

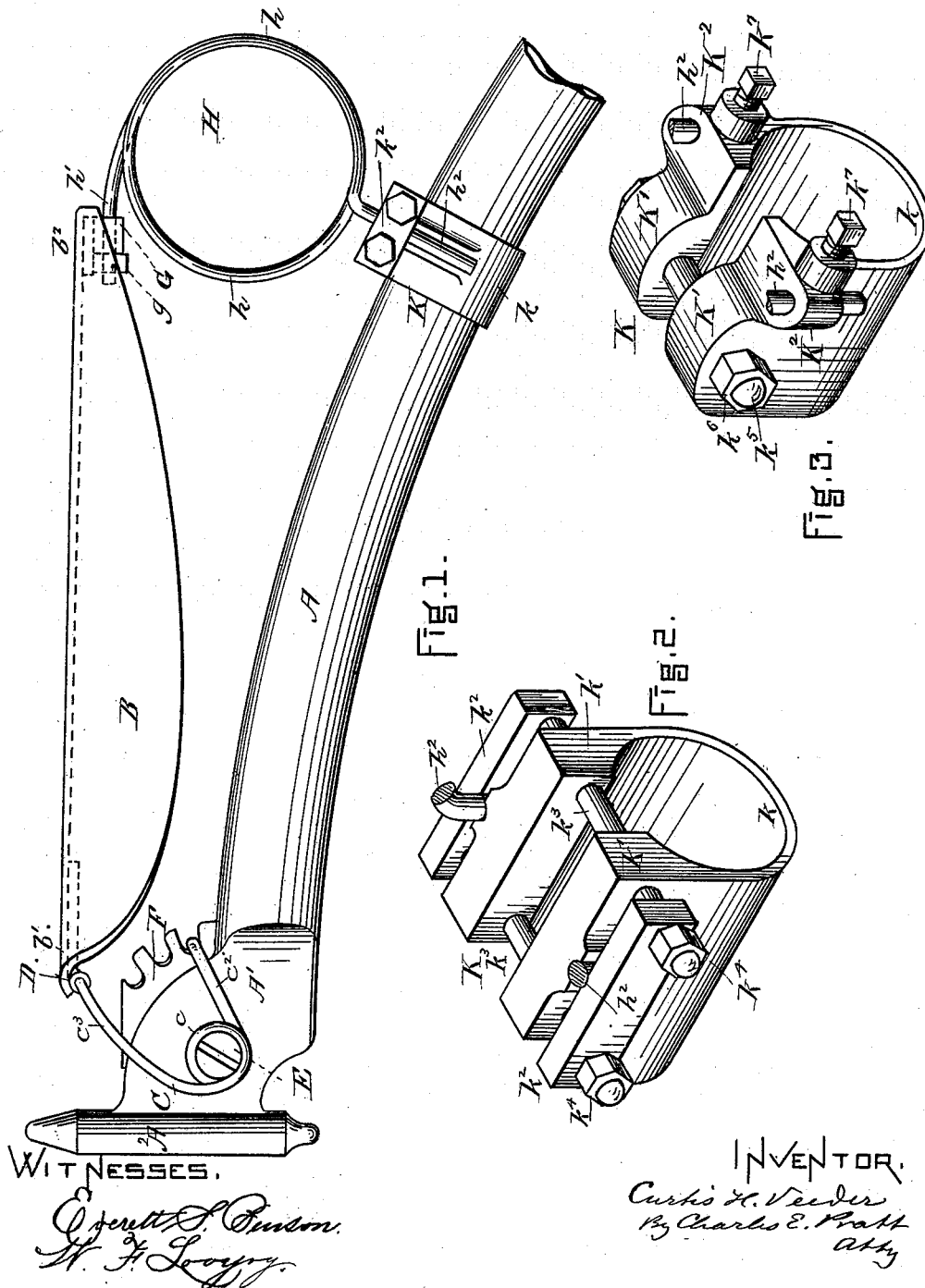
(No Model.)

2 Sheets—Sheet 1.

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SEAT FOR VELOCIPEDES.

No. 420,421.

Patented Jan. 28, 1890.



