(No Model.)

W. G. RICH & J. H. SAGER.

SADDLE FOR VELOCIPEDES.

No. 489,501. Patented Jan. 10, 1893.

Fig. 1.

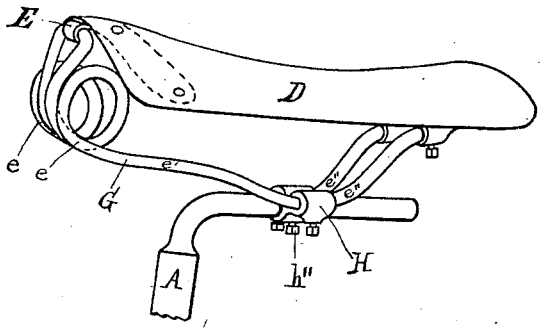


Fig. 2.

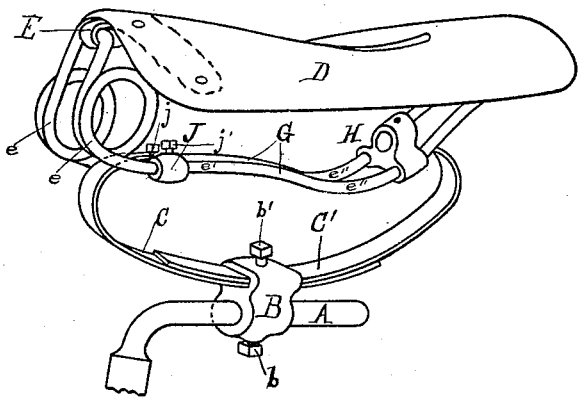


Fig. 3.

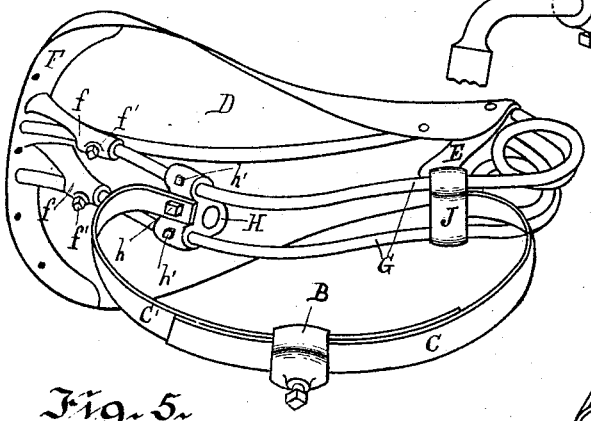


Fig. 4.

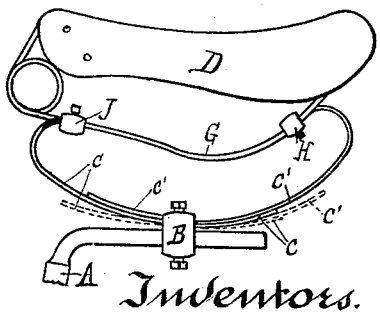
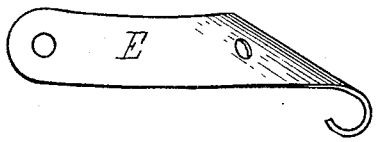


Fig. 5.



Witnesses

E. A. Bradley.

G. A. Boutet

Inventors.

Willard G. Rich

James H. Sager

by Howard L. Ogden atty

UNITED STATES PATENT OFFICE.

WILLARD G. RICH AND JAMES H. SAGER, OF ROCHESTER, NEW YORK.

SADDLE FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 489,501, dated January 10, 1893.

Application filed February 17, 1892. Serial No. 421,892. (No model.)

