

C. J. BURKE & A. A. SHIPPY.

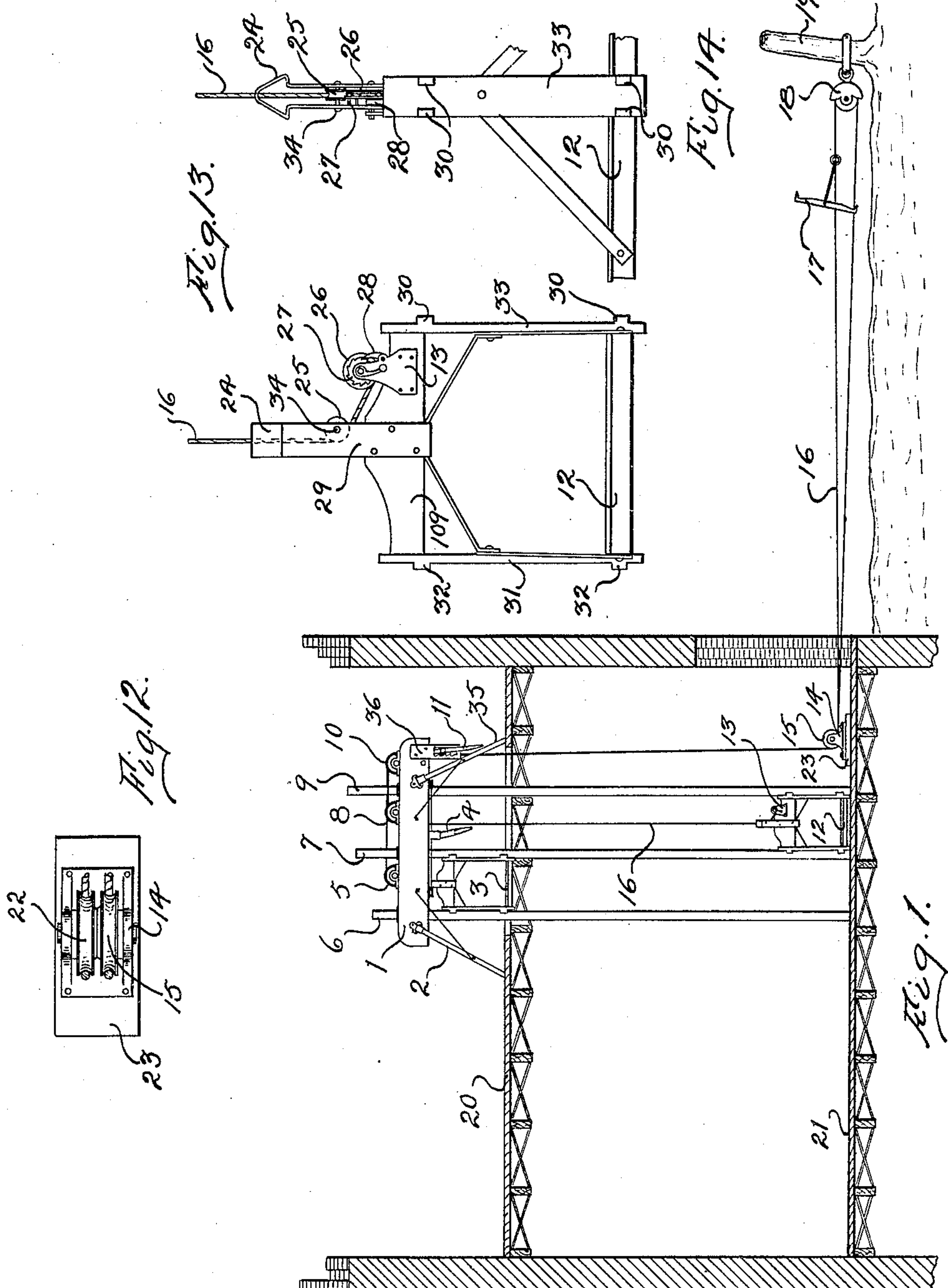
HOISTING DEVICE.

APPLICATION FILED FEB. 13, 1909.

Patented Jan. 18, 1910.

3 SHEETS—SHEET 1.

946,913.



WITNESSES:

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BY

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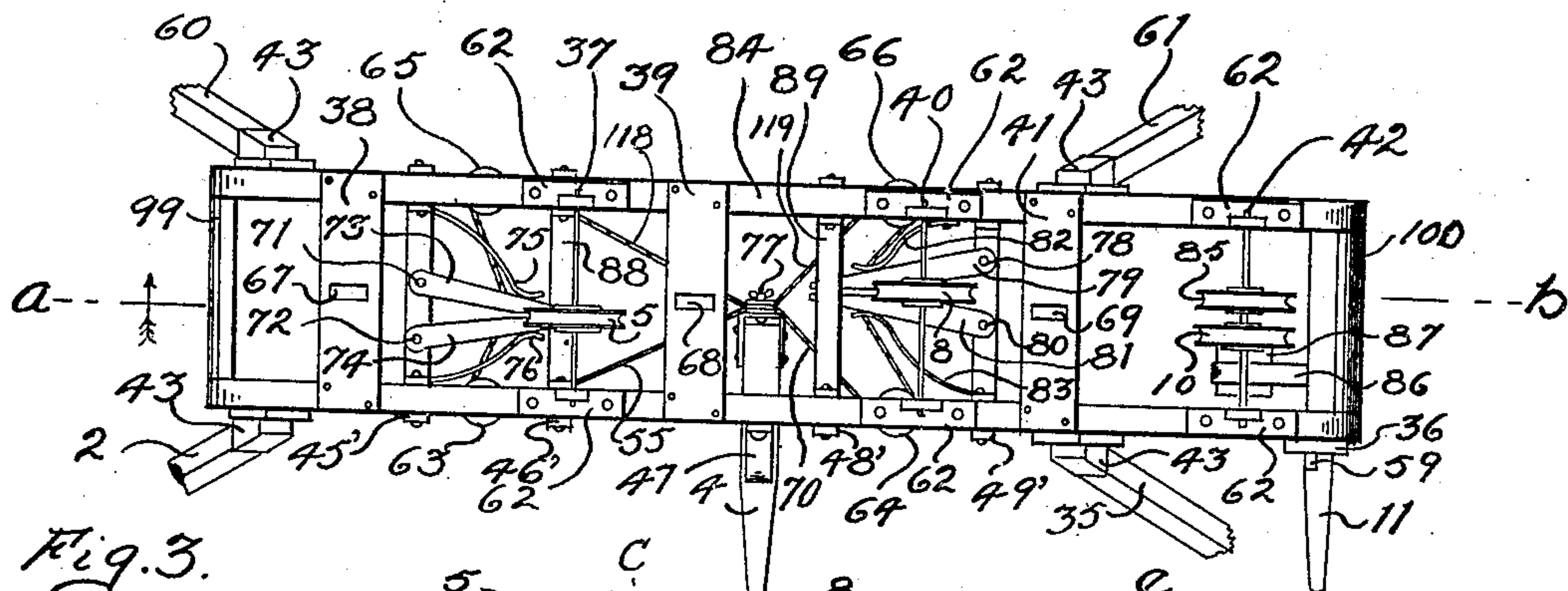


Fig. 3.

