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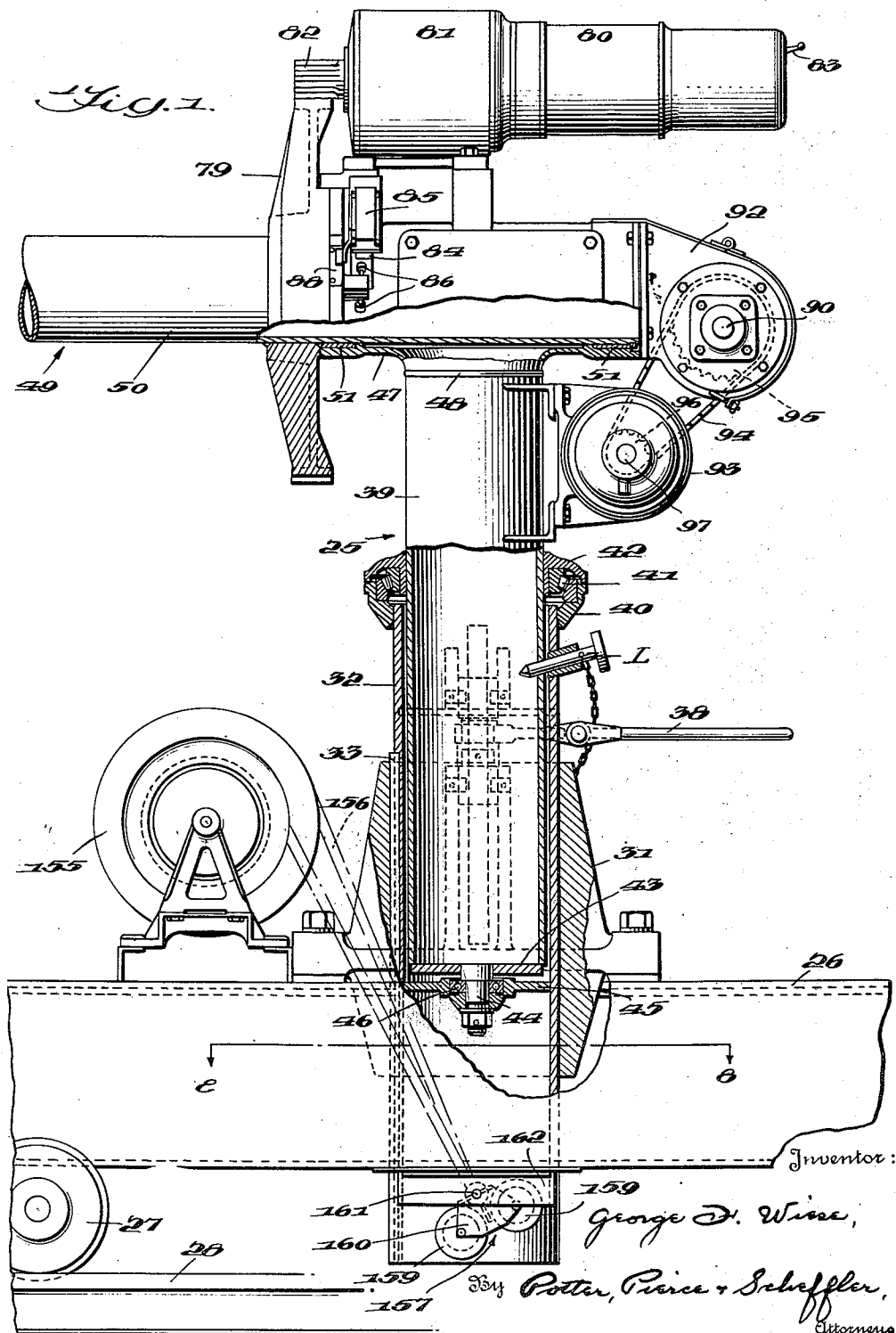
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RAILWAY CAR LOADING AND UNLOADING APPARATUS

Filed Nov. 7, 1938

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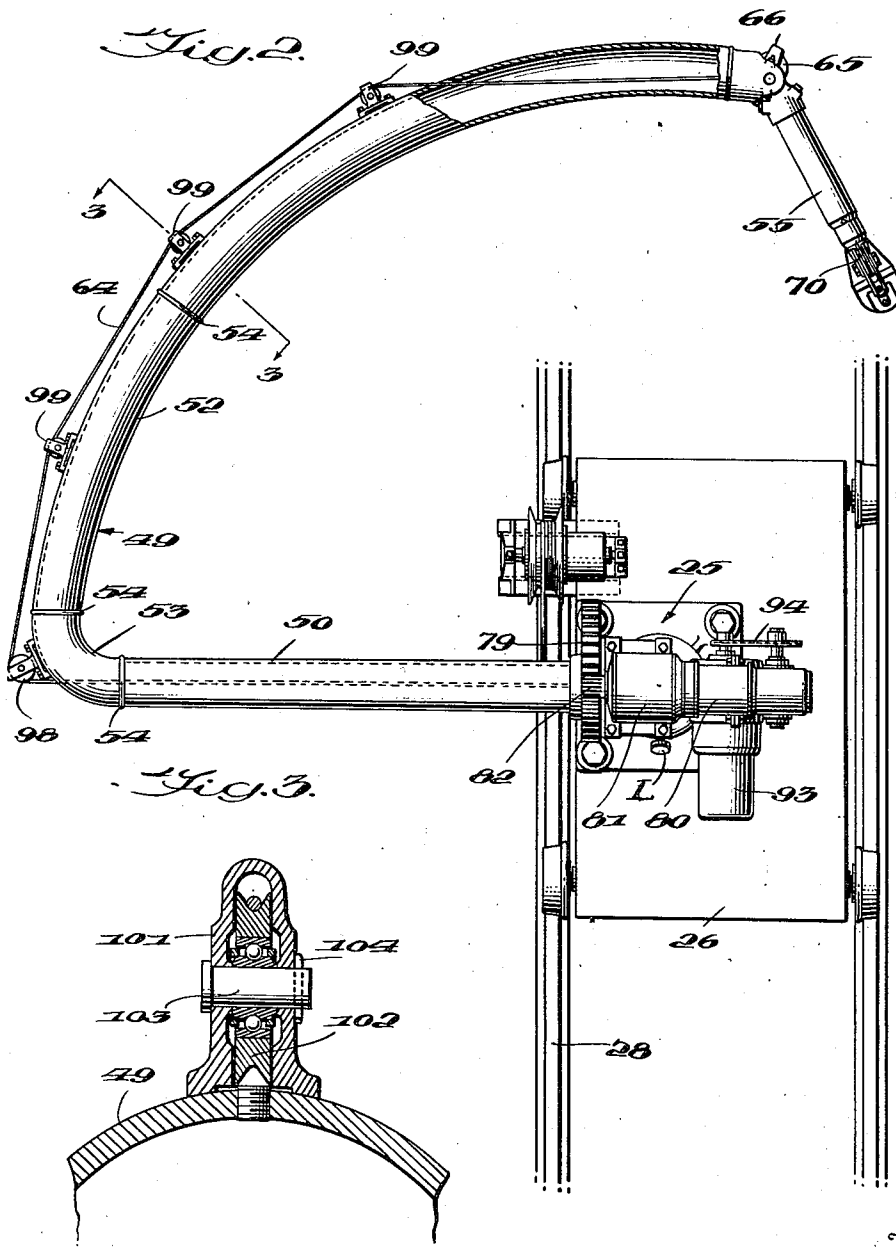
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RAILWAY CAR LOADING AND UNLOADING APPARATUS