To all whom it may concern:

Be it known that we, WILLARD G. RICH and JAMES H. SAGER, both citizens of the United States, and residents of the city of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Saddles for Velocipedes, Bicycles, and Similar Vehicles, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1, is a perspective view of our invention without the leaf springs; Fig. 2, is a perspective view of our invention with the leaf springs; Fig. 3, is a perspective view of our invention with the leaf springs seen from underneath; Fig. 4, is a side elevation of our invention with the leaf springs and showing in dotted lines the action thereof; Fig. 5, is a side elevation of the hook for attaching the saddle leather to the supporting frame of the saddle.

Our invention consists in the improvements in saddles for bicycles, velocipedes and similar vehicles hereinafter described and claimed.

The object of our invention is to provide for ordinary purposes a strong and yet elastic saddle, easy of adjustment to weight of the rider and in inclination and simple in its construction, with different spring action forward and rearward, with the least possible use of the so called "hammock" principle and capable of reduction to a stiff racing saddle.

A, represents the usual L-shaped saddle supporting bar. Upon this is fastened a clip B, having perforations therethrough, one of which fits upon the horizontal part of the L and is adapted to be fastened thereto by a set screw *b*. The other perforation is of a shape (as a slot) suitable to receive the two leaves C C′ or parts of the leaf spring; and a set screw *b′* is provided whereby the two leaves of the spring may be securely clamped and held in this perforation.

The saddle leather D is of the form usual in all bicycle saddles. To the front end of the leather and underneath the same is fastened a hook, E; this hook has arms extending toward the lower edge of the saddle leather as shown in dotted lines in Figs. 1 and 2, and these arms are fastened to the saddle leather by means of the rivets indicated in the figures. The back of the saddle leather is fastened to a cantle plate or stretcher F, Fig. 3, by rivets as usual. From this stretcher there extend two sockets *f f*, having perforations and set screw *f′ f′*, wherein and whereby to fasten rods or wires passing into such perforations.

The support for the saddle leather is composed of a wire G, which is bent upon itself at the middle and the two parts are made parallel and extend at a suitable distance from each other and so as to admit the hook E to hold the middle part thereof as shown in the figures. At a short distance from the said middle the two wires are bent into loops or coils *e e*, and continue parallel and straight *e′ e′* for a suitable distance and substantially parallel with the lines of the saddle; then the two wires are bent downward still parallel in a moderate curve *e″ e″*, and again upward and then at a suitable point are carried parallel and straight so as to pass into the perforations in the sockets *f f*. This wire G should have some elasticity, but very little, as we prefer to minimize the use of the so-called "hammock" principle in our saddle. Indeed this saddle is successfully made by using a rigid support instead of the slightly elastic wires of G.

In putting together the saddle leather D and the wire G, the two ends of the wire G are first passed into the sockets *f f* and are pushed through said sockets so far as to permit the hook E to be hooked over the bend of the wire G; the saddle leather is then strained to the proper tension by pressing the wire G forward, and the set screws *f′ f′* are screwed up.

The wires G with the pommel hook E, the cantle plate F and the sockets *f f* form the supporting frame for the saddle leather. Before fastening the parts in the manner just described, two clamps H and J (which are perforated to receive the two parallel rods of the spring) are slipped upon the parallel parts of the wire G and by means of set screws are fastened thereon. To each of the clamps H and J is fastened one leaf C, C′, of the leaf spring, as shown in Figs. 2 and 3. Both leaves of this spring are C-shaped and curve downward and toward each other so that the two leaves may be passed through the perforation

arranged therefor in the clamp B, in which one leaf over laps the other and the two may be fastened by means of the set screw *b'*. I prefer to arrange the two leaves C C' of this spring so that the leaf connected with the front or pommel clamp J will be underneath the leaf connected with the rear or cantle clamp H. The clamps J and H are arranged to be independently moved upon the wires of G to secure adjustment of the springs C, C'. When the leaves C, C' of the spring are loose in the clamp B and the clamps H or J are moved together the leaves will overlap the more and the spring will be stiffened and the saddle will then be adapted to the use of a heavier rider. By moving the two clamps apart the spring will be adapted to a lighter rider. By this adjustment the saddle can be delicately and accurately adjusted to the use of a rider of any weight.