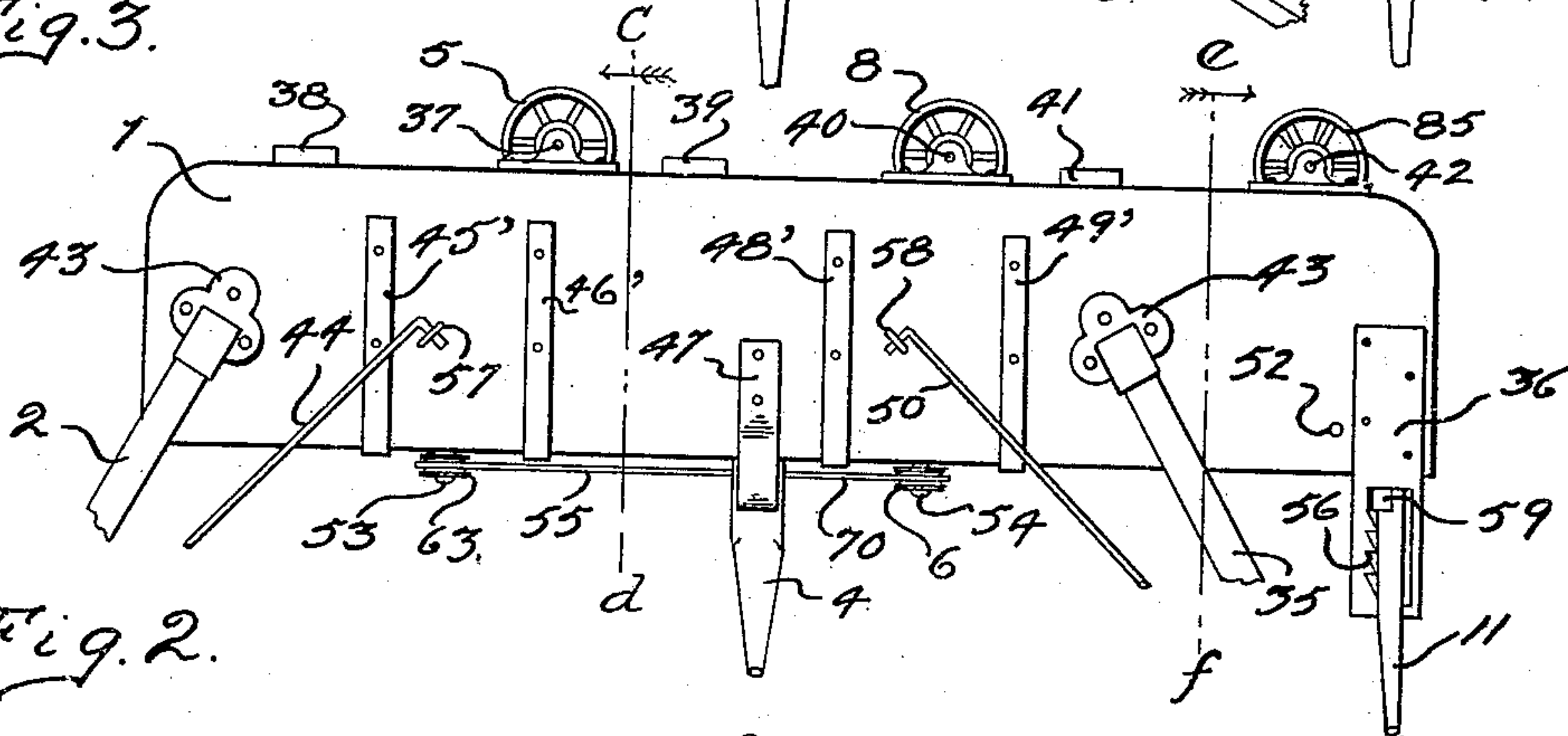


Fig. 2.

