

911,981.

C. HOLST.  
FIREMAN'S TRUCK.  
APPLICATION FILED MAR. 13, 1908.

Patented Feb. 9, 1909.  
4 SHEETS—SHEET 1.

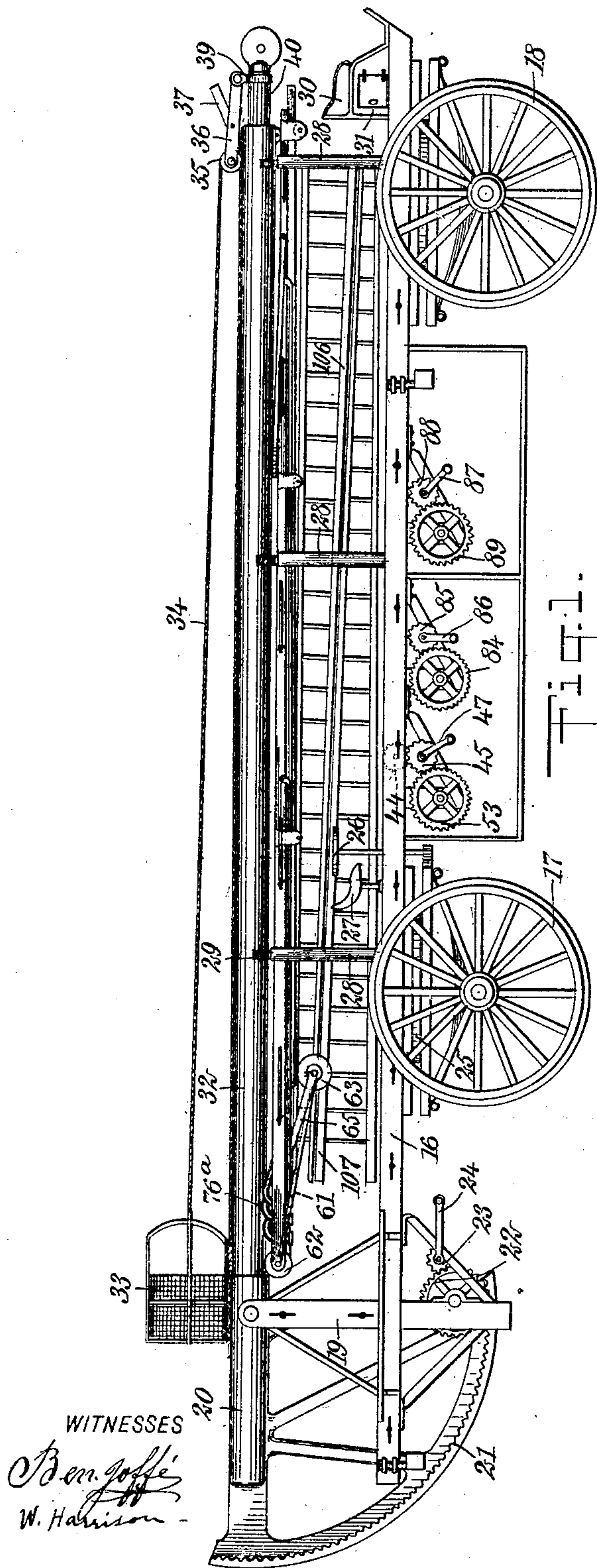


Fig. 1.

