(No Model.) 2 Sheets—Sheet 1.

R. S. TRUE.

BICYCLE SADDLE.

No. 455,027. Patented June 30, 1891.

Fig. 1.

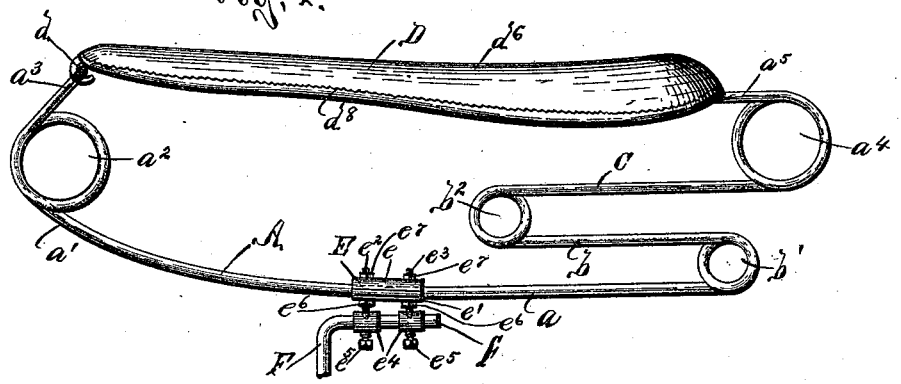


Fig. 2.

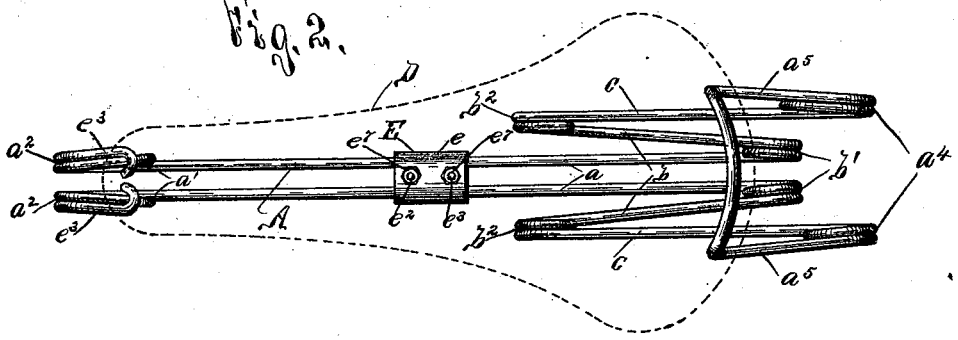
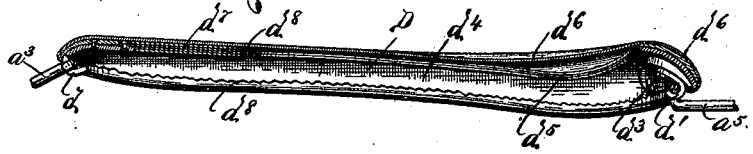


Fig. 3.



Witnesses
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E. A. Weisburg

Inventor
Richard S. True
By his Attorneys
Hoyt Wilkinson & Dennis

(No Model.) 2 Sheets—Sheet 2.

R. S. TRUE.

BICYCLE SADDLE.

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Fig. 4.

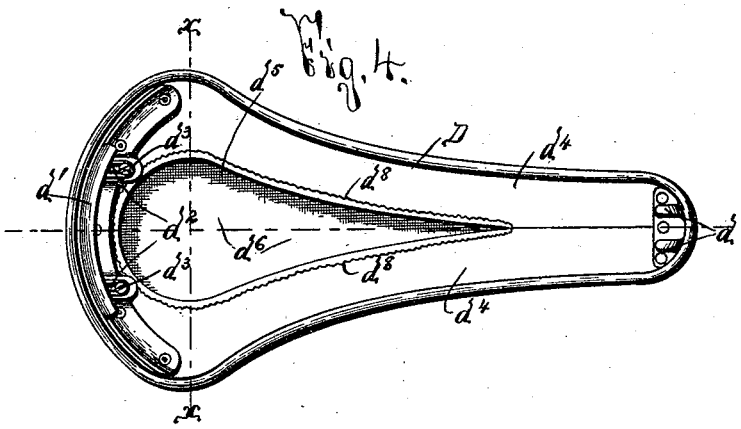


Fig. 5.

