

(No Model.)

L. S. PFOUTS.

COMBINED FRICTION CLUTCH AND SHAFT CUT-OFF.

No. 441,254.

Patented Nov. 25, 1890.

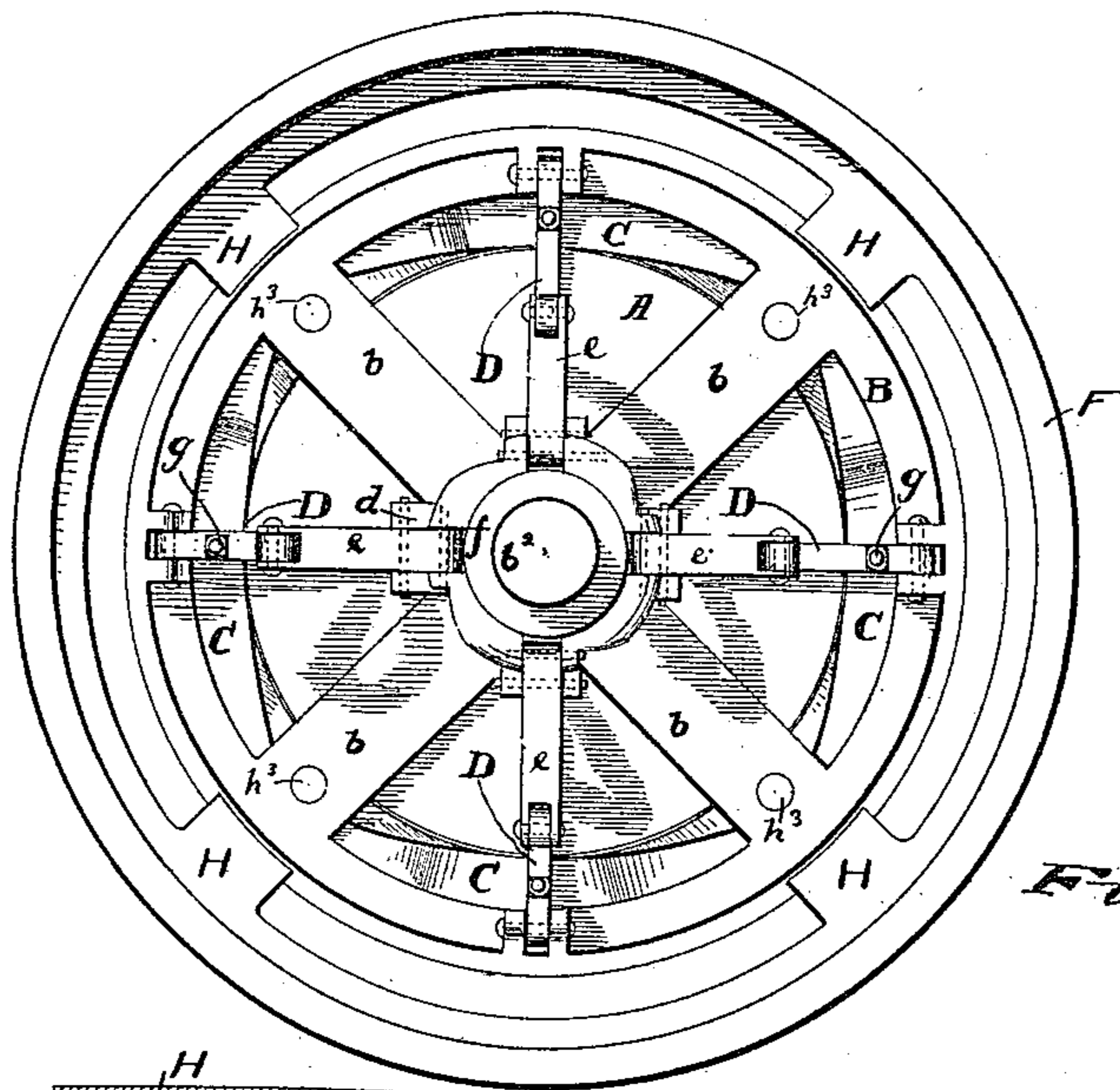


Fig. 1.

