

No. 771,181.

PATENTED SEPT. 27, 1904.

E. R. SHETTLE.
PORTABLE GRAIN DUMP.

APPLICATION FILED NOV. 2, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

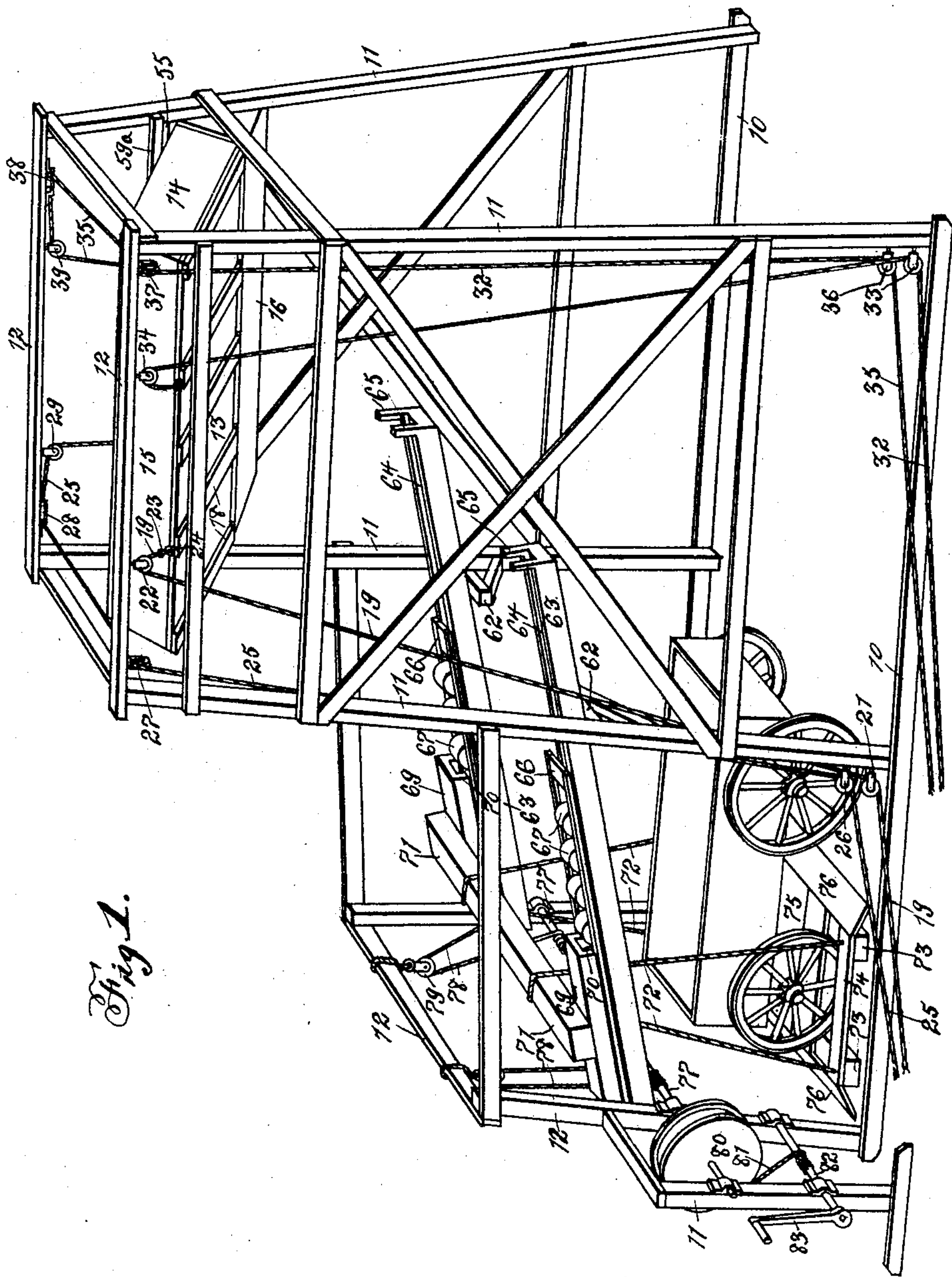


Fig. 1.

