(No Model.) 2 Sheets—Sheet 1.

W. L. FISH.

SADDLE FOR VELOCIPEDES.

No. 385,606. Patented July 3, 1888.

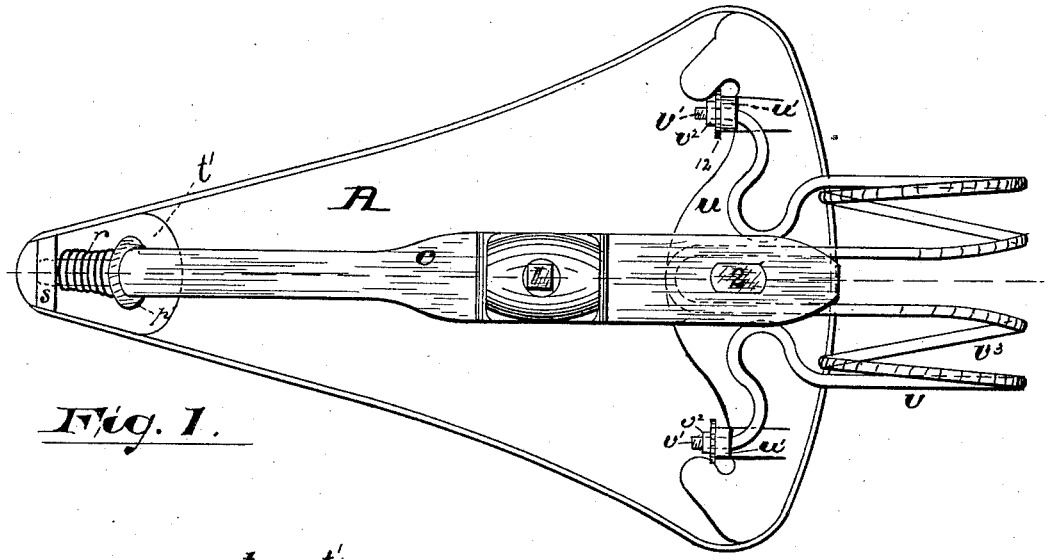

Fig. 1.

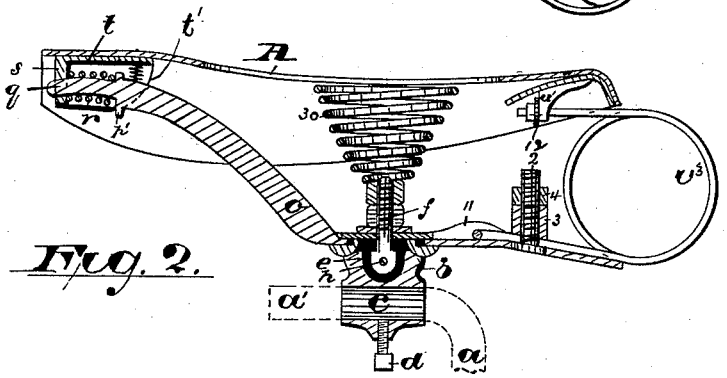

Fig. 2.

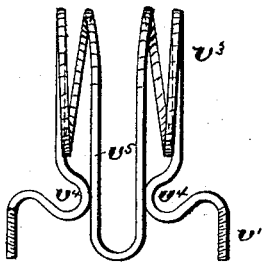

Fig. 3.

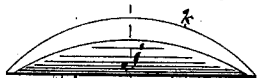

Fig. 4.

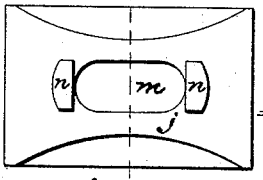

Fig. 5.

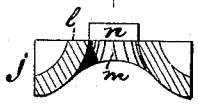

Fig. 6.

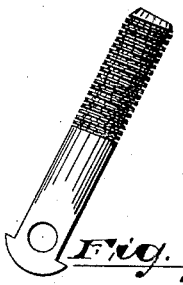

Fig. 7.

WITNESSES:

E. L. Sherman

C. A. Baldwin

INVENTOR:

Warren L. Fish,

BY Drakes & C., ATT'YS.

(No Model.) 2 Sheets—Sheet 2.

W. L. FISH.

SADDLE FOR VELOCIPEDES.

No. 385,606. Patented July 3, 1888.

