

(No Model.)

H. C. CROWELL.
FRICTION CLUTCH.

No. 403,739.

Patented May 21 1889.

Fig. 1.

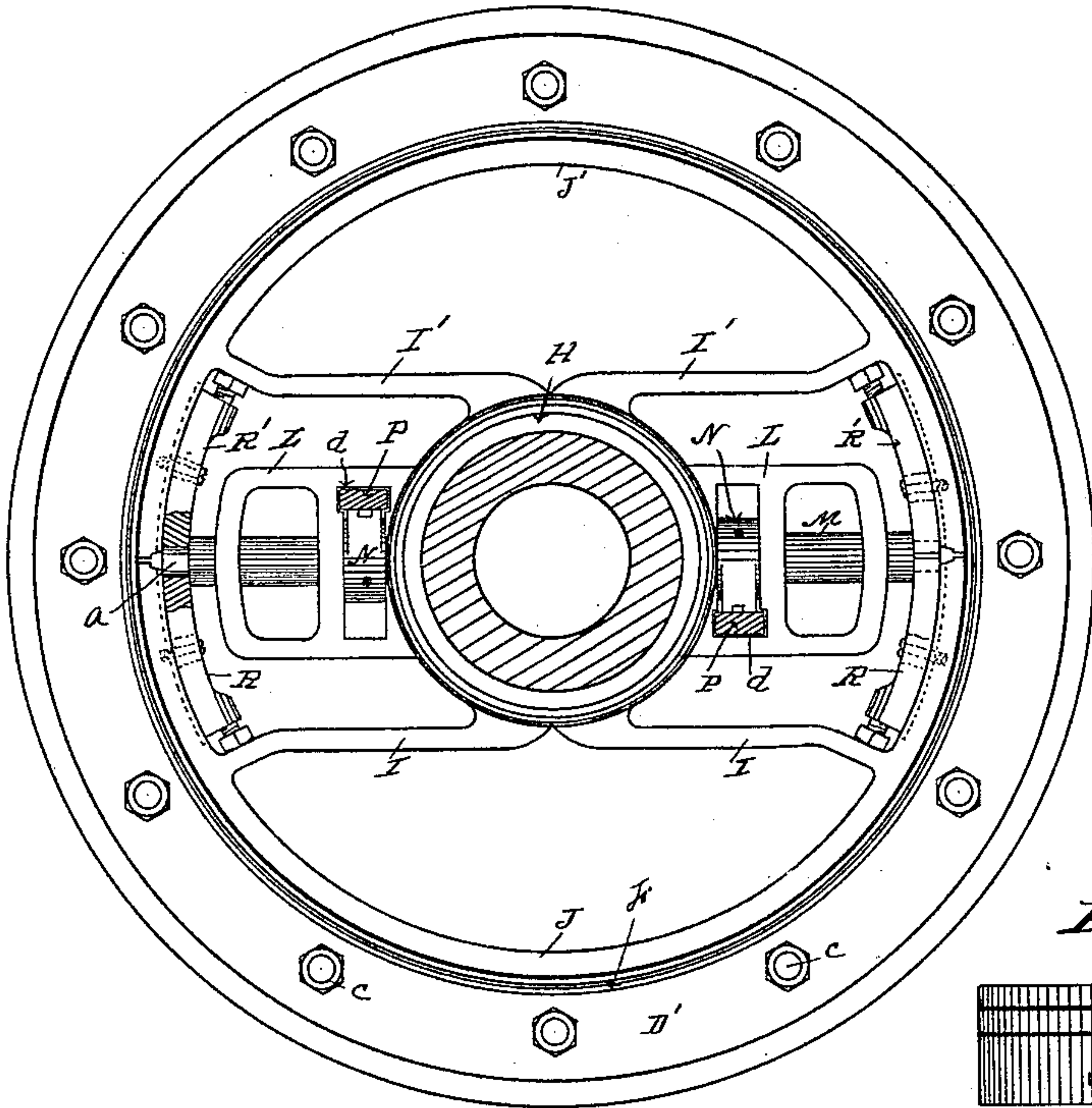


Fig. 2.

