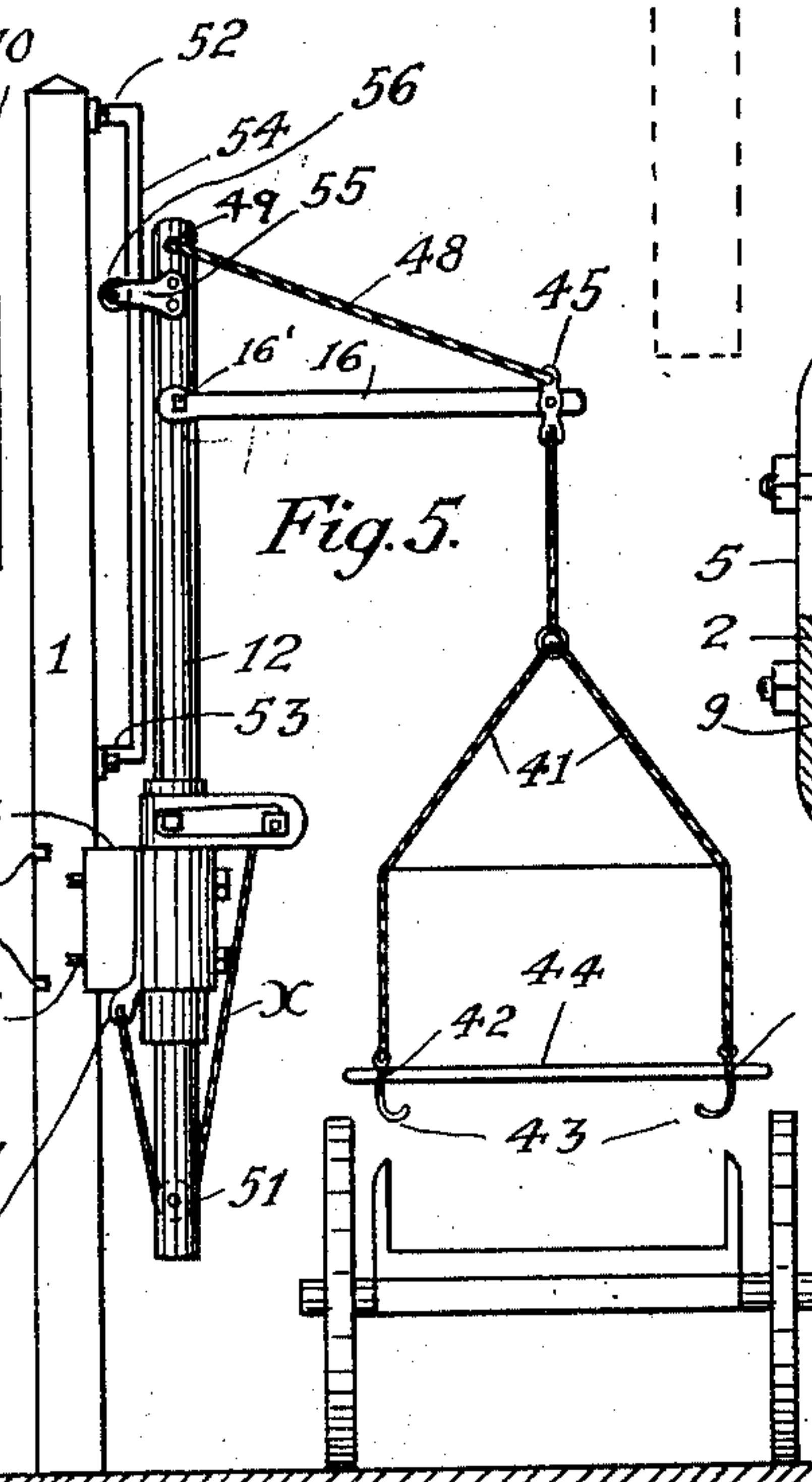