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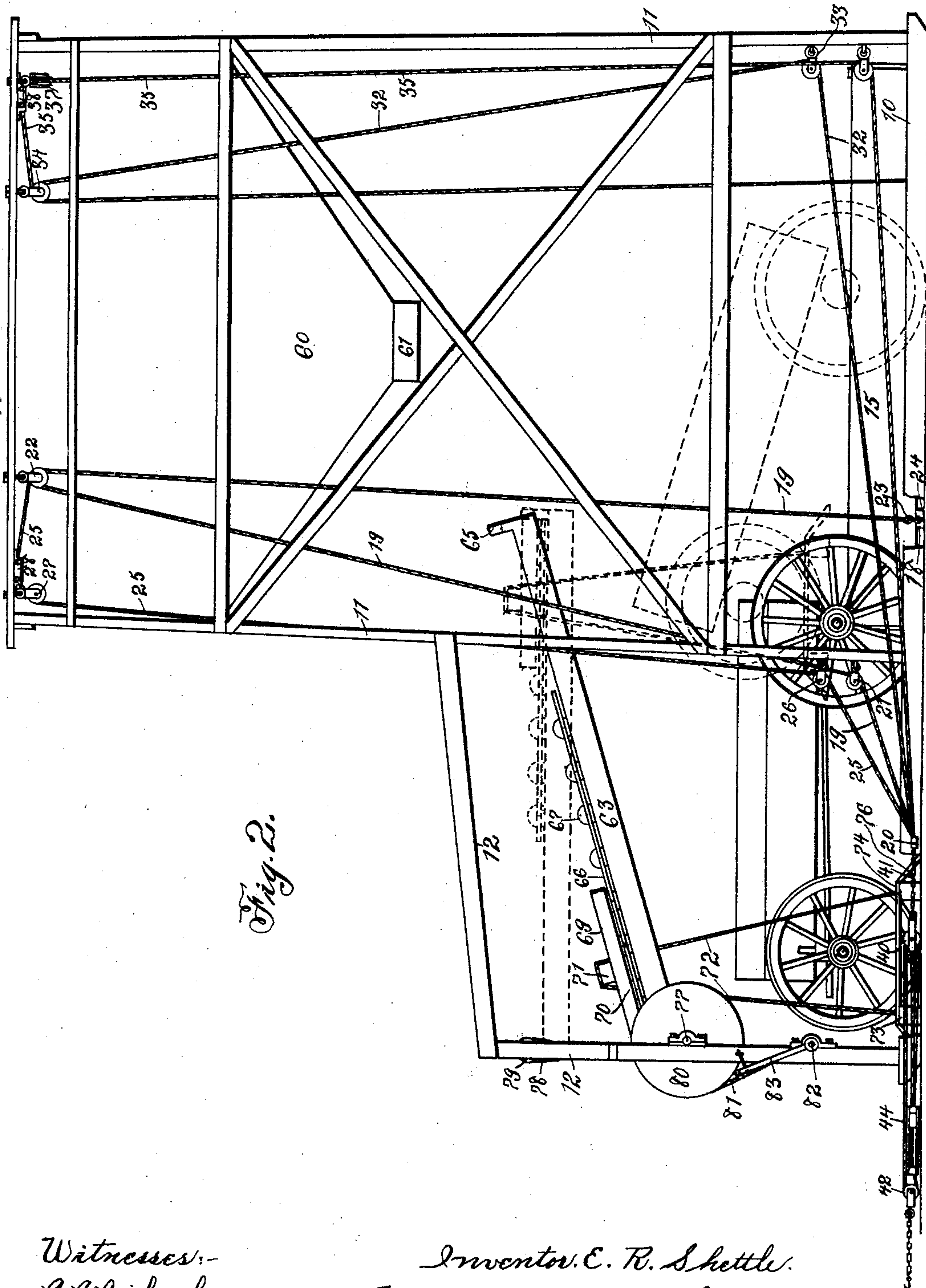


Fig. 2.

