

(No Model.)

J. S. COPELAND.

VELOCIPÈDE.

No. 367,368.

Patented Aug. 2, 1887.

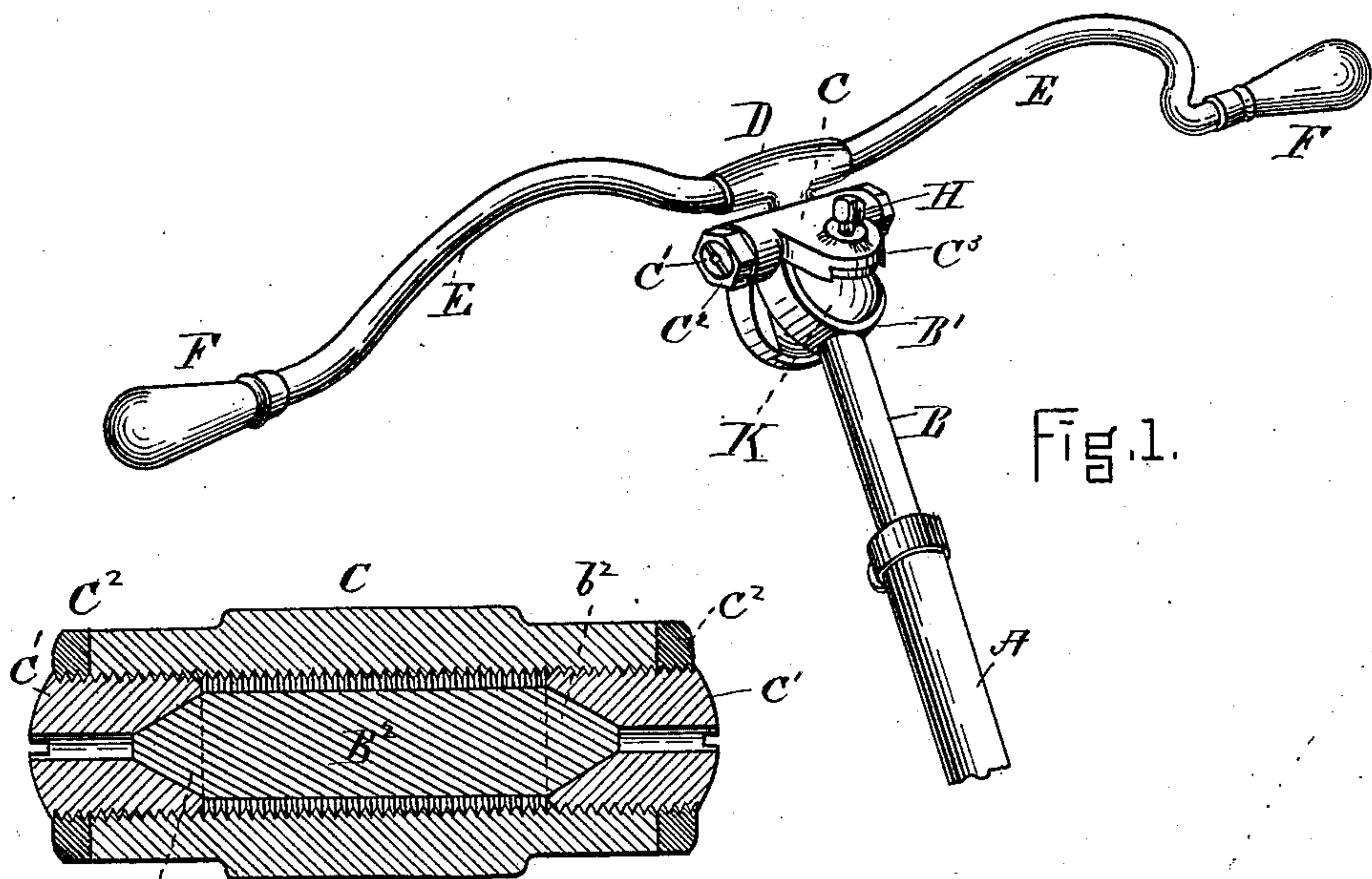


Fig. 1.

