Feb. 11, 1936. J. W. BRANDT 2,030,809

SADDLE

Original Filed July 13, 1933 2 Sheets-Sheet 1

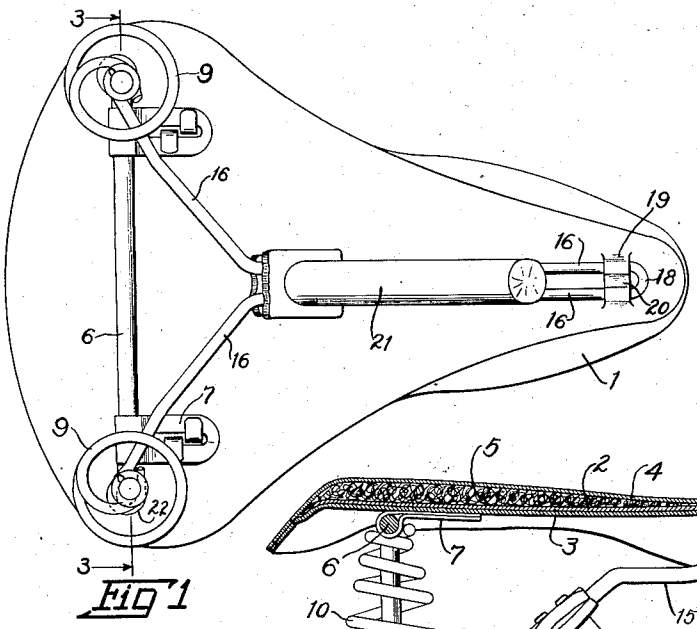


Fig 1

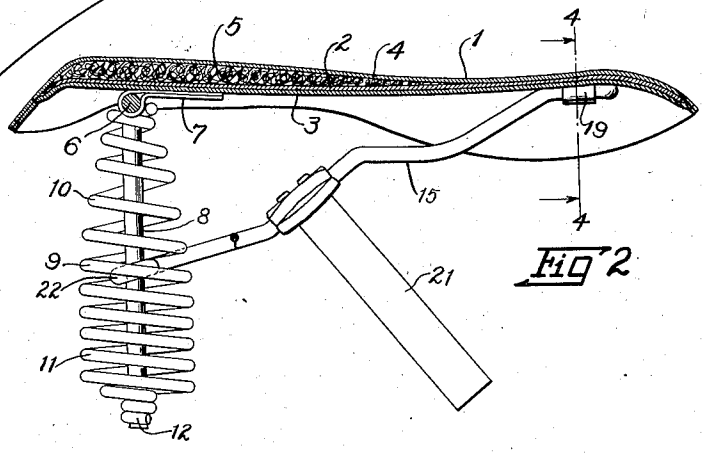


Fig 2

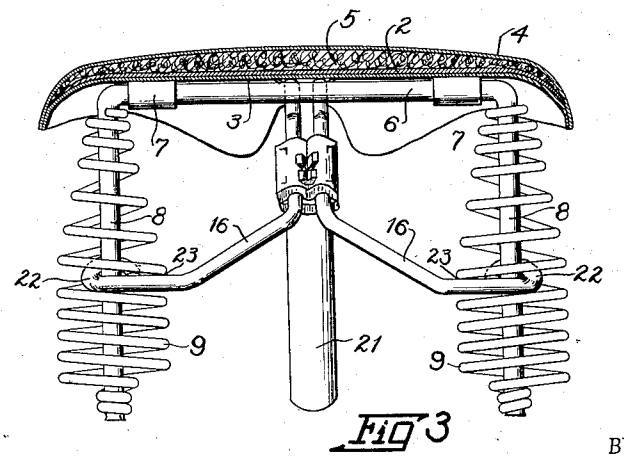


Fig 3

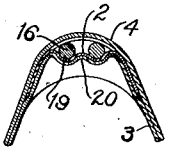


Fig 4

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SADDLE

Original Filed July 13, 1933 2 Sheets-Sheet 2

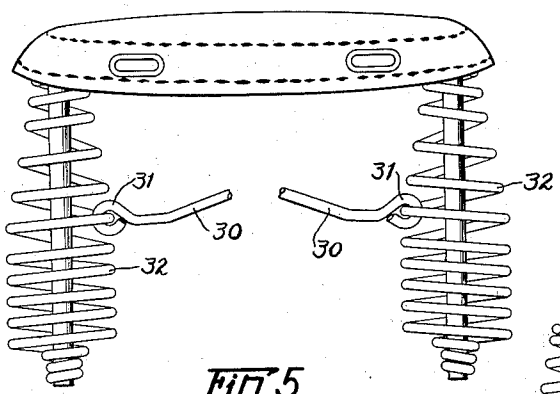


Fig 5

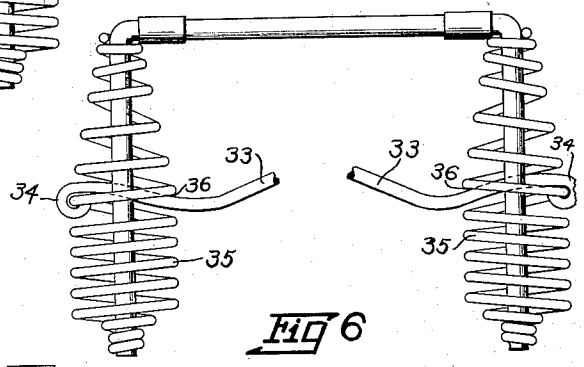


Fig 6

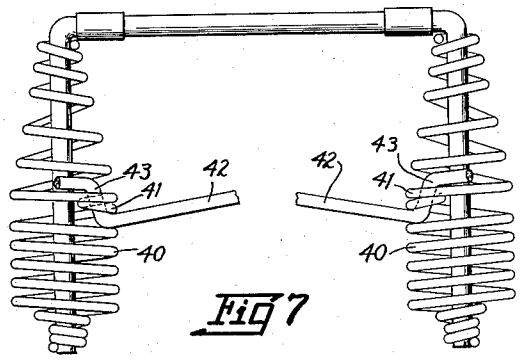


Fig 7

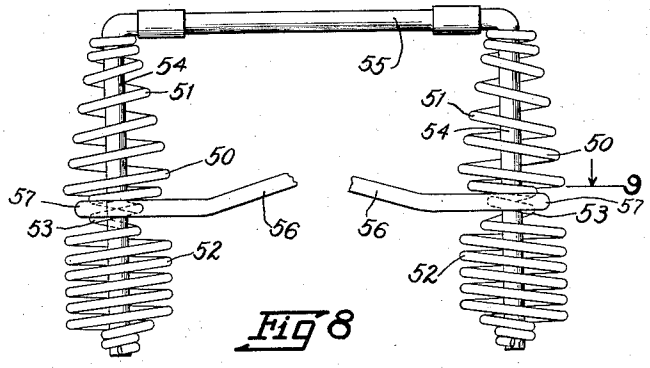


Fig 8

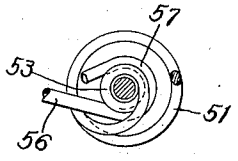


Fig 9

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Patented Feb. 11, 1936

2,030,809

UNITED STATES PATENT OFFICE

2,030,809

SADDLE

John W. Brandt, Elyria, Ohio

Application July 13, 1933, Serial No. 680,235
Renewed July 1, 1935

9 Claims. (Cl. 208—15)

My invention relates to saddles of the type adapted to be used for bicycles, motor-cycles, velocipedes, and the like, and particularly to a saddle which is supported at the rear end by a pair of springs, one on each side, each spring including a tension portion and a compression portion with both portions of each spring arranged to support the load imposed on the saddle.

It is an object of the invention to provide a saddle of the type referred to of improved construction, affording a high degree of comfort in use.

Another object of the invention is to provide a saddle which will be simple in construction, inexpensive to manufacture, and which is efficient in operation.

A further object of the invention is to provide an improved saddle employing a minimum of parts which are capable of being very inexpensively fabricated.

Another object is to provide improved means for connecting the spring or springs with the reach bar.

Other objects of the invention and features of novelty will be apparent from the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a bottom plan view of one form of improved saddle provided by my invention;

Fig. 2 is a longitudinal medial sectional view of the saddle shown in Fig. 1;

Fig. 3 is a sectional view taken substantially along the plane 3—3 of Fig. 1;

Fig. 4 is a sectional view taken substantially from the plane 4—4 of Fig. 2;

Fig. 5 is a fragmentary rear elevational view of another embodiment of my invention;

Figs. 6, 7, and 8 are views similar to Fig. 5, but with the seat element removed, and showing other embodiments of my invention; and

Fig. 9 is a sectional view taken from the plane 9—9 of Fig. 8.

