

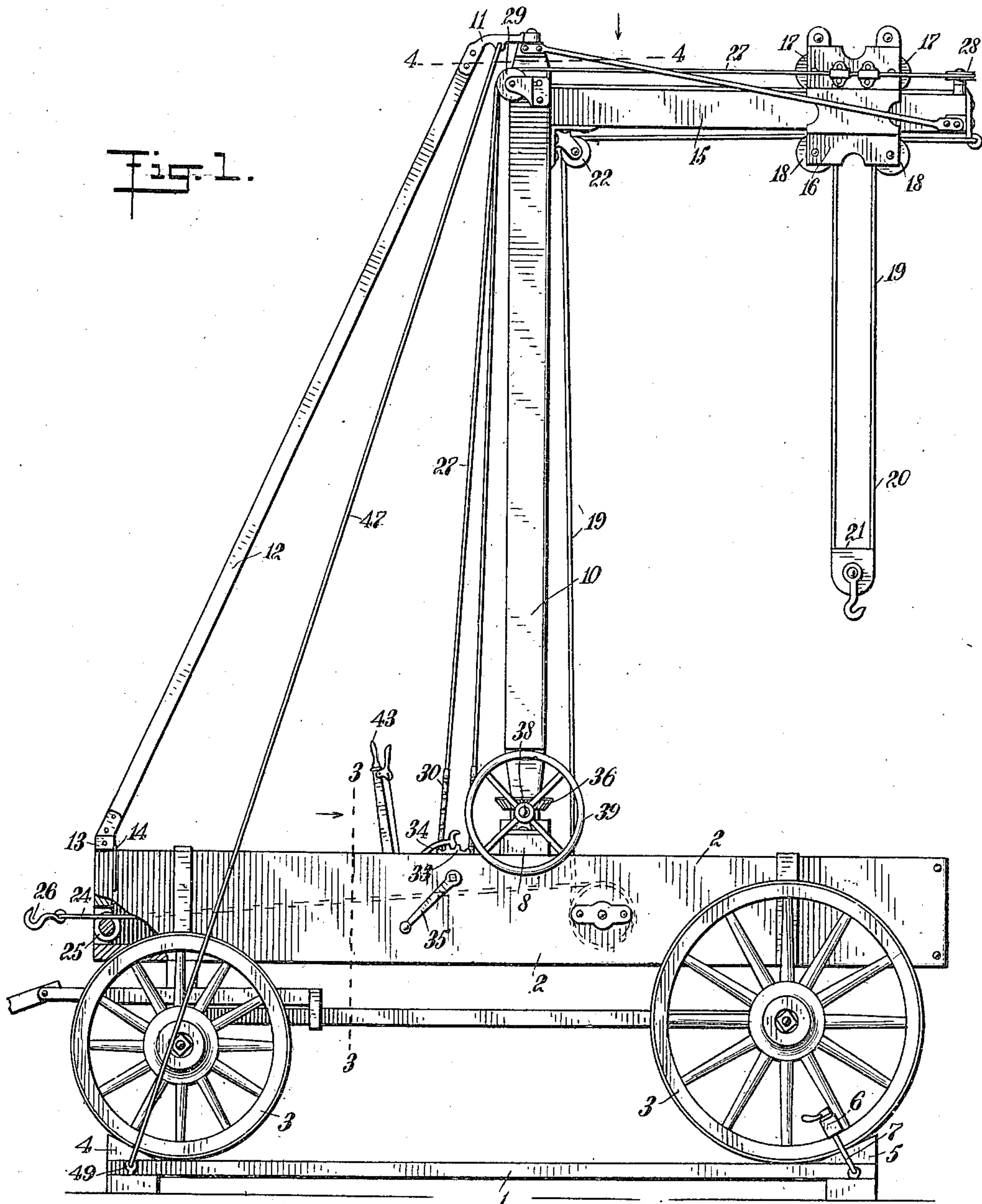
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DERRICK.

APPLICATION FILED OCT. 22, 1909.

964,248.

Patented July 12, 1910.