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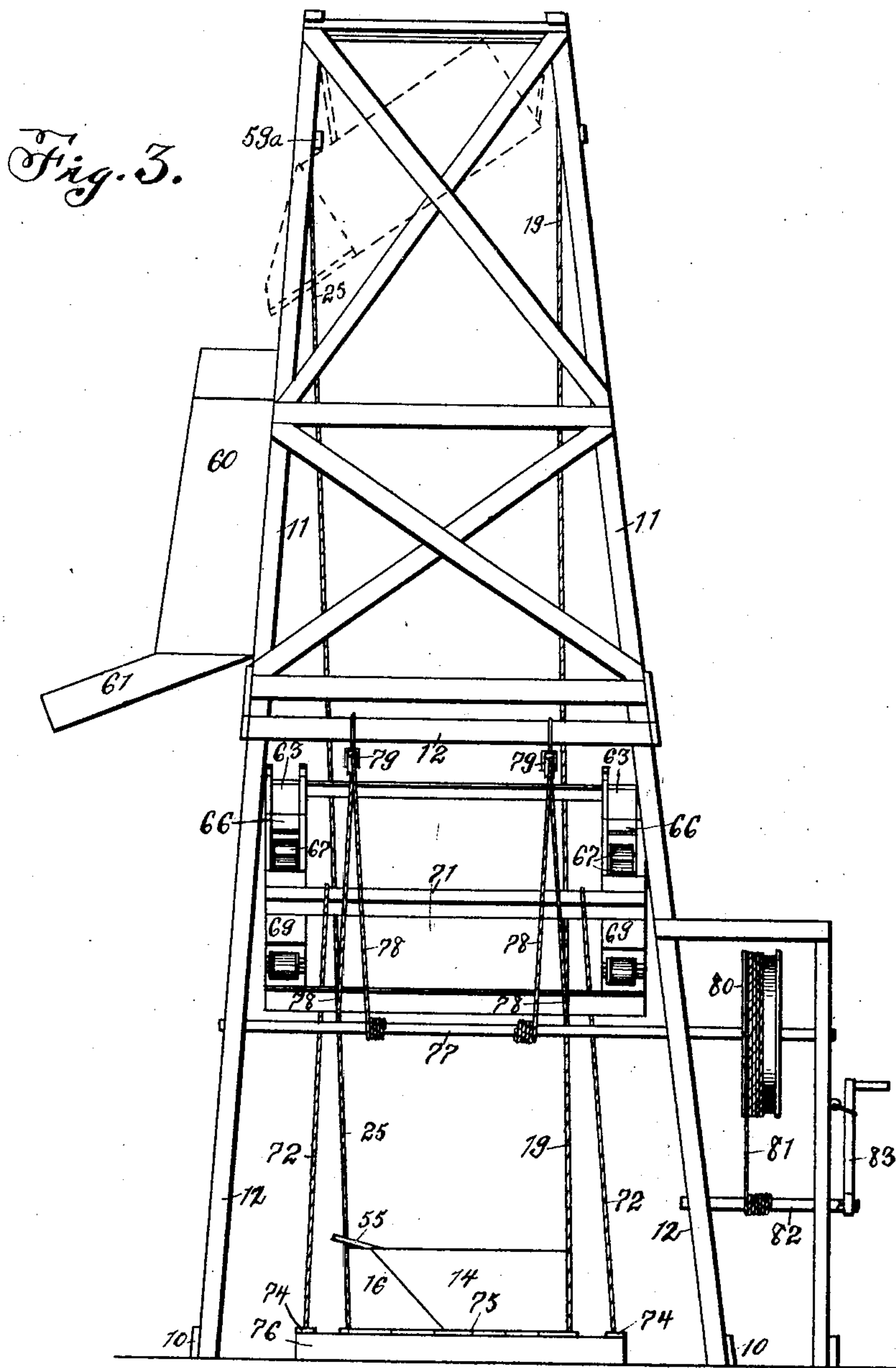
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4 SHEETS—SHEET 3.