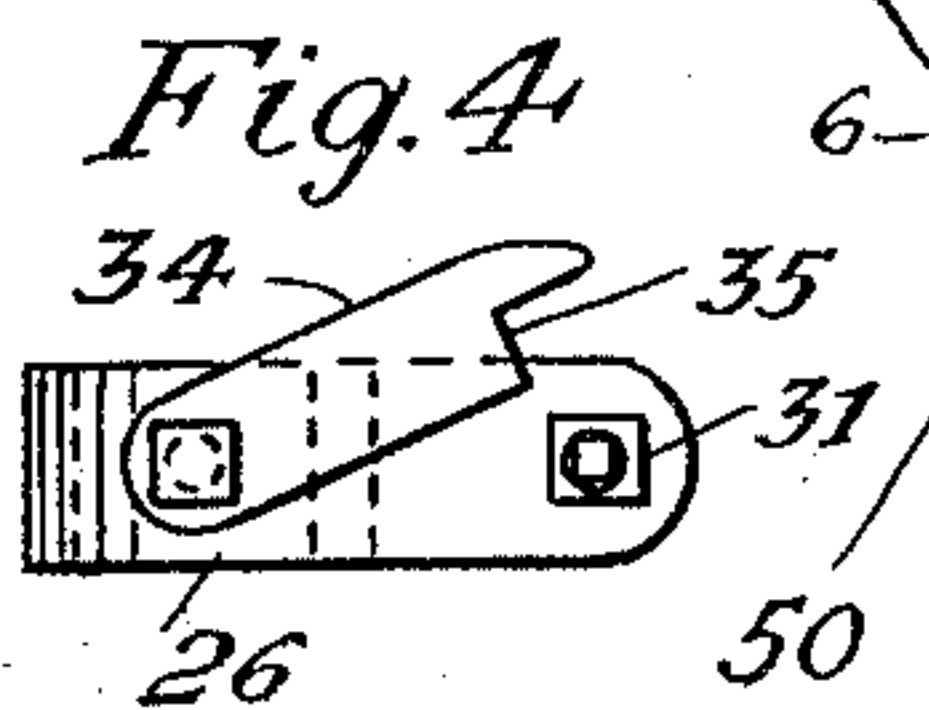
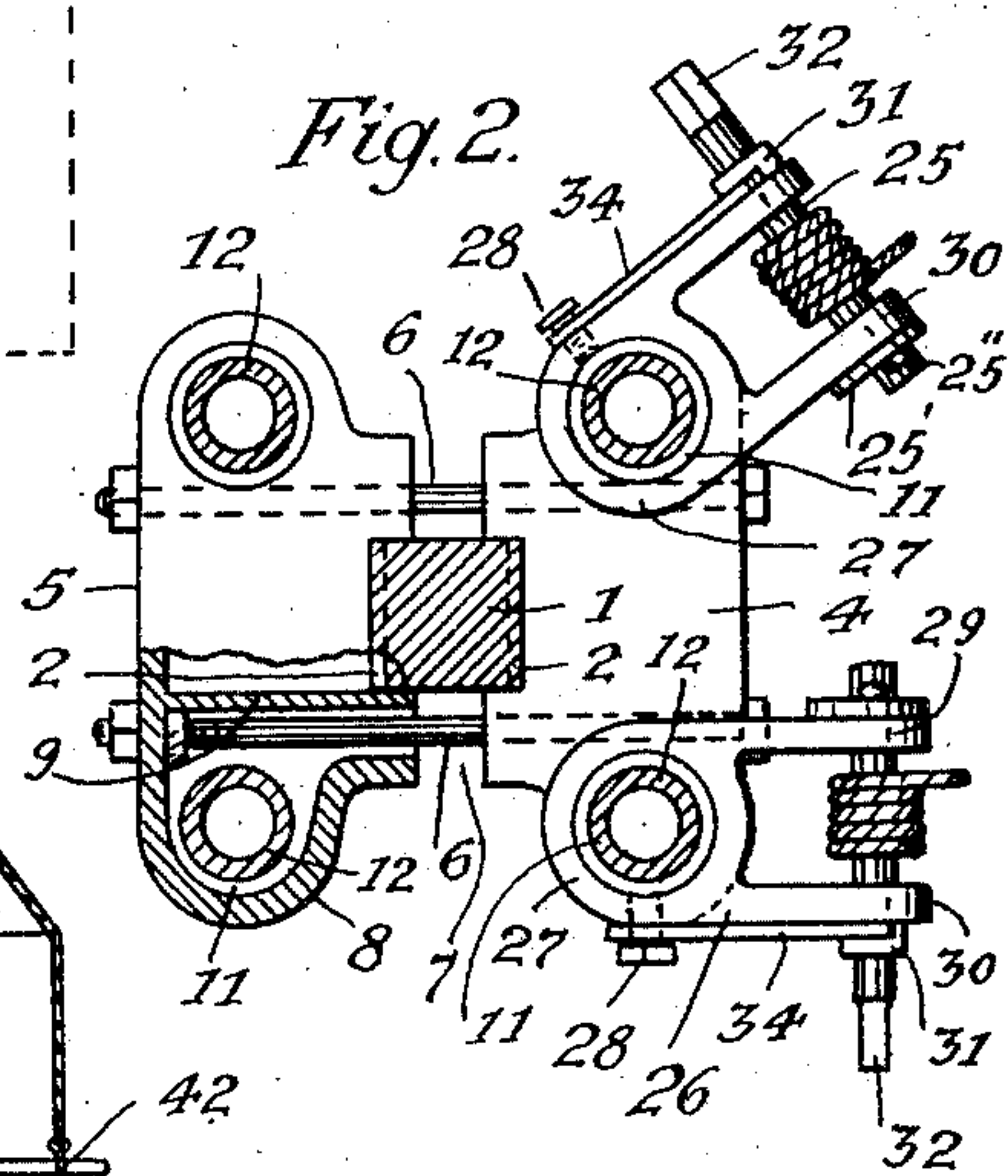
