

No. 753,888.

PATENTED MAR. 8, 1904.

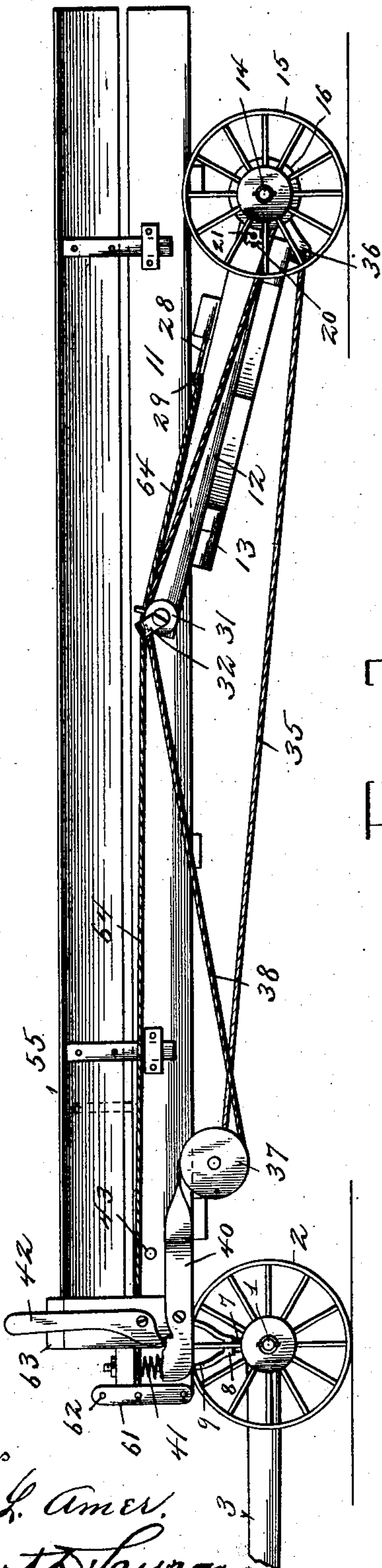
A. E. JOHNSON.  
HOISTING WAGON.

APPLICATION FILED JULY 11, 1903.

NO MODEL.

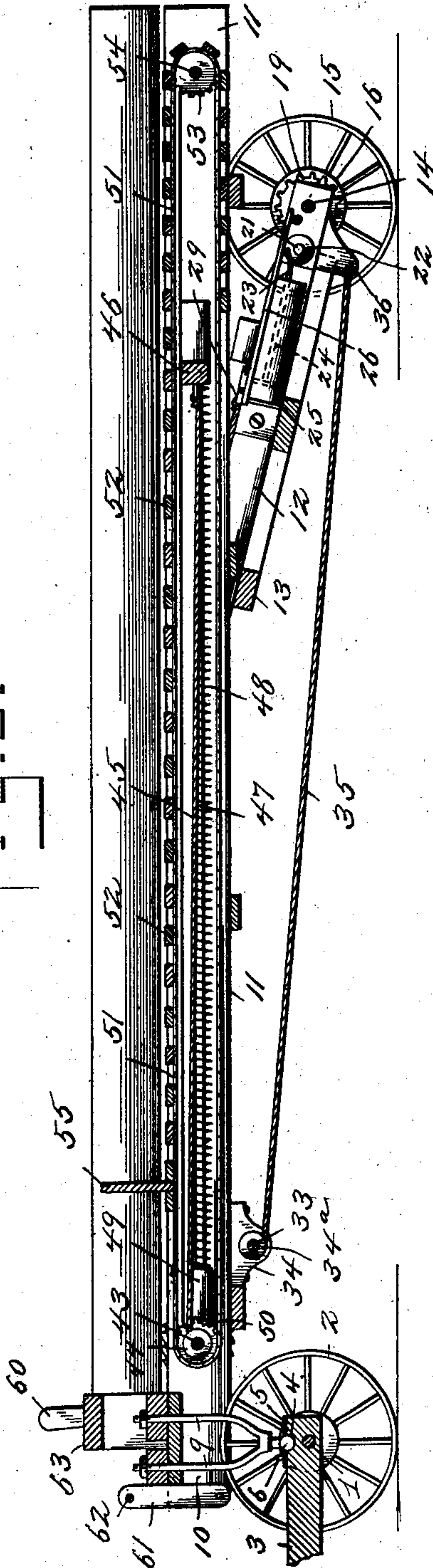
4 SHEETS—SHEET 1.