Referring to the drawings, I have shown in detail a preferred form and several modifications of the saddle construction provided by my invention.

In the drawings I have illustrated at 1 the saddle seat element, the construction of which constitutes no essential part of my invention which may, according to the well known practice, comprise a sheet metal frame 2, an inner or bottom cover 3 of leather, cloth, or the like, an outer cover 4 of leather or the like, and suitable filling material 5.

A U-shaped yoke 6 having the closed end thereof disposed adjacent the frame 2 and extending transversely thereof, is hingedly or pivotally connected to the frame by clips 7, or by other suitable means. The legs of the yoke 6 depend from the frame as at 8, and extend axially through aligned springs 9. As shown in Figs. 2 and 3 of the drawings, each of the springs 9 comprises an upper portion 10 and a lower portion 11, the upper portion being an open wound conical spring and the lower portion being a more closely wound helical spring. The lowermost portions of the springs are tightly wound, as at 12, and grip the ends of the members 8. It will be seen that the springs 9 are each constructed of a single continuous length of resilient flexible material and have two portions, a tension portion and a compression portion.

As shown in the drawings, there is a forwardly and rearwardly extending reach member indicated generaly by the reference character 15, which may be constructed in any desired manner and which, as shown in the drawings, comprises a pair of generally parallel arms 16 which are joined at their forward ends by a yoke portion 18.

The forward end of the reach member may be secured to the saddle seat element in any desired manner, and as shown in the drawings, the sheet metal body of the seat element has a portion 19 depressed from the main body and the forward end of the reach member is fitted between the portion 19 and the body of the seat element. The portion 19 may then be depressed, as at 20, between the arms 16 of the reach member so that the forward end of the reach member can slide slightly relative to the saddle seat when weight is placed on the seat, but cannot pull out from under the portion 19. A saddle post clamp device, indicated generally at 21, is clamped upon the mid-portion of the reach element.

The arms of the reach member are bent outwardly adjacent their rear ends and terminate in eyes 22 which are slidably fitted on the rods 8. It will be seen that the rear ends of the arms of the reach member extend between the convolutions of the springs 9, preferably at about the point where the conical portions and helical portions meet.

When weight is placed on the saddle, the upper portions of each of the springs is pushed downwardly and one of the convolutions of the spring engages an arm of the reach member, as at 23, so that the conical portion of the spring is compressed. This permits the rod 8 to move downwardly, and as the lower end of the spring is rigidly secured to the rod, and as one of the convolutions of the spring is held by the arm of the reach rod, the lower portion of the spring, that is, the helical portion, is expanded.

It will be seen that the load on the saddle is supported in two ways; that is, by the tension spring and by the compression spring. Since the load is supported by two springs, I am enabled to reduce the size of the springs over construc-

tions where all of the weight is transmitted to the spring in a single manner. By thus making the springs lighter, they may be made more elastic and thus give an easier support to the rider. It will be seen that in the construction provided in this application, while the springs operate both as compression springs and tension springs, they are constructed as a single spring, from a single continuous length of wire. This greatly reduces the cost of manufacture of the springs, and also eliminates the necessity for any means for securing the two springs together. It will also be seen that the reach bar is directly interlocked with the springs without the use of bolts, washers or other intermediate parts.

Somewhat different means of connecting the ends of the arms of the reach bar to the springs is illustrated in Figs. 5 to 8 inclusive. As shown in Fig. 5, the ends of the arms **30** of the reach bar are provided with closely bent loops **31** which engage the inner face of one of the convolutions of the springs **32** adjacent the mid-portion of the springs. In the form shown in Fig. 6, the arms **33** of the reach member extend between the convolutions of the springs **35** and diametrically across the springs, terminating in closed loops **34** which engage the outer portions of one of the convolutions of each of the springs. Each of the arms **33** of the reach bar also engages a portion of another convolution of the spring adjacent the inner edge of the spring, as at **36**, so that load on the spring is transmitted to the reach bar at two points adjacent opposite sides of the spring.

It will be seen that in the embodiments of the invention shown in Figs. 5 and 6, the springs **32** and **35** are substantially identical in construction with the springs **9** employed in the saddle illustrated in Figs. 1–3, and are formed of a single continuous length of resilient flexible material, and have two portions, a compression portion located above the end of the arm of the reach member, and a tension portion located below the end of the arm of the reach member.

