C. F. DALLMAN.

HOISTING MACHINE.

APPLICATION FILED JUNE 30, 1908.

928,851. Patented July 20, 1909.

4 SHEETS—SHEET 1.

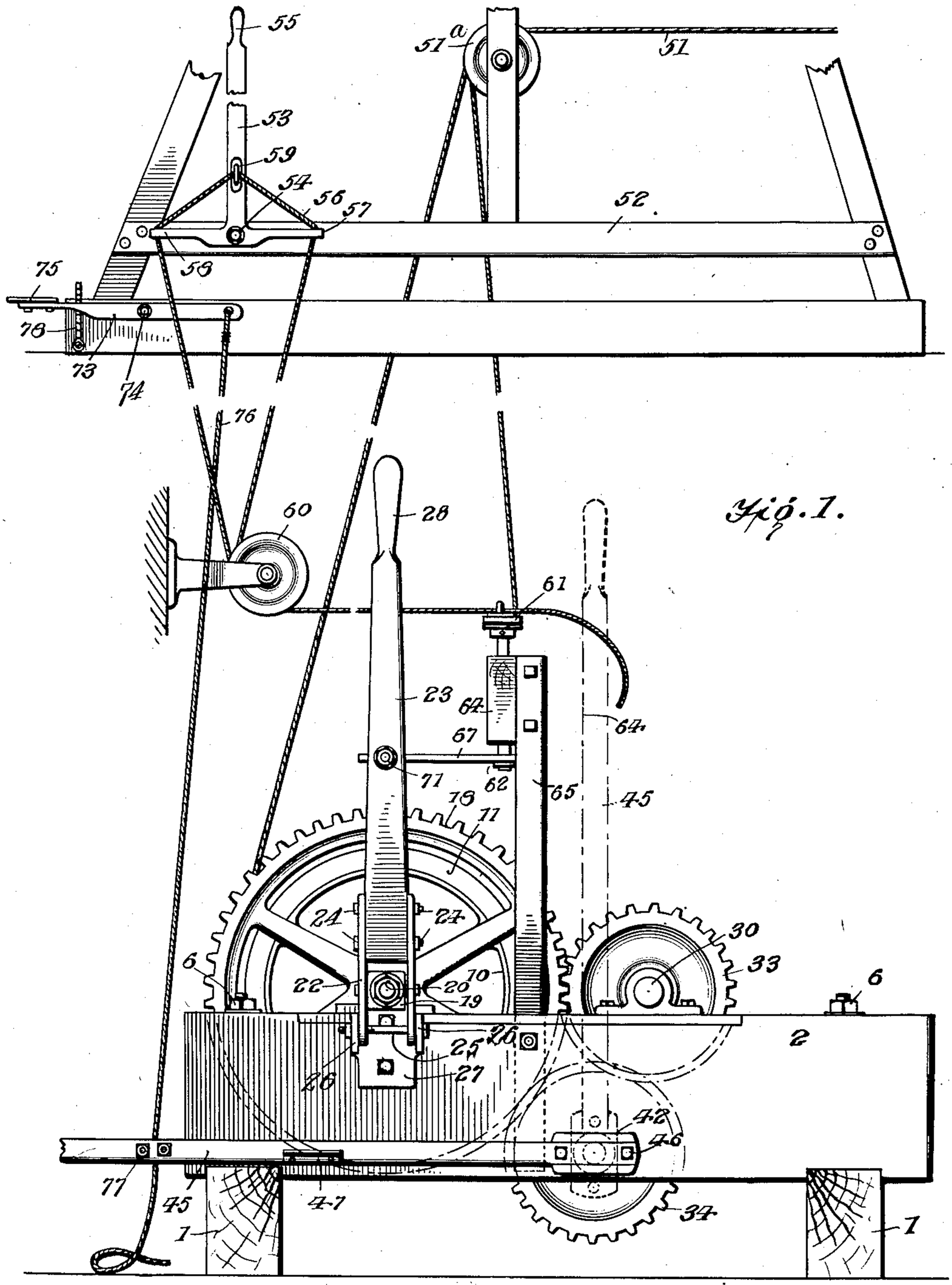

Fig. 1.

