United States Patent [19]

Worley

[11] **3,756,653**

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[54] **CYCLE SADDLE AND METHOD OF FORMING SAME**

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[52] **U.S. Cl.** **297/195,** 297/214, 297/DIG. 1

[51] **Int. Cl.** **B62j 1/08**

[58] **Field of Search** 297/195, 214

[56] **References Cited**

UNITED STATES PATENTS

3,501,119	3/1970	Rich, Jr.	297/195 X
3,258,290	6/1966	Karbin	297/195
3,586,369	6/1971	Worley	297/195
3,588,171	6/1971	Rich, Jr.	297/195
3,622,200	11/1971	Bird	297/195

Primary Examiner—James T. McCall

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[57] **ABSTRACT**

A cycle saddle is disclosed which includes a frame and a plastic cover mounted on top of the frame, with a foam cushion being provided between the cover and the frame. There is disclosed means for securing the cover which includes integrally fused portions of the cover extending through the apertures in the frame to anchor the cover onto the frame. A method is disclosed for producing the cycle saddle which includes the steps of providing a cover provided with a depending skirt having a substantially smooth inner surface portion and provided with a flange integrally attached to said depending skirt at the lower edge thereof having a substantially smooth surface opposing the inner surface portion of the skirt and defining with the inner surface portion an upwardly extending groove, placing the cover on the frame with the depending skirt portions of the frame extending into the groove and with the apertures being disposed in the groove between the inner surface of the flange and the inner surface portion of the skirt, relatively moving the inner surface of the flange and the inner surface portion of the skirt into adjacency through the apertures, and applying ultrasonic means to the skirt and the flange adjacent the apertures for causing portions of the skirt portions and the flange to fuse into integrally fused portions extending through the apertures to anchor the cover onto the frame.