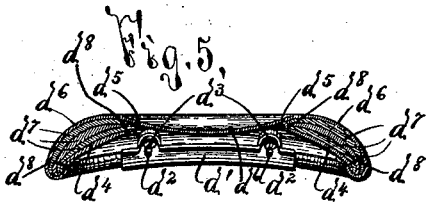
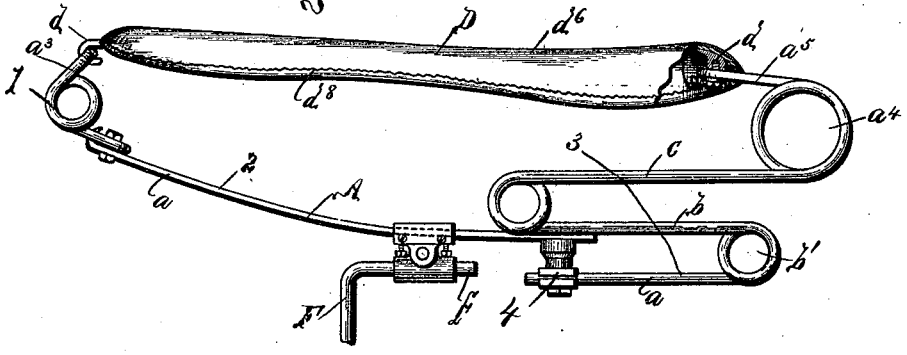


Fig. 6.



WITNESSES:
H. C. Chase,
E. M. Kiebung

INVENTOR
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BY
Hoyt, Wilkinson & Parsons
ATTORNEYS

UNITED STATES PATENT OFFICE.

RICHARD S. TRUE, OF SYRACUSE, NEW YORK, ASSIGNOR TO THANKFUL E. TRUE, OF SAME PLACE.

BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 455,027, dated June 30, 1891.

Application filed September 29, 1890. Serial No. 366,434. (No model.)

To all whom it may concern:

Be it known that I, RICHARD S. TRUE, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Bicycles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in bicycles, and has for its object the production of a simple and effective device whereby the jar occasioned from the passage over rough or undulating surfaces is rendered substantially imperceptible to the rider; and to this end the invention consists, essentially, in a saddle-supporting spring having a lower supporting-bar, a pair of spring bars or arms imposed above the lower bar and extending from one extremity toward the opposite, and a saddle supported upon the opposite extremities of the spring above said lower bar and spring-arms, whereby the same are tensioned and equalize and reduce the jar to a minimum.

The invention also consists in a support or clip movable lengthwise on the lower spring-bar of the saddle-supporting spring, whereby the spring of the saddle may be varied at will to suit the convenience and weight of the rider, and in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing my invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters and figures indicate corresponding parts in all the views.

Figure 1 represents an elevation of my improved invention, shown as supported upon the detached extremity of the L-shaped pin or supporting-bracket of the bicycle. Fig. 2 is a top plan view of the parts as illustrated in Fig. 1, the saddle being shown by dotted lines and as removed in order to illustrate the underlying parts. Fig. 3 is a longitudinal vertical section of the saddle. Fig. 4 is an inverted plan view of the saddle. Fig. 5 is a transverse sectional view taken on line x x, Fig. 4; and Fig. 6 is an elevation of a modification of my invention.

Experience has demonstrated that the prime necessity of a thoroughly-efficient and easy-riding bicycle is a spring of such peculiar form and construction as to enable the same to readily yield when the wheels pass over obstacles or a rough surface, and to readily regain its normal position without perceptible jar and consequent unpleasant and injurious effect upon the rider.