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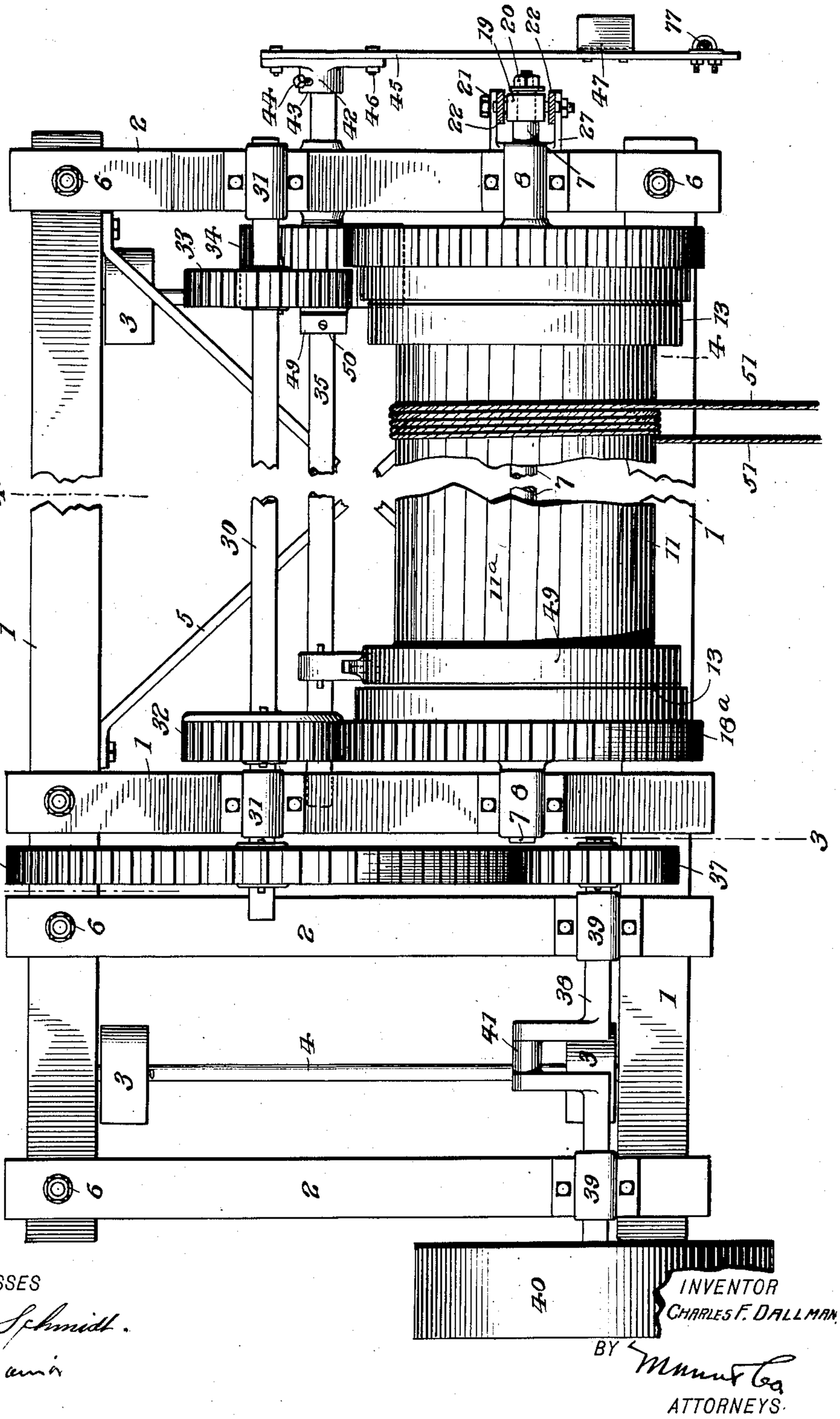
4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3.

