Sept. 21, 1937. J. W. BRANDT 2,093,906

SADDLE

Filed Oct. 8, 1932 2 Sheets-Sheet 1

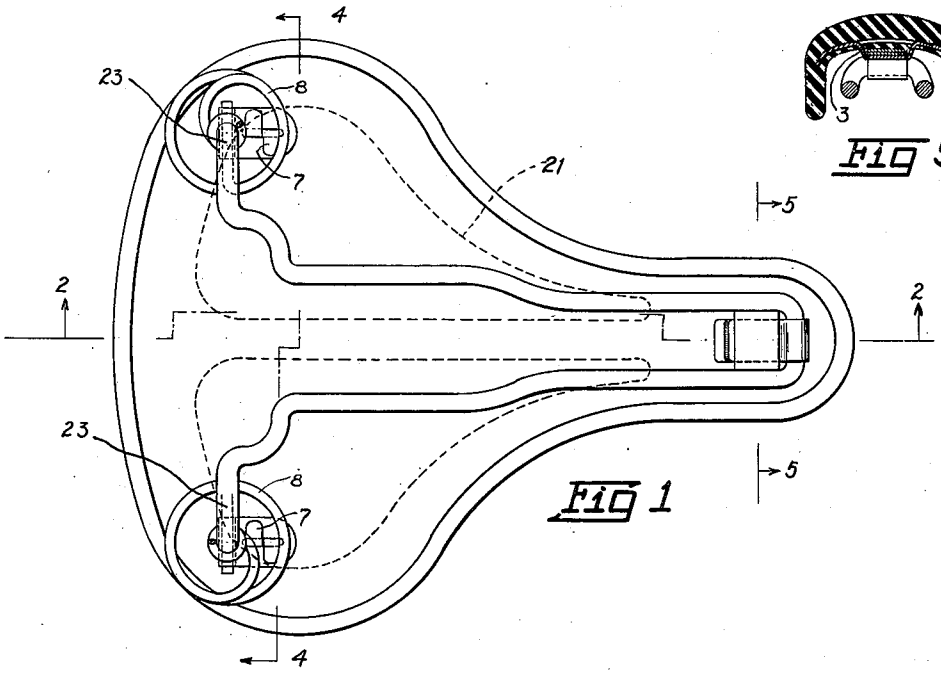


Fig 1

Fig 5

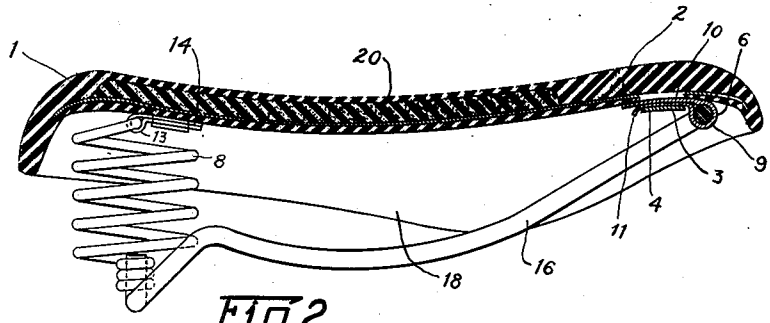


Fig 2

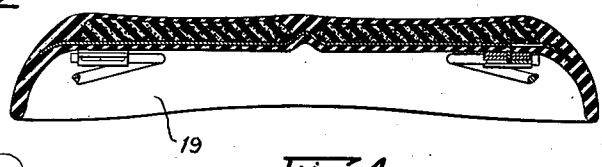


Fig 4

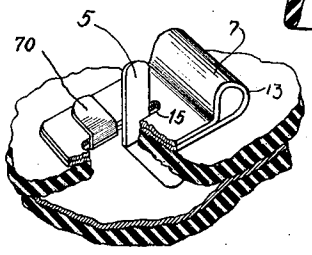


Fig 3

INVENTOR.

