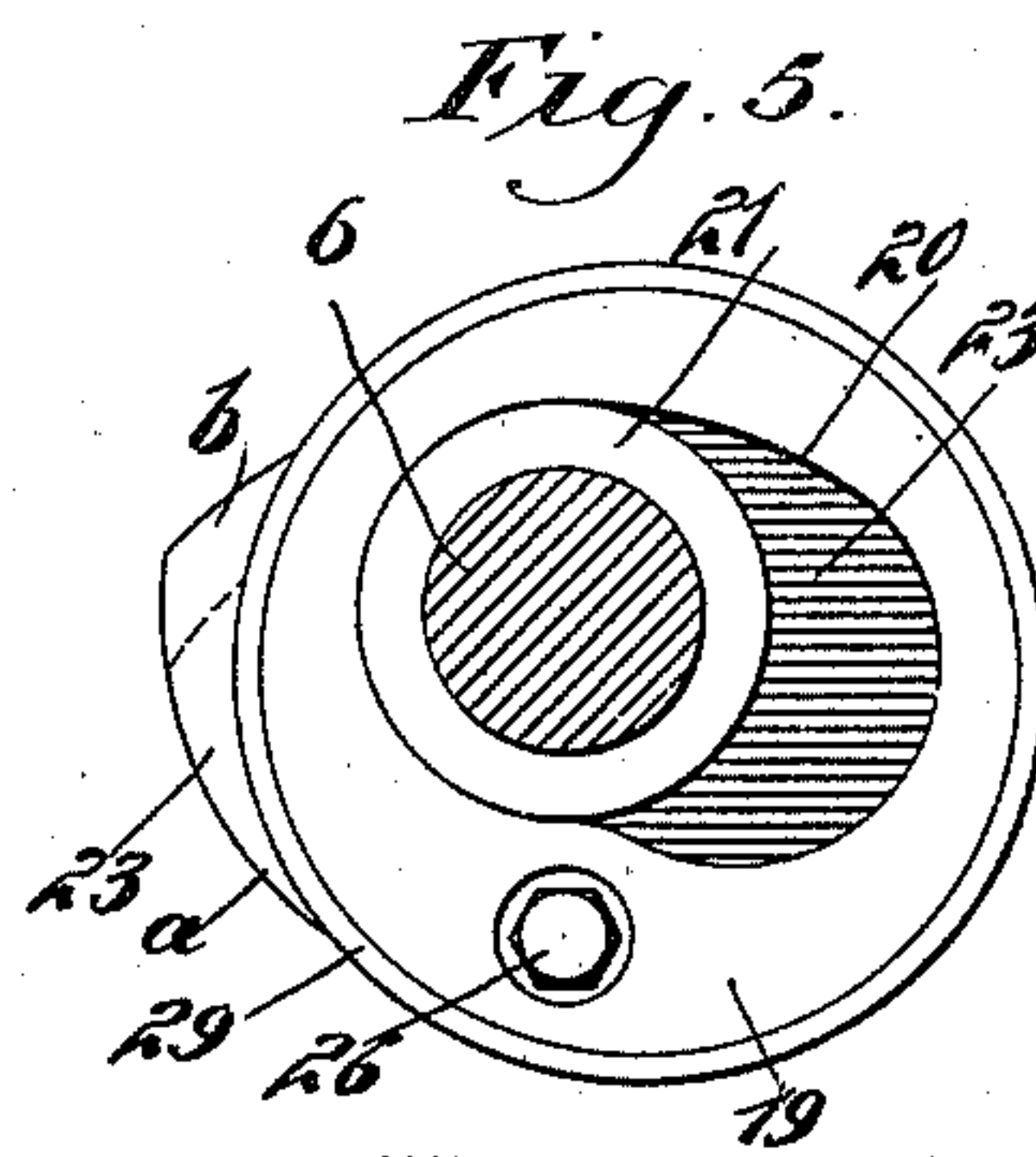