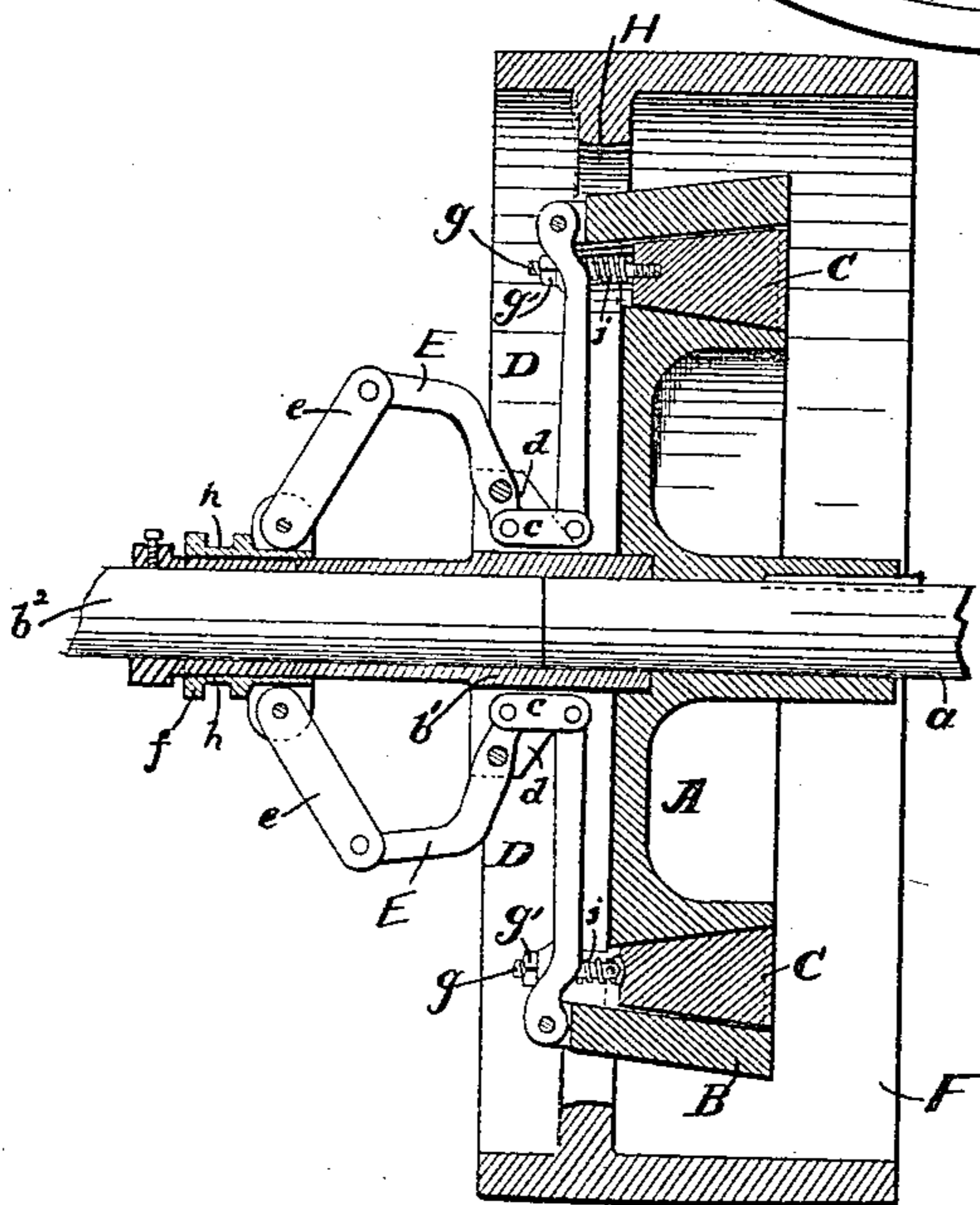


Fig. 3.