By reason of the forward leaf C of the spring being under the rear leaf C', the following effect is produced:—Pressure upon the rear end of the saddle is resisted not only by the rear leaf C', but also by that portion of the forward leaf C which is underneath the rear leaf and back of the clamp B; pressure upon the front end of the saddle is resisted only by the front leaf C of the spring. (See Fig. 4.) By moving the clamp H forward thus moving the spring C' in the clamp B, leaving the parts otherwise stationary the spring C' is shortened and stiffened. By moving the clamp J backward thus moving the spring C in the clamp B, leaving the parts otherwise stationary the spring C is shortened and stiffened. Hence it is possible so to adjust this saddle that the resistance to either forward or backward motion shall be little or great, the adjustment of each spring being independent of the other. By this construction and arrangement of the springs C and C', any shock to the bicycle by striking an obstacle, or tending to throw the rider forward in the saddle, will be met by a yielding spring composed of one leaf C, which will enable the rider to slide forward on the saddle without receiving any unpleasant shock, but when the rider sits in the normal position on the rear of the saddle a stronger spring composed of both leaves C, C' is opposed to his weight and the ordinary vertical movements are met by the elasticity of the two leaves of the spring. Thus we produce a saddle which is arranged to be adapted to a rider of any weight and which has its elasticity arranged so that when the rider sits in the normal position a strong spring supports him and when he is thrown forward by striking an obstacle a more yielding spring supports his weight.

This saddle is also arranged to be tilted at different inclinations by moving the rods of the support G through the clamps J and H. The curvature of the rear part of the rods of the spring G will cause the back of the saddle to be raised or lowered according to their position in the clamp H, or the curved flat springs C C' may be moved forward or backward in the clamp B and the angle of the saddle may be changed in this way also, and after thus changing the angle of the saddle, the relative elasticity of the flat springs may be adjusted by moving either of them on the rods G.

The form of saddle shown in Fig. 1, is intended for racing purposes and in order to do away with nearly all the elasticity of the saddle in ordinary use. It is found that this saddle is sufficiently elastic and yet very strong and will not sway from side to side. The supporting frame for the leather is rigid relatively to the springs C, C', and may be very rigid. The action of the parallel wires of G is different from that of a flat spring and different from the effect of two separate wires. In the former case the flat spring is ordinarily heavy and incapable of the elasticity which is produced by coiling the front portion of the wire; and in the latter case the saddle may turn to one side or the other by the separate wires twisting or revolving in the clamps. This latter effect may occur whenever a side pressure occurs, but by reason of the two parts of the saddle support G being made in one piece or rigidly joined together this revolving in the clamp is evidently rendered impossible.

When the form of saddle shown in Fig. 1, is used, a clamp of the form shown as H in Figs. 2 and 3 is employed. This has a perforation suitable to fit on the horizontal bar of the saddle support, and has a set screw *h''* whereby to fasten the same thereon. In order to use the clamp H for this purpose, the spring C' is released, the clamp is removed from the rods and is turned over.

What we claim is:—

1. A saddle of the class described comprising a saddle leather provided with a front hook and with a rear stretcher, having suitable sockets, a frame composed of wire bent in the middle and adapted thereat to engage with said hook, the two parts of said wire being parallel and having the coils *e e*, the parallel straight parts *e' e'* and the curved parts *e'' e''* and by means of sockets and set screws attached to the rear stretcher, whereby said wires may be rigidly fastened thereto.

2. In a saddle of the class described, a supporting frame composed of a rod bent in the middle the two parts being parallel and extending rearwardly the length of the saddle, a hook adapted to engage one end of said supporting frame at the bend thereof, a stretcher having sockets and set screws adapted to be fixed to the two rearwardly extending ends of said rod, a saddle leather fastened at one end to said hook and at the other end to said stretcher, one or more supporting springs, clamps adjustably fixed upon said rod and connected to said supporting springs and a clamp adapted to fasten said supporting springs to a bicycle, substantially as and for the purposes described.