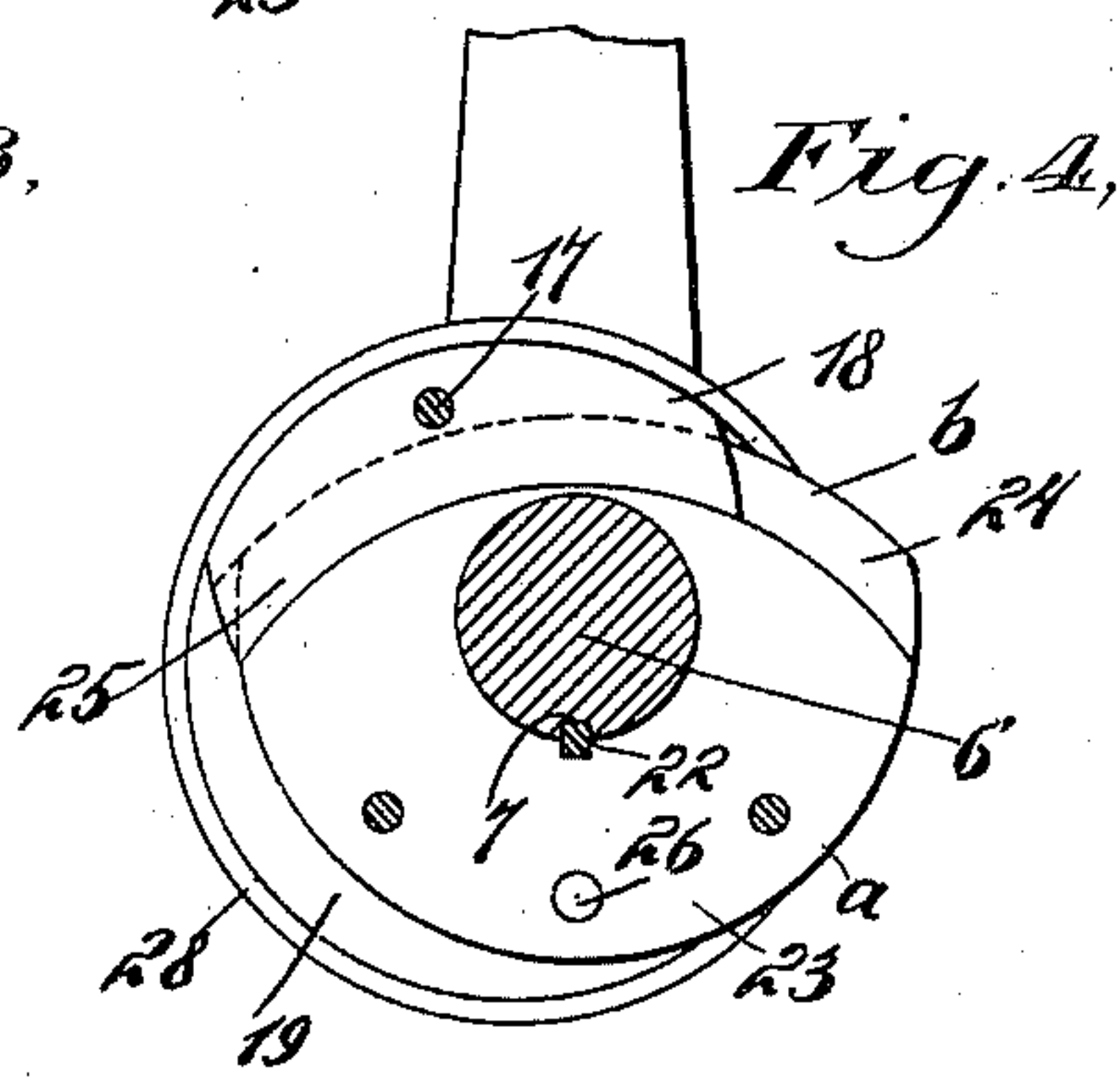
