

No. 705,273.

Patented July 22, 1902.

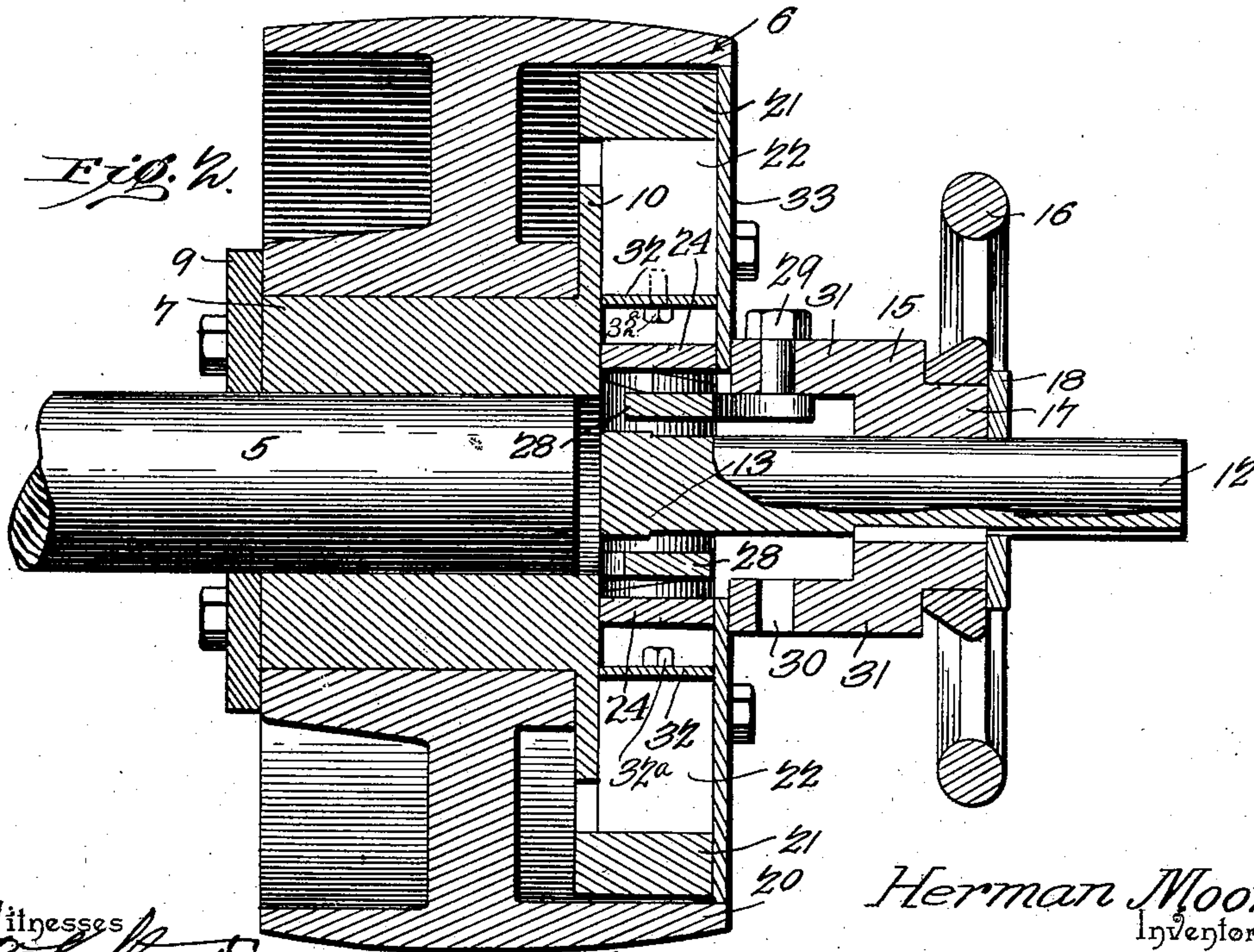
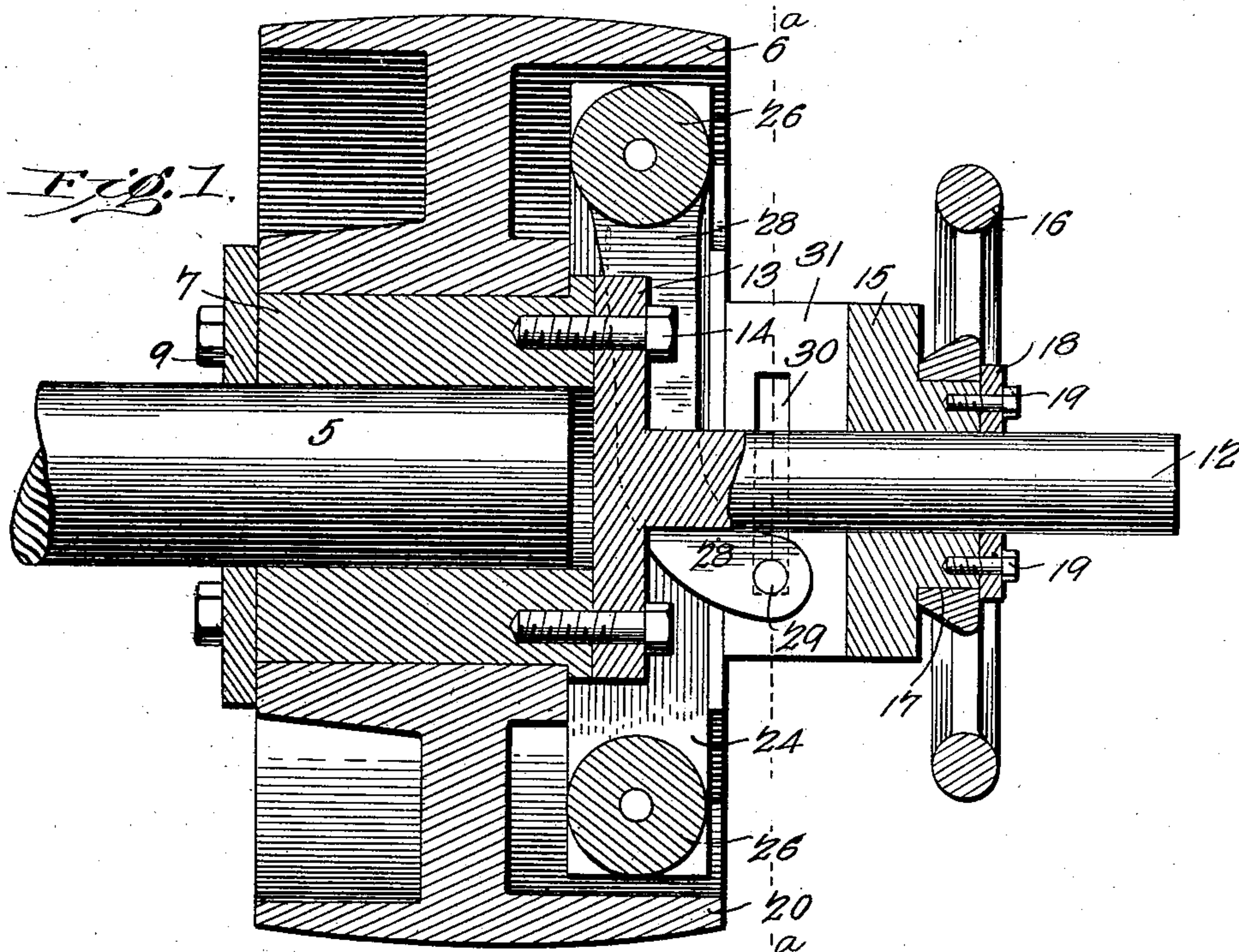
H. MOON.