Fig. 1.



Witnesses  
Harry L. Amer.  
Herbert D. Lawton.

Fig. 2.



Inventor  
Albert E. Johnson.  
By Victor J. Evans.  
Attorney



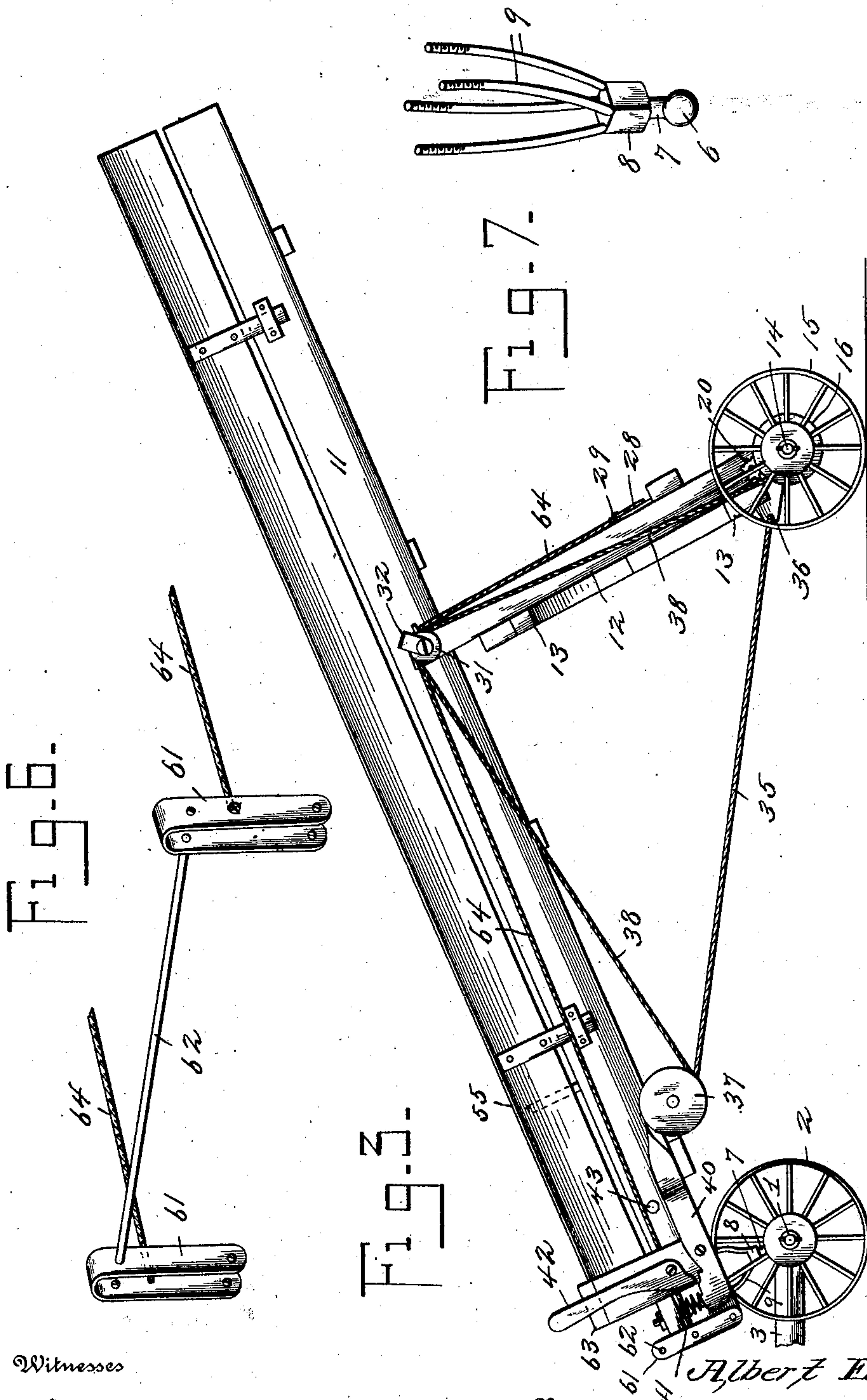
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4 SHEETS—SHEET 2.



