

No. 655,132.

Patented July 31, 1900.

E. TOOLE.
FRICTION CLUTCH.

(Application filed Mar. 19, 1900.)

(No Model.)

Fig. 2.

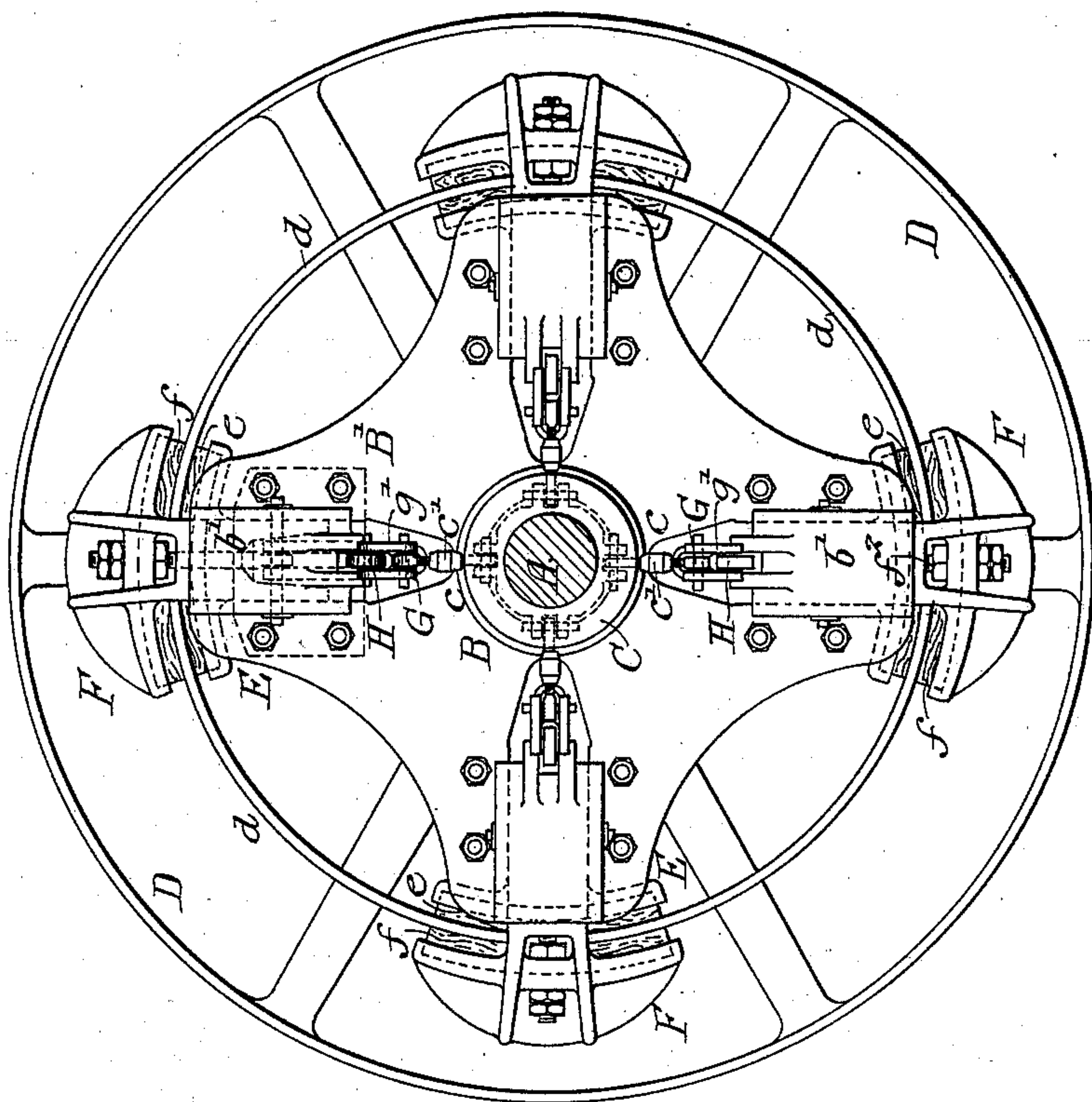
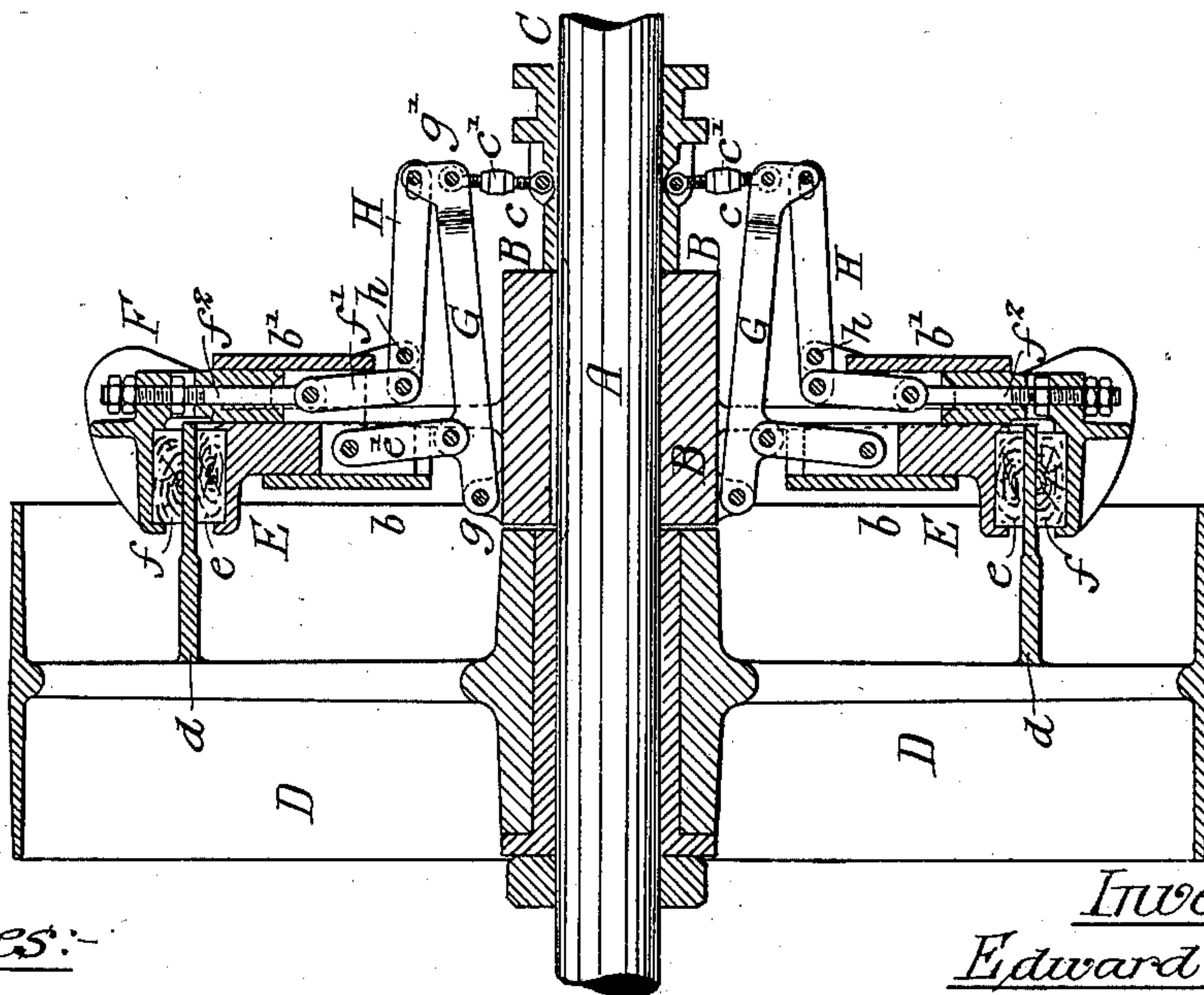