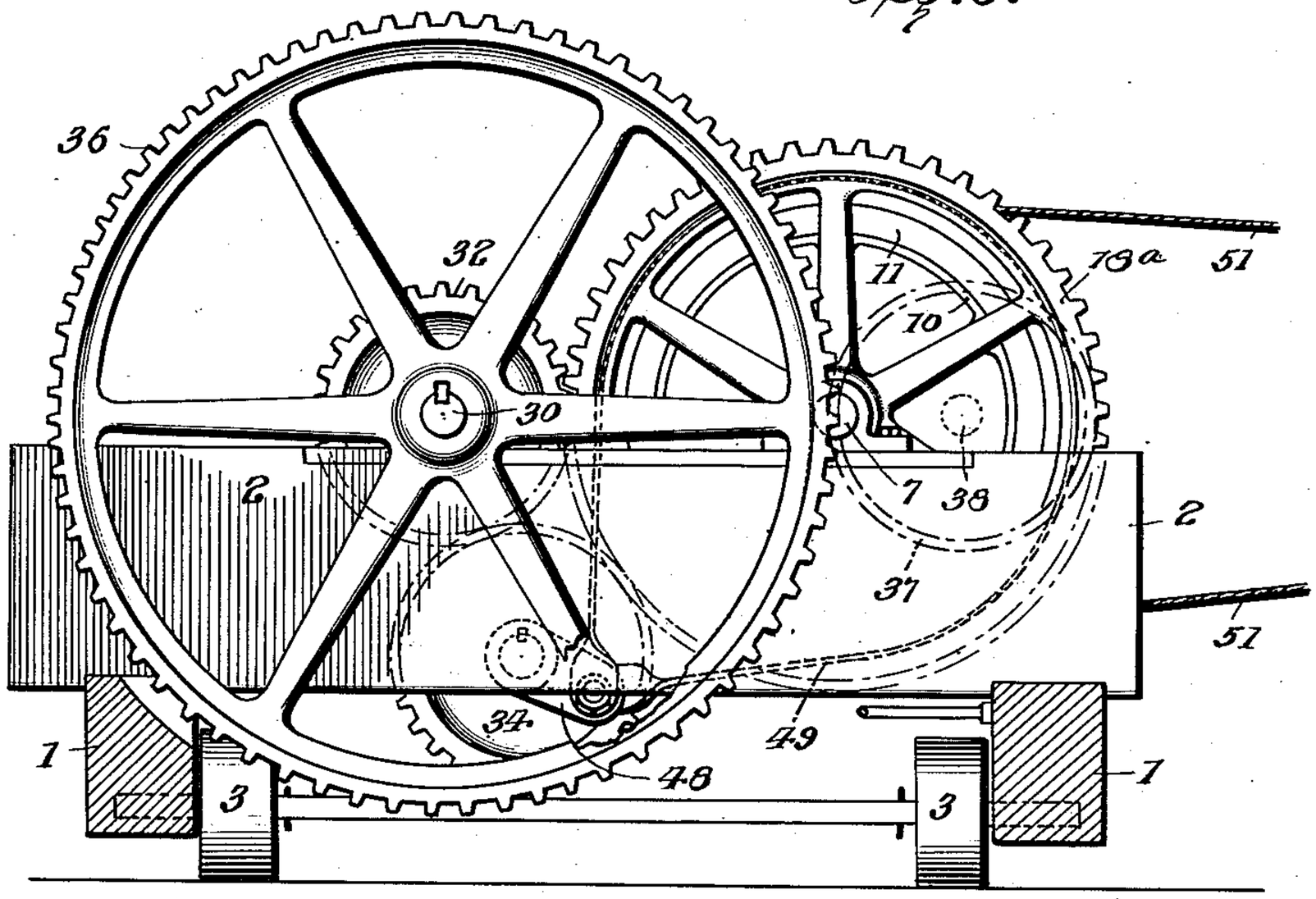
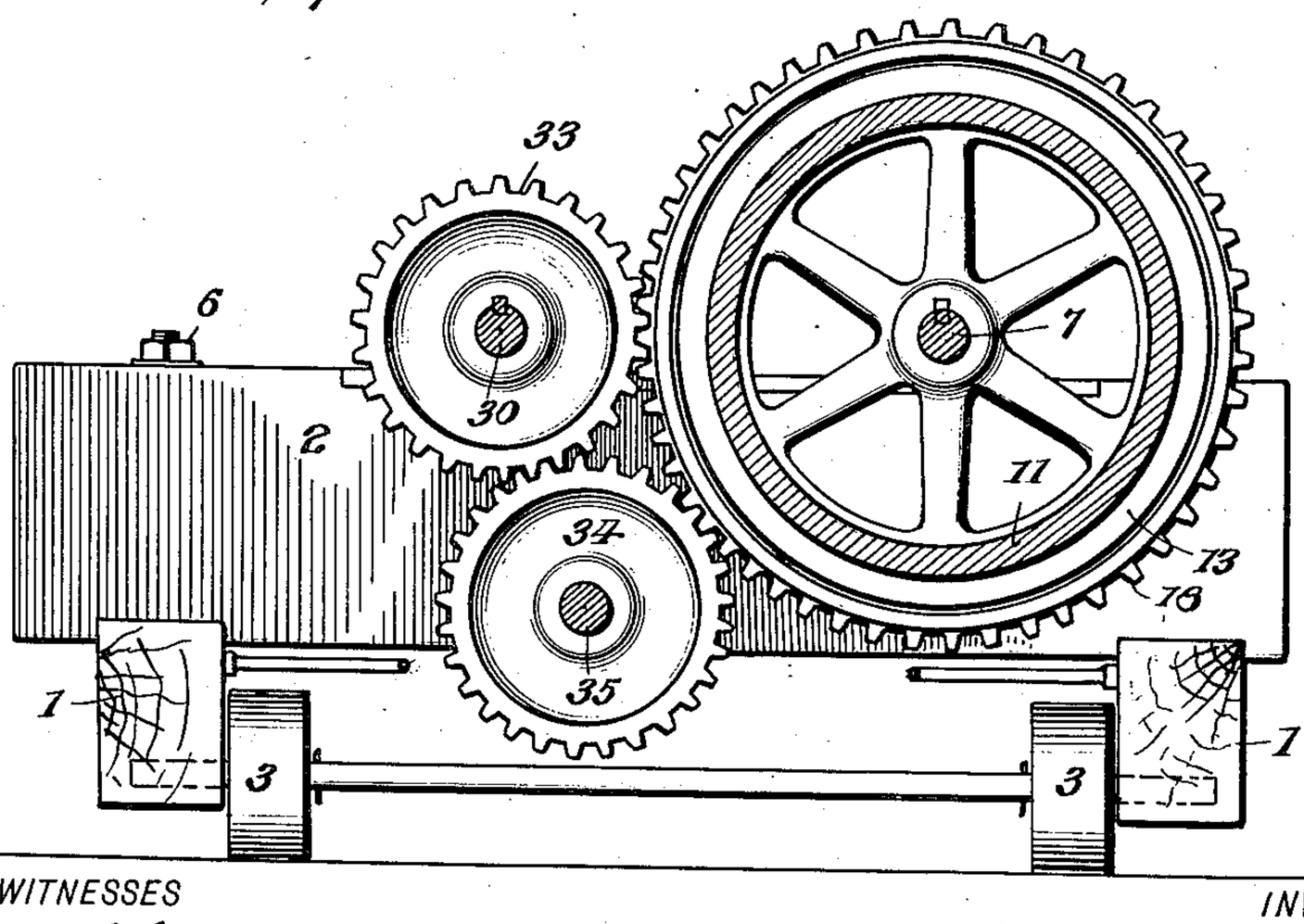


