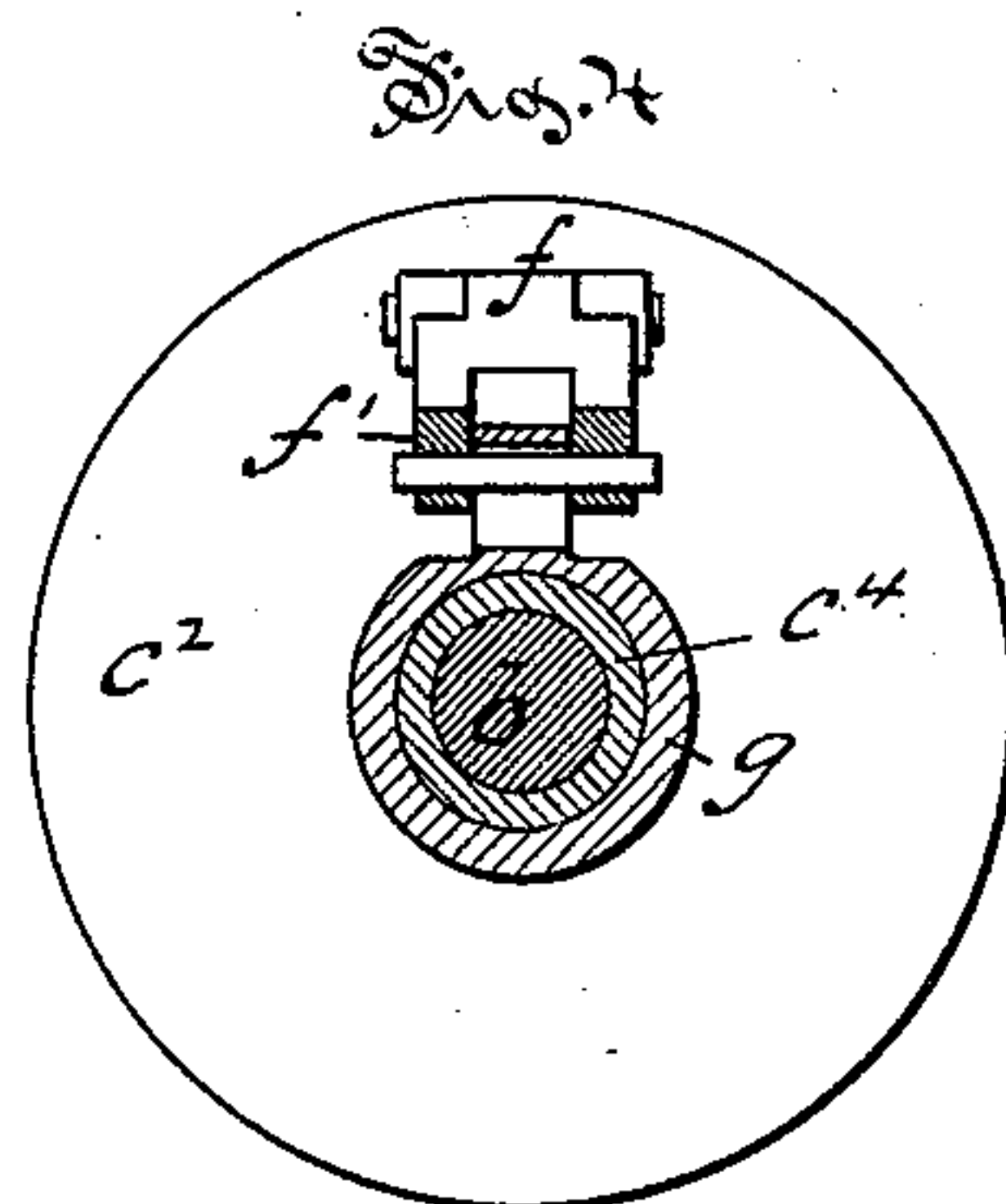
