

(No Model.)

H. B. STONE.  
FRICTION CLUTCH.

No. 539,833.

Patented May 28, 1895.

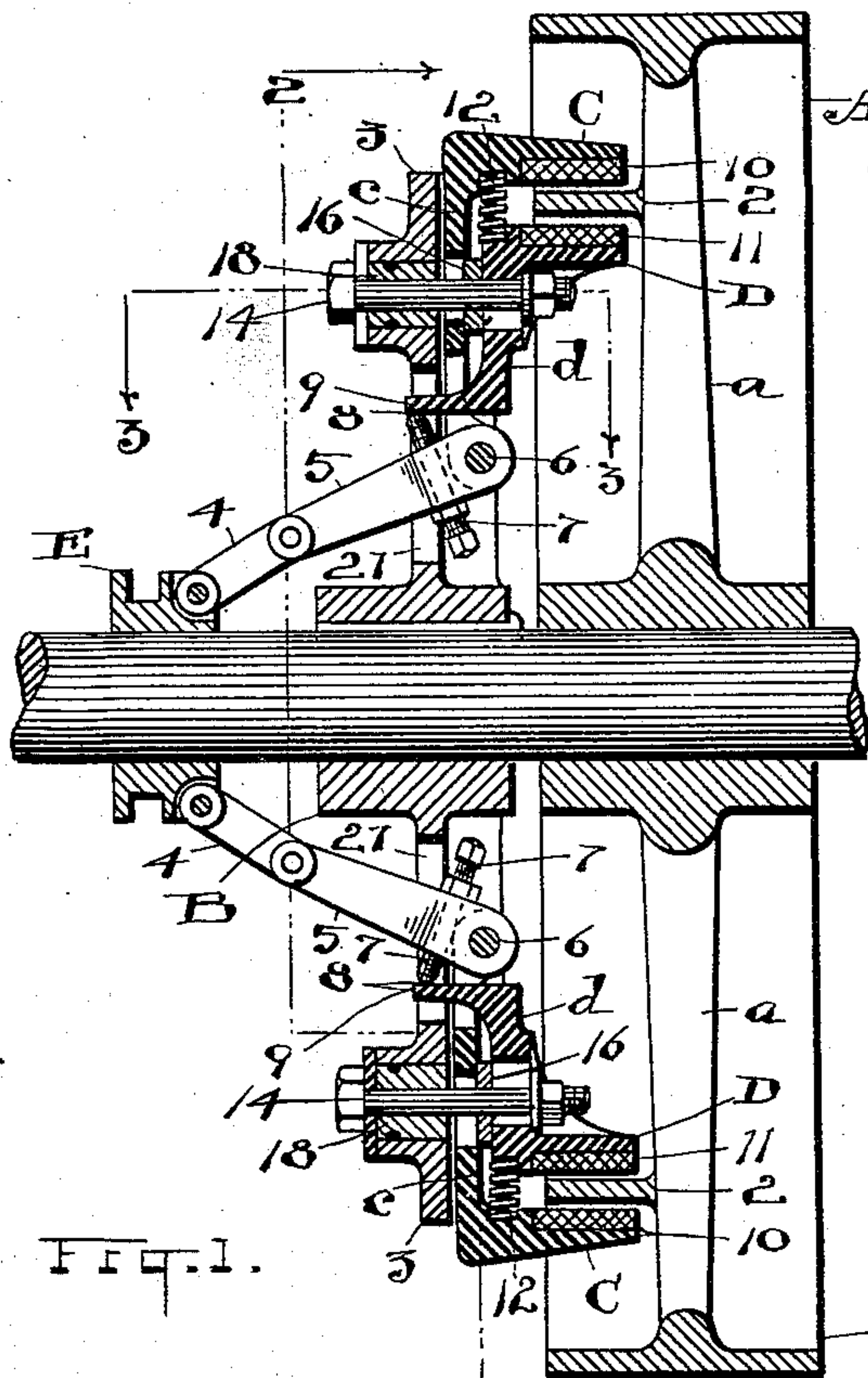


Fig. 1.