A still different form of the invention is illustrated in Fig. 7, and as illustrated, each of the springs **40**, which are generally similar to those employed in Fig. 1, is provided with a small loop or eye **41** adjacent the mid-portion. The ends of the arms **42** of the reach bar are off-set slightly as at **43** and extend through the eyes **41**. The portions of the springs above the eyes are compression springs, while the portions below the eyes are tension springs. The springs **40**, like those illustrated in Figs. 2, 5, and 6, are constructed of a single continuous length of resilient flexible material.

A still different form of construction embodying this invention is shown in Fig. 8. As shown in the drawings, the springs **50** employed in this form of construction each comprise an upper portion **51**, which is an open wound, generally conical portion, and a lower portion **52**, which is a more closely wound, generally helical portion. Intermediate the conical and helical portions, and connecting the upper portion and the lower portions, are convolutions of greatly reduced diameter, as at **53**, which closely surround the depending rods **54** of the U-shaped member **55**. The ends **57** of the arms **56** of the reach bar extend around the smaller convolutions **53** so as to be in load supporting engagement with these convolutions. The portions **51** of the springs **50**, above the portions of reduced diameter constitute a compression spring, while the portions **52** below the portions of reduced diameter constitute tension springs. It will be seen that the spring employed in the form shown in this figure, like the other springs illustrated in this application, is constructed of a single piece of wire.

It will be seen that in each of the embodiments of the invention illustrated and described, a single spring having both tension and compression portions is employed. It will further be seen that the reach bar has load supporting connection with the springs intermediate the ends of the springs and that weight on the saddle is transmitted to the reach bar through opposite ends of the springs; that is, by compressing the upper portions of the springs between the seat element and the reach bar, and by extending the lower portions of the springs when the lower ends of the depending rods to which the springs are secured, move downwardly away from the ends of the reach bar.

It will also be seen that in each of the embodiments of the invention illustrated and described herein, that the load supporting means, that is, the reach bar, is directly interlocked with the spring without the use of bolts, or clamping or special securing means of any kind.

The saddle construction provided by this application affords a high degree of comfort in use, and is simple in construction, is inexpensive to manufacture, and employs a minimum of parts which are capable of being easily fabricated.

While a preferred form of the invention and several modifications have been described and illustrated in detail, it should be understood that many changes and modifications may be made within the scope and spirit of my invention without sacrificing its advantages.

I claim:

1. In a saddle, a seat element, a pair of laterally spaced rods depending from said seat element and being pivotally secured thereto, each of said rods having a coiled spring associated therewith, each spring being secured at its lower end to its associated rod element, and a forwardly and rearwardly extending reach element, the forward end of said reach element being slidably secured to the seat element, the reach element terminating rearwardly in a pair of divergent arms, the end of each of said arms being intertwined with an intermediate convolution of one of said springs whereby the weight on the seat in use compresses the upper coils of the springs and exerts tensile stress on the lower coils.

2. In a saddle, a seat element, a pair of laterally spaced rods depending from said seat element and being pivotally secured thereto, each of said rods having a spring associated therewith, each spring being secured at its lower end to its associated rod element, and load supporting means including permanently joined arm members each intertwined with an intermediate convolution of one of said springs, and encircling the corresponding rod whereby the weight imposed on said seat element compresses the upper coils of the springs and exerts tensile stress on the lower coils thereof.

3. In a saddle, a seat element, a pair of laterally spaced rods depending from said seat element and being pivotally secured thereto, each of said rods having a spring associated therewith, each of said springs being secured at its lower end to its associated rod element, and load supporting means including members each extending substantially diametrically through a spring and between adjacent convolutions of said spring intermediate the ends thereof and being looped at its end with a convolution of said spring on the diametrically

opposite side thereof whereby the weight imposed on said seat element compresses the upper coils of the springs and exerts tensile stress on the lower coils thereof.

4. In a cycle saddle, a saddle seat, a reach member comprising a single piece of spring wire comprising a forwardly disposed yoke portion secured to the forward bottom portion of said seat and comprising a pair of laterally divergent rear end portions, and cushioning spring mechanism comprising a pair of spaced cushioning springs disposed in relative parallel relation pendantly supported from the rear bottom portion of said seat and including means for each of said cushioning springs interconnecting the upper and lower ends of each of said springs to limit the over-all axial extent thereof, said rear end portions of said reach member each making direct load communicating engagement with at least one of the intermediate convolutions of a different one of said springs and being freely movable therewith relative to end convolutions thereof, and comprising an eye portion encircling an operative element of said cushioning spring mechanism, said eye retaining said rear end portion in operative relation to said intermediate convolution.