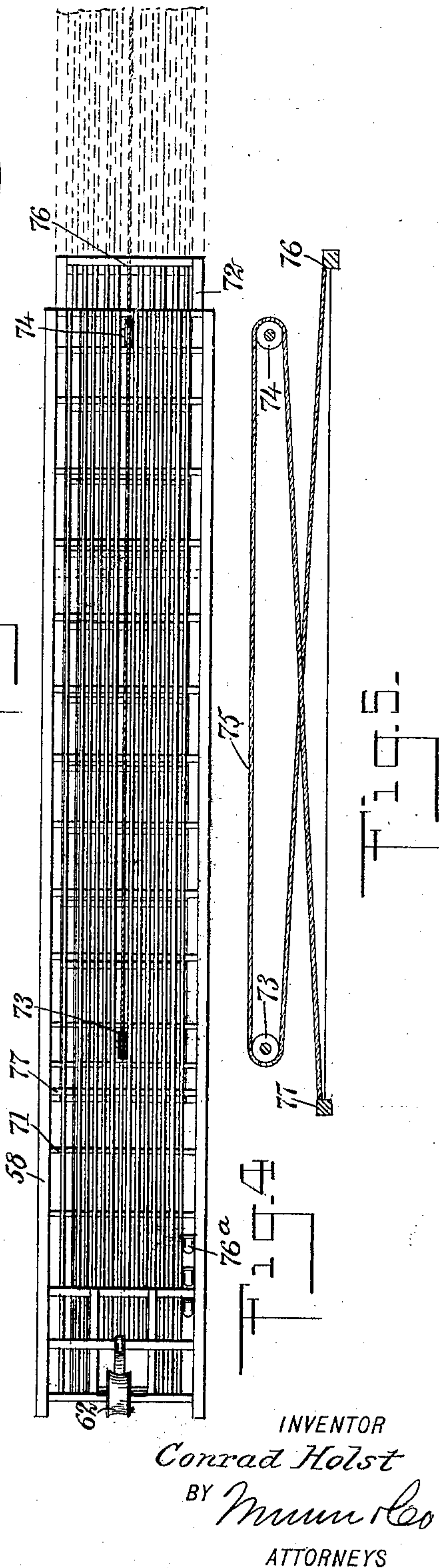


Fig. 5.

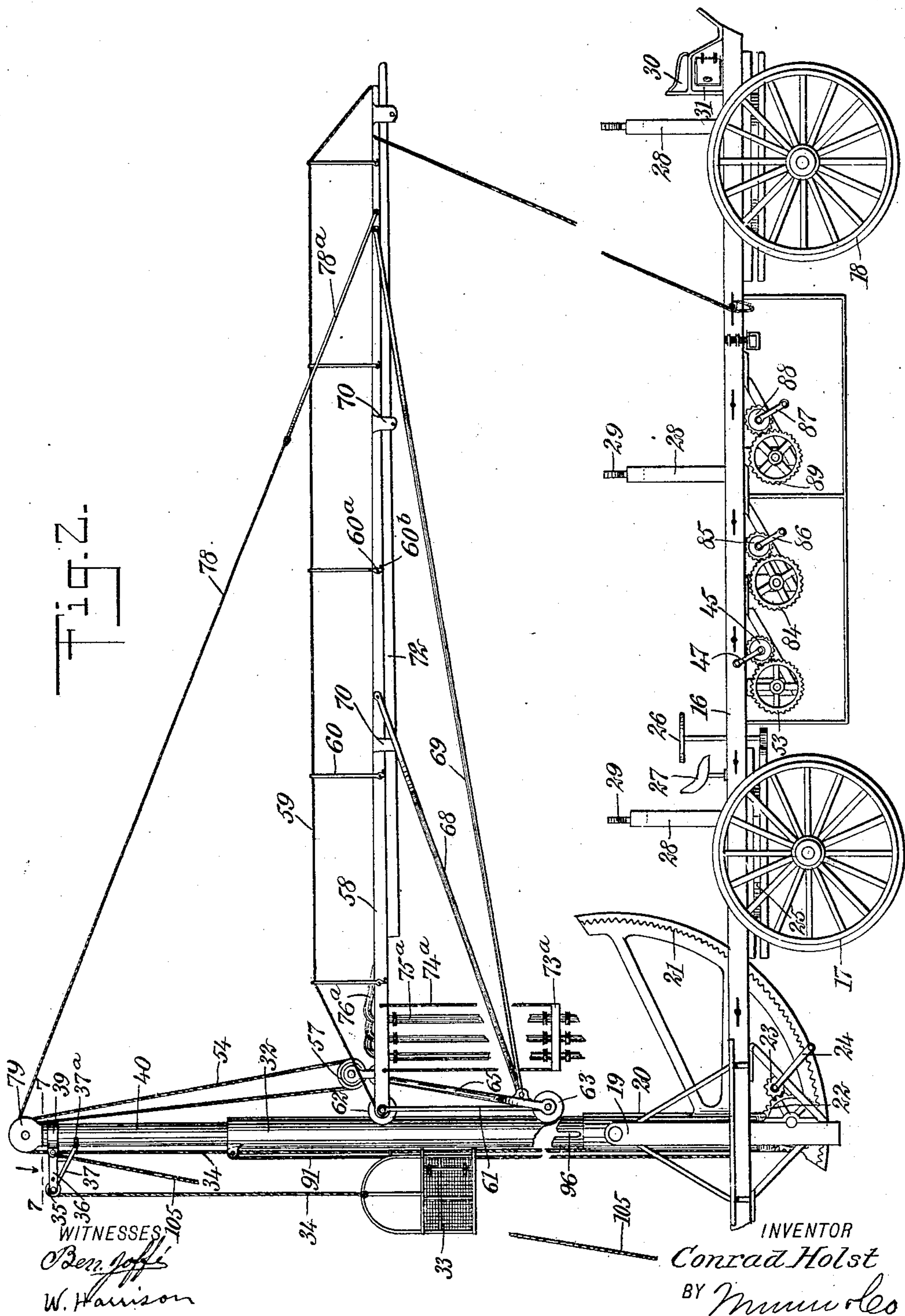
WITNESSES  
*Ben. Goffe*  
*W. Harrison*