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

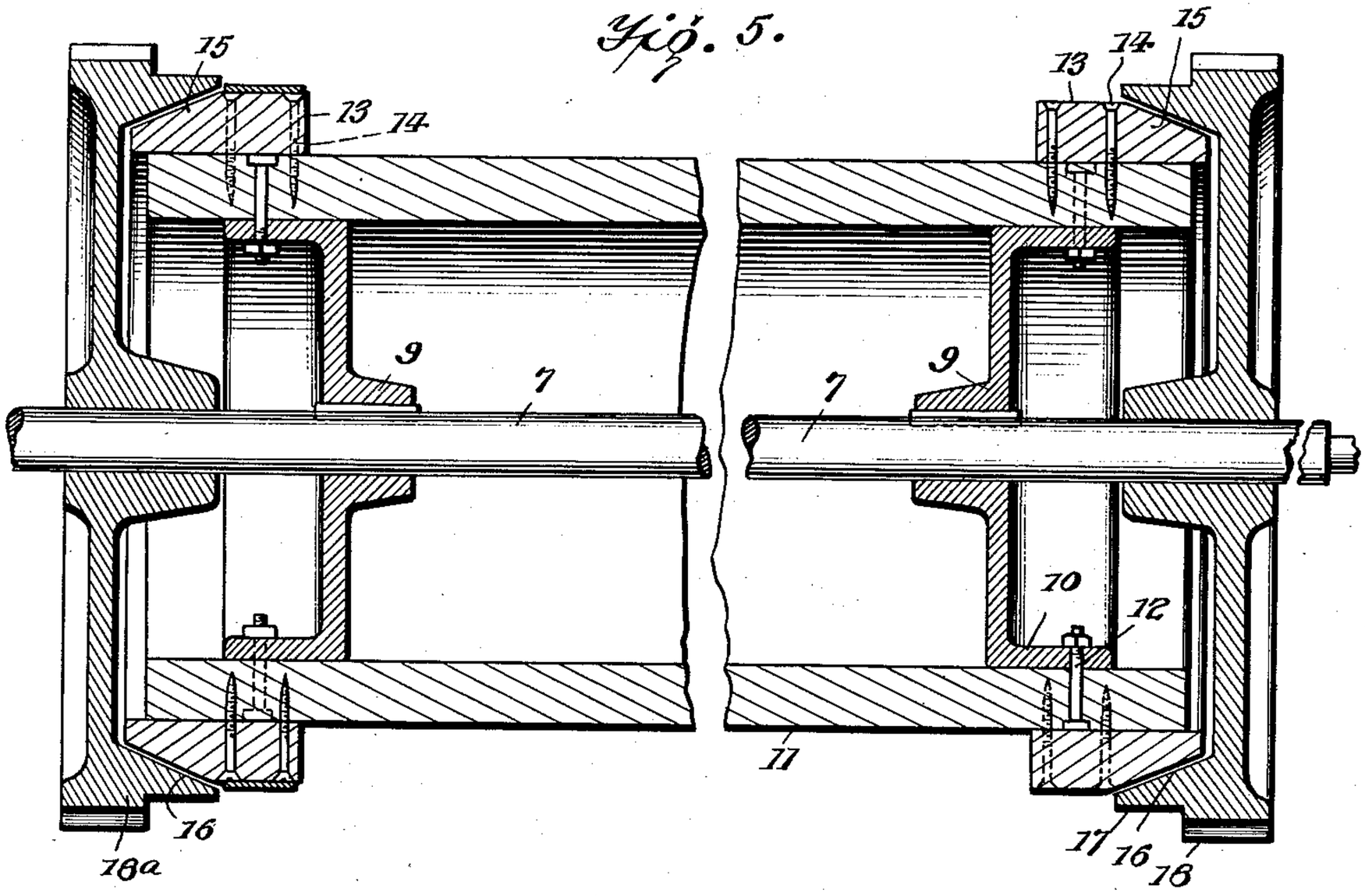
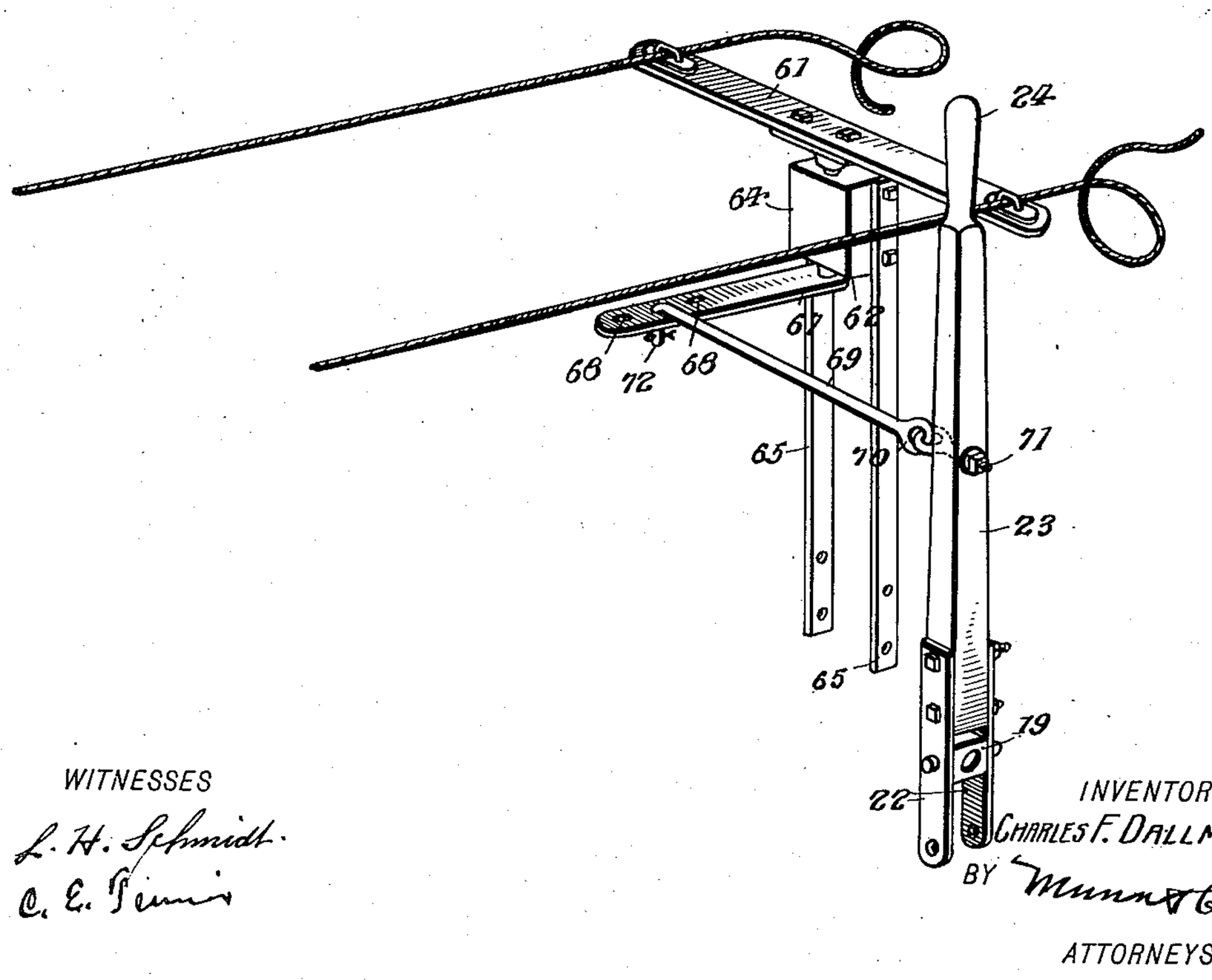