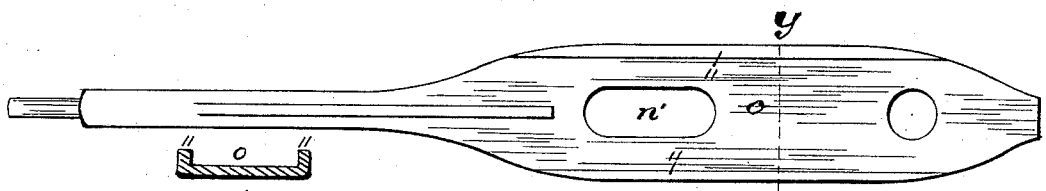

Fig. 9. Fig. 8.

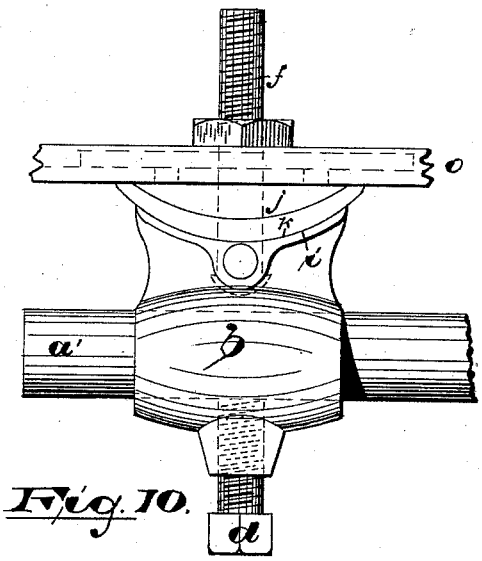

Fig. 10.

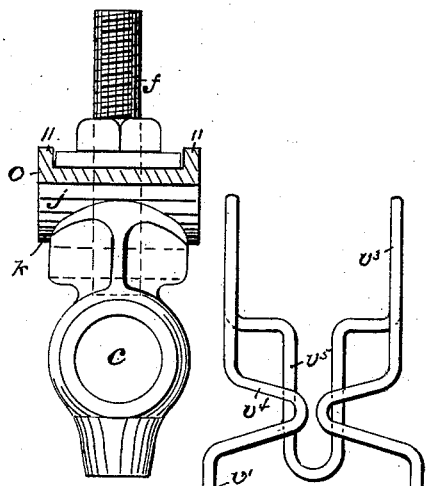

Fig. 11. Fig. 12.

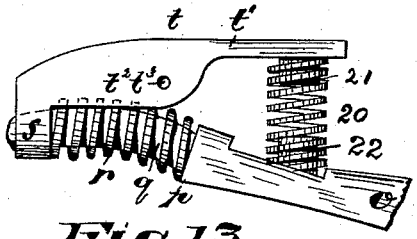

Fig. 13.

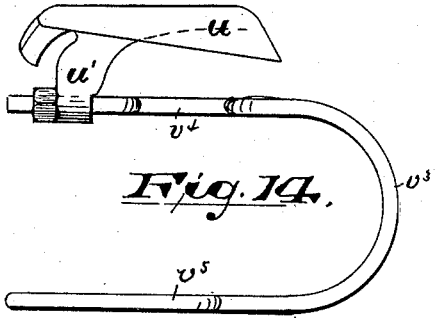

Fig. 14.

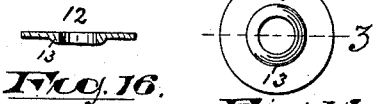

Fig. 16.

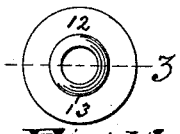

Fig. 15.

WITNESSES:

E. L. Sherman.
C. H. Baldwin

INVENTOR.

Warren L. Fish,

BY Drake & Co. ATT'YS.

UNITED STATES PATENT OFFICE.

WARREN L. FISH, OF NEWARK, NEW JERSEY.

SADDLE FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 385,606, dated July 3, 1888.

Application filed February 3, 1888. Serial No. 262,891. (No model.)

To all whom it may concern:

Be it known that I, WARREN L. FISH, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Bicycle and Tricycle Saddles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates more particularly to that class of saddles adapted for use in connection with tricycles, &c., and the "Rover" type of safety-bicycles, wherein the side saddles are supported by bars other than the ordinary curved backbones, such as are inserted in the standard type of bicycles.