5. In a cycle saddle, a saddle seat, a reach member comprising a single piece of spring wire comprising a forwardly disposed yoke portion secured to the forward bottom portion of said seat and comprising a pair of laterally divergent rear end portions, and cushioning spring mechanism comprising a pair of spaced cushioning springs disposed in relative parallel relation pendantly supported from the rear bottom portion of said seat and including a post for each of said cushioning springs interconnecting the upper and lower ends of each of said springs to limit the over-all axial extent thereof, said rear end portions of said reach member each making direct load communicating engagement with at least one of the intermediate convolutions of a different one of said springs and being freely movable therewith relative to end convolutions thereof, and comprising an eye portion encircling an operative element of said cushioning spring mechanism, said eye retaining said rear end portion in operative relation to said intermediate convolution, the cushioning springs being each telescoped over its associated post, the lower end of said spring being secured to a lower portion of said post, said eye loosely embracing said post, and being guided thereby in upwardly and downwardly directed movements.

6. In a cycle saddle, a saddle seat, a one-piece reach member secured to the forward bottom portion of said seat and comprising a pair of permanently joined laterally divergent rear end portions, and cushioning spring mechanism comprising a pair of spaced cushioning springs disposed in relative parallel relation pendantly supported from the rear bottom portion of said seat and means for each of said cushioning springs interconnecting the upper and lower ends of each of said springs to limit the over-all axial extent thereof, said rear end portions of said reach member each making direct load communicating engagement with at least one of the intermediate convolutions of a different one of said springs, and being bent to provide a hook at said portion, said hook retaining said reach member end portion and said mechanism in operative relation to each other during use of the saddle.

7. In a cycle saddle, a saddle seat, an integrally formed reach member comprising a forwardly disposed portion secured to the forward bottom portion of said seat and comprising a pair of permanently joined laterally divergent rear end portions, cushioning spring mechanism comprising a pair of spaced cushioning springs disposed in relative parallel relation pendantly supported from the rear bottom portion of said seat and including a post for each of said cushioning springs interconnecting the upper and lower ends of each of said springs to limit the over-all axial extent thereof, said rear end portions of said reach member each making direct load communicating engagement with at least one of the intermediate convolutions of a different one of said springs and being freely movable therewith relative to end convolutions thereof, and comprising a hook portion encircling an operative element of said cushioning spring mechanism, said hook retaining said rear end portion in operative relation to said intermediate convolution, the cushioning springs being each telescoped over its associated post, the lower end of said spring being secured to a lower portion of said post, said hook loosely embracing said post, and being guided thereby in upwardly and downwardly directed movements whereby the weight imposed upon the seat in use will compress the upper convolutions of said springs and exert tensile stress upon the lower convolutions thereof.

8. In a saddle, a seat element, a pair of laterally spaced rods depending from said seat element, each of said rods having a spring associated therewith, each spring being secured at its lower end to its associated rod element, and a reach member secured at its forward end to said seat element and having permanently joined laterally spaced spring connecting rear portions each intertwined with an intermediate convolution of one of said springs, and embracing the corresponding rod whereby the weight imposed on said seat element compresses the upper coils of the springs and exerts tensile stress on the lower coils thereof.

9. In a cycle saddle, a saddle seat, a one-piece reach member secured to the forward bottom portion of said seat and comprising a pair of laterally spaced rear end portions, cushioning spring mechanism comprising a pair of spaced cushioning spring means disposed in relative parallel relation pendantly supported for the rear bottom portion of said seat and means for each of said cushioning spring means interconnecting the upper and lower ends of each said spring means to limit the over-all axial extent thereof, said rear end portions of said reach member each making direct load communicating engagement with an intermediate convolution portion of a different one of said spring means, whereby the weight imposed on said seat in use compresses the upper portion of said spring means and exerts tensile stress upon the lower portion thereof, and being bent to embrace said intermediate convolution portion of said spring means and retaining said reach member end portion and said mechanism in operative relation to each other during use of the saddle.

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