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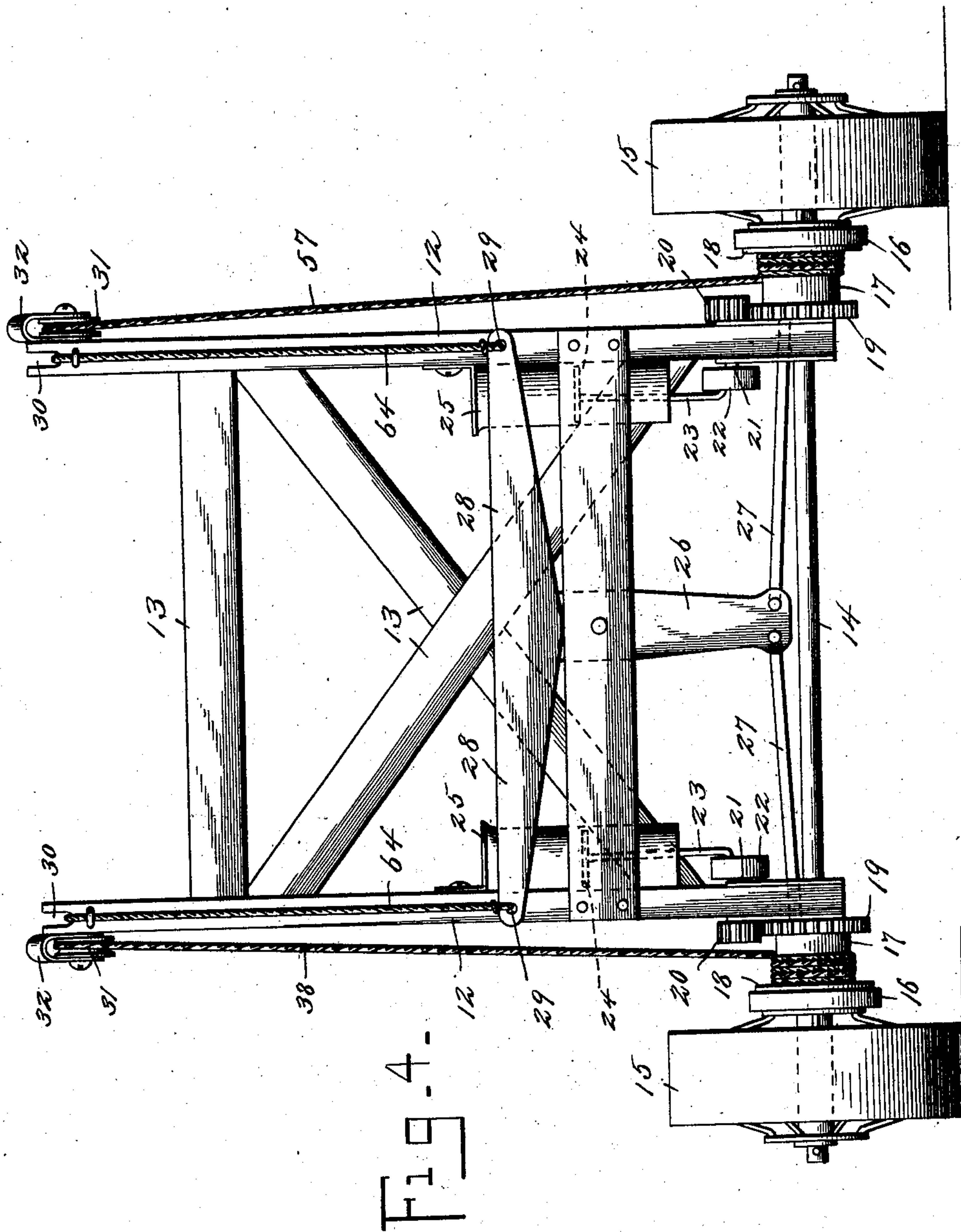
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4 SHEETS—SHEET 3.



