No. 687,474. Patented Nov. 26, 1901.

H. BROBERG.

MEANS FOR TRANSMITTING POWER.

(Application filed June 22, 1901.)

(No Model.) 2 Sheets—Sheet 1.

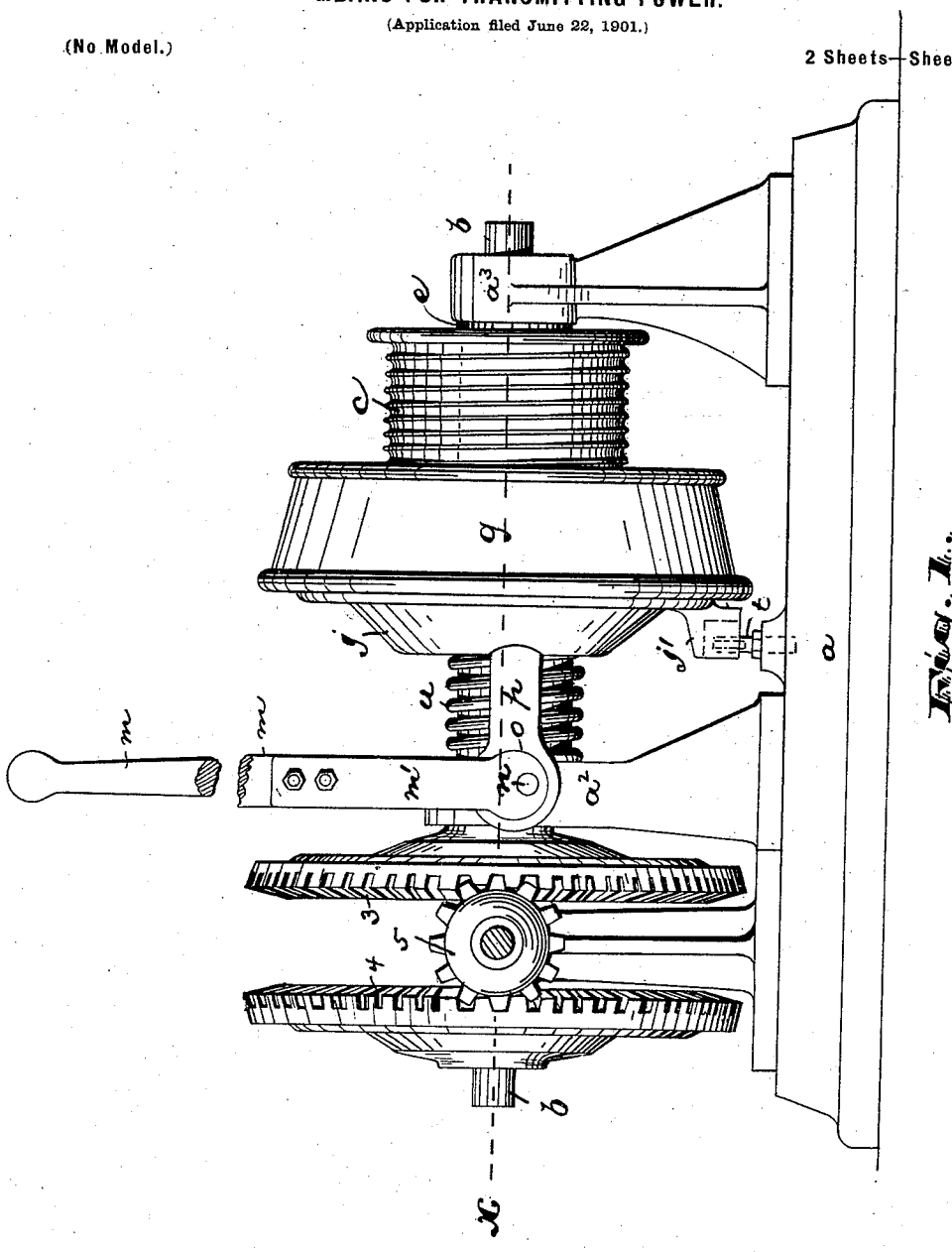


Fig. 1.

