Feb. 11, 1941. J. E. BLOOMBERG ET AL 2,231,654

BICYCLE SEAT

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FIG. 1.

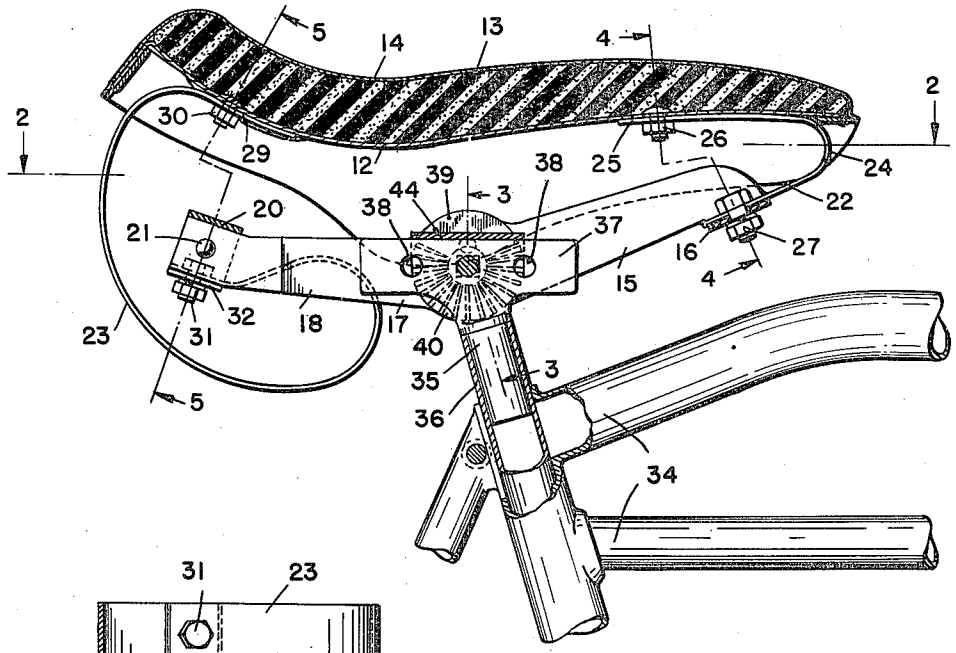


FIG. 2.

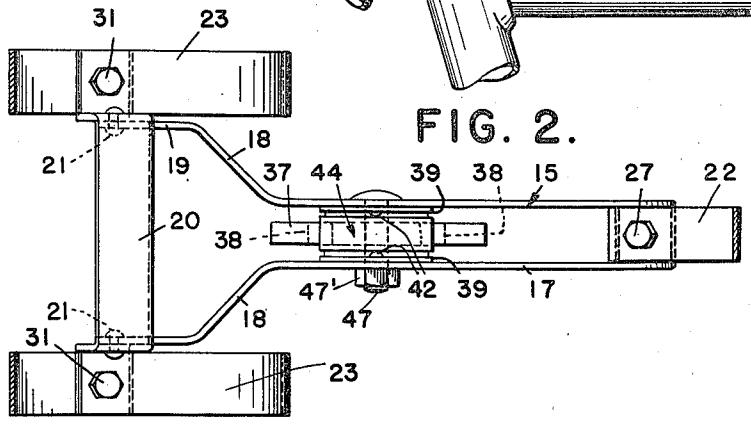


FIG. 3.

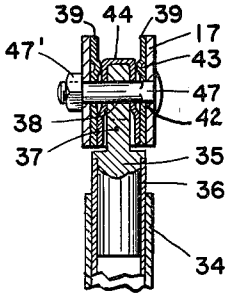
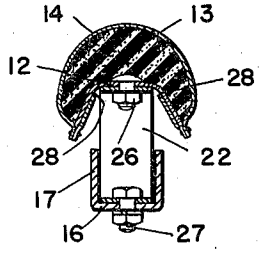


FIG. 4.



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FIG. 5.

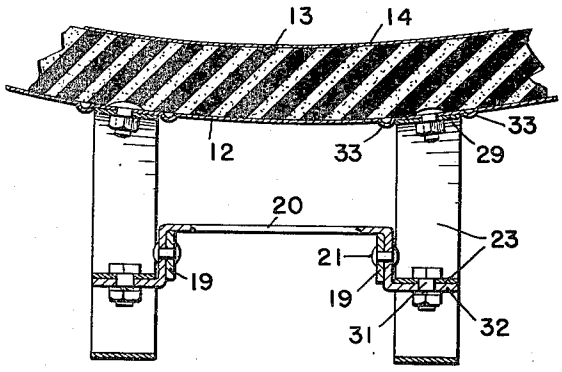


FIG. 6.

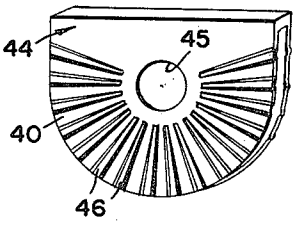


FIG. 7.

