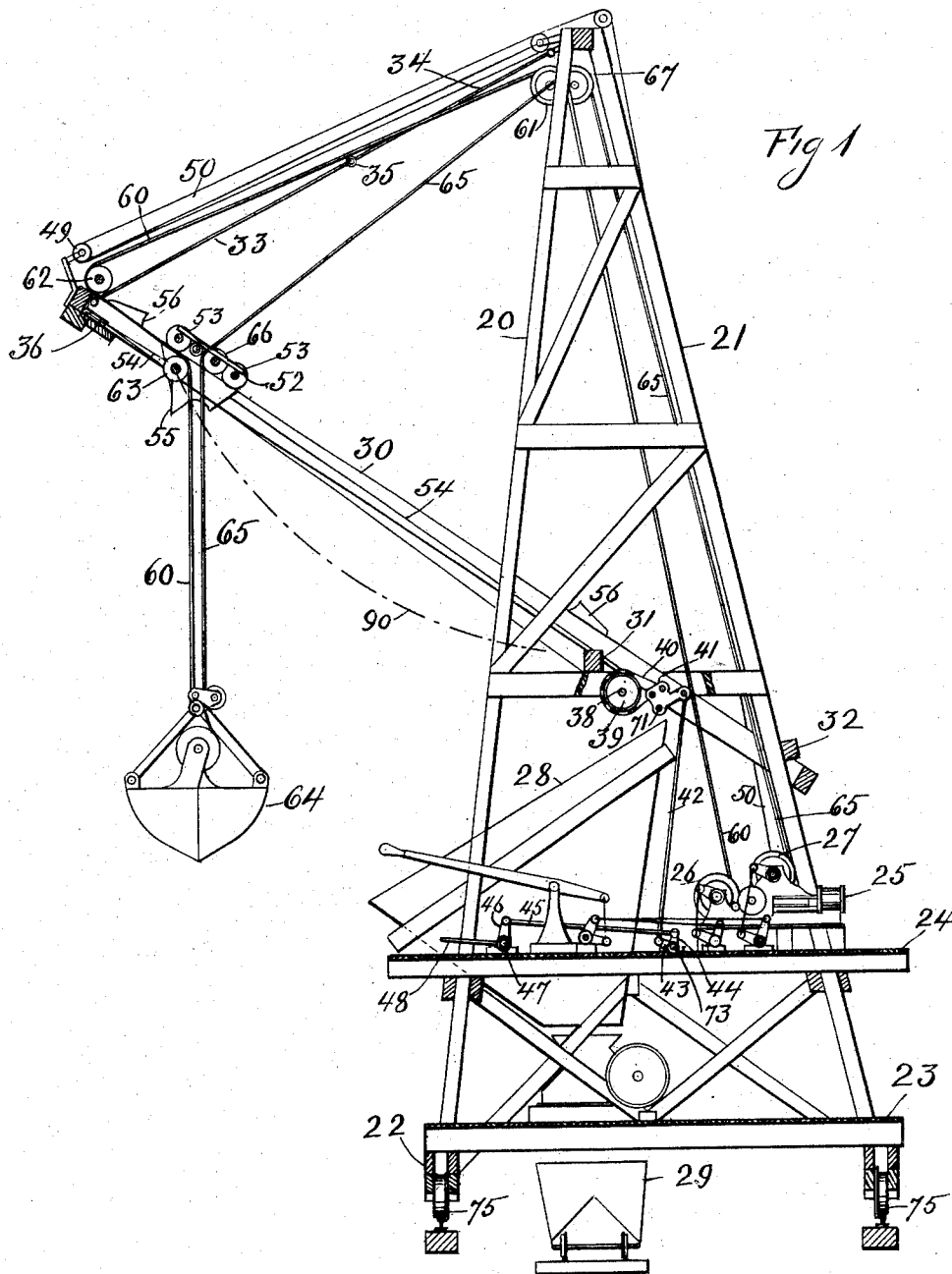


No. 874,192.

PATENTED DEC. 17, 1907.