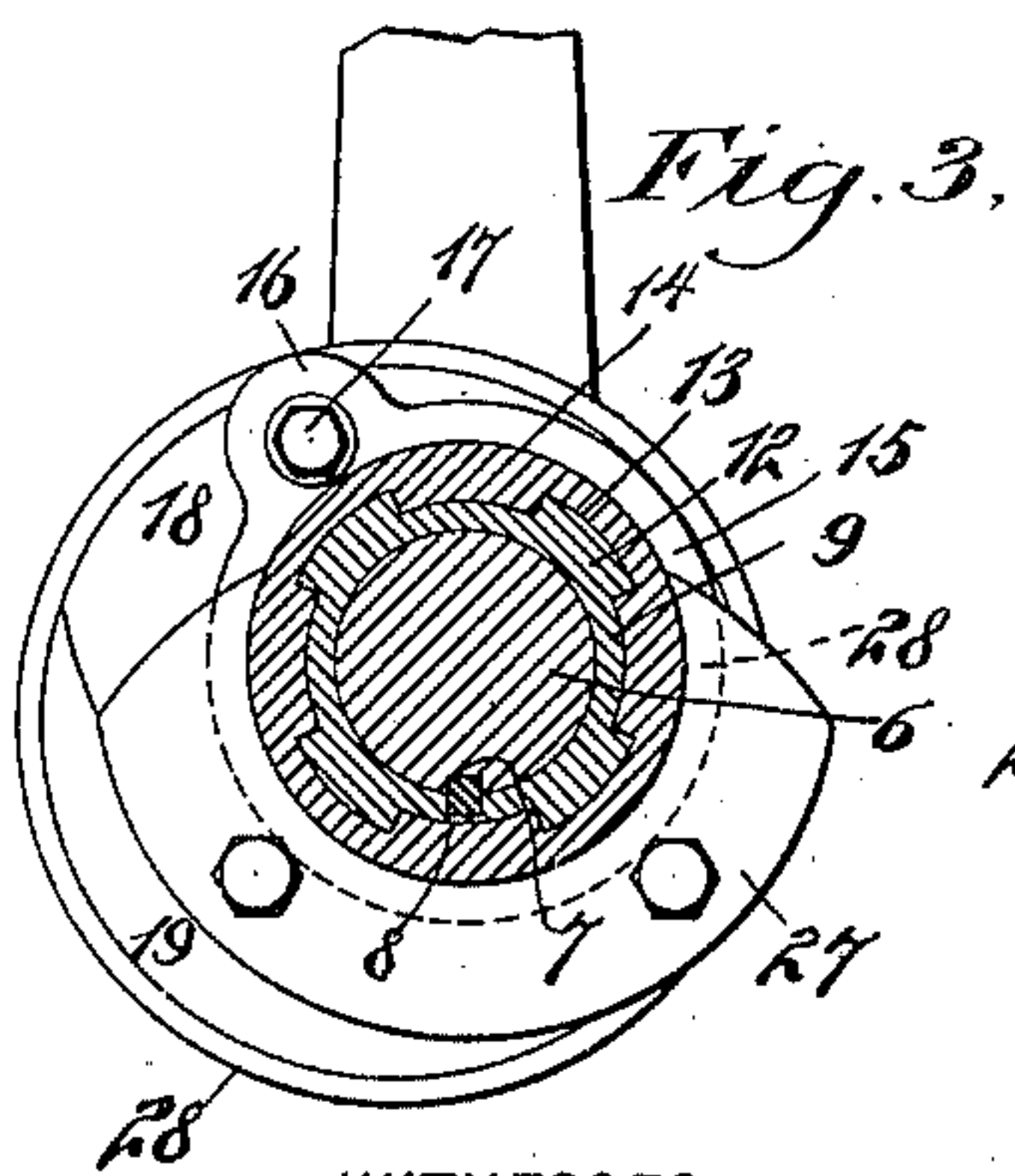