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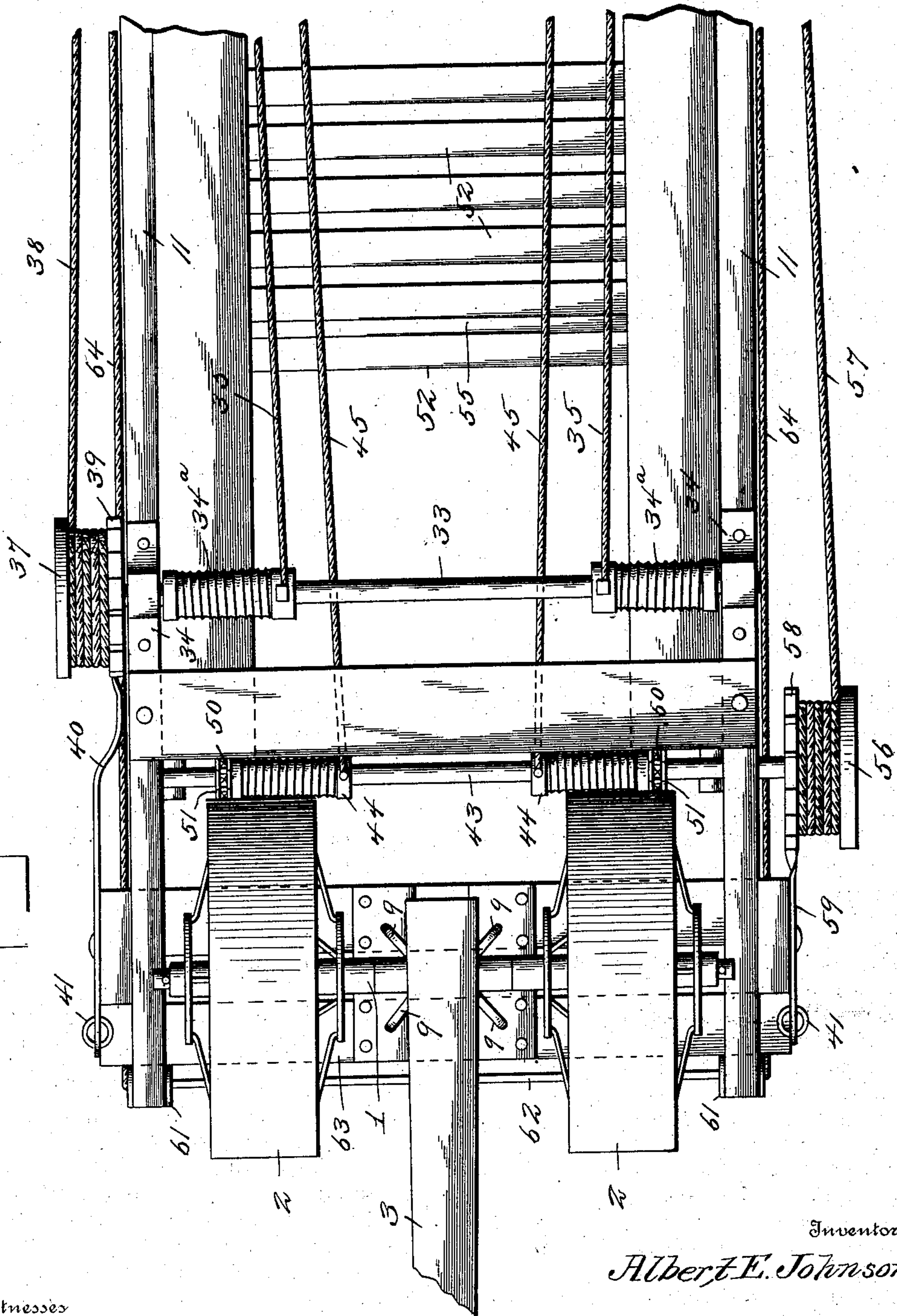
A. E. JOHNSON.  
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NO MODEL.