3 SHEETS—SHEET 1.



WITNESSES

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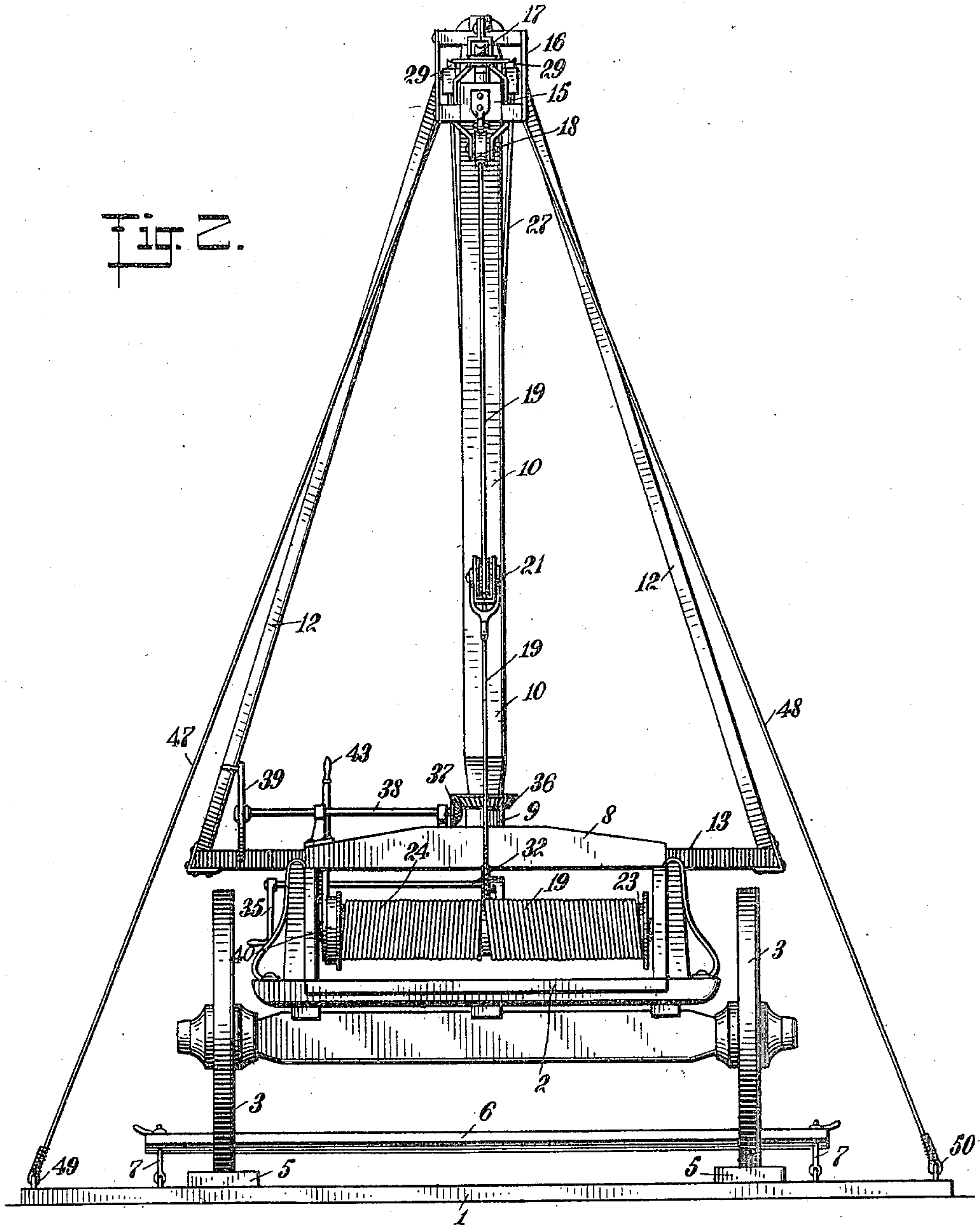
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