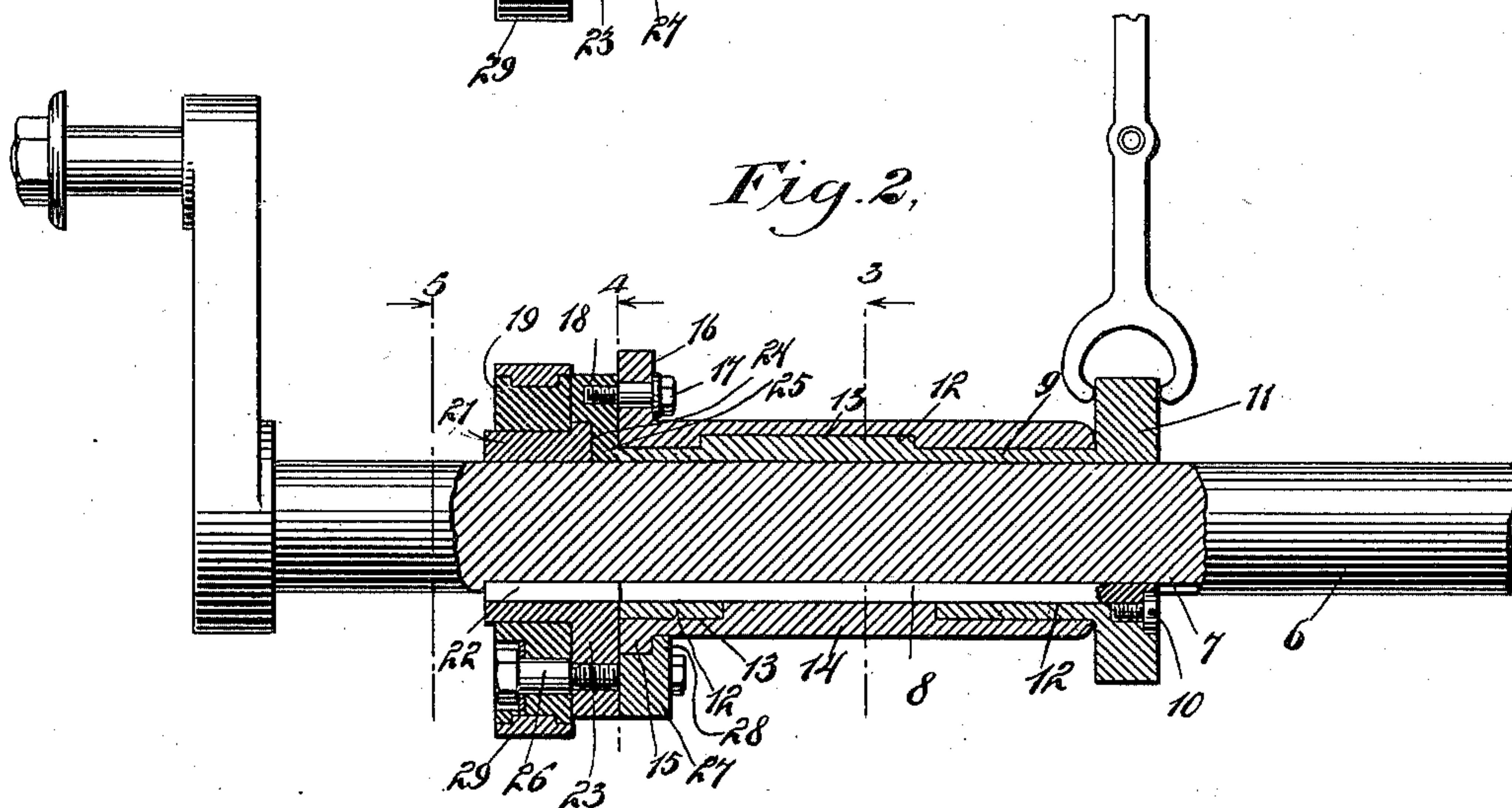
