

(No Model.)

E. MOHRIG.
BICYCLE.

No. 406,661.

Patented July 9, 1889.

Fig. 1.

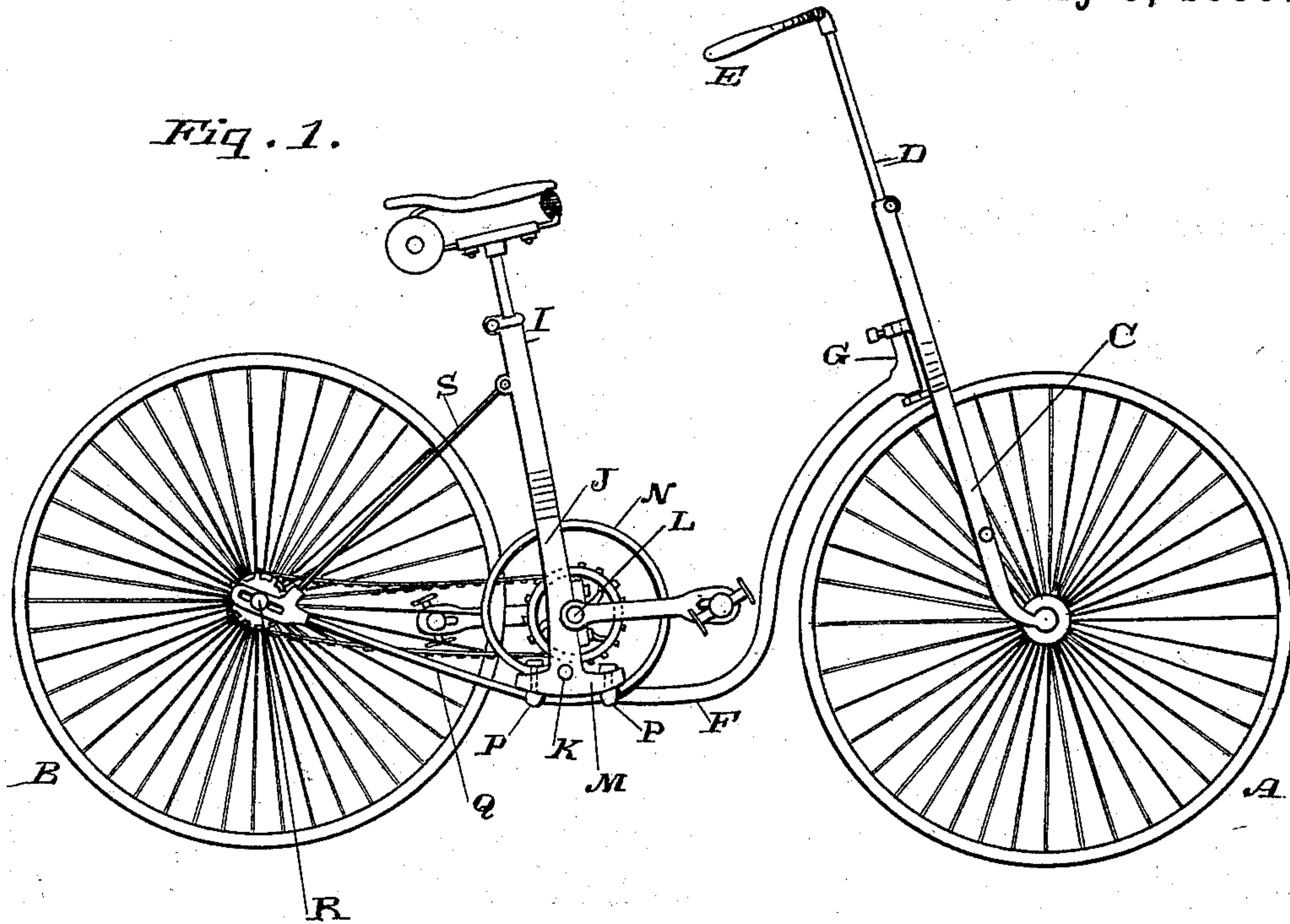
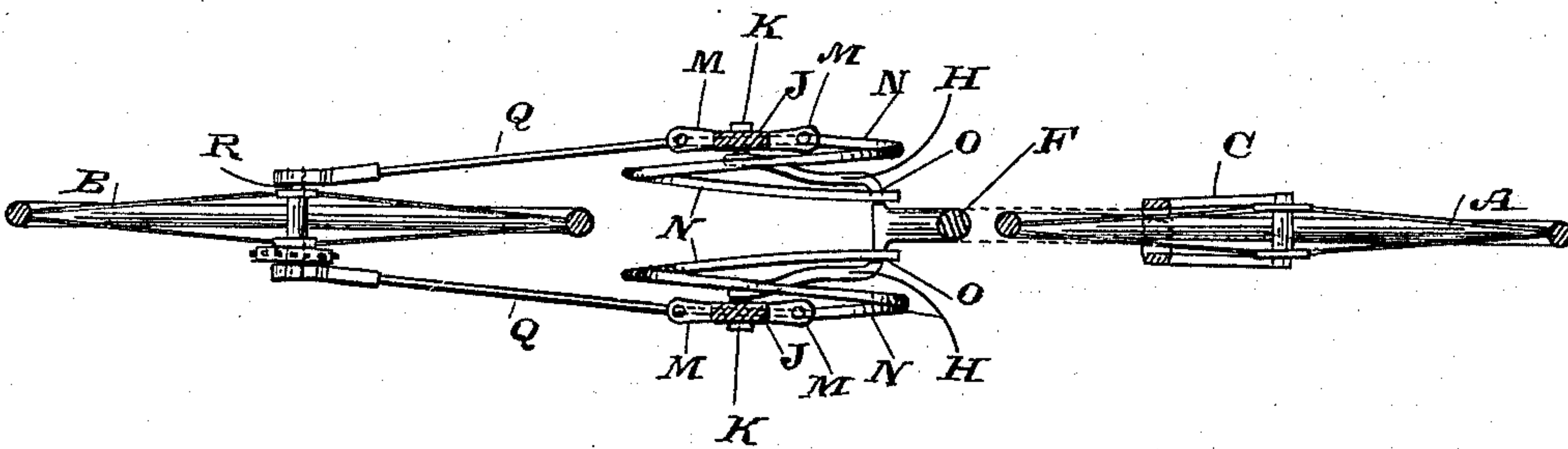


Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWIN MOHRIG, OF SAN FRANCISCO, CALIFORNIA.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 406,661, dated July 9, 1889.

Application filed November 22, 1888. Serial No. 291,595. (No model.)

To all whom it may concern:

Be it known that I, EDWIN MOHRIG, of the city and county of San Francisco, State of California, have invented an Improvement in Bicycles; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in bicycles; and it consists in jointing or connecting the front and rear portions of the frame and the lower end of the seat-standard, and in the connection with the front and rear portions of the frame of an elastic spring, whereby an independent vertical movement of the wheels is allowed, and in certain details of construction, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my machine. Fig. 2 is a plan view showing the joint by which the front portion of the frame or perch is connected with the seat-standard, and showing the portion of the frame extending thence to the rear-wheel axle.

The object of my invention is to joint the frame of the bicycle and to connect the jointed parts together by a spring or elastic union, so that the weight of the rider will be supported at the point of union, and by means of a spring suitably disposed at this point both front and rear wheels are at liberty to rise and fall independent of each other and of the weight of the rider when passing over irregularities or obstructions.

A is the front and B the rear wheel of the bicycle.

C is the front fork, between the lower ends of which the front wheel is journaled in the usual manner, and D is the upwardly-extending steering-post, having the handle-bars E adjustably attached thereto.

