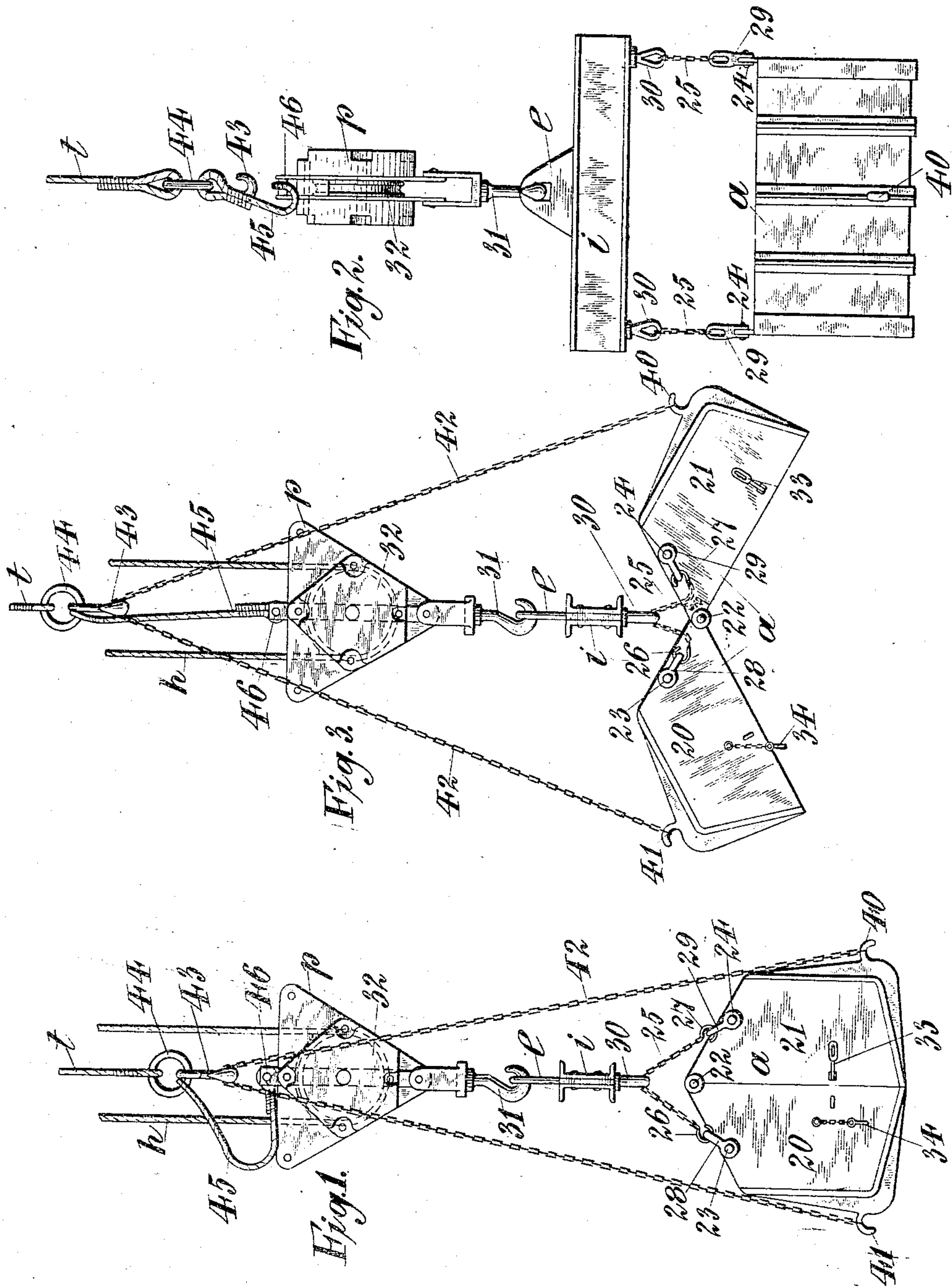


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915,363.

Patented Mar. 16, 1909.  
3 SHEETS—SHEET 1.