WITNESSES:

Henry Steg

Russell M. Everett

INVENTOR:

Henry Broberg,

BY

Drake & Co.

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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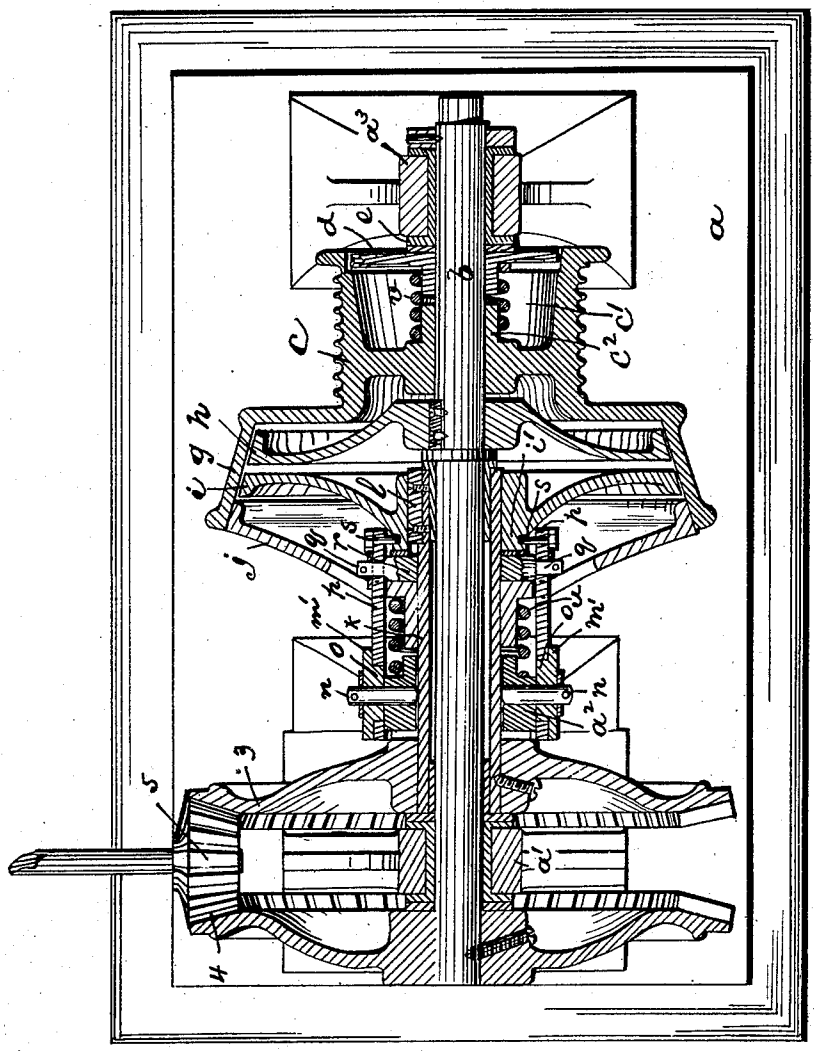


Fig. 2.

WITNESSES:

Henry Krug

Russell M. Everitt.

INVENTOR:

Henry Broberg,

BY

Drakeley.

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY BROBERG, OF NEW YORK, N. Y.

MEANS FOR TRANSMITTING POWER.

SPECIFICATION forming part of Letters Patent No. 687,474, dated November 26, 1901.

Application filed June 22, 1901. Serial No. 65,539. (No model.)

To all whom it may concern:

Be it known that I, HENRY BROBERG, a citizen of Sweden, residing at New York, borough of New York, and State of New York, have invented certain new and useful Improvements in Means for Transmitting Power; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The objects of this invention are to secure greater simplicity of construction, to secure a clutch more convenient and effective in operation, and to obtain other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved clutch and power-transmitting means and in the arrangements and combinations of parts, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like characters of reference indicate corresponding parts in each of the views, Figure 1 is a side elevation of my improved device; and Fig. 2 is a section of the same, taken at line x.

