

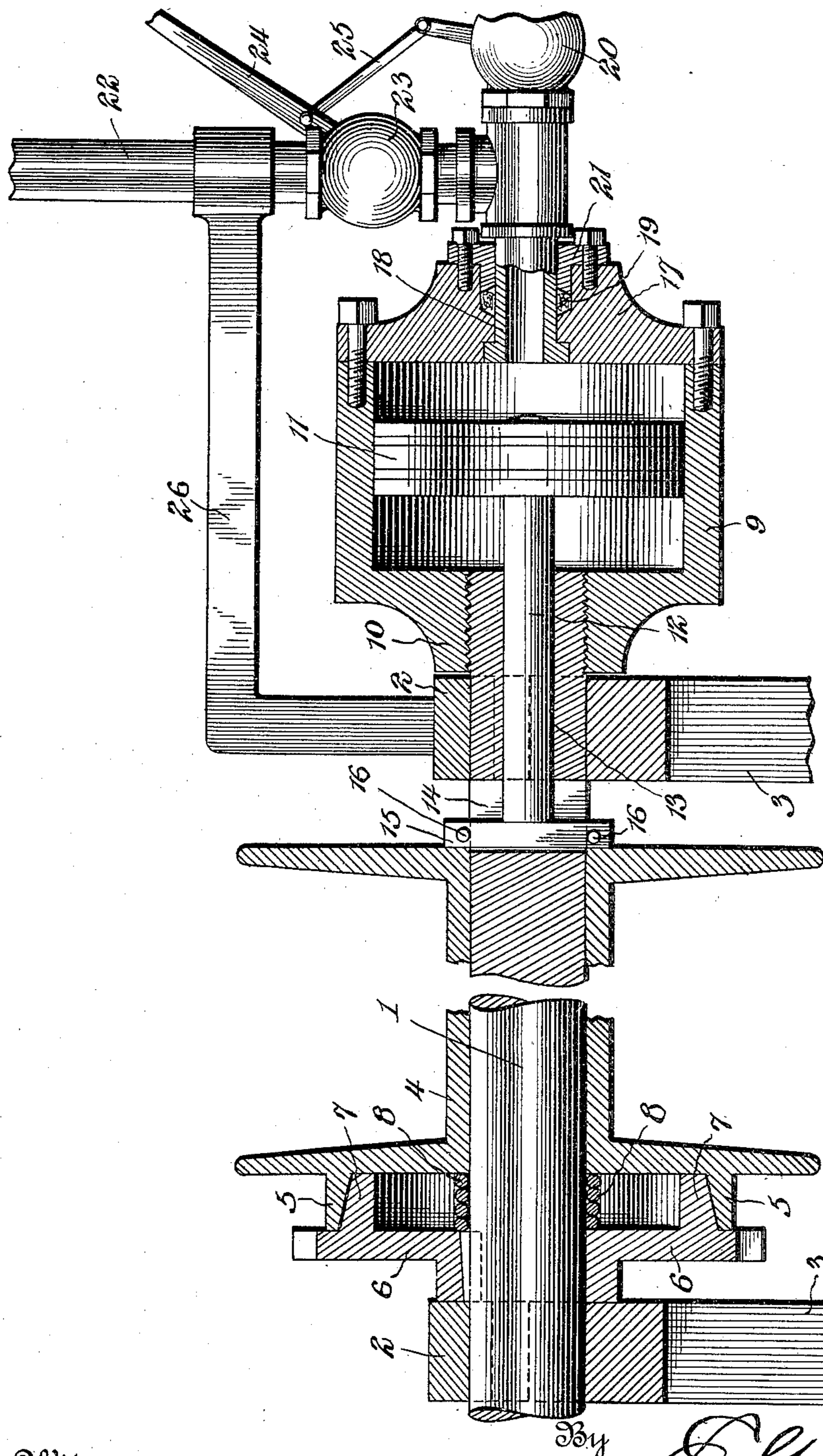
No. 701,287.

Patented June 3, 1902.

G. M. BROUS.
STARTING OR STOPPING MECHANISM.

(Application filed Sept. 20, 1901.)

(No Model.)



George M. Brous.
Inventor:

Witnesses
Howard W. Orr.
H. J. Shepard

E. J. Siggers

Attorney

UNITED STATES PATENT OFFICE.

GEORGE M. BROUS, OF HOULTON, OREGON.

STARTING OR STOPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 701,287, dated June 3, 1902.

Application filed September 20, 1901. Serial No. 75,775. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. BROUS, a citizen of the United States, residing at Houlton, in the county of Columbia and State of Oregon, have invented a new and useful Starting or Stopping Mechanism, of which the following is a specification.

This invention relates to means for starting and stopping a driven element, and is particularly designed for controlling the drum of a winding apparatus, so as to move the drum into and out of engagement with the driving element. It is furthermore designed to employ fluid-pressure for shifting the drum, so as to insure a positive and effective interlocking engagement between the drum and the driving member and also to provide for a quick engagement and disengagement of the drum.

A final object resides in arranging the invention so as to be conveniently coupled to any ordinary engine—as, for instance, the usual type of donkey-engine commonly employed in connection with hoisting apparatus.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawing, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing there has been shown a sectional elevation embodying the present invention applied in connection with the drum of a winding apparatus.