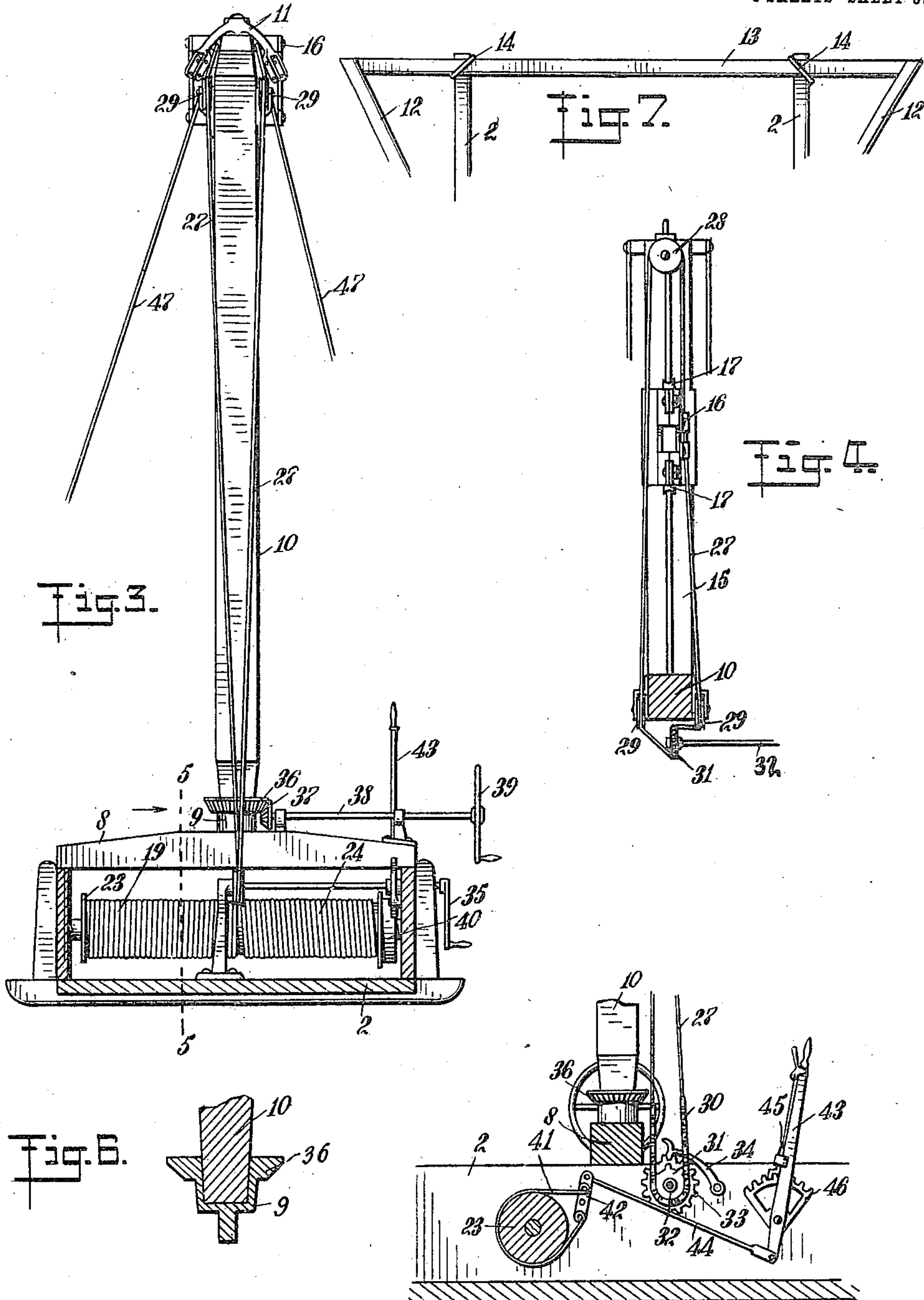


Fig. 6.

Fig. 5.

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DERRICK.

964,248.

Specification of Letters Patent.

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Application filed October 22, 1909. Serial No. 524,005.

To all whom it may concern:

Be it known that I, ALFRED P. HALD, a citizen of the United States, and a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and Improved Derrick, of which the following is a full, clear, and exact description.

This invention relates to a portable derrick of the rotary rectilinearly movable load-support type, and is adapted to be used for loading grain or other material from one wagon to another, or from a wagon to a granary; or to stack hay, and for a variety of other uses.

An object of this invention is to provide a device which will be simple in construction, inexpensive to manufacture and operate, simple in operation, and strong and durable.