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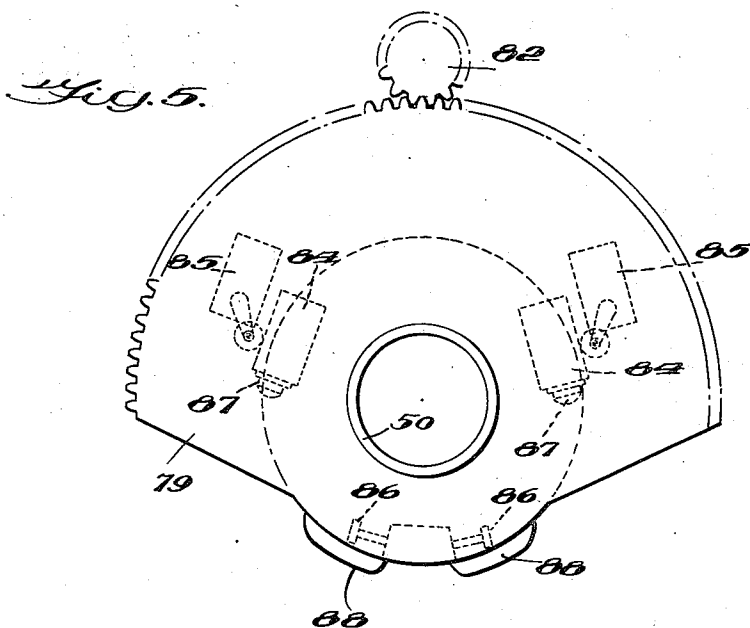
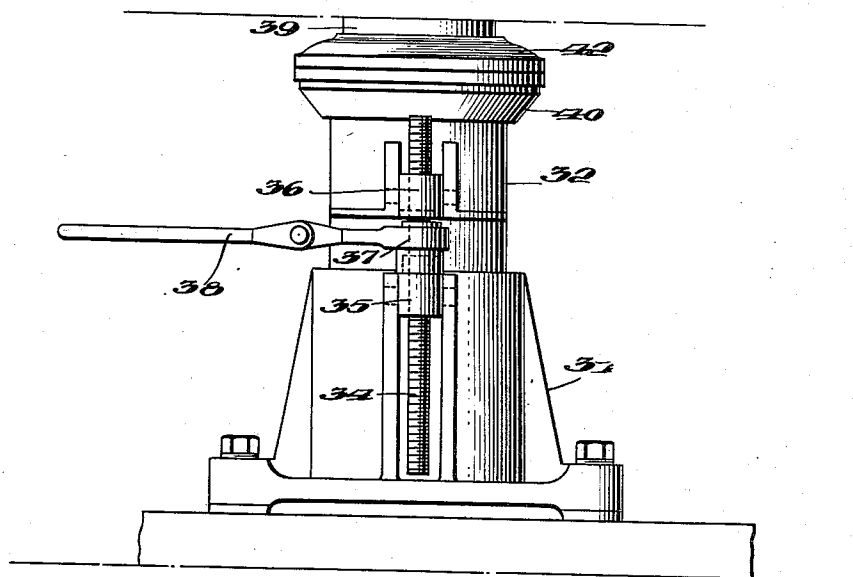
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Fig. 4.



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Fig. 7.

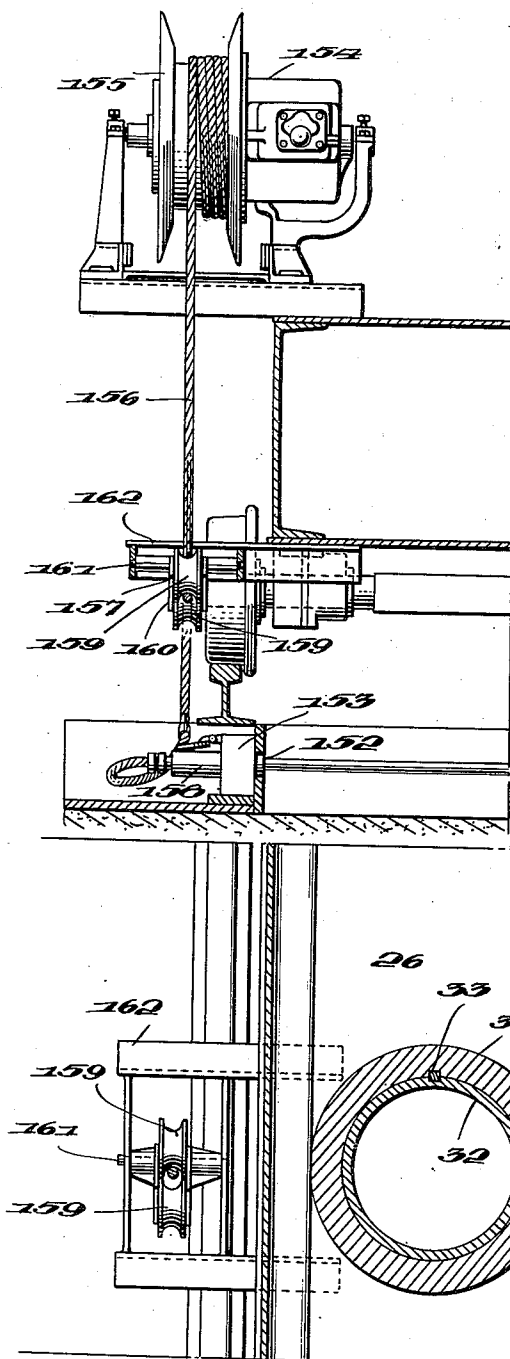


Fig. 6.

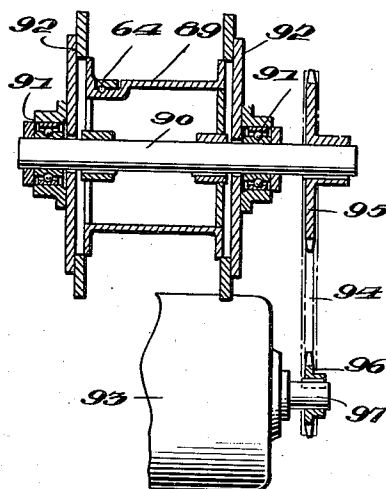
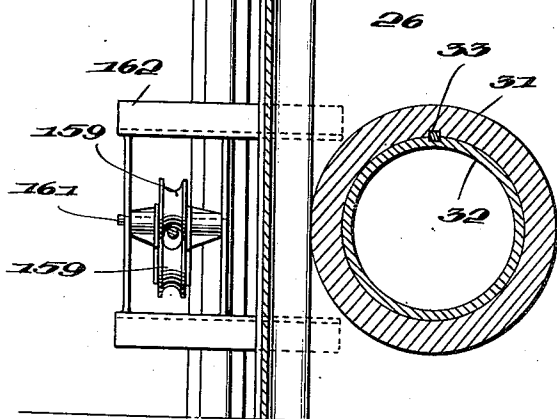


Fig. 8.



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Fig. 9.

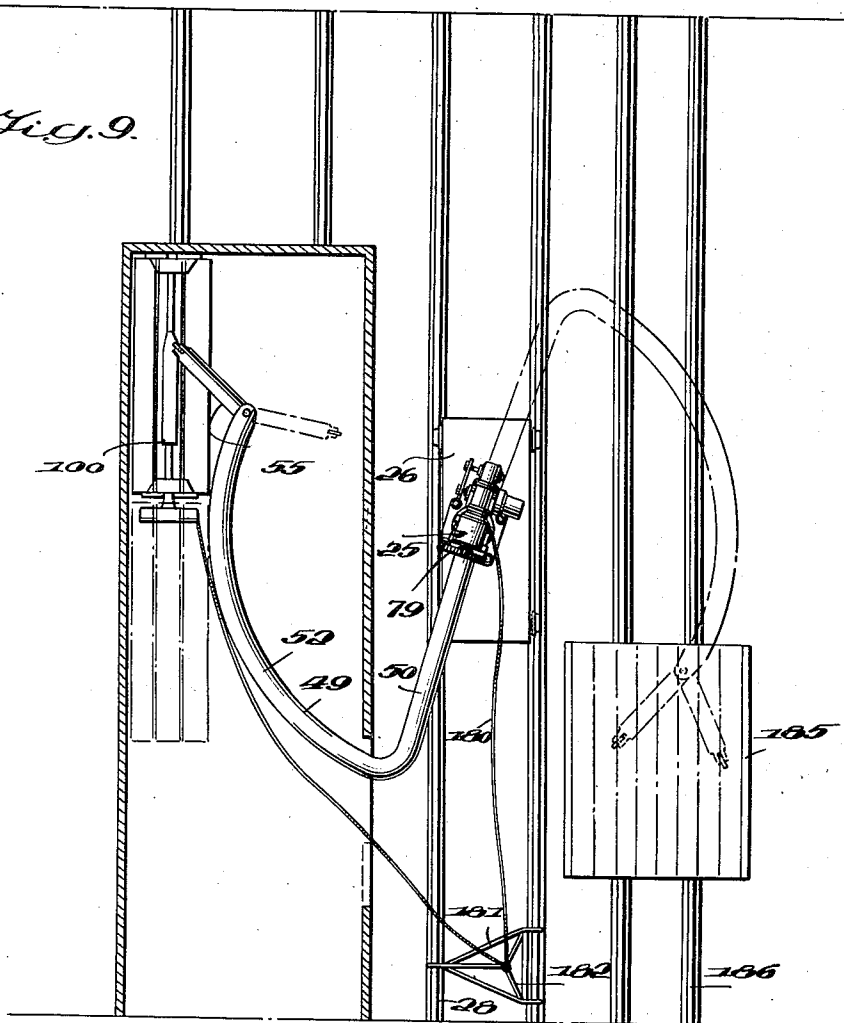
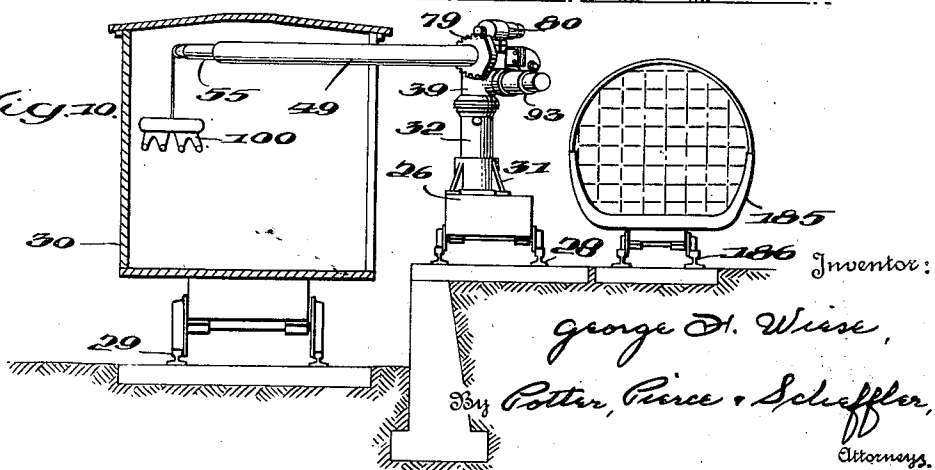