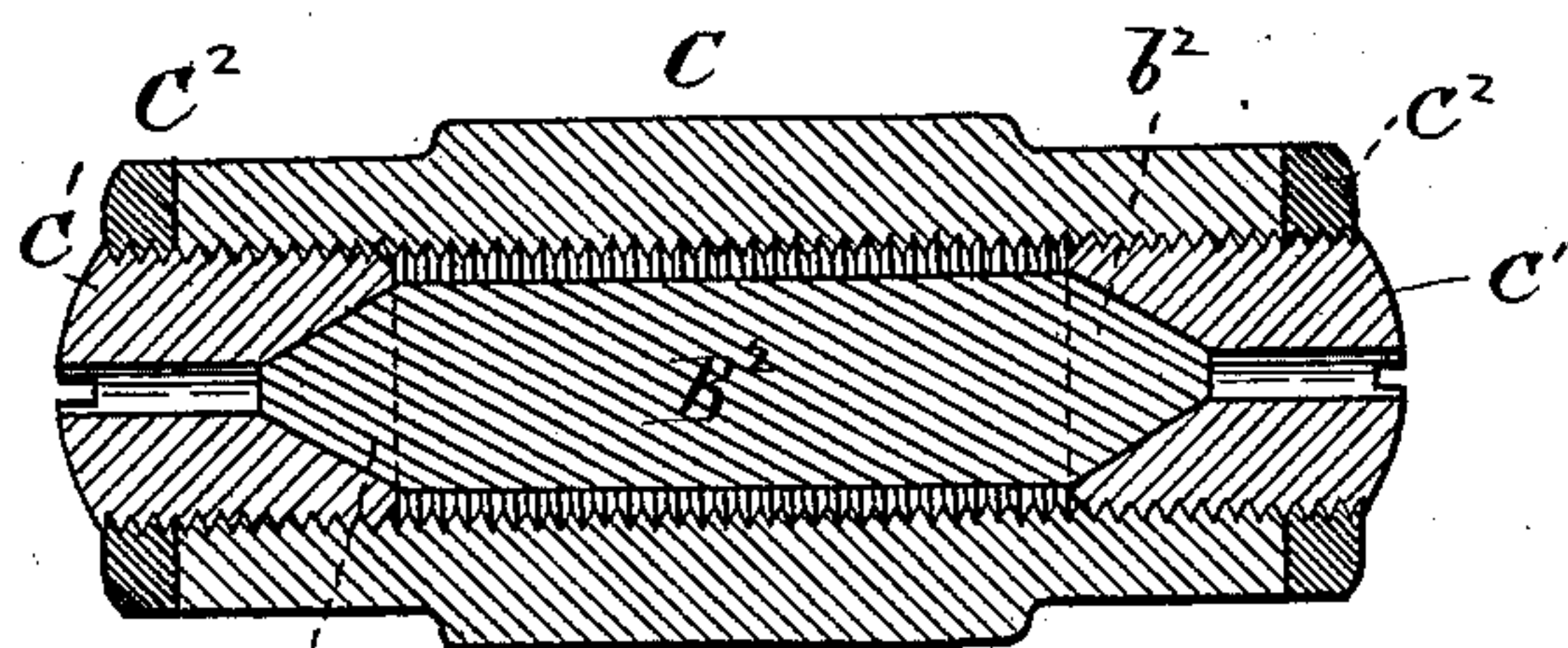


Fig. 2.