INVENTOR  
*Conrad Holst*  
BY *Mum & Co*  
ATTORNEYS

911,981.

C. HOLST.  
FIREMAN'S TRUCK.  
APPLICATION FILED MAR. 13, 1908.

Patented Feb. 9, 1909.  
4 SHEETS—SHEET 2.



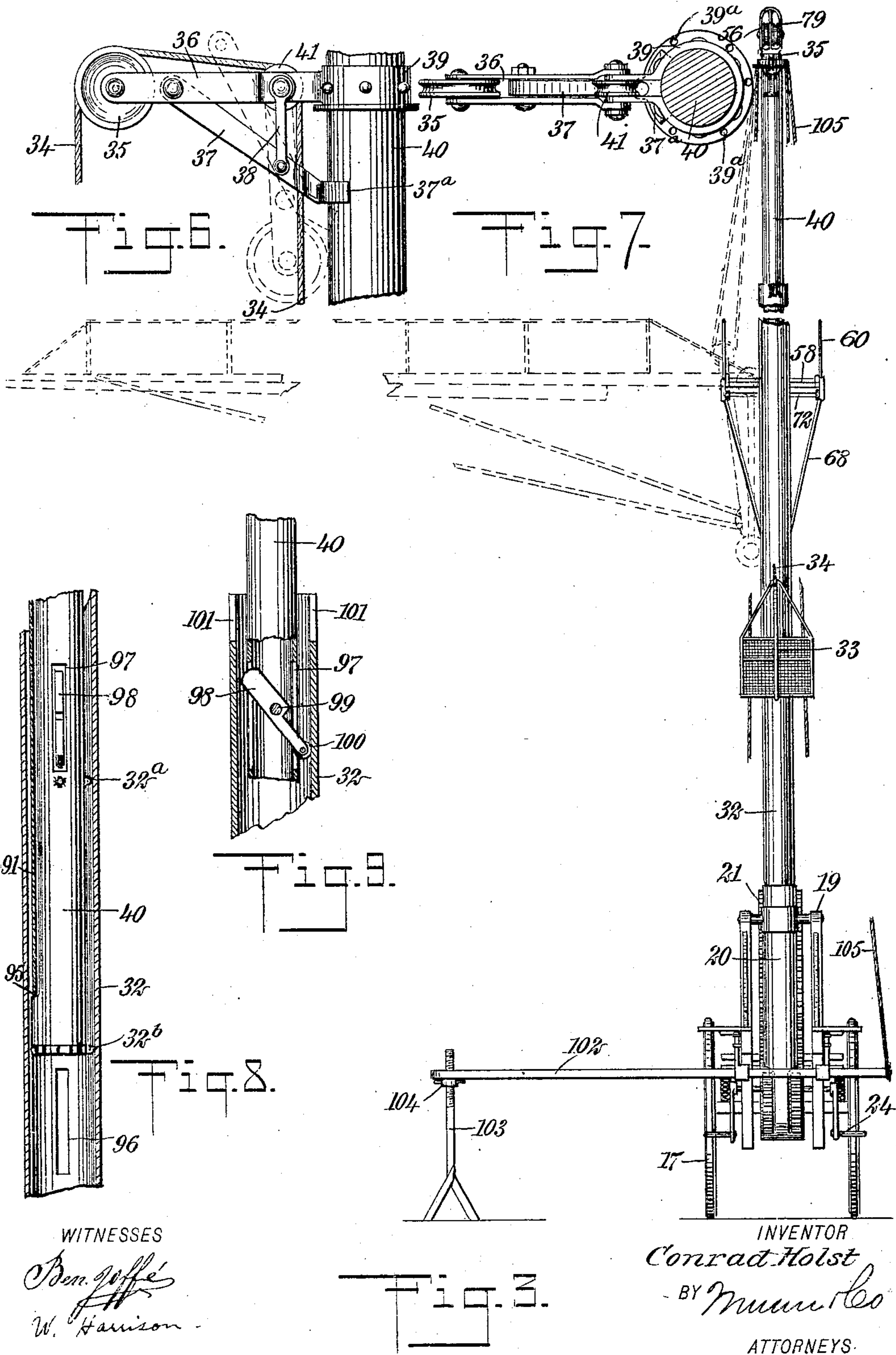


911,981.

C. HOLST.  
FIREMAN'S TRUCK.  
APPLICATION FILED MAR. 13, 1908.

Patented Feb. 9, 1909.

