

(No Model.)

J. BETHUNE.
BICYCLE SADDLE.

No. 502,110.

Patented July 25, 1893.

Fig. 1.

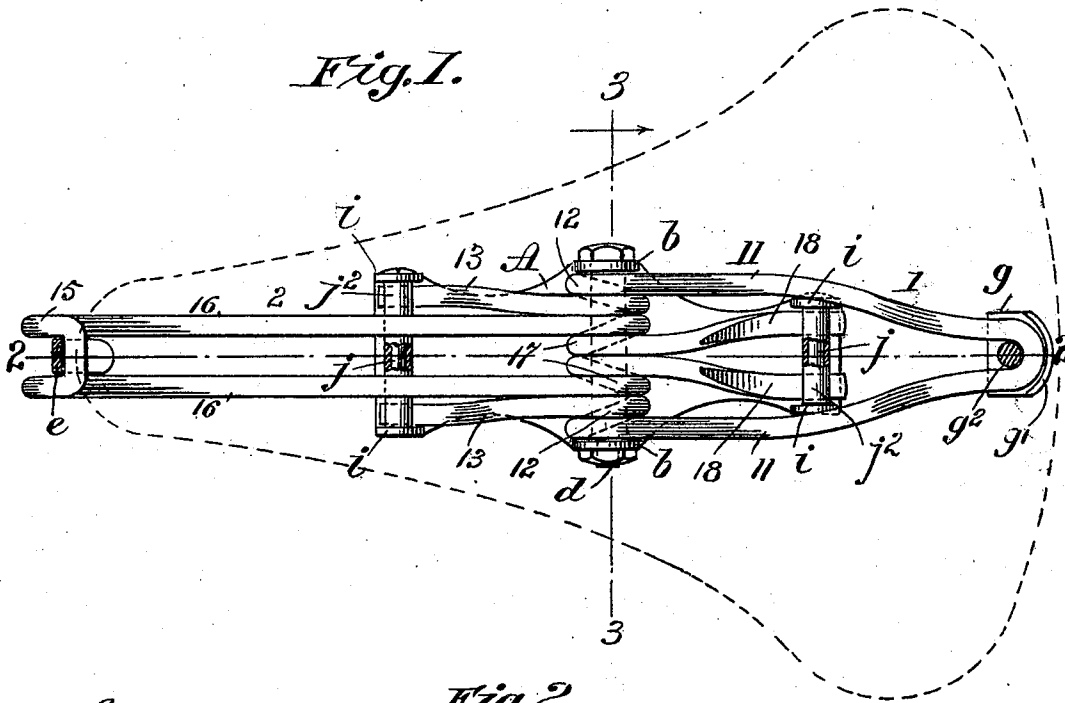


Fig. 2.

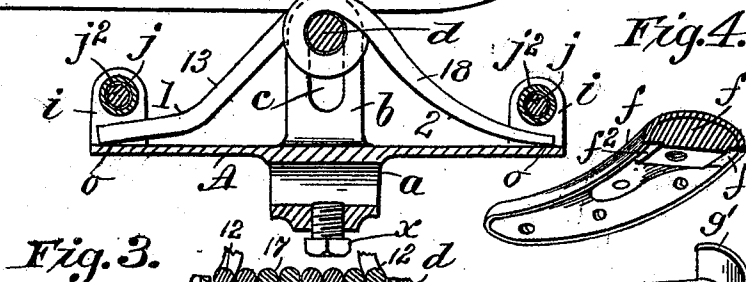
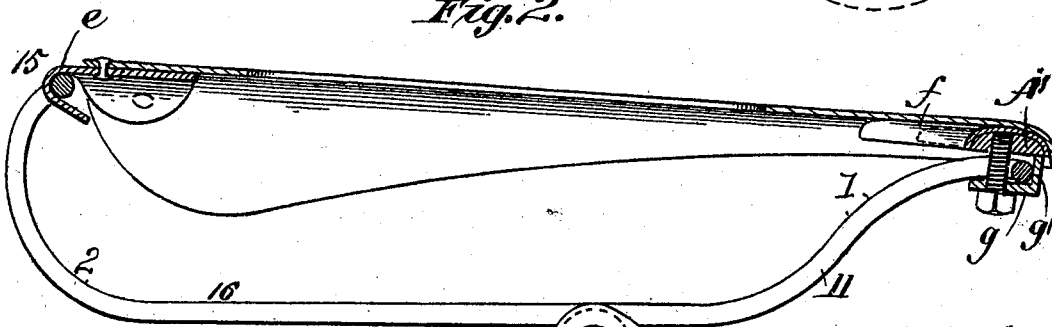
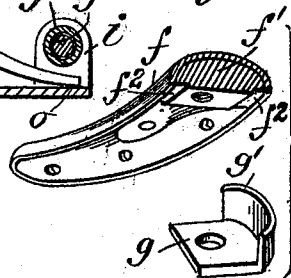


Fig. 3.