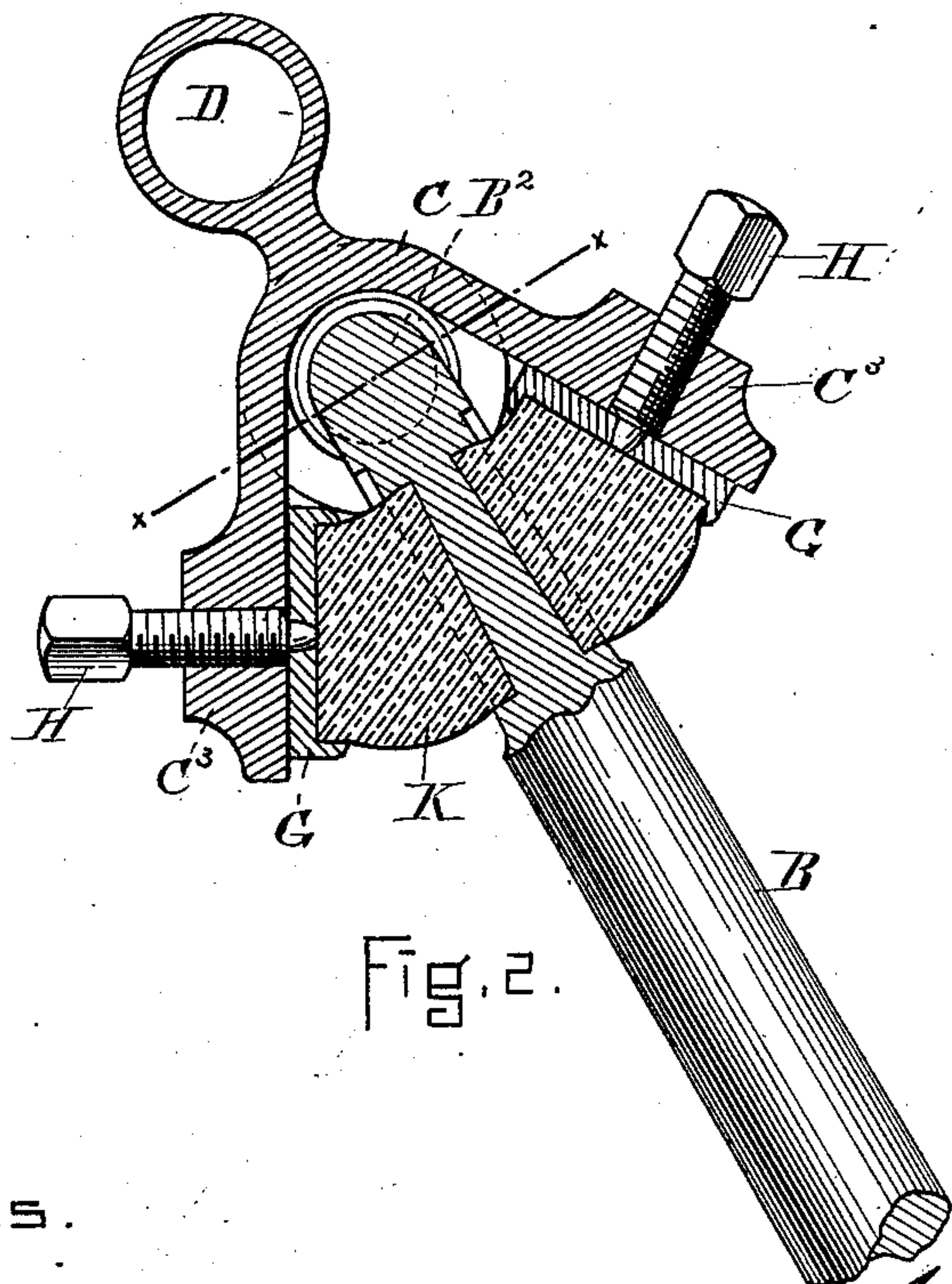


Fig. 3.

WITNESSES.

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VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 367,368, dated August 2, 1887.

Application filed March 7, 1887. Serial No. 239,942. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. COPELAND, of the city and county of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification.

My present improvements relate to the steering apparatus of velocipedes, and more particularly to an anti-vibration device or devices operating between the steering-head and the handle bar or bars to lessen the jar occasioned by obstructions in the road, and to make the operation of the machine in which it is applied less annoying and wearisome to the rider.