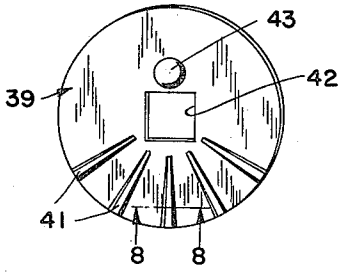


FIG. 9.

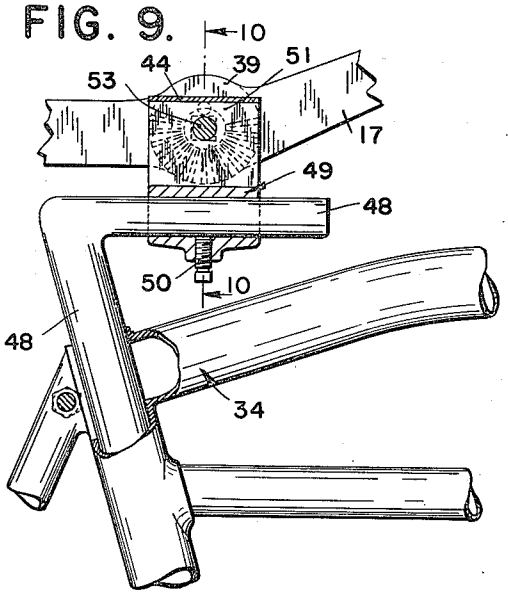


FIG. 8.

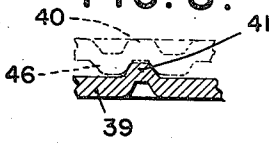
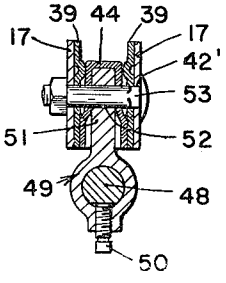


FIG. 10.



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UNITED STATES PATENT OFFICE

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BICYCLE SEAT

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Application November 29, 1937, Serial No. 177,002

2 Claims. (Cl. 287—14)

The invention relates to bicycle seats.

One of the objects of the invention is to provide an improved clamping connection between the seat frame and its support which will permit of an angular adjustment of the seat relative to its support and which will hold the parts rigidly in adjusted position.

A further object of the invention is to provide a direct connection between the seat frame and the seat post having positions for central, forward, or back positions of the seat relative to the post and an angularly adjustable connection between the seat and the post, both positions of adjustment being maintained by a single clamping bolt extending through a hole in the post so as to prevent slipping along the post and any tendency of the seat to tip sideways and associated with clamping plates which prevent any movement of the seat frame in a vertical or angular direction relative to the post after the angular adjustment has once been made.

A further object of the invention is to provide a new and improved form of seat frame and spring mounting therefor whereby the seat is carried by flat springs connecting it directly with the frame and permitting independent action of the springs for ready tilting of the seat, the springs being put under tension under the weight of the user.

The invention further consists in the several features hereinafter set forth and more particularly described by claims at the conclusion hereof.

In the drawings:

Fig. 1 is a vertical sectional view of a seat embodying the invention;

Fig. 2 is a detail view of the seat frame taken along the section line 2—2 of Fig. 1;

Fig. 3 is a detail sectional view taken on the line 3—3 of Fig. 1;

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

Fig. 5 is a detail sectional view taken on the broken line 5—5 of Fig. 1;

Fig. 6 is a detail perspective view of one of the seat clamps;

Fig. 7 is a detail elevation view of another of the seat clamps;

Fig. 8 is a detail sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a detail vertical sectional view showing certain modifications;

Fig. 10 is a detail sectional view taken on the line 10—10 of Fig. 9.

Referring to the drawings, the seat itself may be of any suitable construction but preferably has a metal base plate 12 upon which a cushion 13 of suitable material, such as sponge rubber, is mounted with a covering 14 for said cushion suitably secured to the base plate 12.

The supporting frame for the seat is formed from suitable gauge sheet metal, the main part 15 of which is bent to provide a transverse front portion 16 and side portions 17 which extend parallel to each other from said front portion to a point beyond the connection of said frame with its support and are then bent outwardly as at 18 to form spaced rear ends 19 which are strengthened and connected together by a U-shaped yoke member 20 which is either welded to said ends 19 or secured thereto by rivets 21. The supporting frame is directly connected to the base plate 12 of the seat by a front spring 22 and rear springs 23.

The front spring 22 is a flat bowed spring bent intermediate its ends at 24, one end 25 extending along the front end of the base plate 12 and secured thereto by a bolt 26, the other end being secured to the transverse portion 16 of the supporting frame by a bolt 27, said spring being of a width to fit between the downturned sides 28 of the base plate and the side portions 17 of the supporting frame.

The springs 23 are flat springs of similar form each reversely curved to form what might be termed a cradle type spring, one end 29 of which is secured to the seat base 12 by a bolt 30, the other end of which is secured by a bolt 31 to the extended end 32 of the yoke member 20. With this construction when the load is applied to the seat, the springs 22 and 23 will be placed under tension, and if the load shifts so that the seat may tilt relative to its supporting frame, the independent action of the springs 23 and the torsion effect imparted thereto permit this action. The end 29 of each rear spring is prevented from shifting relative to the seat base 12 by its mounting between spaced ridges 33 formed in said base plate 12.