BY John W. Brandt
Slough and Canfield

His ATTORNEYS

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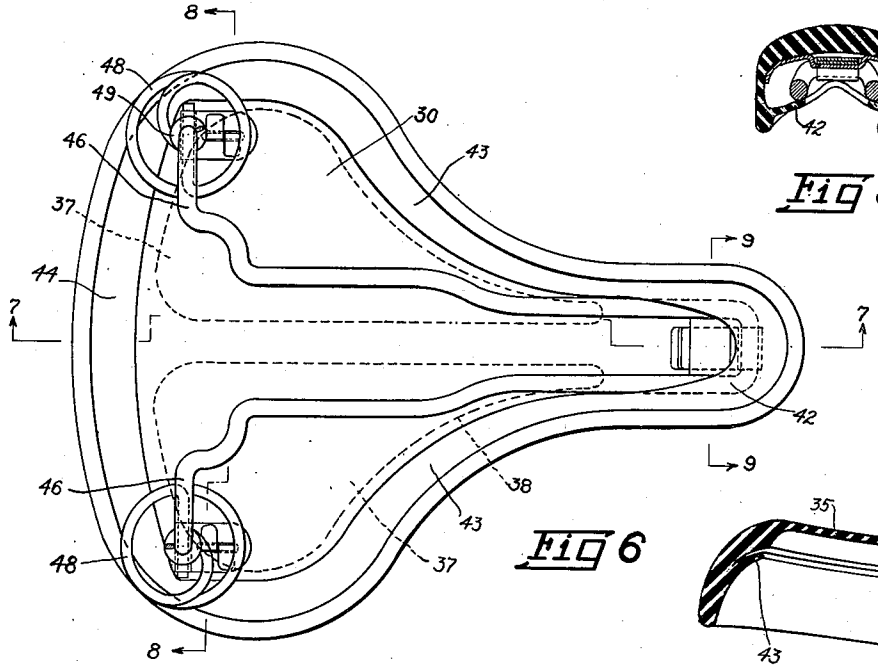


Fig 6

Fig 9

Fig 10

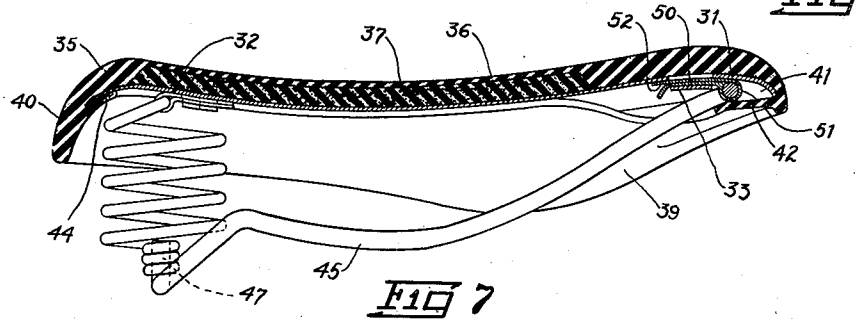


Fig 7

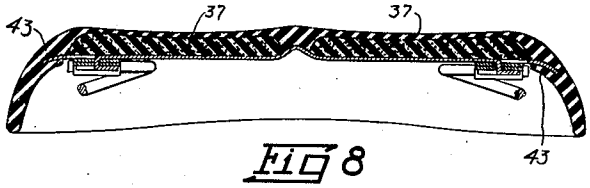


Fig 8

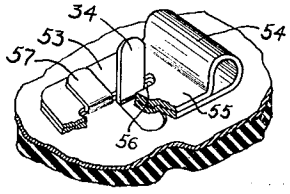


Fig 11

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Patented Sept. 21, 1937 2,093,906

UNITED STATES PATENT OFFICE

2,093,906

SADDLE

John W. Brandt, Elyria, Ohio, assignor to The Troxel Manufacturing Company, Elyria, Ohio, a corporation of Ohio

Application October 8, 1932, Serial No. 636,883

6 Claims. (Cl. 208—15)

My invention relates generally to saddles, and more particularly to saddles of the general type employed for cycles.

The saddles previously in common use, with which I am familiar, are subjected to a number of objections; those which are entirely made of leather do not have the quality of riding comfort to a satisfactory degree, so that commonly saddles have been made and used wherein a top layer of leather overlies a layer of cushioning material, such as felt or the like, there being commonly a base structure such as sheet metal to which the top covering is affixed in a number of different ways.

Commonly a layer of fabric material, such as canvas or the like, are superposed under the cushioning material and the different layers are stitched together in a relatively expensive manner.