Fig. 4.



Witnesses:

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BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 502,110, dated July 25, 1893.

Application filed October 1, 1892. Serial No. 447,457. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BETHUNE, a citizen of the United States, residing at Chicopee Falls, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Bicycle-Saddles, of which the following is a specification.

The object of this invention is to provide a saddle for a safety bicycle or other form of velocipede which will be easy riding and satisfactory, and which will require no specially adjustable take-up or tension regulating devices for action on the leather.

The invention embodies, as a prominent characteristic, the combination with a suitable rigid platform or base-support which is adapted to be mounted on the saddle-post or other sustaining part of the machine, of the saddle-frame formed of spring material as wire to constitute united upper and lower spring sections, the upper of which is substantially in the form of an upwardly spreading bow between the extremities of which the seat-leather is stretched, the lower frame being substantially in the form of a reversed bow or inverted V with the separated lower extremities thereof in supporting engagement upon said rigid base support.

The invention furthermore and otherwise consists in constructions and combinations of the parts all substantially as will hereinafter fully appear and be set forth in the claims.

In the accompanying drawings, the invention is illustrated as being carried out in an approved form, Figure 1 being a plan view of the improved saddle, the seat-leather being only indicated by dotted lines. Fig. 2 is a vertical, longitudinal section of the saddle on line 2—2, Fig. 1. Fig. 3 is a vertical cross-section on line 3—3, Fig. 1 and Fig. 4 is a perspective view of parts of the saddle to show a detail of construction to be hereinafter more particularly referred to.

I will now proceed to describe the saddle specifically, reference being had to the aforesaid drawings in which similar letters and figures of reference indicate corresponding parts in all of the views.

In said drawings A represents a base which is in the form of a platform-like part the same being provided with a pending boss, *a*, which

is transversely bored for the engagement therewith of the usual saddle-post arm, the confining screw, *x*, being provided thereat. Said platform is provided with the pair of opposing risers or vertical rigid lugs, *b*, *b*, having the vertical slots, *c*, therein, in which plays the transverse shaft or screw-bolt, *d*, the same having at one end a head and at the other the confining-nut.

The parts constituting in conjunction with the base or platform the yielding saddle-frame for the seat-leather comprise two lengths of spring-wire, 1 and 2. One of these lengths is, intermediately thereof, bent into loop or U-form, at which portion it is engaged with the rear of the seat-leather, it thence extending forwardly in the portions 11, 11, with also a downward inclination, each of these portions having a coil to form an eye, 12, for an encircling engagement with the said shaft, *d*; the terminal portions, 13, 13, of this said length of wire, 1, are still farther downwardly and forwardly extended and have bearings upon the upper surface of said base, A, at or near its forward end. The other, 2, of said lengths of wire is intermediately thereof bent into loop or U-form, as seen at 15, whereby the engagement of the hook, *e*, at the peak of the seat-leather with this loop-formed part may be had; portions of the wire from this bend are extended or curved slightly forwardly, downwardly and rearwardly in the portions, 16, 16, these portions having the coils, 17, to constitute eyes for encircling the said shaft, *d*, and the wire is thence farther rearwardly and downwardly continued in the legs or portions, 18, 18, the extremities of which have bearings upon the upper surface of said base, A, at or near its rear end.

The seat-leather, at its rear, is provided with a cantle or metallic bushing, *f*, having at its middle portion a thickened solid part, *f'*, within the under side of which preferably are formed slight depressions for the portions of the length of wire, 1, next to the loop-bend thereof. The clip, consisting of the flat-plate, *g*, with the curved and upwardly extended lug or flange, *g'*, at its rear end lies by its flat side against the wire with the flange, *g'*, at the rear edge of the wire and is held in its clamping engagement by the screw, *g*². The

lug prevents any longitudinal play or shifting of the loop-formed portion of the wire relative to the cantle.