4 SHEETS—SHEET 3.



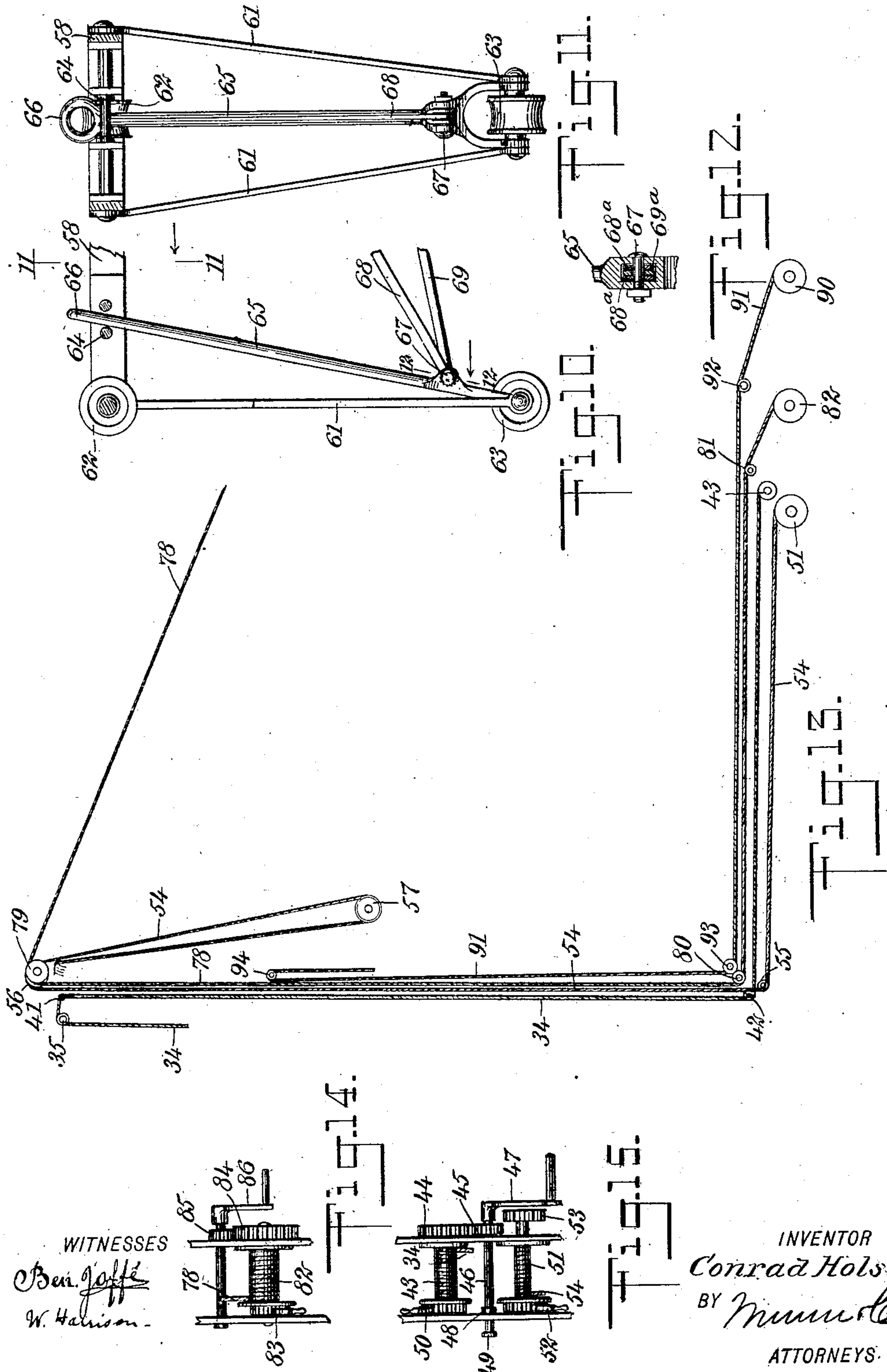
WITNESSES

*Ben. Joffe*  
*W. Harrison*

INVENTOR

*Conrad Holst*  
BY *Munroe*  
ATTORNEYS.

911,981.





# UNITED STATES PATENT OFFICE.

CONRAD HOLST, OF NEW YORK, N. Y.

## FIREMAN'S TRUCK.

No. 911,981.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed March 13, 1908. Serial No. 420,764.

*To all whom it may concern:*

Be it known that I, CONRAD HOLST, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Fireman's Truck, of which the following is a full, clear, and exact description.

My invention relates to trucks used by firemen, my more particular object being to improve the general construction and increase the scope of utility of the truck.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the truck showing the parts as folded or dismantled, in order to allow the truck to move freely through the streets; Fig. 2 is a side elevation showing the masts occupying a vertical position and the bridge as being raised. Fig. 3 is a fragmentary end elevation showing the truck as seen from the left of Fig. 2, this view showing the prop for securing stability of the truck, and also showing the elevator cage; Fig. 4 is a plan view of the bridge showing the same as folded and provided with an extension rope whereby it may be unfolded or lengthened; Fig. 5 is a diagrammatic section through the extension rope showing how the bridge is lengthened or shortened by the firemen pulling upon this rope; Fig. 6 is an enlarged fragmentary elevation of a bracket used upon the lower mast