Witnesses:
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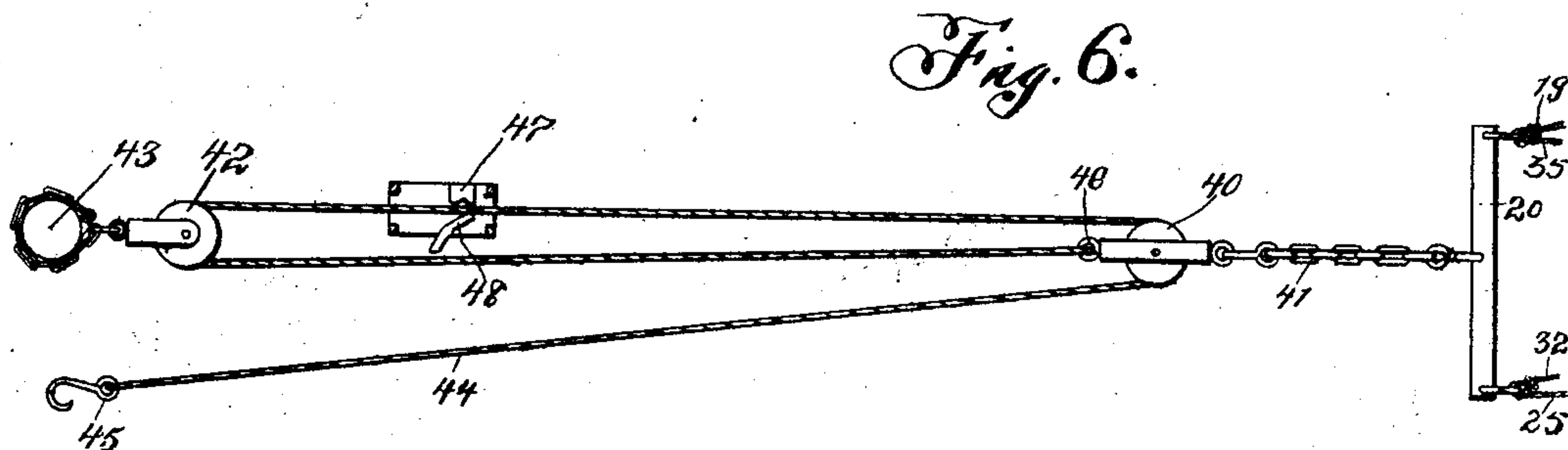
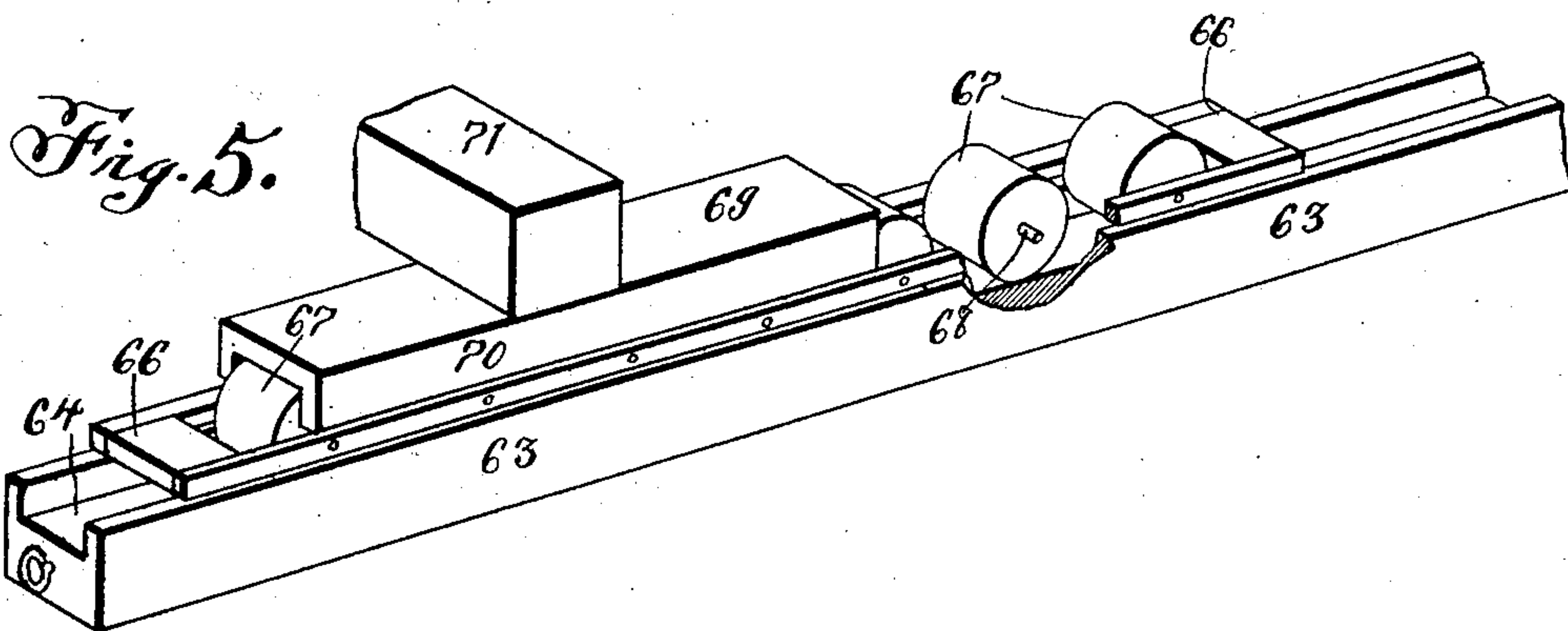
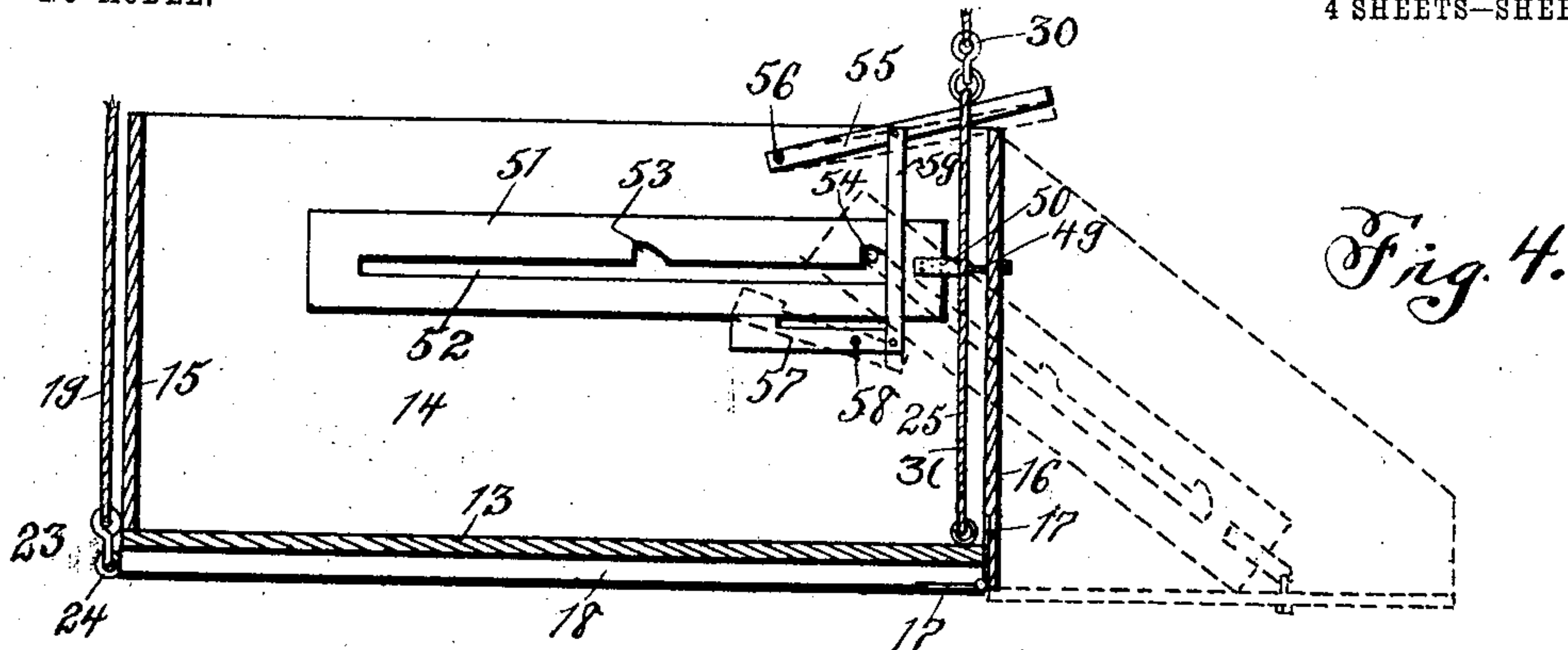
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