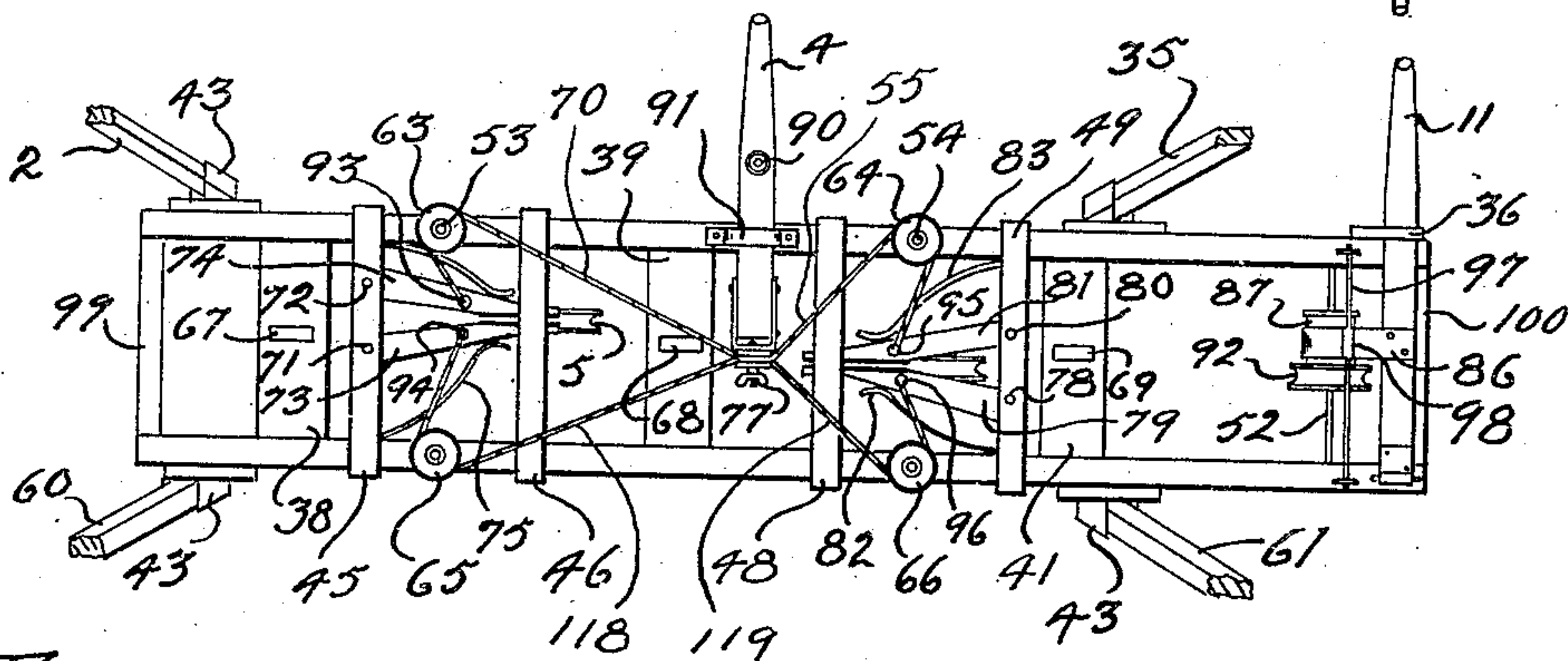


Fig. 4.

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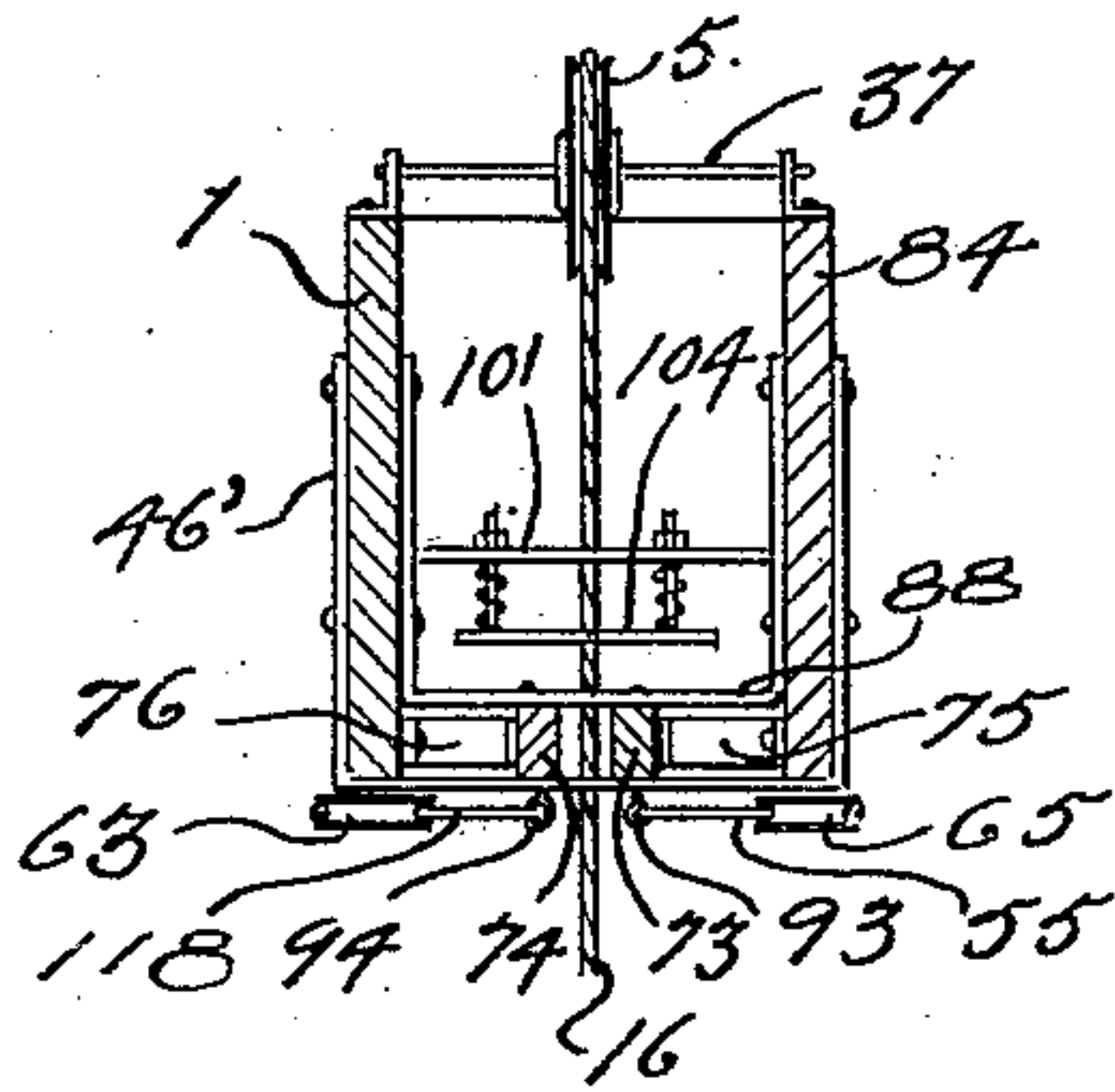
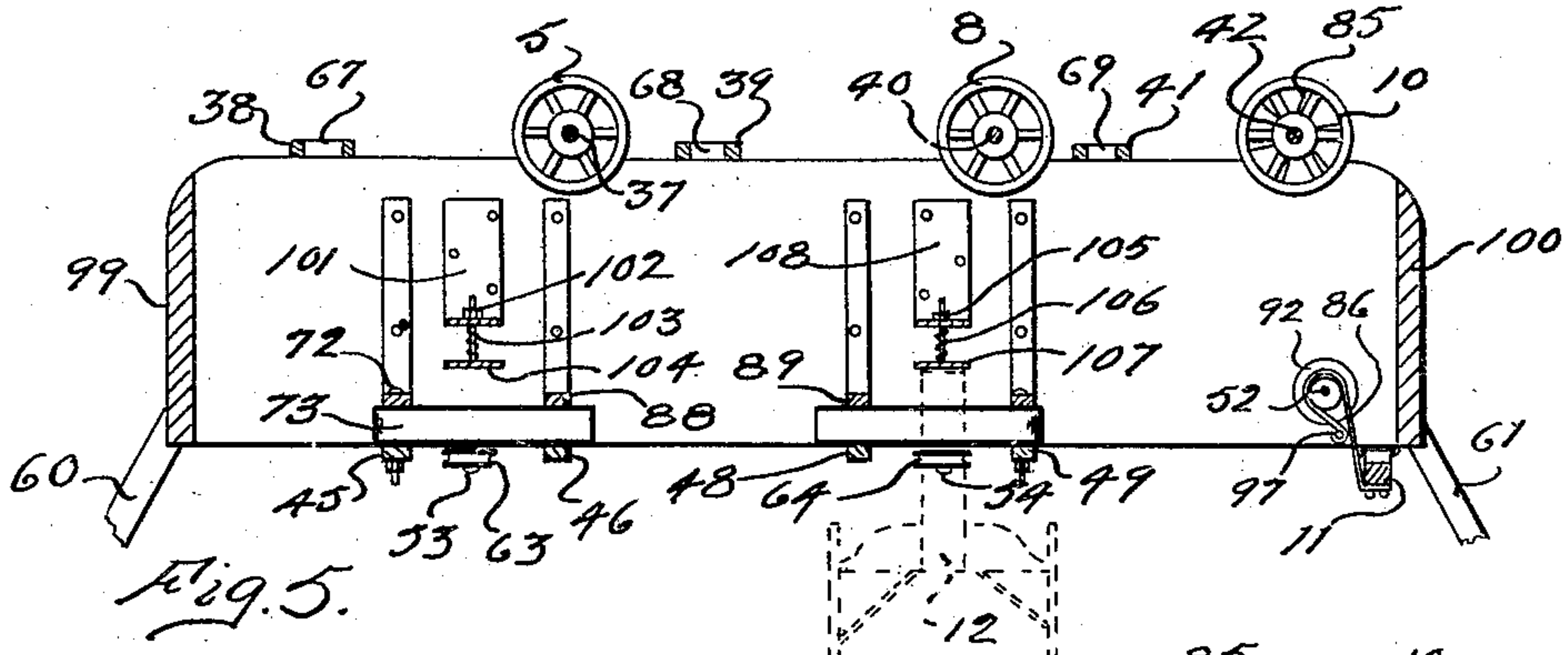