The object of the invention is to secure greater ease and comfort to riders on vehicles of the first-mentioned class; to avoid the use of certain frames heretofore used in the saddles for said vehicles, (said frames being supported underneath by springs,) and also to prevent a certain objectionable back movement common to the seats having said frames; to enable the saddle to be adjusted to suit the form and desire of the rider; to give the rider greater control of the machine, and to obtain additional advantages in detail, which will be hereinafter set forth in connection with the description of the mechanism by which the invention is effected.

Referring to the accompanying drawings embraced in two sheets, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1, Sheet 1, is a plan of the under side of a saddle. Fig. 2 is a central vertical section of the same. Fig. 3 is a detail plan of a certain rear spring particularly adapted for use in connection with the improved seat. Figs. 4, 5, and 6 are respectively a side view, a plan, and a section on lines x of a certain casting adapted to coact with other parts to allow the seat to be adjusted to lie at any desired angle; and Fig. 7 is a detail view of a pivotal bolt adapted to hold the upper part of the saddle in place. Fig. 8, Sheet 2, is a plan of a certain stretcher bar or support for the seat. Fig. 9 is a section of the same on line y. Fig. 10 is a side view in detail, showing the mode of holding the said bar upon its supports; and Fig. 11 is an end view of the same. Figs. 12, 13, and 14 are detail views showing certain modifications which will be duly explained. Fig. 15 is a view of a certain washer, and Fig. 16 is a section of the same on line z.

In said drawings, a, Fig. 2, indicates in outline a suitable support or bar of the vehicle-frame of any desired construction.

b indicates a base-piece adapted to be secured on said support in any suitable manner, but preferably by means of a set-screw or clamp, whereby the said base can be easily and quickly removed from said support, and with it the parts arranged thereon. Said base is preferably provided with a perforation, c, to receive the horizontal end a' of the support. It is also provided with a threaded perforation at right angles to the first said perforation to receive a set-screw, d, also a recess, e, at the top to receive the head of a certain bolt, f, and pivotal bearings g, or bearings for a pivot, h, adapted to hold the head of the said bolt f within the said recess, and to allow the said bolt a pivotal movement thereon, although this said bolt may be made or cast integral with said base. Said base may be also provided with curved or segmental bearings (shown in Fig. 10 at i) adapted to allow a segmental casting, j, Figs. 2, 4, 5, 6, 10, and 11, provided with correspondingly-curved bearings k, to be seated thereon and be moved backward and forward, so that certain bearings l at the upper part of said casting j will so change their relations to the support a or the other part of the vehicle that the seat or saddle may be brought into a position or inclination to suit the convenience or ease of the rider. The said bearing l may be made to lie level or to incline in either of the two opposite directions, as will be understood upon reference to Fig. 10. The segmental surface may be corrugated or roughened, to more certainly prevent slipping.

The casting j is provided with an opening, m, to allow the passage of the bolt therethrough, the said passage or opening being

preferably in the form of a slot, to allow of a slight play to the bolt and admit of its changing its angle therein. At the top or upper surface of the casting *j* the same may be provided with lugs *n n*. Said lugs are adapted to enter a recess, *n'*, in a stretcher-bar, supporting-bar, or plate, *o*, of the seat, and prevent the latter from turning laterally on said casting. These said lugs may be dispensed with and friction alone depended upon to prevent such turning, or other suitable means may be provided to accomplish the desired result.

Upon the casting *j*, which may be termed an "adjustable" seat for the stretcher-bar, and which may be integral with said stretcher-bar, is or may be arranged said stretcher-bar *o*, upon which the saddle-seat, which is of the class known as "suspension saddles," is arranged. I prefer to make the stretcher-bar and casting or seat *j* in two or more pieces, as in that case the said bar may be adjusted longitudinally on said seat, and thus the center of gravity be changed. The stretcher-bar from the point where it bears upon the seat *l* or is supported projects forward and upwardly, and at the forward extremity it is provided with a bearing or shoulder, *p'*, from which a post or stud, *q*, extends. A spring, *r*, is or may be arranged on said studs, the same being interposed between the bearing *p'* and a co-operating bearing, *s*, of a front saddle-plate, and being adapted to receive the strain caused by the weight of the rider on the saddle, and cushioning the jar of the vehicle to relieve the rider of the unpleasant effect of such jar. The said spring *r* is but a short one of considerable rigidity, so that there can be but a slight movement of the bearing *s*. Thus the forward bearing of the saddle is approximately rigid, and the rider is given thereat a certain purchase or basic hold, which enables him to operate the movable part of the machine—such as the pedals—with greater force, ease, and certainty than in cases where both the front and rear of the saddle are supported on the long and more flexible springs.

