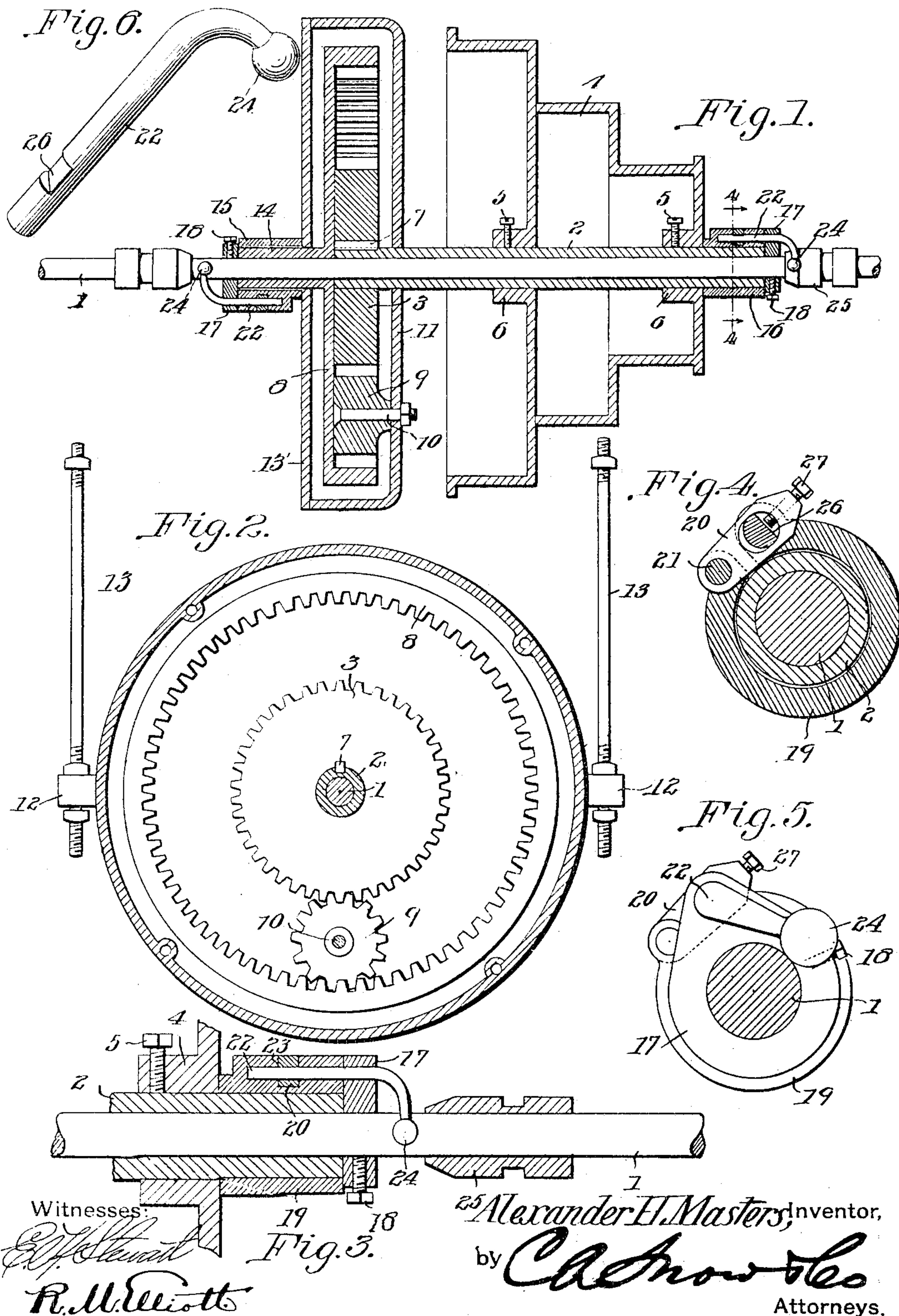


No. 798,689.

PATENTED SEPT. 5, 1905.

A. H. MASTERS.  
REVERSIBLE POWER TRANSMITTER.

APPLICATION FILED DEC. 10, 1904.





# UNITED STATES PATENT OFFICE.

ALEXANDER HAMILTON MASTERS, OF GREENSBORO, NORTH CAROLINA.

## REVERSIBLE POWER-TRANSMITTER.

No. 798,689.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed December 10, 1904. Serial No. 236,346.

*To all whom it may concern:*

Be it known that I, ALEXANDER HAMILTON MASTERS, a citizen of the United States, residing at Greensboro, in the county of Guilford and State of North Carolina, have invented a new and useful Reversible Power-Transmitter, of which the following is a specification.

This invention relates to reversible power-transmitters.