Fig. 6.

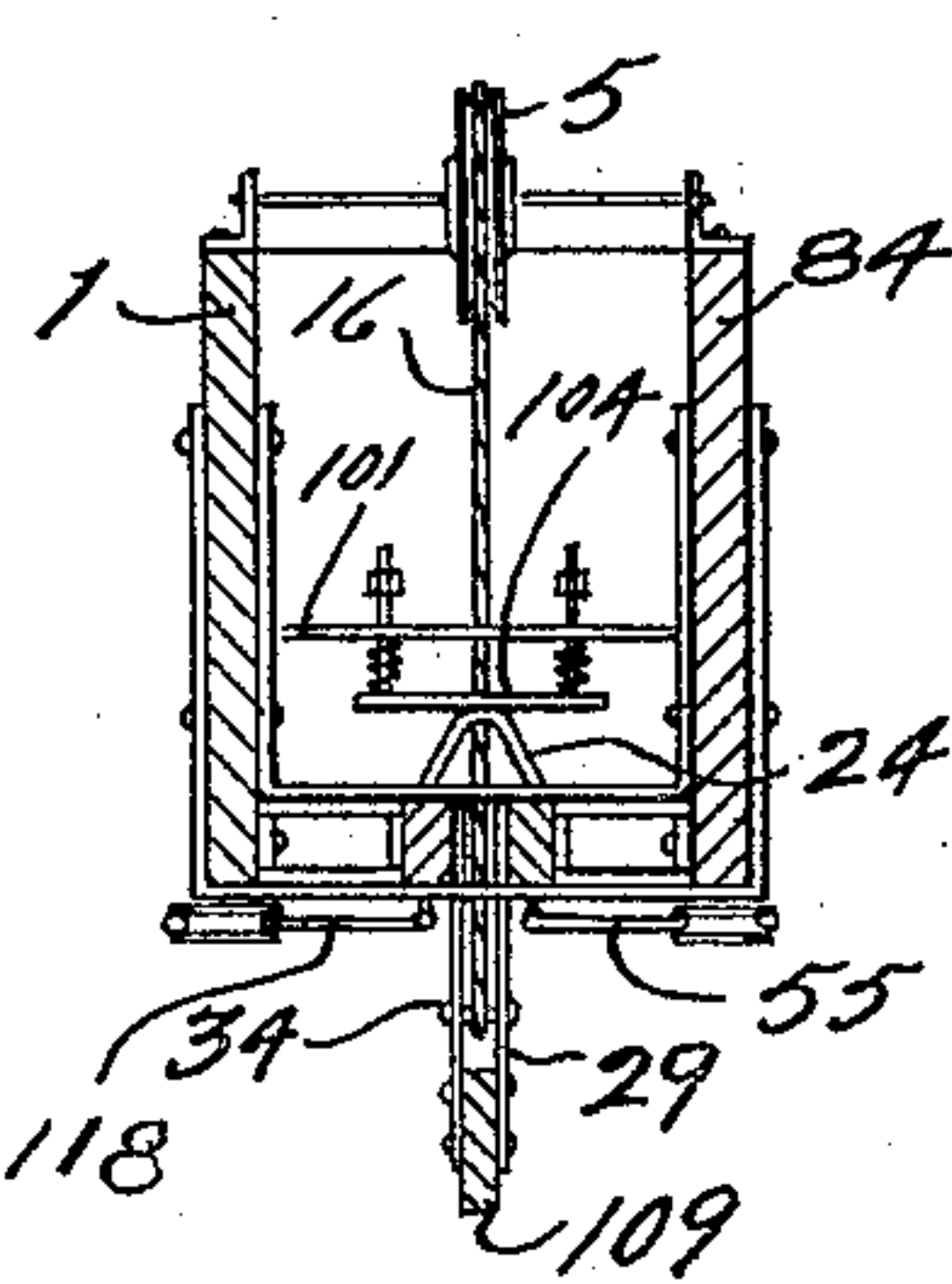


Fig. 7.

