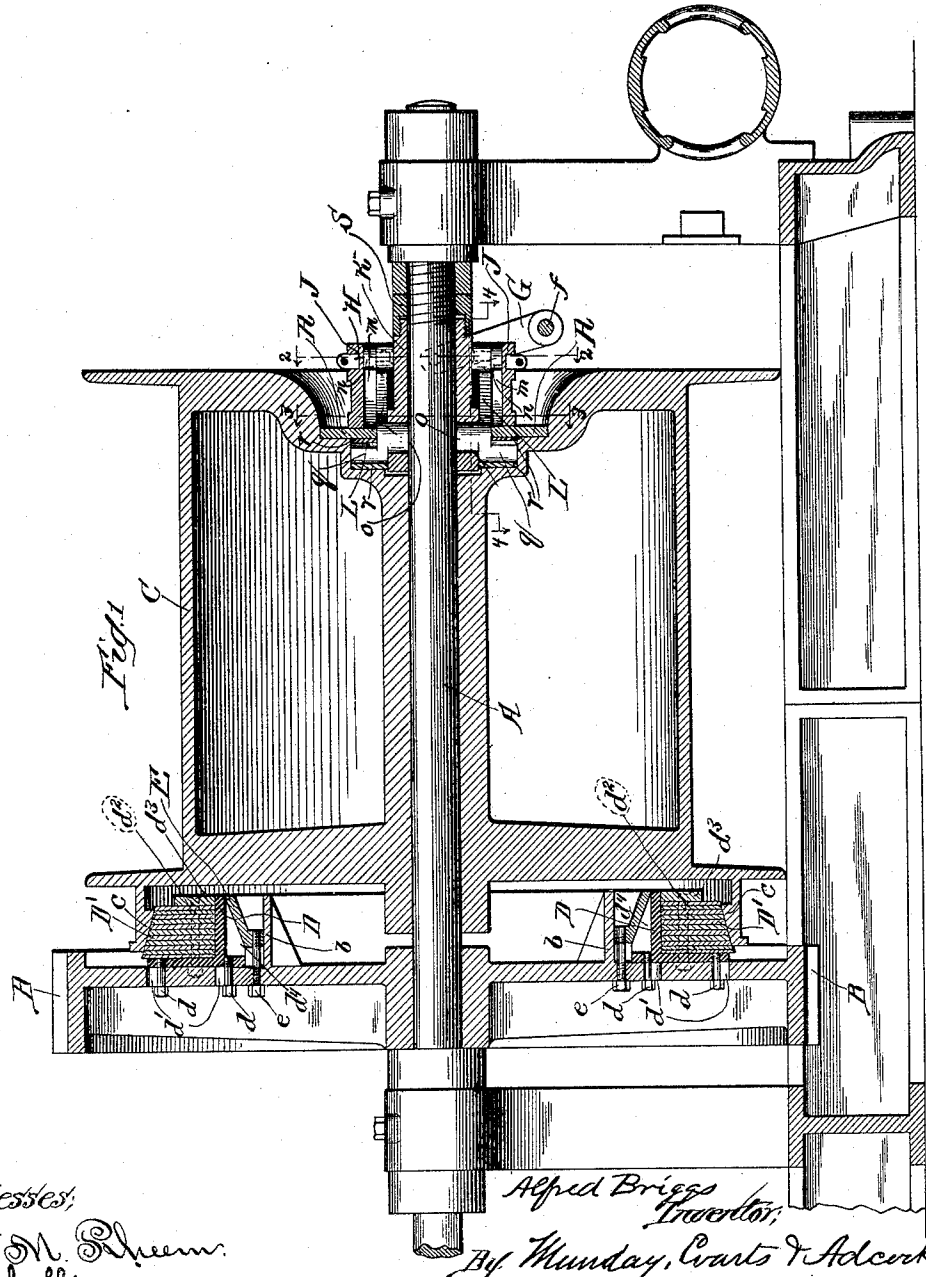
(No Model.) 3 Sheets—Sheet 1.

A. BRIGGS.

FRICTION CLUTCH.

No. 487,245. Patented Dec. 6, 1892.



Witnesses:
Wm. M. Sheem.
Wm. F. Fleming.

Alfred Briggs
Inventor;
By Munday, Evarts & Adcock
His Attys.

(No Model.) 3 Sheets—Sheet 2.

A. BRIGGS.

FRICTION CLUTCH.

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Fig. 2.