3. In combination with a bicycle saddle, a saddle spring composed of elastic parts, each of which is adjustable as to its elasticity independently of the other or others, and means of stretching the saddle leather independently of said elastic parts, substantially as described.

4. In combination with a bicycle saddle, a saddle spring composed of two elastic parts, each of which is adjustable as to its elasticity independently of the other, and means of stretching the saddle leather independently of said elastic parts, substantially as described.

5. In combination with a bicycle saddle, a saddle spring composed of relatively movable leaves, each of which is adjustable as to its elasticity independently of the other or others, substantially as described.

6. In combination with a bicycle saddle, a saddle spring composed of two relatively movable flat springs, each of which is adjustable as to its elasticity independently of the other, substantially as described.

7. In combination with a bicycle saddle, a saddle spring composed of two relatively movable and overlapping flat springs, each of which is adjustable as to its elasticity independently of the other or others, substantially as described.

8. In combination with a bicycle saddle, a saddle spring composed of two relatively movable overlapping flat **C** shaped springs adjustable independently of each other whereby each of said flat springs is separately adjustable as to its elasticity, substantially as described.

9. A saddle spring composed of overlapping flat springs connected with a saddle under each end thereof and adjustable independently of each other in combination with a saddle having a supporting frame and clamps whereby said springs are attached to said supporting frame and to the bicycle, substantially as described.

10. A saddle spring composed of two overlapping flat springs connected with the saddle under each end thereof and adjustable independently of each other in combination with a saddle having a supporting frame and clamps whereby said springs are attached to said supporting frame and to the bicycle, substantially as described.

11. A saddle spring composed of two flat overlapping **C**-springs adjustable independently of each other in combination with a saddle having a relatively rigid supporting frame and clamps whereby said springs are attached to said supporting frame and to the saddle support of a bicycle.

12. In a saddle of the class described the combination of a relatively rigid supporting frame and springs attached thereto and adjustable with reference to each other and a clamp whereby the same may be attached to a bicycle.

13. In a saddle of the class described the combination of a relatively rigid supporting frame, springs attached thereto and adjustable with reference to each other, and means of attaching the same to the saddle support of a bicycle, whereby said springs are varied in elasticity, together with means of attaching the same to the saddle support of a bicycle.

14. In a saddle of the class described, the combination of a relatively rigid supporting frame, flat springs attached thereto substantially as described and overlapping and adjustable with reference to each other, whereby the said springs may be made stiffer or more yielding and a clamp for fastening the same to the saddle support of a bicycle.

15. In a saddle of the class described, the combination of a relatively rigid supporting frame and flat springs attached thereto substantially as described and adjustable with reference to each other, the spring attached to the rear of the saddle frame lying upon and overlapping the other, whereby the said springs are relatively stiff for rearward pressure and yielding for forward pressure upon said saddle, together with a clamp for attaching the same to the saddle support of a bicycle.

16. In a saddle of the class described, the combination of a relatively rigid supporting frame, a pair of flat **C**-springs attached to said frame by adjustable clamps, the ends of said springs overlapping substantially as described, and a clamp for fastening the same to the saddle support of a bicycle.

17. A saddle of the class described, composed of a supporting frame, a saddle leather, clamps movable and adjustable on said frame, springs fastened to said clamps and fastened by a single clamp to the saddle support of a bicycle.

18. A saddle of the class described composed of a supporting frame, a saddle leather, clamps movable and independently adjustable on said frame, independent springs fastened to said clamps and movable therewith and fastened by a single clamp to the saddle support of a bicycle.

WILLARD G. RICH.
JAMES H. SAGER.

Witnesses:
M. H. McMATH,
W. H. SHAW.