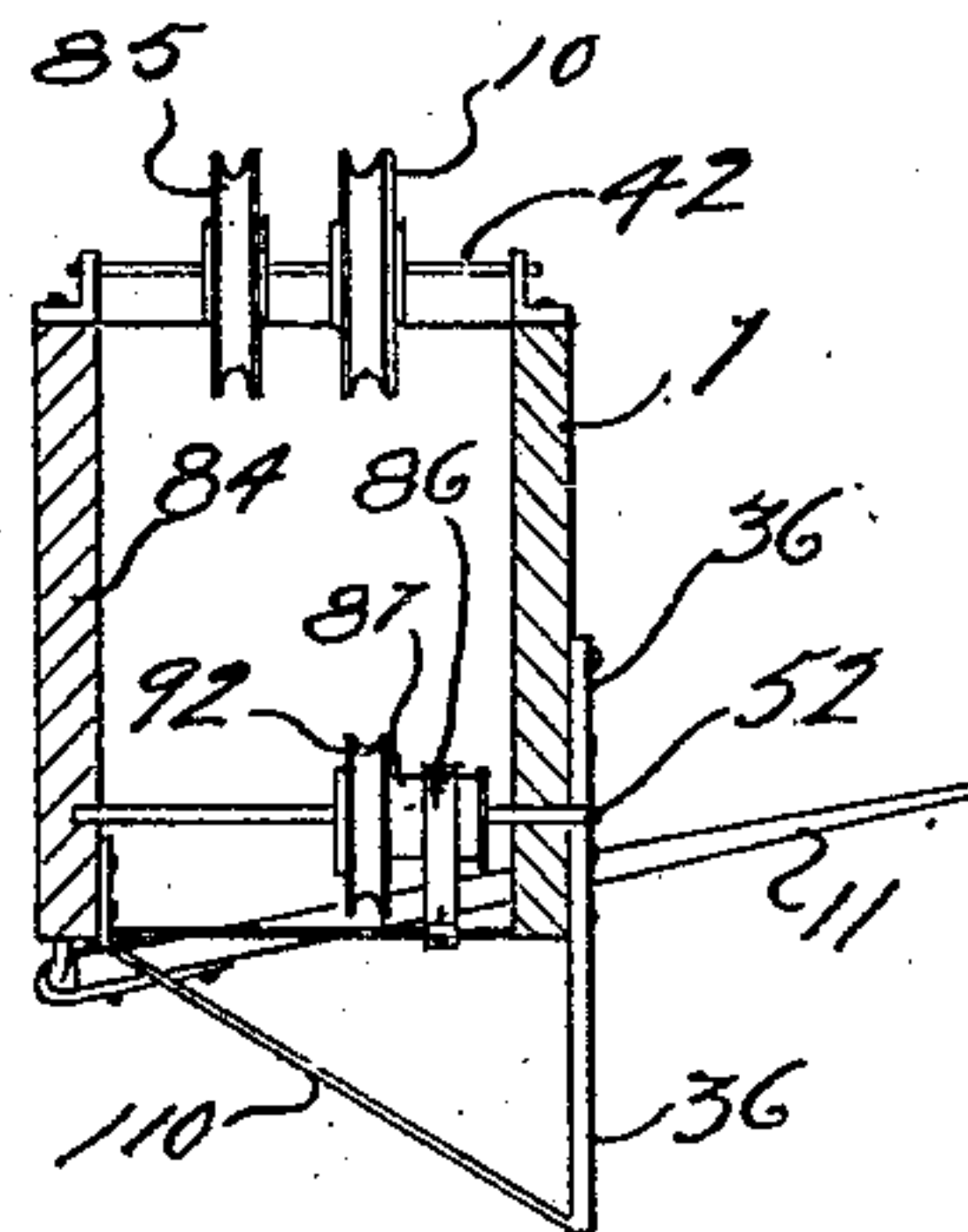


Fig. 8.

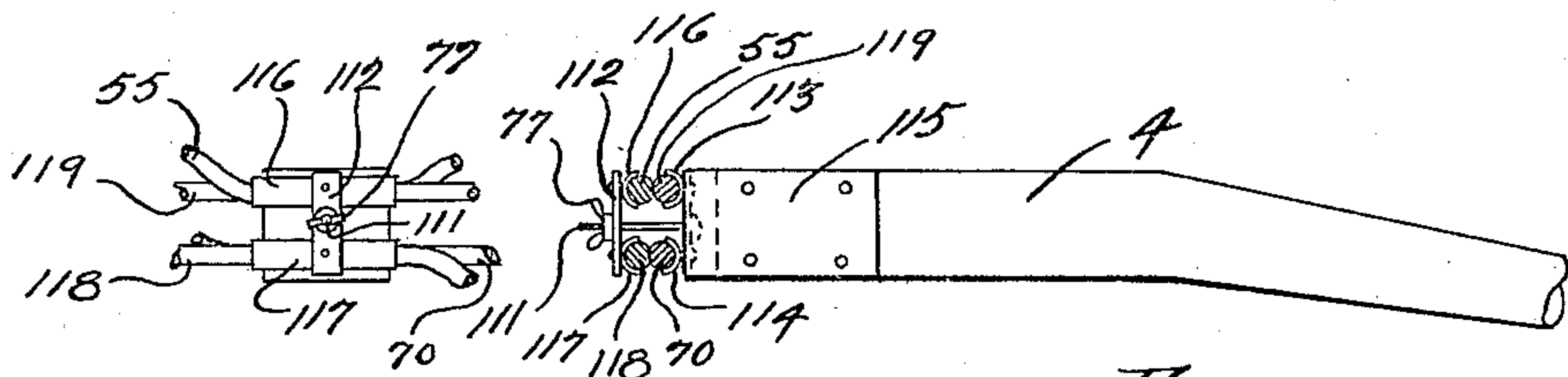


Fig. 9.

Fig. 10.