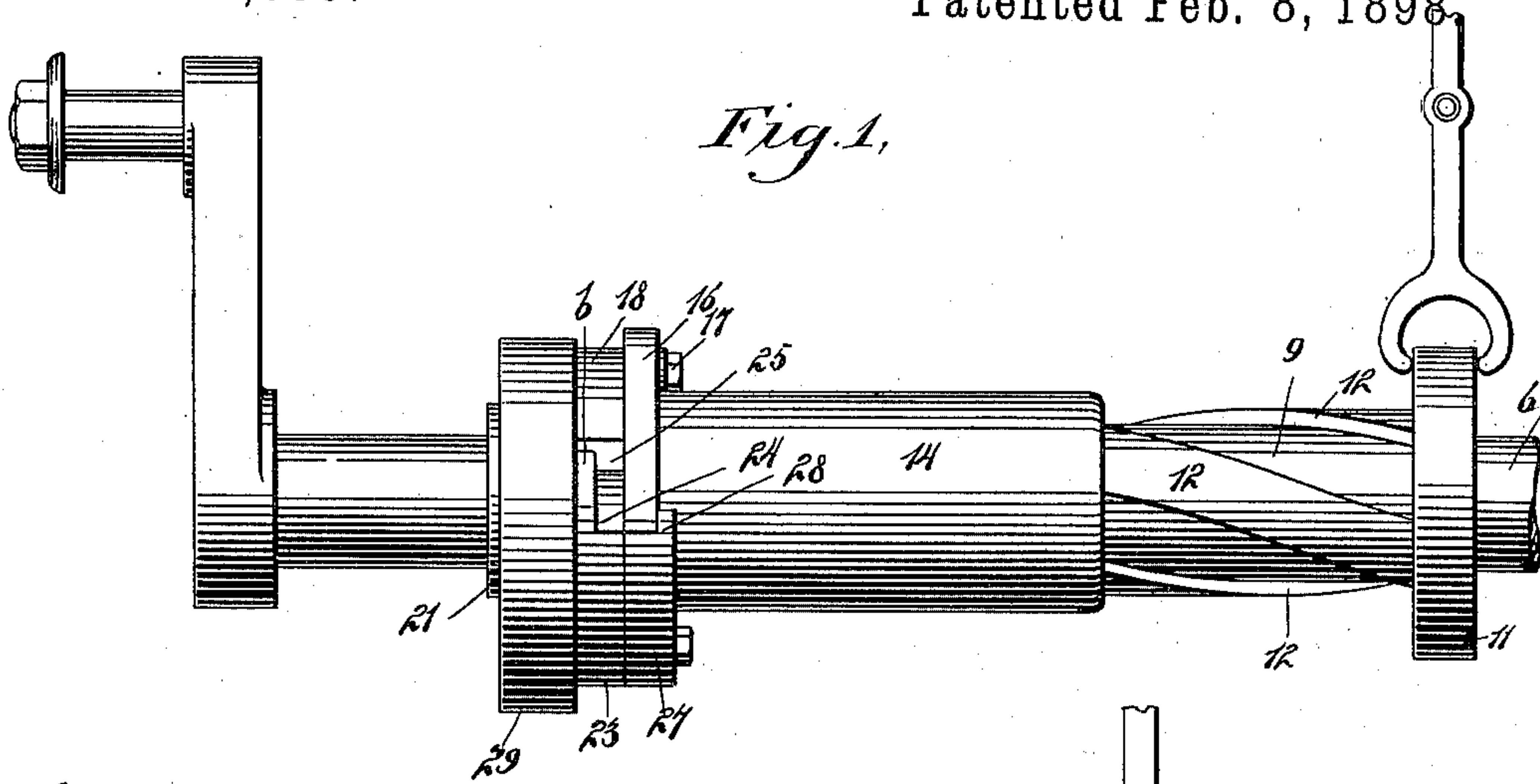


