

No. 775,935.

PATENTED NOV. 29, 1904.

C. E. PIERCE.
BICYCLE.

APPLICATION FILED AUG. 13, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

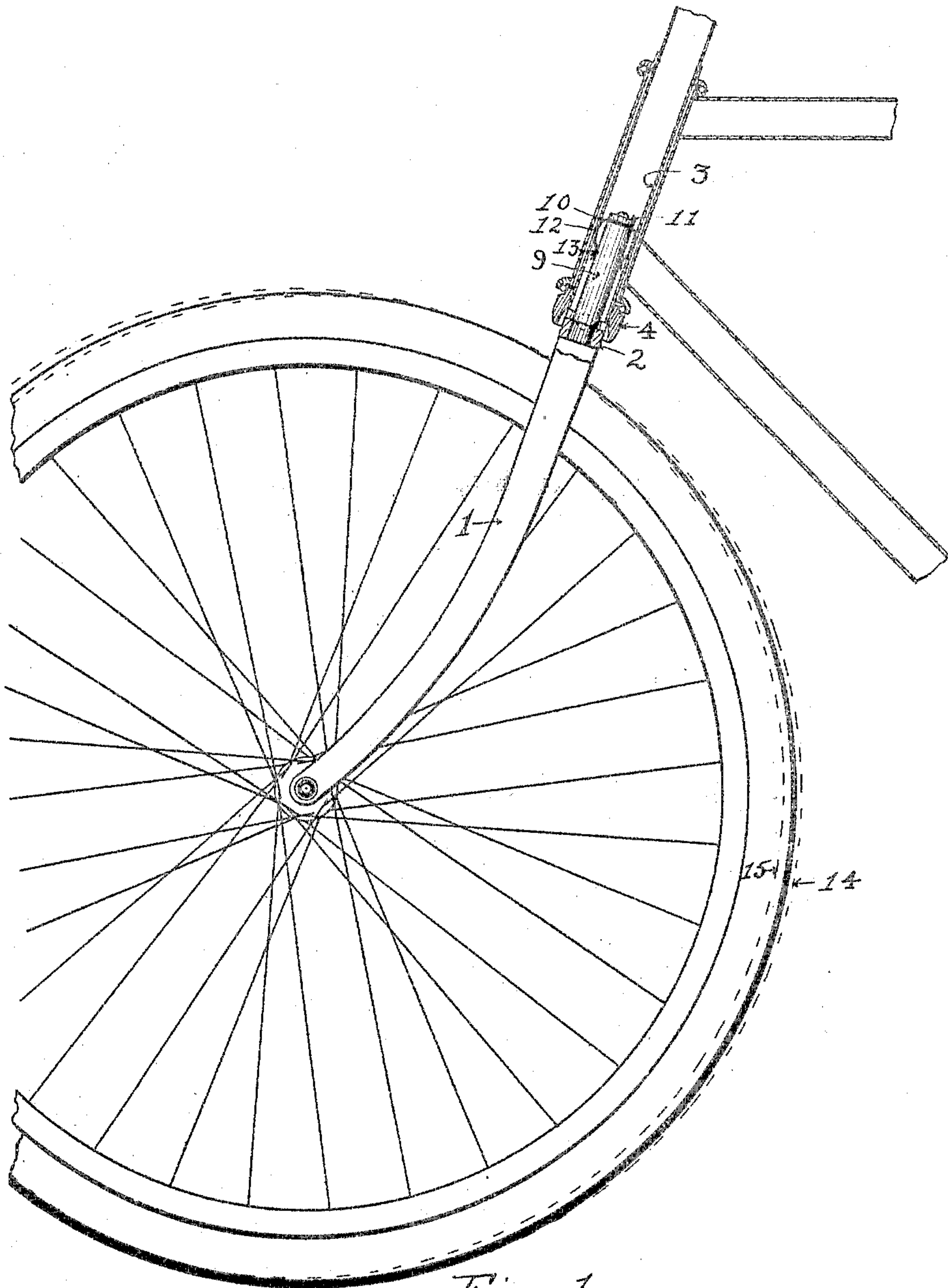


Fig. 1

Witnesses:
Geo. H. Hager
S. Brown

Inventor:
Charles E. Pierce,
by his Attorneys,
Macomber & Ellis

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2 SHEETS—SHEET 2.