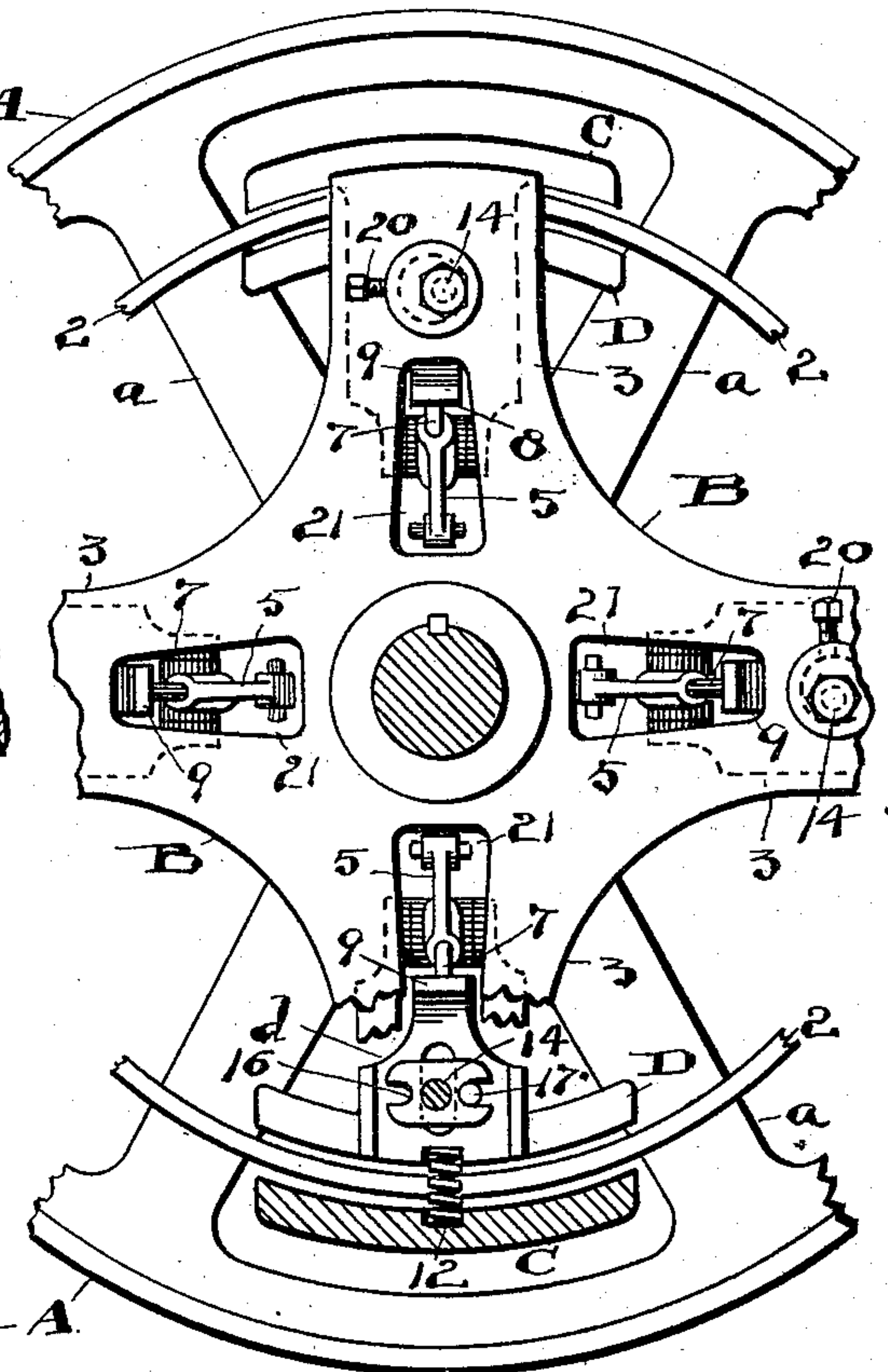


Fig. 2.