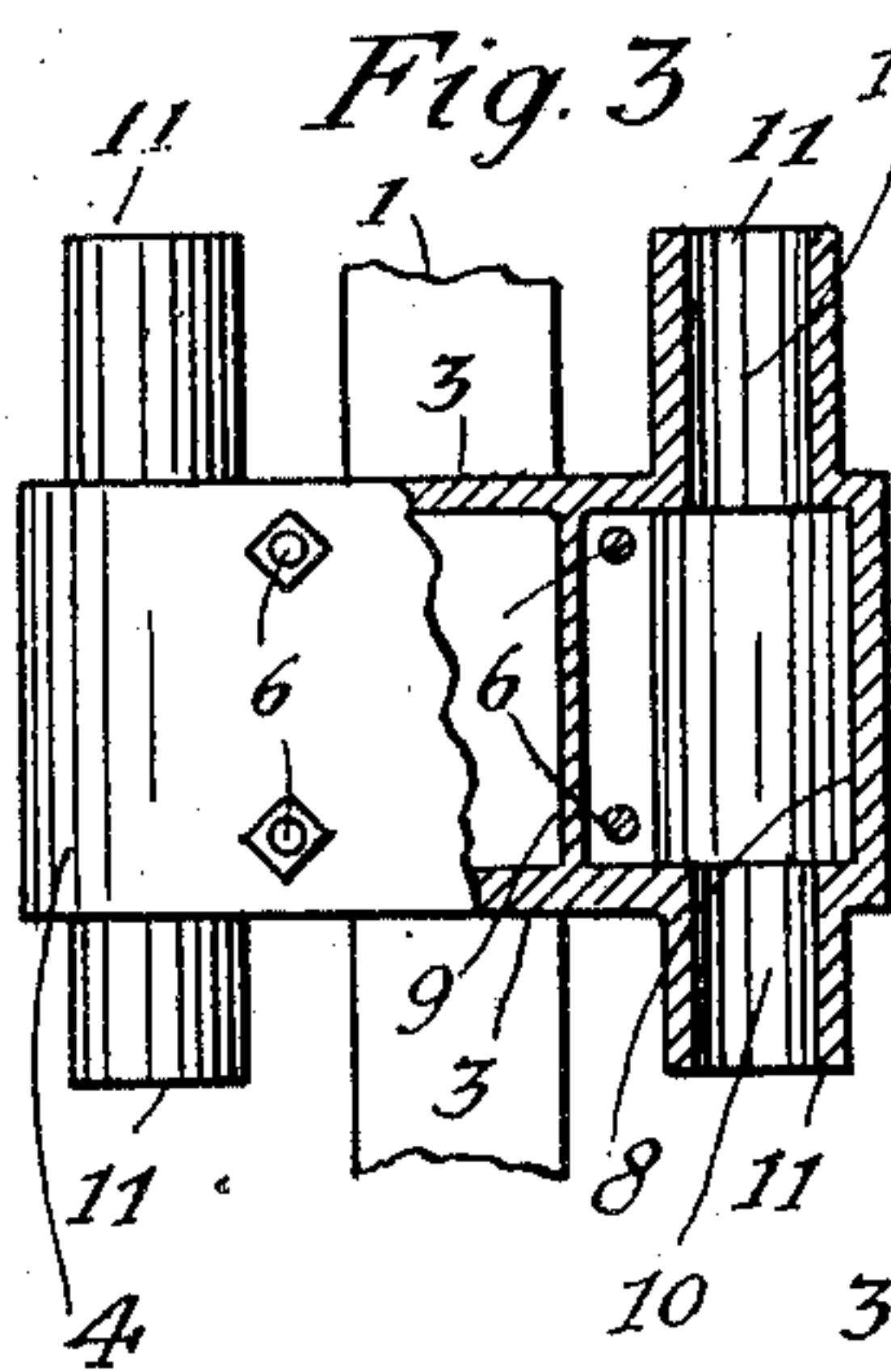