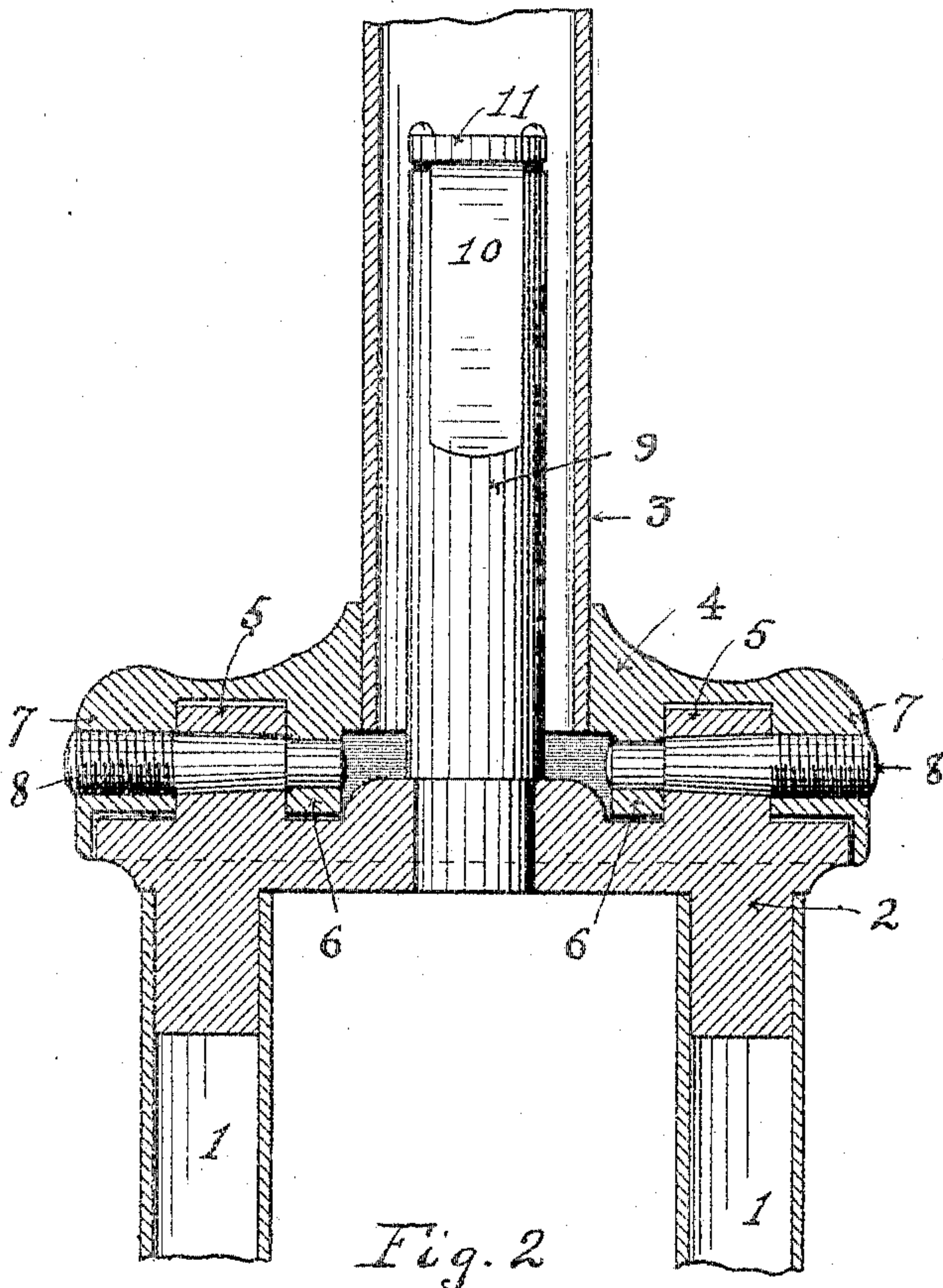


Fig. 2

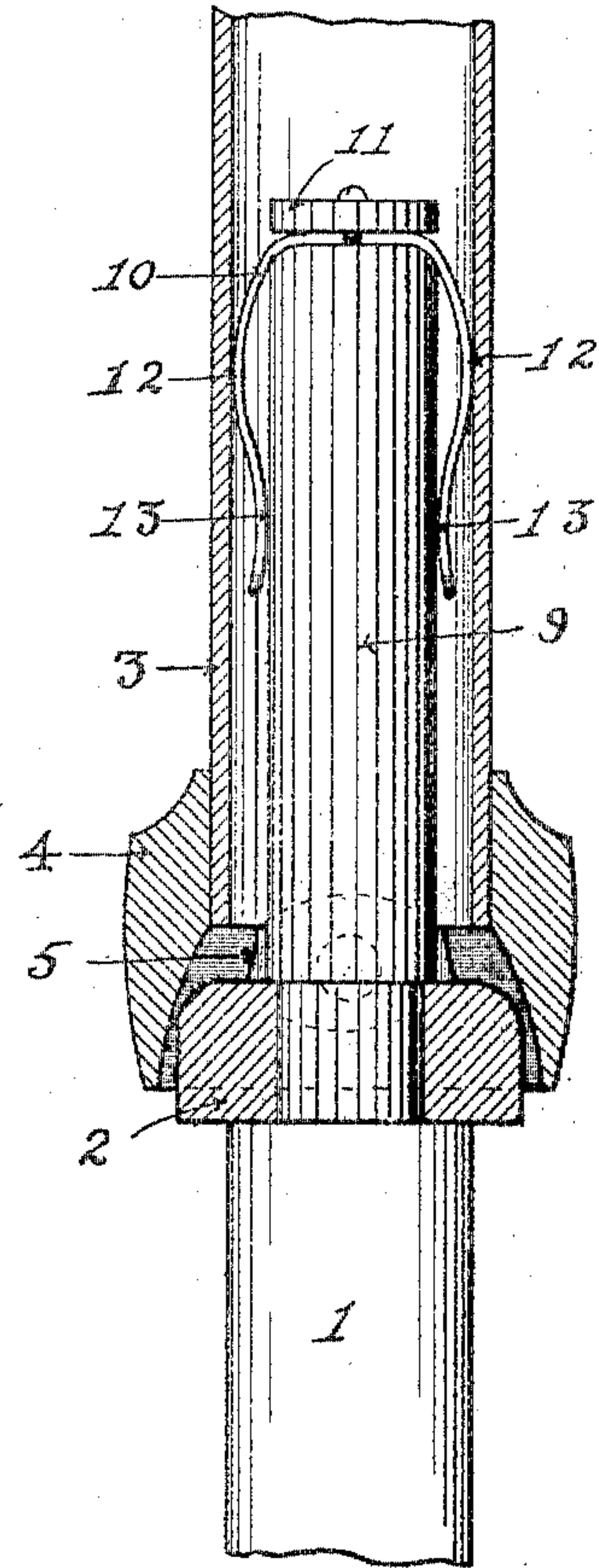


Fig. 3

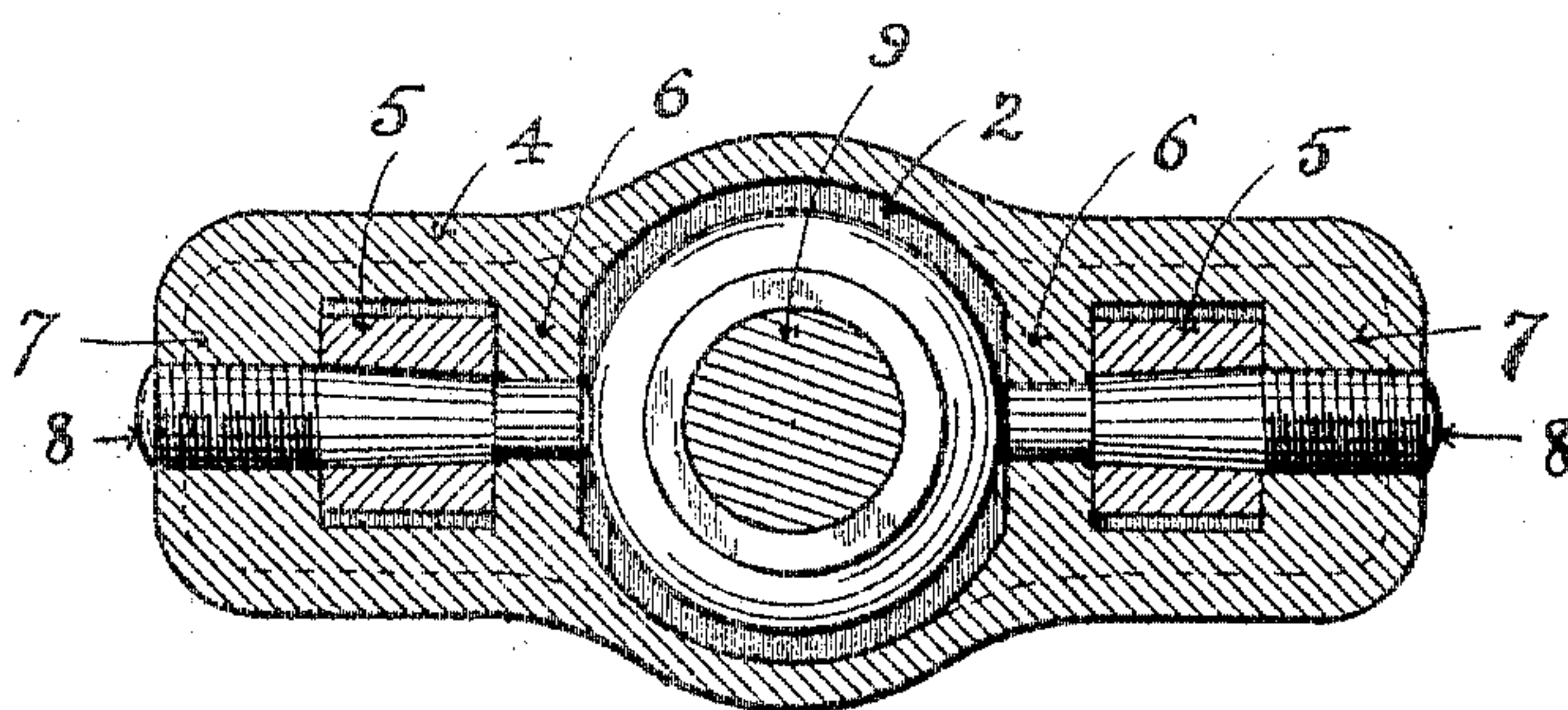


Fig. 4

Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES E. PIERCE, OF BUFFALO, NEW YORK.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 775,935, dated November 29, 1904.

Application filed August 13, 1903. Serial No. 169,338. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. PIERCE, a citizen of the United States, residing at Buffalo, New York, have invented certain new and useful Improvements in Bicycles, of which the following is a full, clear, and exact description.

My invention relates to improvements in bicycles, and more particularly to means for taking up the vibration of the front fork.

My invention has for its further object the taking up the vibration of the front fork and at the same time avoiding the objections which arise when a spring-fork is employed—in other words, taking up the vibration without interfering with the steering qualities of the machine.

I attain these objects by means of the construction shown in the accompanying drawings, in which—

Figure 1 is a side elevation of the front position of a bicycle provided with my improvement. Fig. 2 is a transverse section on the axis of the steering-head. Fig. 3 is a central section on the said axis at right angles to Fig. 2. Fig. 4 is a section at right angles to said axis and on the axes of the pivot-pins 8.