In said drawings, a indicates a suitable bed-plate, upon which the boxes or stands a' a^2 a^3 are bolted, formed, or secured in any suitable manner. In said boxes or stands is arranged the power-shaft b. On said shaft b, contiguous to the box a^3, is a drum c, which is preferably the driven pulley, adapted to receive a rope or any other form of belt, which in turn may be connected to a weight or load to be raised. Said drum c is hollow, as at c' in Fig. 2, and is provided with a hub c^2, which is free to move on said shaft with its drum independent of said shaft. At one side of said drum c, closing the chamber c' thereof, is a hubbed wheel, disk, or collar d, which is also free to rotate independently on said shaft and bears at the side opposite said drum on the bearing a^3 or the bushing e thereof, against which wheel a spring v bears, said spring being arranged on the hub c^2 of the drum and tending to move said drum longitudinally on the shaft away from the wheel or collar d. Said drum at the side opposite the wheel or disk d is integrally provided with a friction-flange g, which flares away from said drum c and forms a receptacle for friction-wheels h i j, the peripheries of which said friction-wheels are inclined or beveled to properly engage the inclined inside surface of the said flange. The wheel h is of the smallest diameter of any of the series of wheels h i j and is fixed upon the shaft b in any suitable manner. Next in order is the wheel i, which is adapted to slide longitudinally of the shaft b upon a hollow shaft k, movable independently upon the said shaft b, said hollow shaft being arranged upon the shaft b so as to rotate thereon, but having no longitudinal sliding movement thereon.

The sliding friction-wheel i is keyed upon the sleeve k by means of a spline l. (Shown in Fig. 2.) To move the said sliding friction-wheel i upon said sleeve k, I have provided a shifting-lever m, which is fulcrumed upon opposite sides of the stand or box a^2, said lever being bifurcated and each fork or prong m' thereof being arranged upon a fulcrumal pin n, seated in the stand a^2, on which pins said lever may turn. Adjacent to said fulcrumal pins n said prongs are provided each with an eccentric extension o, adapted to work within apertures formed in links p p, which latter extend lengthwise of the shafts b k and near the ends of said links opposite those receiving the eccentrics, being supported on oppositely-extending arms q q, formed on a loose steel collar r. Said links, near the ends thereof supported on said arms q, are provided with pins s, which extend into an annular groove formed on the outside of the hub i' of the friction-wheel i. By this construction when the shifting-lever m is turned from its normally-vertical position the said friction-wheel i is moved lengthwise of the sleeve upon which it slides either into frictional contact with the flange g of the drum or pulley b or farther from its normal point of disengagement. The wheel j is also adapted to move longitudinally upon the sleeve k, but is prevented from rotating therewith by means of a detent t, formed on or

fixed to the bed-plate *a*, as shown in Fig. 1. The said detent *t* works in a grooved arm or extension *j'* of said friction-wheel *j*, which permits of said lengthwise movement. Said wheel *j* serves as a brake-wheel and is normally in frictional contact with the flange *g* of the drum to prevent said drum from turning. A spring *u*, which is balanced by the spring *v*, tends to hold said wheel *j* in frictional engagement, and because of the balance maintained by the two springs the hand-lever *m* for shifting the wheel *i* from its normal position is maintained normally in a vertical position, as indicated in Fig. 1.