By being arranged on the post or stud *q* the spring *p* is only allowed a longitudinal movement, and none or very little lateral movement, so that a lady can seat herself on the saddle and draw her skirts laterally thereover without at the same time drawing the body of the saddle out of place, so that when it springs back it brings the skirts with it. The spring is preferably not a straight one axially, but is given a curve, as shown in Fig. 2. By this means, when the weight of the saddle and the rider is brought thereon, it not only moves axially, but also slightly in a vertical longitudinal plane. This tends to further relieve the rider of the forward vibration without causing him to lose control of the machine. The forward plate, *t*, having the bearing *s*, is of peculiar construction, and although specially adapted for the device shown, may be employed in other devices having proper co-operating parts. Said plate consists of a rounded plate, *t'*, the sides *t²*, which are perforated, as at *t³*, and serves to hold the leather of the saddle in a doubled form at its forward extremity, the said leather being riveted against said sides, as shown in Figs. 2 and 13. At the front the said forward plate, *t*, is provided with an eye, *s*, into which the stud *q* extends, as shown in Fig. 2, and between which eye *s* and the shoulder *p* the spring *r* is arranged. Said eye slides upon the stud backward and forward; but no material lateral movement is allowed. A hook or other means may be used to connect the front of the saddle-top to the stretcher-plate *o*.

The rear plate, *u*, is provided with lugs *u' u'*, which are perforated to allow the passage therethrough of the ends of a rear spring, *v*, upon which the top or seat is seated. Said spring is somewhat similar in construction to those heretofore employed, but embodies certain new features, whereby it is adapted to the new conditions involved in the present invention. The ends *v'* of the spring are threaded, as shown in Fig. 1, and are held in the lugs *u' u'* by means of nuts *v²*. By means of the nuts the resilient quality of the spring may be materially modified—that is to say, by screwing up the nuts the coils, when the same are used, can be made smaller and the spring thus rendered less flexible, while by loosening the said nuts the reverse result may be secured. Just back of the threaded extremities of the spring, between said extremities and the coils or spirals *v³*, or the downwardly-bent portion, the upper ends, *v'*, of the spring are doubled or bent laterally out of a straight course, as shown in Fig. 3, the doubled portions *v⁴* extending toward one another and serving to secure a peculiar effect which is desirable in turning curves, and it is also effective especially in allowing a peculiar side movement. The lower end, *v⁵*, of the spring where it is brought into connection with the bar *o* is doubled and extends forward to provide a suitable base or bearing, whereby it may be firmly and immovably seated on said bar *o*. Said bearing *v⁵* is preferably held down upon said bar *o* by means of an upwardly-extending bolt, 2, a cross piece, 3, adjusted upon said bolt and lying upon said bearing *v⁵*, and a nut, 4, which is screwed upon the threaded end of said bolt and holds the cross-piece 3 upon the bearing *v⁵*, holding the latter down upon the seat of the bar *o*. The cross bar or piece 3 may be recessed on the under side to receive the two parallel or approximately-parallel parts of the doubled bearing, thus securing a more perfect frictional contact and preventing any lateral movement of the bearing *v⁵* on the seat. The upper side of the bar *o* is provided with projections 11, adapted to engage the sides of the bearings *v⁵* and prevent lateral movement. Between the perforated lugs *u'* and the nuts *v²*, for holding the upper extremities of the spring within said lugs, are inter-

posed washers 12, Figs. 1, 2, and 15, of peculiar construction. These are provided at their central parts, around the perforations therein, with raised ridges 13 on their outer sides, to provide for irregularities in the castings and direction of the threaded portions of the spring, enabling the nut to gain less frictional contact with said lugs, thus lessening the liability of unscrewing, and also to obviate the use of an extra set-nut.