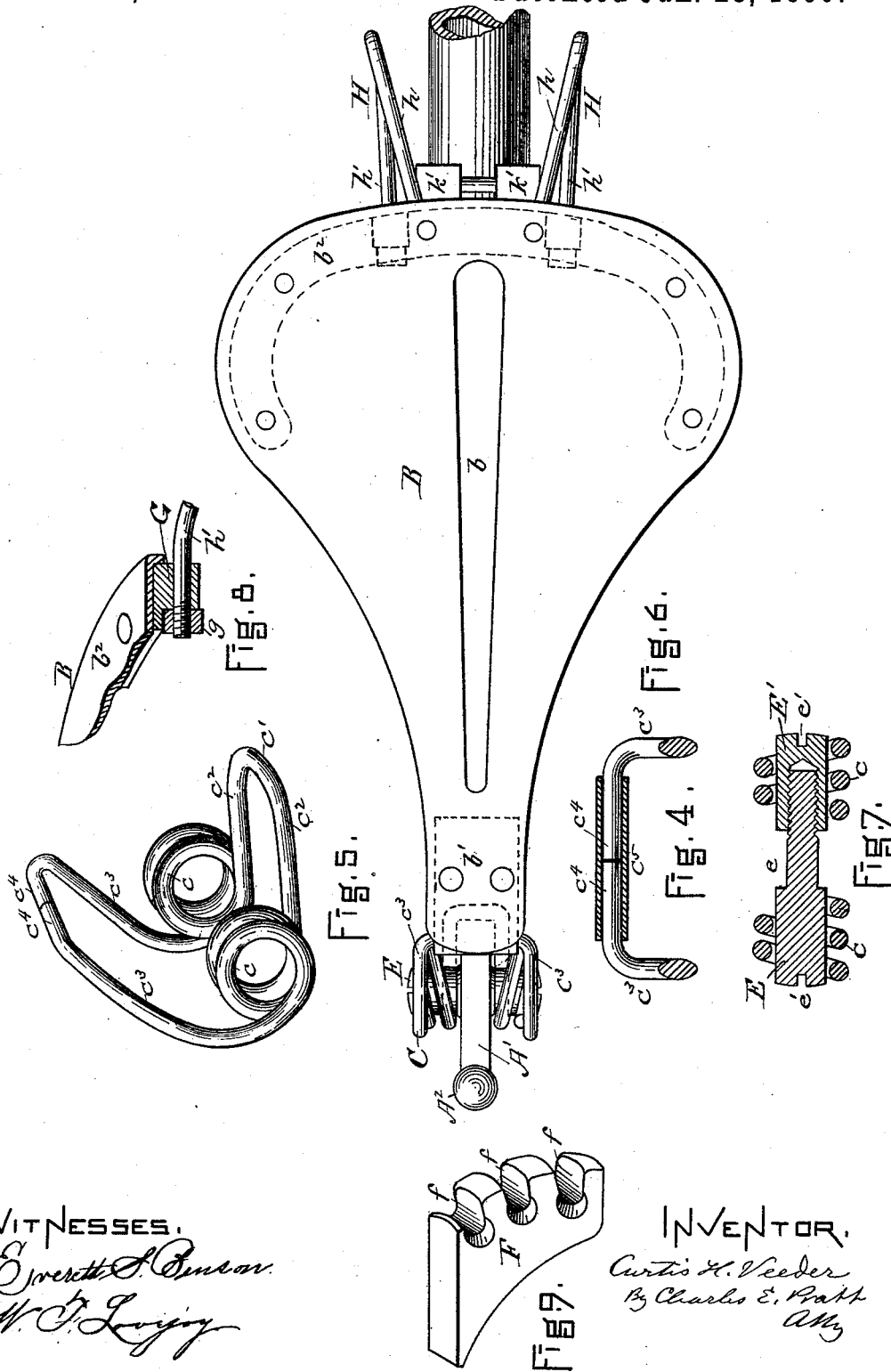
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WITNESSES.

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*By Charles E. Pratt*  
*Att'y*

# UNITED STATES PATENT OFFICE.

CURTIS H. VEEDER, OF CALUMET, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE POPE MANUFACTURING COMPANY, OF PORTLAND, MAINE.

## SEAT FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 420,421, dated January 28, 1890.

Application filed January 22, 1887. Serial No. 225,076. (No model.)

*To all whom it may concern:*

Be it known that I, CURTIS H. VEEDER, of Calumet, in the county of Houghton and State of Michigan, have invented certain new and useful Improvements in Seats for Velocipedes, of which the following is a specification.