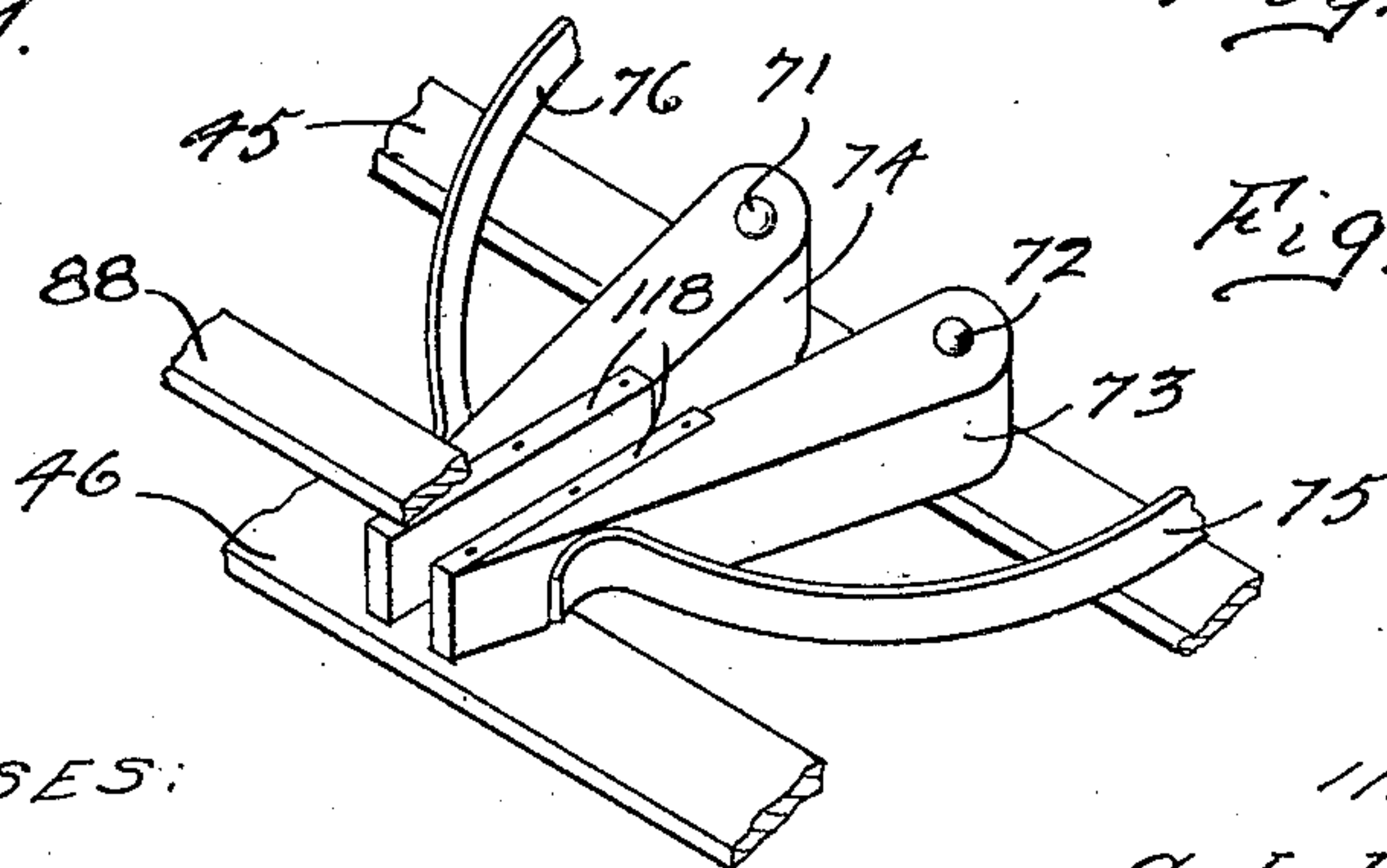


Fig. 11.

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UNITED STATES PATENT OFFICE.

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HOISTING DEVICE.

946,913.

Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed February 13, 1909. Serial No. 477,690.

To all whom it may concern:

Be it known that we, CONSTANTINE J. BURKE and ARTHUR A. SHIPPY, citizens of the United States of America, and residents of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Hoisting Devices, of which the following is a specification.

Our invention relates to improvements in hoisting devices, and the object of our improvement is to provide a suitable knock-down duplicate device for lifting materials for contractors' use, which will be inexpensive in construction and efficient in service, which can be controlled to permit of delivery or taking on of a load at any stage of ascent or descent, and which is provided with new and improved means for alternately securing and releasing the duplicate traveling carriages at the upper limit of their travel. This object we have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which:

Figure 1 is a vertical transverse section of the partially constructed walls and two floors of a building, with a front elevation of our improved hoisting device as set up and in effective operation adjacent thereto. Fig. 2 is an enlarged front elevation of the upper frame of our hoisting device, as separated from its supports and the duplicate carriages. Fig. 3 is an upper plan view of the structure shown in Fig. 2. Fig. 4 is an under plan view of the structure shown in Fig. 2. Fig. 5 is a longitudinal vertical section taken along the line *a—b* in Fig. 3, the direction of view being indicated by the arrow in the latter figure. Fig. 6 is a transverse vertical section taken along the line *c—d* in Fig. 2, the direction of view being indicated by the left-hand arrow in the latter figure. Fig. 7 is a transverse vertical section of the structure shown in Fig. 2, being the same section as depicted in Fig. 6, but showing the carriage catch engaged with the movable jaws of the securing device on that side. Fig. 8 is a transverse vertical section of the structure shown in Fig. 2, taken on the line *e—f* of the latter and in the direction of view indicated by the right-hand arrow. Fig. 9 is an enlarged broken detail, showing an inner or left-hand end elevation of the structure shown in Fig. 10. Fig. 10 is

an enlarged broken detail of the middle shifting-lever for controlling the movable securing jaws for the carriage catches. Fig. 11 is an enlarged perspective view of one pair of securing jaws for the carriage-catch. Fig. 12 is an enlarged upper plan of the fixed pulleys used to divert the lines of direction of the draft-cables. Fig. 13 is a front elevation of one of the duplicate carriages. Fig. 14 is a broken side elevation of the carriage shown in Fig. 13.

Similar characters of reference indicate similar parts throughout the several views.

The main supporting frame of our improved knock-down hoisting-device is constructed of parallel longitudinal beams or plates 1 and 84 spaced apart and secured together at the ends by the transverse timbers 99 and 100. These four timbers or connected plates constitute a rectangular boxing of considerable strength and open above and below. On each beam 1 and 84 are secured near the ends brackets 43 having downwardly projecting and obliquely-outward directed sockets adapted to receive removably the upper ends of the legs 2, 35, 60 and 61, the lower ends of which may be supported on a scaffolding or other means projecting from a building under construction or repair.

