(No Model.)

J. H. TUTTLE & F. D. CABLE.

BICYCLE.

No. 478,724. Patented July 12, 1892.

Fig. 1.

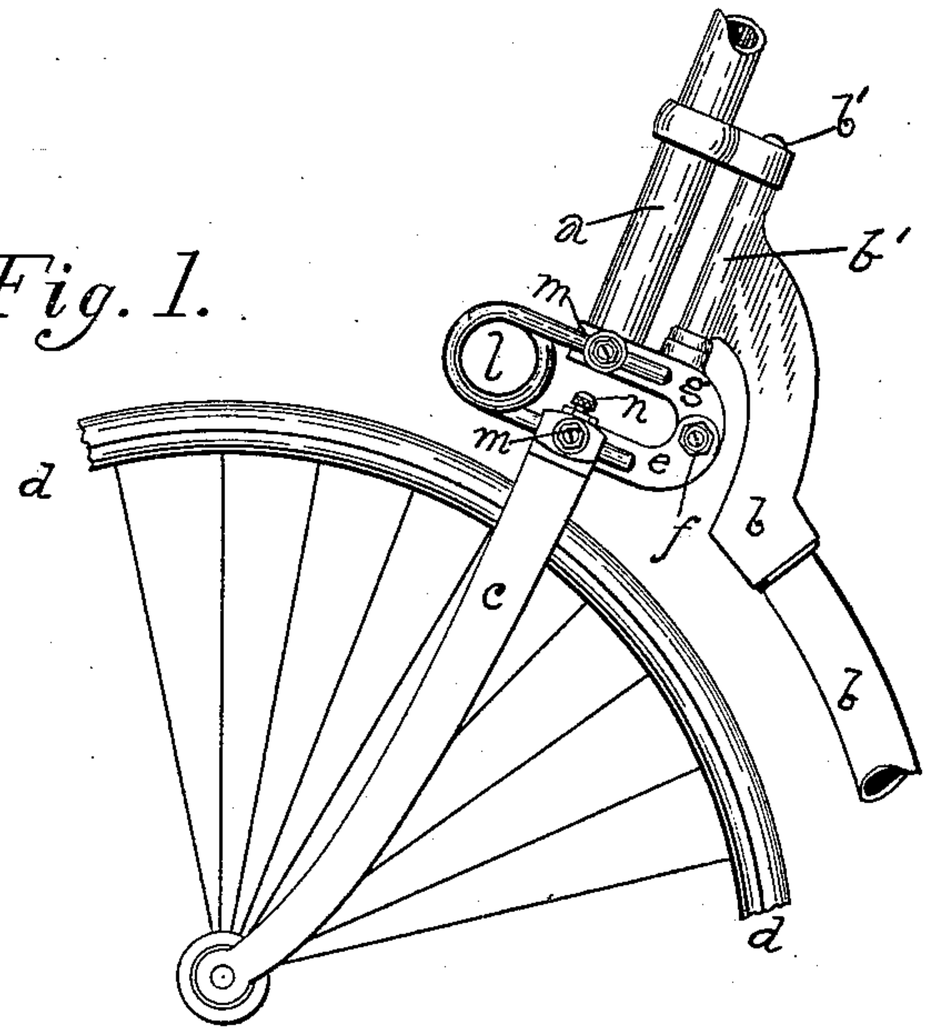


Fig. 3.

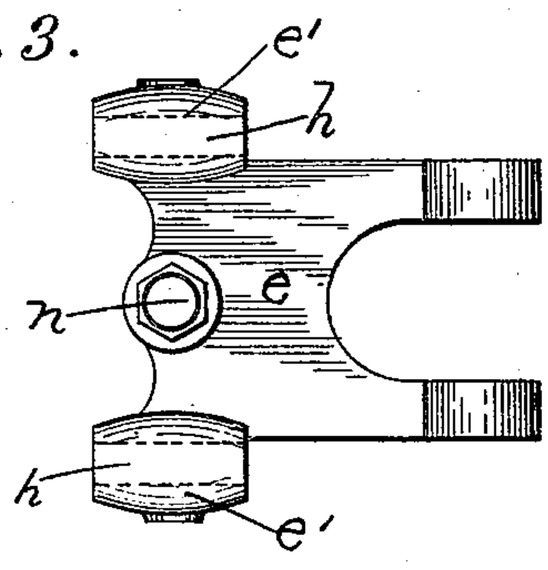
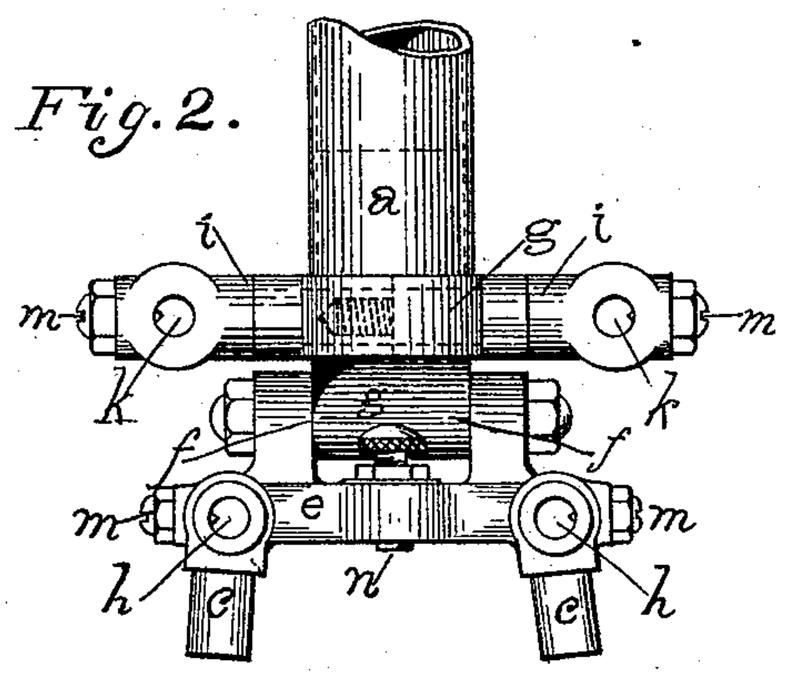