Fig. 6.



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HOISTING-MACHINE.

No. 928,851. Specification of Letters Patent. Patented July 20, 1909.

Application filed June 30, 1908. Serial No. 441,057.

To all whom it may concern:

Be it known that I, CHARLES F. DALLMAN, a citizen of the United States, and a resident of Antigo, in the county of Langlade and State of Wisconsin, have invented certain new and useful Improvements in Hoisting-Machines, of which the following is a specification.

My invention is an improvement in hoisting machines, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof Figure 1 is a side view of the improvement. Fig. 2 is a plan view. Fig. 3 is a partial side view from the opposite side to Fig. 1. Fig. 4 is section on the line 4—4 of Fig. 2. Fig. 5 is a longitudinal section of the drum. Fig. 6 is a detail in perspective of a part of the controlling mechanism.

The present embodiment of my invention comprises a frame, composed of longitudinal bars 1, and connecting cross bars 2, supported by wheels 3 journaled on shafts 4, arranged transversely of the frame, and journaled in the longitudinal bars 1. The frame is braced by braces 5, and is secured together by bolts 6. A shaft 7 is journaled in bearings 8 on the cross bars, and upon the shaft are keyed disks 9, in spaced relation, each of said disks being provided with an outwardly projecting flange 10, and a plurality of staves 11, constituting a drum 11^a are arranged longitudinally of the shaft, and are secured to the flanges by bolts 12, the staves being arranged in side-wise abutting relation.

