

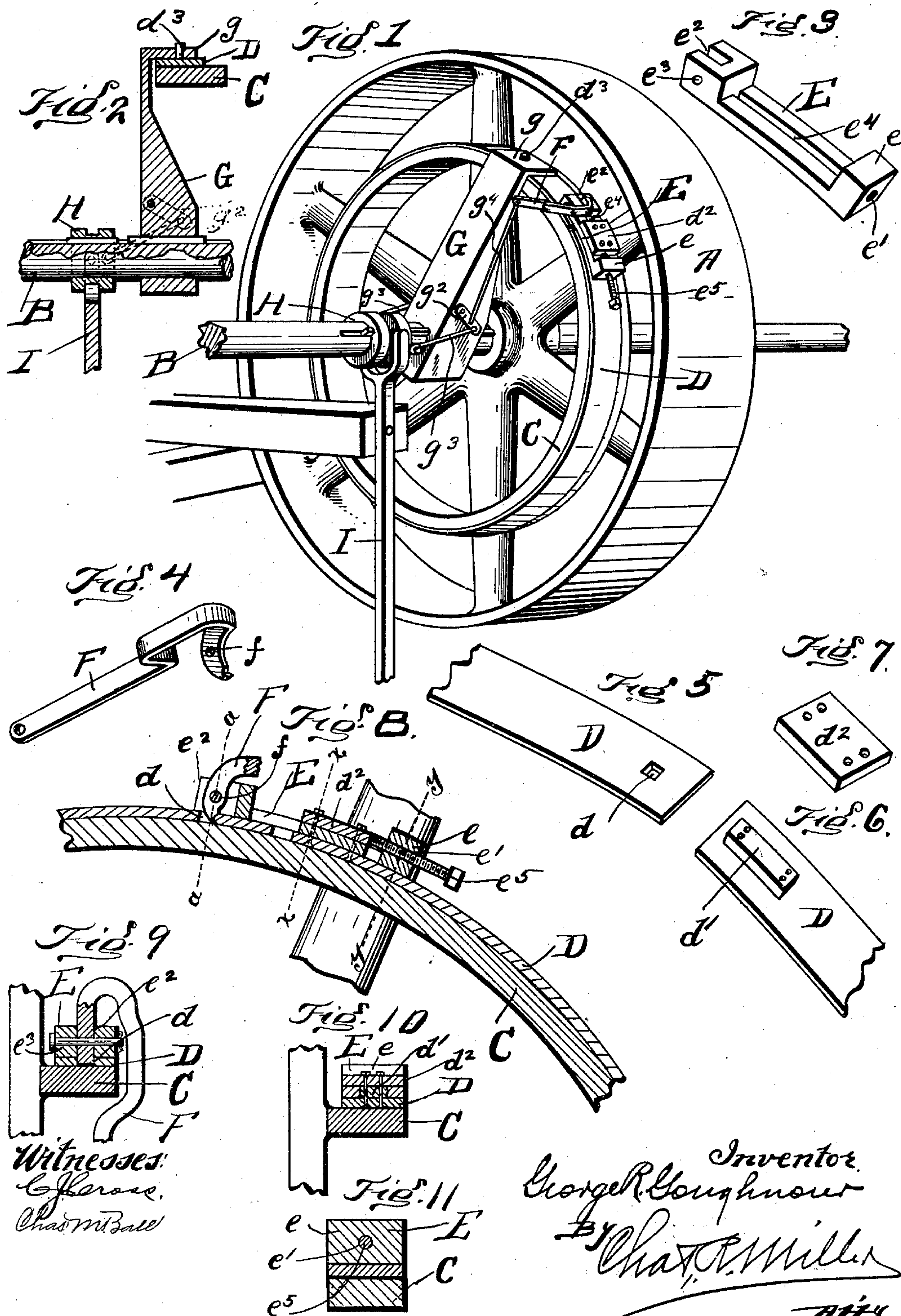
No. 679,744.

Patented Aug. 6, 1901.

G. R. GOUGHNOUR.
CLUTCH.

(Application filed Dec. 6, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

GEORGE R. GOUGHNOUR, OF MIDDLEBRANCH, OHIO, ASSIGNOR OF ONE-HALF TO EZEKIEL DAVIDSON, OF CANTON, OHIO.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 679,744, dated August 6, 1901.

Application filed December 6, 1900. Serial No. 38,860. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. GOUGHNOUR, a citizen of the United States, residing at Middlebranch, in the county of Stark and State of Ohio, have invented new and useful Improvements in Clutches, of which the following is a specification.

My invention relates to improvements in clutches; and it consists in providing an adjustable gripping-band to engage a cylindrical rim or flange upon a revolving drum or pulley and a driver keyed upon the shaft and engaging the gripping-band and means for holding the band in position upon the flange of the revolving drum or pulley and engaging the same therewith, as will be hereinafter more fully described and claimed.

In the accompanying drawings similar letters of reference refer to similar parts.