As shown in Fig. 2, each leg may be braced by means of removable link-rods such as the rods 44 or 50 secured to similar eyebolts 57 or 58, their lower ends being detachably secured to similar eyebolts in said legs.

The side-beams or plates 1 and 84 are reinforced by a plurality of vertical uprights 45', 46', 48', and 49' on their outer faces, while such beams are connected on their upper edges by cross-beams 38, 39 and 41, and on their lower edges by cross-beams 45, 46, 48 and 49. Secured to the upper edges of the side-plates 1 and 84 are the pairs of bearing-boxes 62 for the ends of the transverse shafts 37, 40 and 42, on which are mounted respectively the pulleys 5, 8, and the pair 10 and 85. On the lower edges of the side-plates 1 and 84 are studs 53, 54, on each plate, on which are the rotatable horizontal pulleys 63, 64, 65 and 66 respectively.

Parallel, vertical posts 6, 7 and 9, alined in the medial longitudinal line of the previously described supporting boxing, are employed as runways or vertical guides for

the traveling carriages 3 and 12. Their lower ends are secured to the base of the device or any fixed object, while their upper ends are passed through the slots 67, 68 and 69 in the cross-beams 38, 39 and 41 respectively. The upper ends of these posts are not otherwise secured to these cross-beams, since the latter may be slid over the posts when it is desired to lower or elevate the supporting boxing.

Each elevator car, as shown in Figs. 13 and 14, has a floor or table provided at opposite sides with uprights 31 and 33, the latter having on their outer sides pairs of separated lugs or projections 30 and 32 both at their upper and lower ends on opposite sides thereof respectively, such lugs adapted to loosely clip or embrace the sides of the adjacent posts or guides 6 and 7, or 7 and 9 respectively to hold the carriages in place during their ascents or descents. A cross-bar 109 connects the upper ends of the uprights 31 and 33, and its middle part sustains the parallel vertical shanks 29 of a barbed loop 24. On the car 12 a pintle 34 is secured between the shanks 29, and on it is rotatably mounted a small pulley 25 over which passes the draft-cable 16, after the latter is passed vertically downward through an aperture in the point of the loop 24. The other end of the cable 16 is secured directly to the loop 24 on the carriage 3 fixedly, but the end passed over the pulley 25 is adapted for adjustment in length by being wound about a drum 26, the shaft-ends of the latter being rotatably mounted in bearings in uprights 13 supported on the cross-bar 109, and a ratchet-wheel 27 being secured to said drum and held against rotation in one direction by a pawl 28. A crank is used to turn the drum 26 to wind up the cable 16.

The looped portion of the draft-cable 16 carries a connected swingle-tree 17 by which it may be moved in either direction. Other means may, however, be connected to said cable to insure a sufficient draft upon same in either direction, as may be desired or found convenient. The loop or bight of the cable 16 is carried by a pulley in a block 18 adapted for horizontal deviations in directions, and which is ordinarily secured by a ring or other fastening means to some fixed body 19. Underneath the right-hand end of the boxing 1—84 at the base of the hoisting-device a body 23 is secured, carrying the separated bearings 14 in which the ends of a pintle are fixed which carries the rotatable pulleys 15 and 22. That part of the cable 16 which has its ends secured to the carriage 3 is passed about the pulleys 15, 10 and 5, while the portion which carries the carriage 12 is passed over the pulleys 22, 85 and 8.

We have shown in Figs. 2, 4, 5 and 8,

means whereby the draft-cable 16 may be braked and stopped at any point of its travel, such as to unload at either of the floors 20 or 21 or elsewhere, when either carriage has arrived at the desired location. A shaft 52 extends transversely between the side-plates 1 and 84 near their right-hand ends, and carries the connected drum 87 and pulley 92.

The numeral 86 designates a band-brake operative about the drum 87 by frictional contact. One end 98 of said brake is knuckled to permit of its being there secured to the transverse rod 97. The brake-band, after being passed about said drum has its other end secured to a medial part of the brake-lever 11, the inner or rear end of the latter being pivoted to the boxing for vertical movement. A depending hanger 36 is secured to the plate 1, and is provided with a vertical slot having rack-teeth on one side at 56. The lever 11 passes through said slot and has a projection 59 adapted to engage the rack-teeth 56. In practice the cable 16 is passed about the pulley 92 once or twice before passing over the pulley 10 above, in order to permit of a better grip on the cable. When the lever 11 is pushed vertically downward to its lower limit of travel, the band-brake 86 is caused to tightly grip the drum 87, whose rotation is stopped, which causes likewise a cessation of movement of the pulley 92, and by reason of the grip of the latter upon said cable, the movement of the cable also ceases, occasioning a stop to the moving carriages, to cause one of the carriages to halt at a desired location for the purpose of loading or unloading. If the projection of the lever is engaged with the teeth 56 at an intermediate point, the action is to slow down the speed of the cable, which might be necessary in the event of the carriage of a heavy or fragile load.

We have incorporated in our apparatus a device for releasably securing a carriage at the upper limit of its travel. One of these devices is located above each carriage and each is of like construction but the two devices are turned to face inward and toward each other. Each device is composed of a pair of jaws 73 and 74 (or 79 and 81 of the same shape as the case may be), pivoted at 71 and 72 respectively (or at 78 and 80 as the case may be), to swing to and fro toward each other horizontally. The free ends of the pairs of jaws move between the horizontal cross-bars 46, 88, and 48, 89, respectively. The jaws 73 and 74 are contacted by the free ends of plate-springs 75 and 76, respectively, and the jaws 79 and 81 are contacted by the free ends of similar springs 82 and 83, respectively, to yieldably force said jaws together, the other ends of said springs being secured to the inner surfaces of the side-beams 1 and

84. To studs 93, 94, 95 and 96 on the under forward parts of the jaws 74, 73, 81 and 79 respectively are secured the outer ends of short cables 70, 118, 55 and 119.

5 A bracket 47 is projected from the middle of the beam 1, and to it is medially pivoted at 90 a hand-lever 4, whose inner or rear end has a cap-plate 115 from which projects a threaded pin 111 and separated clips 113 and 114. A short bar 112, centrally perforated to pass over the pin 111, has near 10 each end the clips 116 and 117 which correspond to the clips 113 and 114, and lie opposite to them respectively. The bar 112 15 is removably secured on the pin 111 by means of a thumb-nut 77. When drawn taut, the inner ends of the cables are secured between the clips aforesaid as shown in Fig. 10, and in case of slackness of either 20 cable, the adjustment may be made for tautness by releasing the nut 77. As shown in Fig. 4, the lever 4 is in its middle position, with the plate-springs holding both pairs of jaws closed together. If the lever 25 4 is shifted in one direction or the other, the short cables on the same side are tightened, while the cables on the other side are slackened, the tightened cables drawing apart the jaws to which they are attached.