Fig. 10.



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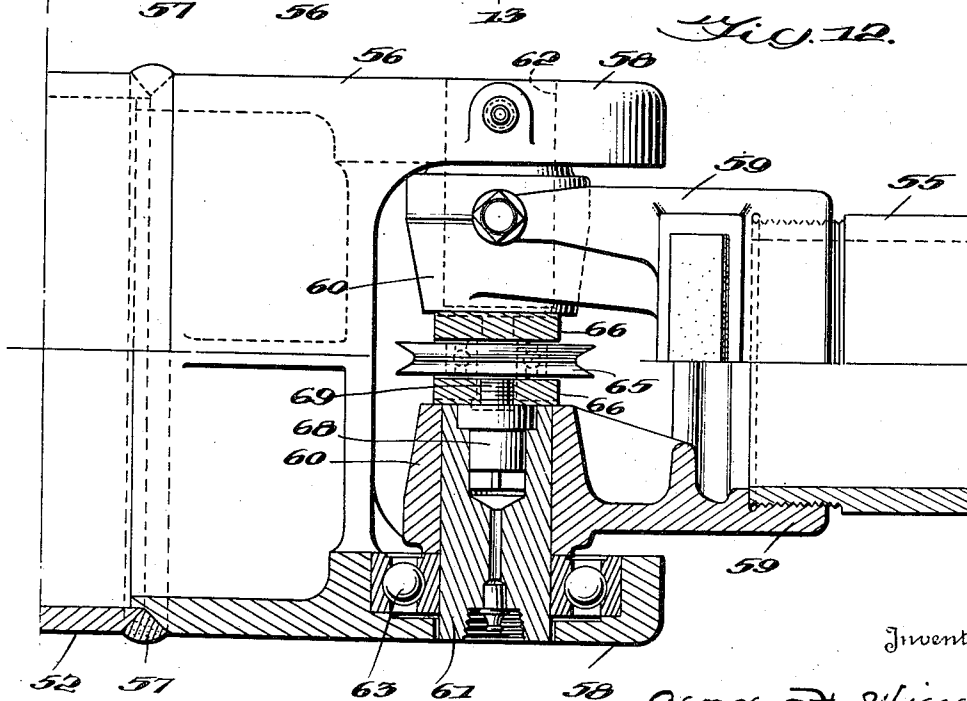
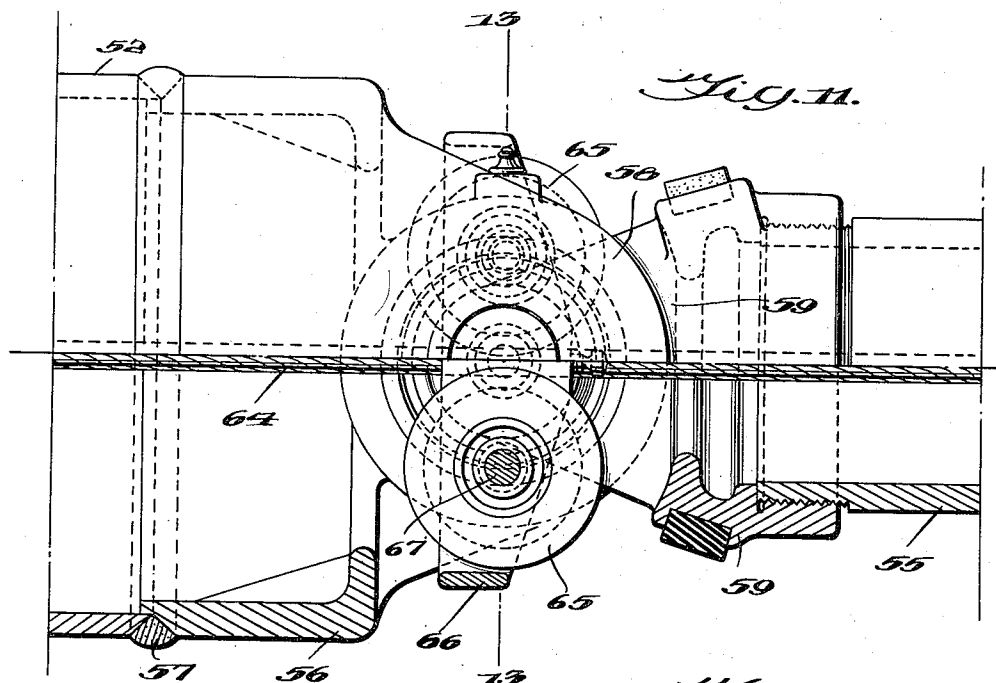
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Fig. 13.

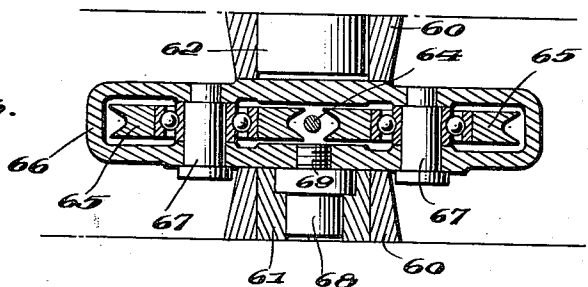


Fig. 14.

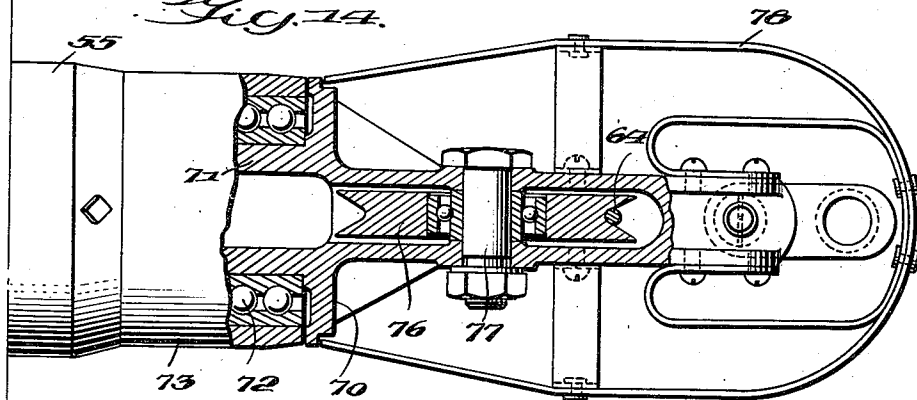
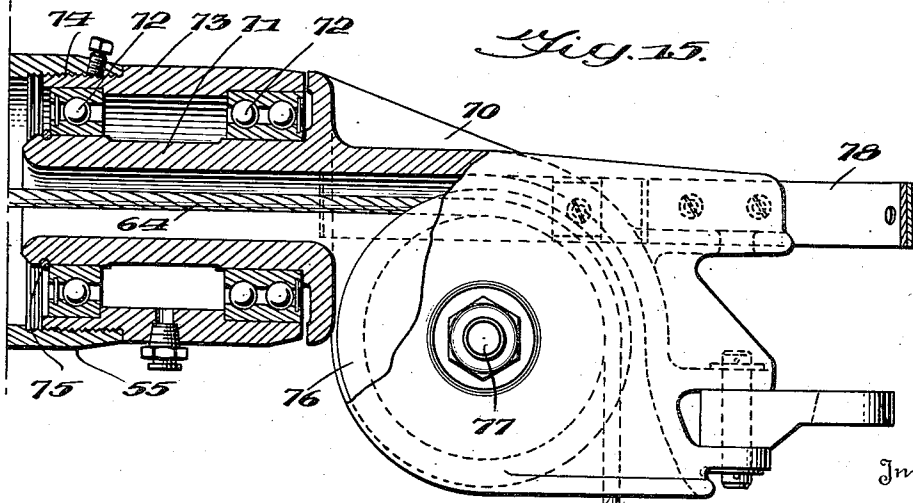


Fig. 15.