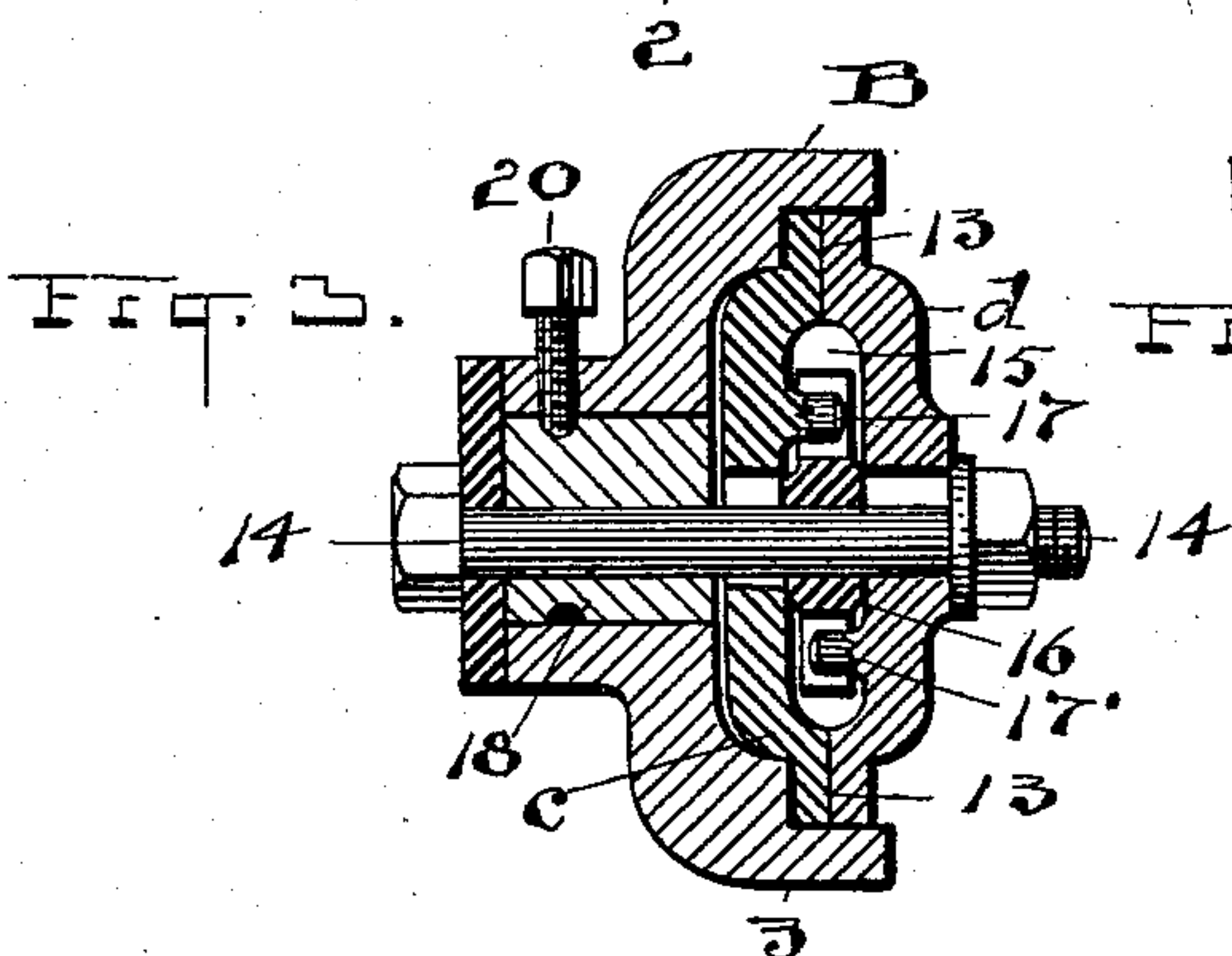


Fig. 3.