4 SHEETS—SHEET 4.

Fig. 5.



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By

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# UNITED STATES PATENT OFFICE.

ALBERT E. JOHNSON, OF NORTHFIELD, MINNESOTA.

## HOISTING-WAGON.

SPECIFICATION forming part of Letters Patent No. 753,888, dated March 8, 1904.

Application filed July 11, 1903. Serial No. 165,121. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT E. JOHNSON, a citizen of the United States, residing at Northfield, in the county of Rice and State of Minnesota, have invented new and useful Improvements in Hoisting-Wagons, of which the following is a specification.

My invention relates to new and useful improvements in hoisting-wagons especially adapted for use in stacking hay or other materials; and its object is to provide a combined wagon and hoisting apparatus which is of simple construction and which can be readily conveyed from place to place.

A further object is to provide means for quickly moving the parts of the wagon into hoisting position.

A still further object is to employ simple mechanism for operating an apron mounted upon the hoisting apparatus.

With the above and other objects in view the invention consists in providing a wagon-frame which is pivoted to standards which are mounted upon the rear axle of the vehicle. Mechanism is provided whereby the standards can be swung inward by the forward movement of the vehicle, so as to cause the body thereof to assume an inclined position. Means are also provided whereby when the vehicle is drawn forward the apron upon the wagon-body will be moved upward, so as to hoist any material which may be arranged thereon.

The invention also consists in providing mechanism for automatically returning the apron to normal or lowered position after the discharge of material therefrom.

The invention also consists in the further novel construction, combination, and arrangement of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a side elevation of my improved hoisting mechanism. Fig. 2 is a longitudinal section therethrough. Fig. 3 is a side elevation thereof, showing the body of the vehicle in an inclined position. Fig. 4 is a rear elevation of the standards and the parts connected thereto, the body of the vehicle being removed. Fig. 5 is a bottom plan view of the

forward portion of the apparatus. Fig. 6 is a perspective view of the clutch-operating bar, and Fig. 7 is a detail view of the body-supporting standard of the device.

Referring to the figures by numerals of reference, 1 is the front axle of the vehicle, having traction-wheels 2 of any suitable construction arranged thereon, and to this axle is secured a tongue 3, through which the draft-animals are adapted to be hitched in any suitable manner. The upper surface of the rear portion of this tongue is provided with a recess 4, over which extends an apertured plate 5, and seated within this recess and below the plate 5 is a ball 6, formed at the end of a stem 7, which is integral with a block 8. Rods 9 extend from the corners of the block and are bolted or otherwise secured in the forward portion of the frame 10 of the vehicle-body. This frame is formed of side beams 11, and pivoted to these beams at points between their ends are standards 12, which are connected by cross-strips 13 and are pivotally mounted upon the rear axle 14 of the vehicle. This axle has traction-wheels 15 loosely mounted thereon, and revoluble with each wheel is a clutch member 16. A drum 17 is loosely mounted on the axle adjacent each clutch member 16, and these drums have tapered ends 18, which project into the clutch members 16. Gears 19 are formed at the inner ends of the drums 17 and mesh with smaller gears 20, which are secured to shafts 21, journaled within the standards 12, and secured to the inner ends of the shafts are disks 22. A rod 23 is eccentrically connected to each disk and has a piston 24 at its other end which is slidably mounted within a cylinder 25, secured to the inner face of the adjacent standard 12. This cylinder is closed at the ends for the purpose hereinafter more fully described. To one of the cross-strips 13 is pivoted a lever 26, to one end of which are pivoted oppositely-extending rods 27, which are slidably mounted in the standards 12 at points near the axle 14 and bear at their ends on the inner faces of gears 19. Oppositely-extending arms 28 are rigidly secured to the other end of lever 26 and are provided with apertures 29 at their ends which are in alignment with guide-recesses 30, formed