3 Claims, 6 Drawing Figures

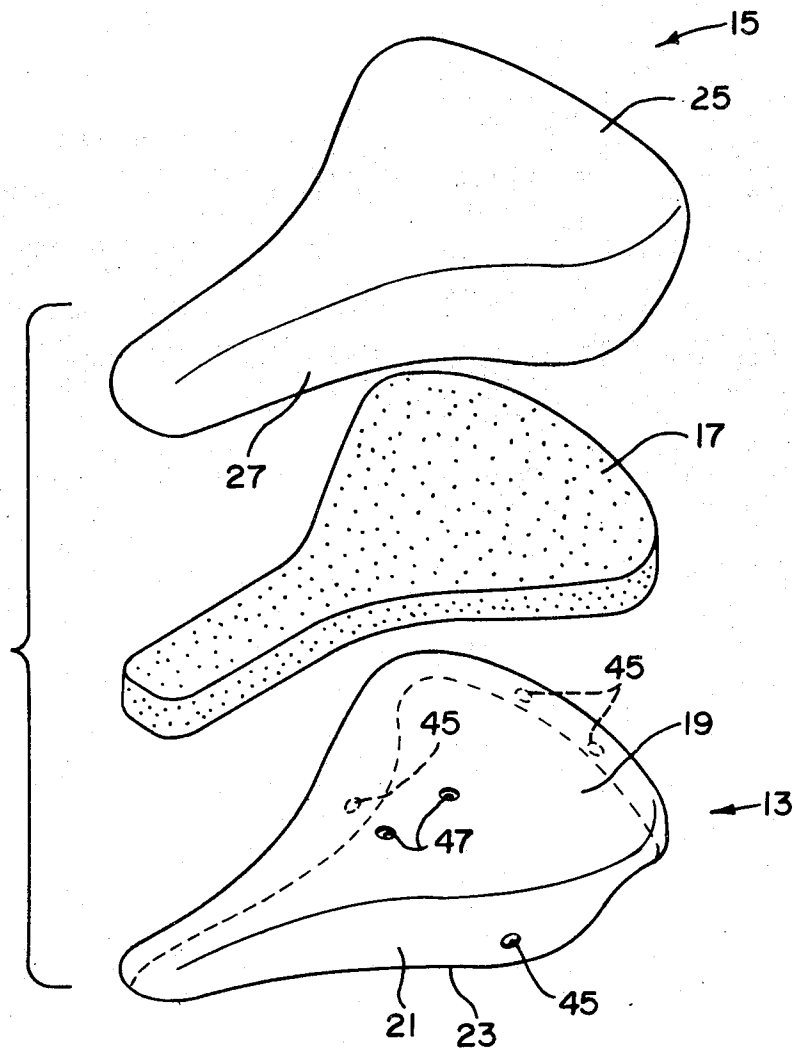


FIG. 1

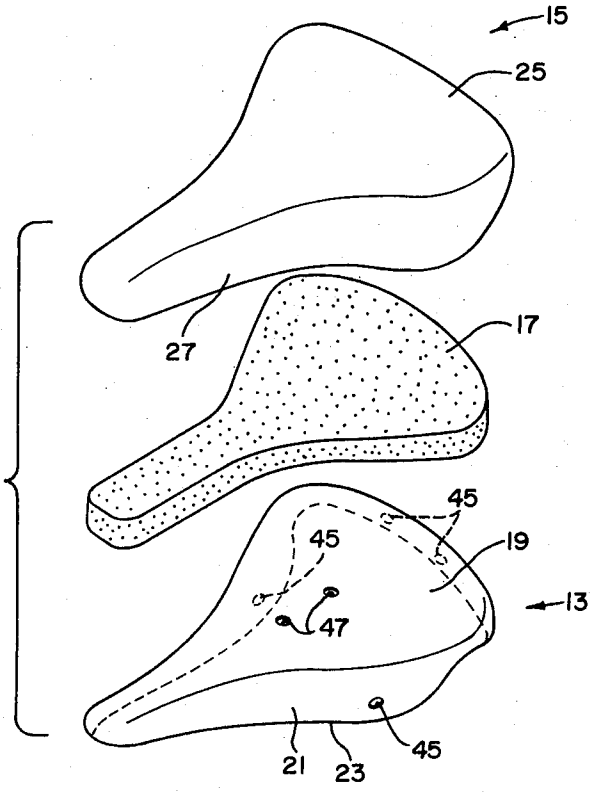


FIG. 2

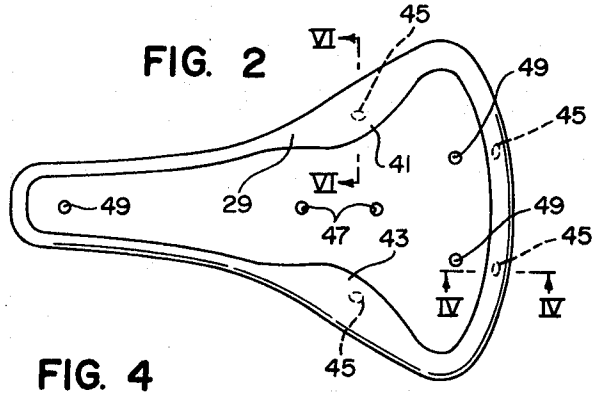
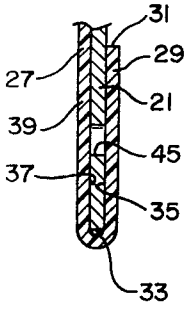


FIG. 4

FIG. 3



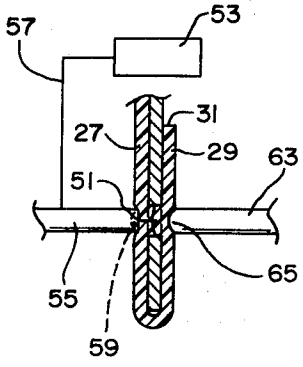


FIG. 5

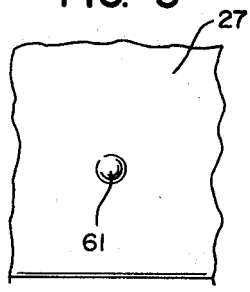
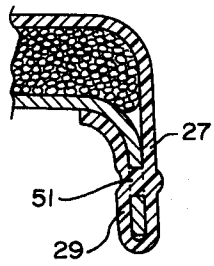


