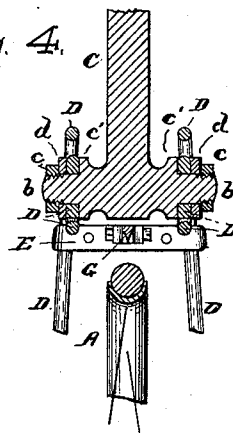
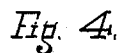
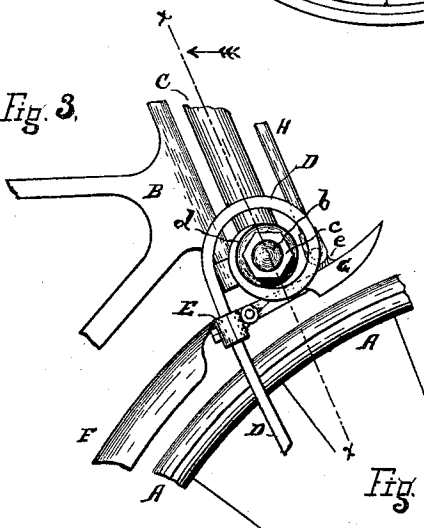
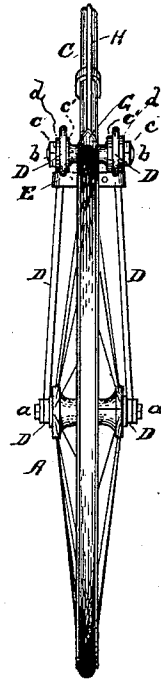
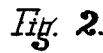
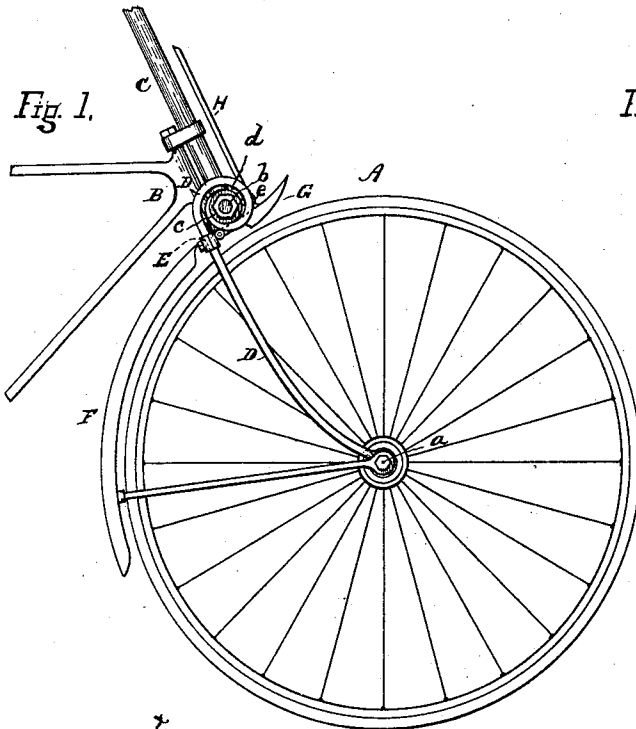


(No Model.)

W. C. DAVIS.
BICYCLE.

No. 478,187.

Patented July 5, 1892.



WITNESSES:

F. P. Crobaugh
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BICYCLE.

SPECIFICATION forming part of Letters Patent No. 478,187, dated July 5, 1892.

Application filed August 28, 1891. Serial No. 403,966. (No model.)

To all whom it may concern:

Be it known that I, WHITNEY C. DAVIS, a citizen of the United States, and a resident of Waterloo, in the county of Seneca and State of New York, have invented certain new and useful Improvements in Bicycles, of which the following is a specification.