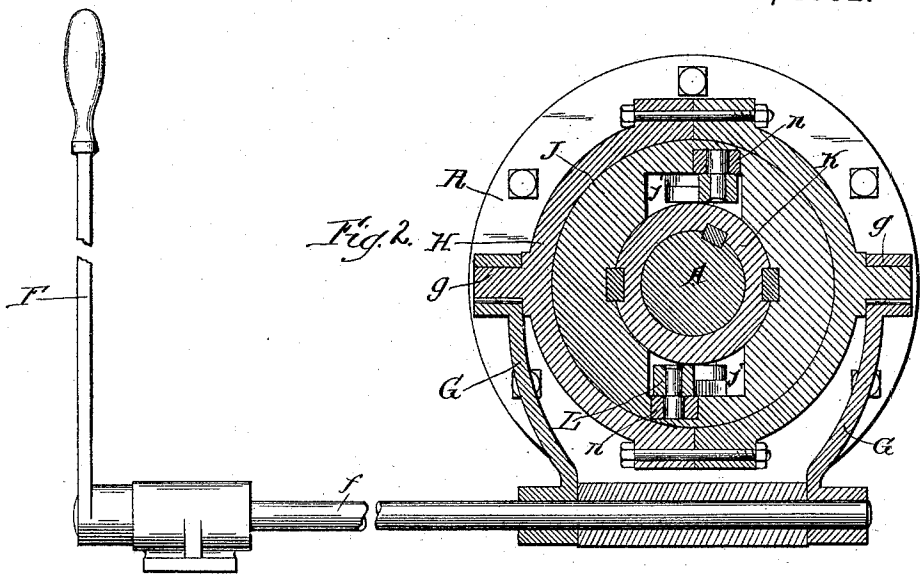


Fig. 3.

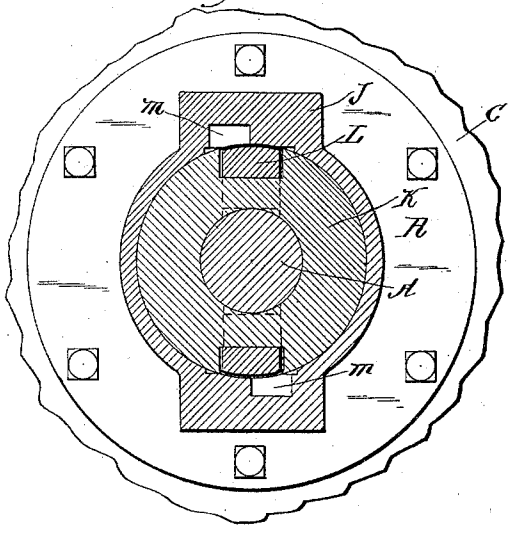


Fig. 4.

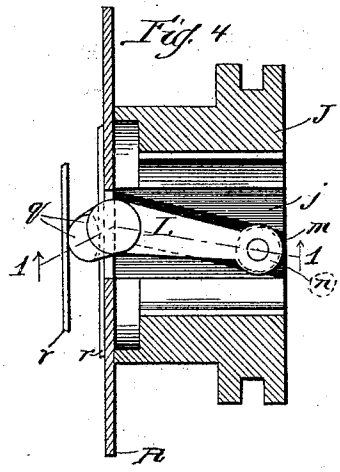
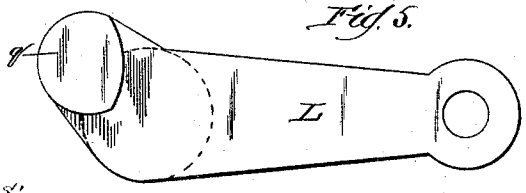


Fig. 5.



Witnesses:
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(No Model.) 3 Sheets—Sheet 3.

A. BRIGGS.

FRICTION CLUTCH.

No. 487,245. Patented Dec. 6, 1892.

Fig. 6

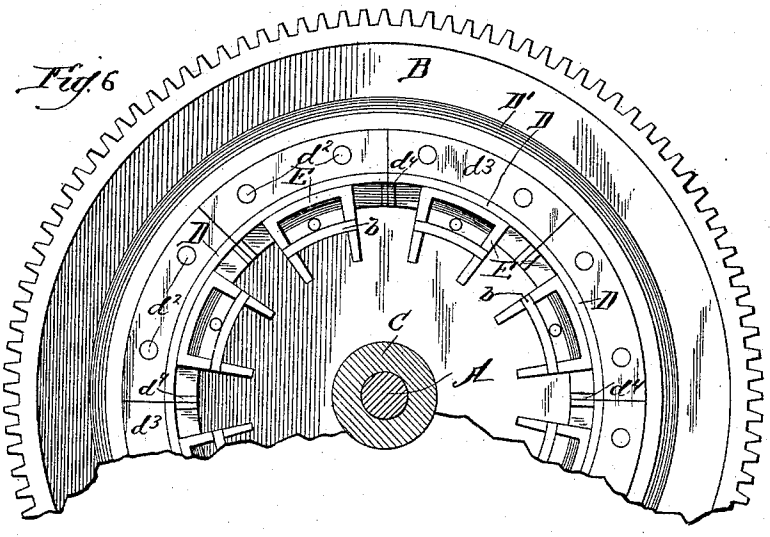


Fig. 7.