The object of the invention is to provide a novel and effective form of mechanism for securing instantaneous reverse motion of a driving-pulley at the will of the operator and also to provide means for driving machines direct from the line-shaft of a shop or factory in any direction desired regardless of the direction in which the shaft is moving.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a reversible power-transmitter, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in vertical transverse section through a power-transmitter constructed in accordance with the present invention. Fig. 2 is a face view showing more particularly the arrangement of the gearing. Fig. 3 is a sectional detail view, on an enlarged scale, showing one of the clutches by which locking of the pulley is effected. Fig. 4 is a sectional detail view, on an enlarged scale, taken on the line 4-4, Fig. 1, and looking in the direction of the arrow thereon. Fig. 5 is a view in end elevation of one of the clutches. Fig. 6 is a perspective detail view of one of the clutch-operating members.

Referring to the drawings, 1 designates a power-shaft, which may be either the line-shaft of a factory or a counter-shaft. Mounted upon the shaft is a sleeve 2, which carries a spur gear-wheel 3 and a cone-pulley 4, the latter being secured to the shaft by bolts 5, that pass through the hubs 6 of the pulley and bite into the shaft. The sleeve is loosely mounted upon the shaft, while the spur-gear is secured to the sleeve by means of a key 7 and rotates therewith. Loosely mounted upon the sleeve is an internally-gear wheel 8, the teeth of which are engaged by a pinion 9, mounted upon a stud 10, carried by a casing 11, in which the three gears 3, 8, and 9 are housed, the casing being provided with alined

lugs 12, through which pass adjustable suspending rods 13, adapted to be secured to a suitable overhead support. The casing, in addition to serving as a support for the pinion 9, may also be employed as an oil-reservoir if it be desired to have the gearing run in an oil-bath. The casing is adapted to be closed by a cap or plate 13', which is secured to the casing in any preferred manner and operates to preclude entrance of dust and dirt thereto. The gear 8 is provided with a hub 14, which projects beyond the cap 13' of the casing and is adapted to support a clutch 15, presently to be described, the end of the sleeve 2 that projects beyond the pulley having combined with it a similar clutch 16. These two clutches are held against longitudinal movements relatively to the shaft by collars 17, that are held in position by bolts 18.

Each of the clutches is a counterpart of the other, so that a description of one will serve for both. The clutch embodies a split band 19, which is adapted to embrace the sleeve 2, one terminal of the band being provided with a recess, in which is disposed one end of a link 20, the same being held therein by a pin 21. The other terminal of the band is longitudinally bored to receive one end of a crank-lever 22 and also is provided with a recess 23 to receive the other terminal of the link 20, through which the crank-lever passes, as clearly shown in Fig. 3. The crank-lever has its free terminal provided with a ball or knob 24, which is disposed in the path of movement of a sliding approximately cone-shaped collar 25, keyed to the shaft 1 and operated by an ordinary lever, such as is common in devices of this character. The portion of the crank-lever that is disposed within the link has one side cut away or recessed at 26, and the recess thus formed is adapted to be engaged by the inner end of a bolt 27, which not only prevents accidental separation of the lever from the band, but also permits adjustments of the band, so as to cause it to grip the sleeve 2 with greater or less force relatively to the movements of the collar 25. When both collars are out of engagement with the crank-levers, the gears and pulley will remain stationary. Should it be desired to drive the pulley in the direction of the rotation of the main shaft, the collar 25 adjacent to the pulley will be moved laterally upon the shaft, thereby causing the lever 22 to be rocked and gripping the band 19 upon the sleeve 2, whereupon direct motion will be given to the pulley. When



a reverse motion is required, the collar at the opposite end of the shaft is actuated, thereby to cause the band to grip the hub 14 of the gear 8, whereupon the reverse motion will be  
5 imparted to the sleeve at a more rapid rate than the direct motion.

It will be seen from the foregoing description that although the improvements herein defined are simple in character they will be  
10 positive in securing the functions designed and will from the simplicity of construction of the different parts be positive in securing the objects sought.

Having thus described the invention, what  
15 is claimed is—

1. The combination with a power-shaft, of a sleeve loosely mounted thereon, a pulley and a spur-gear secured to the sleeve, an internally-geared wheel having a hub working upon  
20 the shaft, a casing inclosing the gearing, a pinion carried by the casing and meshing with

the spur-gear and with the internally-geared wheel, and clutch mechanisms coacting with the hub of the latter wheel and with the sleeve.

2. The combination with a power-shaft, of 25 a sleeve loosely mounted thereon and held from longitudinal movement relatively thereto, a pulley and a spur-gear secured to the sleeve, an internally-geared wheel having a hub loosely mounted upon the shaft, a casing, 30 a pinion carried thereby and meshing with the spur-gear and with the internally-geared wheel, means for supporting the casing, and clutch mechanisms coacting with the hub of the wheel and with the sleeve. 35

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

ALEXANDER HAMILTON MASTERS.

Witnesses:

JESSE T. ABBOTT,  
MACE L. MASTERS.