel surface section within said pocket and ramp-like portion at said edge of said demarcation zone.

2. The method of claim **1**, and further applying a coating of solvent for the paint in said pocket to assist feathering of the paint layer along said demarcation zone edge.

3. The method of claim **1**, in which heat is applied to said paint layer to bake the latter.

4. The method of claim **1**, in which heat is applied to said paint layer to bake the latter.

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