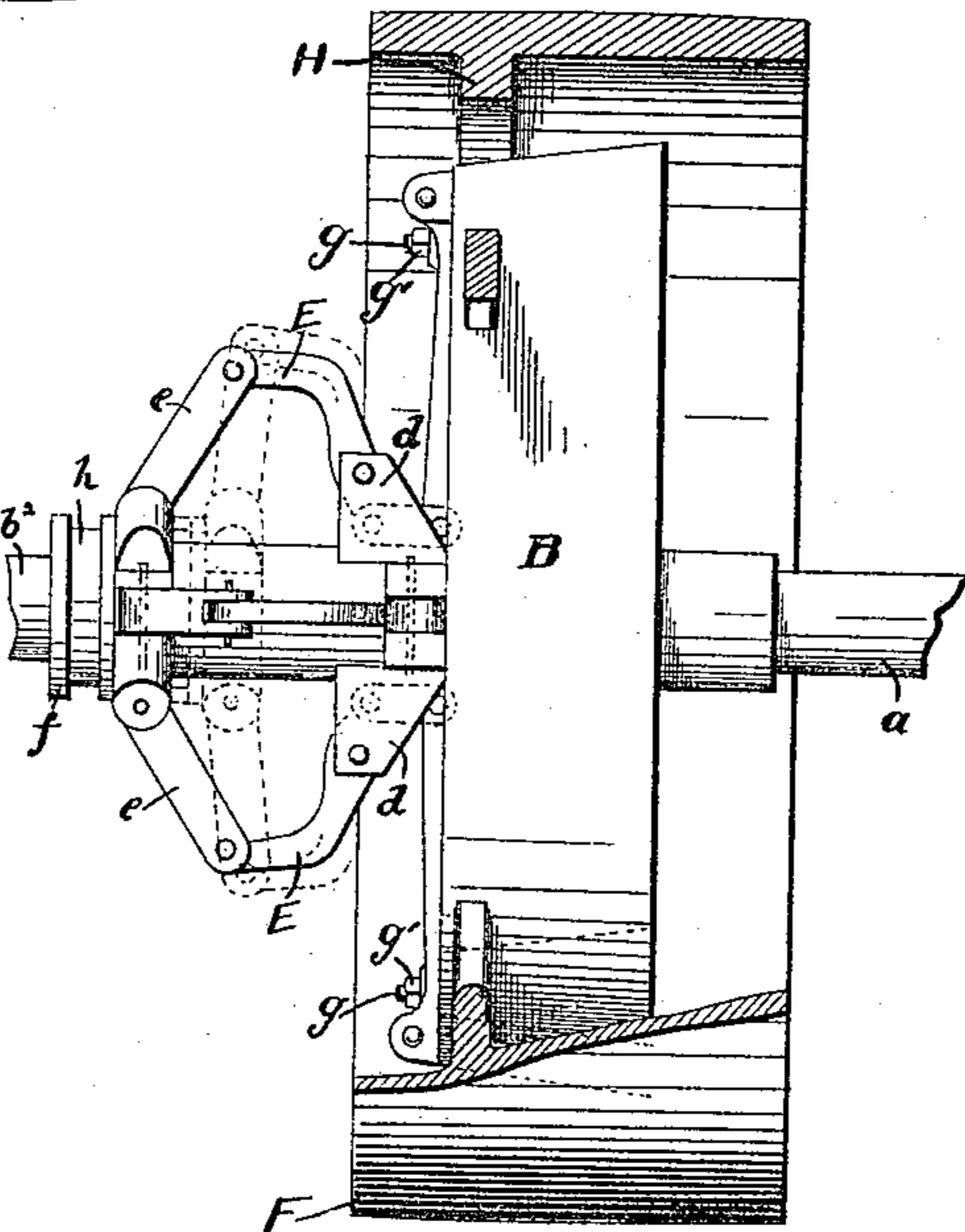


Fig. 2.

WITNESSES:

Ed. S. Law  
Ed. S. Smith

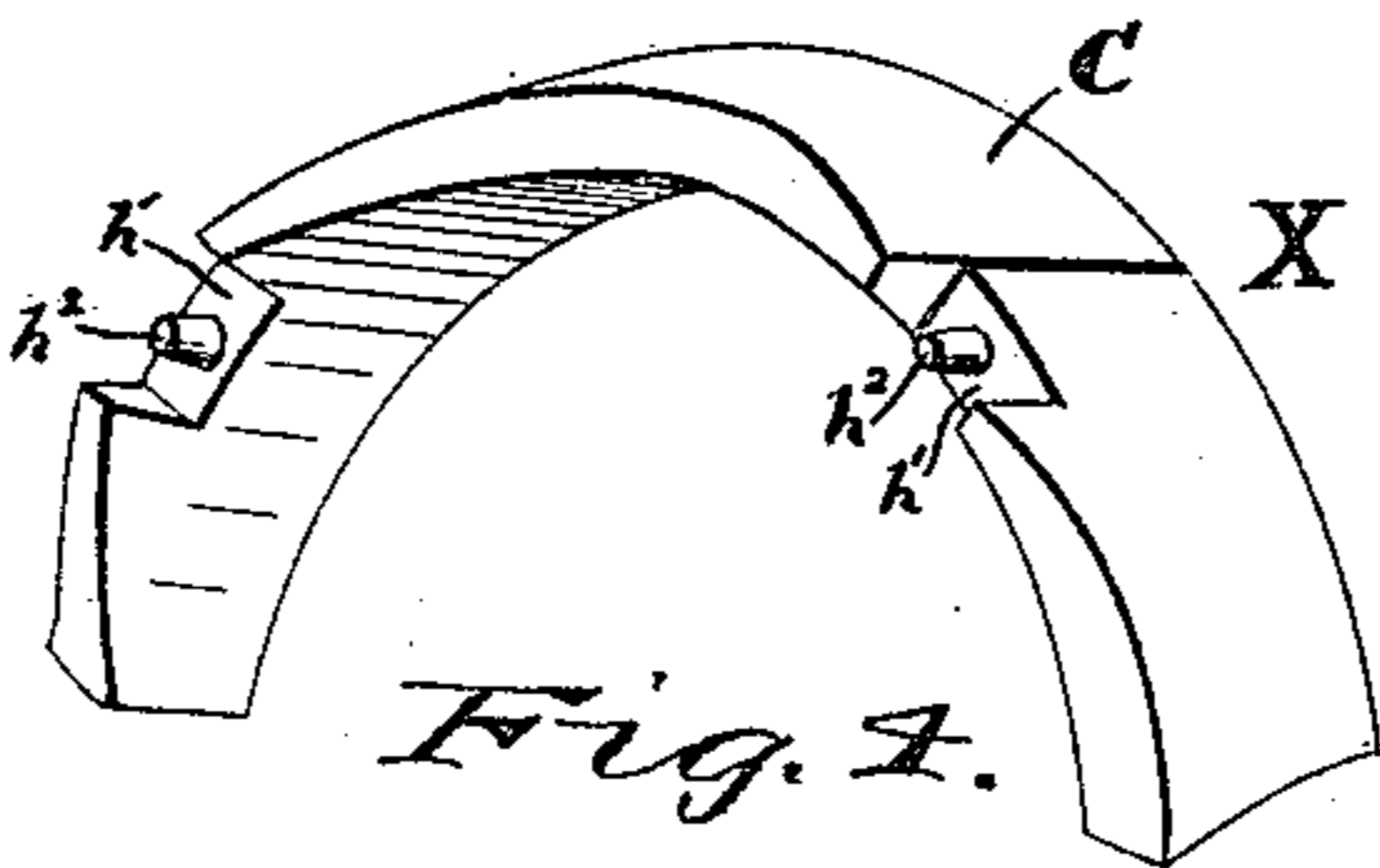


Fig. 4.

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## COMBINED FRICTION-CLUTCH AND SHAFT CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 441,254, dated November 25, 1890.

Application filed June 7, 1890. Serial No. 354,632. (No model.)

### *To all whom it may concern:*

Be it known that I, LEROY S. PFOUTS, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in a Combined Friction-Clutch and Shaft Cut-Off; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side view. Fig. 2 is an edge view of the disk-band, showing the band-pulley properly located and a side view of the operating-collar and its different parts. Fig. 3 is a section through Fig. 1. Fig. 4 is a detached view of a portion of the clamping-ring.

The present invention has relation to combine friction-clutch and shaft cut-off; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, A represents the disk, which is securely attached in any convenient and well-known manner to the shaft *a*. The periphery of the disk A is inclined substantially as shown in Fig. 3, and is so formed for the purpose hereinafter described.

The disk-band B is located around the disk A, and its diameter is somewhat larger than the diameter of said disk A, and its inner wall inclined, as illustrated in Fig. 3, thereby forming a wedge-shaped space between the outer periphery of the disk A and the inner wall of the disk-band B. The disk-band B is held in the desired position by means of the arms or spokes *b*, which arms or spokes are preferably formed integral with said disk-band and its hub *b'*. The clamping-ring C is wedge-shaped in cross-section, and is placed between the outer periphery of the disk A and the inner wall of the disk-band B.

To one edge of the disk-band B are pivotally attached the arms or levers D, which arms or levers extend inward, as illustrated

in Figs. 1 and 2. To the inner ends of these arms or levers D are pivotally connected the connecting-links *c*, the opposite ends of said links being pivotally connected to the levers E, which levers are fulcrumed to the arms *d*, said arms *d* being formed integral with the hub *b'*. To the outer ends of the levers E are pivotally attached the links or connecting-rods *e*, the opposite ends of said links being pivotally attached to the sliding collar *f*.

To the arms or levers D is connected the clamping-ring C, which connection is made at points near the pivotal connection of the arms or levers D to the disk-band B. The connection of the clamping-ring C to the arms or levers D may be made in any convenient manner, such as a screw-threaded aperture located in the narrow edge of said clamping-ring, which receives a screw-threaded portion of the connecting-bar *g*; or, if desired, said connecting-bar *g* may be attached by means of a hook which engages an eye attached to the narrow edge of said clamping-ring C. It will be understood that the manner of connecting the bar *g* to the clamping-ring C is immaterial.