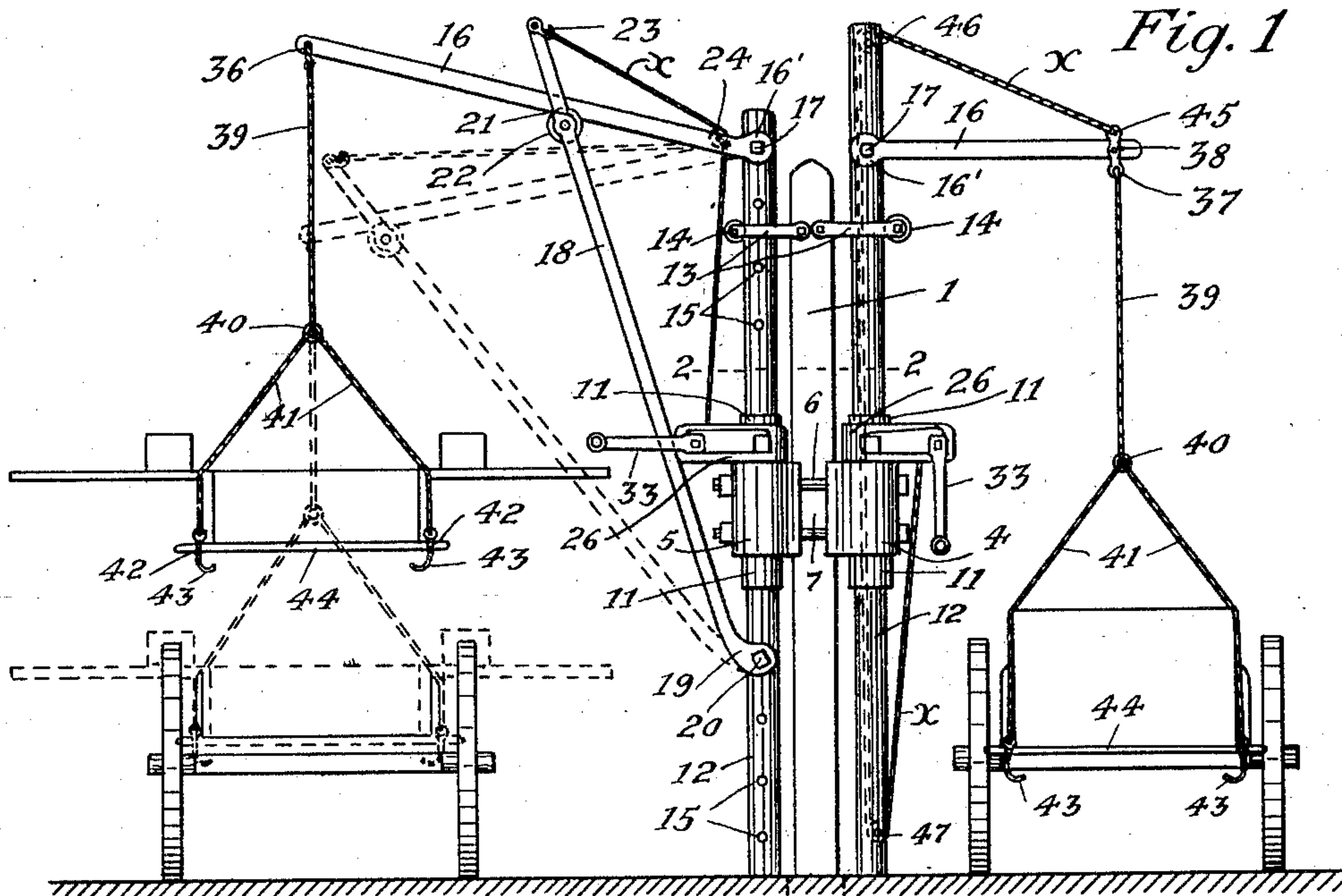