W. J. HASKINS.
HOISTING TOWER.
APPLICATION FILED MAY 5, 1906.

4 SHEETS—SHEET 1.



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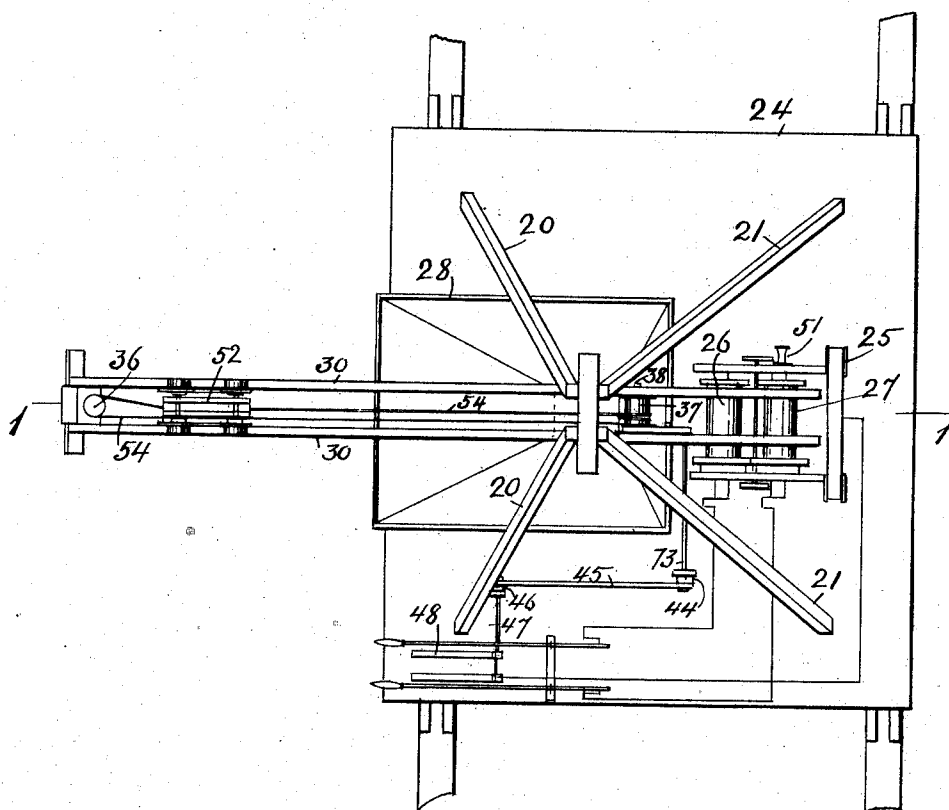
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4 SHEETS—SHEET 2.

Fig 2



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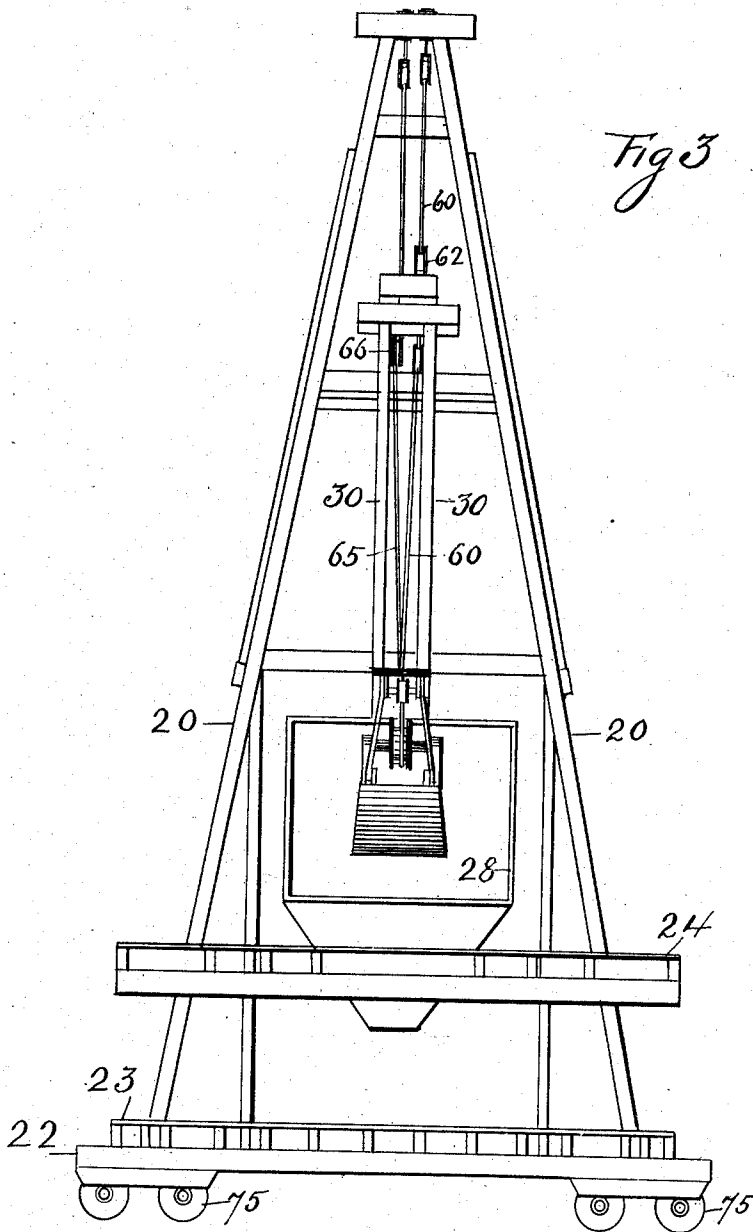
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

