ADJUSTABLE SQUEEGEE FOR APPLYING SYNTHETIC FILLERS

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ABSTRACT
An adjustable squeegee for applying a synthetic filling material, commonly termed “body putty” or “body plastic,” to the damaged surfaces of automobile bodies or the like. The squeegee comprises a pliable lower blade portion, and a flexible upper stiffener portion, which can be manually bent into a particular form or shape which it is desired to have the filling material take in the squeegeeing operation. The squeegee will remain in this form until it is manually rebent into a normal form or into a different form for the performance of another squeegeeing operation. The main body of the squeegee is composed of a material to which the filling material will not adhere.

6 Claims, 15 Drawing Figures
ADJUSTABLE SQUEEGEE FOR APPLYING SYNTHETIC FILLERS

FIELD OF THE INVENTION

The present invention relates to an adjustable squeegee for applying and forming a synthetic filler, or so-called "body putty" or "body plastic", to the damaged surfaces of automobile bodies; or to other surfaces which it is desired to fill with a filling material to bring them to a desired contour or profile.

In the repair of damaged automobile bodies, the general practice is to apply a synthetic squeegee, or so-called body putty or body plastic, to fill body dents, holes, tears or the like, by applying such material in a plastic moldable state, and generally in an excess quantity, and then to promptly cut off the excess material with a rasping plane, file or the like, before the material has had time to set.

Time is a factor in these filling operations because these synthetic fillers generally include a hardening catalyst which hardens the filler in a relatively short time. By reducing or eliminating the amount of time devoted to the hand filling of the synthetic filler after it has been squeezed into or on the work, by an improved adjustable squeegee, it is possible to reduce the amount of time involved in the overall operation by at least 25 percent or more. Furthermore, it is not necessary to have the variety of files heretofore required.

In many instances, the damaged area to be repaired may originally have had an exterior surface which was outwardly curved, or was inwardly recessed, or was otherwise irregularly formed. Heretofore, these situations presented difficulties in getting the synthetic filler accurately shaped to conform to the curvature of the original surface, frequently resulting in patched areas which did not have the matching curvature or shape of contiguous areas. It also frequently resulted in a repaired surface on one side of the automobile body which did not match the curvature or shape of the corresponding undamaged surface on the other side of the body.

The primary object of the present invention is to provide an adjustable squeegee which can be manually bent or shaped to assume any desired curvature or form, which bent shape will remain until the squeegee is manually rebent into another form. This enables the squeegee to shape the fill into any desired concave, convex or other curvature or shape, and also enables it to scrape off the excess material, while retaining this original form. Also, when the material is applied in successive layers, the squeegee can be successively rebent to accommodate these different layers. Furthermore, where the damaged area is in one of the side fenders, or in one of the side surfaces of the body, the improved adjustable squeegee may be presented to the undamaged corresponding area on the opposite fender or opposite side surface of the body, where it is then manually bent or shaped to assume the true curvature or form at this undamaged side. Thereupon, the squeegee is transferred to the damaged side, generally in a reversed relation, where it is then used to shape the body putty to conform to the true shape of the undamaged side.

Another object of the invention is to provide such an adjustable squeegee which includes a lower blade or skirt portion comprising a relatively pliable material, such as polyethylene or "Teflon" (polytetrafluoroethylene), for engaging the synthetic filler for shaping it, and also for removing any excess quantity of it; and which squeegee also includes an upper stiffening portion comprising a stiffer ductile material, such as lead, zinc or the like, which can be readily bent or shaped manually to any desired form or curvature which it is desired to impart to the lower edge of the blade or skirt portion, and which shall retain such form or curvature in the shaping of the synthetic filler.

Another object of the invention is to provide such a squeegee which is composed mainly of a material to which the synthetic filler will not adhere, such as the aforesaid polyethylene or Teflon.

Another object of the invention is to provide an improved manner of associating an upper stiffening bar with the upper portion of the lower pliable blade portion.
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one-handed operation can also be performed, particularly with the shorter lengths of squeegee. Typical lengths would be 8, 12, 16 and 20 inches. The synthetic fillers generally have the approximate consistency of peanut butter, and hence do not set up any very large resistance forces against the squeegee operation.

Referring now to the second embodiment illustrated in FIGS. 4-6, the squeegee 20a is also of a pliable plastic material, but in this instance is preferably in the form of a cast plastic. The blade portion 22a is the same as in the preceding embodiment, but the stiffening back portion 24a is preferably of rectangular cross-section, instead of elliptical. Formed in this back portion 24a is a lengthwise cavity 28a, for receiving the stiffening bar 30a, both preferably, but not necessarily, being of circular cross section. The bar 30a, also composed of lead or zinc, is inserted into the cavity 28a through the side entrance opening 38 extending from one of the side surfaces of the back portion 24a into the cavity 28a. This side entrance opening 38 is thereafter covered by a side cover strip or seal 40, also preferably of plastic, suitably secured over the opening, as by cementing, heat sealing, or providing a "snap-on" construction.