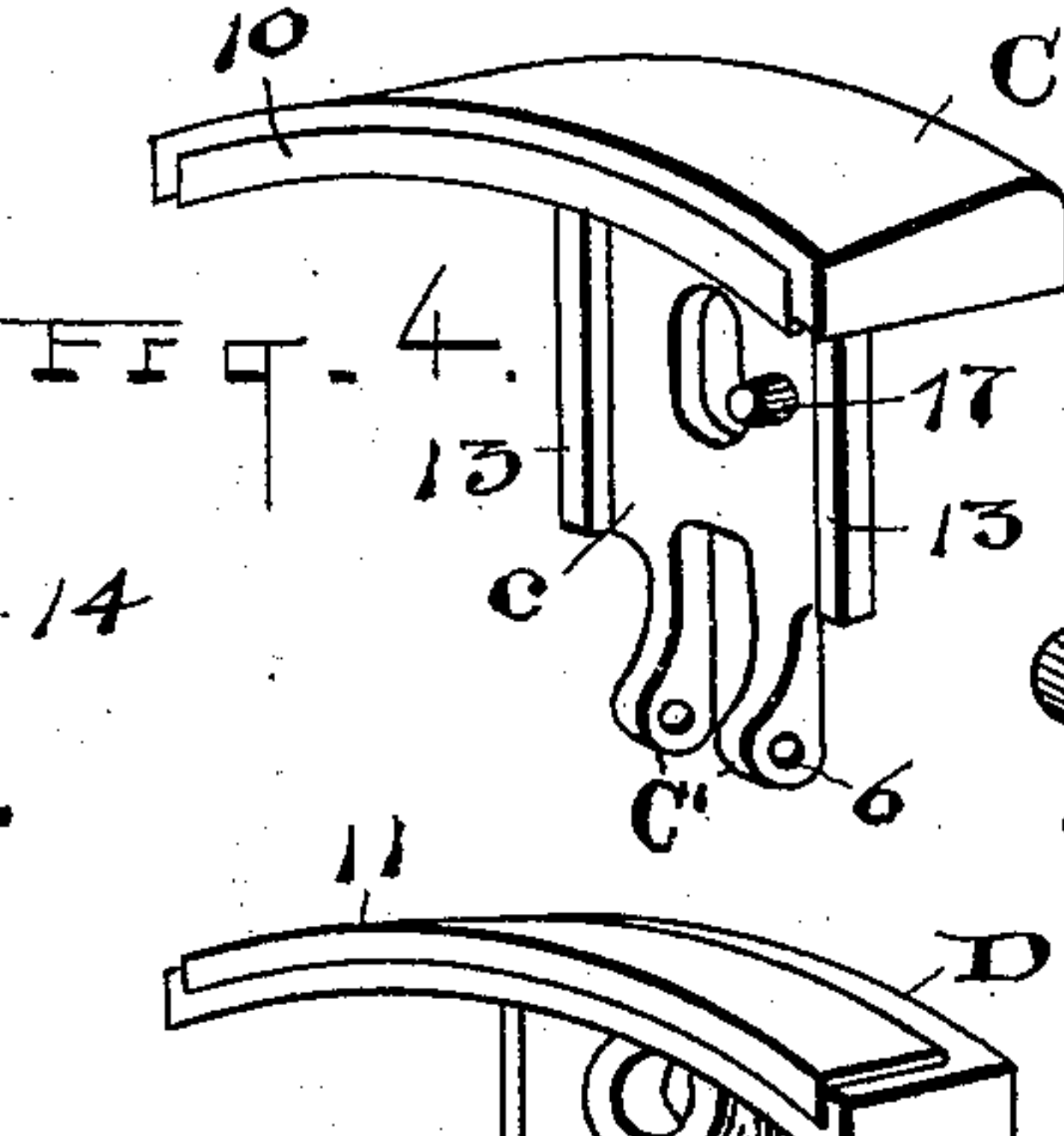


Fig. 4.

Fig. 5.

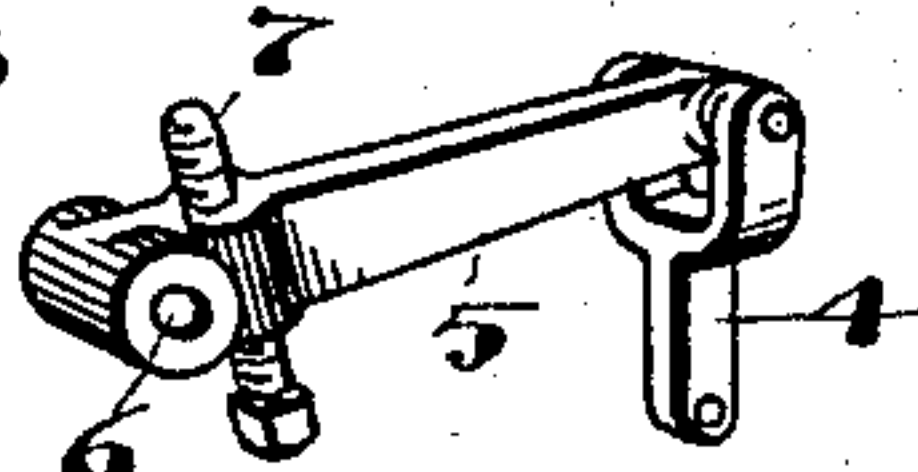


Fig. 6.

ATTEST

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# UNITED STATES PATENT OFFICE.

HENRY B. STONE, OF CLEVELAND, OHIO.

## FRICITION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 539,833, dated May 28, 1895.

Application filed January 23, 1895. Serial No. 535,893. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY B. STONE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Friction-Clutches; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to friction clutches, and the invention consists of the form or variety of clutches adapted to make frictional engagement with pulleys, substantially as shown and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical central sectional view of my improved friction-clutch. Fig. 2 is a side view, partly broken away, looking from the left of Fig. 1 and taken substantially on line 2 2, Fig. 1. Fig. 3 is an enlarged sectional view of the adjusting mechanism, taken on line 3 3, Fig. 1. Fig. 4 is a perspective view of one of the outer friction engaging-segments, and Fig. 5 is a perspective view of one of the inner engaging-segments. Fig. 6 is a perspective view of the fulcrum-arm and its connecting-link.