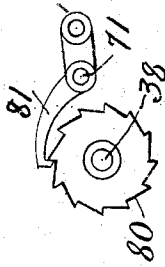


Fig 4

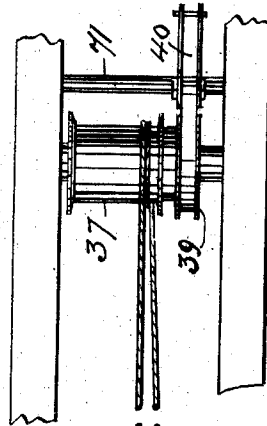


Fig 5

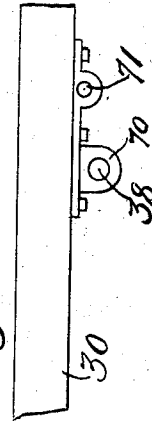


Fig 6

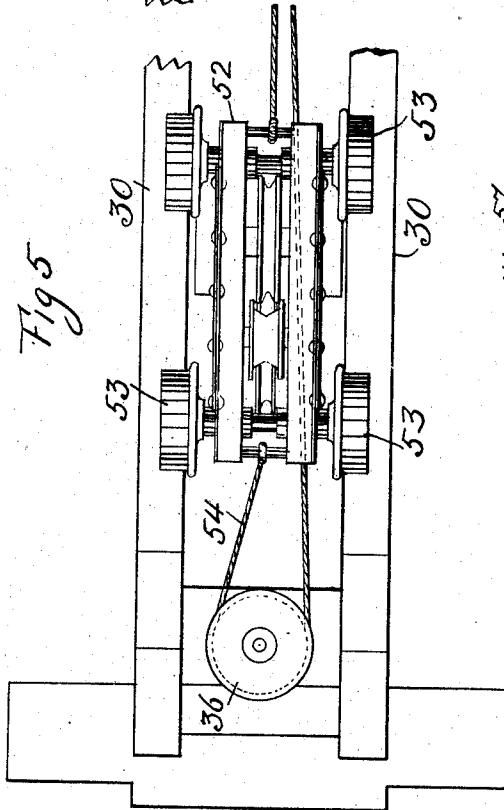


Fig 7

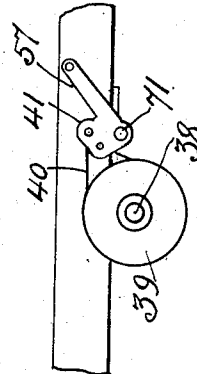


Fig 8

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UNITED STATES PATENT OFFICE.

WILLIAM J. HASKINS, OF NEW YORK, N. Y.

HOISTING-TOWER.

No. 874,192.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed May 6, 1906. Serial No. 315,304.

To all whom it may concern:

Be it known that I, WILLIAM J. HASKINS, a citizen of the United States, and a resident of the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented a certain new and useful Hoisting-Tower, of which the following is a specification.