Due to the increased cost of leather in later years, substitutes for leather have been commonly used. Such leather and leather substitute materials absorb moisture and when exposed to the elements deteriorate, and soon lose the smooth, glossy frictionless surface so much desired by the riders of cycles.

An object of my invention is to provide an improved vehicle saddle of the above type in a molded unit comprising a suitable cover and a cushion of sponge rubber or the like, underlying the molded top.

Another object of my invention is to provide an improved saddle cushioned in such a manner as to provide for the greatest comfort to the rider, and so reinforced as to provide against deformation while being used and having sufficient inherent resiliency that when flexed in use it will restore to its normal unstressed form.

Another object of my invention is to provide an improved vehicle saddle or top structure which is relatively inexpensive to manufacture and assemble.

Another object of my invention is to provide an improved vehicle saddle top structure which is neat appearing and possesses exceptional resiliency and cushioning qualities.

Another object of my invention is to provide an improved vehicle saddle top structure designed to remain integrally secured to the under structure despite exceptionally severe usage or strains.

Another object of my invention is to provide a vehicle saddle, the surface of which becomes durably smooth with continued usage.

These and other objects of the invention will become increasingly apparent from a consideration of the following description and drawings, wherein:

Fig. 1 is a bottom plan view of a vehicle saddle embodying a preferred form of my invention;

Fig. 2 is a medial sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary view illustrating the manner of attaching the seat base to the spring;

Fig. 4 is a transverse sectional view taken along the line 4—4 of Fig. 1;

Fig. 5 is a transverse sectional view taken along the line 5—5 of Fig. 1;

Fig. 6 is a bottom plan view of a modified form of construction which I may employ;

Fig. 7 is a section taken along the line 7—7 of Fig. 6;

Fig. 8 is a section taken along the line 8—8 of Fig. 6;

Fig. 9 is a section taken along the line 9—9 of Fig. 6;

Fig. 10 is a fragmentary view showing a rubber plate which I may employ before the introduction of a reinforcing plate; and

Fig. 11 is a fragmentary view of a construction which I may employ for securing the saddle to the under structure.

Referring to the drawings, I have shown at 1 a molded rubber seat element having embedded therein, by the molding operation, a preferably sheet metal element 2 which acts as a reinforcing member. The element 2 is generally triangular in shape and preferably conforms in contour to the saddle seat outline and, as indicated in the sectional views, the border portions of the element 2 extend substantially toward the edges of the seat 1 and are encased in molded rubber or the like.

The molded rubber element 1, is preferably of ordinary flexible rubber such as used in automobile tires, rubber gloves, and the like, and may vary widely in composition whereby different degrees of flexibility, surface hardness, and stiffness may be achieved.

The element 2 at the pommel end thereof is provided with a generally U-shaped integral strap 3 formed by slitting the element along spaced transversely extending substantially parallel lines and off-setting the intervening portions of the element 2 downwardly.

Rearwardly of the element 2 and at oppositely disposed points, tongues 5, as indicated in Fig. 3, are pressed from the element 2 for a purpose to be later described, and the strap 3 and tongues 5—5 are of sufficient length to project through portions of the rubber or the like which are

molded to and disposed below the element 2 and still provide a gripping means for a clip 6 adapted to secure a reach rod 16 to the element 2 and clips 7—7 adapted to secure springs 8—8 to the rear portion of the element. The clip 6 comprises an eye portion 9, and a body portion 10 comprising superimposed planular extensions, the extensions being adapted to be projected through the U-shaped portions of the element 2 formed by the strap 4 and secured therein preferably by clamping over the lower extension as indicated at 11.

Clips 7—7 comprise an eye 13 and body portion of superimposed planular extensions as indicated at 14, the body portion being perforated to provide a longitudinal slot 15. The clip 6 and the clips 7—7 are adapted to secure a reach rod 16 and springs 17—17 respectively to the element 2 and the molded seat portion 1.

The tongues 5—5 are projected through the slit 15 and bent over as indicated at 70, thereby locking the clip to the base. As is most clearly illustrated in Fig. 3, a layer of rubber is interposed between the clips 6 and 7 and the element 2 thus ensuring additional resiliency and minimizing any tendency of the seat to squeak.