My improvements relate more particularly to that class of seats known as "hammock-seats," or those in which a flexile seat-piece for the rider, consisting of leather or similar substance, is supported without tree or frame at the front end and the rear end, which class has been developed from the form shown in Letters Patent No. 216,231, dated June 3, 1879, to John Shire, and also more particularly to the front and rear supports for said seats or saddles and their connections with the frame of the velocipede. I have heretofore in my Letters Patent No. 239,629, dated April 5, 1881, and No. 244,693, dated July 19, 1881, and No. 252,280, dated January 10, 1882, shown and described certain improvements in seats or saddles for velocipedes, in which the flexile portion of the seat was supported without tree or frame, and in which the ends of the flexile seat were shown as supported upon a velocipede-frame by different devices in the two latter patents, so as to permit a taking up of the slack or adjustment of the tension in the flexile portion of the seat by means of mechanical devices in the supports themselves, instead of by means of strap and buckle, as in the Shire seat; and in my present saddle I use also a flexile seat supported at either end by connections with the frame of the velocipede, and regulate the tension or take up the slack in said flexile seat by means of mechanical devices in or connected with the supports themselves, although the strap and buckle of Shire or their equivalents may be used also, if desired, and my present invention may be regarded as in the nature of improvements upon these prior patents, as well also as upon certain other devices which have been designed or used in connection with the same class of saddles, for I am aware that means have been shown for vertical adjustment of the forward end of the flexile seat in the front supporting devices in the Lillibridge patent, No. 294,645,

and that independent springs have been introduced in the supports for both the front and rear ends of the flexile seat, as in the Kirkpatrick patent, No. 314,142, having a vertical action, and that springs have been used in the rear supports of the flexile seat having a fore-and-aft action, as shown in the Lillibridge patent, No. 337,171, and also that in the forms as shown in these two last-named patents some slight adjustment in height of the rear end of the flexile seat has been incidentally allowed by the adjustment of the rear supports when used in connection with a curved backbone or perch of a bicycle, depending upon the curve of the perch and upon the lengthening of the flexile seat by means of a strap and buckle therein. I am also aware that in this class of saddles, as in my own first above-named patent and in some other forms, devices have been used for adjusting the whole mechanism, including the flexile seat and its support-pieces and the clip or clips by which they are secured to the perch or frame backward and forward. My present improvements, however, consist in a flexile seat without tree or frame supported upon springs at both ends, and which is vertically adjustable at either or both ends by positive means for adjustment independently of the curve of the perch, and which is adjustable fore and aft without moving the base of the forward support and without requiring a continuous connection between the front and rear supports, and in certain devices and combinations, the nature of which will be more fully discerned after and understood by a description in detail of a seat adapted for use on bicycles constructed to embody my improvements in one form and shown in the drawings herewith, and in these the same letters indicate the same parts in all the figures.

Figure 1 shows in elevation part of the perch of a bicycle and a seat mechanism and its attachments embodying my improvements, and Fig. 6 shows a top plan view of the same. Figs. 2 and 3 represent in perspective clips or means for attachment of the rear supports to the perch. Fig. 5 represents in perspective the front support or spring. Fig. 6 is top

or plan view of my saddle and attachments; and Figs. 4, 7, 8, and 9 show details, which will be better explained in the description.

A is a perch or part of a frame of a bicycle; A', the neck, and A<sup>2</sup> the spindle thereof for connection with the steering-head.

B is a flexible seat, which may be constructed of a strip or sheet of leather or other flexible material cut into suitable shape, and it may have an opening, as *b*, for ventilation. The front narrow end I either turn over underneath itself to form a loop or else attach a loop, as at *b'*, by rivets or otherwise for connection with the front support. Beneath the rear end I attach a curved metallic plate G, as at *b<sup>2</sup> b<sup>2</sup>*, by means of rivets or otherwise.

C is a front spring constructed of a piece of round wire or metallic rod with coils or convolutions about a horizontal axis, as at *c c*, a bent middle portion, as *c'*, connecting the arms *c<sup>2</sup> c<sup>2</sup>*, and having the arms *c<sup>3</sup> c<sup>3</sup>* at the other side of the coils and the transverse middle portion *c<sup>4</sup>*. I prefer to construct this of a single piece of metal bent at its middle portion to form a raised part *c'*, and with the two ends brought together at the transverse supporting portion *c<sup>4</sup>*, where they may be left, as shown in Fig. 4, and covered with a thimble or sleeve, as *c<sup>5</sup>*, or they may be welded or otherwise secured together, as desired. The parts *c' c<sup>2</sup> c<sup>2</sup>* form a trip and the parts *c<sup>3</sup> c<sup>3</sup> c<sup>4</sup>* form a pull.

D is a loop or connection, which may be of leather or of metal, attached to the forward end *b'* of the flexible portion of the seat, and having a free attachment to the transverse supporting portion *c<sup>4</sup>* of the spring C or its thimble *c<sup>5</sup>* thereon.