Fig. 1.



Witnesses:-

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by His Attorneys:-

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UNITED STATES PATENT OFFICE.

EDWARD TOOLE, OF GLOUCESTER CITY, NEW JERSEY, ASSIGNOR OF ONE-HALF TO WILLIAM F. BOKUM, OF PHILADELPHIA, PENNSYLVANIA.

FRICITION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 655,132, dated July 31, 1900.

Application filed March 19, 1900. Serial No. 9,245. (No model.)

To all whom it may concern:

Be it known that I, EDWARD TOOLE, a citizen of the United States, residing at Gloucester City, Camden county, New Jersey, have
5 invented certain Improvements in Friction-Clutches, of which the following is a specification.

My invention relates to certain improvements in jaw friction-clutches, in which a
10 clutch-rim is held between a series of jaws which are actuated by lever mechanism.

The object of my invention is to so construct a clutch of this character that a positive and firm grip can be had upon the clutch-
15 rim, to provide means for adjusting each clutch-shoe, to dispense with the use of springs, and to so proportion the parts that the jaws will be released through centrifugal force after the first movement of the releasing mechanism.
20

In the accompanying drawings, Figure 1 is a sectional view of my improved clutch, showing the jaws in engagement with the rims; and Fig. 2 is a view looking in the direction
25 of the arrow, Fig. 1.