EVERETT R. SHETTLE, OF SPIRIT LAKE, IOWA.

PORTABLE GRAIN-DUMP.

SPECIFICATION forming part of Letters Patent No. 771,181, dated September 27, 1904.

Application filed November 2, 1903. Serial No. 179,498. (No model.)

To all whom it may concern:

Be it known that I, EVERETT R. SHETTLE, a citizen of the United States, residing at Spirit Lake, in the county of Dickinson and State of Iowa, have invented certain new and useful Improvements in Portable Grain-Dumps, of which the following is a specification.

The objects of my invention are to provide a device of this class of simple, durable, and inexpensive construction and of light weight, so that it may be readily and easily transported.

A further object is to provide a device of this class which may be placed flat upon the ground surface and which does not require the use of inclined approaches.

A further object is to provide a device of this class in which the use of an engine is dispensed with and no power is necessary except that furnished by the teams of the wagons being dumped and also that furnished by a crank to be turned by the operator.

A further object is to provide a machine of this class in which the operation of dumping the wagon and of discharging the contents thereof at an elevated point may be accomplished quickly and the apparatus prepared to receive a second load as soon as the first is discharged.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of the complete apparatus with the elevator-box in position for discharging its contents and also a wagon in position in the device. Fig. 2 shows a side elevation of the complete device with the elevator-box in its lowered position and a wagon in position with its rear end over the elevator-box. The dotted lines in said figure indicate the position of the wagon and the accompanying parts with its front end elevated and its rear end over the rear of the elevator-box. Fig. 3 shows a front end elevation of the complete device with the elevator-box in its lowered position. The dotted

lines in said figure indicate the position of the elevator-box when discharging. Fig. 4 shows an enlarged transverse sectional view of the elevator-box and a tripping device for supporting the hinged side thereof. The dotted lines in said figure indicate the position of the parts when the hinged side is opened as required to discharge. Fig. 5 shows an enlarged detailed perspective view of one of the wagon-platform-supporting tracks. Fig. 6 shows a plan view illustrating the mechanism for applying the power to raise the elevator-box and to lock it in its elevated position.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the sills of the device. These sills are preferably rounded at their ends to form runners by which the device may be transported. Erected on top of the rear ends of the sills is a frame 11, and erected on top of the front of the sills is a frame 12. Said sills are spaced apart far enough and said frames are of such shape that a team of draft-animals attached to a loaded wagon may readily pass between the sills and under the frame.