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HOISTING DEVICE.  
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998,306.

Patented July 18, 1911.



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# UNITED STATES PATENT OFFICE.

LEONARD ROMAN, OF GREENLEAF, MINNESOTA.

## HOISTING DEVICE.

998,306.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed December 19, 1910. Serial No. 598,011.

*To all whom it may concern:*

Be it known that I, LEONARD ROMAN, a citizen of the United States, residing at Greenleaf, in the county of Meeker, State of Minnesota, have invented a new and useful Hoisting Device, of which the following is a specification.

A primary object of my invention is to provide a hoisting device for use on a farm, which is simple in construction and readily assembled and put in place, which, although inexpensive and easily kept in working order, is thoroughly efficient, and which has an especial function in being adapted to remove from a wagon body the wagon-box, hayrack or other construction thereupon and hold the same suspended in position for the wagon to be driven thereunder, so that the box may again be placed on the wagon when needed.

My invention contemplates the use of at least two hoisting devices, which may be of different character, as will be hereinafter pointed out, but which are necessarily related to one another in the functions for which they are designed, since it is the removal of one construction from the wagon and replacing the same by another, for example, exchanging the wagon-box for the hayrack, that constitutes the essential function of my invention. The average small farmer, having but one heavy wagon, has frequent occasion to make the above indicated exchanges, and each of said occasions presents one of the most burdensome labors of the farm. Not only is it practically impossible for one man alone to make the change, at least without danger of physical injury to himself, but even when force enough is available to handle the heavy wagon-box and hayrack, the strain upon these structures resulting from the uneven jarring manner in which they are removed from the wagon and deposited upon the ground, or vice versa, loosens and breaks the fastenings and inevitably largely shortens the useful life of both wagon-box and hayrack. My invention, at the same time, makes it possible for one person—even a young boy can operate the device—to exchange the structures carried by a farm wagon with little effort and no danger of injury, either to the operator or the structures exchanged, which are simply lifted without rack or strain of any sort.

The hoisting devices can, of course, also

be utilized for lifting other heavy objects, as a hog or beef carcass for scraping or skinning, farm machinery to be loaded or unloaded, etc.

One form of my invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation, viewed from the end, showing one portion of the device after the same has removed a hayrack from the wagon, and the other part of the device in position to remove a wagon-box from the wagon. Fig. 2 is a sectional plan on line 2—2 of Fig. 1, with one of the castings in section to show the interior structure thereof. Fig. 2 is a side elevation of one casting, part of the same being in section. Fig. 4 is a detail view of the ratchet. Fig. 5 is an end elevation of a modification.