in the upper ends of the standards 12. Pulleys 31 are journaled in brackets 32 on the outer faces of the standards 12, near the pivots thereof, and are substantially in alinement  
5 with the drums 17 hereinbefore referred to.

A shaft 33 is journaled in brackets 34<sup>a</sup>, secured to the lower surfaces of the side beams 11, and this shaft extends transversely of the body of the vehicle and is provided near each  
10 end with drums 34, to which are secured the ends of cables 35, which are fastened at their other ends to brackets 36, fastened to the lower ends of the standards 12. A drum 37 is arranged at one end of the shaft 33 and outside  
15 the body of the vehicle, and secured to this drum is a cable 38, which extends over one of the pulleys 31 to the drum 17 in alinement therewith. A ratchet 39 is formed with drum 37, and a spring-pawl 40 serves to prevent the  
20 drum from unwinding the cable. This pawl is preferably formed of a centrally-pivoted lever, the forward end of which is normally depressed by a coiled spring 41. A lever 42 is arranged adjacent the pawl and has a cam  
25 formed at one end and adapted to contact with and force the pawl into engagement with the ratchet 39 when so desired.

A shaft 43 extends transversely of the body of the vehicle in a plane above shaft 33, and  
30 upon this shaft are secured, preferably, two drums 44, to which are secured the ends of cables 45, the opposite ends of which are fastened to a compressing-strip 46, slidably mounted upon rods 47, which are secured to  
35 the inner faces of the side beams 11 and extend longitudinally thereof. Coiled springs 48 are mounted on the rods 47 and are interposed between the compressing-strip 46 and blocks 49, arranged at the forward ends of the  
40 rods. Sprockets 50 are also secured to the shaft 43, and mounted thereon are chains 51, which are connected by transversely-extending slats 52, forming a conveyer-apron. These chains 51 are also mounted on sprockets 53,  
45 journaled on a shaft 54, extending transversely of the body of the vehicle, near the rear end thereof. A board 55 is arranged adjacent the front end slat of the conveyer-apron and in a plane preferably at right angles to the apron.

To one end of the shaft 43 is secured a drum 56, upon which is mounted a cable 57, which extends over the other pulley 31 and to the remaining drum 17. This drum has a ratchet  
50 revoluble therewith and normally engaged by a spring-pawl 59, similar to the one heretofore described, and provided with an operating-lever 60, similar to the lever 42. Levers 61 are fulcrumed at their lower ends to the forward ends of the side beams 11 of the vehicle-  
60 body, and the upper ends of these levers are connected by a rod 62, which extends in front of the seat 63 at the forward end of the vehicle. Each lever 61 is connected, by means of a cable 64, with one of the arms 28, said cable  
65 being arranged within the guide-recess 30 of

one of the standards 12 and fastened in one of the apertures 29.