A further object of this invention is to provide a portable derrick, with a load support capable of moving in a rectilinear direction, and with means for rotating the derrick and hoisting the load on the derrick.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a side view in elevation, showing my device ready for use; Fig. 2 is a vertical end view, looking at it from the rear; Fig. 3 is a vertical section on the line 3—3 of Fig. 1; Fig. 4 is a horizontal section on the line 4—4 of Fig. 1; Fig. 5 is a vertical section on the line 5—5 of Fig. 3; Fig. 6 is an enlarged section of the step for the mast; and Fig. 7 is a fragmentary top plan view, showing the method of attaching the brace to the wagon body.

Referring more particularly to the separate parts of the device, 1 indicates a suitable platform, on which a vehicle 2, supported on wheels 3, is adapted to be secured during the operation of the device, by means of chuck blocks 4 and 5, which engage under the wheels 3. In order to further secure the vehicle in place, there is provided a transverse beam 6, which passes through between the spokes of the rear wheels 3, and is removably secured to the

platform 1 by means of pivotal clamp bolts 7.

Supported on the body of the vehicle 2 and secured thereto in any well known manner, there is provided a transverse member 8, which forms a base for the derrick proper. The base 8 is provided with a central opening, in which is adapted to be rotatably supported a journal cap 9, secured to the bottom of a mast 10, which is further rotatably supported at its upper end by means of a cap similar to 9, that is journaled in a bracket 11, which in turn is secured to a plurality of braces 12. The braces 12 extend downwardly in a diverging manner, where they are secured to the ends of a transverse bar 13, which in turn is secured to the body of the vehicle 2 in any well known manner, as by means of U-fasteners 14, which extend diagonally over the bar 13 and the sides of the vehicle 2.

Rigidly secured to the mast 10, there is provided an arm 15, which extends at substantially right-angles to the mast 10, so as to form a horizontal support or trackway for a carriage 16. The carriage 16 may be of any suitable form, and is provided with a plurality of track rollers 17, which engage the upper surface of the arm 15 and rotatably support the carriage 16 thereon. This carriage 16 is also provided with a plurality of sheaves or rollers 18, over which is adapted to pass a hoisting rope 19, which is secured in any well known manner to the outer extremity of the arm 15, and passes over the rollers 18, forming between them a loop 20, in which a suitable hoisting block 21 is suspended.

From the inner roller 18, the hoisting rope 19 extends over a guide pulley 22, which is rotatably supported in any well known manner on the mast 10, from whence it passes downward, and is wound on to one side of a drum 23, which is rotatably supported in any well known manner on the body of the vehicle 2. The drum 23 also has wound thereon, on the other portion thereof, an operating rope 24, which extends out through an opening in the front of the vehicle over a guide pulley 25, where it terminates in a traction hook 26, by means of which it is adapted to be attached to the horses or other source of power.

In order to traverse the carriage on the arm 15, there is provided an endless flexible

connection 27, which is secured at each end to the carriage 16, and passes over a horizontal guide pulley 28 secured on the outer end of the arm 15, and also over vertical 5 guide pulleys 29, rotatably secured on the mast 10 near the upper end thereof. The flexible connection 27 is provided with a section of a sprocket chain 30, which passes over a sprocket wheel 31 on a shaft 32, and 10 is adapted to be driven thereby. The shaft 32 is also provided with a ratchet wheel 33, which is engaged by a pivoted pawl 34, whereby the ratchet wheel and thus the flexible connection, together with the car- 15 riage 16, are located in any adjusted position. The shaft 32 is adapted to be operated by a hand crank 35, which is secured thereto in any well known manner.

In order to rotate the mast 10, it is pro- 20 vided at its lower end with a bevel gear 36, which may or may not be formed integral with the cap 9 and which is engaged by a bevel pinion 37 on a shaft 38, which is journaled in any well known manner in the 25 base 8. The shaft 38 is provided at its outer extremity with a suitable hand wheel 39, whereby it is operated. Thus, by rotating the handle 39, the mast 10 may be rotated in its bearings, thereby swinging the 30 arm 15 to one side or the other of the vehicle 2.