F is the perch or frame, which is suitably hinged to or connected with the steering-post D, as shown at G. In the present case this perch is shown as curving downward, following approximately the line of the front wheel to a point below the center of the wheels, where it is bent backward and divided or forked, the two forks being shown plainly at H.

I is the seat-standard, the lower end of which is forked, as shown at J, these forks being

spread somewhat wider than the forks H, so that the latter may pass inside of the forks J and be pivoted thereto by means of a bolt or pin at K.

L is the crank-shaft, which extends across from the two sides of the forks J, being journaled therein with any suitable or desirable forms of bearings in the usual manner. The lower ends of the forks J have the horizontal or T-headed extensions M, which serve for the attachment of the coiled springs N, which springs, as at present shown, consist of a single coil, the front end of which may pass through or be otherwise secured to the front portion of the forks H, as shown at O. Sweeping backward from this point each spring forms a single circular coil, of which, in the present case, the crank-shaft L is approximately the center.

Passing beneath the extensions M the springs are securely fastened to the bottoms of the extensions M by clip-bolts P or by other suitable fastenings. From this point the springs extend backward, as shown at Q, in an approximately straight line, and their rear ends are fitted to receive the rear-wheel shaft R, which is secured in these ends by nuts or in any suitable or desirable manner, the bearings for the wheel being made, as before described, in any of the usual forms of construction. It will be manifest that the extensions Q form a part of the rear frame, and are thus extended for convenience in manufacture. From these rear ends braces S extend upwardly to some point on the seat-standard I, where they are connected with it. These braces form a part of the rear frame and hold the rear wheel rigid so far as any rocking or side motion is concerned, and the only motion that takes place between the two wheels is a vertical one, the movement being about the joint or connection K.

The operation of my machine will then be as follows: The weight of the rider upon the seat-standard I depresses the joint K somewhat until the strength of the spring N is sufficient to resist any further depression by reason of the attachment of the spring to the rear end of the perch F at the point O. It will be seen that any roughness, obstruction, or impediment in the road will be surmounted

by the front wheel, the elasticity of the coil N allowing the front wheel to rise, while the weight of the rider is supported upon the joint about which this motion takes place.
5 When the rear wheel passes over the same or any similar obstruction, it will be seen that the elasticity of the spring will be sufficient to allow this wheel to rise and relieve itself as it passes over the obstruction. The perch F may
10 extend directly from the steering-post to the rear-wheel axle, in which case the saddle-post would pass loosely through a guide upon the perch and its lower end be supported on the coil-spring, as above described, the ends of
15 the spring extending to the perch and the rear axle. In this case the vertical movement of the front wheel would take place about the rear axle, the seat-support being independent, as before. It will be manifest that this con-
20 struction is equally applicable to the frames of tricycles, and will act in the same manner when so applied.

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

1. In a bicycle, the front perch or frame and the seat-standard having the lower ends united upon a movable pivot, in combination with a spring or springs supporting said joint and
30 connecting the rear axle or the frame thereof with the front frame, substantially as herein described.

2. In a bicycle, the front frame or perch and the rear frame having the movable joint or union at their point of meeting, the crank-shaft
35 journaled in the lower end of the seat-standard, the chain-pulleys, and chain whereby power is transmitted from the crank-shaft to the rear wheel, in combination with an inter-
40 mediate spring or springs forming a connection with the front frame or perch and the rear frame or wheel axle, substantially as herein described.

3. In a bicycle, the front and rear wheels and frames within which the wheels are journaled
45 and by which the machine is guided, a seat-standard the lower end of which is connected by a movable joint with the front frame or perch, a spring or springs secured to the lower
50 ends of the seat-standard and connected, respectively, with the front perch and the rear-wheel axle or frame, and the braces S, connecting said rear-wheel axle with the seat-standard, substantially as and for the purpose
55 herein described.

In witness whereof I have hereunto set my hand.

EDWIN MOHRIG.

Witnesses:

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