(No Model.)

C. E. ANDERSON.
ECCENTRIC.

No. 598,836.

Patented Feb. 8, 1898.



WITNESSES:

Edward Thorpe.
Isaac B. Mundy.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

CASPER E. ANDERSON, OF CASTLE DALE, UTAH.

ECCENTRIC.

SPECIFICATION forming part of Letters Patent No. 598,836, dated February 8, 1898.

Application filed June 2, 1897. Serial No. 639,151. (No model.)

To all whom it may concern:

Be it known that I, CASPER E. ANDERSON, of Castle Dale, in the county of Emery and State of Utah, have invented a new and Improved Eccentric, of which the following is a full, clear, and exact description.

This invention is an eccentric of that class in which the eccentrics may be shifted to reverse the same. The invention is adapted to engines and like machinery employing slide-valves.

This specification is the disclosure of one form of my invention, while the claims define the actual scope of the conception.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the invention. Fig. 2 is a partial longitudinal section thereof; and Figs. 3, 4, and 5 are cross-sections, respectively, on the lines 3 3, 4 4, and 5 5 in Fig. 2.

The crank-shaft 6, to which my invention is shown as applied, has a longitudinally-extending keyway 7, receiving a key 8, carried by a sleeve 9 and slidable longitudinally in the keyway 7. A screw 10, fitting in the sleeve 9, holds the key 8 in place. The inner end of the sleeve 9 has a collar 11 fixed thereto, to which collar the reversing-lever of the engine may be connected.

The sleeve 9 has a series of spiral dovetail threads 12 thereon, that coact with corresponding grooves 13, formed in a second or outer sleeve 14, which incloses the sleeve 9 and has at its outer end a flange 15, the upper portion of which is enlarged into an ear 16, through which a bolt 17 passes. The bolt 17 runs into and forms a pivotal connection with an arc-shaped plate 18, rigidly attached to the eccentric 19.

The eccentric 19 has an oblong opening 20 therein, which receives a boss 21, fixed to the shaft 6 by a key 22. The boss 21 is formed on a plate 23, having a curved periphery *a*, concentric to the center of the shaft 6, and a curved periphery *b*, that intersects with the periphery *a* to give the plate 23 an elliptical form. The edge *b* of the plate 23 has a rabbet-groove 24, that receives a downwardly-extending portion 25 of the plate 18. The

eccentric 19 is pivoted to the plate 23 by means of a bolt 26, located midway the length of the periphery *a* of the plate 23. Fixed rigidly to the face of the plate 23, opposite the eccentric 19, is a curved plate 27, having an inwardly-extending flange 28, which overhangs the flange 15 of the sleeve 14 in such a manner as will permit independent turning of the two parts. The eccentric 19 carries the usual strap 29.

The sleeve 9, sliding on the shaft 6 under the influence of the reversing-lever 11, causes the sleeve 14 to rock and turn. This imparts a like movement to the plate 18 and to the eccentric 19, the eccentric rocking on the bolt 26, and the sleeve 14, with its flange 15, turning in the plate 27, that performs the functions of a shoe or guide and that remains rigid with the plate 23, which in turn is immovable on the shaft 6. By throwing the eccentric 19 so far as to change its position on the shaft 6 from one end of the opening 20 to the other the eccentric will be completely reversed. Any movement less than this movement will change the action of the eccentric, but will not necessarily completely reverse the eccentric. The curve of the edge *b* of the plate 23 is concentric to the bolt 26, so that the plate 18 runs true around the edge *b* of the plate 23. The portion of the flange 15 opposite the ear 16 is concentric with the center of the shaft 6, so that the sleeve 14 rolls true upon the plate 27. By this arrangement the engineer may dispose the eccentric 19 in any position desired and by these means may control the engine.

Various changes in the form, proportion, and minor details of my invention may be resorted to without departing from the spirit and scope thereof. Hence I do not consider myself limited to the precise construction herein shown, but believe that I am entitled to all such variations as come within the terms of my claims.

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

1. The combination of a shaft, a sleeve splined on the shaft, a second sleeve inclosing the first sleeve and having threaded connection therewith, the second sleeve having a flange formed at one end, a plate having a

boss keyed to the shaft, a curved plate fixed to the first-named plate and embracing a portion of the flange on the outer or second sleeve, an eccentric pivoted to the first-named plate
5 and having an opening receiving the boss thereof, and an additional plate fixed to the eccentric and pivotally connected with the flange of the second-named sleeve, the said additional plate having sliding connection
10 with the first-named plate.

2. The combination of a shaft, a sleeve splined thereon, a second sleeve inclosing the first-named sleeve and having screw-threaded

connection therewith, a plate having a boss keyed to the shaft, the said plate serving to 15 guide the second-named sleeve as the same turns, and an eccentric pivoted to the plate and having connection with the second-named sleeve, the eccentric having an elongated opening therein receiving the boss of 20 the plate whereby to permit the adjustment of the eccentric.

CASPER E. ANDERSON.

Witnesses:

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