FIG. 6



CYCLE SADDLE AND METHOD OF FORMING SAME

BACKGROUND OF THE INVENTION

1. Field of the Invention: This invention relates to a cycle saddle of the type to be used on bicycles, tricycles, or the like, and to the method of forming the saddle.

2. Description of the Prior Art: In the assembly of cycle saddles having plastic covers, there have heretofore been several methods of retaining the plastic cover on the metal frame of the cycle saddle. For example, the plastic cover shown in U. S. Pat. No. 3,131,969 owned by the assignee of the present invention, shows means for attaching the cover to the frame by providing a channel on the frame to grip a bead on the lower edge of the cover to hold the cover in place.

Another example of means for holding a unitary plastic cover for a bicycle saddle on the bicycle frame is shown in Mesinger U. S. Pat. No. 3,077,363. In this patent, the top covering is resilient and is assembled by forcing it onto the frame and held thereon by the web portions which extend across the nose and rearward corner portions of the saddle cover beneath the portions of the frame.

In U. S. Pat. No. 3,146,024, owned by the assignee of the present invention, there is shown a plastic pad secured by means of projections extending through apertures in the saddle frame and which projections are heated with a hot iron or the like to flatten the ends of the projections and establish heads for holding the cover in place.

In U. S. Pat. No. 3,588,171, also owned by the assignee of the present invention, there are shown plastic lugs provided on the saddle cover which extend through apertures in the frame and are secured therein by heating the ends to provide heads on the lugs. In a modified embodiment, there is securing means including a plurality of bendable spaced tabs projecting inwardly and downwardly from the skirt portions of the frame for engaging the inner flange of the cover adjacent the distal edge thereof to anchor the inner flange to the frame.

It will be understood that there are certain disadvantages in the prior art including disadvantages in the molding process of the plastic covers with projections or web portions thereon. Thus, it can be seen that such projections or web portions complicate the molding procedure and make it more difficult to mold the covers.

SUMMARY OF THE INVENTION

The present invention is directed towards overcoming the heretoforementioned and other disadvantages in previous cycle saddles and methods of forming same. Thus, one of the objects of the present invention is to provide improved means for securely holding the cover of the cycle saddle onto the frame without the necessity of projections, tabs, rivets, webs or the like.

A further object is to provide such a saddle and method for forming same which is easy to assemble, economical to manufacture and which securely holds the saddle cover onto the frame.

The concept of the present invention is to provide a cycle saddle including a plastic cover having a depending skirt and an inner flange, apertures provided through the frame spaced below the distal edge of the flange, and the skirt and flange including integrally fused portions extending through the apertures in the frame to anchor the cover onto the frame.

In addition, flap means are provided for preventing the seat cover from becoming disengaged from the frame, particularly when the integrally fused portions are not utilized on the flap means.

The method of the present invention includes, in general, a method of providing the above-mentioned cycle saddle and comprises the steps of providing the frame with depending skirt portions having a plurality of apertures therethrough, providing a plastic cover provided with a depending skirt having a substantially smooth inner surface portion and provided with a flange integrally attached to said depending skirt at the lower edge thereof having a substantially smooth surface opposing said inner portion surface of said skirt and defining with said inner surface portion an upwardly extending groove, placing said cover on said frame with said depending skirt portions of said frame extending into said groove and with said apertures being disposed in said groove between said inner surface of said flange and said inner surface portion of said skirt, relatively moving said inner surface of said flange and said inner surface portion of said skirt into adjacency through said apertures, and applying high frequency means to said skirt and said flange adjacent said apertures for causing portions of said skirt and said flange to fuse into integrally fused portions extending through said apertures to anchor said cover onto said frame.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view showing the three parts of the cycle saddle of the present invention before assembly.