Witnesses  
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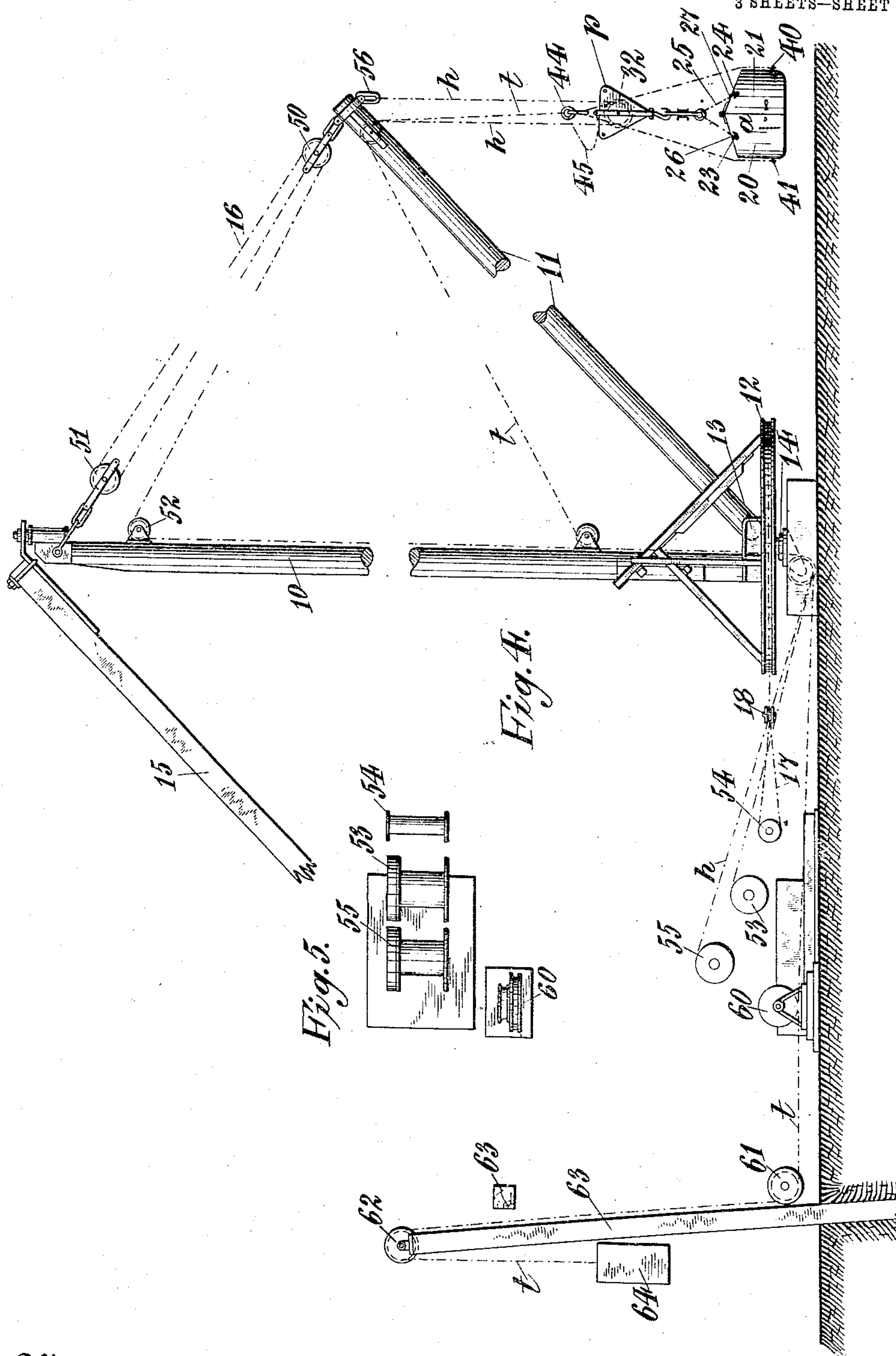