By means of the device thus described I am enabled to accommodate the saddle to the exact requirements of the rider by changing the center of gravity of the seat, varying the inclination of the same, adjusting the spring in its relation to its seat on the bar *o*, and also in its relation to the rear plate of the seat; and while I secure peculiar rigidity or firmness at the forward part of the saddle or bearing, against which the legs of the rider can find a reliable purchase, I obtain thereat sufficient spring to deaden or cushion the vibration incident to riding over irregular surfaces, such as a paved street. By my construction I am furthermore enabled, after once finding the proper adjustment with reference to the inclination or pitch of the seat, center of gravity, elasticity of spring, &c., to quickly remove the saddle from the frame-work of the vehicle—as, for example, should a sudden storm of rain happen while riding—to keep the saddle dry without disturbing any of said features of adjustment, so that when the rider desires to reinsert the saddle into the vehicle all that is necessary is to place the bar *b* upon the support or bar *a* of the vehicle and turn the set-screw to fix the parts permanently in their relative positions.

I am fully aware that changes of construction or modifications herein may be made without departing from the spirit of this invention. For example, in the construction of the rear spring, *v*, the coils may be dispensed with and the spring be made without such coils, as in Figs. 12 and 14, and in the construction of the forward bearings of the seat I may provide an additional spring, 20, Figs. 2 and 13, which is arranged to stand in a vertical or an approximately vertical position and take a certain proportion of the downward pressure of the saddle-seat. While this spring may ordinarily be dispensed with, I prefer to provide the same when the saddle is to be used by an unusually heavy rider. The bottom of the front plate, *t'*, is provided with a depending lug, 21, and the top of the plate *o* with a corresponding lug, 22, which lugs serve to hold the opposite ends of the spring in its vertical position between the two plates. The said lugs may be, and preferably are, provided without the interposed springs 20 when the saddle is placed on the market, the saddle thus having the means for holding the spring, so that if the rider so desires he may arrange a spring of any strength in place himself. I may also provide the central parts of the flexible portion A of the saddle with a spring-support, 30, which is held in place by the stud *f* and nuts, which are fastened by solder or otherwise to the uppermost of said nuts.

Having thus described the invention, what I claim as new is—

1. In combination with a stretcher-bar, *o*, spring and seat of a base having a segmental bearing, a casting having a corresponding bearing and lugs, *n*, and a bolt, substantially as and for the purposes set forth.

2. In a saddle, the spring having a base, coils, and ends *v'*, which latter are bent toward one another, as at v^4, substantially as and for the purposes set forth.

3. In a saddle, the spring having a base, coils or spirals v^3, bends v^4, and threaded ends, substantially as and for the purposes set forth.

4. In a saddle, the combination, with a rear plate having perforated lugs, of a spring having threaded ends and nuts for holding and adjusting said ends with said lugs, substantially as and for the purposes set forth.

5. In combination with the front plate, *t'*, plate or rods *o*, an interposed vertical spring, 20, having bearings on both of said plates, substantially as and for the purposes set forth.

6. In combination with a forward saddle-plate, *t'*, and a stretcher bar or rod, as *o*, a spring, *r*, allowing horizontal movement of the front plate, and a spring, 20, arranged under the rear edge or part of said forward plate, substantially as and for the purposes set forth.

7. The combination of the front plate, *t'*, a suspension-saddle and a rear plate, *a*, and a flexible seat disposed upon said plates, a stretcher-bar, *o*, and a rear spring, *v*, and a spring, 30, arranged beneath the flexible seat A, substantially as set forth.

8. In combination, the flexible seat A, stretcher-bar *o*, having a lug, 22, and a forward plate, *t'*, having a lug, 21, adapted to co-operate with the lug 22 to hold a vertical spring, 20, substantially as and for the purposes set forth.

9. The combination of the flexible saddle-seat and bar *o*, a forward plate joined to said flexible seat and supported by said bar *o*, and a vertical spiral, 20, arranged to support the rear end of said forward plate, substantially as and for the purposes set forth.

10. In combination, a rear plate for a flexible seat, and a suitable support, *o*, for the rear spring, and said rear spring having a base, coils or spirals v^3, and where it engages or near where it engages said rear plate having lateral bends or turns and terminating in forward projections adapted to pass directly through perforations or recesses in the lugs of said rear plate, substantially as and for the purposes set forth.

11. In combination with a stretcher-bar, *o*, rear spring, and seat A, a base adapted to be secured upon a suitable support of the vehicle-

frame, a bolt, *f*, pivoted on said base, a casting, *j*, having segmental bearings adapted to engage co operating bearings on the base and provided with a slot, *m*, adapted to allow the passage of the bolt *f* and the pivotal movement of the latter therein, and suitable nuts for fastening the said segmental casting in place on said base, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of January, 1888.

WARREN L. FISH.

Witnesses:
CHARLES H. PELL,
E. L. SHERMAN.