A is a driven shaft. Splined to this shaft is a hub B.

C is a sliding clutch-sleeve.

D is a pulley loose on the shaft. On the
30 pulley D is an annular clutch-rim *d*. Projecting from the hub B in the present instance are four arms *B'*, carrying bearings *b* and *b'*. Adapted to each bearing *b* is a sliding jaw E, which presses against the inner periphery of the clutch-rim. Adapted to each bearing *b'*
35 is a jaw F. This jaw is L-shaped and presses upon the periphery of the clutch-rim, so that the rim is held between the two jaws E and F. The jaw E is provided with a detachable bearing-block *e*, and the jaw F is provided
40 with a detachable bearing-block *f*. These blocks are preferably made of wood, although they may be made of any material suitable for the purpose.

45 Fulcrumed at *g* to the hub B are levers G. Each lever is connected by a link *e'* to the jaw E and connected at its outer end to the sliding sleeve C by a link *c*. I provide these links *c* with turnbuckles *c'*, so that they can
50 be lengthened or shortened, as desired. Any

suitable lever mechanism may be used to shift the sleeve C on the shaft to clutch or release the pulley.

Pivoted at *h* to each arm *B'* of the hub B is a lever H, connected by a link *f'* to the jaw
55 F. In the present instance the link is connected to a screw-bolt *f''*, passing through the jaw and having nuts by which the jaw can be adjusted independently of the jaw E. The outer end of the lever H is preferably slotted,
60 and adapted to the slot is a pin carried by a short arm *g'* of the lever G, so that when the sleeve C is moved toward the hub B it forces the jaws E out against the rim, and at the same time presses the jaws F in toward the
65 rim, so that the rim is confined between the two jaws. When the sleeve is moved out, so as to disengage the pulley, the first movement of the sleeve will cause the jaws E to move in and the jaws F to move out. It will be
70 noticed that the jaws F are much heavier than the jaws E. Consequently as soon as the jaws E are released the jaws F will be thrown out by centrifugal force, and as these jaws are connected to the jaws E by the levers
75 the jaws E will be moved at once away from the rim. By this construction objectionable springs are avoided and the construction of the clutch simplified.

The pulley may be driven from the shaft
80 A through the clutch mechanism, or the pulley may be the driver and the shaft the driven element, and I may also use a different form of pulley without departing from my invention, and in some instances it may be a clutch-
85 hub adapted to an independent shaft, which may be driven or may act as the driver.

I claim as my invention—

1. The combination of a shaft, a pulley, a clutch-rim on the pulley, a hub on the shaft,
90 arms carried by said hub, bearings in said arms, inner and outer jaws carried by the bearings and engaging the clutch-rim, levers pivoted to the hub and connected to the inner jaws, an operating-sleeve connected to the
95 outer end of said levers, and a second set of levers pivoted to the arms and connected to the outer jaws and to the other set of levers, so that the two sets of jaws will act in unison, substantially as described.

2. The combination of a shaft, a pulley, a clutch-rim on the pulley, a hub on the shaft, arms carried by said hub, bearings in said arms, inner and outer jaws adapted to the bearings and to engage the clutch-rim, levers 5 pivoted to the hub and connected to the inner jaws, an operating-sleeve connected to the outer end of said levers, a second set of levers pivoted to the arms and connected to the 10 outer jaws and to the other set of levers, so that the two sets of jaws will act in unison, and means for adjusting the outer set of jaws independently of the inner set, substantially as described.

15 3. The combination of a shaft, a hub on the shaft, arms on the hub, boxes on the arms, inner and outer jaws adapted to slide in the boxes, a rim with which the jaws engage, a lever G pivoted to the hub, a link connecting 20 the lever with the inner jaws, an operating-sleeve, a link connecting the operating-sleeve with the lever, a pivoted lever, a link connecting the pivoted lever with the outer jaw, said lever being connected to the first-mentioned 25 lever, so that when the sleeve is moved the

inner and outer jaws will move in unison to clutch the rim, substantially as described.

4. The combination in a friction-clutch, of a shaft, a pulley, a clutch-rim on the pulley, a hub on the shaft, arms carried by and being 30 integral with said hubs, guides on said arms, outer and inner jaws constructed to engage said clutch-rim and movable in said guides in a plane at right angles to the shaft, a lever having the fulcrum at one end with 35 a link connecting same with the inner jaws, and a lever with the fulcrum away from the ends and links connecting same with the outer jaws, said levers being connected at one end, a sliding clutch-sleeve and adjustable links 40 connecting said sleeve with the said lever ends.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD TOOLE.

Witnesses:

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