Referring to the accompanying drawing, 1 designates a shaft mounted in suitable bearings 2, carried by the supports 3, and upon this shaft there is loosely mounted an endwise-movable drum 4, which is provided upon one head with an outer circumferential flange 5, having an outwardly-flared inner surface. Adjacent to this flanged end of the drum there is provided a gear 6, which is mounted upon the shaft and is also provided upon its inner face with a cylindrical flange 7, having a beveled or inclined outer face correspond-

ing to the inclined inner face of the flange on the drum, the latter being adapted to be moved endwise, so as to bring the two flanges into engagement, and thereby form a friction-clutch to interlock the two members, of which the gear 6 is the driving member and the drum 4 is the driven member. It will be understood that power may be applied directly to the shaft or by means of gearing meshed with the drive-gear 6. A helical spring 8 embraces the shaft and bears in opposite directions against the gear 6 and the adjacent end of the drum, so as to force the latter away from and out of engagement with the gear when endwise pressure in the opposite direction has been removed from the drum.

To provide for moving the drum endwise into engagement with the driving-wheel, there is provided a cylinder 9, which has one end provided with an interiorly-screw-threaded boss or projection 10, which is fitted to the corresponding screw-threaded end of the shaft which is opposite the gear 6 and projects beyond the adjacent bearing 2, so as to fix the cylinder to the shaft. Within the cylinder there is mounted a piston 11, which has a piston-rod 12, working in a longitudinal bore 13, formed in the adjacent end of the shaft. Between the inner end of the piston rod or stem and the adjacent end of the drum a diametric slot 14 is formed through the shaft and is located between the drum and the adjacent bearing, and in this slot there is fitted a cross-head 15, which is adapted to slide in the slot and longitudinally of the shaft under the control of the piston-stem 13. To prevent endwise displacement of this head, opposite pins 16 are driven through the projected ends of the head, so as to lie externally of the shaft and across the opposite ends of the slot, thereby to provide stops for the head. The opposite end of the cylinder is provided with a removable head 17, having a central passage 18, in which is rotatably fitted a steam-pipe 19, that is provided in its outer end with a discharge-valve 20. A suitable stuffing-box 21 is employed to prevent the escape of steam between the pipe 19 and the head of the cylinder. A service-pipe is in communication with a suitable source of steam (not shown) and connects with the

pipe 19 at a point intermediate of the discharge-valve 20 and the cylinder. A controlling-valve 23 is provided for the steam-inlet pipe and is located adjacent to the pipe 19.

5 A controlling-lever 24 is provided for the valve 23 and has a link connection 25 with the valve 20, said connection being arranged to reversely operate the valves by the manipulation of the controlling-lever 24, so that when
10 the supply-valve is opened the discharge-valve is closed, and vice versa. For the support of the steam-supply pipe 22 there is provided an arm or bracket 26, which is carried by the adjacent support 3.

15 It will be understood that the cylinder 9 is fixed to and rotates with the shaft 1, while the pipe 19 is fixed, and thereby forms a bearing for the outer end of cylinder.

In the operation of the apparatus the controlling-valve 24 is manipulated to open the
20 valve 23 and close the valve 20, thereby supplying steam or other fluid-pressure to the cylinder and against the outer side of the piston 11, thereby forcing the latter inwardly,
25 and by means of the stem 13 and the head 15, which latter is forced into engagement with the drum, said drum is moved endwise into frictional engagement with the gear 6, so as to interlock the driving and driven members,
30 whereby rotation of the drum is effected. When it is desired to stop the forward rotation of the drum, the valve 24 is manipulated to cut off the supply of steam and to open the discharge-valve, thereby permitting the
35 steam in the cylinder to escape, whereby endwise pressure toward the driving member is removed from the drum and the latter is automatically moved out of engagement with the gear 6 by means of the expansion of the
40 helical spring 8, whereby the drum is free upon the shaft either to rotate loosely thereon or to come to a full stop.

Although no engine or other source of power has been shown in the drawing, it will
45 of course be understood that the present apparatus is to be driven by applying power directly to the shaft 1 or to the gear 6, it being particularly designed to employ the invention in the capacity of a hoisting device

and in connection with any ordinary type of donkey-engine. 50

What I claim is—

1. The combination with opposite bearings, of a shaft mounted thereon, a driving member carried by the shaft, an endwise-shiftable
55 drum mounted on the shaft in frictional operative relation to the driving member, a cylinder mounted upon one end of the shaft and exteriorly of the adjacent bearing, a piston working in the cylinder and having an oper-
60 ative connection with the drum to shift the same into engagement with the driving member, an inlet-pipe piercing the center of the outer head of the cylinder and forming a bearing therefor, and a supporting-bracket
65 carried by one of the bearings and connected to the supply-pipe to form a support therefor.

2. The combination with opposite bearings, of a rotatable shaft mounted thereon, a driving member carried by the shaft, an endwise-
70 shiftable drum loosely mounted upon the shaft in operative relation to the driving member, a cylinder carried by and rotatable with one end of the shaft and located outwardly from the adjacent bearing, a piston working
75 in the cylinder and in operative relation to the drum to shift the same into engagement with the driving member, a supply-pipe centrally piercing the outer head of the cylinder and forming a bearing therefor, an exhaust-
80 valve carried by the supply-pipe, a service-pipe communicating with the supply-pipe between the exhaust-valve and the cylinder, a controlling-valve upon the service-pipe, a controlling-lever having a link connection
85 between the two valves for simultaneously closing one and opening the other, and a bracket carried by the adjacent bearing and connected to the service-pipe to support the bearing for the outer end of the cylinder. 90

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

GEORGE M. BROUS.

Witnesses:

MARTIN WHITE,
W. A. HARRIS.