For a main support the post 1 is provided. This may be a piece of square timber, as shown, or a round post, or the trunk of a tree, or even the framework of the barn or other building may be utilized, and the post may be formed of iron or other material, according to the requirements of the particular situation in which my invention is to be used, but for general purposes a square timber set into the ground several feet, so as to be immovably held therein, is to be preferred. The post may be provided on opposite sides thereof with horizontal notches 2, into which register horizontal members 3 of two castings 4 and 5, respectively, said castings being clamped together and to the post 1 by means of bolts 6. The castings 4—5 clasp the post 1 so as to leave a space 7 between said castings, as clearly shown in Figs. 1 and 2. By tightening the nuts on the bolts 6, therefore, the castings are clamped to the post 1 very rigidly, and if at any time use of the device results in loosening the castings on the post it is only necessary to tighten the nuts to cause the whole mechanism to become perfectly rigid with the post again.

Between the horizontal members 3 of the castings 4 and 5 extend outside webs 8 and inside webs 9, said webs 9 being adjacent the outside edges of the post 1, the bolts 6 passing outside of said webs 9 and the post 1, although close to the same, so that when the two castings are bolted in clamping engagement with the post, as described, the resulting combination of parts will be peculiarly strong and rigid. In each of the horizontal members 3 of the castings 4 and 5, are pro-



vided openings 10, which may be circular in form, or rectangular, or of other form, as desired, there being preferably one such opening at each end of said members 3, although a greater or less number of openings may be provided, it sometimes being desirable to provide a third opening between the webs 9 for mounting a third hoisting means to be used independently when the other hoisting means on that side of the device are engaged in holding suspended a hayrack or wagon-box. Extending outwardly from, and surrounding, the openings 10 are projections 11, which will have the same interior form as said openings 10 but will preferably be of tubular exterior form. The correspondingly placed openings 10 in the top and bottom members 3 exactly register one above the other, so that said openings extending through the projections 11 form a practically continuous housing or guideway for hoisting uprights 12, which have the same cross-sectional form as that of said openings 10, and may be of iron, wood or other material, as desired, an excellent article, where the openings 10 are circular, being ordinary cylindrical iron pipe, as shown, said uprights 12 being mounted to slide up and down freely in said openings, while being constrained to keep a substantially vertical position by the guideways formed by the projections 11. Additional means to prevent deflection of said uprights 12 away from the post 1 consists of pairs of arms 13 bolted to the post 1, one of each of said pairs of arms passing on either side of an upright 12 and having journaled between said arms a guide-pulley 14, against which the outside part of the upright 12 contacts as it is normally positioned in the machine.

Each of the uprights 12 has therein a series of holes 15. A hoisting bar 16 may be pivoted to the upright 12 by means of a pin 17 extending through ears 16' embracing the upright 12 and any hole 15 which will position the hoisting bar at the proper height for the particular purpose desired, it being my intention to have said height of the hoisting bar adjustable. Where the weight to be lifted is unusually heavy, I prefer to use a second hoisting bar 18 to cooperate with the bar 16. The bar 18 is provided with a bifurcated foot 19 curved inwardly so as to embrace the upright 12, to which it is pivoted by means of a pin 20 passing through a selected hole 15 in the upright 12 and below the castings 4 and 5. The bar 18 is provided at its other end with another bifurcated member 21, within which is mounted an anti-friction roller 22, the hoisting bar 16 riding on the roller 22 between the side portions of the bifurcated member 21. The side portions of said member 21 are drawn together at the top and provided with a hook 23. The bars 16 and

