

No. 751,537.

PATENTED FEB. 9, 1904.

P. MULLEN.
HOISTING MECHANISM.
APPLICATION FILED NOV. 27, 1903.

NO MODEL.

Fig. 2

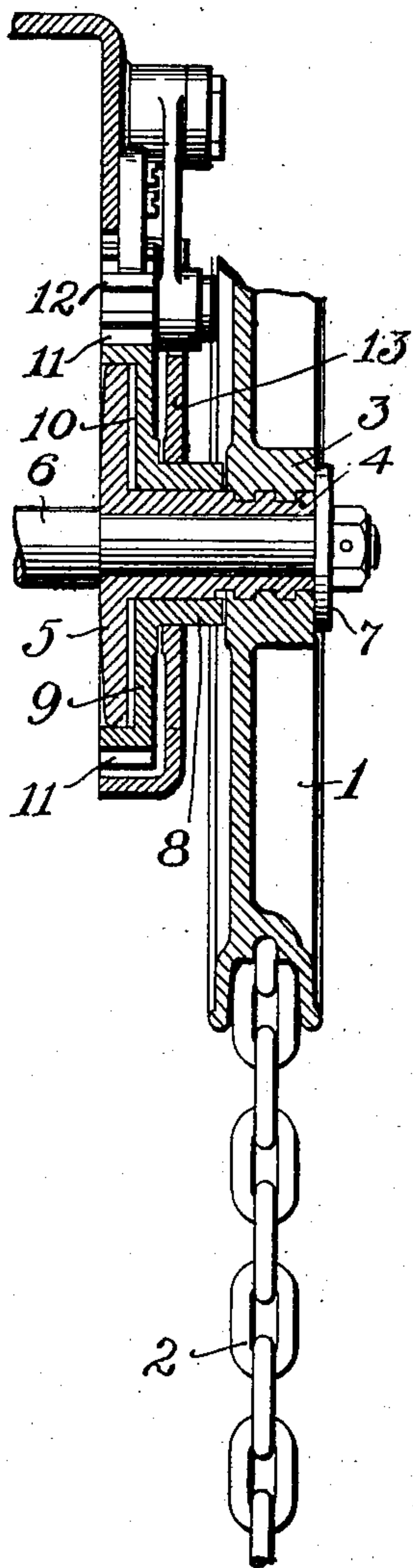
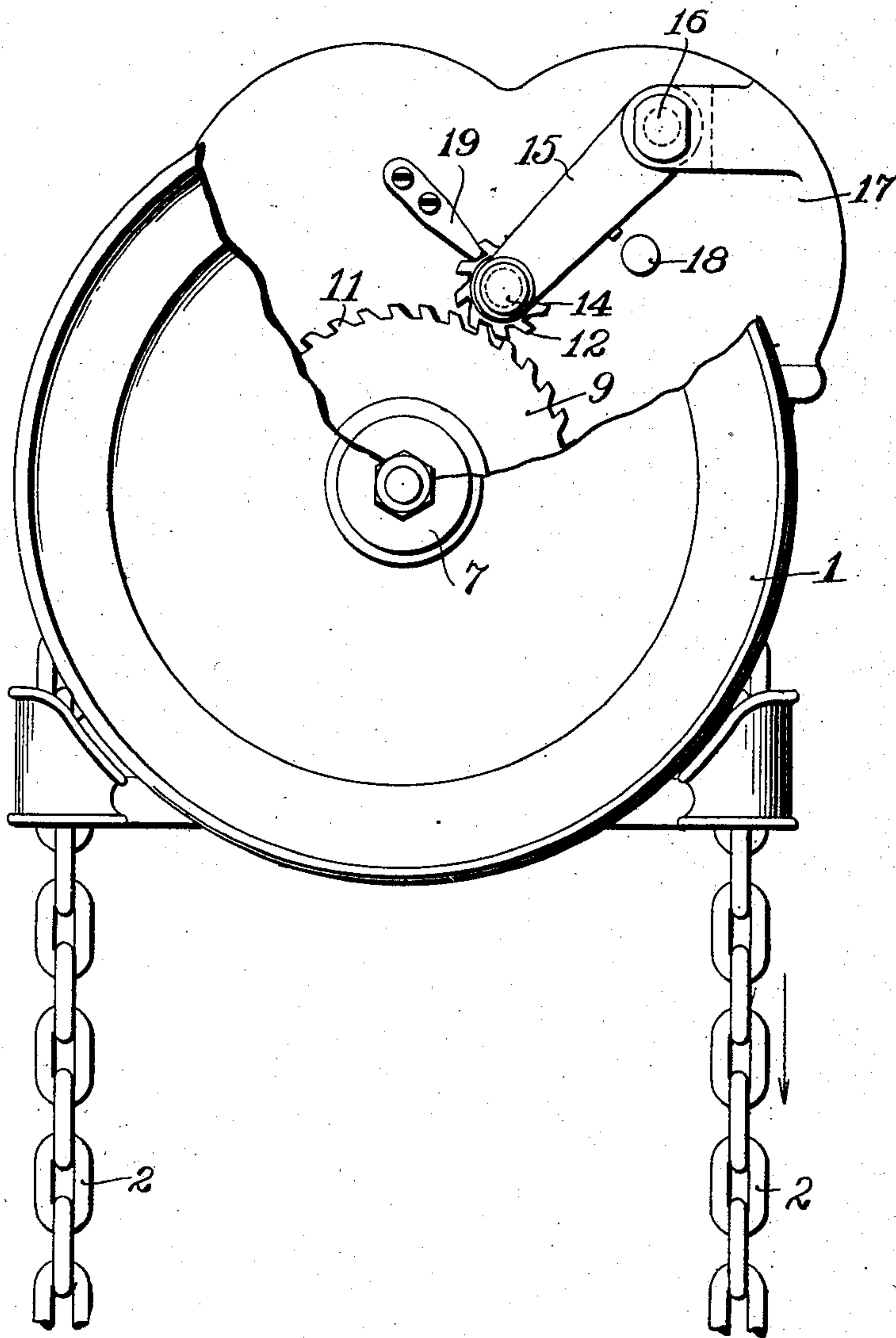


Fig. 1



WITNESSES:

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UNITED STATES PATENT OFFICE.

