(No Model.) 2 Sheets—Sheet 1.

T. C. KENNEY.

FRICTION CLUTCH.

No. 419,958. Patented Jan. 21, 1890.

Fig. 1.

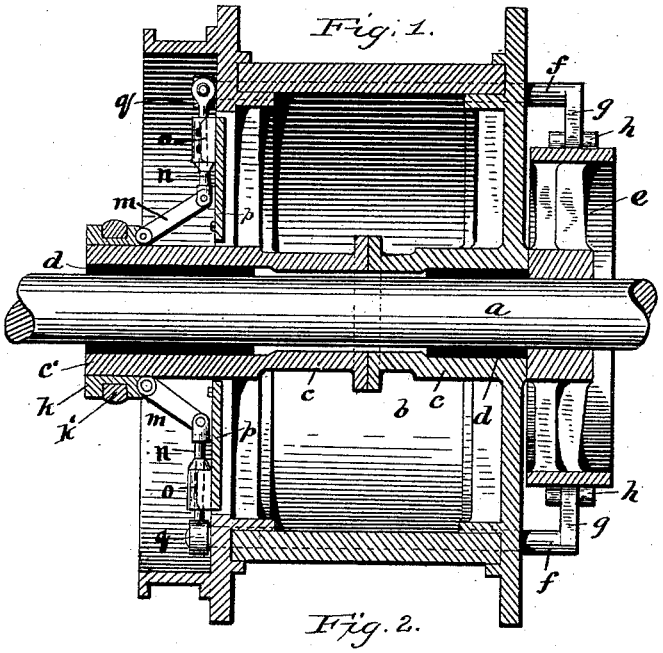
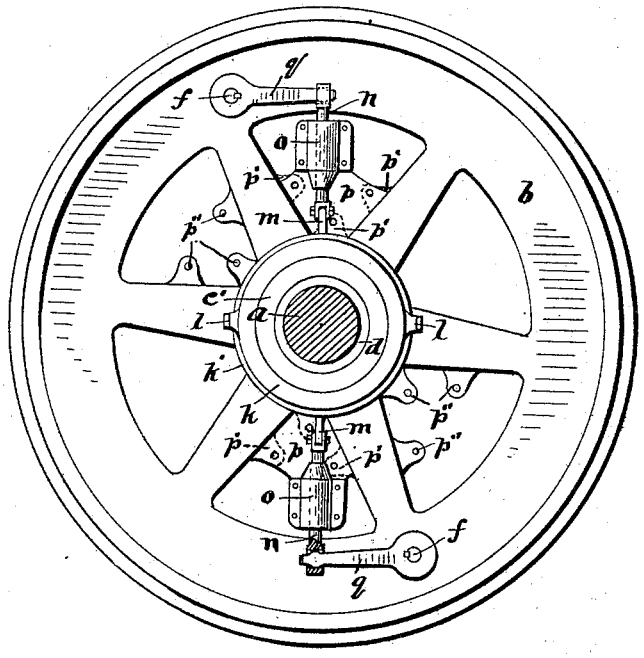


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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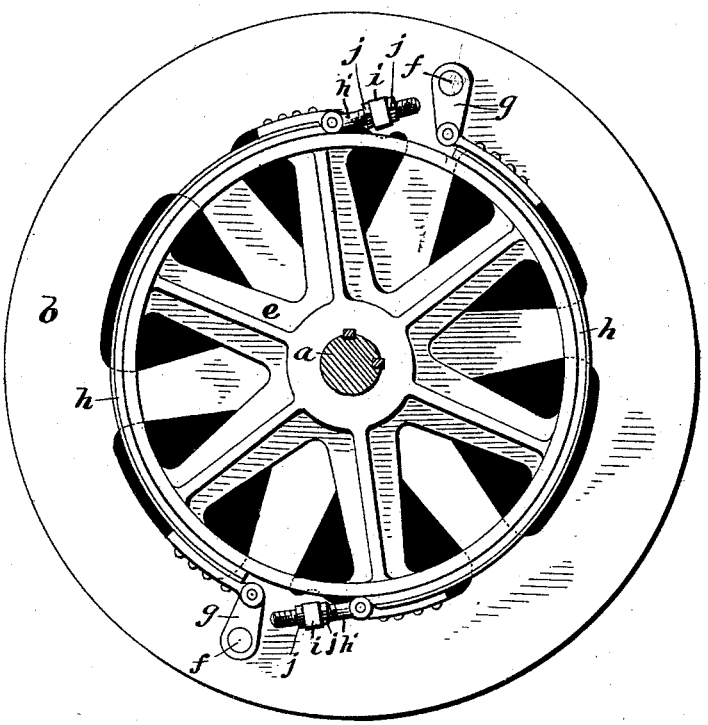
Fig. 3.



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UNITED STATES PATENT OFFICE.

THEODORE C. KENNEY, OF SCOTTDALE, PENNSYLVANIA.

FRICTION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 419,958, dated January 21, 1890.

Application filed November 6, 1889. Serial No. 329,402. (No model.)

To all whom it may concern:

Be it known that I, THEODORE C. KENNEY, a citizen of the United States, residing at Scottdale, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Friction-Clutches, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a vertical sectional view of the improved clutch mechanism applied to a winding or hoisting drum; Fig. 2, an end view of the same, and Fig. 3 a view of the opposite end of the drum.