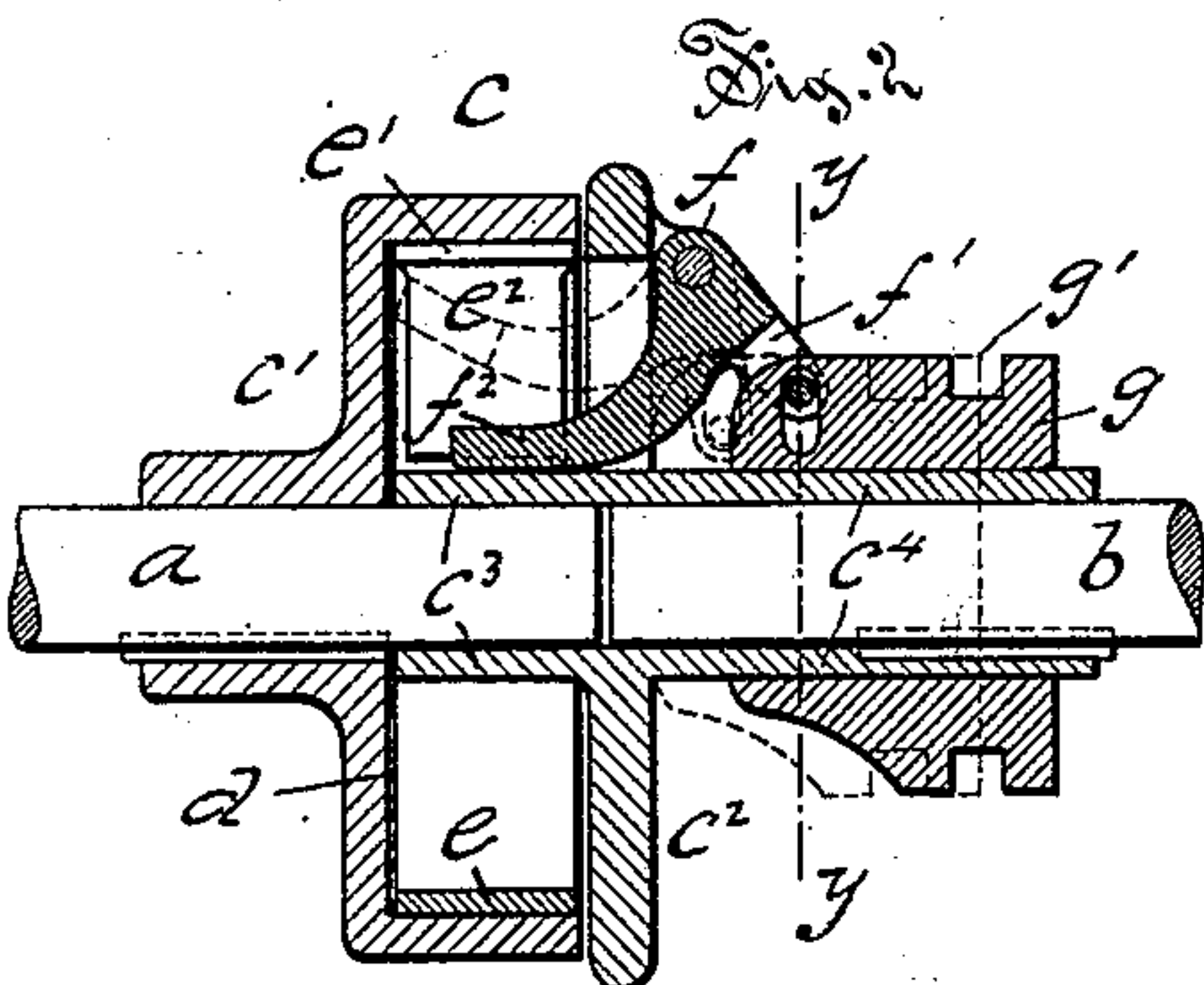