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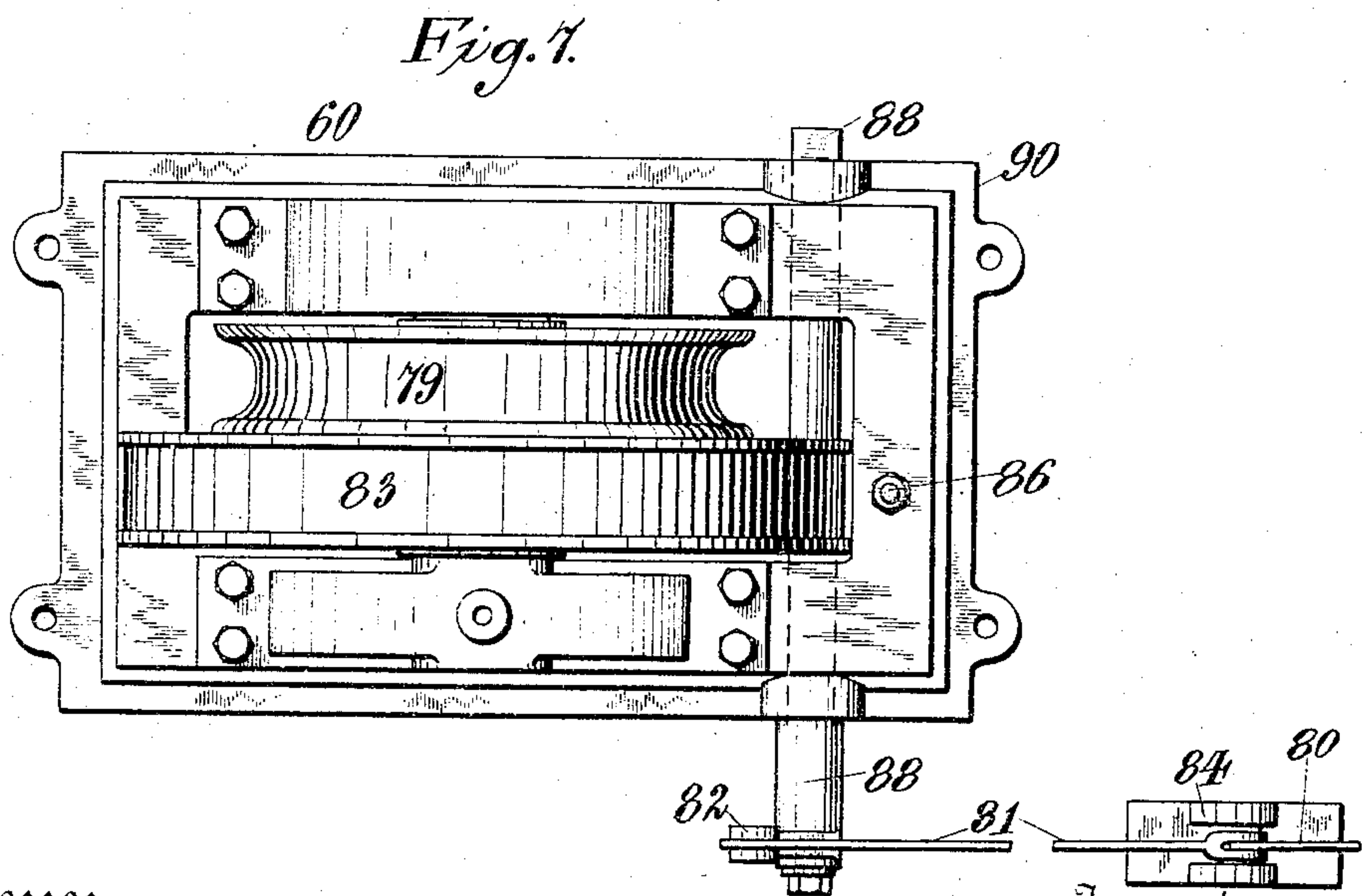