E is a support-pin, which I prefer to construct in two elongated cylindrical parts E E', one of these parts, as E, having a projecting smaller cylindrical pin *e* threaded at its free end, and the other part, as E', bored and internally threaded to fit upon the part *e*, and both having the slots *e'* for screw-drivers. The part E' being removed and the spring C being placed so that one coil *c* is on one side the neck A' and the other upon the other, I insert the part *e* through the coil of the spring and through the hole in the neck in place of the bolt commonly used with the flat bolted sliding spring. The part *e* fits this hole and is inserted until the shoulder on E brings up against the side of A', or a projection thereof. The part E' is then inserted in the other coil and screwed upon the part *e* until it brings up against its side of A', this contrivance forming a locked pin with good cylindrical bearings for the coils of the spring, as shown in the drawings.

F is a small block or piece of metal cut on one side to fit the curve of the neck A', and having on the other side notches or steps *f f*, in which the raised portion *c'* of the spring C may rest and be supported, the arrangement of the notches *f* being in an arc of a

circle about the center of the hole in the neck, of which the distance between *c'* and the center of the coils *c* is the radius. This block F may be used or not, as preferred. If it be not used, then the rest *c'* rests simply upon the top of the perch at or near the beginning of the neck-curve; but its use is to afford an oscillation of the spring C about the center of the support-pin E, since from the construction of the spring C if the part *c'* be moved in an arc of a circle the part *c<sup>4</sup>* will be moved through a corresponding arc of a circle. It is obvious that the relative movement which any motion of *c'* will cause in *c<sup>4</sup>* depends upon the relative distances of these two parts from the center or axial line of the coils, and also upon the relative arrangement or positions with respect to the axial line of the coils, which are given by the construction of the spring to these two points *c'* and *c<sup>4</sup>*. In other words, if these parts *c' c<sup>4</sup>* are at equal distances from the axial line of the coils and the line between them be the chord of an arc of ninety degrees, an upward movement of *c'* will cause a forward movement of *c<sup>4</sup>*, and vice versa, whereas, if the line between *c'* and *c<sup>4</sup>* be the chord of an arc of less than ninety degrees, then an upward movement of *c'* will also produce an upward movement or rising of *c<sup>4</sup>*, and if the spring be constructed so that the distances of *c'* and *c<sup>4</sup>* from the axial line of the coils be different then the action of the structure under movement of one part will be correspondingly different. In order to move the part *c'* from one notch *f* to another after the spring C has once been put into place, it will be necessary to take out the support-pin E, as that serves, with the rest of the mechanism, to lock the whole steadily in place. It is also obvious that the notches *f* may be made in the neck of the machine, instead of in a separate block.

In the rear supporting-plate G are two holes for the insertion of the upper ends *h'* of the rear springs H, which I prefer to make longitudinally through the plate, and I also make on the forward side of the plate, by preference, seats for square nuts *g*, as shown in Fig. 8—that is to say, these parts are constructed so that the wire *h'* may be pushed through the plate G and the nut *g* turned upon its threaded end to any desired position, and then the wire *h'* may be pulled backward to bring the nut *g* to a vertical seat against the plate G, and also to a horizontal stop-seat on the upper side of the nut to prevent the nut from turning.

H is a rear spring, consisting of a piece of round rod or wire and bent into one or more coils *h*, as I prefer to make it, having the upper end *h'* extending in a substantially horizontal and forward direction when the spring H is in place, and threaded for a nut, as before described, and having its other end, as *h<sup>2</sup>*, extending downward in a substantially vertical direction, to be held in a clip or support upon the frame of the machine. I make, by pref-

erence, two springs H thus constructed for each side, one to be attached upon or toward either side of the saddle, as shown in Fig. 6, so as to form two independent supports, either or both of which may yield under weight upon the flexile seat or under jars to the machine from beneath.