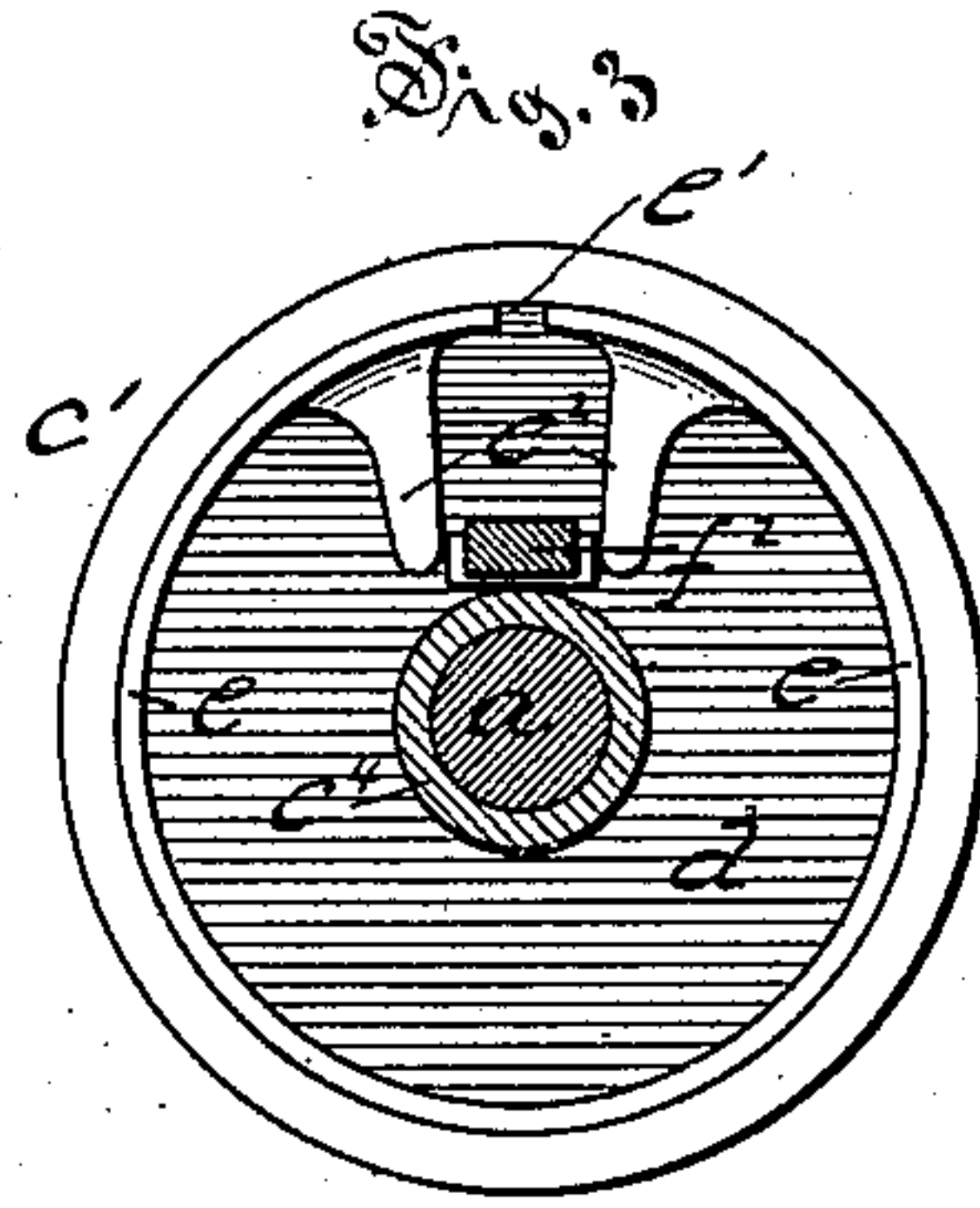