FIG. 2 is a bottom view of the cycle saddle after assembly.

FIG. 3 is a fragmentary sectional view taken through one of the apertures on the frame and showing the disposition of the cover relative thereto after being assembled with the frame.

FIG. 4 is a view similar to FIG. 3 and taken as on the line IV—IV of FIG. 3 showing the cover after having been fused, and showing schematically the fusing means.

FIG. 5 is a fragmentary elevational view showing an example of the outside configuration of the fused portion of the cover.

FIG. 6 is a fragmentary sectional view taken as on the line VI—VI of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The saddle 11 of the present invention comprises, in general, a frame 13, preferably formed of a single piece of sheet metal by cutting and stamping operations, a unitary cover 15, formed of plastic, preferably vinyl, and, if desired, a cushion 17 disposed on top of frame 13 and between the frame and the cover 15. The top 19 of frame 13 is of any desired shape, as viewed from above, depending upon the type of saddle and is provided with integrally formed downwardly bent skirt portions 21 terminating in a lower edge 23.

Cover 15 is preferably formed by injection molding in the shape as best seen in FIGS. 1 and 2, although other shapes may be provided depending on the particular style or type of cycle saddle, without departing

from the spirit and scope of the present invention. Cover 15 includes a top 25 similar in shape to top 19 of frame 13 and a skirt 27 is integrally formed with top 25 and depends therefrom around the outer edges of the top. The skirt 27 conforms in shape generally to the skirt portion 21 of frame 13 although skirt 27 is preferably somewhat longer than skirt portion 21 so that when the frame 13 and cover 15 are in an assembled relationship, there is a space between tops 19 and 25 to accommodate cushion 17. In addition, cover 15 is provided with an inner flange 29 integrally attached to skirt 27 at the lower edge thereof and extending upwardly therefrom terminating in a distal edge 31 to provide an upwardly extending groove 33 defined by the inner surface 35 of flange 29 and the inner surface 37 of an opposite portion 39 of skirt 27. Inner surfaces 35 and 37 are smooth, that is, they are not provided with any projections such as plastic lugs or the like, heretofore found in some of the prior art. As best seen in FIG. 2, flange 29 on the opposite sides of the saddle is preferably extended inwardly towards each other to form flaps 41, 43.

In the assembled relationship of frame 13, cover 15 and cushion 17, the cover 15 is placed over frame 13 with skirt portions 21 of frame 13 being disposed in groove 33 and with cushion 17 being disposed between tops 19, 25.

Frame 13 is provided with a plurality of apertures 45 therethrough adjacent lower edge 23 and spaced below distal edge 31 of flange 29. Apertures 45 are preferably disposed through skirt portions 21, as follows: A pair of the apertures 45 are preferably provided on either side of the longitudinal centerline of the cycle saddle in the rearward part of the skirt portions 21, and other apertures 45 are preferably provided respectively on opposite sides of skirt portions 21 adjacent flaps 41, 43. The location of these apertures can best be seen by reference to FIGS. 1 and 2. Also, there is provided in frame 13 a pair of air holes 47 adjacent a midportion of the top 19. In addition, there are provided threaded studs 49 fixedly attached to the underside of top 19 and depending therefrom for the purpose of attaching cycle saddle 11 to the supporting structure, not shown, of the cycle saddle.