Upon the hollow shaft *k* is fixed a beveled wheel or pulley 3, and upon the shaft *b* is another such wheel or pulley 4. These lie adjacent to one another on opposite sides of the stand or box *a'* and engage an intermediate beveled wheel 5, driven by a motor (not shown) in any suitable manner, so that the said beveled wheels or pulleys 3 and 4 are driven continuously in opposite directions. As a result the hollow shaft *k* and the wheel *i* are continuously driven in one direction and the center shaft *b* and its wheel *h* are continuously driven in the opposite direction. The drum *c*, however, is normally at rest because of its connection or contact with the brake-wheel *j*, fixed by the detent *t*, as above indicated. By turning the shifting-lever *m* in one direction from its normally-vertical position the wheel *i* is driven into frictional contact with the drum-flange, moving the same longitudinally a little, so that it compresses the spring *v* and disengages from the brake-wheel. Said drum *c* then rotates with said wheel *i* in the direction of movement of the hollow shaft. By turning the shifting-lever *m* in the opposite direction from its normal position said wheel *i* compresses the spring *u* and permits the spring *v* to press the drum *c* into frictional contact with the wheel *h*, so that said drum turns in the opposite direction with the shaft *b*. By the construction described should the drum and its connecting-rope raise a weight a given distance and the hand-lever be released inadvertently or otherwise the said lever assuming its normal position automatically will permit the drum to engage the brake-wheel, so that the said weight will remain suspended and not drop to the ground to the injury thereof.

Having thus described the invention, what I claim as new is—

1. The combination of the shaft *b*, hollow shaft, gears on said shafts, a flanged drum and friction-wheels *h*, *i*, and *j*, adapted to enter into frictional relation to said flanged drum, shifting means, and means whereby the gears are operated in opposite directions, all substantially as set forth.

2. The combination with the shaft *b*, the gear-wheel 4, and the hollow shaft arranged on said shaft *b*, and a gear-wheel 3, and a pinion 5, for rotating said gear-wheels in opposite directions, of a drum *c*, loosely mounted on said shaft *b*, and having a flange *g*, a wheel *h*, fixed to said shaft *b*, and adapted to contact with the said flange *g*, a wheel *i*, slidably mounted on the hollow shaft and adapted to contact with said flange and means for sliding said wheel *i*, on said hollow shaft and a wheel *f*, and a detent independent of said wheel *j*, to prevent the same from turning and springs for holding said parts in normal relation, substantially as set forth.

3. The combination with a drum and its flange, of three friction-wheels, adapted to engage said drum to impart power thereto, one of said wheels normally holding said drum stationary and the other of said wheels being adapted to impart reverse movements to said drum, means for holding the first said wheels in normal contact, and means for effecting engagements of the other said wheels with said drum, substantially as set forth.

4. The combination with the rotary shaft *b*, and rotary hollow shaft *k*, and means for rotating the same in opposite directions, of a drum *c*, loosely mounted on said shaft *b*, contiguous to a wheel *h*, fixed upon the said shaft *b*, a spring normally tending to force said drum into contact with said wheel *h*, a wheel *i*, adapted to rotate with said hollow shaft and movable longitudinally thereon to and from the drum, means for moving said wheel *i*, on said hollow shaft longitudinally, a wheel *j*, slidable on said hollow shaft, a detent for preventing rotary motion of the last said wheel on said hollow shaft and a spring for normally holding said wheel *j*, in contact with said drum, substantially as set forth.

5. The combination with the rotary shaft *b*, and rotary hollow shaft *k*, and means for independently rotating said shafts, of a loose drum or pulley *c*, fixed wheel *h*, adapted to be engaged thereby, a spring for forcing said loose wheel on said shaft into engagement with the fixed wheel, and two sliding wheels on said hollow shaft, a spring normally holding one of said wheels in contact with the drum or pulley and means for moving the other of said sliding wheels on said hollow shaft to and from said drum, substantially as set forth.

6. The combination with the rotary shaft *b*, and rotary hollow shaft *k*, and means for independently rotating said shafts, of a loose drum or pulley *c*, a fixed wheel *h*, adapted to be engaged thereby, a spring *v*, two sliding wheels on said hollow shaft to engage said loose pulley or drum, a spring *k*, links *p*, and a hand-lever for operating said links and one of said sliding wheels, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of May, 1901.

HENRY BROBERG.

Witnesses:
CHARLES H. PELL,
C. B. PITNEY.