The elevator-box is composed of a solid bottom 13, ends 14, and stationary side 15, attached to the bottom and ends, and a hinged side 16. This hinged side is connected with the elevator-box by means of the hinges 17, attached to the cross-pieces 18 beneath the bottom 13 and also attached to the inner face of the hinged side 16. By this arrangement of parts the hinged side will stand on a lower plane when open than the top of the bottom 13, as shown in Fig. 4. This elevator-box is supported by means of four ropes. The first one (indicated by the numeral 19) is attached to an evener 20, passed under a pulley 21 at the base of the frame 11, then over a pulley 22 at the top of the frame 11, and on its end is a hook 23, detachably connected with the eyebolt 24, secured to one of the cross-pieces 18 near the front of the elevator-box. The second rope, 25, is attached to the evener 20, passed under the pulley 26 near the base of the frame 11, then over the pulley 27 at the top of the frame 11, then across the top of the frame 11 and around the pulley 28, then over the pulley 29, and its other end is provided

with a hook 30, detachably connected with the short loop 31, which is secured to the bottom 13 at a point inside of the hinged side piece 16 and extends to a point above the box.

5 These two ropes 19 and 25 support the front end of the elevator-box. The rear end of the elevator-box is supported by means of a rope 32. One end of this rope is attached to the evener 20, and the rope passes under pulley

10 33 at the rear of the base of the frame 11, then upwardly and over the pulley 34 at the top of the frame 11, and the other end of the rope is permanently secured to the elevator-box near the rear end thereof. The other

15 rope, 35, is attached to the evener 20, passed under pulley 36, then over pulley 37, then around pulley 38, then over pulley 39, and its end is attached to the elevator-box in the same way as the rope 25. By the arrange-

20 ment just described a pull upon the evener 20 will raise the elevator-box to the top of the frame 11. The two ropes 19 and 35 are attached to one end of the evener 20, and the other two ropes, 25 and 32, are attached to

25 the other end of said evener, and obviously when a wagon or a pair of draft-animals is attached to the central portion of said evener and advanced and the further movement of one pair of the ropes is stopped then a further

30 advance of the evener will obviously move the other pair of ropes a slight distance.

I have provided means by which an unloaded wagon passing from the device may be utilized in raising the elevator-box, as follows:

35 The numeral 40 indicates a pulley connected by a chain 41 to the evener 20, and the pulley 42 is attached to the stationary post 43. A rope or cable 44 is provided with a hook 45 on one end and is then passed around the

40 pulley 40 and then around the pulley 42, and its other end is attached to the eye 46 of the pulley 40. This hook 45 is attached to the rear of a wagon passing from the device, and as the wagon advances the pulley 40 is moved

45 toward the pulley 42, and the elevator-box is thereby raised. When the wagon is stopped, the automatic clutch, composed of the stationary jaw 47 and the movable jaw 48, grips the rope 44 and holds the box in its elevated

50 position. When it is desired to lower the box, the movable jaw 48 is released from the rope, and the elevator-box will then be lowered by gravity.

I have provided means whereby the hinged

55 side 16 of the elevator-box is normally locked and is automatically released when the elevator-box reaches its upper limit of movement, as follows: The numeral 49 indicates a loop fixed to the inner face of the side 16 and

60 pivotally connected to a strap 50 on a bar 51. This bar is provided with the longitudinal slot 52, with notches 53 at the upper side of the slot. The pin 54 passes through the slot and is fixed to the adjacent end 14 of the ele-

65 vator-box. When the side 16 is closed, the

bar 51 is in position with the pin 54 resting in the outer one of the notches 53, as shown in solid lines in Fig. 4, and the weight of the bar 51 securely holds it in this position. The numeral 55 indicates a lever pivoted at 56 to

70 the end 14. Said lever projects upwardly and outwardly from the hinged side of the box. The numeral 57 indicates a second lever pivoted at 58 to the end 14 below the bar 51, and a link 59 connects these levers, said

75 parts being so arranged that when the outer end of the lever 55 is moved downwardly the inner end of the lever 57 moves upwardly and carries with it the bar 51, thus throwing the bar to position with the pin 54 in the slot 52

80 and permitting the hinged side 16 to drop to its open position, when the pin 54 will enter the opposite end of the slot 52. In this connection it is to be understood that each end of the elevator-box is provided with a similar

85 device, and a cross-piece 59^a is provided on the frame 11 in a position where the levers 55 will strike it when the elevator-box approaches the upper end of its movement.