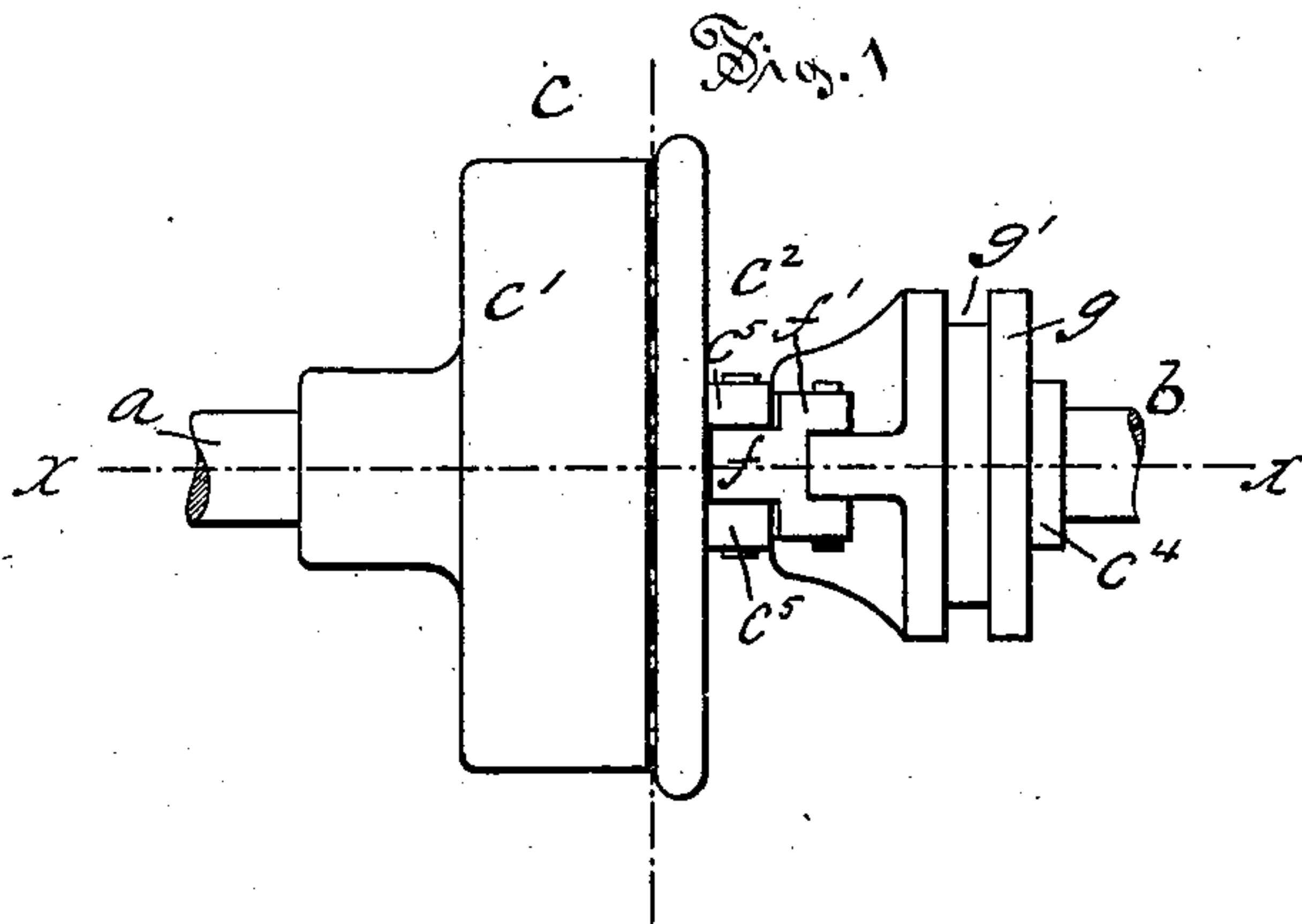