The element 2 is stamped and perforated as previously described and placed in the mold with a layer of rubber both above and beneath and extending beyond the peripheral portions of the element. As indicated at 18, the sides of the seat extend downwardly and are integrally molded to a downwardly extending rear portion 19, the contour of which is best illustrated in Fig. 4.

To add to the riding comfort, in the use of the saddle, a relatively soft cushion element 20, composed preferably of sponge rubber, is preferably molded within the enclosing outer body of relatively harder rubber; a layer of relatively hard rubber is preferably disposed intermediate the element 2 and the sponge rubber and a thin layer of the relatively harder rubber covers the surface of the sponge rubber. The wearing qualities attained by utilizing relatively durable harder rubber for the seat surface are not sacrificed, yet considerable additional resiliency resulting in greater riding comfort is obtained by the provision of the interiorly pocketed sponge rubber.

Although the rubber pocket containing the sponge rubber may take any desired form, I preferably utilize a generally triangular shape in contour as indicated by dotted lines 21, thus providing the greatest resiliency at points where the greatest pressure is exerted upon the seat by the rider.

The reach rod 16 is secured to the springs 8—8 in any desired manner and constitutes no essential part of my invention. The springs 8 are preferably so constructed that the upper spring end convolutions terminate in outwardly extending arms 23 disposed transversely of the seat and are projected through the eyes 13—13 of the clips 7, previously described.

The construction as described provides a seat of rugged construction, and great resiliency, which is economical of manufacture and assembly.

Although I do not limit myself to the specific construction shown and described for securing the seat to the reach rod and helical spring, I preferably employ the shown construction, utilizing clips whereby a relatively great hinging action may be obtained at the connection point permitting greater resiliency and adjustability of the saddle to conform to road shocks and the like.

I have illustrated in Figs. 6 to 11 another embodiment of my invention wherein a sheet metal plate is secured to a molded rubber saddle top structure by so forming the molded rubber top as to constrictingly engage the border portions of the plate.

In the embodiment shown, a sheet metal plate 30 generally similar to the plate 2 previously described is employed, the plate comprising a pommel portion 31 and a cantle portion 32 and in contour conforms to the general shape of the saddle.

The pommel portion 31 of the metal plate 30, is preferably provided with a downwardly extending U-shaped strap 33 formed by providing spaced transversely extending slits and pressing the intervening metal downwardly.

The cantle portion of the plate 30 is provided with downwardly extending tongues 34 formed by perforating the plate in a Z-shaped manner and bending the perforated portion downwardly whereby the tongues 34 will be contained in a plane extending longitudinally of the plate.

The saddle top construction is adapted to be supported by the plate and comprises a preferably molded rubber body 35 provided with a pocket or pockets 36 on the under side of the unit within which is disposed cushioning means 37 secured therein in any suitable way, such as by use of an adhesive, by molding integrally with the body 35, or by merely fitting it therein. The cushioning means 37 preferably comprises sponge rubber and may, as best illustrated in Fig. 6, conform generally to the saddle contour, being usually as shown spaced inwardly from the border portions thereof as indicated at 38. Although I have shown two pockets 37—37, it is understood that a single pocket or any desired number of pockets may be employed.

For the purpose of securing the rubber body constituting the top of the saddle to the metal reinforcing and supporting plate 30, I provide a preferably continuous inturned flange of the rubber body disposed near its borders on the underside of the body, said flange comprising the rear flange portion 44 and lateral flange portion 43, and a forward flange portion 42, which is in the form of a wedge bridging the two lateral flange portions, and providing a socket 41.

The reinforcing plate 30 is secured to the rubber plate 35 by inserting the pommel end portion of the plate 30 within the pocket 42 and stretching the borders of the rubber body 35 whereby the aforementioned inturned flanges of the body 35 will be snapped within the channel or groove provided under and towards the sides as a result of the provision of the flanges 44, 43, and web flange 42.

In normal use, the reinforcing plate 30 will thus be entirely gripped by the downwardly extending lateral and rear portions of the rubber body 35. The plate 30 and rubber body portion 35 will thus be easily and permanently secured together due to the constricting action of the rubber, which, retracting after deformation during assembly, will cause the channel groove to receive the border portions of the reinforcing plate 30. The channel groove is so formed as to tightly engage the reinforcing plate thus insuring absence of play between plates 30 and 35 despite severe and constant usage.