for the purpose of handling the elevator cage, this bracket being adapted to be folded when not in use; Fig. 7 is a section upon the line 7—7 of Fig. 2, looking in the direction of the arrow and showing in plan the bracket appearing in elevation in Fig. 6; Fig. 8 is a fragmentary section through a portion of the upper and lower masts, showing a pawl journaled upon the upper mast and adapted to extend through slots in the lower mast for the purpose of holding the two masts temporarily together in a predetermined relative position; Fig. 9 is a fragmentary section showing how the pawl is operated for the purpose of locking the masts together; Fig. 10 is an enlarged fragmentary side elevation of one end of the bridge showing how the bridge is braced; Fig. 11 is a vertical section upon the line 11—11 of Fig. 10, looking in the direction of the arrow, and showing the

means used for bracing the bridge; Fig. 12 is a fragmentary section upon the line 12—12 of Fig. 10, looking in the direction of the arrow, and showing a pivot pin used for temporarily holding certain braces in position for supporting the bridge; Fig. 13 is a diagram indicating the disposition and action of the various lines used for hoisting the bridge, the elevator and various other movable parts associated with each other; Fig. 14 is a detail showing one of the hoisting winches used for drawing and slackening the lines; and Fig. 15 is a detail showing a double drum hoisting winch so arranged that by operating a single handle two independent drums may be controlled at will.