My invention relates to that class of vehicles commonly known as "bicycles." I aim to simplify the construction, to diminish the number of working joints, to prevent or diminish the tendency to rattle, to improve the spring action, and to render the spring-tension variable. These objects I accomplish by means substantially such as are hereinafter fully described, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of so much of a bicycle as need be shown in order to illustrate my invention. Fig. 2 is a front elevation of the parts shown in Fig. 1. Fig. 3 is a detail enlarged and showing the principal features of construction embraced in my invention. Fig. 4 is a section in the plane of the line *x x* of Fig. 3, viewed in the direction indicated by the arrow there shown; and Figs. 5 and 6 are details showing, mainly, the form of the joints of the brake.

Like letters of reference indicate like parts. A represents the forward wheel, and *a* its axle.

B is the frame.

C is the head, to which the frame is pivoted or swiveled, as usual, or in any well-known or suitable manner. The head has lateral extensions *b b*, screw-headed on their ends to receive nuts *c c*, and having collars or shoulders *c' c'* thereon, as is clearly shown in Fig. 4. Washers *d d* are arranged between the said nuts and collars.

D D are spring-rods in volute or convolute form at their upper ends, and the inner rolls or ends of these convolute parts are tightly clamped to the extension *b b* by means of the nuts *c c*. The lower ends of the said springs are applied to the wheel-axle. It will now be perceived that the springs D D support the head or stock C and also the frame, and, as will be observed on reference to the drawings, the volutes of these springs are sufficiently apart or open to take off or diminish the jar

of the machine. It will also be perceived that by clamping the said springs in a more or less vertical position they will be comparatively stiff or not, as may be desirable or necessary, according to the weight of the rider. These springs constitute the principal characteristics of my invention.

E is a yoke firmly clamping or connecting the upper parts or portions of the springs D D to each other, thereby causing them to act together and preventing or diminishing torsional movement or strain.

F is the mud-guard, and G is the brake-shoe.

H is the brake-rod.

I secure the mud-guard to the yoke E in any suitable or well-known way.

The brake-shoe has on it an eye *e*, which, when inserted into the forked or split end of the brake-rod, enables me to joint the parts to each other by means of bolts and nuts, (not shown,) and I deem it preferable to split the lower end of the said rod, as shown at *e'*, to produce a spring-tension for preventing rattling and unnecessary wear. I joint the inner end of the brake to the yoke E in like manner; but these details of construction are not essential to the main features of my invention.

It will now be perceived from the foregoing description and on reference to the drawings that the head C constitutes a part of the frame of the bicycle and that the rods D D are adjustable on the axes of their convolutions, so as to be capable of being arranged in a more or less vertical position, thereby altering their spring-tension according to the weight of the rider.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the frame and wheels of a bicycle, of the separate or twin spring-rods D D, convoluted at one end and there secured to the frame adjustably on the axes of the said convolutions and also fastened at their other ends to one of the wheel-axes, substantially as and for the purposes specified.

2. The combination, in a bicycle, of the two separate independent or twin spring-rods D D, secured at their lower ends to the steering-wheel axle and having volute upper ends

clamped adjustably on the axes of the said volutes to the steering-head, substantially as and for the purposes specified.

3. In a bicycle, the springs D D, having
5 volute ends clamped adjustably to lateral extensions on the head, and said springs being also secured to the axle, substantially as and for the purposes specified.

4. The combination, in a bicycle, of a head
10 having lateral extensions *b b*, the volute spring-rods D D, having their volutes clamped adjustably to said extensions, the yoke E, connecting said rods near their upper ends, and the wheel-axle connecting the lower ends of
15 the said rods, substantially as shown and described, and for the purposes specified.

5. The combination, in a bicycle, of a head having lateral extensions on its lower end, the volute springs attached to said head and to the axle, a yoke connecting said springs, 20 the brake-rod or plunger, and the brake-shoe jointed or hinged to said rod and to the said yoke, substantially as and for the purposes specified.

Signed at Waterloo, in the county of Seneca 25
and State of New York, this 26th day of August, A. D. 1891.

WHITNEY C. DAVIS.

Witnesses:

FRANCIS E. HOLLERAN,
CHAS. D. BECKER.