A represents my improved spring, which preferably consists of the lengthwise lower bar a and the upper bars or arms b and c, which extend from one extremity of the bar a toward the opposite extremity. At the adjacent extremities of the bars b and a is the lower coil b', and at the adjacent extremities of the bars b and c is a coil b^2. The forward extremity a' of the bar a is extended to a point preferably in advance of the saddle D, and is preferably formed into a coil a^2, from which projects a rearwardly-extending extremity a^3, upon which the forward extremity of the saddle D is supported by a hook or other support d, engaged with said rear bar a^3. The rear extremity of the spring A is also preferably provided with a coil a^4 above the former rear coil b'. Extending from this coil is the extremity or arm a^5, which engages a hooked plate or other suitable support d', mounted at the rear extremity of the saddle D for supporting the rear of said saddle. It will thus be understood that the saddle is suspended between the opposite extremities of the spring A, which is extended downwardly beneath the saddle and then re-enforced by the spring-bars b and c, whereby a long and easy spring vibration is produced that renders the movement of the saddle particularly easy and convenient.

It will be noted that as the coil b^2 extends inwardly to a point in proximity to the center of the saddle the rear of the saddle swings on this as a hinge-point and the said coil swings on the coil b' as a hinge-point, thus further enabling a long vibration with a minimum amount of jar of the saddle.

Upon reference to the drawings and the foregoing description it will be noted that as the forward wheel rises or the rearward wheel falls the rear extremity of the saddle rocks

slightly backward and brings into play the entire spring, since when the rear extremity of the spring is tensioned the forward portion is slightly elevated and thereby tensioned. On the contrary, when the forward wheel falls or the rearward wheel rises the saddle rocks in an opposite direction; but, as previously set forth, in either movement of the saddle the spring-bars *c* and *b* above the lengthwise bar *a* greatly add to the amount of vibration and cause the spring to be easy and gentle. Indeed, experience has demonstrated that when riding over rough surfaces—as, for instance, sandstone or cobble-stone pavements—the spring is so easy and gentle that all jar occasioned to the wheels is entirely overcome and the jar to the rider is substantially imperceptible, rendering pleasurable a ride that would otherwise be very unpleasant and injurious.

In order to adjust the saddle for persons of different weight I prefer to use a support or clip upon the lower bar *a* of the spring and to so construct said clip that it may be movable lengthwise along the bar.

The plate E consists of the separable halves *e* and *e'*, which are clamped together upon the spring by suitable clamping devices or bolts e^2 e^3. As here illustrated, these bolts perform the double function of clamping together the separable divisions of the spring-plate and elevating or lowering the opposite extremities of said support in order to vary the altitude of the saddle D. This clip E is preferably so constructed as to be readily mounted upon the ordinary L-shaped pin or bracket F, upon which bicycle-seats are now supported. To facilitate this operation, the lower extremities of the bolts e^2 e^3 are provided with eyes e^4, and are held in the desired position by set-screws e^5, which bear against the laterally-extending arm *f* of the bracket F. Upon the separate bolts e^2 e^3 and beneath the plate *e'* of the clip E are nuts e^6, which may be either screwed upward or downward to elevate or depress either or both of the extremities of the clip E, and thus vary its altitude and the consequent altitude of the saddle D. It will be understood, however, that in the operation of the nuts e^6 it is also necessary to move the upper nuts e^7 in the same direction and the same amount as the lower nuts e^6.

It will be understood that by the use of the clip-plate E, which grasps the spring-bar, no weakening thereof is occasioned, as would be the case if the adjusting-bolts passed directly therethrough. This adjustment of the spring in relation to its clip or support E is of great advantage with my particular construction of spring, since if the rider should be rather heavy the rear extremity of the spring should be slid backward in order to enable the ready and easy action of the spring-arms *c* and *b*, and, on the contrary, if the rider is light the said lower bar *a* should be moved forward, as otherwise the forward extremity of the spring would scarcely be brought into action.

In order to take up all loss of tension in the spring, the support *d'* for the rear of the saddle is adjustable lengthwise of the saddle, being provided with slots d^2, through which pass the bolts d^3 for securing said support in its adjusted position.

As best seen in Fig. 2, the spring is composed of double bars *a b c* and of double coils a^2, b^2, *b'*, and a^4. It is apparent, however, that, if desired, these parts may be constructed singly, as described, although the best results are produced when the spring is formed as illustrated.