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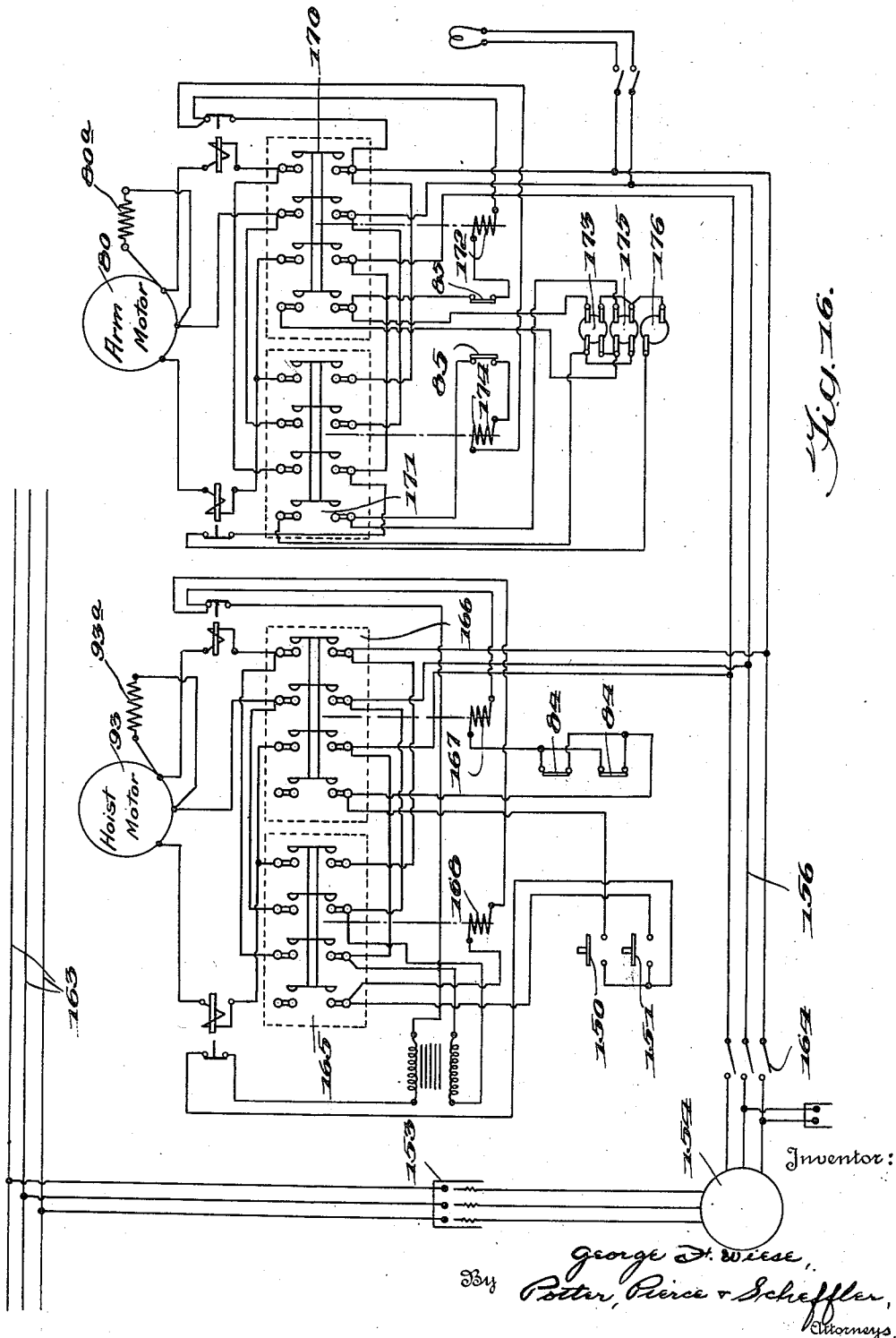
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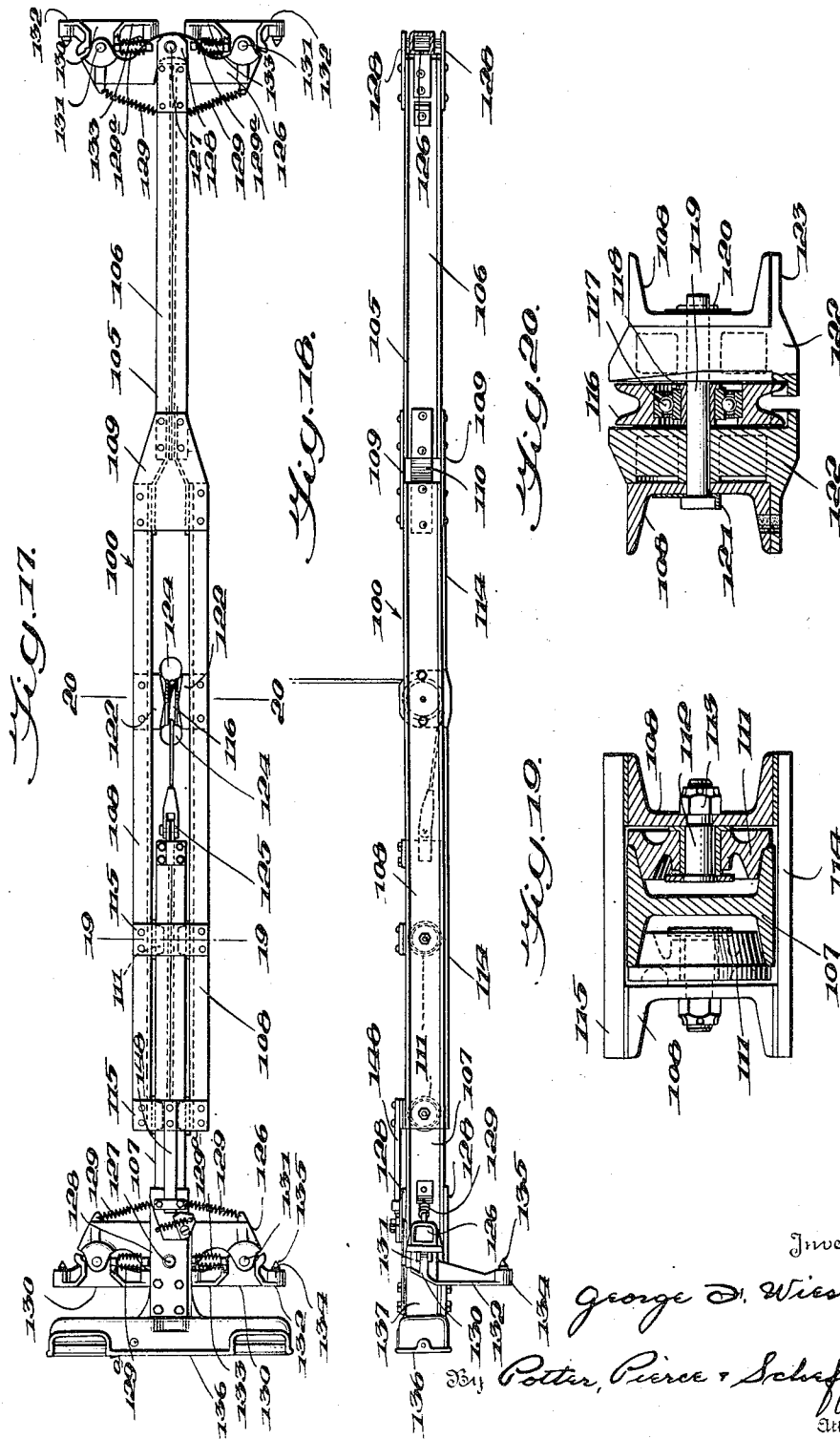
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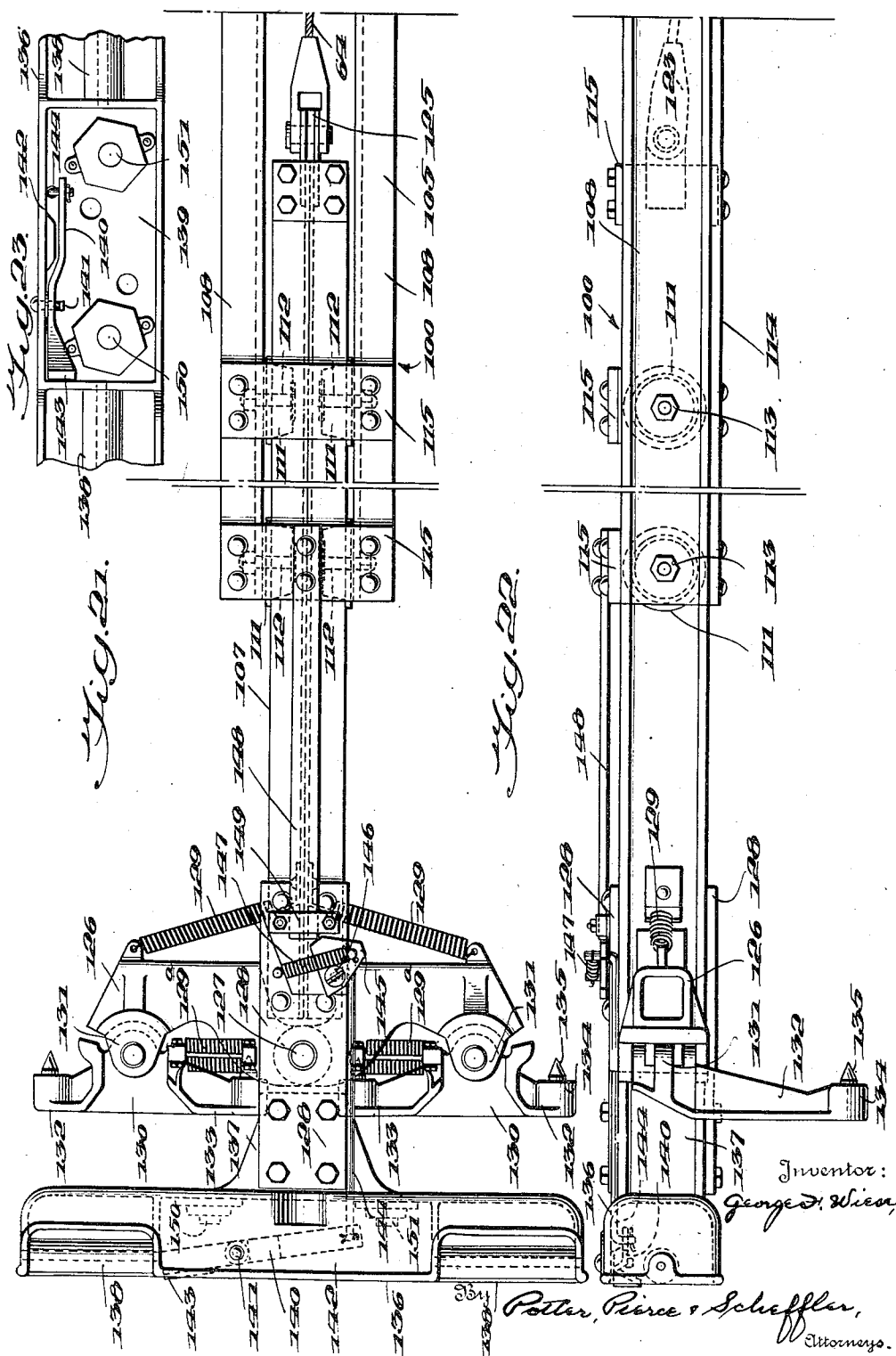
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UNITED STATES PATENT OFFICE