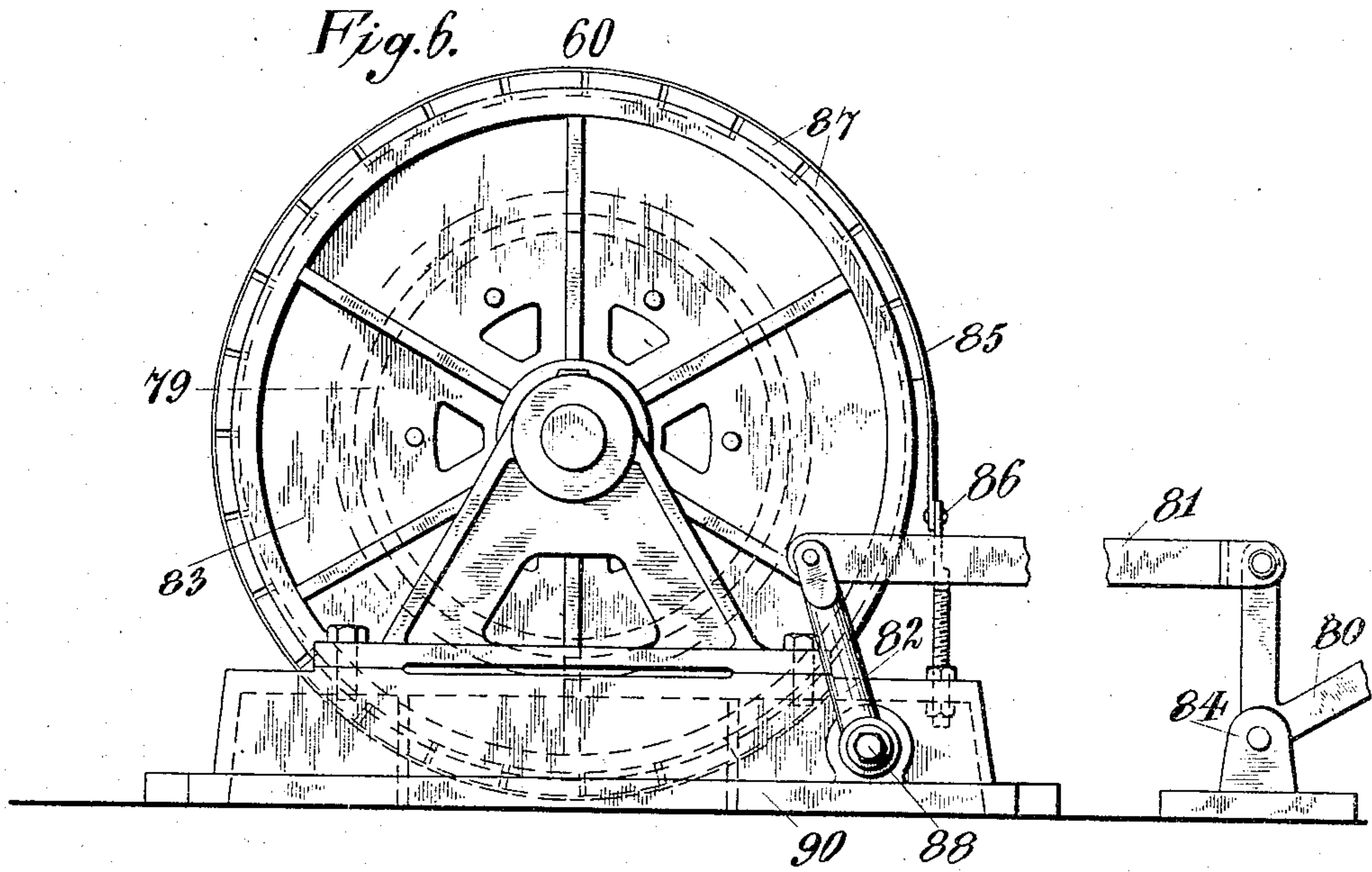
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# UNITED STATES PATENT OFFICE.