Figure 1 is a perspective view of my invention. Fig. 2 is a sectional view through the shaft and driver. Fig. 3 is a perspective view of the coupling-block by which the ends of the gripping-band are coupled. Fig. 4 is a perspective view of the operating-lever. Fig. 5 is a perspective view of one end of the gripping-band. Fig. 6 is a perspective view of the opposite end of the gripping-band. Fig. 7 is a perspective view of the retaining-block by means of which the coupling-block illustrated in Fig. 3 is held in engagement with the end of the gripping-band. Fig. 8 is a longitudinal sectional view through the coupling-block and gripping-band. Fig. 9 is a sectional view through *aa*. Fig. 10 is a sectional view through the line *XX*. Fig. 11 is a sectional view through the line *YY*.

The driving-pulley or idler A is loosely mounted on the shaft B, which may be journaled in any of the well-known ways. Projecting from and attached to the spokes of the driving-pulley there is provided the annular flange C, which may be either cast integral with the driving-pulley or attached thereto. Carried upon the annular flange C, I provide a gripping-band D, which is made of metal and may be provided on its inner side with a friction-band of any desired material. The ends of the gripping-band do not meet, and a small space intervenes between the ends. In one end there is provided a square aperture or opening *d*. On the other end and securely en-

gaging the same there is provided a rectangular metal block *d'*, which engages the coupling-block E, which consists of a metal bar having at one end a projecting lug *e*, provided with a screw-threaded aperture *e'*, and at the other the slotted projecting lug *e*², provided with a circular aperture *e*³, extending therethrough. Between the projecting lug *e* and *e*² there is provided the slotted aperture *e*⁴, equal in width to the block *d'* upon the end of the gripping-band, over which it is adapted to slide and to be held in position by the retaining-block *d*², which is securely bolted to and through the end of the gripping-band and the block *d'*. The operating-lever F is adapted to be mounted in the slotted projecting flange *e*² in the coupling-block E and is held in engagement therewith by means of a pin or bolt passing through the aperture *e*³ and a corresponding aperture *f* in the forward end of the operating-lever. The forward end of the operating-lever is adapted to and does engage with the square aperture *d* in the end of the gripping-band. In the screw-threaded aperture *e'* in the projecting flange *e* of the coupling-block E, I provide a screw-threaded adjusting-bolt *e*⁵, the inner end of which impinges against the retaining-block *d*² and by means of which the distance between the ends of the retaining-band may be adjusted. The driver G is adapted to have a keyed engagement with the driving-shaft B and is provided at its upper end with a projecting arm or flange *g*, which engages with a pin *d*³, projecting from or through the gripping-band D. Upon the shaft B there is provided a sliding collar H, which has a splined engagement with the shaft and is operated by means of the hand-lever I, which may be of any of the well-known forms. Mounted upon the driver G there is provided the pivotal link *g*², which is connected to or with the sliding collar H by means of the link *g*³ and to the operating lever F by means of the link *g*⁴.

In operation the hand-lever is moved forward, carrying backward the sliding collar, which in turn communicates the motion to the operating-lever F, drawing the same down and forcing the ends of the gripping-band together, thus engaging tightly the gripping-band with the annular flange, and the motion of the shaft is imparted to the driving-pulley

A. To reverse the operation, the hand-lever is moved in the opposite direction. The operating-lever causes the end of the gripping-band to be released, and the gripping-band is thus disengaged from the annular flange, and the driving-pulley remains stationary. In case it is desired to adjust the ends of the gripping-band in their relation to each other and to the pressure which they shall exert upon the annular flange the adjusting-bolt ^e can be moved forward or backward, thus producing the desired result.

I am aware that friction or gripping bands have heretofore been employed to engage with annular flanges mounted upon driving-pulleys; but they have never heretofore extended clear around said flange and have been either formed of two parts or when of a single piece have been spaced apart, so as to lose a large portion of the gripping power, and have been operated by means of the well-known toggle-lever and other complicated appliances, by means of which a large portion of the gripping-power of the band was lost and complicated appliances were necessary to operate the mechanism.

There may be various modifications of the form of the device which I have shown without departing from the spirit of my invention, which consists, primarily, in providing practically a continuous friction-band adapted to be mounted upon and engage with an annular-projecting flange of the drive-wheel and means for contracting and expanding the same, as herein shown and described.

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

1. The combination in a friction-clutch, of a loose pulley provided with a projecting cylindrical flange, with a metallic gripping-band

embracing the outer surface of the flange and carried by the driving member, an adjustable coupling-block carried on the ends of the band, and means for expanding and contracting said band, substantially as described and for the purpose set forth.

2. The combination in a friction-clutch, of a loose pulley mounted upon a shaft and provided with a projecting cylindrical flange, with a metallic gripping-band extending around the outer surface of the flange, and carried by the driving member, an adjustable coupling-block carried on the ends of the band, an operating-lever mounted on the coupling-block, and means for operating the same, substantially as described and for the purpose set forth.

3. A friction-clutch consisting of a loose pulley mounted upon a shaft and provided with a projecting cylindrical flange, a metallic gripping-band extending around substantially the entire outer surface of said flange, an adjusting coupling-block carried upon and uniting the ends of the band, an operating-lever pivotally mounted in one end of the coupling-block, and engaging one end of the band, a driving-arm keyed to the shaft and engaging the gripping-band, a sliding collar mounted upon the shaft, a hand-lever engaging the collar, and a linked connection between the collar and the operating-lever, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE R. GOUGHNOUR.

Witnesses:

E. A. DAVIDSON,
CHAS. R. MILLER.