CLUTCH.

(Application filed Dec. 31, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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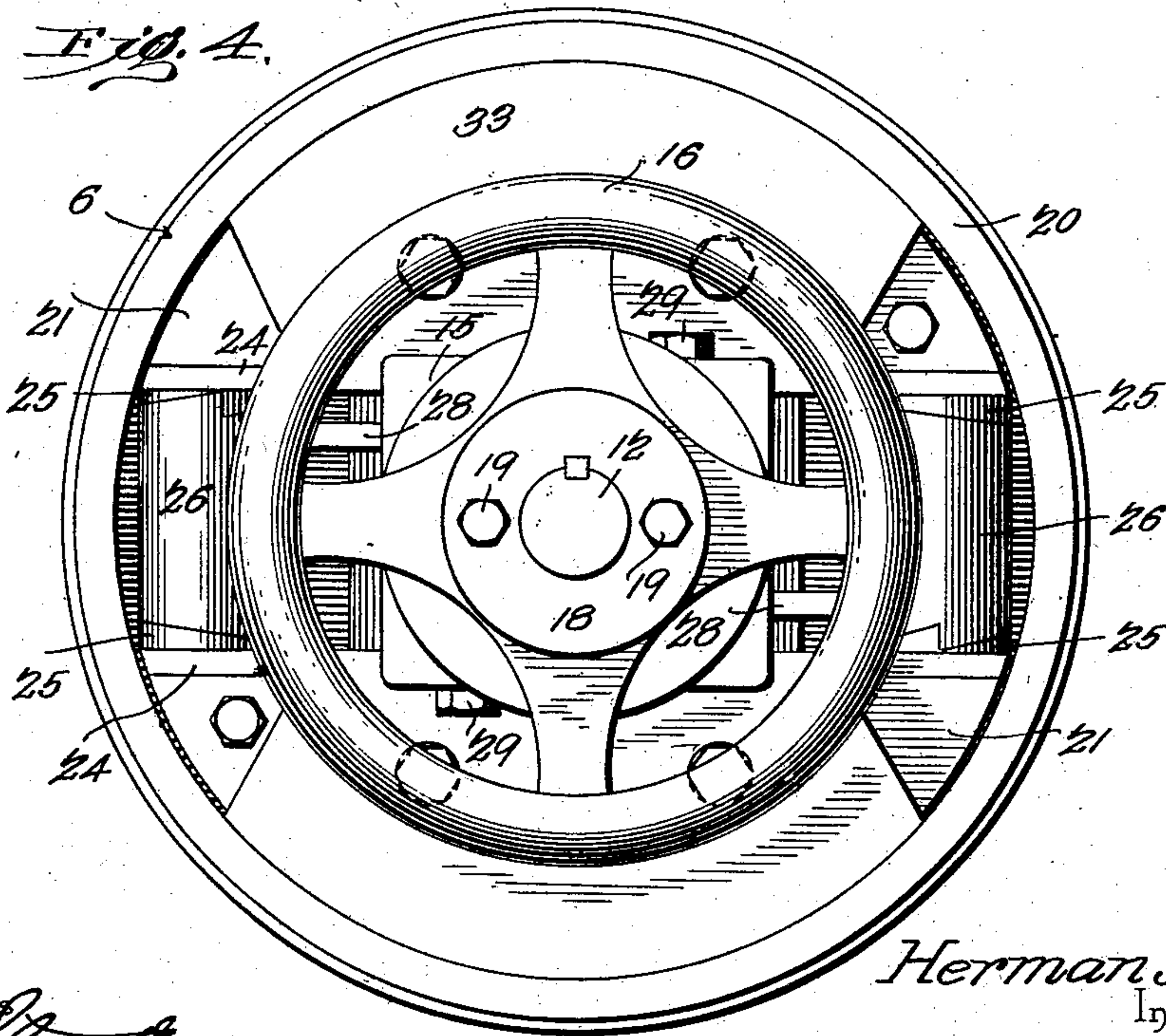
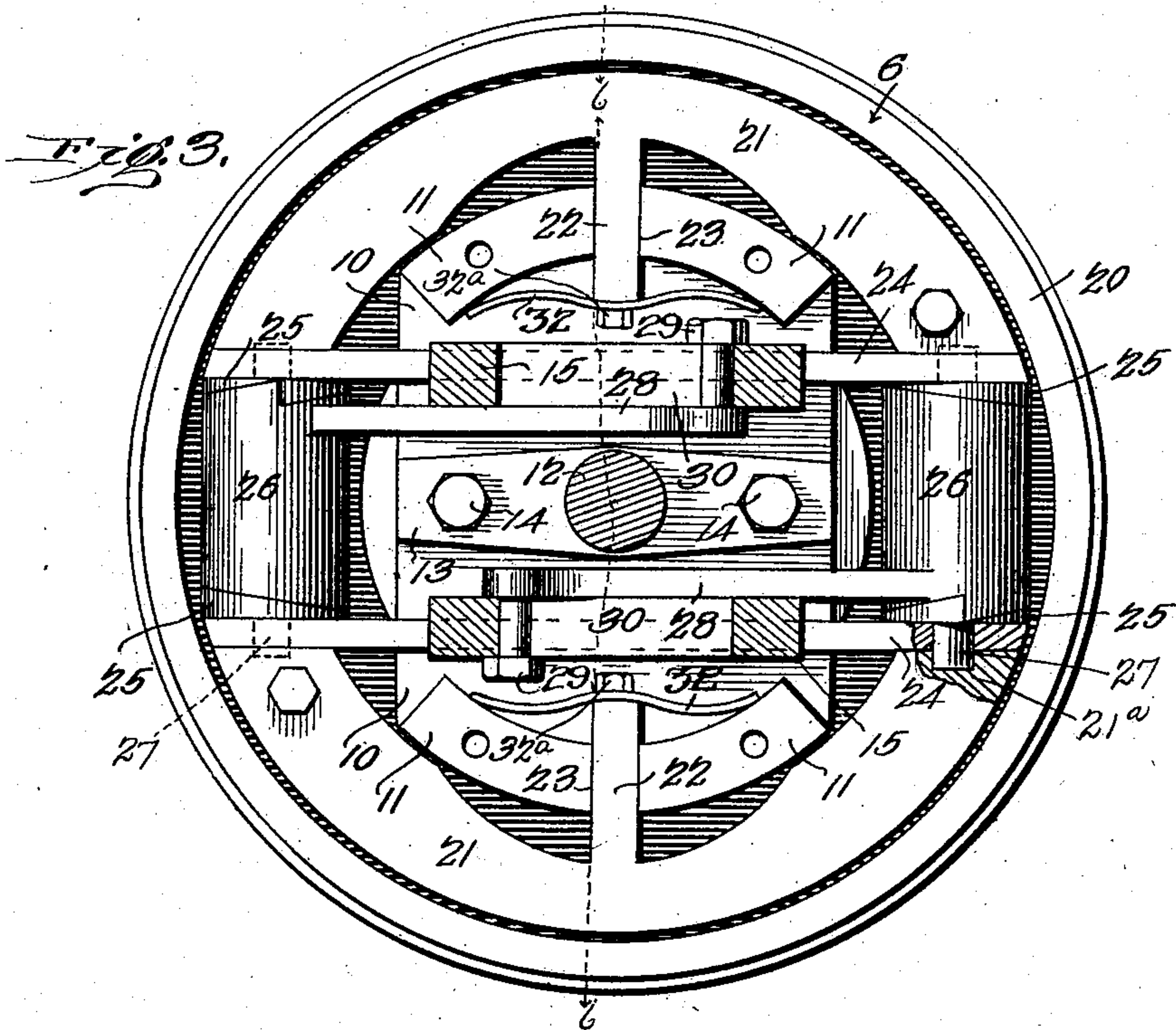
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