30 When one of the carriages has arrived at the upper limit of its movement, its upwardly-projecting barbed loop 24 passes between the pair of jaws immediately thereover and the barbs of the loop rest upon 35 and are supported by the plated angles 118 of the jaws, the plate-springs acting to close the jaws upon the shanks 29. To release the carriage it is only essential to shift the lever 4 in the proper direction to separate the jaws to release said loop 24. Immediately above each pair of said jaws is 40 a cross-bar 101 (or 108) whose ends are fixed to the side-beams 1 and 84. Spaced away from each bar 101 and lying below it parallel thereto is a vertically-movable bar 104, (or 107), which has separated up- 45 standing pins movable through orifices in the bar 101 or 108 over it, the upper ends of the pins having nuts 102 (or 105) or other means to keep them in suspension. About 50 each of said pins, and lying engaged between said parallel bars, are the coiled springs 103 or 106, which keep the lower bar projected away from the upper. The bars 55 104 and 107 act as resilient buffers to take the shock of contact of the upwardly-moving loops 24, as will be seen by referring to Fig. 7.

Our hoisting-device as a whole, is of in- 60 expensive construction, while it is so arranged as to be conveniently knocked down for transportation, and the boxing of the frame may be elevated from time to time along the guides 6, 7 and 9, to serve differ- 65 ent stories or stages of construction.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is:

1. The combination with a supporting frame of cable-pulleys mounted thereon, two 70 hoisting carriages or platforms arranged to be raised or lowered alternately side by side beneath said frame, fixed pulleys, a hoisting-cable attached by its ends to said carriages or platforms and passing upward over said 75 cable pulleys, thence down around said fixed pulleys and thence about a snatch-block-pulley, a snatch-block pulley, a draft-connection attached to said cable, a lugged catch projecting upwardly from each car- 80 riage, a pair of pivoted jaws movable across the line of travel of each catch, yieldable resilient means bearing against each pair of said jaws to keep them normally in contact, a hand-lever pivoted to said 85 frame between said pairs of jaws, and a linking-connection between the free extremity of each of said jaws and one end of said lever adapted to operate to disengage an engaged catch from either pair of said jaws when the 90 said lever is shifted in an appropriate direction.

2. The combination with a supporting frame of cable-pulleys mounted thereon, two 95 hoisting carriages or platforms arranged to be raised or lowered alternately side by side beneath said frame, fixed pulleys, a hoisting-cable attached by its ends to said carriages or platforms and passing upward over said 100 cable pulleys, thence down around said fixed pulleys, and thence about a snatch-block pulley, a snatch-block pulley, a draft-connection attached to said cable, a lugged catch projecting upwardly from each carriage, a pair 105 of pivoted jaws movable across the line of travel of each catch, yieldable resilient means bearing against each pair of said jaws to keep them normally in contact, a hand-lever pivoted between said pairs of jaws, a linking-connection between the free extrem- 110 ity of each of said jaws and one end of said lever adapted to operate to disengage an engaged catch from either pair of jaws when said lever is shifted in an appropriate direc- 115 tion and manually-operable means for releasably engaging and braking said cable to diminish its speed or to cause a cessation of its motion.

3. The combination with a supporting frame of cable-pulleys mounted thereon, two 120 hoisting carriages or platforms arranged to be raised or lowered alternately side by side beneath said frame, fixed pulleys, a hoisting-cable attached by one end to one of said carriages and having its other end secured to a 125 winding-drum on the other carriage adapted to vary the length of that part of the cable between said carriages, said cable passing upward over said cable pulleys, thence down 130 around said fixed pulleys, and thence about

a snatch-block pulley, a snatch-block pulley, a lugged catch projecting upwardly from each carriage, a pair of jaws movable across the line of travel of each catch, yieldable resilient means bearing against each pair of said jaws to keep them normally in contact, a hand-lever pivoted between said pairs of jaws, and a linking-connection between the free extremity of each of said jaws and one end of said lever adapted to operate to disengage an engaged catch from either pair of jaws when said lever is shifted in an appropriate direction.

4. The combination with a supporting frame of cable-pulleys mounted thereon, two hoisting carriages or platforms arranged to be raised or lowered alternately side by side beneath said frame, fixed pulleys a hoisting-cable attached by its ends to said carriages or platforms and passing upward over said cable pulleys, thence down around said fixed pulleys, a lugged catch projecting upwardly from each carriage, a pair of pivoted jaws movable across the line of travel of each catch, the lugs on each catch being adapted to engage the tops of the adjacent pair of jaws when said catch has passed therebetween, a hand-lever medially pivoted to said frame between said pairs of jaws, and an adjustable linking-connection between the free extremity of each of said jaws and the end of said lever opposite its handle end, whereby the members of either pair of jaws are separated to disengage an engaged catch when said hand-lever is shifted in a certain direction.

5. The combination with a supporting

frame of cable-pulleys mounted thereon, two hoisting carriages or platforms arranged to be raised or lowered alternately side by side beneath said frame, fixed pulleys, a hoisting-cable attached by its ends to said carriages or platforms and passing upward over said cable pulleys, thence down around said fixed pulleys, a lugged catch projecting upwardly from each carriage, a pair of pivoted jaws movable across the line of travel of each catch, the lugs on each catch being adapted to engage the tops of the adjacent pair of jaws when said catch has passed therebetween, a hand-lever medially pivoted to said frame between said pairs of jaws, pairs of clips secured to the rear end of said hand-lever and adjustable in their amount of separation, a pulley pivoted to said frame without each member of each pair of said jaws, a cable secured at or near the free extremity of each said member, passed thence about the adjacent one of said last-mentioned pulleys and then secured between one of the pairs of clips on the rear end of said hand-lever, said hand-lever being adapted when shifted in either direction to draw upon the cables attached to one of said pairs of jaws and separate the members of said pair to disengage them from the engaged lugs of their adjacent catch.

Signed at Waterloo, Iowa, this 27th day of Jan. 1909.

CONSTANTINE J. BURKE.
ARTHUR A. SHIPPY.

Witnesses:

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G. C. KENNEDY.