2,272,958

RAILWAY CAR LOADING AND UNLOADING APPARATUS

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Application November 7, 1938, Serial No. 239,401

18 Claims. (Cl. 212—42.5)

This invention relates to mechanism for loading and unloading railway cars.

An object of the invention is to provide mechanism for picking up articles from a point adjacent a box car and delivering them to any point within the car at either end thereof, or for picking up articles from any point within the car and stacking them or delivering them to a truck or tram alongside the car.

Another object of the invention is to provide mechanism particularly adapted to transfer railway ties or other material from a loading tram to a freight car and stack them at any point in either end of the car or adapted to remove ties or other articles from a car and deliver them to a loading tram or the like adjacent the car.

A further object of the invention is to provide a compact and efficient mechanism of the character described which may be mounted on a track and readily moved from one car to another.

A further object is to provide a portable jib crane mechanism having a curved boom member arranged to swing through the side door of a freight car in one direction so as to extend to one end of the car and also capable of reversal to swing in the opposite direction so as to extend to the other end of the car.

A further object is to provide an improved control mechanism for the loading and unloading mechanism.

A further object is to provide a jib crane mechanism for loading and unloading railway cars having a novel and improved boom structure and a novel and improved tie hook combined therewith.

Other objects and advantages of the invention, not specifically enumerated, will become apparent during the course of the following detailed description and upon reference to the accompanying drawings which illustrate a preferred embodiment of the invention.

In the drawings:

Fig. 1 is a side elevation, partly in section of the crane structure and operating mechanism embodying the invention.

Fig. 2 is a plan view of the jib crane mechanism.

Fig. 3 is a fragmentary section on the line 3—3 of Fig. 2 showing a cable guide sheave mounting.

Fig. 4 is a fragmentary side elevation of the column support showing the means for elevating and lowering the boom.

Fig. 5 is a diagrammatic view illustrating the relative arrangement of the limit switches and operating means therefor.

Fig. 6 is a sectional view illustrating the hoist drum and motor drive therefor.

Fig. 7 is an elevation, partly in section showing the power connection and power cable reel carried by the hoist truck.

Fig. 8 is a sectional view on the line 8—8 of Fig. 1.

Fig. 9 is a plan view of the loading mechanism showing the boom extending into a box car, which is shown in horizontal section.

Fig. 10 is an end elevation with the car in vertical section.

Fig. 11 is a plan view, partly in section showing the connection between the main and auxiliary arms of the boom.

Fig. 12 is an elevation, partly in section, taken at right angles to Fig. 9.

Fig. 13 is a sectional view taken on the line 13—13 of Fig. 11.

Fig. 14 is a plan view, partly in section of the hoisting cable sheave mounting at the tip of the boom.

Fig. 15 is a side view thereof.

Fig. 16 is a wiring diagram of the power supply and control circuits for the mechanism.

Fig. 17 is a plan view of the tie hook forming part of the apparatus.

Fig. 18 is a side elevation thereof.

Fig. 19 is a section on the line 19—19 of Fig. 17.

Fig. 20 is a section on the line 20—20 of Fig. 17.

Fig. 21 is an enlarged plan view of one end of the tie hook.

Fig. 22 is an enlarged side elevation thereof, and

Fig. 23 is a fragmentary end view of the handle bar control member.

Referring more particularly to the details of construction of the apparatus, the jib crane, generally designated 25 is mounted on a counter-weighted truck 26 provided with flanged wheels 27 for running on a narrow gauge track 28 laid alongside the railway track 29 on which the freight cars 30 are disposed.

The truck 26 carries an upright tubular base 31 which extends above and below the level of the platform of the truck and is securely bolted in position thereon. A vertically adjustable tubular column member 32 is disposed in the bore of the base, and slidably keyed thereto as at 33. The column 32, which may be called the outer column is raised or lowered with respect to the base 31 by means of a jack screw 34 and threaded trunnions 35 and 36 carried by the base 31 and column 32, respectively. The jack screw is operated by a reversible ratchet mechanism 37 pro-

vided with an operating lever 38, to raise and lower the column 32.

A swivel column 33, telescoped within the upper end of the column 32 is rotatably mounted therein. The upper end of the column 32 carries an annular ring 40 formed to provide a seat for one race of the roller bearing assembly 41 and the column 39 has an annular ring 42 rigidly mounted intermediate the ends thereof, said ring forming a seat for the other race of the bearing assembly 41. The inner end of the swivel column is journaled axially of the outer column. A swivel plate 43 secured to the inner end of the column 39 carries an axially disposed swivel shaft 44 which is journaled in a bearing spider 45 rigidly mounted in the column 32 by means of a ball bearing assembly 46.