HERMAN MOON, OF GROVE CITY, PENNSYLVANIA.

CLUTCH.

SPECIFICATION forming part of Letters Patent No. 705,273, dated July 22, 1902.

Application filed December 31, 1901. Serial No. 87,904. (No model.)

To all whom it may concern:

Be it known that I, HERMAN MOON, a citizen of the United States, residing at Grove City, in the county of Mercer and State of Pennsylvania, have invented a new and useful Clutch, of which the following is a specification.

My invention is an improved friction-clutch for clutching the normally idle pulley to a revoluble shaft when it is desired to cause the pulley to rotate with the shaft; and it consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of my improved clutch. Fig. 2 is a similar view of the same, taken on a plane at right angles to that of Fig. 1 and indicated by the line 6 6 of Fig. 3. Fig. 3 is a sectional view of the same, taken on a plane indicated by the line *a a* of Fig. 1. Fig. 4 is a front end elevation of my improved clutch.

To the power-shaft 5 is secured a sleeve 7, on which is loosely mounted an idler or pulley 6. The pulley is held from displacement longitudinally in one direction by means of a collar 9, which is here shown as bolted to one end of the sleeve. At the opposite end of the sleeve is formed a web 10, which is provided on its outer face, at diametrically opposite points, with arc-shaped flanges 11. A longitudinal spindle 12, the axis of which is common to that of the power-shaft 5, has a cross-bar 13 at its inner end, which is bolted, as at 14, to the outer end of the sleeve 7 or otherwise secured to the said sleeve. A head 15 is here shown as splined to the said spindle 12, so that said head is caused to rotate with said spindle and is adapted to slide longitudinally thereon. A hand-wheel 16 is revoluble on a bearing 17, formed at the outer end of said head, and is here shown as secured against longitudinal movement thereon by a collar 18, which is bolted to the outer end of said head, as at 19. The pulley 6 has an annular friction-flange 20 on its front side.

A pair of radially-movable segmental friction-jaws 21 are disposed within the flange 20 and are provided on their inner sides, at their centers, with inwardly-extending arms 22, which operate in slots 23, with which the

flanges 11 are provided. The ends of each segmental friction-jaw 21 are connected together by a bar 24, the said bars being parallel with each other, as shown in Fig. 3. The said bars are formed on their inner sides, at their ends, with cams 25, and between the said cams of the said respective bars are disposed cams 26. The latter are adapted to oscillate on axle-pins 27, which extend through openings near the ends of the said bars and the ends of which play in sockets 21^a, with which the jaws 21 are provided.