The connection of the seat-leather with the spring saddle-frame is insured by first making the clip attachment at the rear, and then straining the forward loop-formed part, 15, insuring a reacting stress throughout both the wire lengths, 1 and 2, until the distance between the front and rear loop parts is so shortened as to permit the engagement of the hook part, *e*, with the said loop part, 15. This spring stress established by the joining of the rear and front upper portions of the spring saddle-frame is dependent upon the limitation of the upward movement of the eye-formed parts by reason of the shaft, *d*, which is in engagement therewith, coming against the upper edge of said slot, *c*, and the parts 11 and 16, having the upward and approaching strain thus imparted thereupon act as arms or levers to force the lower arms, 13 and 18, downwardly to be resisted by the base, A, and generate the desired normal degree of spring reaction in the elastic or springing parts, that is, the degree of reaction which they have when the rider is off the saddle. Of course the downward force imparted by the weight of the rider, in riding under natural conditions, is to force the upper bow-like section of the saddle-frame, constituted by the duplicated parts, 11, 11, and 16, 16, downwardly bodily, they having also some degree of springing deflection, and they force the shaft, *d*, slightly downwardly in the slot-ways therefor and effect the downward compression of the lower bowed or V-formed spring section of the saddle-frame constituted by the duplicated portions, 13, 13, and 18, 18, these parts having at such time, a slight endwise play (to compensate for the degree of movement of the eye-coil portions thereof) upon the extremities, *o*, *o*, of said base, A. Should the weight of the rider preponderate very much either at the rear or the front of the saddle, so that such portions of the spring-support will be excessively downwardly forced there may be,—if the preponderance is forward and over a much advanced part of the portions, 16, 16,—a tendency to swing the rear and downwardly inclined legs or portions, 18, 18, upwardly and away from the base-support, A, or if the preponderance of the weight is very much at the rearward of the portions, 11, 11, the tendency exerted thereby on the forward and downwardly inclined legs or portions, 13, 13, is to swing them slightly upwardly; and in this connection it will be mentioned that the action is such that when elevating forces are brought, say upon the said portions, 18, 18, by the excessive depression at the extreme front portions, 16, 16, (as for instance when the rider comes to a position unduly forward on the saddle) a considerably increased draft is brought upon the seat-leather in a forward direction to draw the portions, 11, 11, forwardly and upwardly thereby forcing the forward

legs or portions, 13, 13, correspondingly harder against the adjacent surface of the base-plate, A, and the reverse actions will be apparent as ensuing in a degree upon the bringing of an unnatural and excessive pressure at the very rear of the saddle. The said base, A, is provided at its forward and rear extremities with the opposing upwardly extended ear-pieces, *i*, *i*, supporting transverse rods or bars, *j*, *j*, which preferably are surrounded by the bushing-sleeve, *j*². These transversely extended parts limit any excess of rising or upward swinging movements of the parts, 13, 13, or 18, 18, which may occur under the conditions hereinabove last explained.

It will be seen that this saddle may be regarded as comprising a frame having upper and lower bow-formed sections arranged back to back the upper section comprising the wire portions, 11, 11, of the one length, and the portions, 16, 16, of the other, while the lower section comprises the portions, 13, 13, of the first length and 18, 18, of the other, these two bow-formed sections being united by having the said shaft, *b*, pass through the aforesaid eye-coils.

I claim—

1. A saddle-frame comprising upper and lower spring sections intermediately united the one to the other, the upper of which consists of portions extended upwardly forwardly and upwardly rearward from their place of union, and supporting the seat-leather at their extremities, and the lower frame section consisting of portions extended downwardly forward and also downwardly rearward from said place of union and having the separated lower extremities thereof in engagement with a suitable base-support which is provided therefor, for the purpose set forth.

2. A saddle-frame comprising upper and lower spring sections united the one to the other, the upper of which consists of portions extended upwardly forward and upwardly rearward from the place of union, and the forward upper portion also having the rearward continuation, and the lower frame section consisting of portions extended forwardly downward and rearwardly downward from said place of union, and having the separated lower extremities thereof in engagement with a suitable base-support which is provided for the sustenance of the saddle-frame, substantially as and for the purposes set forth.