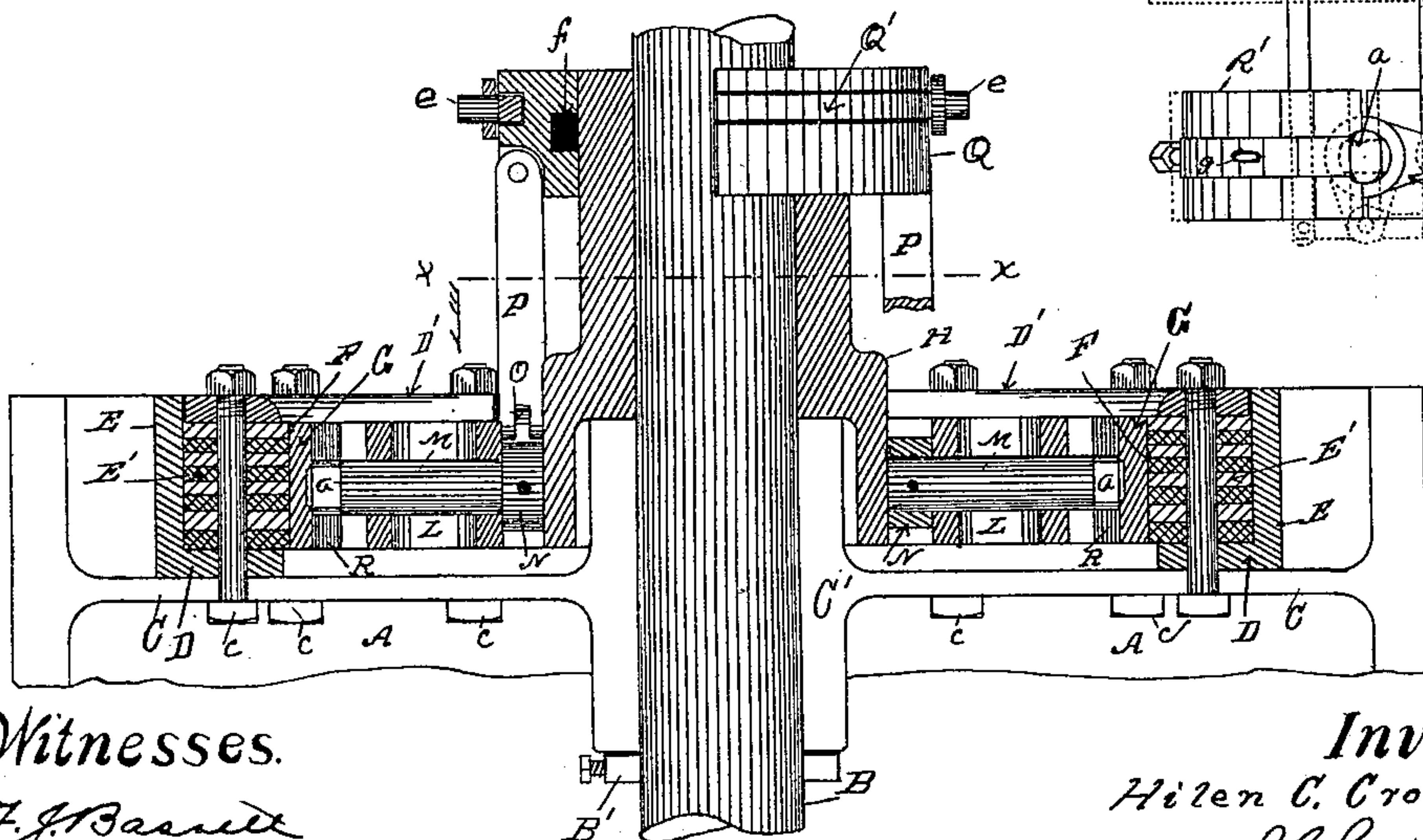