The invention comprises the ordinary pulley —A—, the circular ring —2— on the arms a rigid therewith, and so far removed from the band of the pulley —A— as to make room for the friction engaging mechanism. On the same shaft is the spider-shaped part —B—, consisting of the arms —3— which carry the engaging segments —C— and —D—, and the link carrying sleeve —E— that actuates the segments —C— and —D— through links —4— and the fulcrum levers —5—, four sets of which are used on radial lines from sleeve —E—. The part —B— is splined to the shaft, while the pulley —A— is free to rotate upon it, unless engaged by the frictional segments —C— and —D—.

When it is desired that the pulley should rotate with the shaft, the sleeve —E— is forced toward the pulley, which throws the link end of lever —5— outward, and then by reason of the other end of the lever being pivoted at —6— to the lower end of the segment —C— between the arms —C'—, the adjusting screw —7— forming a fulcrum at —8— therefor

against the projecting lip —9— on segment —D—, the segment —D— and segment —C— are alike forced into engagement with rim —2— on the pulley. The segments —C— and —D— have wearing strips —10— and —11— respectively set into their elongated segmental heads. Said strips are of wood, fiber or other suitable material, and they bear equally against the ring —2— when the operation of friction engagement with rim —2— occurs. These strips can be removed when worn out and new ones replaced. A spring —12— is interposed between the two segments and keeps the said segments normally out of engagement with ring —2—.

Great difficulty has heretofore been found in adjusting friction segments to the ring, but I have overcome this difficulty by the following arrangement and mechanism: The spider arms —3— of the spider —B— have a recess, substantially as shown in Fig. 3, in which the arms c and d of the segments —C— and —D— are free to slide up and down. These arms c and d also are recessed or have cavities on their meeting faces and bear against each other and are free to slide at their sides, as shown at —13—, and are held together by a bolt —14— that extends through both arms and the arm —3— of the spider —B—. On this bolt in the recess —15— between the two segment arms, an evener —16— is pivoted. This evener has open slots at each end into which lugs —17— and —17'— on the segments —C— and —D— respectively, project. A sleeve —18— having an eccentric bore is inserted in the spider arm —3—, and the bolt —14— passes through this bore or hole, and set screw —20— fastens the sleeve after any adjustment thereof. The sleeve and the evener and the lugs —17— and 17' co-operate in an adjustment as will now appear.

Let us suppose that the segment —C— rests on the ring —2— and that the segment —D— is some distance away from the ring. Now to adjust them so that both would engage at the same time and alike, the first thing to do would be to loosen screw —20—, so as to allow sleeve —18— to rotate in its bearings. Then as the sleeve —E— is forced forward the segment —C— being against ring —2—, the screw —7— on the lever —5— will lift segment —D— against said ring. While the arm —d—



is being raised the arm —c— acts as a pivot for the lug —17'— on arm —d— to raise the evener. As the evener is raised, the bolt being eccentrically placed in the sleeve —18—, the evener rises with it, inasmuch as the sleeve is rotated and the inner segment requires to come against ring —2—. This movement having brought the two segments in equal contact with the ring —2—, the screw —20— is again tightened and the evener with the lugs —17— and —17'— are in position to keep the said segments in equal contact. The spider arms —3— have an opening —21— through which the lever —5— projects, and said lever is pivoted between two hangers —c'— on segment arm —c— as already described. The lip —9— of arm —d— on which screw —7— bears projects also between these hangers above the pivot of lever —5—. The segment arms —c— and —d— have elongated holes or slots where the bolt —14— passes through.

What I claim, and desire to secure by Letters Patent, is—

1. In a friction clutch as described, the two segment arms, having each a lug on its side,

an evener pivoted between said arms and engaging said lugs, a spider having recessed arms to hold said segment arms a bolt passing through said several arms and evener, a sleeve in each of said spider arms said bolt passing eccentrically through said sleeve and a set screw to lock said sleeve, substantially as set forth.

2. In a friction clutch, the pulley having a ring at its side, in combination with the two armed segments —C— and —D— to engage said ring, the sliding sleeve —E— and links —4— and —5— connected with segments —C—, eccentric mechanism to adjust said segments comprising a bolt —14— and a bearing sleeve —18— therefor, the evener —16— on said bolt and the arms of the said segments having projections —17— and —17'— engaging said evener, said parts constructed and connected, substantially as set forth.

Witness my hand to the foregoing specification.

HENRY B. STONE.

Witnesses:

H. T. FISHER,  
Z. B. MOSES.