In the accompanying drawings, Figure 1 shows in front perspective view my improvements as applied in one form, in connection with the handles, handle-bar, steering-head, extension, and handle-bar support of a tricycle having handle-bar, steering-head, and the steering-head and extension and handle-bar support or rod inclined at an angle from the perpendicular toward the seat of the rider, as is now common in front steering three-track handle-bar tricycles. Fig. 2 shows parts of the same in vertical section on a plane at right angles to the handle-bar, and Fig. 3 shows parts thereof in a section parallel with the handle-bar and on the line $x x$ of Fig. 2.

A is a tubular extension of a tricycle steering-head, in which is the adjustable handle rod or support B. Instead of connecting this support B directly to the handle-bar lug, I form the upper part thereof with a neck, B', in which I prefer to form two seats parallel to each other, one on either side of the neck, and on this neck I form, by preference at right angles or in T form with the rod or support B, a spindle, B², having conical bearing-surfaces $b^2 b^2$ at its ends.

D is a handle-bar lug, in which the handle-bars E E, bearing the handles F F, may be inserted or secured in any suitable manner, and to this lug D, I attach, or by preference form upon and integral with it, a socket, C, having a threaded bore open on one side to receive the spindle and neck, and in the ends of which I insert the bearing-seats C' C', having bearing-surfaces corresponding with and fitting the bearings $b^2 b^2$ on the spindle;

and C² C² are set-nuts for securing the bearing-seats C' C' in position when they have been adjusted.

Upon the socket C, I form the holders C³ C³, and form them, by preference, on their inner sides to receive grip-plates G G, which are removable, and are held in position by the set-screws H H, having studs on their inner ends entering central holes in the grip-plates, or by any suitable means, and by preference I form these grip-plates circular in form, with an annular lip on the inner face of each, and between these grip-plates and the neck B', I insert, by preference, rubber blocks or buffers K K, which form an elastic or spring-action connection between the holders and the support B, and allow a partial rotation of the spindle in the socket by reason of their yielding resistance, and which may be graduated by the hardness or thickness or compression of the buffers or by setting up the screws and grip-plates. It is obvious, now, that in operation this contrivance furnishes an anti-vibration connection between the handle-bar and the steering-head of the machine—that is to say, that while the arrangement of the spindle and socket, when the bearing-seats are properly adjusted, furnishes a connection rigid for all the practical purposes of steering the machine and supporting and using the handle-bar, and is unyielding to a force applied either at the handles or at the wheel to deflect the steering-wheel and its support from a position at right angles to the axis of the spindle in the socket, and so does not cause lost motion or interrupted action in steering, yet as to force applied in any other direction, and more particularly as to jars to the steering-wheel and head and extension, and therefore to the support B, caused by irregularities in the roadway or by obstructions, it permits a yielding resistance which overcomes or softens the effect of such jars.

It is obvious that a socket may be made on the support B and the spindle and neck attached to the lug D, or that springs of other material or form may be substituted for the buffers K, or that the grip-plates G may be dispensed with or formed with or upon the holder C, and that other modifications of form

*and arrangement may be made, without departing from the substance of my invention and still retaining more or less of its advantages; and I do not mean to limit myself to the
5 precise form shown and described.

I claim as new and of my invention—

1. Combined in a velocipede, a handle-bar lug and socket, a spindle transverse to the axis of the steering-head, and a spring device
10 interposed between said socket and steering-head or projections therefrom and operating to lessen the vibration of the handle-bar.

2. In a velocipede, a hinged connection between the handle-bar lug and its support and
15 an anti-vibration spring, constructed and combined therewith to operate essentially as set forth.

3. Combined with the handle-bar steering

mechanism of a velocipede, a hinged lug, a trunnion-joint, and one or more elastic buffers. 20

4. The combination, with a velocipede steering-head, of a neck, as B', a spindle, as B², with bearings, as b² b², a socket, as C, with bearing-seats, as C' C', holders, as C³ C³, elastic buffers, as K K, and handle-bar lug, as D, 25 constructed to operate essentially as set forth.

5. In combination with socket, holders, spindle, neck, and a buffer, as K, constructed to operate essentially as set forth, a grip-plate, as G, and device for holding it in position and
30 adjusting it, essentially as set forth.

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Witnesses:

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