Referring now to the third embodiment illustrated in FIGS. 7-15, in this embodiment the stiffening bar is in the form of a ductile metallic strip 30b, composed of the aforesaid lead, zinc or other ductile material. This strip is formed with a longitudinal slot 44 therein, which fits down over the upper free edge of the pliable blade strip 22b, which as previously described, may be composed of extruded or cast polyethylene, "Teflon" or the like. The downwardly extending side flanges 46 of the stiffening edge strip 30b may be cemented to the pliable blade strip 22b, or they may be secured by transverse rivets, bolts, staples or the like, indicated at 48. The body portion of the stiffening strip 30b may have different sectional forms; such as the almost complete circular form shown in FIG. 10; the fractional circular form shown in FIG. 11; the oval form shown in FIG. 12; the diamond shaped form shown in FIG. 13; the square form shown in FIG. 14; and the inverted U-shaped form shown in FIG. 15. It will be noted that each of the above sectional forms has the two depending side flanges, such as the flanges 46 of FIG. 7, that can be secured to the upper edge of the pliable blade portion 22b by cementing, or by rivets, bolts, or staples 48, as above described.

In FIGS. 7, 8 and 9 I have illustrated the squeegee in three different operating conditions; FIG. 7 showing it straight; FIG. 8 showing it conform to a simple curve; and FIG. 9 showing it conform to a compound curve. This compound curve of FIG. 9 may be regarded as conforming to the curvature of a portion of an automobile fender F, as viewed in profile from the front or rear, the upper portion of the automobile tire under this fender being fragmentarily indicated at T. Each of the two first embodiments above described can also be bent into these curved shapes.

The squeegee according to any of the preceding embodiments may be given a desired curvature or shape according to different methods. For example, one method is to place the squeegee over the damaged area with its ends contacting the body surface at opposite sides of the area, and then shape the intermediate portion of the squeegee to conform to what appears to have been the original curvature or shape.

Another method in situations where the damage is confined to one side of the automobile body, and the other side has a matching surface area which retains the original curvature or shape, is to place the squeegee over the original curvature or shape on the undamaged side and to bend it to conform thereto. This method, when the squeegee is transposed to the opposite or damaged side of the body, being generally reversed fore and aft in such transposition, and is drawn over this damaged surface to shape the filler to the original curvature or shape. The reversal may be desirable where the shaping involves a curve which is not identical or symmetrical with respect to its inner and outer, or its right and left ends at opposite sides of the car. This reversal is accommodated because the opposite sides of the squeegee are symmetrical or identically the same, insofar as squeegeeing the filler is concerned, as represented by the reversible V-shaped form of the pliable blade edge 26.

Still another method is to estimate the curvature or shape without any contact, between the squeegee and the work surface and to then bend the squeegee to this estimated curvature. In situations where the depth of the indentation, hole or damaged area is such that the filling should be done by progressively applying successive layers of filling material, rather than by one deep fill, such operation can be accommodated by progressively shaping the squeegee to accommodate the progressive build-up of the fill. In filling these deep dents or holes the fill or body putty is put on in thin layers and allowed to set up between layers, thus giving consideration to shrinkage, and establishing a final surface that may be smooth. But by the squeegee, and which may or may not be filed to conform to the original surface.

The utility of my improved squeegee is not limited to the application of filling material to damaged surfaces, but can be extended to the application of filling material to depressions, holes or the like in different surface areas of original structures or assemblies such as flet areas, joint areas, etc.

I claim:

1. An adjustable squeegee for applying and shaping a synthetic filler to a work surface comprising a blade of pliable plastic material to which the synthetic filler does not adhere, said blade having a back portion and an edge opposite said back portion to engage the filler, and a stiffener member associated with said back portion comprised of a ductile metal which may be readily manually bent in any direction for causing the edge of the pliable blade to assume a desired contour and rebent in another direction for causing the blade to assume another contour, the ductile metal of said stiffener member also having a shape retention ability such that it retains the edge of the blade in said bent shape during the squeegee operation and until the stiffener member is manually bent into a different shape.

2. The combination of claim 1 wherein said stiffener member is comprised of lead.

3. The combination of claim 1 wherein said blade has a cavity extending along its back portion, and said stiffener member comprises a ductile metallic member disposed in said cavity.

4. The combination of claim 1 wherein said blade is formed with a longitudinal passageway therein opening from one end of said blade and spaced from and generally parallel to the edge of said blade which engages the filler, and said stiffener member comprises a ductile metallic bar inserted into said passageway through said open end.

5. The combination of claim 4 wherein said open end of the passageway is closed by an end cap.

6. The combination of claim 1 wherein the blade is composed of polyethylene or polytetrafluoroethylene.

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