It is evident that, instead of forming the entire spring of a continuous bar, two or more separate pieces may be bent into the desired contour and secured together, so as to form my improved spring. This construction is shown in Fig. 6, in which the forward coil is composed of a short piece 1, the bar *a* of a second piece 2, and the remaining portion of the spring of a Z-shaped bar 3, supported by a connection 4 upon the rear extremity of the bar 2. My saddle D is also of peculiar construction, and is preferably composed of a lower strip of leather or other suitable material d^4, having an opening d^5 in its center and an upper strip d^6, which is preferably solid, or, in other words, unprovided with a central opening. Between the strips d^4 and d^6 I interpose one or more filling-pieces d^7 and turn the upper edge of the same downwardly, whereby the edge of the saddle is made very strong and firm, and owing to its downturned side edges does not abrade or wear the rider's garments. Moreover, experience has demonstrated that in use this saddle slightly decreases in width, owing to the difference in thickness of its edges and central portion, and said central portion slightly collapses, thus preventing injury to the overlying glands and tender parts of the rider. These various divisions of the saddle are firmly secured together by stitching d^8, which extends along the upper edge of the saddle and the inner edge of the central opening in the strip d^4.

The operation of my invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be understood that I do not limit myself to the precise form and construction of the parts.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described saddle-spring, the same consisting of a forward and rearward coil a^2 a^4, a central supporting portion *a*, and a coil b^2, interposed between the former coils, substantially as and for the purpose set forth.

2. The herein-described bicycle-spring, the same consisting of upper coils a^2 a^4 at its opposite extremities, a central supporting portion *a* between said coils, a coil *b'* below one of the former coils, and a coil b^2 between said former and latter coil, said coil b^2 being

disposed in a vertical plane at one side of said former and latter coils, substantially as and for the purpose specified.

3. The herein-described bicycle-spring, the same consisting of a lower central spring-bar a, a pair of inwardly-extending spring-bars b c' above the former bar, a coil a^2 at one extremity of the spring, a pair of coils a^4 b' at the opposite extremity, and a coil b^2 at the adjacent extremities of said pair of spring-bars, substantially as and for the purpose set forth.

4. The combination, with a saddle, of a spring for supporting the same, said spring consisting of a lower spring-bar a and a pair of spring-arms b c' above the lower spring-bar and extending from one extremity thereof toward the other, said bars b c' being of less length than the lower spring-bar a, substantially as and for the purpose specified.

5. The combination, with a saddle, of a spring for supporting the same, said spring consisting of a lower spring-bar, a pair of spring-arms b c' above the lower spring-bar and extending from one extremity thereof toward the other, said bars being of less length than the lower spring-bar, and a support or clip E, movable lengthwise on said lower spring-bar, substantially as set forth.

6. The combination, with a saddle, of a spring for supporting the same, said spring consisting of a lower spring-bar, a pair of spring-arms b c' above the lower spring-bar and extending from one extremity thereof toward the other, said bars being of less length than the lower spring-bar, a clip E, movable lengthwise on the lower spring-bar, a support F for said clip, and an adjustable support e between said clip and former support for varying the position of said clip and adjusting the position of the spring, substantially as and for the purpose specified.

7. The combination, with a saddle, of a spring for supporting the same, said spring consisting of a lower spring-bar, a pair of spring-arms b c' above the lower spring-bar and extending from one extremity thereof toward the other, said bars being of less length than the lower spring-bar, a supporting-clip F, consisting of separable plates e e' for grasping said lower spring-bar, a pair of bolts e^2 e^3 for clamping said plates together, and nuts e^6 e^7 on said bolts, raising or lowering the opposite extremities thereof, substantially as and for the purpose set forth.

8. The combination, with a saddle, of a spring having a coil b' in front and a coil a^2 at the rear of the saddle, a second rear coil a^4 above the former rear coil, spring-bars b c', extending from the rear coil toward the front coil b^2, and a coil at the forward ends of said spring-bars, substantially as and for the purpose specified.

9. The combination, with a support, of the herein-described saddle, the same having an upper and a lower strip d^6 and d^4, the latter being of less area than the former and extending inwardly toward the center of the upper plate with its opposite ends secured to the front and rear of the former strip, substantially as and for the purpose set forth.

10. The combination, with a support, of the herein-described saddle, the same consisting of an upper and lower strip d^4 d^6, the lower one having a central opening, and one or more filling-pieces d^7 between the adjacent surfaces of said strips, substantially as set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 26th day of September, 1890.

RICHARD S. TRUE.

Witnesses:
CLARK H. NORTON,
M. BAXTER.