(No Model.)

A. C. GOODENOUGH.

SEAT POST FOR BICYCLES.

No. 590,455. Patented Sept. 21, 1897.

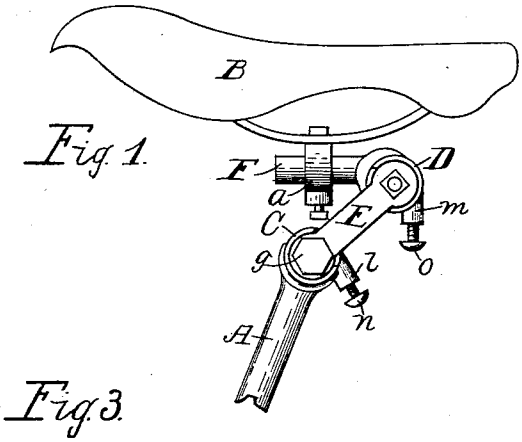


Fig. 1.

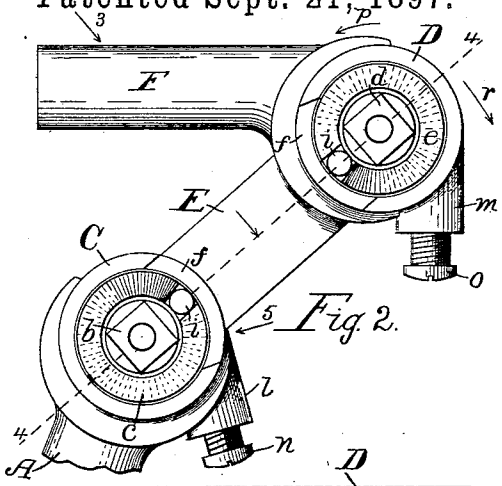
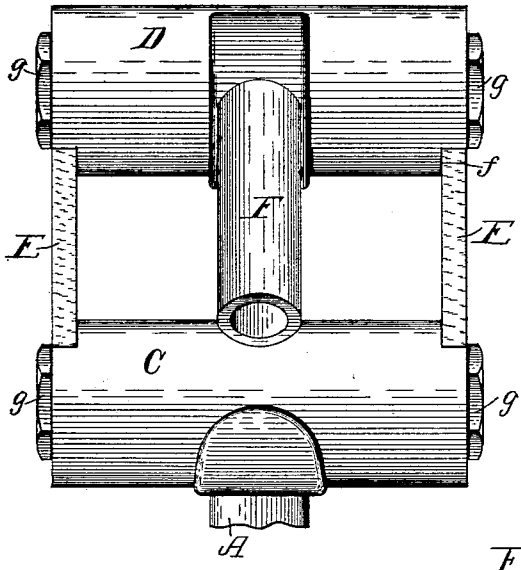


Fig. 2.

Fig. 3.



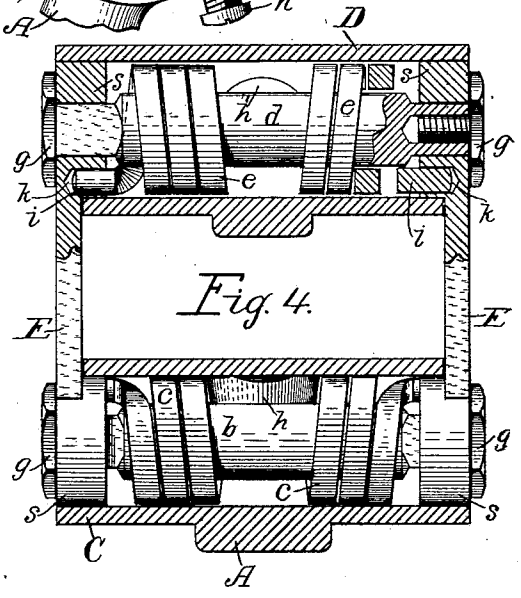
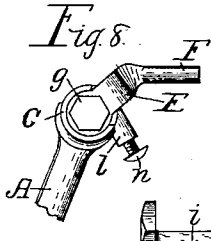


Fig. 4.

Fig. 8.



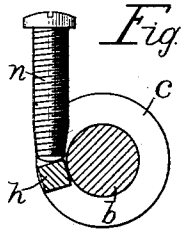


Fig. 6.