1 represents the front forks, to which is brazed a fork-crown 2.

3 is the steering-head tube, to which is brazed a pivot-head 4. This pivot-head is cup-shaped or recessed on its under side, so as to extend downwardly and cover the pivoted parts and is sufficiently large to permit of the movement of the crown 2, as herein-after described. The crown 2 has upwardly-projecting lugs 5, and the pivot-head 4 has downwardly-projecting lugs 6, and the end walls of the pivot-head are thickened and carried down to form the outer lugs 7. The lugs 5, 6, and 7 on either side of the steering-head axis are so positioned as to constitute the members of a hinge or pivot joint. The lugs 5, 6, and 7 are bored to receive pivot-pins 8.

In order to make this hinge-joint very tight and in order to take up wear, I preferably thread the outer portion of the pins 8 to the lugs 7. The portion passing through the lugs 5 is tapered and the portion passing through the lugs 6 true cylinders. Thus any loose-

ness may be taken up from time to time. The pins 8 may be held from turning in any desired manner, as by check-nuts or set-screws. (Not shown in the drawings.)

Brazed or otherwise rigidly secured to the crown 2 is a short shaft 9. This shaft extends upwardly within the tube 3, in an ordinary bicycle from three to four inches. The diameter of this shaft is considerably less than the internal diameter of the tube 3. A spring 10 is secured to the top of the shaft 9 by any convenient means, as by a plate 11, held down by screws. This spring is flat and is so bent that in its normal position both vertical portions bear against the interior walls of the tube 3, as shown at 12, and the ends of the spring curve inwardly and bear against the shaft 9, as shown at 13. This spring is furthermore so positioned that one portion tends to resist movement of the shaft 9 in one direction, and the other portion tends to resist movement of said shaft in the other direction, due to partial movement of the crown 2.

Since the axis of the pins 8 and the axis of the steering-head substantially intersect each other, it is evident that the leverage upon both members of the spring 10 is substantially the same in both directions, and it is evident that a force applied to the front wheel, tending to force it back, will be met by the forward member of the spring 10, which will allow the wheel to recede slightly, as shown by the broken circle 14 in Fig. 1, and a force applied in the opposite direction will allow the front wheel to advance slightly, as shown by the broken circle 15 in Fig. 1. It will further be seen that this pivot-joint permits of none of the side spring or torque of a spring-fork and also that the movement is so limited by the range of the spring 10 that there is none of the "teeter" movement of a spring-fork, only the shock and vibration being taken up.

It is evident that other forms of spring and other forms of pivot-pin may be employed without departing from the spirit of my invention.

Having thus described my invention, what I claim is—

1. In a bicycle, in combination with the

front forks and the steering-head tube, a head-crown, a fork-crown, said head-crown rigidly secured to said steering-head tube and said fork-crown rigidly secured to the front forks,
5 a pivot uniting said crowns and having its axis transverse of the machine and substantially intersected by the axis of said tube, a shaft secured to said fork-crown of lesser diameter than the internal diameter of said
10 steering-head tube, and extending upwardly within said tube, and a spring or springs for limiting the movement of said shaft within said tube, substantially as and for the purposes set forth.

15 2. In a bicycle, in combination with the front forks and the steering-head tube, a crown rigidly secured to said forks, a pivot-crown rigidly secured to said tube, a pivot uniting

said crowns and having its axis transverse of a machine and substantially intersected by the 20 axis of said tube, means for adjusting and taking up the slack of said pivot or pivots, a shaft secured to said fork-crown of lesser diameter than the internal diameter of said steering-head tube, and extending upwardly 25 within said tube, and a spring or springs for limiting the movement of said shaft within said tube, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my 30 hand in the presence of two witnesses.

CHARLES E. PIERCE.

Witnesses:

GEO. L. HAGER,
S. BROWN.