This invention relates to a hoisting tower. Its organization comprises a tower with an inclined boom, a trolley on said boom, and a holding rope and operating rope running over sheaves on the trolley. The inclination of the boom is chosen so that when the trolley descends with its load the length of the operating rope will remain the same for various positions of the trolley on the boom. If the load is a self opening bucket, with the operating rope attached thereto, it will maintain the bucket closed as the trolley runs down the boom. Again the resultant of the forces obtained by leading the holding rope over a sheave on the trolley, is equal to and opposite in direction to the resultant of the forces obtained by leading the load operating rope over a sheave on the said trolley, and thereby the trolley is practically maintained in equilibrium on the boom, and there is obtained an automatic self contained locking or holding device. In addition to the above a drum is journaled at one end of the boom, and a rope is wrapped around the said drum with its ends fastened to the trolley, obtaining a second holding or locking device for the trolley.

Figure 1 represents a partial sectional elevation of a tower, as on the line 1, 1, Fig. 2 shows a top plan view of Fig. 1, Fig. 3 is a front end view of Fig. 1, Fig. 4 shows a side view of a modified detail, Fig. 5 is an enlarged partial plan view of the boom of the tower with its appurtenances, Fig. 6 represents a side view of a portion of the boom, Fig. 7 is a side view of a band brake, and a member of the boom.

A tower is shown with its uprights 20 and 21 extending from the bottom sills 22, which latter are supported on the wheels 75 and carry the platform 23. An engine platform 24 is located above the platform 23, and on the latter is supported the engine 25, with the holding drum 26 and bucket operating drum 27.

A hopper 28 is built with the tower, and a

car 29 is shown under the same. A boom 30 with its two members 31 and 32, and its outer end is supported by the truss rods 33 and 34, which latter are joined by eyes 35. At the outer end of the boom is journaled the sheave 36, and adjacent to the inner end of the boom is located the drum 37, on the drum shaft 38, which latter is supported in bearings 70.

To the drum 37 is fastened the brake wheel 39 with brake band 40. The latter has its ends pinned to the bell crank 41 carried on the shaft 71, and an arm 57 of the said bell crank has pinned thereto the link 42, which in turn is pinned to a crank 43 secured to the shaft 73. To the other end of the shaft 73 is fastened the crank 44, that is pinned to the link 45, which latter is pinned to the crank 46 fastened to the shaft 47, and to the shaft 47 are fastened the foot levers 48.

At the outer end of the boom is secured the tackle 49, a rope 50 of which leads to a winch head 51 on drum shaft of the drum 27.

A trolley 52 with trolley wheels 53 is located on the members 30 of the boom. A rope or chain 54 leads from the outer end of the trolley over the sheave 36, then is wrapped around the drum 37 and returns to the trolley where it is fastened. A stop 55 extends below the trolley 52, and stops 56 are secured on the boom.

A holding rope 60 is wrapped around and extends from the drum 26 of the engine. The said holding rope leads over a sheave 61 at the head of the tower, then leads under a sheave 62 at the end of the boom, from thence the rope runs to a sheave 63 journaled on trolley, and then extends to the load or in this case to bucket 64.

A bucket operating rope 65 extends from the bucket and leads over the sheave 66 on the trolley. From the latter the rope 65 leads over a sheave 67 at the head of the tower, and from the latter extends to the drum 27 of the hoisting engine.

The invention may be modified by substituting a ratchet wheel 80 with the pawl 81, instead of the brake wheel and band.

To operate the invention, and with the trolley in the position shown in the drawings, the holding rope 60 and the bucket operating rope 65 are paid out, the latter not being kept taut, by means of which the bucket will be lowered and kept open at the same time.

When it has reached the receptacle from which the charge is to be taken the bucket operating rope 65 is pulled taut, which will close the bucket with its charge, and then the bucket is raised by means of both of the ropes 60 and 65, until it is engaged with the stop 55. Now the operator releases the foot lever 48, which will loosen the brake band 40 on the brake wheel 39, and at the same time pays out the holding rope 60, and the load or bucket 64 will move the trolley down the inclined boom, until the operator bears on the foot lever 48 when the bucket is over the hopper 28. While the trolley is rolling down the boom the rope 65 is automatically maintained taut, because as the trolley descends down the boom the bucket leaves the stop 55 and swings approximately in an arc indicated by the line 90, which is practically concentric with the axis of the sheave 67. When the bucket is at the lower end of its travel the trolley is engaged with the lower stop 56 and the bucket may or may not be engaged with the stop 55 on said trolley. The rope 65 is now paid out which will allow the bucket 64 to open and discharge its contents.