The swivel column 39 is provided with a T-head 47 in the form of a tubular bearing member disposed on a horizontal axis. The tubular bearing head is rigidly secured to the column 39 as by welding 48 to form an integral rigid unit.

A removable locking pin L is provided to lock the inner and outer columns against relative rotary movement when the crane is idle or being moved from one location to another.

A boom 49, of special form, has a straight horizontally disposed portion 50, one end of which is journaled in the tubular bearing head 47, the head being provided with bearing bushings 51 at each end thereof for seating the inner end of the boom. The outer end of the straight horizontal portion 50 of the boom is connected to a curved arm 52 through an elbow joint 53. The curved arm portion 52 of the boom 49 is curved substantially to the arc of a circle with the center of the swivel column as a center. The boom could be formed from a length of suitable tubing but may be more conveniently assembled from sections of suitable piping having welded joints 54.

The curved portion 52 of the boom 49 is normally disposed in a horizontal plane passing through the horizontal end portion 50. An auxiliary tubular arm 55 is pivoted at one end on the free end of the curved arm 52 for swinging movement in the plane of the curved arm and has a swiveled sheave mounted at the free end thereof.

The hinge connection of the auxiliary arm 55 to the end of the curved boom arm 52, which also includes hoisting cable guide sheaves, is shown in detail in Figs. 11 to 13. A hinge bracket 56, having a tubular portion secured as by welding 57 to the end of the curved arm 52, is formed with spaced ears or knuckles 58. A forked bracket 59, threaded on the end of the auxiliary arm 55, is formed with spaced bosses 60 dimensioned to enter between the ears 58 of the bracket 56. The bosses 60 carry pivot pins 61 and 62 which are journaled in the ears 58 by means of ball bearings 63.

In order to provide a guide for the hoist cable 64, which passes axially through the ends of the arm 52 and auxiliary arm 55, when the arm is swung about its pivotal axis, a pair of guide sheaves 65 are mounted side by side in a sheave yoke 66 by means of sheave pins 67. The guide sheaves 65 are disposed so that their adjacent peripheral surfaces approach the axial centers of the pivot pins 61 and 62 as seen in Fig. 13 whereby the hoist cable will pass around either one or the other of said sheaves depending upon which way the arm 55 is swung in re-

lation to the curved arm 52. The sheave yoke 66 is mounted in position between the bosses 60 by means of a bearing pin 68 axially seated in the inner end of the pivot pin 61 and connected to the yoke by a threaded stud 69.

The swivel sheave mounting at the free end of the auxiliary arm 55 is shown in detail in Figs. 14 and 15. This mounting includes a swivel head 70 which is formed with a hollow stub shaft 71 journaled on ball bearings 72 in a bearing retaining sleeve 73 which latter is threaded into the end of arm 55 as indicated at 74. A retaining ring 75 prevents endwise disengagement of the swivel sheave from the bearing mount. A ball bearing guide sheave 76 is mounted on a sheave pin 77 which extends through side wall portions of the swivel head, the latter forming an open bottomed housing for the sheave 76.

A buffer spring 78, formed of spring metal strips, is secured on the swivel head to protect the same when in use.

The pivotal axis of auxiliary arm 55 is vertically disposed when the curved boom arm is in the normal horizontal position which it assumes during use of the jib-crane so that the auxiliary arm can swing in a horizontal plane to shift the load to or from any position in the area within the car.

As described above, the straight inner end 50 of the boom is journaled in the T-head 47 of the column 39. This mounting permits axial motion of the boom through an angle of 180° to dispose the curved arm on either side of the axis of the straight portion so as to extend to either end of the freight car from the same side thereof.

A motor drive is provided for swinging the boom about its horizontal pivot between its opposite horizontal positions of operation. A gear segment 79 is rigidly mounted on the boom end 50 adjacent the column 39 and a reversible electric motor 80 connected through reduction gearing 81 and pinion 82 in driving relation with the gear segment 79 is mounted on the T-head 47. The driving motor 80 is part of a unit including an enclosed solenoid brake. A manual release lever 83 is provided for manually releasing the solenoid brake. A pair of limit switches 84 and 85 is mounted on each side of the T-head 47. The switches 84 are push button type switches and are operated by set screws 86 carried by a projection of the boom gear segment 79 and arranged so that as the boom approaches its limit of movement as it is swung over from one side to the other, one of the set screws engages the button operator 87 of its associated limit switch 84 to close the hoist side of the circuit of the hoist motor 83 to be described in connection with the wiring diagram of Figure 16.

The limit switches 85 are of the side roller type and are operated by cams 88 fastened to the face of the boom gear 79. The limit switches 85 are connected in the pilot circuit controlling the arm turning motor 80.

The hoist cable 64 is connected at one end to a hoist drum 89 fixed on a shaft 90 which is journaled in ball bearings 91 carried by a drum casing 92 which is mounted on the T-head 47 of the column 39 adjacent the inner end of the boom portion 50. The hoist is operated by a reversible electric motor 93 through a reduction drive including a sprocket chain 94 and sprockets 95 and 96 on the hoist drum shaft 90 and motor shaft 97, respectively.

The hoist cable 64 passes from the hoist drum

89 axially through the straight horizontal part 50 of the boom to the elbow 53. At this point, the cable passes through an opening in the curve of the elbow 53 around a guide sheave 98 and thence along the outside of the curved portion 52 of the boom arm, passing over guide sheaves 99 mounted on the curved arm. From the last of the guide sheaves 99, the cable passes into the tubular arm to the guide sheaves 65 at the pivotal connection of the auxiliary arm 55 to the end of the curved arm 52. As previously described, the cable passes axially through the auxiliary arm 55, over the swiveled sheave roller 76 and thence to the tie hook 100.

The guide sheaves 98 and 99 include an inverted U-shaped bracket 101 bolted to the arm 49, the ball bearing sheave 102 being mounted on a pin 103 passed through the sides of the bracket and held in place by a cotter pin 104.

The tie hook 100 comprises a main frame consisting of two telescoping members 105 and 107, the outer ends of which support the tie engaging elements later described. The frame member 105 is formed at its outer end of an I-section 106 while its inner end is bifurcated to have telescoping engagement with the frame member 107. The inner end of the frame member 105 consists of two parallel channel members 108 disposed back to back in spaced relation and connected at one end to the I-section 106 by means of bridge plates 109 and web connecting straps 110.

The frame member 107 rides on flanged rollers 111 journaled on flanged roller pins 112 secured to the confronting faces of the channel members 108 by nuts 113 on the reduced threaded ends thereof which project through the webs of the channel members. The flanged guide rollers are in spaced pairs and have tapered faces to conform to the contour of the flanges of the I-beam 107. The channel members 108 are held in spaced relation by bottom tie plates 114 riveted or otherwise secured to the bottom flanges of the channel members 108 and also by tie-straps 115 bridging the top flanges thereof.

A cable sheave 116 is mounted between the channel members 108 at a point substantially midway of the over-all length of the tie hook, the sheave being mounted on a sealed ball bearing 117 carried on a bearing sleeve 118 on a sheave pin 119 extending through aligned openings in the webs of the channel members. The sheave pin 119 is secured against withdrawal by a cotter pin 120 passing through one end thereof and a locking plate 121 engages the headed end thereof.

The sheave 116 is centered between the channel members 108 by means of cable guide blocks 122 which have their upper surfaces bevelled toward the sheave. The cable guide blocks 122 are mounted on the sheave pin 119 and also have flanges 123 which underlie the lower flanges of the channel members 108 and are suitably secured thereto. The tie plates 114 are spaced to permit mounting of the blocks 122 and the adjacent ends thereof are additionally cut away as at 124 to facilitate threading of the cable 64 around the sheave 116. The cable 64 after passing around the sheave 116 is connected to the inner end of the frame member 107 as indicated at 125.

Tie engaging fittings of substantially identical construction are mounted at the outer ends of the frame members 105 and 107. These fittings include a pivoted cross yoke 126 carried by a ver-

tical pivot pin 127 between spaced plates 128 secured to the upper and lower flanges of the I-beams 106 and 107 and extending beyond the ends thereof. The yokes are resiliently centered at right angles to the I-beams by equalizer springs 129 extending between the ends of the yokes and the I-beams 107 and 106, respectively.

The yokes 126 each carry two swivelled hangers 130, one at each end thereof. The hangers are connected to the yokes by a hinge joint 131 and each includes a pair of depending divergent fingers 132 and 133 which terminate at their lower ends in bosses 134 forming a socket for steel points 135. The steel points face inwardly to grip the ends of ties disposed between the end fittings. Springs 129a resiliently center the hangers 130 in a neutral position at right angles to the axis of the frame.