In using the apparatus herein described the hay or other material to be stacked is placed upon the apron, which is normally in the position shown in Figs. 1 and 2. The machine  
70 is then drawn forward, and when desired the operator presses forward upon one end of rod 62, so as to swing the lever 61 adjacent thereto and impart longitudinal movement to the cable 64, which is connected to it and which  
75 is arranged at the left side of the apparatus. This cable will serve to swing the arms 28 and the lever 26, so as to press the end of one of the rods 27 into contact with the gear 19, adjacent thereto, thereby forcing the tapered  
80 end 18 of the drum 17 into frictional contact with the clutch member 16. Cable 38 will thus be wound upon said drum, and the cables 35 will be simultaneously wound upon the drums 34. The standards 12 will therefore be swung into  
85 position shown in Fig. 3 and the body of the vehicle raised to an inclined position. By pressing the lever 42 forward the cam end of said lever contacts with the spring-pawl 40 and  
90 forces it downward into engagement with the ratchet 39 of drum 37, and the parts are therefore prevented from returning to normal or lowered position until after the pawl has been released from the ratchet, when said parts  
95 will return by gravity. After the body of the vehicle has been raised at a desired incline the lever 61, which has been pressed forward, will be allowed to return to normal position, and the traction-wheels are therefore  
100 free to rotate without changing the positions of the parts. After reaching the place at which the material is to be stacked the vehicle is turned around, so as to bring the rear end thereof over the stacking-point, and during  
105 such movement the other lever 61 is pressed forward, so as to throw the clutch of the other drum 17 into operation, thereby winding the cable 57 and causing drums 44 to rotate and wind the cable 45. As these cables are connected  
110 to the compressing-strip 46, said strip will be drawn downward and compress the springs 48. Simultaneous with this movement the chains 51 will be moved upon the sprockets 50 and 53 and the conveyer-apron will be carried upward,  
115 thereby discharging material over the end of the vehicle-body. The spring-pawl 59 of ratchet 58 will prevent the compressed springs 48 from expanding until after all the material upon the apron has been removed. When it is desired to return the apron to its normal position, the lever 60 is drawn inward,  
120 so as to release the spring-pawl 59 from ratchet 58 and the springs 48 therefore expand and press the strip 46 upward on rods 47 and cause the cables 45 to unwind from drums 44. Cable 57 will therefore be wound simultaneously upon drum 56 and unwound from the drum 17, to which it is secured. It will of course be understood that as soon as the apron  
130



has been raised a desired distance the lever 61 will be released, so as to permit the independent movement of the parts in relation to the traction-wheels connected to their drum 17.

5 By providing cylinders 25 and the reciprocating pistons 24 the rotation of the various drums of the device is retarded, and injury to the parts as a result of sudden return to normal position is thus prevented.

10 In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as may fairly fall within the scope of my invention.

Having thus fully described the invention, 20 what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, the combination with a vehicle-body pivotally mounted at one end and having a conveyer 25 thereon; of standards pivoted to the body, traction-wheels connected to the standards and means operated by the traction-wheels for moving the standards to raise the body.

2. In a device of the character described, the 30 combination with a vehicle-body pivotally mounted at one end and having a conveyer thereon; of standards pivoted to the body, traction-wheels connected thereto, a drum journaled upon the body, a flexible connection 35 between the drum and the standards and means operated by one of the traction-wheels for winding the said connection upon the drum.

3. In a device of the character described, the 40 combination with a vehicle-body pivotally mounted at one end and a conveyer upon the body; of standards pivoted to the body, traction-wheels connected thereto, a drum journaled within the body, a flexible connection between the drum and standards, a second 45 drum, a drum adapted to be operated by one of the traction-wheels, and a flexible connection between said drums.

4. In a device of the character described, the 50 combination with a vehicle-body pivotally mounted at one end and having a conveyer thereon; of standards pivoted to the body, an axle extending therethrough, traction-wheels upon the axle, a drum slidably mounted upon the axle, a drum journaled within the body, a 55 flexible connection between said drum and the standards, a second drum journaled upon the body, a flexible connection between said drum and the drum on the axle, and means for throwing said axle-drum into operative relation with 60 a traction-wheel.