PETER MULLEN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
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HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 751,537, dated February 9, 1904.

Application filed November 27, 1903. Serial No. 182,754. (No model.)

To all whom it may concern:

Be it known that I, PETER MULLEN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Hoisting Mechanism, of which the following is a specification.

This invention relates to automatic clutching mechanism for holding the load when the power which moves it is withdrawn. Its chief purposes are to provide a positive engagement of the holding mechanism which will prevent slipping or uncertainty of action, to reduce wear in operation, and to prevent breakage due to imperfect clutching engagement. It is also designed for use in other relations requiring a positive holding mechanism.

The nature and characteristic features of the improvements will more fully appear by reference to the following description and the accompanying drawings in illustration thereof, of which—

Figure 1 represents a side elevation of a hoist having my invention applied thereto, part being broken away for the purpose of illustration; and Fig. 2 represents a vertical sectional view of parts thereof to which the improvements are applied.

As shown in the drawings, the power wheel or sheave 1, operated by the chain 2, has the internally-screw-threaded hub or sleeve 3, which engages the externally-screw-threaded hub or sleeve 4 of the friction-disk 5, fixed on the shaft 6, the wheel being held on the hub or sleeve by the flange or ring 7, fixed to the shaft.

Loosely sleeved on the hub 4 and journaled in the frame 13 is the hub or sleeve 8 of a geared disk or brake-wheel 9, having its face 10 adapted for frictional engagement with the face of the disk 5 and its toothed periphery 11 in engagement with the toothed pinion 12.

The pinion 12 is carried on an arbor 14 by the oscillating arm 15, which rocks on an arbor 16, carried by the frame 17, the arm having a downward movement limited by its

contact with the hub 18 and an upward movement limited by the contact of the pinion 12 with a bolt or stop 19, rigidly fixed to the frame.

The teeth of the respective wheels 9 and 12 are of such inclined form that they run together in the ordinary manner in lifting the load, while they interlock when they act in the opposite direction, a tooth of the wheel 9 meshing with the wheel 12, while the following tooth of the wheel 9 strikes the crown of an adjacent tooth of the wheel 12 to throw the latter into meshing engagement with the stop 19, whereby the parts are held stationary. In other words, the construction is such that a positive engagement of the stop 19 between teeth of the wheel 12 is always effected for holding the load.

It will now be understood that when the chain 2 is pulled in the direction of the arrow the sheave or wheel 1 is thereby revolved and moved inwardly upon the sleeve 4 until it impinges against the sleeve 8 and forces the disk-face 10 into frictional engagement with the face of the disk 5, the sheave being thereby fixed to the spindle 6, which is revolved to hoist the load in a well-known manner. The teeth of the now revolving spur-wheel 9 act upon the teeth of the pinion 12 to carry the latter away from its engagement with the bolt 19, the arm 15 being turned downward upon its arbor 16. The load having been raised, if the hand-chain and sheave be released, the friction-disks being clamped together and fixed to the shaft 6, the downward tendency of the load now causes the wheel 9 to throw the pinion 12 into engagement with the bolt 19, by which the gears and shaft are held stationary until the chain and sheave are reversed to withdraw the latter from impact upon the sleeve 8 and relieve the frictional engagement between the disks when the load lowers.

Having described my invention, I claim—

1. In a machine of the class described, a rocking arm, a wheel carried by said rocking arm, a second wheel adapted to be engaged

and held by said first wheel, and mechanism for holding said first wheel, substantially as specified.

2. In a machine of the class described, a
5 revoluble gear-wheel, a second revoluble gear-wheel engaging said first gear-wheel and having a limited motion of translation relatively thereto, and a stop against which said second gear-wheel is adapted to be thrown to lock
10 said gear-wheels, substantially as specified.

3. In a machine of the class described, an oscillating pinion, a spur-wheel engaging and oscillating said pinion, a stop for limiting the movement of said pinion in one direction, and
15 a stop for limiting the movement of said pinion in the opposite direction, said second stop locking said pinion and spur-wheel, substantially as specified.

4. In a machine of the class described, a
20 pair of clutching members, mechanism for effecting the engagement and disengagement of said clutching members, an oscillating member adapted for engaging and holding

one of said clutching members, and a stop against which said oscillating member is
25 adapted to be thrown and held by said engaging clutching member, substantially as specified.

5. In a machine of the class described, an oscillating gear-wheel having inclined teeth, 30 a gear-wheel having inclined teeth engaging said oscillating gear-wheel, and mechanism for holding said wheels, said teeth meshing freely in moving in one direction and interlocking to engage said holding mechanism in
35 acting in the opposite direction, substantially as specified.

In testimony whereof I have hereunto set my hand, this 24th day of November, A. D. 1903, in the presence of the subscribing wit- 40 nesses.

PETER MULLEN.

In presence of—

JOHN THIEL,

UTLEY E. CRANE, Jr.