ASHER LAMBERT, OF NEWARK, NEW JERSEY.

## SKIP OR LOAD-CARRIER.

No. 915,363.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed May 3, 1906, Serial No. 314,929. Renewed March 14, 1907, Serial No. 362,415. Renewed June 16, 1908. Serial No. 438,880½.

*To all whom it may concern:*

Be it known that I, ASHER LAMBERT, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Skip or Load-Carrier, of which the following is a full, clear, and exact description.

This invention relates to conveyers, cable ways or derricks for hoisting and conveying. The object of this invention is to provide a skip or load carrier that can be filled at one point, elevated, detached and conveyed to another point, where it is hoisted, elevated or conveyed by means of a crane or derrick or overhead trackway and dumped or opened at any desired height or point in its transit.

The improved skip or load carrier preferably consists of two parts or sections, hinged or otherwise adjustably united, so that it can be opened and closed; it is provided with points of connection with the hoist rope so arranged that the supporting effort of the hoist rope automatically closes the two sections together and holds them closed during the time the skip is suspended from the hoist rope. In addition to this, other points of connection are provided on each section and a second rope, called a tripping rope, is employed, so arranged that the support of the skip can be transferred from one rope to the other and when transferred to this second or tripping rope the two sections of the skip are separated and the skip is opened to discharge its load. The hoisting rope is operated by a power driven drum in the usual manner; the tripping rope is provided with a device for taking up the slack, called a take-up device; this consists of a suitable support or standard with a weight and pulley; this rope is also provided with a device for checking its movement so that it can be made to halt and take the weight of the loaded skip; when the hoisting rope is slacked and the tripping rope thus made taut the skip opens whenever and wherever the change of support from one rope to the other is made.

I have shown my improved skip in connection with a derrick but the arrangement of the hoisting and conveying apparatus may be widely varied.

The accompanying drawings illustrate the invention.

Figure 1 shows the improved skip connected to the haul rope and the tripping rope; Fig. 2 is a view at right angles to Fig.

1; Fig. 3 shows the skip in its open position, the support having been transferred from one rope to the other; Fig. 4 shows the arrangement of the derrick and operating machinery; and Figs. 5, 6 and 7 are details of the controlling apparatus.

In Fig. 1, *a* is the skip; it is composed of two sections 20 and 21 hinged together at 22; points of support on its exterior are provided at 23 and 24 and these are duplicated on the opposite end, when the skip has the form and proportions of that represented. Links 28 and 29 are pivoted to these points of support, and there is a chain 25 with hooked terminals 26, 27 to detachably engage with the links 28, 29 pivoted at 23, 24, as described. There is an iron I-bar *i* with a perforated ear *e*, and this bar has loops 30 through which the chains 25 are passed. There is a hook 31 fixed to the pulley block *p* and the hoist rope *h* passes around the pulley 32 in the pulley block *p*. The position of the exterior points of support 23 and 24 on the skip *a* are so fixed with respect to the hinge 22 and the meeting line of the two sections 20 and 21 that the supporting effort of the hoist rope *h* acting through the chain 25 operates to draw the two sections 20 and 21 together. 33 is a clamp by means of which the two sections may be locked together and 34 is a pin fixed to the end of a section of chain by which the clamp 33 is locked in position; this is only used when the skip is detached from any hoisting apparatus and is located on a support beneath it, the clamp is not a necessary element but is useful when the filled skip is transported on a platform car, for instance. On the outside of the skip at or near the center and near the lower edge are hooks 40, 41, one on each section. *t* is a tripping rope connected with the ring 44; 43 is a hook also connected with the ring 44, and there is a chain or flexible connection 42, the opposite ends of which engage the hooks 40 and 41 and serve to connect the hook 43 therewith. 45 is a flexible connection between the ropes *t* and *h*, it extends from the ring 44 on the tripping rope *t* to a perforated ear 46 on the pulley block *p*. Pulley block *p* is of sufficient weight to overbalance counterweight 64, thus enabling the operator to lower the pulley block when no skip or load is connected therewith.