I provide a reach rod 45 generally triangular in shape having a U-shaped front portion and provided with laterally extending prongs 46—46 at the cantle or rearward end of the rod. The

prongs 46 terminate in upwardly extending projections 47 adapted to engage laterally spaced helical springs 48—48; the bottom convolutions of the springs 48 are closely spiraled to encircle the portions 47 of the reach rod at the spring axis. The upper end convolutions of the springs 48 are bent laterally inwardly as indicated at 49, whereby the spring may be secured to the saddle in a manner to be hereinafter described.

To secure the U-shaped front portion of the reach rod to the saddle, I provide a clip 50 comprising an eye 51, and a body portion 52 comprising superimposed planular extensions. The planular extensions are forced over the reach rod so that the eye 51 forms a hinging support therefor and the planular extensions or body portion is forced through the U-shaped strap 33 of the reinforcing plate 30, the end of one of the planular extensions being bent downwardly whereby the clip 50 is securely locked to the saddle. This provides a simple and inexpensive locking means and permits of a desired hinging action between the pommel of the saddle and the reach rod.

The springs 48 are secured to the reinforcing plate 30 in a manner best illustrated in Fig. 11. I provide a clip 53 having an eye portion 54 and a body portion 55 comprising superimposed planular extensions, the body portion being provided with a central slot as indicated at 56. The tongues 34 are projected through the slot 56 and bent laterally as shown at 57. The laterally extending spring end 49 thus hingingly engages the eye 54.

Although it is understood that any desired understructure may be employed, I preferably employ the aforementioned structure due to the added resiliency and flexibility attained due to the hinging action effected at both the pommel and cantle portions of the saddle.

This construction provides a relatively inexpensive saddle possessing great resiliency, the top structure comprising a molded unit easily secured to the reinforcing plate.

Although I have shown and described modifications of my invention, I contemplate that numerous and extensive departures may be made therefrom without departing from the spirit of my invention and the scope of the appended claims.

Having thus described my invention, what I claim is:—

1. A cycle saddle comprising a sheet metal plate having portions pressed therefrom whereby it may be secured to a reach construction, a relatively hard rubber molded body provided with downwardly extending laterally yieldable portions, an inner peripheral groove being provided substantially at the juncture of said portions with the body, the edges of said plate extending outwardly into said groove, a body of sponge rubber intermediate said plate and the top surface of the body terminating inwardly of the groove portion and body.

2. A seat of the class described comprising a body of molded rubber, a sheet metal reinforcing plate embedded in the molded rubber and stamped out tabs on said metal plate which protrude from the surface of the surrounding rubber for attachment purposes.

3. A seat of the class described comprising a body of molded rubber, a sheet metal reinforcing plate embedded in the molded rubber, spaced pads of relatively soft cushioning rubber disposed above the plate and covered by a relatively thin top layer of the molded rubber, the pads being integrally molded with the rubber body, and attaching means depending from the underside of the seat.

4. A seat of the class described comprising a body of molded rubber, a sheet metal reinforcing plate having its peripheral portions, at least, embedded in the molded rubber, spaced pads of relatively soft cushioning rubber disposed above the plate covered by a relatively thin layer of the molded rubber, the pads being integrally molded with the rubber body and underlying a major portion of the seating area, and attaching means depending from the seat base.

5. A seat of the class described comprising a body of molded rubber, a sheet metal reinforcing plate embedded in the molded rubber, spaced pads of relatively soft cushioning rubber disposed intermediate the plate and a top relatively thin layer of the molded rubber, the pads being integrally molded with the rubber body and being substantially symmetrically disposed on each side of the longitudinal median line of the seat, and attaching means depending from the seat base.

6. A seat of the class described comprising a body of relatively hard molded rubber, a sheet metal reinforcing plate having its peripheral portions, at least, constrictingly engaged by the relatively hard rubber, spaced pads of relatively soft cushioning rubber disposed above the plate terminating a substantial distance inwardly of the plate peripheral portions, the pads being covered by relatively thin layers of the molded rubber and being integrally molded with the rubber body, and attaching means depending from the plate for securing the seat to a supporting structure.

JOHN W. BRANDT.