For the purpose of adjusting the clamping-ring C to the arms or levers D, the ends of the connecting-bars *g*, which extend through and beyond the arms or levers D, are screw-threaded, which receives a corresponding screw-threaded nut *g'*.

For the purpose of permitting the clamping-ring C to contract as it is brought into contact with the outer periphery of the disk A and the inner wall of the disk-band B, said clamping-ring is severed, as illustrated at X, Fig. 4. This clamping-ring C is so formed that when released, as hereinafter described, it will expand. It will be understood that if the clamping-ring C was formed of an entire ring or band it would be liable to bind only upon one side as the diameter of said disk-band could not be varied by contraction or expansion. The band-pulley F is located around the disk-band B, and is securely attached to said disk-band by means of the spokes H. It will be understood that, if desired, the band-pulley can be dispensed with and the outer periphery of the disk-band be used as a belt-pulley; but I prefer in large-

sized pulleys to provide the band-pulley F, substantially as illustrated in the drawings.

In use, when it is desired to release the disk-band B and the band-pulley F, the sliding collar *f* is moved away or from the disk A by means of an ordinary yoke and lever, which is attached in the ordinary manner to the annular groove *h*, which causes the arms or levers D to be moved toward the disk A by means of the connecting-links *c*, the levers E, and the connecting-rods *e*, thereby forcing or crowding the clamping-ring C away from the sliding collar *f*; and when it is desired to cause the disk-band B and the band-pulley F to rotate with the disk A the sliding collar *f* is moved toward the disk A, which forces the clamping-ring C toward the sliding collar *f*, thereby wedging said clamping-ring between the disk A and the disk-band B.

For the purpose of assisting in holding the clamping-ring C in proper position, the notches *h'* and the pins *h<sup>2</sup>* are provided. The pins *h<sup>2</sup>* are received into the apertures *h<sup>3</sup>* and the spokes received into the notches *h'*, substantially as shown in Fig. 1. It will be understood that the pins *h<sup>2</sup>* move back and forth in the apertures *h<sup>3</sup>* as the clamping-ring C is moved back and forth.

For the purpose of cushioning the clamping-ring C, the springs *i* are provided and are located around the connecting-bar *g*.

For the purpose of adjusting the clamping-ring C in case the same should become worn from use, the screw-threaded nuts *g'* are provided.

In case it is desired to use my invention as a shaft cut-off, the hub *b'* is securely attached to the shaft *b<sup>2</sup>*, the end of the shaft *a* extending a short distance into the hub *b'*, substantially as shown in Fig. 3.

It will be understood that when my invention is to be applied only to a shaft cut-off that the band-pulley F can be dispensed with; but otherwise the clutching mechanism is the same as that used in the clutch proper, and is operated by the ordinary yoke and lever.

Having fully described my invention, what

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

1. The combination of the disk A, fixed to the shaft *a*, the disk-band B, located around said disk A, the clamping-ring C, located between the disk A and the disk-band B, the arms or levers D, pivotally connected to the disk-band B and having attached thereto the clamping-ring C, and means for operating the arms or levers D, substantially as and for the purpose specified.

2. The combination of the disk A, fixed to the shaft *a*, the disk-band B, located around said disk A, the clamping-ring C, located between the disk A and disk-band B, and severed as at X, the arms or levers D, pivotally connected to the disk-band B and having attached thereto the clamping-ring C, and means for operating the arms or levers D, substantially as and for the purpose specified.

3. The combination of the disk A, mounted on the shaft *a*, the disk-band B, the clamping-ring C, provided with the notches *h'* and the pins *h<sup>2</sup>*, the arms or spokes *b*, provided with the apertures *h<sup>3</sup>*, the arms or levers D, pivotally connected to the disk-band B, the connecting-bar *g*, the levers E, fulcrumed to the arms *d*, the hub *b'*, the connecting-links *c*, the connecting-rods *e*, and the sliding collar *f*, substantially as and for the purpose specified.

4. The combination of the disk A, fixed to the shaft *a*, the clamping-ring C, the disk-band B, the arms or levers D, pivotally attached to the disk-band B, the connecting-bars *g*, the springs *i*, and the nuts *g'*, substantially as and for the purpose specified.

5. The combination of the clamping-ring C, provided with the notches *h'* and the pins *h<sup>2</sup>*, and the disk-band B, having the spokes *b*, provided with the apertures *h<sup>3</sup>*, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LEROY S. PFOUTS.

Witnesses:

E. A. C. SMITH,  
F. W. BOND.