Fig. 2.



Witnesses.
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Inventors.
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By Munn & Hall, their Attys.

UNITED STATES PATENT OFFICE.

JOHN HENRY TUTTLE AND FRANK D. CABLE, OF TOLEDO, OHIO.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 478,724, dated July 12, 1892.

Application filed November 9, 1891. Serial No. 411,353. (No model.)

To all whom it may concern:

Be it known that we, JOHN HENRY TUTTLE and FRANK D. CABLE, citizens of the United States, residing at Toledo, Lucas county, Ohio, have invented certain new and useful Improvements in Bicycles, of which the following is a specification.

Our invention relates to and its object is to provide means for giving suitable resiliency to the bicycle-head and means for adjusting such resiliency. We obtain this result by means of the mechanism hereinafter described, and shown in the accompanying drawings, made part hereof, in which—

Figure 1 is a side elevation of our device; Fig. 2, a front elevation of our device with coiled springs, hereinafter referred to, removed; and Fig. 3, a plan view of fork-head plate, hereinafter referred to.

Like letters of reference indicate like parts throughout the several views.

In the drawings, *a* is the bicycle-head, to which the backbone or reach is *b* swiveled at *b'*. *c* is the fork, upon the lower ends of which the forward wheel *d* of the bicycle is journaled. The two members of fork *c* meet at and are rigidly fixed to plate *e*, which at its rear end is hinged, at joint *f*, to a corresponding plate *g*, to which head *a* is rigidly fixed, plates *e* and *g* together forming a hinged yoke. (See Fig. 1.) Plate *e* is provided with lugs *e'*, which are pierced centrally in the direction of the length of the plate with openings *h h*. (See Fig. 2.) Plate *g* is bored laterally, the bore forming a journal or bearing for shaft *i*, which consists of two pieces screwed together at their meeting ends, as shown in Fig. 2. Shaft *i* at its outer extremities is pierced by lateral horizontal holes *k k*. Coiled springs *l*, of which there are two, have straight parallel terminal arms, the upper arms fitting into openings *k* and the lower arms into openings *h*. Openings *h* and *k* are provided with set-screws *m*, by means of which the arms of springs *l* are prevented from slipping and are firmly held at any desired adjustment. Interposed between the bottom of head *a* and the top of fork *c* is a screw *n*, the head of which is suitably padded with india-rubber or other suitable material.

The operation of our device is obvious. When downward pressure is applied to head *a*, hinged yoke *e g* and springs *l* yield, shaft *i* forming a swivel, which rotates to accommodate itself to the changing position of the arms of springs *l*, with which the shaft is engaged, the partial rotation of shaft *i* overcoming the tendency of straight spring-terminals to break by short bending or crimping. By loosening set-springs *m* the straight arms of springs *l* may be moved in their sockets *h k*, and springs *l* may be lengthened or shortened and their resiliency thus adjusted at will. Screw *n* may be set at any desired position, forming a stop for and limiting the vertical play of head *a* and its appendages. If desired, screw *n* may be projected far enough to entirely prevent any vertical play of head *a*, thus making the head and fork *c* rigid, which by many riders is deemed desirable on very smooth roads and in racing.

Having described the construction and operation of our device, what we claim as our invention, and desire to secure by Letters Patent, is—

1. In a bicycle, the forward fork and head thereof, connected by a hinged yoke and by springs having two terminal arms, one of which is attached pivotally and the other rigidly, substantially as shown and described, for the purpose specified.

2. In a bicycle, the head and forward fork thereof, in combination with a hinged yoke joining said head and fork, and springs having straight parallel terminal arms adjustably connected with said head and fork, substantially as shown and described, for the purpose specified.

3. In a bicycle, the head and forward fork thereof, in combination with springs rigidly connected to said fork and pivotally connected to said head and adjustably connected with both said head and said fork, substantially as and for the purpose specified.

4. In a bicycle, the head and forward fork thereof, in combination with a hinged yoke uniting said head and fork, springs connecting said head and fork, and a set-screw interposed between said head and fork, limiting the vertical play of said head, substantially as and for the purpose specified.

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