It is desirable to provide a longitudinal and a tilting adjustment for the seat relative to the bicycle frame 34. In the preferred form of the invention the seat-supporting frame is connected directly to the post, and both adjustments are maintained through the same clamping means. Referring to Figs. 1 and 3, the seat post 35 has a tubular shank 36 which is fitted and secured in any suitable manner to the frame 34. This post has an elongated head 37 of flat or rectangular cross section and which is provided with three holes 38 for rear, center, and forward adjustment

of the seat longitudinally of the bicycle frame.

Referring to Figs. 6 to 8, clamping members 39 are secured to the seat-supporting frame and cooperative clamping parts 40 are mounted on the post. The clamping members 39 are shown as cylindrical plates of sheet metal which are stamped to provide radially disposed tapered teeth 41, a centrally located square hole 42, and a projection 43 on the opposite side of the center from that of the teeth. One of these members 39 is welded or otherwise rigidly secured to the inner side of each side portion 17 of the seat-supporting frame with its teeth 41 projecting inwardly with the hole 42 in line with a similar hole 42' formed in said frame. These members 39 might be formed integral with the parts 17 of said seat-supporting frame if desired. The holes 42 of the members 39 are aligned with each other.

Each clamping part 40 is formed as one side of a yoke or U-shaped member 44 which fits over the head 37 of the post 35. Each of these clamping parts 40 has a hole 45 in it adapted to align with the holes 42 in the members 39 and is provided with radially disposed tapered teeth 46, there being twice as many teeth in the same angular area as that of the cooperative member 39 so as to provide for relatively close angular adjustment.

It is also to be noted from Fig. 8 that the teeth 41 and 46 are not the usual serrated type but are teeth having relatively wide and deep faces of contact and with steep angular faces with flat tops, the included angle of the faces being preferably about sixty degrees.

With the above construction, member 44 is shifted relative to the head 37 of the post 35 to bring the holes 45 into line with the desired hole 38 in said post and the parts 40 and members 39 angularly shifted relative to each other to tilt the seat to the desired position, and then the bolt 47 is pushed through the aligned holes 42', 42, 45, and 38 and the nut 47' tightened up so as to draw the members 39 against the parts 40 and said parts 40 against the post 35 so that the seat-supporting frame is held against both longitudinal and angular movement relative to said post. In drawing up the members 39 against the parts 40, the projections 43 on the members 39 prevent canting of said members 39 relative to the parts 40 when the toothed connection between these parts has been effected, the parts being drawn up so that the flat tops of the teeth are almost in contact. The shank of the bolt 53 has a squared portion fitting the square hole 42 of one of the members 39 to prevent the bolt turning when screwing up the nut. It is also to be noted that the form of toothed connection between said parts 39 and 40 has been found to provide a firm clamping engagement between said parts and prevents the usual wear of sharp-toothed projections or serrations and the play that soon develops therein.

Some advantages of the invention may be obtained in the modified form shown in Figs. 9 and 10 where the usual seat post 48 has a bracket 49 longitudinally slidably mounted thereon and secured thereto by a set screw 50, said bracket having a rectangular block portion 51 adapted to receive the U-shaped member 44 cooperating with the plates or clamping members 39 welded to the seat-supporting frame, said portion 51 having a hole 52 therein through which the clamping bolt 53 similar to the bolt 47 passes, said bolt also passing through the aligned openings in the clamping members 39 and 44 and the sides 17 of the seat-supporting frame. This arrangement provides a positive grip between the parts 39 and 44 to maintain the angular adjustment.

We desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the claims.

What we claim as our invention is:

1. In a bicycle seat, the combination of a seat-supporting frame provided with parts having radially disposed teeth, a seat post having a flattened elongated head, a yoke member engaging over said head and having its sides provided with radially disposed teeth adapted to mesh with the teeth on said frame parts in different positions of angular adjustment of said frame relative to said post, said post having a series of bolt-receiving holes, and a clamping bolt adapted to extend through one of the holes in said post and through openings in said yoke member and frame parts for clamping said frame to said post in the desired position of longitudinal and angular adjustment relative to said post.

2. In a bicycle seat, the combination of a seat-supporting frame having spaced frame members, cylindrical sheet metal clamping plates welded to the inner sides of said spaced frame members and having inwardly projecting radially disposed flat topped teeth stamped therefrom in the lower half of their area and a spacing projection stamped therein in the upper half of their area, a support having a flattened elongated head, a U-shaped yoke member engaging over said head and having its sides provided with flat topped radially disposed teeth adapted to mesh with the teeth on said plates in different positions of angular adjustment of said frame relative to said support, and a clamping bolt passing through openings in said frame members, said clamping plates, said yoke member and said flattened support to secure said seat frame in position against both longitudinal and angular displacement relative to said support.

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