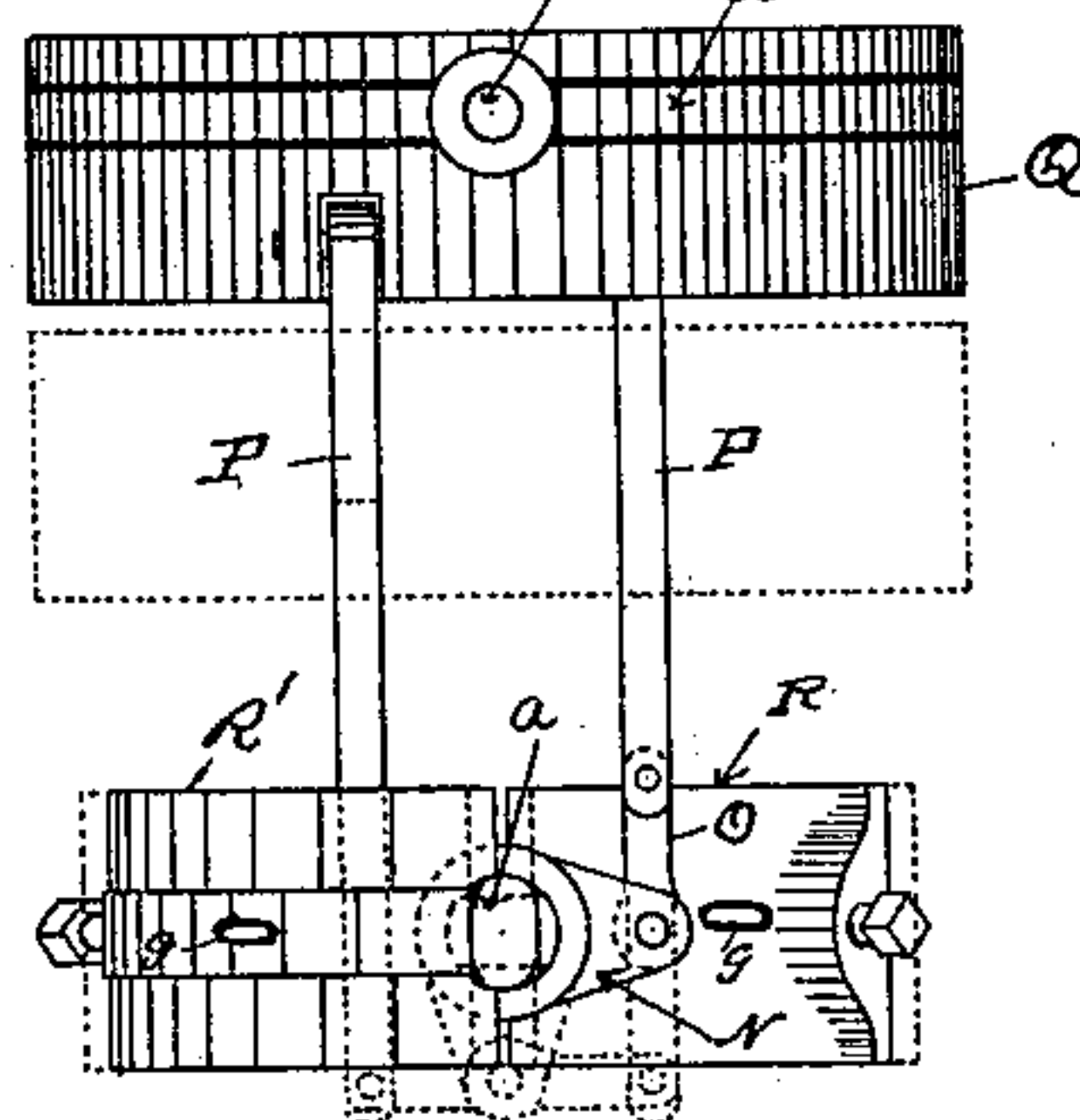


