

(No Model.)

W. B. LUCE.
EQUALIZING SPRING CONNECTIONS.

No. 585,152.

Patented June 22, 1897.

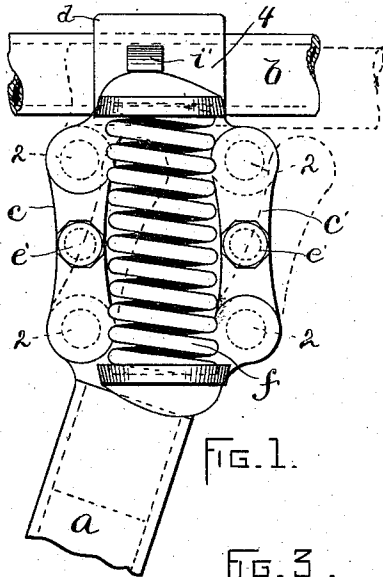


FIG. 1.

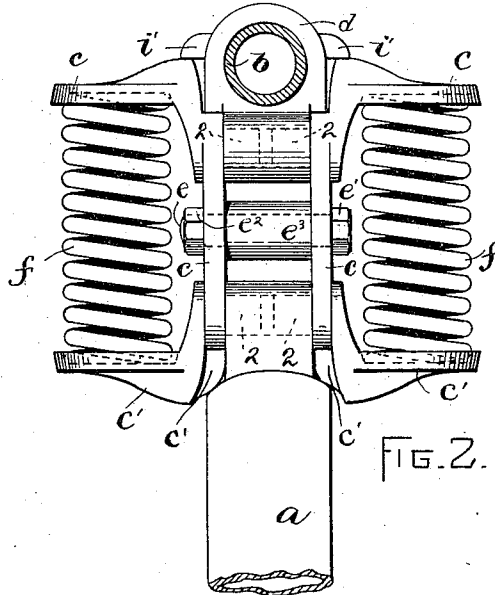


FIG. 2.

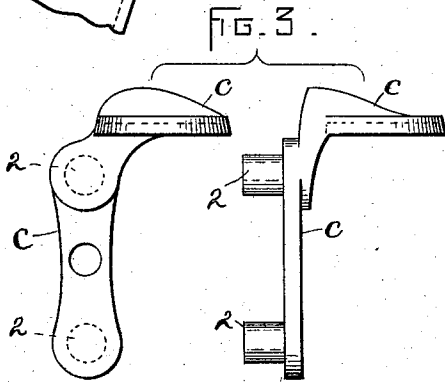


FIG. 3.

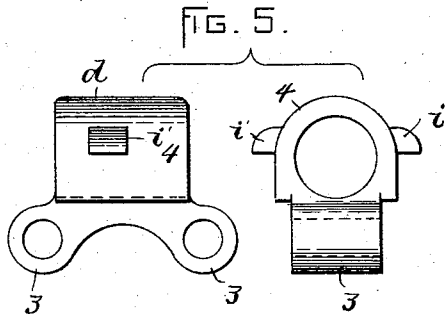


FIG. 5.

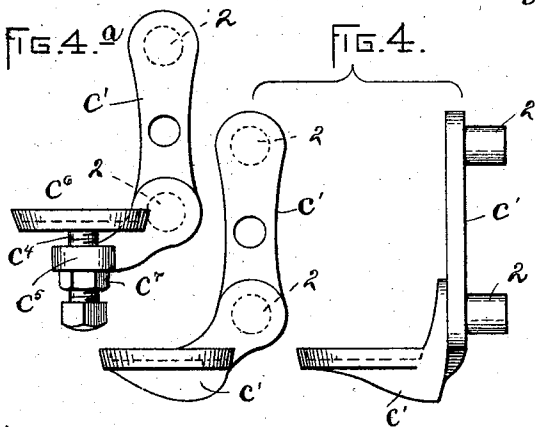


FIG. 4.

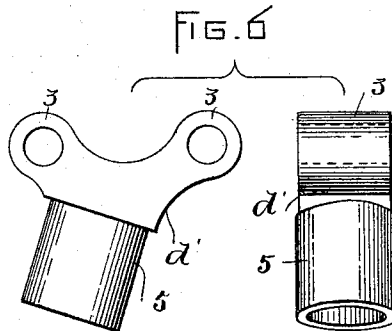


FIG. 6.

WITNESSES:
A. D. Hanson,
J. W. Pezzetta

INVENTOR:
W. B. Luce
by Wright & Brown & Lundy
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM B. LUCE, OF HINGHAM, MASSACHUSETTS.

EQUALIZING SPRING CONNECTION.

SPECIFICATION forming part of Letters Patent No. 585,152, dated June 22, 1897.

Application filed May 14, 1896. Serial No. 591,453. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. LUCE, of Hingham, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Equalizing Spring Connections, of which the following is a specification.

This invention relates to means for yieldingly connecting two parts, one of which is movable relatively to the other, the connection being such that the movable part has a resilient support and moves alike at all parts when it yields from its normal position.