As shown in Fig. 3 of the drawings, the

90 hopper 60 is secured to the side of the frame 11 in position to receive the discharge from the elevator-box, and a spout 61 is connected with this hopper, through which the contents of the hopper will discharge. As soon as the

95 elevator-box is lowered the side 16 is moved inwardly on its hinges until the pin 54 enters the central notch 53 of the bar 51, and thus locks the side 16 in its partially-closed position. It is fully closed by hand when box is

100 lowered.

I have provided means for elevating the forward end of the wagon, so that its contents may be discharged into the elevator-box, as follows: On the front end of the frame 11 are

105 two brackets 62, and resting upon these brackets are the beams 63. These beams are identical in construction, and but one will be hereinafter described. In the top of the beam is a groove 64, and at the rear end of the beam

110 are the uprights 65. Mounted on top of the beam is a rectangular frame 66, in which a number of rollers 67 are mounted, the axles 68 of said rollers being rotatably mounted in the sides of the frame 66 and the body portion

115 of said rollers entering the groove 64. The frame containing these rollers is designed to move throughout the entire length of the said beam. Mounted on top of the rollers is a flat

120 strip 69, with downwardly-projecting edges 70. The strip 69 rests on top of the rollers 67, and the sides 70 project downwardly over the ends of the rollers to a point near the frame 66. The numeral 71 indicates a cross-piece

125 fixed to both of the parts 69. By this arrangement of parts it is obvious that the cross-piece 71 may move with a minimum of friction throughout the length of the beams 63. Fixed to the cross-piece 71 are two cables 72, sup-

130 porting a platform, which is constructed as

follows: The base of the platform is composed of two transverse sills 73. These sills are connected by boards 74 at their ends and also by boards 75 at their central portions, thus leaving openings between the sills 73, said openings being spaced apart at the proper distance to admit the front wheels of the wagon to pass through between the boards 74 and 75 and to rest upon the sills 73. At the ends of the platform thus formed are the inclined approaches 76. I have provided means for raising and lowering this platform, as follows: The numeral 77 indicates a shaft mounted in the frame 12. The numeral 78 indicates ropes or cables fixed to and wound upon the shaft 77, passed over the pulleys 79, and attached to the front ends of the beam 63. For rotating the shaft 77 as required to elevate and lower the beam 63 I have provided a large drum 80, fixed to the shaft 77 and having a rope or cable 81 fixed to and wound upon the drum at one end, with its other end fixed to and wound upon the shaft 82, which shaft is provided with a crank 83, by which it may be manually rotated.

In practical use and assuming the device to be in the position shown in Fig. 1 and assuming, further, that the wagon therein illustrated has been driven into the position shown by passing under the frame 11 and stopping with its front wheels in the platform, as shown, the operator first permits the elevator-box to descend and rest upon the ground in the rear of the wagon. This is done by releasing the clutch composed of the parts 47 and 48. The hinged side of the elevator-box is then closed. The front end of the wagon is then elevated without detaching the draft-animals from the wagon by a manipulation of the crank 83. When the beams 63 are in a substantially horizontal position, then the front end of the wagon is held in this position, and the draft-animals attached thereto are backed until the rear end of the wagon overlaps the front end of the elevator-box. The wagon will be easily backed, because a portion of its weight rests upon the cross-piece 71, which in turn is supported on the rollers. Then the end-gate of the wagon is removed and the load is discharged into the elevator-box. While the load is being discharged the wagon is backed, so that the load will be distributed evenly throughout the length of the elevator-box. The front end of the beams 63 is then lowered and the wagon moved forwardly beyond the elevator-box, and when the platform rests upon the ground the wagon may be advanced beyond the device. Then the hook 45 is attached to the rear end of the wagon, and when the wagon is further advanced the elevator-box will be raised, by means of its supporting-ropes, until the levers 55 strike upon the cross-piece 59^a. This will stop further elevation of one side of the elevator-box and at the same time will release the hinged side. The other side

of the box, however, will continue to rise on account of the action of the evener 20, and when further advance of one end of said evener is stopped a further pull at the center of the evener will cause the other end of the evener to advance a slight distance or until the bottom of the elevator-box is at such an incline that its contents will discharge into the hopper 60. As soon as the elevator-box has reached its upper limit of movement the hook 45 is detached from the wagon and the device is ready to receive another wagon. The ropes 19 and 25 are detachably connected with the forward end of the elevator-box, so that when the elevator-box is resting on the ground these ropes may be removed in order that the wagon may be backed over the elevator-box. Then when the wagon is advanced the ropes are again attached.