5. In a device of the character described, the combination with a vehicle-body pivotally mounted at one end and having a conveyer thereon; of standards pivoted to the body, an 65 axle therein, traction-wheels mounted upon the

body, an axle therein, traction-wheels mounted upon the axle, a drum slidably mounted upon the axle, a shaft journaled upon the body, drums thereon, a flexible connection between one of said drums and the standards, a flexi- 70 ble connection between one of said drums and the drum on the axle, and means for throwing said axle-drum into operative relation with a traction-wheel.

6. In a device of the character described, the 75 combination with a wagon-body pivotally mounted at one end and having a conveyer thereon; of standards pivoted to the body, an axle therein, traction-wheels upon the axle, a drum slidably mounted upon the axle, a shaft 80 journaled upon the body, drums thereon, a flexible connection between one of said drums and the standards, a flexible connection between the other drum and the drum on the axle, a lever, means for moving the axle-drum 85 into operative relation with a traction-wheel, and a flexible connection between the lever and said means.

7. In a device of the character described, the 90 combination with a body pivoted at one end and having a conveyer thereon; of standards pivoted to the body, an axle therein, traction-wheels upon the axle, a drum slidably mounted upon the axle, a gear thereon, a second gear 95 meshing therewith, a cylinder, a piston slidably mounted therein, means for operating the piston from the gears, a drum revolvably mounted upon the body, a flexible connection between said drum and the standards, a second 100 drum, a flexible connection between it and the drum on the axle, and means for placing said axle-drum in operative relation with a traction-wheel.

8. In a device of the character described, the 105 combination with a body having an axle connected thereto, traction-wheels upon the axle and a drum slidably mounted upon the axle; of shafts journaled within the body, an endless conveyer mounted thereon, drums upon 110 one of the shafts, a flexible connection between one of said drums and the drum on the axle, and means for throwing said axle-drum into operative relation with a traction-wheel.

9. In a device of the character described the 115 combination with a body having an axle, traction-wheels thereon and a drum slidably mounted upon the axle; of shafts journaled within the body, an endless conveyer mounted thereon, drums upon one of the shafts, a flexi- 120 ble connection between one of said drums and the drum on the axle, a spring-pressed sliding strip upon the body, a flexible connection between said strip and one of the drums on the shafts, and means for moving the axle-drum into operative relation with a traction- 125 wheel.

10. In a device of the character described, the combination with a body having an axle, traction-wheels thereon and a drum mounted upon the axle; of a cylinder, a reciprocating piston 130



therein, means operated by the drum for moving the piston, longitudinally-extending rods, springs thereon, a compressing-strip mounted upon the rods, a flexible connection between  
5 said strip and one of the drums on the shaft, a flexible connection between the other drum and the drum on the axle, and means for moving said axle-drum into operative relation with a traction-wheel.

10 11. In a device of the character described, the combination with a body having an axle, traction-wheels thereon and a movable drum upon the axle; of shafts journaled within the body, an endless conveyer mounted thereon, drums  
15 upon one of the shafts, a flexible connection between one of said drums and the drum on the axle, means for moving said axle-drum into operative relation with a traction-wheel, rods within the body, springs thereon, a com-  
20 pressing-strip slidably mounted upon the rods, a flexible connection between said strip and one of the drums on the shaft, and means for retarding the rotation of the drums.

25 12. In a device of the character described, the combination with a body pivotally mounted

at one end, of shafts journaled within the body, an endless conveyer thereon, drums upon one of the shafts, rods, springs thereon, a compressing-strip upon the rods, a flexible connection between said strip and one of the  
30 drums, standards pivoted to the body, an axle therein, traction-wheels upon the axle, drums slidably mounted on the axle, a flexible connection between one of the axle-drums and the drum on the shaft, a second shaft journaled  
35 upon the body, drums thereon, a flexible connection between one of the drums and the standards, a flexible connection between a second drum on said shaft and the remaining drum on the axle, means for moving the axle-  
40 drums into operative relation with the traction-wheels, and mechanism for retarding the rotation of the drums.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT E. JOHNSON.

Witnesses:

ARTHUR B. CHILDRESS,  
DANFORTH J. WHITING.