18 may each be of metal cast or forged in one piece or the parts 16', 19 and 21 may be castings or forgings to be attached to wooden bars. In this form of my invention, I mount a small pulley 24 between the ears 16' of the bar 16. From the hook 23, a flexible connection  $\alpha$ , preferably a rope or wire cable, extends over the pulley 24 to a windlass 25 in a bracket 26, adjustably mounted on one of the upward extensions 11. The bracket 26 comprises a base member 27 closely encircling the extension 11 and clamped thereto in any adjusted position by means of a set-bolt 28 screwed into and through said base member 27 and against the extension 11 of the casting 3 or 4. The base member 27 has outwardly extending arms 29, 30, in which is journaled the windlass 25. Said windlass consists simply of a shaft or rod, of metal or other desired material, having a squared portion 32 at one end for the reception of a removable hand crank 33, a squared enlargement 31 inside of said crank receiving portion 32 serving both to hold the windlass 25 from passing through its journals and also as a ratchet, with which cooperates a pawl 34 loosely pivoted on the set-bolt 28, and having a cut-out portion 35 corresponding in size and shape with the squared member 31. Any of the well-known forms of pawl and ratchet devices may be used in place of that described above, but the described device has the merit of being extremely simple and easy to make and apply, and being sure in its operation and not easily displaced when holding the windlass against the pull of a weight suspended thereon. Windlass 25 is held at the other end by washer 25' and pin 25''.

Attached to the hoisting bars 16, either directly to holes 36 therein, or to an eye 37 depending from an encircling band or hoop 38, are connections 39, having at the lower end thereof a ring 40, to which are attached two or more additional connections 41. To the lower ends of the connections 41 are attached rings 42, carrying hooks 43. In preparing to hoist a wagon-box or hayrack, the windlass carriers 27 are turned away from each other, as shown in the upper part of Fig. 2, the uprights 12 and hoisting bars 16 being correspondingly turned, and the connections 41 from each bar 16 are brought to either side of the box or hayrack and a pole 44 placed beneath the same and through the rings 42, as shown, or the hooks 43 may be directly engaged with the frame of the box or rack. Upon turning the crank 33 on one windlass and then on the other alternately, the bars 18 will be raised by the rope or cables  $\alpha$ , which, through cooperation of the rollers 22 with the bars 16 will swing said bars upward on their pivots, lifting the rack from its position on the wagon, shown in dotted lines to the position shown in full



lines, where it will remain until wanted for further use, the pawl 35 acting against the ratchet 31 to hold the windlass locked and the rack suspended.

5 In general practice, for constructions of ordinary weight, I contemplate lifting the uprights directly and with them the load to be hoisted, either in the manner shown in the right-hand portion of Fig. 1 or in that shown in Fig. 5. As shown in Fig. 1, bar 10 16 is pivoted to swing freely upward. Flexible connection  $x$  is attached to an upper eye 45 on the hoop 38, and passes over a pulley 46 journaled in the upper end of upright 12, down through the interior of said upright, which, for this form of my invention, must be tubular, around another pulley 47 journaled in the lower portion of said upright, and from there to the windlass 25. Rotation of the windlass will have a differential effect with respect to the lifting point of attachment 37 of the connection 39, both to swing the bar 16 upwardly on its pivot and to raise the upright 12 vertically.

In the form of my invention shown in Fig. 5, the hoisting bar 16 is held from downward movement on the pivot 17 by a cord or rod 48 attached to the eye 45 and to a hole or other fastening device 49 on the upper end of the upright 12. The connection  $x$  is attached to an eye 50 fast on the casting 3 or 4, from which point it passes down through openings in the lower portion of the upright 12 and around a pulley 51 journaled therein to the windlass 25. Operation of the windlass will thus act to lift the upright and its load vertically, but only at half the rate that the connection  $x$  is taken up, so that this will exercise a very powerful lifting force.

Another method of restraining the bar 12 from outward deflection when the same is lifted vertically through the guideway 10 is also shown in Fig. 5. To the central supporting member 1 is secured by means of offsets 52 and 53, respectively, at the top and bottom thereof, a bar 54. Rigidly secured to the slidable member 12 above the pivot point 17 of the hoisting arm 16, and near the top end of said member 12, is a member or pair of members 55, extending inwardly so as to straddle the bar 54, and having rotatably mounted therein an anti-friction roller 56 for cooperation with the bar 54 to hold the said upper end of the member 12 as it is lifted vertically from outward deflection by reason of the weight suspended from the hoisting arm 16, the roller 56, of course, riding along the inside of the rigid bar 54.

The operation of my novel hoisting device will be readily understood in connection with the detailed description heretofore given.