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

HILEN C. CROWELL, OF ERIE, PENNSYLVANIA.

FRICITION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 403,739, dated May 21, 1889.

Application filed June 29, 1888. Serial No. 278,561. (No model.)

To all whom it may concern:

Be it known that I, HILEN C. CROWELL, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Friction-Clutches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention consists in the improvements in friction-clutches hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of my improved friction-clutch. Fig. 2 is a central transverse section of same secured to a pulley. Fig. 3 is a detail view of parts of my invention.

Like letters refer to like parts in all the figures.

In the construction of my improved friction-clutch shown, A is a pulley adapted to rotate on a shaft, B. To one side of the web C of this pulley I secure an annular clutch-ring, D, preferably constructed of an iron shell, E, filled with rings of compressed paper, E', so that the inner face of the clutch-ring D presents a continuous paper friction-surface, F, against which the expansive friction-ring G, hereinafter described, operates. To the shaft B, I also secure a hub, H, provided with arms I I' and I' I', to which the semicircular sections J and J' of the friction-ring G are secured, so that the periphery of the friction-ring G will rotate within the clutch-ring D, the parts G and D occupying the relative position to each other shown in Figs. 1 and 2.

Centrally between the arms I and I', on each side of the hub H, I cast radially-projecting supports L, in which are journaled radially-projecting shafts M, the outer ends, a, of which are elliptical or cam-shaped, as and for the purpose hereinafter set forth. The inner ends of the shafts M have secured thereto cranks N, to which are coupled links O, which links are coupled to arms P, passing through guide-slots d in the supports L, and are se-

cured to a sliding sleeve, Q, on the hub H, so that when the sleeve Q is moved toward the pulley the arms P and links O operate on the cranks N to rotate the radial shafts M. To the inside of the friction-ring G, between the arms I and I', I secure adjustable segments R R', so that they are adapted to be adjusted endwise to take up wear as desired. The elliptical ends of the shafts M extend outwardly between the ends of segments R R', so that when rotated one way by moving the sleeve Q toward the pulley they serve to force the segments R R' apart, and when rotated the other way by moving the sleeve Q away from the pulley the spring of the arms I I' brings the ends of the segments R R' and of the sections J J' of the friction-ring G, to which the segments R R' are secured, together. Thus it will be seen that the rotation of the shaft M one way serves to expand the friction-ring G outward against the inside face, F, of the clutch-ring D, and the rotation of the shaft M the other way serves to release the same, so that the spring of the arms I I' will withdraw the friction-ring G from contact with the inner surface, F, of the clutch-ring D, while the segments R R' may be adjusted so as to produce any desired pressure of the friction-ring G against the inner face, F, of the clutch-ring D.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a friction-clutch, of a clutch-ring and a sectional friction-ring with radial shafts having elliptical or cam-shaped ends operating and adapted to be partially rotated between the ends of the sections of the friction-ring to expand the same and thereby force it outward into contact with the clutch-ring, substantially as and for the purpose set forth.

2. The combination, in a friction-clutch, of a clutch-ring and a sectional friction-ring having adjustable segments adapted to vary the openings between the ends of the sections of the friction-ring with radial shafts having elliptical or cam-shaped ends operating and adapted to be partially rotated between the adjacent ends of said adjustable segments to

expand said friction-ring and force it outward against the clutch-ring, substantially as and for the purpose set forth.

3. The combination, in a friction-clutch, of
5 the shafts M, having elliptical ends *a* thereon and mounted in radial supports L, with the cranks N, links O, sliding levers P, and sliding sleeve Q, substantially as and for the purpose set forth.

10 4. The combination, in a friction-clutch, of the clutch-ring D, the semicircular friction-rings J and J', mounted on the arms I I and

I' I', and the adjustable segments R R', with the radial shafts M M, operating between the ends of the segments R R', the cranks N, links 15 O, sliding levers P, and sliding sleeve Q, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HILEN C. CROWELL.

Witnesses:

HEMAN JANES,
MARIUS DUVALL.