Referring to Fig. 4, 10 is a vertical mast on the rotating platform 12 pivoted at 14. The



boom 11 is pivoted at 13. 15 is a brace fixed at one end to the earth and at its opposite end to the top of the mast. There is a rope 16 passing over the pulleys 50, 51, 52, and a pulley at the bottom of the mast to the power driven drum 53. There is a rope 17 passing over the guide pulley 18 and engaging the groove in the rotating platform 12. This is controlled by a power driven drum 54. The hoist rope *h* passes from the power driven drum 55 over a pulley at the bottom of the mast 10, a pulley part way up the mast, and a pulley near the outer end of the boom, then around the pulley 32 in the block *p* and is fast to the link 56 at the end of the boom. The tripping rope *t* extends from the ring 44 over a pulley in the outer end of the boom 11, over a pulley near the bottom of the mast 10, under a pulley below the mast 10, passes four times around the drum 60, thence under the pulley 61 at the bottom of the fixed standard 63, over pulley 62 at the top of the standard 63 to the weight 64. This weight takes up the slack in the rope *t* between the ring 44 and the weight 64. The drum 60 is controlled by an angular lever 80 constituting a foot brake; this is pivoted to a suitable support at 84 and is connected by a link 81 with an arm 82 fixed on a transverse shaft 88 journaled in the bedplate 90. The drum 60 is rotatably mounted on the bedplate 90 and consists of the friction disk 83 and the pulley 79 fixed thereto. Rope *t* is passed around the pulley 79 three or four times to give it the necessary friction and the friction disk 83 is surrounded by a steel band 85 fixed at one end to the shaft 88, and at the other end to an adjustable bolt 86. The steel band 85 is provided with wooden shoes 87 which engage the periphery of the friction disk 83; when the arm 82 is turned by the depression of the lever 80, friction is applied to the disk 83 and the grooved wheel 79 is stopped in its rotation; this checks the movement of the tripping rope *t*. The link 81 may be of any linear extent and may be substituted by a rope.

The operation of the apparatus is as follows: When the skip *a* is loaded the drum 55 is started, the hoist rope *h* exerts a supporting effort on the skip *a* through the pulley block *p* and chain 25; this supporting effort draws the two sections 20 and 21 of the skip *a* together. When the skip has been carried to a sufficient height the boom is placed in the necessary position to locate the skip *a* over the point of discharge. Here the skip *a* is lowered more or less and while being lowered lever 80 is depressed and the brake band is applied to the drum 60 at or about the height where the discharge of the skip is desired, while the hoist rope *h* is still lowering but immediately after checking the movement of the tripping rope *t*, the section 45 connecting the two ropes *t* and *h* becomes taut and the supporting effort is placed upon

the rope *t* while the rope *h* becomes slack; this results in changing the points of support from 23 and 24 to 40 and 41, separates the sections 20 and 21 of the skip, and the load is dropped. By slacking away on the rope *t* and hauling on the rope *h*, the skip is again closed and this change from one supporting rope to the other may be made whenever and wherever it is desired to open or close the skip. The power driven drum 55 is a means for varying the length of the hoisting rope and the drum 60 with the take-up device and foot brake is a means for varying the length of the tripping rope.

What I claim and desire to secure by Letters Patent is:

1. A skip combined with a hoist rope, a tripping rope, means for connecting the hoist rope directly to the pulley block and means for connecting the tripping rope to said pulley block through an independent, flexible connecting device.
2. A skip combined with a hoist rope, a tripping rope, means for connecting the hoist rope directly to the pulley block, means for connecting the tripping rope to said pulley block through an independent, flexible connecting device and a take-up device for the tripping rope.
3. The combination in an apparatus of the character described, of a hoist rope, a tripping rope, a counterweight for the tripping rope, a pulley block for the hoist rope having greater gravity than the counterweight and a flexible connection between the tripping rope and said pulley block.
4. The combination of a two-part skip with a hoist rope, a tripping rope, means for connecting the hoist rope to a pulley block and means for connecting the tripping rope to said block consisting of a flexible connecting device.
5. The combination of a skip in two sections hinged together, closing points of support and opening points of support on said skip, a haul rope connected to the closing points, a tripping rope connected to the opening points, a connecting device at an intermediate point in said tripping rope and a flexible section uniting said connecting device with the haul rope.
6. The combination in apparatus of the character described of a pulley block, a rigid iron bar supported thereby, a skip having two sections hinged together, exterior points of support on each end of each section, flexible connections between said bar and said points of support, a pair of supporting points on the exterior of the skip intermediate the first named points, a hoist rope connected to said bar, a tripping rope connected to said intermediate points and means whereby the hoisting rope when tightened closes said sections and the tripping rope when tightened opens said sections.