3. In a saddle-frame, in combination, a base-support and upper and lower spring sections united one to the other, the lower section having normally a rising reaction, one or more risers standing above said base with which the spring frame adjacent the place of union of its upper and lower sections has guiding engagement for vertical sliding movements, and for limitation of the upward movement of the spring parts of the frame relative to said support.

4. A saddle-frame comprising upper and lower spring sections united the one to the

other the upper of which consists of portions forwardly upward and rearwardly upwardly extended from said place of union and the lower section consisting of portions extended forwardly and rearwardly and each downwardly from said place of union and each having the separated lower extremities thereof in engagement with a base-support which is provided for the sustenance of the saddle-frame, and said base-support being provided with the one or more risers with which the frame adjacent said place of union has guiding engagements for vertical sliding movements and for limitation of the degree of upward movement of the parts of the frame relative to said support, substantially as described.

5. In a saddle the combination with a base or support having one or more rising members with which a horizontal part has a vertically sliding engagement, of a part of the saddle-frame for supporting the rear of the seat-leather which extends forwardly and downwardly to have a pivotal engagement with said vertically sliding part and thence a downward inclination to an engagement with the forward part of said base, and a part of the saddle-frame for supporting the rear of the seat-leather which extends downwardly and rearwardly to have also a pivotal engagement with said vertically sliding part and thence a further downward inclination to an engagement with the rear part of said base, for the purposes set forth.

6. In a saddle, in combination a base-support, having one or more risers and the seat-leather, of parts formed of spring metal having respectively at their rear upper, and forward upper portions engagements with the rear and forward ends of the seat-leather, and both thence extended in opposite downward inclinations respectively to engagements upon the forward and rear end portions of said base-support, and both of said spring-formed parts having immediately thereof eyes, a shaft or bolt passed through said eyes and having an upwardly limited, vertically sliding engagement with said risers, substantially as set forth.

7. A bicycle saddle comprising intermediately engaged upper and lower parts in the forms respectively of an upwardly opening bow and a downwardly opening bow and both formed of spring strip-material, as wire a seat-leather supported on the extremities of the upper part and a rigid base or rest on which the extremities of said lower part have a bearing engagement and means between and relative to the said base and the joined-bow-formed parts for constraining the movements of the latter vertically and for limiting the degree of the upward spring reaction of the lower bow-formed part, substantially as described.

8. In a bicycle saddle the combination with

a base having the risers with the vertical slots, and the bolt or shaft having a sliding engagement in said slots, a length of spring-wire which intermediately thereof is return bent and supporting thereat the rear of the seat, and having the side members thereof thence continued forwardly downwardly having the coil-formed eyes encircling said shaft, and the extremities thence extended further downwardly and forwardly to rest upon the forward portion of said base and a second length of spring-wire also intermediately thereof return bent supporting thereat the forward end of the seat, the side portions thereof thence continuing downwardly and rearwardly, being provided with the coiled-formed eyes which also encircle said shaft, the end portions of said second length being thence further continued rearwardly downward to a supporting bearing upon a rear portion of said base, substantially as described.

9. In a bicycle saddle the combination with a base having the risers, *b, b*, with the vertical slots, and the bolt or shaft, *d*, having a sliding engagement with said slots and also at its front and rear having the opposing upwardly extended ear-pieces, *ii, ii*, the intermediately engaged upper and lower parts in the forms respectively of an upwardly opening and a downwardly opening bow the extremities of the latter being extended to bearing on said base between said forward and rearward ear-pieces and cross-bars mounted in said ear-pieces and overlying said extremities and the seat-leather supported by the upwardly opening bow-formed part, substantially as described.

10. In a bicycle saddle, substantially as described, the combination with the base having the opposing upwardly extending ear-pieces, *i, i*, the cross-bars with the rollers thereon of the legs, *13, 13*, and *18, 18*, extended to bearing upon the base under said rollers, substantially as described.

11. The combination with a bicycle saddle of a support for the rear portion of the seat-leather consisting of the length of wire intermediately bent into a loop or U-form, of a cantle or metallic bushing for the seat-leather, a clip consisting of a flat plate to bear against the under side of the loop-bent wire and having the curved upwardly extended flange to lie against the rear of said wire portion and the headed screw passed through said clip, through and within the loop-formed portion of the wire, and, with a screw engagement, into the said metallic bushing, substantially as described.

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Witnesses:

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