A friction ring 13 is secured to the drum at each end thereof by wood screws 14 traversing a ring, and engaging the staves of the drum, and the outer ends of the friction rings are beveled as at 15, the beveled edge being adapted to engage the beveled edge of flanges 17 on gear wheels 18, 18^a, journaled loosely on the shaft adjacent to each end of the drum.

The outer end of the shaft 7 has journaled thereon a block 19, the block being secured in place by a nut 20, and being provided with oppositely projecting trunnions 21, which are received in openings in plate 22, secured to each side of a bar 23, by bolts 24, the lower ends of the plates being journaled on a bolt 25, passing through oppositely arranged ears 26, on a bracket 27, secured to one of the cross bars. The upper end of the bar 23 is provided with a grip 28, and it will be evident that by swinging the bar the drum may be moved longitudinally whereby to engage a friction ring with one of the gears 18 or 18^a.

A second shaft 30 is journaled in bearings 31, on the cross bar, and is provided adjacent to each end with a pinion 32, 33, one of which 33, meshes with a wide pinion 34, loosely mounted on a shaft 35, to be presently described, the said wide pinion meshing also with one of the gear wheels 18 on the drum shaft. The other pinion 32 meshes with the gear wheel 18^a, and the shaft 30 is provided on its outer end with a gear wheel 36, meshing with a pinion 37 on a shaft 38, journaled in bearings 39 on the frame, and provided at its outer end with a pulley 40, whereby it may be connected with a suitable source of power, the shaft 38 being also provided with a crank arm 41, for connection directly with a motor supported on the frame.

The shaft 35 before mentioned, is provided on its outer end with a bracket 42, having a socket 43 for receiving the shaft, and secured thereto by set screws 44, and to the bracket is connected a lever 45, by means of bolts 46, the outer end of the lever being provided with a foot plate 47, whereby the shaft 35 may be oscillated. The shaft 35 is also provided with a crank arm 48, keyed thereon, with which is connected a brake band 49 encircling one of the friction rings 13 before mentioned. The wide pinion 34 is prevented from longitudinal movement on the shaft 35, by means of a collar 49^a, secured to the shaft by a set screw 50.

The hoisting rope 51, winds upon the drum, encircling the same with three or four loops whereby to prevent slipping of the rope, and the free ends thereof are carried upwardly over a pulley 51^a, journaled in a superstructure 52, to the place where the power is to be applied.

In Figs. 1 and 6, is shown a mechanism for controlling the drum from a distance, the said mechanism comprises a three armed lever 53, pivoted to the superstructure as at 54, one of the arms being provided with a grip 55. A rope 56 passes through openings in the ends of the other arms 57, and 58, and through an eye 59, on the arm provided with the grip, the ends of the rope being carried downward under a pulley 60, one of the said

ends being connected to each end of a lever 61, rigid with the upper end of a stud shaft 62, which is journaled in a bearing on a cross bar 64, supported by a pair of spaced uprights 65 connected with the frame. The stud shaft is provided with an arm 67, having a plurality of perforations 68 in the free end thereof, with one of which is engaged the angular end of a link 69, provided at its other end with an eye 70, engaged by an eye bolt 71, passing through the lever 23, the angular end of the link being secured in place by a cotter pin 72.

It will be evident from the description, that when the lever 53 is rocked, the drum will be moved to engage it with one or the other of the gear wheels 18 or 18ª.

A foot lever 73 is pivoted as at 74 to the superstructure, one end of the lever being provided with a foot piece 75, and to the other is connected a rope 76, passing downwardly through a clamp 77 on the lever 45 before mentioned, so that when the treadle end 75 is rocked, the lever 45 will oscillate the shaft 35, to apply the brake to the drum. When operating the brake lever 45 at the drum, the said lever would be placed in the position shown in dotted lines in Fig. 1.

A toothed rack 78 is provided for retaining the lever 73 in its adjusted position. In operation, power being applied to the shaft 38, motion is transmitted to the shaft 30. By manipulating the lever 23, the friction rings of the drum may be engaged with the gear wheels 18 or 18ª, the one 18 being driven directly from the shaft 30, and the other being driven in the opposite direction through the idler 34, whereby to rotate the drum in one or the other direction.

By placing the drum in the intermediate position shown in Fig. 5, it will be disengaged from both gear wheels, and will consequently remain at rest, being held in this position by the brake. From the mechanism shown in Figs. 1 and 6, the operation of the drum may be perfectly controlled from a distance.