A truck frame is shown at 16 and is mounted upon wheels 17, 18, being thus adapted to move as a vehicle. This truck frame is provided with standards 19 which support a tube 20 journaled thereupon. Connected rigidly with this tube is a toothed sector 21, and meshing with this sector is a gear wheel 22, which gear wheel is journaled upon the truck frame. Meshing with the gear wheel 22 is a pinion 23 provided with a handle 24 whereby it may be turned. By operating the handle the tube 20 may be brought from a vertical to a horizontal position, and vice versa.

One of the fifth wheels is shown at 25 and is used in turning the vehicle. A steering wheel is shown at 26 and an operator's seat at 27. Standards 28 are disposed equidistant along the truck frame and are provided, each at its top, with a rest 29 of substantially arcuate form. The driver's seat is shown at 30 and disposed beneath this seat is a tool-chest 31.

Mounted within the tube 20 and extending therefrom is a lower mast 32 which is tubular in form. An elevator cage is shown at 33 and connected with the same is a rope 34 passing over a pulley 35. This pulley is mounted in a bracket 36 provided with a brace 37 having a foot 37<sup>a</sup> for holding it temporarily in position to allow the elevator cage to be raised or lowered.

A link 38 connects the bracket 36 and brace 37, as will be understood from Fig. 6. A collar 39 supports the bracket 36, which collar is mounted upon the upper mast which is tubular in form and is supported telescopically within the lower mast 32. The collar 39 is provided with a number of holes 39<sup>a</sup> for holding stays, if desired. Rollers 32<sup>a</sup>, 32<sup>b</sup> are mounted rigidly upon the up-



per mast and serve to space it concentrically from the lower mast and also to facilitate its movement relatively thereto.

A pulley 41 is supported by the bracket 36 and partially supports the line 34, and another pulley 42, see Fig. 13, journaled upon the framework also engages this line. A drum 43 (see Figs. 13 and 15) is turned by aid of a gear wheel 44, and this gear meshes with a pinion 45. To facilitate turning this pinion I provide a shaft 46 having a handle 47 and annular beads 48 and 49 arranged as indicated in Fig. 14. A ratchet and pawl 50 prevent retrograde movement of the drum 43. Another drum 51 is provided with a ratchet and pawl 52 for preventing retrograde movement. A gear wheel 53 is provided for the purpose of turning the drum 51. A line 54 is partially wound upon the drum 51 and engages two pulleys 55, 56 (see Fig. 13). This line also engages a pulley 57 mounted upon a bridge 58, as shown in Fig. 2.

Supporting lines 59 are mounted upon standards 60 carried by the bridge 58, and serve as braces for the bridge. The standards 60 upon the bridge 58 are journaled upon pivot pins 60<sup>a</sup>, in such manner that the lower or short ends of the levers are adapted to lodge against stationary pins 60<sup>b</sup>. By this arrangement the rope 59, in pulling against the standards 60, serves to brace the bridge. When, however, it is desired to disassemble the apparatus, the standards 60 simply fold over toward the outer end of the bridge, according to Fig. 2, thus rendering the bridge more compact for purposes of packing away. A carriage 61 (see left of Fig. 2) is provided with rollers 62, 63, adapted to run upon the lower mast 32. Pins 64 (see Fig. 10) are disposed near one end of the bridge 58 and extending intermediate these pins is a link 65 provided at its upper end with an eye 66. This link carries near its lower end a pivot pin 67 for the purpose of securing brace rods 68, 69. For this purpose the brace rods are provided with disk-like portions 68<sup>a</sup>, 69<sup>a</sup> perforated and otherwise adapted for the pivot pin 67 to be passed through them, as will be understood from Fig. 12. As the pivot pin 67 is detachable, it follows that the brace rods 68, 69 and the link 65, together with the carriage 61, may be folded, as indicated in Fig. 1.

My purpose in using the brace rods 65 is to afford a mounting for the pulley 57 so that this pulley will be disposed at a little distance from the tubular member 32 and thereby cause the bridge, as it is hoisted upwardly, to hug closely against the mast and to rest firmly in position wherever it may be stopped.