In order to prevent the block 21, when loaded, from running down too fast, the drum 23 is provided with a brake flange 35 40, which is engaged by a flexible band brake 41, secured at its ends to a lever 42 pivoted to the body of the vehicle 2. The lever 42 is pivotally connected to an operating lever 43 by means of a link 44. The 40 lever 43 is pivotally connected to the body of the vehicle 2, and is adapted to be locked in any adjusted position by means of a lock 45, which engages in a rack sector 46. In order to further secure the derrick from 45 wobbling when once set up for use, the bracket 11 is provided with a plurality of openings, in which are secured in any well known manner, guy wires 47 and 48, which are secured to eye-bolts 49 and 50, which in 50 turn are secured to the platform 1.

The operation of the device will be readily understood when taken with the above description. The portable derrick may be 55 carried about from place to place by means of horses attached thereto. When it is desired to use the device, the wheels are blocked on the platform 1 in the manner shown, and are further secured by means of the cross bar 6 and the clamp bolts 7, 60 so as to form a perfectly rigid structure. When it is desired to hoist a load located on one side of the vehicle 2, the arm 15 is swung to that side by rotating the shaft 38, which rotates the mast 10. If the load is 65 located at a distance from the side of the

vehicle, the carriage 16 may be traversed out to the end of the arm 15 by rotating the hand crank 35, which drives the flexible connection 27 connected to the carriage 16. The load is then attached to the hoisting 70 block 21, and raised by connecting the rope 24 to a suitable source of power, such as a pair of horses, a gasoline engine, or the like. While the load is being hoisted, the arm 15 can be swung, if desired, to the location in 75 which it is desired to deposit the load. The operator, however, may wait until the load is entirely hoisted before shifting the arm or traversing the carriage 16, if he so desires. When it is desired to lower the load, 80 the brake 41 is applied to the drum 23, and the power disconnected from the rope 24, then, by manipulating the lever 43, the tension on the brake 41 may be varied, thus controlling the speed with which the load 85 on the block 21 is lowered.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a derrick, the combination with a 90 vehicle, of means for supporting said vehicle, means for locking said vehicle against movement, a mast rotatably supported on said vehicle, an arm rigidly secured to said mast, a carriage slidably supported on said 95 arm, means for traversing said carriage, a hoisting rope connected to said carriage, a drum for operating said hoisting rope, and a power rope for operating said drum.

2. In a derrick, the combination with a 100 platform, of a vehicle rigidly secured to said platform, a mast rotatably supported on said vehicle, means for rotating said mast, an arm rigidly secured to said mast, a carriage slidably supported on said arm, means for 105 traversing said carriage, a hoisting rope connected to said carriage, and means for operating said hoisting rope.

3. In a derrick, the combination with a support, of a mast rotatably connected to said 110 support, an arm secured to said mast, a carriage secured to said arm, a flexible connection secured to said carriage at each end and having a section of a chain therein, a sprocket wheel engaging said chain, means 115 for operating said sprocket wheel, a hoisting rope connected to said carriage, and means for operating said hoisting rope.

4. In a derrick, the combination with a vehicle, of a mast rotatably supported on 120 said vehicle, an arm secured to said mast, a carriage, track rollers on said carriage for supporting said carriage on said arm, guide pulleys on said carriage, a hoisting rope connected at one end with the outer extremity 125 of said arm, passing over said guide pulleys on said carriage, a drum for operating said hoisting rope, a brake for said drum, and a power rope adapted to operate said drum.

5. In a derrick, the combination with a 130

vehicle, of means for rigidly securing said
vehicle against movement, a mast rotatably
supported on said vehicle, means for rotat-
ing said mast, an arm rigidly secured to said
5 mast, a carriage slidably supported on said
arm, a flexible connection for traversing said
carriage, secured thereto at each end and
having a section of a chain therein, a
sprocket wheel engaging said chain and
10 adapted to operate said flexible connection,
means for operating said sprocket wheel,
means for locking said sprocket wheel in any
adjusted position, a hoisting rope secured

at one end of the extremity of said arm and
passing through said carriage, a drum for 15
operating said hoisting rope, a power rope
secured to said drum, a brake connected to
said drum, and means for operating said
brake.

In testimony whereof I have signed my 20
name to this specification in the presence of
two subscribing witnesses.

ALFRED P. HALD.

Witnesses:

WILLIAM E. BATES,
JOHN LEWIS.