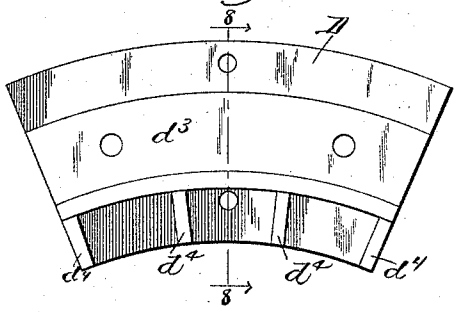


Fig. 8.

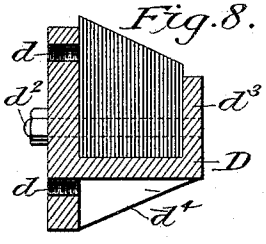


Fig. 9.

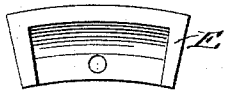
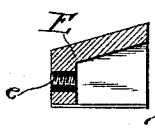


Fig. 10.



Witnesses;
Wm. M. Rheem.
Wm. F. Fleming

Alfred Briggs Inventor;
By Munday, Evarts & Adcock
his Attys.

UNITED STATES PATENT OFFICE.

ALFRED BRIGGS, OF OTTUMWA, IOWA, ASSIGNOR TO HIMSELF AND JAMES T. HACKWORTH.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 487,245, dated December 6, 1892.

Application filed July 23, 1892. Serial No. 440,974. (No model.)

To all whom it may concern:

Be it known that I, ALFRED BRIGGS, a citizen of the United States, residing at Ottumwa, in the county of Wapello, in the State of Iowa, have invented a new and useful Improvement in Friction-Clutches, of which the following is a specification.

This invention relates to the construction of friction-clutches suitable to operate drums, pulleys, gear-wheels, couplings, &c. It is here shown as applied to the winding-drum of a hoisting engine.

One feature of the invention relates to the means for actuating the sliding half of the clutch.

Another feature relates to the construction of the friction-exerting parts of the clutch.

The nature of the invention is fully explained below and set forth in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal vertical section of the invention. Fig. 2 is a cross-section on the line 2 2 of Fig. 1. Fig. 3 is a cross-section on line 3 3 of Fig. 1. Fig. 4 is a partial longitudinal section on line 4 4 of Fig. 1. Fig. 5 is a detail view of one of the rocking levers employed to slide the movable side of the clutch. Fig. 6 is a partial elevation of the side face of the segmental friction-wheel. Fig. 7 is an elevation of one of the adjustable segments in which the friction material is supported. Fig. 8 is a section of the segment on the line 8 8 of Fig. 7, showing the friction material in place. Fig. 9 is a front view, and Fig. 10 a section, of one of the wedges for adjusting the segments.

In the drawings, A may represent the shaft carrying the clutch; B, the wheel forming the driving part of the clutch, and C the other or driven part thereof. The latter is illustrated as being the winding-drum of a hoisting-engine. It may, however, be simply a pulley, a gear, or any other rotatable device adapted to receive its motion from a clutch of this kind.

Upon the web or side of wheel or gear B is a series of L-shaped segments D, attached to the wheel by screws d, passing through elongated openings d' in the wheel. Each of these segments D is provided with a friction-exerting block D′, of paper, leather, wood, rubber, or other suitable material, properly secured in place in the segments. I have illustrated the friction-block as being formed of a number of thicknesses of friction-paper suitably shaped and held together and to the segments by bolts d^2 and ring-segments d^3 and presenting their edges for wear.

The segments D are all adjustable to permit the taking up of the wear upon the blocks D′. A desirable construction by which this is accomplished is illustrated, and consists of the wedges E, interposed between the segments and a flange b, formed upon the side of the wheel B and movable laterally relative to the wheel, and adjusting-screws e passing through the web of the wheel and into engagement with the wedges. The segments have ribs d^4 with inclined faces, those in the center of the segments being adapted to bear upon the wedges and to coact therewith in effecting the adjustments.