Should it be desired to raise the boom when not operating the invention it is detached from the frame work of the tower, and raised by means of the tackle 50.

A modified method of operating the invention consists in hoisting the load or bucket 64 with both ropes 60 and 65, to a predetermined elevation, and then stopping the drum 26 and continuing to hoist with the rope 65, winding on the drum 27, so as to bring the bucket over the hopper on a curve opposite in direction to the curve marked 90, which brings the bucket in position directly over the hopper 28, and then the rope 65 is slackened and the bucket dumped.

Having described my invention, I claim:

1. The combination in a hoisting tower of a pair of sheaves at the head thereof, an inclined boom attached to the tower, a sheave at the outer end of the boom, a trolley on the boom, a pair of sheaves on the trolley, a holding rope leading from one of the sheaves at the head of the tower to the sheave at the outer end of the boom and then to one of the sheaves on the trolley, a bucket operating rope leading over the other sheave of the trolley and running over the second sheave at the upper end of the tower, a bucket suspended at the ends of both ropes below the trolley, the said inclination of the boom allowing the operating rope to remain taut while paying out with the holding rope, and permitting the trolley to run down the boom.

2. In a hoisting tower the combination of an inclined boom attached thereto, a trolley located on the boom, a pair of sheaves on the trolley, a rope leading over each sheave, a load suspended at the ends of the ropes be-

low the trolley, one of the ropes leading from one of the sheaves on the trolley to the upper end of the inclined boom, and the other rope leading from the other sheave on the trolley to the head of the tower, so that the resultant of the forces due to one of the ropes will be in an opposite direction to the resultant of the forces of the other rope.

3. In a hoisting tower the combination of an inclined boom attached thereto, a trolley located on the boom, a pair of sheaves on the trolley, a holding rope extending from the upper end of the boom over one of the said sheaves, an operating rope leading from the top of the tower over the other sheave of the trolley, a load suspended at the ends of the ropes below the trolley, the inclination of the boom allowing the operating rope to remain taut while paying out with the holding rope, a drum journaled at one end of the boom, a sheave journaled at the other end of said boom, a rope extending from the trolley to the drum and wrapped around the same and then leading back to the trolley over the sheave at the other end of the boom, and means to lock the drum in different operative positions.

4. In a hoisting tower the combination of an inclined boom attached thereto, a trolley located on the boom, a pair of sheaves on the trolley, a holding rope extending from the upper end of the boom over one of the said sheaves, an operating rope leading from the top of the tower over the other sheave of the trolley, a load suspended at the ends of the ropes below the trolley, the inclination of the boom allowing the operating rope to remain taut while paying out with the holding rope, a drum journaled at one end of the boom, a sheave journaled at the other end of said boom, a rope extending from the trolley to the drum and wrapped around the same and then leading back to the trolley over the sheave at the other end of the boom, a brake connected with the drum, a foot lever in the tower and connections between said brake and the foot lever.

5. In a hoisting tower the combination of an inclined boom attached thereto, a trolley arranged to move on the boom, two sheaves journaled on the trolley, a pair of sheaves journaled at the outer end of the boom, a drum journaled at the other end of the boom, an engine on the tower, a holding rope extending from the engine and leading over a sheave at the head of the tower and then under one of the sheaves at the end of the boom and over one of the sheaves on the trolley, a load suspended by the holding rope, a second rope extending from the load passing over the second sheave on the trolley then over the second sheave at the head of the tower and leading to the engine of the tower, means to haul in and pay out both of said ropes, a rope extending from the trolley and leading

around the second sheave at the end of the boom and then extending to the drum on the boom and wrapped around the same, and from thence leading back to the trolley, and
5 means to lock the drum in different operative positions.

Signed at the borough of Manhattan, city

of New York in the county of New York and State of New York this 28th day of April A. D. 1906.

WILLIAM J. HASKINS.

Witnesses:

O. H. CHENEY,
A. E. MÜLLER.