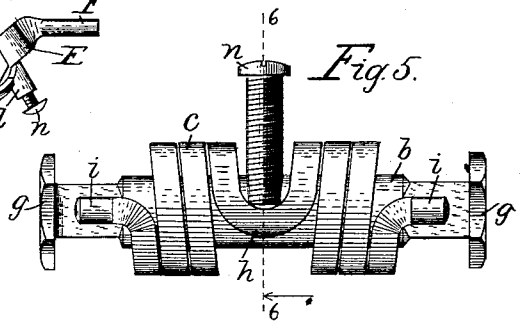
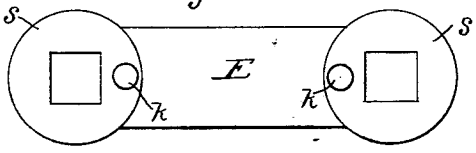


Fig. 5.

Fig. 7.



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UNITED STATES PATENT OFFICE.

ANDREW C. GOODENOUGH, OF ROCHESTER, NEW YORK, ASSIGNOR TO FLORENCE E. GOODENOUGH, OF SAME PLACE.

SEAT-POST FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 590,455, dated September 21, 1897.

Application filed September 2, 1896. Serial No. 604,642. (No model.)

To all whom it may concern:

Be it known that I, ANDREW C. GOODENOUGH, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Seat-Posts for Bicycles, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention relates to the construction of the seat-post of a bicycle, the object being to provide the post with movable parts, including a spring or springs, whereby the seat may have not only an easy motion for the purpose of comfort in riding, but will also be prevented from rocking as the spring yields and reacts under the weight of the rider.

The invention is hereinafter fully described and more particularly pointed out.

Referring to the drawings, Figure 1 shows the general relation of the parts. Fig. 2 is a side elevation of the essential parts without the seat and one connecting-strap. Fig. 3 is a plan of the device seen in the direction indicated by arrow 3 in Fig. 2. Fig. 4 is a section on the dotted line 4 4 in Fig. 2, view indicated by arrow pointed on said dotted line. Fig. 5 shows some of the parts seen in the direction indicated by arrow 5 in Fig. 2. Fig. 6 is a cross-section of the core-shaft and spring on the dotted line 6 6 in Fig. 5 and viewed as indicated by the arrow pointed on said dotted line. Fig. 7 is a view of the inner surface of a connecting-strap. Fig. 8 shows the device in a simpler form. Figs. 1 and 8 are drawn to a scale one-third full size, the remaining figures being drawn full size.

Referring to the drawings, A is a tubular part corresponding with the ordinary seat-post of a bicycle, and B the seat, which may be of any common construction. The post is formed with a transverse cylindrical part or spring-holding drum C. A short arm F for holding the seat is provided having a transverse spring-holding drum D, parallel with the drum C and of the same size and kind.

E E are connecting-straps for the two drums C and D, each being formed with a circular head *s*, Figs. 4 and 7, at each end, which heads fit the interiors of the spring-drums, as shown.

The drum C is provided at its interior with an axial core-shaft *b*, upon which is placed a reverse spiral spring *c*. The drum D is similarly provided with an axial core-shaft *d* within a similar spring *e*.

The core-shafts are equal in length with their drums, as shown in Fig. 4, the ends of the two shafts, the ends of the drums, and the outer surfaces of the connecting-straps being in two vertical parallel planes. The drums are notched at their ends or formed with depressions *f*, Figs. 2 and 3, to make room for the connecting-straps, as shown. Retaining-screws *g*, threaded into the ends of the core-shafts, as clearly shown in Fig. 4, serve to hold all of the parts together and in place.

The springs are preferably made of spring-wire square in cross-section, and at their middle points they are formed with reverse or U-shaped bends *h h'*, Figs. 4 and 5, the reverse sections of the springs at either side of the bends terminating in longitudinal ends *i*, Figs. 2, 4, and 5, which enter corresponding cavities *k*, Figs. 4 and 7, formed in the inner surfaces of the heads *s* of the connecting-straps.

The drums C and D are provided with bosses *l m*, Figs. 1 and 2, respectively, to hold tangent-screws *n o* in position to bear against the springs in the drums. The ends of these screws are adapted to bear against the inner or concave sides of the bends *h h'* of the springs, respectively, as clearly shown in Figs. 5 and 6. The use of these tangent-screws is to hold or control the springs and to adjust their tension. If either screw is turned forward to press the spring with which it coacts, it will increase the tension of the spring, the two ends being held from turning by the action of the associated connecting-straps, and, on the contrary, if the screws are turned back or in directions away from the springs the tensions of the latter will be diminished.