This invention has relation to certain new and useful improvements upon that class of friction-clutches employed on hoisting or winding drums wherein are used two or more clutch or friction bands, which are operated at the will of the operator, to cause the drum to revolve with the main shaft, as will more fully hereinafter appear.

The essential object of this invention is to improve and simplify the general construction of this class of clutches, whereby the best results are obtained and the wear upon the parts reduced to a minimum, as will presently appear.

In the drawings, *a* designates the main shaft, which may be geared with and operated by any suitable mechanism. Loosely journaled upon this shaft is a winding-drum *b*, which is preferably constructed of two cast sections bolted together at the point where their inwardly-projecting hubs *c* meet, as shown in Fig. 1. To prevent undue wear of the winding-drum, the hub of the same is slightly enlarged at its ends to receive wearing-sleeves *d* of some hard metal, these sleeves serving to prevent the drum proper from coming in contact with the shaft. Keyed rigidly to the shaft in close proximity to one end of the drum is a friction-wheel *e*. Journaled in the drum at diametrically-opposite points and outside of the periphery of the friction-wheel are two rock-shafts *f*, which extend from one end of the drum to the other, and on their ends nearer the friction-wheel are provided with inwardly-directed crank-arms *g*. The inner ends of these arms are pivotally connected to semicircular friction-bands *h*, provided with renewable wearing-surfaces and adapted to impinge against the periphery of the friction-wheel when the clutch is applied. The other ends of these bands are pivotally connected to screws *h'*, tapped in lugs *i*, secured to the adjacent ends of the drum. By means of these screws it will be observed that the bands may be readily adjusted with respect to the periphery of the band-wheel to compensate for wear, jam-nuts *j j* being provided upon opposite sides of the lug for the purpose of holding the screws in their adjusted positions. The hub of the drum opposite the friction-wheel is provided with an extension *c'*, upon which is placed a sliding ring *k*, provided with a peripheral groove for the reception of a band *k'*, which latter is provided with oppositely-projecting pins *l* for the attachment of a suitable forked operating-lever. Pivotally connected to the ring *k* at diametrically-opposite points are the pivotal links *m*, pivotally connected at their outer ends to radially-arranged reciprocating rods *n*, which latter are adapted to slide in two-part boxes *o*, removably bolted to the adjacent end of the drum. These boxes *o* are bolted to plates *p*, which are in turn bolted to ears *p'*, formed integral with the radial arms or spokes of the drum. The outer ends of the rods *n* are slotted for the reception of the rounded ends of crank-arms *q*, keyed upon the projecting ends of the rock-shaft.

It occasionally becomes necessary to revolve the drum and shaft in the opposite direction to that for which it is adapted when it leaves the shop. In order that the friction-bands will properly grip the friction-wheel when the direction of rotation of the drum is thus reversed, it is necessary to shift the crank-arms *q* on the rock-shafts to points about diametrically opposite to that which they occupy in the drawings, which may be done by removing their securing-keys. In order that the boxes *o* and rods *n* may be shifted over in lines with the ends of the crank-arms, I form on the spokes of the drum a duplicate set of perforated ears *p''* for the securing-bolts of the plates *p*, as shown in Fig. 2.

When it is desired to cause the drum to rotate with the shaft, the sliding ring *k* is moved against the end of the drum, whereupon the rods *n* will be forced out in a radial direction, simultaneously rocking the shafts *f* in

opposite directions and drawing the friction-bands forcibly against the periphery of the friction-wheel.

A very important feature of this invention consists in mounting all the mechanism, except the friction-wheel, upon the drum, whereby when the drum is at a standstill there will be absolutely no wear upon either the ring *k* or its band *k'*, rendering the whole apparatus more durable and practical. This advantage is of great importance, inasmuch as the shaft is kept revolving continuously in this class of hoisting-machines, while the drum is at a standstill the greater part of the time. Even when the drum is revolving the contacting-surfaces between the ring *k* and its band *k'* are the only parts that will be subjected to a wearing action.

A serious defect in this class of machines has been that the ring and band soon become so worn as to require renewal; but my arrangement remedies this defect and produces a device that is eminently practical in all respects.

Having thus fully described my invention, what I claim, and desire to secure, is—

1. The combination, with the shaft and friction-wheel secured thereto, of the drum mounted loosely upon the shaft and provided with a hub-extension *c'*, a sliding ring on this extension, a strap fitted in a groove in this ring, the two rock-shafts journaled in the drum at points outside of the periphery of the said friction-wheel, these shafts being provided with crank-arms upon both ends, friction-bands pivotally connected at one of their ends to the crank-arms on the rock-shaft and at their other ends to the friction-drum, and rods and links connecting the crank-arms on the other ends of the rock-shaft to the sliding ring, substantially as and for the purpose described.

2. The combination, with the shaft and friction-wheel secured thereto, of the loosely-mounted drum provided with an extension *c'* at one end, a sliding ring upon this extension, a strap in a peripheral groove in this ring, friction-bands, and means for connecting the friction-bands to the sliding ring, substantially as and for the purpose described.

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

THEODORE C. KENNEY.

Witnesses:

H. R. FRANCIS,

JOHN RUTHERFORD.