(No Model.)

W. B. TATRO.
FRICTION CLUTCH.

No. 337,032.

Patented Mar. 2, 1886.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM B. TATRO, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
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FRICITION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 337,032, dated March 2, 1886.

Application filed November 2, 1885. Serial No. 181,554. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. TATRO, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Friction-Clutches, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a top or plan view of my invention as embodied in a clutch adapted to couple the ends of two pieces of shafting. Fig. 2 is a view in longitudinal central section of this device on plane denoted by line $x x$ of Fig. 1. Fig. 3 is a plan view of the interior of one of the clutch-body parts, showing an annular clamp and part of the rock-arm, the latter being broken away to show construction. Fig. 4 is a detail view of the device in cross-section on plane denoted by line $y y$ of Fig. 2.

My invention relates to the class of clutches in which the operative parts depend for their action upon the frictional grasp of the respective interlocking parts; and it consists in the combination of the clutch-body parts, the expansible annular clamp with inturned arms, between the adjacent faces of which a rock-arm is removably supported, and the mechanism by which the rock-arm is operated, and in further details of the parts and their combination, as more particularly hereinafter described, and pointed out in the claims.

In the accompanying drawings, the letter a denotes a piece of shafting, and b another piece, both being in alignment, with their ends disconnected, except by means of the friction-clutch c . This clutch is made up of the body parts c' and c'' . The former is secured to one of the shafts, as a , near its end, by means of a key or like device, and within the laterally-opening socket it bears the expansible annular clamp e . This clamp e fits loosely within the socket d , is divided, as at e' , across its length, and near this division are located the inward-projecting arms e'' , whose adjacent faces taper toward each other as they near the center. The body part c'' consists of a disk-like piece adapted to fit flatly against the open side of body part c' , and has a cylindrical hub that extends in both directions from the center of the disk and substantially at right an-

gles to it. One part, c^3 , of this hub fits upon the end of the shaft a , while the other part, c^4 , fits upon and is securely fastened to the shaft b , as by means of a key in the ordinary manner of fastening such parts together. The rock-arm f is pivoted to lugs c^5 , that project from the outer face of the disk of the body part c'' , and the end f' of this arm projects downward and away from the clutch, while the other end, f'' , projects through a slot in the disk into the interior of the clutch, and is located between the arms e'' of the clamp. In its normal condition the clamp e is less in diameter than the chamber d , within which it is located, and does not bind upon the wall of this chamber until the end f'' of the rock-arm is moved toward the center of the clutch or shaft. The inward and outward movement of the end f'' of the rock-arm is effected by means of the sliding collar g , that fits upon the outside of the hub c^4 , and is moved by means of an ordinary shipping device, projecting parts of which fit into an annular groove, g' , in the collar. The lower end of the arm f' engages in a socket in this collar, so that as the collar is moved toward or from the clutch-body the end of the rock-arm will be moved away from or toward the axis of the shaft or center of the clutch. By the inward radial movement of the rock-arm the arms e'' of the clamp are thrust apart, and the outer surface of the clamp, which lies next the wall of the chamber, is forced against that wall, and by reason of the friction between these surfaces the two parts of the clutch are held firmly together, and the two pieces of shafting will revolve together. The annular clamp is preferably formed of a single piece of spring metal, as steel, bent to shape with the arms integral therewith, and a part on each side of the opening at e' , overhanging the space between the divided ends of the clamp, and made so as to allow room for the radial play of the rock-arm, and also to prevent it from coming into contact with the inner side of the wall forming the periphery of the body part c' .

The above-described guard, formed by the substance of the ring lying between the upper or outer side of the arm f'' and the clutch-body part, is of material advantage in clutches

of this class, in preventing the arm or lever end from wearing against the inner surface of the rim of the clutch-body.

Through the lower end of the arm f' , that is 5 forked, so as to engage the lug on the collar g , a pin is fastened, and this pin passes through a slot in the lug, as shown in the sectional view in Fig. 2. This particular means, however, of connecting the sliding collar with the 10 rock-arm is not essential, as it is evident that other equally efficient means may be used without the exercise of invention.

I claim as my invention—

1. In combination, in a friction-clutch, the 15 body part c' , an annular clamp, e , fitted loosely within a socket in this body part, and with inward-projecting arms with adjacent tapered faces, and a guard overhanging the space between the arms, the body part c^2 supporting a 20 rock-arm with one end between the arms of the clamp, all substantially as described.

2. In combination with the body parts of a friction-clutch of the within-described class, the annular clamp e , with an overhanging guard partly covering the space at e' , between 25 the divided parts of the clamp, and the spreading-lever, with its end located between the ends of the clamp, all substantially as described.

3. In combination with the clutch-body 30 parts c' and c^2 , the expansible annular clamp e , fitted loosely within the body part c' , and bearing the inward-projecting arms e^2 , with adjacent faces tapered, the rock-arm f , with the end f^2 located between the arms of the 35 clamp, and the arm f' , engaging the sliding collar g , movable on the hub of the body part c^2 , all substantially as described.

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Witnesses:

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