K is a clip or attachment for securing the lower ends of the springs H to the perch; and it consists, as I sometimes make it, and as shown in Fig. 2, in a loop portion  $k$ , passing under and around the perch A, and lug ends  $k'$   $k'$ , having places for the reception of the ends  $h^2$   $h^2$  of the rear springs, and clamps  $k^2$   $k^2$ , and bolts  $k^3$   $k^3$ , passing through the clamps and through the lugs and having the nuts  $k^4$   $k^4$ . Now, when the front support-pin E and spring C and block F and the front end  $b'$  of the flexile seat B at its loop D have been assembled in position, as shown, for instance, in Fig. 1, and the ends  $h'$  of the springs H have been inserted and secured, as above described, in the rear plate G at the rear end  $b^2$  of the flexile seat, the bolts  $k^3$   $k^3$  and clamps  $k^2$   $k^2$  being removed, the clip K is passed under and upon the perch A and the bolts inserted with the clamps in place, as shown, but loosely together, and the adjusting ends  $h^2$   $h^2$  of the springs H are entered in position between the clamps and the clip and the bolts partially tightened by means of the nuts  $k^4$ . The clip is then brought backward along the perch A until the flexile portion of the seat B has sufficient tension, and the springs H are raised or lowered until they have the desired vertical adjustment in height, and then the nuts  $k^4$  are turned until the clamps are tightened and the whole structure held rigidly together.

Instead of constructing the clip, as shown in Fig. 2, I prefer to make it in a modified form, as shown in Fig. 3, in which I still have substantially the same form of clip; But the lugs  $K'$   $K'$  are constructed differently, and I have but one bolt  $k^5$  and its nut  $k^6$  passing through them. I also have lugs  $K^2$   $K^2$  on the lugs and containing holes for the insertion of the adjusting ends  $h^2$   $h^2$  of the rear springs, for which I have set-screws  $k^7$   $k^7$ , as shown. With this construction the clip K may be secured in position on the perch A and changed and adjusted thereon longitudinally without changing the vertical adjustment of the rear springs in the clip; and also the vertical adjustment of the rear springs in the clip may be made and changed, as desired, without loosening or changing the position of the clip on the perch.

It is obvious that changes may be made in the form and arrangement of the parts of this contrivance without departing from the substance of my invention, and I do not mean to be limited to the precise forms or construction herein shown and described. It is obvious, for instance, that the rear springs H may

be made of one piece of wire instead of two, and the notches in the block F may be made upon the neck A' in a suitable arc instead of on a separate block.

It is obvious that the clip may be made of different forms, and that the springs both for the front and rear may have different curvatures, and that the rear spring may be placed under or out from under the flexile portion of the seat, as desired, and that other modifications may be made.

I claim as new and of my invention—

1. An improved hammock-saddle constructed with a flexile part suspended by a spring at the rear end and by a connection with the frame at the front end, and with means for supporting the rear spring on the frame of a velocipede, and constructed with a substantially vertical part of the rear spring held by a socket-lug, and a set-screw or equivalent devices for vertical adjustment of the rear end of the seat.

2. An improved hammock-seat constructed with a flexile part suspended at each end by connections with the frame of a velocipede, but with two separate side by side springs interposed between the rear end of the flexile part and the supporting-clip, each of which springs is vertically adjustable in the supporting-clip.

3. The combination, in a velocipede-seat, of a flexile part, an independent rear support and spring adjustable fore and aft upon the perch of a bicycle, and an independent front spring, as C, having an independent fixed support at the neck of the perch, and constructed with the part to which the forward end of the flexile seat is attached positively adjustable to different positions fore and aft, essentially as set forth.

4. The combination of a series of steps, as  $fff$ , with a trip and pull spring, as C, a pivotal support, as E, and a flexile seat and the frame of a velocipede.

5. The combination, with a frame A and neck A' and a flexile hammock-seat B and connections D G, of an independent front spring C, consisting in a single piece of coiled wire pivotally supported in the coils at the neck on a support, as E, and two independent coiled wire rear springs H H, and a support, as K, on the frame, constructed to hold said rear springs adjustably both in a fore-and-aft and in a vertical direction.

6. A support-pin constructed, substantially as set forth, with a smaller part, as  $e$ , for a seat in the frame, or a connection therewith, and two larger parts, as E E, one of which is separate from and held upon the smaller part  $e$  by a screw-thread.

7. The combination, in a velocipede-seat mechanism, of a wire spring and its free end, as  $h'$ , a nut, as  $g$ , and a seat-plate, as G, with a lug-seat for the nut therein.

8. The combination of a flexile seat-piece

and its forward spring or support with two  
separate wire springs, as H H, each connected  
at the upper end with the seat-piece and  
curved or coiled at its middle part and ter-  
minating in a nearly vertical lower end, as at  
5  $h^2$ , and a clip, as K, having devices—such as  
 $K^2 k^2$ —constructed to hold the lower ends of

the springs, affording direct substantially ver-  
tical adjustment of the springs and securing  
them in position.

CURTIS H. VEEDER.

Witnesses:

ALF. WAREHAM,  
JAMES M. MERTON.