The invention consists in the combination of links or connecting members jointed to the fixed part and also jointed independently to the movable part and arranged to permit a uniform yielding movement of all portions of the movable part, a stop for limiting the motion of the movable part in one direction, and a spring which yieldingly holds the movable part at the extreme of its movement limited by said stop.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side view showing my invention adapted for supporting the seat or saddle of a bicycle. Fig. 2 represents a front view of the construction shown in Fig. 1. Figs. 3, 4, 5, and 6 represent detached views of parts shown in Figs. 1 and 2.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, *a* and *b* represent two parts connected by the yielding equalizing connection which constitutes my invention, one of said parts being movable relatively to the other and normally held in a given position by the said equalizing connection and adapted to yield therefrom. The part *a* is here shown as a portion of the frame of a bicycle—namely, the tubular post—to which a saddle-holding device is secured, the part *b* being shown as a horizontal rod forming a part of the saddle-support, the saddle being secured either directly or indirectly to said rod by any suitable means. I do not, however, wish to be understood as limiting myself to the application of my improvements, hereinafter described, to a bicycle-saddle, nor, when so adapted, to the particular arrange-

ment of devices here shown for connecting the seat with the bicycle-frame.

In carrying out my invention I provide means for flexibly connecting the part *b* with the part *a* in such manner that the part *b* may yield bodily to downward pressure without changing its angle with relation to the part *a*, so that if the part *b* is horizontal when in its raised or normal position it will remain horizontal when depressed, as indicated by dotted lines in Fig. 1.

As shown in Figs. 1 and 2, the means for connecting the part *b* with the part or support *a* comprise two pairs of links or connecting members *c c* and *c' c'*, each link having two studs 2 2, projecting from its inner side, and terminal members *d d'*, each having socketed ears 3 3 to receive said studs. The member *d* is provided with a socket 4 to receive the part *b*, and may be brazed to said part or detachably secured thereto by a set-screw. The member *d'* is provided with a shank 5 to enter the tubular support *a*, to which said shank may be brazed or otherwise secured.

The links are held in engagement with the members *d d'* by means of bolts *e e*, which pass through the links of each pair and have heads *e'* and nuts *e''* bearing against the outer sides of the links. Sleeves *e'''* surround the bolts between the links and bear at their ends against the inner sides of the links.

Each link is practically an elbow or bell-crank lever, one arm of which has a seat or bearing for a spring *f*. There are two of said springs in the embodiment of my invention here shown, although a single spring may be employed without departing from the spirit of my invention. Each spring bears at one end on a link *c* and at the other end on a link *c'*, as shown in Figs. 1 and 2. The said seats or bearings on the links *c c'* are provided with recesses to receive the ends of the springs and prevent the lateral displacement of the springs. The springs normally expand and press the arms of the links on which they bear away from each other in opposite directions until the arms of the links *c c* bear upon abutments or lugs *i i'*, formed on the terminal member *d*, said abutments preventing further expansion of the springs,

so that the part *b* is normally supported in an elevated position or at its maximum distance from the part *a*. The part *b* is therefore yieldingly supported and is caused by the described arrangement of the supporting-links to yield downwardly without altering the relative height of its opposite ends, as shown by dotted lines in Fig. 1. Hence there is no change in the angle of the part *b* with reference to the part *a* caused by the yielding movement of the part *b*. It will be seen, therefore, that a bicycle-saddle or any other device supported by the part *b* is enabled to yield from its normal position without tipping or swinging from either end, the movement of all parts of the saddle being uniform.

In another application filed by me August 17, 1895, Serial No. 559,622, I have shown a bicycle-handle connected to a handle-bar by equalizing-links yieldingly held in their normal position by a spring, substantially in the manner shown in this application, but as I do not desire to limit myself to the particular embodiment of my invention shown in said application I have claimed the invention more broadly in the present case.

In Fig. 4^a I show the spring-seat on one of the links *c'* made adjustable to vary the pressure of the spring, the seat being made in a separate piece from the body of the link and supported by an adjusting-screw *c⁴*, which works in an internally-threaded lug *c⁵*, formed on the lower end of the link *c'*. The screw has a head *c⁶* and a check-nut *c⁷*. The spring-seat may be formed on or affixed to the upper end of the screw.

It is obvious that the adjustable seat may be applied to the link *c* instead of the link *c'*.

I claim—

1. The combination of a fixed part, a movable part, connecting members jointed to said parts and arranged to permit a lateral movement of the movable part, said members having arms which project inward from opposite sides, and a spring interposed between said arms and pressing the same in opposite directions, whereby the movable part is yieldingly held at one extreme of its lateral movement.

2. A saddle-support comprising a lower terminal member adapted for connection with a bicycle-frame, and an upper terminal member adapted for connection with a saddle, links or connecting members jointed to said terminal members and arranged to permit a uniform lateral movement of the upper member, said members having arms which project inward from opposite sides, and a spring or springs interposed between said arms and which yieldingly support the upper terminal member at one extreme of its movement.

3. The combination of a fixed part, a movable part, connecting members jointed to said parts and arranged to permit a lateral movement of the movable part, said members having arms which project inward from opposite sides, a spring interposed between said arms, and means substantially as described for varying the pressure of the spring.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of April, A. D. 1896.

WILLIAM B. LUCE.

Witnesses:

H. M. BIBLY,
SETH SPRAGUE.