Opposed to the friction-surfaces of the wheel is the rim c upon the drum C, having a friction surface inclined to correspond to the inclination of the surfaces D′. The drum is rotated with the wheel B whenever it is moved over toward the wheel, so as to bring about active contact between the surfaces D′ and the rim c, as will be understood.

The shifting of the drum or other sliding half of the clutch is effected by the following mechanism: A handle or lever F is secured to a rock-shaft f and enables the attendant to oscillate arms G, mounted on said shaft and encircling trunnions g, formed upon a non-rotating ring H, which encircles and is confined in an annular recess formed in the outer surface of a sleeve J. The latter surrounds and has freedom to slide upon a second or interior sleeve K and is also splined to the latter so as to rotate therewith. Sleeve K is fast upon the main shaft A. Upon opposite sides of sleeve J are recesses j, each adapted to give room to a rocking lever L, and at the side of each of the recesses j there is formed in the metal of sleeve J a longitudinal inclined groove m, in which groove the rollers n upon the ends of the levers are inserted. The levers L rock upon the centers o, which pass through opposite sides of and find bearings in

sleeve K. Projecting from levers L beyond the centers *o* are acting short arms *q*, which are confined between the body of the drum, and a disk or ring R, bolted to the drum, bearing-pieces *r* being preferably interposed between the short arms and the drum and disk.

The operation of the mechanism described for causing the sliding of the movable side of the clutch is as follows: When the attendant moves the lever F, he rocks the shaft *f*. This causes an oscillating movement by the arms G and a sliding movement by the ring H and sleeve J. The sliding of the latter, owing to the engagement of the rollers *n* in the inclined grooves *m*, insures a rocking of the levers L and a consequent change of position by the short arms *q*. In this change the short arms move the sliding part of the clutch either into engagement with the stationary part B or away therefrom, according to the direction in which the attendant moves lever F. In this movement the construction is such as to allow the exertion of great pressure by the application of a slight force to the hand-lever. The sleeve K is preferably adjustable upon shaft A by the nut S. This permits it to be moved toward wheel B, so as to vary somewhat the normal position of the sliding part of the clutch and take up any slight wear not more conveniently or better provided for by adjusting the segments of wheel B.

I claim—

1. A friction-clutch comprising a stationary part and a movable part, one of which is provided with friction-blocks D′, supported in segments D, which are independently adjustable for taking up wear, substantially as specified.

2. The friction-clutch comprising a movable and a stationary part, one of which is provided with friction-blocks supported in adjustable segments D and with wedges E for effecting the adjustment, substantially as specified.

3. The combination, in a friction-clutch, of a series of L-shaped segments D, friction-blocks D′, composed of friction-exerting material confined in said segments by bolts, and means for adjusting said segments to take up the wear upon the friction-blocks, substantially as specified.

4. In the friction-clutch, the combination of wheel B, provided with adjustable segments D, friction-block D′, and means for adjusting said segments, with the sliding part of the clutch provided with a friction-surface *c*, and means for moving the sliding part into and out of engagement, substantially as specified.

5. The combination, with the moving part of a clutch, of a sliding sleeve, means for imparting the sliding movement to said sleeve, rocking levers L, carrying rollers engaging with inclined longitudinal grooves in said sleeve and provided with short arms engaging with and adapted to move the sliding part of the clutch, and an interior sleeve K, in which said levers have bearings, substantially as specified.

6. The combination, with the moving part of a clutch, of a sliding sleeve, means for imparting the sliding movement to said sleeve, rocking lever L, located in said sleeve and carrying rollers engaging with inclined longitudinal grooves in said sleeve and provided with short arms engaging with and adapted to move the sliding part of the clutch, and an interior sleeve K, in which said levers have bearings, substantially as specified.

7. As a means for actuating the sliding part of a clutch, the combination, with such part, of rocking levers L, located at opposite sides of the supporting-shaft and nearly parallel therewith, and a sliding sleeve having inclined grooves engaging with and adapted to rock said levers, said levers having short arms engaging with the sliding part of the clutch, substantially as specified.

8. In a friction-clutch, a sleeve recessed to receive one or more levers and having an inclined groove or grooves, in combination with a rocking lever or levers L and a second sleeve in which said lever or levers are centered, substantially as specified.

9. The rocking levers L, having short arms projecting beyond their centers and engaging with the sliding part of the clutch, in combination with a sleeve having inclined grooves engaging with the swinging ends of the levers, substantially as specified.

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Witnesses
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