The device described is for use wherever a hoisting drum is desired, for raising or lowering loads, the power being applied through the shaft 38, which through its connection with the shaft 30 rotates the gear wheels at each end of the drum. When it is desired to turn the drum in one direction, the lever 24 is moved to move the drum longitudinally, whereby to engage said drum when one or the other of the gear wheels, depending upon the desired direction of rotation of the drum. When the object has been elevated or lowered as the case may be, the drum may be released from the gear wheel and held by the brake. The mechanism shown in Figs. 1 and 6 is arranged to operate the drum from a distance, as for instance from another floor of the building, the operation of the drum being the same whether it is manipulated directly by the lever 23 or intermediately by the lever 53.

I claim:

1. In a hoisting machine, a frame, a shaft journaled in the frame, a drum secured to the shaft, said drum being provided at each end with friction rings, beveled toward their outer ends, gear wheels journaled on the shaft, at each end of the drum, and having a beveled flange for coöperating with the beveled surfaces of the rings, means for moving said shaft longitudinally, whereby to engage it with either gear wheel, means for driving said gear wheels in opposite directions, a brake band encircling one of the rings, a shaft to which the ends of the band are secured, and means for oscillating the shaft whereby to apply the brake.

2. In a hoisting machine, a shaft, a drum secured to the shaft, said drum being provided at each end with a beveled surface, gear wheels journaled on the shaft near each end of the drum, and provided with beveled flanges for coöperating with the beveled surfaces, means for moving said shaft longitudinally, whereby to engage the drum with either of said gears, means for driving the gears in opposite directions, and a brake for the drum.

3. In a hoisting machine, a shaft, a hoisting drum secured to the shaft, a gear wheel journaled on the shaft, at each end of the drum, means for driving said wheels in opposite directions, a pivotally mounted lever, a block journaled on the end of the shaft, and provided with trunnions engaged by the lever, and means in connection with the ends of the drum and the gear wheels for locking said drum to the gear wheels.

4. In a hoisting machine, a shaft, a hoisting drum, secured to the shaft, a gear wheel journaled on the shaft, at each end of the drum, means for driving said wheels in opposite directions, a pivotally mounted lever, a block journaled on the end of the shaft, and provided with trunnions engaged by the lever, and means in connection with the ends of the drum and the gear wheel for locking said drum to one of the wheels, a link connected with the lever, a rock shaft having one arm connected with the link, a bar secured to the other end of the rock shaft, and projecting on each side thereof, a three armed lever pivotally mounted at a distance from the drum, a connection between the two arms of the lever, and the respective ends of the bar, the other arm of the lever being provided with a grip whereby to manipulate the same.

5. In a hoisting machine, a drum comprising a shaft, marginally flanged disks secured to the shaft in spaced relation, staves arranged in edge-wise abutting relation and secured to the flanges, friction rings secured to

the ends of the drum, said rings being beveled outwardly, gear wheels journaled on the shaft, at each end of the drum, and provided with beveled flanges for engagement by the beveled surfaces of the friction rings, means for driving said gear wheels in opposite directions, and means for moving the shaft longitudinally whereby to engage the drum with either of said gear wheels.

6. In a hoisting machine, a shaft, disks secured to the shaft in spaced relation, and staves arranged longitudinally of the shaft and in sidewise abutting relation and secured to the disks, a gear wheel at each end of the drum, means for connecting the drum with either of the wheels, and means for driving the wheels in opposite directions.

7. In a hoisting machine, a shaft, a drum secured to the shaft, a gear wheel journaled on the shaft at each end of the drum, said drum being provided at each end with a friction surface, and wheels with beveled flanges for coöperating with the adjacent friction surface, means for driving the wheels in opposite directions, and means for moving the drum longitudinally whereby to engage it with either of said wheels.

8. In a hoisting machine, a hoisting drum, means at each end of the drum for driving the same in opposite directions, a lever for moving the drum longitudinally whereby to engage it with either of said means, a three arm lever pivotally mounted at a distance from the drum, and a connection between two of the arms of the three arm lever, and the operating lever for the drum, whereby to operate the same.

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