Now the weight of the rider upon the seat tends to rotate the drum D in the direction indicated by arrow *p*, Fig. 2, and force the point of the tangent-screw *o* against the bend *h'* of the contained spring *e*. The ends *i i* of the spring being held by the connecting-straps E E prevent the spring from turning on its axis, and so the seat is supported by the elasticity of the spring. The weight upon the seat also tends to depress the upper ends of the connecting-straps E E or swing them

downward in the direction indicated by arrow *r*, the axis of motion being the axis of the drum C. Now as the connecting-straps control the spring *c* in the drum C this downward swinging of said straps would tend to turn the spring against the tangent-screw *n*, producing another or additional spring action for controlling the seat.

Furthermore, it will be observed that the weight upon the seat tends to turn the drum D toward the left, as appears in Fig. 2, while it tends to turn the connecting-straps in the opposite direction or downward toward the right, and it will also be seen that as to the parts about the shaft *d* the weight upon the seat tends to move the screw *o* against the stationary spring *e*, while as to the parts about the shaft *b* the said weight tends to move the spring *c* against the stationary screw *n*—that is to say, in the first instance the screw is urged against the spring, while in the second instance the spring is urged against the screw, and also in the first case the movable drum is turned about the stationary spring, while in the second case the movable spring is turned within the stationary drum.

It will be also observed that were the connecting-straps rigid with the part A and no motion about *b* a depression of the stem F on account of the weight upon the seat would cause the latter to tip forward, and, on the other hand, were the connecting-straps rigid with the drum D and no motion about the shaft *d* a depression of the stem on account of the weight upon the seat would cause the latter to tip backward. By providing a movable joint both at *b* and *d* and employing two independent springs these tendencies to tip forward and backward neutralize or balance each other, and the motions of the seat under the rider when passing over inequalities of the path are vertical and there is no rocking motion of the seat. It will be observed, however, that the springs will not act to prevent the seat from tipping forward if the rider leans forward or from tipping backward if the body of the rider be thrown backward; but in either tilted position of the seat it will not rock, but move vertically upward and downward, as above described.

The depressions *f* are made sufficiently long laterally to allow of the relative motions of the connecting-straps in the drums resulting from the weight upon the seat.

The end portions of the core-shafts *d* and *b* are shown as being square in the connecting-straps, but this form is not essential. They may be square, round, or of other convenient form in cross-section.

In some cases it is desirable to dispense with the upper drum D and its contained spring and join the upper ends of the connecting-straps to form the seat-arm F, as shown in Fig. 8. In this simpler construction of the device the seat-arm and the connecting-straps are but a single piece all joined in one, which holds and presses the spring in the drum C of the post.

What I claim as my invention is—

1. A seat-post for a bicycle, formed with a drum, a seat-arm formed with a drum, and connectors for said drums, in combination with springs in said drums, pressed by the connectors, and controlling-screws for said springs, held by said drums, substantially as specified.

2. A seat-post for a bicycle, formed with a drum, a seat-arm formed with a drum, and connectors for said drums, in combination with springs in said drums pressed by the connectors, and controlling adjusting-screws for said springs, held by said drums, said springs each being formed with a return-bend at the middle and reverse sections or parts at either side of said return-bend, substantially as shown and described.

3. A seat-post for a bicycle, provided with a movable seat-arm, and a seat for the seat-arm, the post being formed with a spring-holding drum, in combination with a spring in said drum pressed by said seat-arm, and a controlling-screw for said spring, held by said post, substantially as shown and described.

4. A seat-post for a bicycle, formed with a hollow drum, a seat-arm formed with a hollow drum, and connectors for the ends of said drums, said connectors having heads adapted to occupy the respective spaces in said drums, in combination with springs in the drums, held by said connectors, and controlling-screws for the springs, held by the respective drums, substantially as and for the purpose specified.

In witness whereof I have hereunto set my hand, this 28th day of August, 1896, in the presence of two subscribing witnesses.

ANDREW C. GOODENOUGH.

Witnesses:
ENOS B. WHITMORE,
M. L. WINSTON.