It will be observed by reference to the drawings that the cams 26 in coaction with the cams 25 form wedges, which upon the oscillation of the said cams 26 on the axle-pins 27 move the jaws 21 in opposite directions toward and from each other, so that by turning the said cams 26 in the appropriate direction the said jaws may be engaged with the flange 20 of the idle pulley 6 or disengaged therefrom. The said cams 26 are provided with inwardly-extending arms 28, the inner ends of which are curved forwardly, as shown in Fig. 1. Tappets 29 are provided for the inner ends of the said arms 28, which tappets are here shown as projecting outwardly from said arms and as operating in slots 30, which are formed in flanges 31 on the rear side of the head 15. Springs 32 are here shown bearing against the flanges 11 and secured by bolts 32^a to the inner ends of the arms 22, the function of the said springs being to draw the jaws 21 normally toward each other to release the jaws 21 from the flange 20 of the idler-pulley 6.

Inasmuch as the hand-wheel is revoluble on and independently of the longitudinal head 15, the said wheel may be grasped to move the said head 15 on the spindle to clutch or unclutch the pulley 6. When the said head is moved inwardly on the spindle, the said pulley is unclutched, and said pulley is clutched with the shaft 5 when the said head is moved outwardly on the said spindle by means of the hand-wheel, as will be understood.

Cover-plates 33 are here shown as bolted on the flanges 11 to cover said flanges, the springs, and the radially-movable friction-jaws.

The pulley and power shaft here shown are

independently-revoluble elements, the one being the driven and the other the driving element. Within the scope of my invention either of said elements may be provided with the friction ring or flange, and the movable jaws to engage said ring or flange, and thereby lock said elements together, may be carried by the other. The cams which expand said jaws may be of any suitable form, and the head, which is axially movable with respect to and revoluble with one of said elements, may be connected by any suitable means to said cams to cause the latter to be operated by the axial movement of said head.

The power-applying element, here shown as the hand-wheel 16, may be of any suitable construction, and the same may be in any suitable manner connected to the said axially-movable head.

A lever may be substituted for the hand-wheel, if desired.

Other modifications may be made without departing from the spirit of my invention as the same is defined by the appended claims.

Having thus described my invention, I claim—

1. The combination of a power-shaft, a sleeve secured thereon, a pulley loose on the said sleeve, and having an annular friction-flange, a spindle projecting outwardly from said sleeve, radially-movable friction-jaws adapted to engage the said pulley to clutch the same to said shaft, supports for the said jaws with which the said sleeve is provided, cams to move said jaws laterally, said cams having operating-arms, a head revoluble with and longitudinally movable on said spindle, connections between the said head and said operating-arms, and an operating element loose on the said head and revoluble independently thereof, substantially as described.

2. The combination of a power-shaft, a sleeve secured thereon, a pulley loose on the said sleeve and having an annular friction-flange, a spindle projecting from said sleeve, guides with which the latter is provided, radially-movable friction-jaws adapted to engage said flange of said pulley, said jaws having supporting elements engaging said guides, bars connected to the said friction-jaws, axles connecting the said friction-jaws together and disposed at the ends of said bars, oscillating cams on said axle, coacting cams with which

the said bars are provided, a sliding head on said spindle and revoluble therewith, connections between the said sliding head and said oscillating cams, and means to operate the said sliding head, substantially as described.

3. The combination of a power-shaft, a sleeve secured thereon, a pulley loose on said sleeve and having an annular friction-flange, a spindle projecting from said sleeve, radially-movable friction-jaws, adapted to engage said flange of said pulley, and provided with cam elements, guides and supports for said jaws, carried by said sleeve, oscillating cams mounted between said jaws and having operating-arms, said oscillating cams and said cam elements of said jaws coacting, a head revoluble with and adapted to slide on said spindle, said head being connected to said oscillating cam-arms, and an operating element, loose on said head, to move the same longitudinally on said spindle, substantially as described.

4. The combination of a power-shaft, a loose pulley carried thereby and having a friction-flange, jaws having supports revoluble with the shaft, cams to move the jaws into contact with the friction-flange, a longitudinally-movable head, revoluble with the shaft, connections between the head and the cams whereby the latter may be operated, and means carried by and revoluble independently of the head to move the latter longitudinally of the shaft, and thereby operate said cams and jaws, substantially as described.

5. The combination of a shaft, a head mounted for movement longitudinally of the shaft and for revolution therewith, a loose pulley having a friction-flange, jaws and cams to move them into contact with said friction-flange, said jaws and cams revolving with the head and said cams being connected to the latter for operation thereby, and means, connected to and revoluble independently of the head, to move the latter longitudinally of the shaft and thereby operate said cams and jaws, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HERMAN MOON.

Witnesses:

C. F. LAWRENCE,
F. V. PALMER.