Having thus described my invention, what I claim, and wish to secure by Letters Patent of the United States therefor, is—

1. A machine-frame, an elevator-box having a hinged side, means for automatically tripping the hinged side when the box has reached a certain elevation, means for holding this side of the box from further upward movement when the hinged side is tripped, two ropes attached to the box near the hinged side, two ropes attached to the box near the other side, elevated pulleys for said ropes and an evener having said pairs of ropes attached to its opposite ends.

2. In a machine of the class described, a frame, an elevator-box having fixed bottom, ends and one side, a side piece hinged to the elevator-box, an automatic tripping device releasing the hinged side when the box approaches the upper limit of its movement, two ropes attached to the bottom of the box outside of the stationary side piece, two ropes attached to the bottom of the box inside of the hinged side piece, and elevated pulleys having the said ropes passed over them.

3. In a machine of the class described, an elevator-box composed of stationary bottom, ends and one side, cross-pieces beneath the bottom, a side piece, hinges secured to the inner surface of the side piece and to the bottoms of the adjacent cross-pieces and a tripping device at each end of the box comprising a slotted bar having notches in the top of the slot, said bar pivoted to the side piece, a pin passed through the slot and supported by the adjacent end piece, a lever pivoted to the end piece above the bar, a second lever pivoted to the end piece below the bar and a link connecting said levers, arranged and combined substantially as and for the purposes stated.

4. In a machine of the class described, a frame, a number of pulleys at the top of the frame, ropes passed over said pulleys, a hopper near the top of the frame, an elevator-box having a hinged side, a tripping device carried by the elevator-box to be engaged by a

part of the frame and to automatically release the hinged side of the elevator-box when the elevator-box approaches a position adjacent to the hopper, said ropes attached to the elevator-box those on the hinged side of the box attached to the bottom inside of the hinged side and those on the opposite side of the box attached to the bottom on the outside of the side piece.

5 5. In a machine of the class described, a platform designed to receive the front of a wagon and an elevated support for said platform movable vertically and horizontally.

15 6. In a machine of the class described, two tilting beams, rollers supported on said beams, a cross-piece resting upon said rollers and movable longitudinally of the beams, a platform supported by the cross-piece and manually-operated means for tilting said beams.

20 7. In a machine of the class described, a platform comprising two parallel sills and a flooring having openings therein to receive the front wheels of a wagon and to permit the wheels to rest upon the sills, an elevated carriage for the platform movable longitudinally and vertically and manually-operated means for moving the carriage vertically.

25 8. In a machine of the class described, a frame, two parallel beams pivotally supported on the frame and having grooves in their upper faces, a frame above each beam, a series of rollers mounted in each frame the rollers resting in the grooves, a carriage resting upon said rollers, a platform supported by said carriage and manually-operated means for tilting the beams.

35 9. In a machine of the class described, the combination of a frame, two brackets supported by the frame, two beams resting upon said brackets having grooves in their upper faces, uprights at the rear ends of said beams and a rope secured to the front of each beam,

elevated pulleys having said ropes passed over them, a shaft having said ropes fixed thereto, a winding-drum on said shaft, a crank-shaft adjacent to the drum and a rope fixed to the winding-shaft at one end and to the drum at its other end, a sliding carriage mounted upon said beams and a platform supported by said carriage.

50 10. In a machine of the class described, a frame, an elevator-box carried by the frame, means for moving the elevator-box from a position resting upon the ground within the frame to an elevated point of discharge, a platform near one end of the elevator-box designed to receive the front end of a wagon, manually-operated means for elevating said platform, a sliding carriage supporting said platform, said parts arranged so that the front end of a wagon may be supported in an elevated position and the wagon backed by the draft-animals attached thereto over the elevator-box to discharge the contents thereof into the elevator-box.

65 11. In a machine of the class described, a frame, an elevator-box, a number of elevated pulleys, two ropes fixed to one end of the elevator-box and passed over said pulleys, two ropes detachably connected to the other end of the box, passed over the elevated pulleys, an evener connected to the opposite ends of said ropes, a pulley connected with the evener, a pulley connected with a stationary support, a rope fixed to the pulley of the evener and passed around the stationary pulley and also around the pulley on the evener and a clutching device to engage said rope, substantially as and for the purposes stated.

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Witnesses:

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