7. The combination in apparatus of the character described of a pulley block, a skip having two sections hinged together, a hoisting rope, a tripping rope, points of connection on the skip for the hoisting rope, points of connection on the skip for the tripping rope, means whereby the slacking of one rope and the tightening of the other opens the skip and vice versa, and a take-up device for the tripping rope.

8. The combination in apparatus of the character described of a pulley block, a skip having two sections hinged together, a hoisting rope, a tripping rope, points of connection on the skip for the hoisting rope, points of connection on the skip for the tripping rope, means whereby the slacking of one rope and the tightening of the other opens the skip and vice versa, and a take-up device for the tripping rope consisting of a weight and pulley.

9. The combination in apparatus of the character described of a pulley block, a skip having two sections hinged together, a hoisting rope, a tripping rope, points of connection on the skip for the hoisting rope, points of connection on the skip for the tripping rope, means whereby the slacking of one rope and the tightening of the other opens the skip and vice versa, a take-up device for the tripping rope and means for checking and holding the tripping rope.

10. The combination in apparatus of the character described of a pulley block, a skip having two sections hinged together, a hoisting rope, a tripping rope, points of connection on the skip for the hoisting rope, points of connection on the skip for the tripping rope, means whereby the slacking of one rope and the tightening of the other opens the skip and vice versa, a take-up device for the tripping rope and means for checking the tripping rope consisting of an independent drum or roller and a suitable friction brake.

11. The combination in apparatus of the character described of a pulley block, a skip having two sections hinged together, a hoisting rope, a tripping rope, means for connecting the hoisting rope with said skip, means for connecting the tripping rope with said skip so arranged that upon slacking one rope and tightening the other the skip will be opened, a suitable power driven drum for the hoisting rope, a suitable take-up device for the tripping rope and means for checking the movement of the tripping rope.

12. The combination in apparatus of the character described of a pulley block, a skip

having two sections hinged together, a hoisting rope, a tripping rope, means for connecting the hoisting rope with said skip, means for connecting the tripping rope with said skip so arranged that upon slacking one rope and tightening the other the skip will be opened, a suitable power driven drum for the hoisting rope, a suitable take-up device for the tripping rope, and means for checking the movement of the tripping rope consisting of an independent wheel or roller and a friction brake therefor.

13. The combination, in an apparatus of the character described, of a skip having two hinged sections, a hoisting rope, means for detachably connecting the skip to said rope, a tripping rope, means for varying the length of the hoisting rope, means for varying the length of the tripping rope and for holding fast said rope while releasing the hoist rope.

14. The combination in an apparatus of the character described, of a skip having two hinged sections, a hoisting rope, means for detachably connecting the skip to said rope, a tripping rope, and means for holding fast either one of said ropes and transferring the support of the skip to the other rope.

15. The combination in an apparatus of the character described, of a skip having two hinged sections, a hoisting rope, means for detachably connecting the skip to said rope, a tripping rope, two independent drums, one for each rope, and means whereby the support of said skip may be transferred from one rope to the other.

16. The combination in an apparatus of the character described, of a skip having two hinged sections, a hoisting rope, means for detachably connecting said skip to said rope, a tripping rope, a suitable drum for each rope, means for rotating either drum and means for holding one drum while the other is rotated.

17. The combination in apparatus of the character described of a pulley block, a gravity device connected to said block, a suitable skip having two sections hinged together detachably connected to said gravity device, a hoist rope connected to said pulley block, a controlling rope detachably connected to said skip and a connection between said controlling rope and gravity device whereby the outhaul of the gravity device on the hoist rope is communicated to the controlling rope.

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Witnesses:

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