The tie hook will engage four ties laid side by side. In order that the outside ties will be gripped with greater force than the inside ties, the relative length and angular disposition of the fingers 132 and 133 is such that the point of suspension of the hangers is offset toward the outer finger of each hanger as can be seen from an inspection of Fig. 21.

A handle bar 136 is mounted at the end of the frame member 107 beyond the tie gripping fitting thereon.

The handle bar extends at right angles to the frame member and is supported by extensions of the plates 128 which are bolted to a central projecting part 137 of the bar. Semi-enclosed wooden hand grips 138 are provided at the ends of the handle bar.

The handle bar is formed to provide an open faced housing 139 between the hand grips 138. A latch lever 140 pivoted at 141 on the upper wall 142 of housing 139 is provided with a thumb plate 143 at one end thereof and is connected at its other end to a latch rod 144 which extends through the rear wall of the housing and is connected at its other end to a pivoted latch plate 145. The latch plate 145 is pivoted on the upper plate 128 at 146 and is biased by a spring 147 to latching position against the end of a rod 148 which is mounted on the frame member 105 and slides through a guide yoke 149 on the plate 128. In the position shown, the latch plate 145 prevents telescoping movement of the frame members to tie engaging position. Rocking of the lever 140 by depressing the thumb plate 143 results in retraction of the latch plate 145 against the tension of the spring 147 to permit closing telescoping movement of the frame members.

A pair of push button switches 150 and 151 mounted in the housing 139 control the circuits to the hoist motor 93.

Electric power for operation of the hoist and boom reversing motors is taken off from plug-in stations 152 which are spaced at intervals along the dock. These stations include an outlet receptacle 153. An electric cable reel-up mechanism 154 mounted on the truck 26 includes an automatic reel 155 for the power cable 156. The power cable passes from the reel 155 down through a rocking guide member 157 mounted at one side of the truck 26 midway of the wheels 27. The cable is connected at its end to an attachment plug 158 which is plugged into the receptacle 153. The guide member 157 comprises a pair of guide rollers 159 journaled between plates 160 which are pivotally suspended on a rock shaft 161 carried by a bracket 162 secured to and projecting laterally from the lower side of the

truck 26. From the reel-up device 154, the cable passes to suitable control mechanism mounted on the hoist column. Since the structure of the switches of the control apparatus per se form no part of the present invention, the wiring diagram of Fig. 16 will serve to illustrate the system.

In the wiring diagram, 163 is the power line, 153 is the station receptacle, 154 is the reel-up device for the cable 156 and 164 is a master switch for opening or closing the main circuit. The circuit to the reversible hoist motor 93 is controlled by magnetically operated switches 165 and 166, these switches being operated by a pilot circuit including the push button switches 150 and 151.

The push button switch 150 controls the pilot circuit through the magnetic operator 167 which operates the switch 166 in the hoist side of the motor circuit. The limit switches 84 are connected in series in the pilot circuit of the hoist switch 166 so that the motor cannot be operated unless the boom arm is resting on one or the other of the fixed stops in one of its operative positions. This is a safeguard against overloading the boom turning gear in case the solenoid brake of the arm turning motor is not released after reversing the position of the boom. The solenoid brakes for the motors 80 and 93 are indicated at 80a and 93a, respectively.

The push button switch 151 controls the pilot circuit through the magnetic operator 168 which operates the switch 165 in the reverse or lowering side of the hoist motor circuit.

The arm motor 80 is controlled by magnetically operated switches 170 and 171 which for convenience will be described as controlling the forward and reverse sides of the motor circuit, respectively. The pilot circuit to the magnetic operator 172 of the switch 170 is controlled by a push button switch 173 and the circuit to magnetic operator 174 of the reversing switch 171 is controlled by a push button switch 175. The boom arm turning motor may be stopped with the boom in an intermediate position by actuating a stop switch 176 which opens the motor circuit.

One of the limit switches 85 is inserted in the pilot circuit to each of the magnetic operators 172 and 174 to open the circuit to stop the motor when the arm approaches its limit of movement in either direction.

The control wires for the hoist motor switches are run through a flexible cable 180 from the magnetic switches mounted on the crane and the cable runs to a portable stand 181 placed on the track 28 adjacent the truck 26. This stand consists of a tripod, the legs 182 of which support a vertically disposed section of pipe. This pipe supports a heavy coil spring which is slipped over the upper end thereof and the coil spring disposed with its axis vertical, supports an upstanding piece of light tubing. The cable runs up through the pipe and out through the top of the tube which is about twelve feet above track level and from this point loops downwardly and extends to the tie hook, the ends of the control wires being connected to the respective control switches 150 and 151 on the tie hook by a suitable plug connection.

In the operation of the apparatus, for instance in loading ties from a tie tram 185 on narrow gauge track 186 paralleling track 28, into a freight car as illustrated in Fig. 9, it is preferable to employ an operator and a helper. With the truck 26 and jib crane in the position shown,

with respect to the freight car and tram, the operator grasps the handles 138 of the tie hook and swings the same into position above the ties on the tram. At this time, the frame members of the hook are latched in extended position by latch plate 145. The operator then depresses the button 151 to operate the hoist motor in a direction to lower the hook over the ties to be lifted. The latch 145 is then released by pressing on the end of lever 140 and push button 150 is depressed to operate the hoist motor to take up the cable 64. The tightening of cable 64 acts first to telescope the tie hook to bring the points of the hanger fittings into engagement with the ends of the ties and then raises the tie hook and the ties clamped therein. When the hook has been raised sufficiently to clear the ties on the tram the helper grasps the end opposite the operator and moves toward the door of the car. This tends to straighten the auxiliary arm 55 and starts the curved boom arm swinging about its vertical pivot. The ties are then guided through the car door, the operator adjusting the height by manipulation of the switches 150 and 151 so that as the ties are moved to position over the rick, they are near the correct elevation to be deposited. The operator then lowers the ties and continues operation of the hoist motor to get sufficient slack in the hoist rope to permit the tie hook to be extended to open position by pulling on the handles. With the hook latched in extended position, the hoist motor is operated to raise the hook sufficiently to clear the ties and the hook is then swung out of the car over to the tram and the operation is repeated.

After one end of the car is loaded, the arm turning motor 80 is operated to swing the boom arm over on its horizontal pivot to the other side and the truck 26 is moved down to a position at which the boom will swing into the car through the side door toward the other end.

When unloading a car, the operation is reversed.

It will be observed that very little head room is required within the car so that the ties may be loaded to within about 16 inches of the top of the door. Also since the auxiliary arm swings freely in a horizontal plane at the end of the curved boom arm, the ties can be loaded or removed from any position in the car.

While a preferred embodiment of the invention has been shown and described by way of illustration, it is to be understood that various modifications and changes in the details of construction and operation may be resorted to without departing from the spirit of the invention within the scope of the appended claims.

I claim:

1. In a car loading and unloading apparatus, a boom support mounted to rotate about a vertical axis, a boom mounted on said support having a substantially straight inner portion extending horizontally from said support and a horizontally disposed curved outer portion arranged upon rotation of said support to move into and out of said car, and an auxiliary arm pivotally connected to the outer end of said curved arm portion.

2. In car loading and unloading apparatus, a boom support mounted to rotate about a vertical axis, a boom mounted on said support comprising a straight horizontal arm portion projecting from said support and a curved arm portion extending from the outer end of said straight arm portion, said boom arm having a normal opera-

tive position in which the curved arm portion is horizontally disposed, and an auxiliary arm pivotally connected to the outer end of said curved arm portion for swinging movement in a horizontal plane with said boom arm in normal operative position.

3. In a car loading and unloading apparatus, a boom support mounted to rotate about a vertical axis, a boom mounted on said support comprising a straight horizontal arm portion projecting from said support and a curved arm portion extending from the outer end of said straight arm portion, a hoist-cable actuated article gripping member, a hoist cable having an end depending from the end of said boom arm and connected to said gripping member, a hoist motor for taking up and paying out said cable, and means on said gripping member for controlling the operation of said hoist motor.

4. In a car loading and unloading apparatus of the character described, a portable truck, a rotatable upright column member mounted on said truck and a boom member comprising a straight horizontal inner section mounted at one end on said column and a horizontally disposed curved outer section extending from the outer end of said inner section in an arc with the axis of said upright column as a center, power operated hoist means for manipulating a load at the free end of said curved section of said boom, whereby with said truck positioned adjacent the side door of a car the free end of said boom and a load supported thereby may be swung through the door into or out of the end of the car upon rotation of the column and the boom about the axis of the column.