In the anchoring of cover 15 to frame 13, the inner surfaces 35, 37 are moved into adjacency through the apertures 45 and are fused into integrally fused portions 51 extending through apertures 45 to anchor the cover onto the frame. The high frequency means is preferably suitable ultrasonic means above the radio frequency range, although it is not intended to exclude radio frequency or dielectric fusing means. The ultrasonic means include an ultrasonic generator which is schematically depicted as at 53 in FIG. 4 with the output of the ultrasonic generator 53 being coupled to a tool 55 by suitable means shown diagrammatically as at 57. The ultrasonic generator 53 and conducting means 57 are of suitable construction well known to those skilled in the art for generating ultrasonic waves of a higher frequency than radio frequency and conducting same to tool 55. Tool 55 is of a conducting material for the ultrasonic waves and is preferably, though not necessarily, cylindrical in shape and has an end configuration 59 for contacting cover 15 to form the desired outer configuration of the fused portion 51. In the example given, the end configuration 59 is concave so that when the plastic is fused, the outer configuration of the fused portion 51 is in the form of a rivet head 61. There is a corresponding inner tool part 63 which is formed of a suitable non-conducting or insulating material and which has an end configuration 65 which is complementary to end configuration 59. Thus, end configuration 65 is concave and adapted to mate with end configuration 59 with the material of skirt portion 21 therebetween. The diameter or cross sectional size of ends 59 and 65 are respectively less than the diameter or size of apertures 45. To fuse the plastic, the tool parts 55, 63 are lined up on either side of skirt portions 21 successively and in alignment with each one of the apertures 45. Then, the tool part 55 and/or 63 are moved inwardly relative to each other to move the surfaces 35, 37 into adjacency. With the parts so held, the ultrasonic generator 53 is activated to apply ultrasonic waves to skirt 27 and flange 29 adjacent an aperture 45 for causing portions of the skirt and flange to fuse into an integrally fused portion 51 extending through an aperture 45. It will be understood that this step is repeated at each of the apertures 45 to anchor cover 15 onto frame 13.

From the foregoing, it will be apparent that a unique and inexpensive means for anchoring a saddle cover onto the frame of the saddle is provided which is economical and easy to manufacture, yet is very effective.

It should be pointed out that in some cases it may be desirable to omit the fusing heretofore described, in which case the flaps 41, 43 become increasingly important. Thus, the flaps 41, 43 prevent the seat cover 15 from becoming disengaged from frame 13, particularly when the fusing is omitted from the flaps. In other words, if flaps 41, 43 were not there, the weight of the rider pushing downwardly on the skirt 27 on opposite sides of the saddle would cause the flange 29 of the cover 15 to become disengaged in these areas.

Although the invention has been described and illustrated with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications may be made therein which are within the full intended scope of this invention.

I claim:

1. A cycle saddle comprising a frame having a top and depending skirt portions terminating in a lower edge; a plastic cover including a top, a depending skirt, and an inner flange integrally attached to said skirt at the lower edge thereof and extending upwardly therefrom terminating in a distal edge to provide an upwardly extending groove defined by the inner surface of said flange and the inner surface of an opposing portion of said skirt, said cover being mounting over said frame with said lower edge of said frame being received in said groove, said frame being provided with a plurality of apertures therethrough adjacent said lower edge and spaced below said distal edge of said flange, said skirt and said flange including integral fused portions extending through said apertures to bring the inner surface of said flange and the inner surface of the opposing portion of said skirt into adjacency and to anchor said cover onto said frame.

2. The cycle saddle of claim 1 in which said inner flange is extended on opposite sides of said saddle to provide a pair of flaps extending generally inwardly towards one another, and at least one of said fused portions being adjacent each of said flaps.

3. A cycle saddle comprising a frame having a top and depending skirt portions terminating in a lower

edge; a plastic cover including a top, a depending skirt, and an inner flange integrally attached to said skirt at the lower edge thereof and extending upwardly therefrom terminating in a distal edge to provide an upwardly extending groove defined by the inner surface of said flange and the inner surface of an opposing portion of said skirt, said cover being mounting over said frame with said lower edge of said frame being received in said groove, and said inner flange being extended on opposite sides of said saddle to provide a pair of flaps extending inwardly generally towards one another adjacent the underside of said frame.

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