I claim:—

1. A hoisting device comprising a central support, a casting on said support having a guideway extending therethrough, a windlass carried by said casting and adjustable thereon, a member vertically slidable in said guideway, means for attachment to the object to be hoisted connected with said slidable member, and a connection from said slidable member to the windlass, whereby the same may be operated to raise and lower said object.

2. A hoisting device comprising a central support, a casting on said support having tubular projections on each side of said casting, said projections alining to form a guideway through the casting, a windlass mounted on the upper of said projections so as to be axially adjustable about the same, a member vertically slidable in said guideway, means carried by said slidable member for attachment to the object to be hoisted, and means connecting the windlass to the slidable member whereby the same may be operated to lift said object.

3. A hoisting device comprising a central support, notched seats on opposite sides of said support, a pair of castings having flanges for engagement in said seats, connections between said castings securing them together and clamping them rigidly to said support, means on said castings for mounting a series of windlasses, a series of windlasses adjustably mounted thereon, vertical supports movably sustained in said castings, corresponding in position and number to the windlasses, and means connecting said movable supports to the windlasses, means carried by said movable supports for attachment to an object, whereby the windlasses may be operated to lift said movable supports and object.

4. A hoisting device comprising a central support, notched seats on opposite sides of said support, a pair of castings having flanges for engagement in said seats, connections between said castings securing them together and clamping them rigidly to said support, means on said castings for mounting a series of windlasses consisting of a series of projections on top of the castings, and a series of similar and correspondingly placed projections from the lower side of the castings, said upper and lower projections having alining openings therethrough forming practically continuous sustaining and guiding channels.

5. A hoisting device comprising a central support, a casting on said support, a windlass adjustably mounted on said casting, a slidable supporting member held in said casting, means attached to said central support for additionally sustaining said slidable member in vertical position, a hoisting arm pivoted to the vertical member above



the casting, but held from downward movement thereon, and means connected with the windlass and the casting and having operative connection with the slidable member whereby the windlass may be operated to lift the slidable support vertically together with any object carried by the hoisting arm.

6. A hoisting device comprising a central support, a casting on said support, a windlass adjustably mounted on said casting, a slidable supporting member held in said casting, means attached to said central support for additionally sustaining said slidable member in vertical position, a hoisting arm extending horizontally from the vertical member, a pulley rotatably mounted in the lower portion of the vertical member, and a flexible connection from the casting at one side of the vertical member passing around said pulley to the windlass, whereby the windlass may be operated to lift the sliding member vertically and with it any object attached to the hoisting arm.

7. A hoisting device comprising a central support, a casting on said support, a windlass adjustably mounted on said casting, a slidable supporting member held in said casting, means attached to said central support for additionally sustaining said slidable member in vertical position, a hoisting arm extending horizontally from the vertical member, a flexible member connected to said hoisting arm provided with two extensions each having a ring and a hook on the end thereof, a pole adapted to be passed through the rings beneath any object to be lifted, a pulley rotatably mounted in the lower portion of the vertical member, and a flexible connection from the casting at one side of the vertical member passing around

said pulley to the windlass, whereby the windlass may be operated to lift the sliding member vertically and with it any object attached to the hoisting arm.

8. A hoisting device comprising a central support, notched seats on opposite sides of said support, a pair of castings having flanges for engagement in said seats, connections between said castings securing them together and clamping them rigidly to said support, means on said castings for mounting a series of windlasses consisting of a series of projections on top of the castings, and a series of similar and correspondingly placed projections from the lower side of the castings, said upper and lower projections having alining openings therethrough forming practically continuous sustaining and guiding channels, a series of two-armed members mounted on said upper projections to have a radial movement about the same, a windlass shaft rotatably mounted in each pair of arms and having a ratchet and a crank-receiving portion at one end, a pawl cooperating with the ratchet, a bolt in each two-armed member for holding the same fixed in any position of adjustment about the upward projections and also to form a pivot for the pawl, and a removable crank to be used successively on each of the windlass shafts for operating the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 13th day of December, 1910.

LEONARD ROMAN.

Witnesses:

J. N. GAYNER,  
E. P. PETERSON.