5. In a car loading and unloading apparatus of the character described, a portable truck, a rotatable upright column member mounted on said truck and a boom member comprising a straight horizontal section mounted at one end on said column and a curved horizontal section extending from the other end of said straight horizontal section, a hoist drum mounted on said column, a hoist cable connected at one end to said drum and having its other end depending from the end of said boom, power actuated means for driving said hoist drum, a tie hook connected to the depending end of said hoist cable and means for controlling said power actuated means including manually operated control elements mounted on said tie hook.

6. In a car loading and unloading apparatus of the character described, a portable truck, a rotatable upright column member mounted on said truck and a boom member comprising a straight horizontal section mounted at one end on said column and a curved section extending from the other end of said horizontal section in an arc with the axis of said column as a center, an electrically operated hoist drum mounted on said column, a hoist cable connected at one end to said hoist drum and having its other end depending from the end of said boom member, a tie hook connected to the depending end of said cable, and means for controlling the actuation of said electrically operated hoist drum from said tie hook including circuit control elements on said tie hook.

7. In a car loading and unloading apparatus, a portable truck, an upright rotatable column member mounted on said truck, a tubular boom member comprising a straight horizontal portion journaled at one end on said column and a curved horizontal portion extending from the

other end of said straight horizontal portion in an arc with the axis of said column as a center, an auxiliary arm member hinged to the end of the curved portion of said boom, guide sheaves mounted at the hinge, a swiveled sheave mounted at the outer end of said auxiliary arm, a hoist drum mounted on said column, a hoist cable having one end connected to said drum, guide means on said boom for said cable, said cable passing from said drum over said guide means and said sheaves at said hinge and over said swiveled sheave at the end of said auxiliary arm.

8. In a car loading and unloading apparatus, a portable truck, an upright rotatable column member mounted on said truck, a tubular boom member comprising a straight horizontal portion journaled at one end on said column and a curved horizontal portion extending from the other end of said straight horizontal portion in an arc with the axis of said column as a center, an auxiliary arm member hinged to the end of the curved portion of said boom, guide sheaves mounted at the hinge, a swiveled sheave mounted at the outer end of said auxiliary arm, an electrically operated hoist drum mounted on said column, a hoist cable having one end connected to said drum, guide means on said boom for said cable, said cable passing from said drum over said guide means and said sheaves at said hinge and over said swiveled sheave at the end of said auxiliary arm, a tie hook connected to the end of said cable depending from said auxiliary and means including circuit control elements on said tie hook for controlling the operation of said hoist drum from said tie hook.

9. In a car loading and unloading apparatus, a portable truck, an upright rotatable column mounted on said truck, a boom comprising a straight horizontal inner end portion mounted on said column and a curved horizontal outer end portion, an auxiliary arm hinged to the outer end of said boom to swing in a plane common to the straight and curved portions thereof, a motor-driven hoist drum mounted on said column, a hoist cable wound on said drum, guide means on said boom arm for said cable, a tie hook suspended from said auxiliary arm by said cable, and means including circuit control devices on said tie hook for controlling the operation of the motor-driven hoist drum from said tie hook.

10. In a car loading and unloading apparatus, a portable truck, an upright rotatable column mounted on said truck, a boom comprising a straight horizontal inner end portion journaled on the upper end of said column and a curved horizontal outer end portion, an auxiliary arm hinged to the outer end of said boom to swing in a plane common to the straight and curved portions thereof, a motor-driven hoist drum mounted on said column, a hoist cable wound on said drum, guide means on said boom arm for said cable, a tie hook suspended from said auxiliary arm by said cable, means including circuit control devices on said tie hook for controlling the operation of the motor-driven hoist drum from said tie hook, means for swinging said boom arm about the axis of the straight horizontal end portion thereof to dispose said curved portion in either one of two opposite operative positions in horizontal alinement with said straight portion, and means for rendering said hoist inoperative when said boom arm is in other positions.

11. In a car loading and unloading apparatus,

a portable truck, a boom support mounted on said truck comprising a tubular base member, an upright outer column member slidably mounted in said base member, means for elevating and lowering said outer column member with respect to said base, an inner column member journaled in the upper end of said outer column member, a horizontally disposed tubular head mounted on said inner column member, a boom comprising a straight horizontal inner end portion journaled in said tubular head on a horizontal axis, a curved normally horizontal outer end portion describing an arc with the axis of rotation of said inner column as a center, and means for rotating said boom about the horizontal axis of the inner end portion thereof to dispose said curved portion in either one of two oppositely disposed operative positions in the horizontal plane of said straight portion.

12. In a car loading and unloading apparatus, a portable truck, an upright rotatable column mounted on said truck, means for elevating and lowering said column with respect to said truck, a boom comprising a straight horizontal inner end portion journaled on the upper end of said column and a curved outer end portion describing an arc with the axis of said column as a center, an auxiliary arm hinged to the outer end of said boom to swing in a plane common to the straight and curved normally horizontal portions thereof, a motor-driven hoist drum mounted on said column, a gear carried by said horizontal inner end portion of said boom arm, a motor carried by said column in driving engagement with said gear for rotating said boom arm about the axis of the horizontal portion thereof, a hoist cable wound on said drum, guide means on said boom arm for said cable, a tie hook suspended from said auxiliary arm by said cable, and means including circuit control devices on said tie hook for controlling the operation of the motor-driven hoist drum from said tie hook.

13. In a car loading and unloading apparatus, a boom support mounted to rotate about a vertical axis, a boom having an inner substantially straight horizontal portion journaled on said support for rotation about its own axis and an outer curved portion arranged upon rotation of said support to move into and out of said car, and means for rotating said boom about the horizontal axis of the inner end portion thereof to dispose said curved portion in either of two oppositely disposed normal horizontal positions of operation.

14. In a car loading and unloading apparatus, a boom support mounted to rotate about a vertical axis, a tubular boom member mounted on said support having a curved outer portion arranged upon rotation of said support to move into and out of said car, an auxiliary arm member hinged to the outer end of said curved portion of said boom, cable guide means mounted at the hinge point of said auxiliary arm to said boom, cable guide means at the free end of said auxiliary arm, a hoist drum mounted on said support, a hoist cable connected at one end to said drum, said cable passing through the guide means at said hinge point and at the end of said auxiliary

arm, and article gripping means connected to said cable.

15. In a car loading and unloading apparatus, a portable truck, an upright rotatable column member mounted on said truck, means for elevating and lowering said column, a horizontally disposed tubular head mounted on said column member, a tubular boom member comprising a straight horizontal inner end portion journaled in said tubular head and a curved outer end portion normally disposed in horizontal alignment with said inner end, a gear segment carried by the boom arm adjacent said column head, a motor mounted on said head in driving connection with said gear for rotating said boom arm about its horizontal axis, an auxiliary arm member hinged to the end of the curved portion of said boom, the pivotal axis of said auxiliary arm being vertically disposed when said arm is in its normal horizontal position, cable guide sheaves mounted on either side of said pivotal axis, a hoist drum mounted on said column adjacent the inner end of said boom arm, a hoist cable wound on said drum, said hoist cable passing from said drum axially through the straight portion of said boom thence outwardly around the outer side of the curved portion thereof and back into said boom arm adjacent the end thereof and through said guide sheaves at the hinge point of said auxiliary arm, said cable passing axially through said auxiliary arm and extending from the end thereof.

16. In a car loading and unloading apparatus, a portable truck, an upright rotatable support mounted on said truck, a boom comprising a substantially straight horizontal inner end portion journaled on the upper end of said support for rotation about its own axis and a curved normally horizontal outer end portion, and means for rotating said boom arm about the axis of said horizontal inner end portion thereof to dispose said curved portion in either of two opposite operative positions in horizontal alignment therewith.

17. In apparatus as defined in claim 16, a motor driven hoist means mounted on said support, a hoist cable actuated by said hoist means, guide means on said boom arm for said cable, and means for rendering said hoist means inoperative when said boom arm is in other than one of its operative positions.

18. In car loading and unloading apparatus, a boom support mounted to rotate about a vertical axis, a boom mounted on said support comprising a substantially straight horizontally disposed inner portion extending radially from said support and a horizontally disposed curved outer portion extending from the outer end of said inner portion in an arc with the axis of said boom support as a center, hoist means for manipulating a load at the free end of said curved outer portion of said boom, whereby the free end of said boom and a load supported therefrom may be swung through the door of a car into or out of the end thereof upon rotation of said boom about the vertical axis of said support.

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