The bridge 58 is provided at its under side with slideways 70, as will be understood from Fig. 2, and is further provided with cross rods 71 arranged preferably after the manner of rungs in a ladder (see Fig. 4). An ex-

tension 72 is supported within the slideways 70 and may be moved outwardly in the general direction of the length of the bridge. Pulleys 73, 74 are mounted upon the bridge 58 and partially wound upon them is a rope 75. This rope is connected at its ends with rods 76, 77 in the extension 72. By grasping the rope 75 by hand at any convenient point and pulling it in either of two directions, the extension 72 may be forced outward or drawn inward, as the case may be. In this way the practical length of the bridge may be varied at will within certain limits.

A platform 73<sup>a</sup> (see Fig. 2) is mounted upon cords 74<sup>a</sup> and supports tubes 75<sup>a</sup> terminating at their upper ends in hose 76<sup>a</sup>. These tubes and hose are for the purpose of supplying water to a fire by aid of an engine or stand pipe. The hose may be run out or carried into a building. A line 78 is connected with a clevis 78<sup>a</sup> (see Fig. 2) which has substantially the shape of a wish-bone and is journaled upon the bridge 58. This line 78 engages pulleys 79—80—81, and is partially wound upon a drum 82. This drum is provided with a ratchet 83 and with a gear wheel 84. Meshing with this gear wheel is a pinion 85 turned by a hand crank 86. By operating the hand crank 86 the drum 82 may be turned in one direction, and by releasing the ratchet 83 it may be allowed to retrograde in the opposite direction. In this manner the line 78 may be drawn up or let out as desired.

A hand crank 87 turns a gear wheel 88 which meshes with a gear wheel 89 which turns a drum 90, and partially wound upon this drum is a line 91. This line engages pulleys 92, 93, 94 and thence passes downwardly into the lower mast 32 (see Fig. 8) being secured at 95 to the upper mast 40. The lower mast 32 is provided with slots 96 and the upper mast 40 is provided with slots 97, and these slots may be brought into registry with each other. A pawl 98 is mounted upon a pivot pin 99 in the upper mast 40 and is provided at its lower end with a roller 100; the upper end of this pawl is heavier than its lower end, as will be understood from Fig. 9.

The lower mast 32 is provided with slots 101 disposed near its top. The pawl 98 normally occupies the position indicated in Fig. 9; that is to say, the roller 100 rests against the inner side of the lower mast 32, the weight of the pawl tending to turn it into horizontal position. If, now, the upper mast 40 be raised, as indicated in Fig. 9, the roller 100 will soon reach such a point that it can pass outwardly through one of the slots 101. This allows the pawl to swing, and its upper portion lodges in the opposite slot 101. If, now, the mast 40 be lowered slightly, it will rest upon the pawl 98 and be thus supported at the top of the mast 32. In order to dis-



engage the pawl 98, the mast 40 is first raised and then lowered. This allows the larger or heavier portion of the pawl to hang downwardly. The parts being in this position, the upper mast is lowered still further so that one pawl 98 engages with a slot 96. One of the operators, by inserting his hand or a convenient instrument, turns the pawl slightly and restores it to its normal position so that it is again ready to lodge crosswise. It now supports the mast 40 upon the mast 32.

A beam 102 is connected with the drum frame and is temporarily supported by a prop 103. The upper end of this prop is threaded and is provided with a revoluble nut 104 operated by hand. By turning this nut the beam 102 is adjusted at any desired level and thus affords a rigid support for the masts and parts supported thereupon. A guy line 105 is connected to one end of the beam 102 and to the top of the mast 40, so as to brace both masts. Ladders are shown at 106, 107, Fig. 1.

The operation of my device is as follows: The parts being in normal position, as indicated in Fig. 1, the truck proceeds to the scene of a fire. Arriving here the sector 21 is turned by aid of one or more hand cranks 24, as above described. This elevates the masts. By turning the hand lever 87, and consequently the drum 91, the upper mast 40 is raised relatively to the lower mast 32 and being thus raised is locked in position by the pawl 98. By turning the hand crank 86 the drum 82 is turned and the line 78 is wound around the drum. This raises the outer end of the bridge, that is the end opposite the masts. At the same time this is done the handle 47 is turned in such manner as to operate the drum 51 (see Fig. 15) and this raises the end of the bridge nearest the mast, both ends being raised at the same time and also at the same rate of speed. The bridge may thus be raised to the top of the highest mast. If it is desired to operate the drum 34 so as to raise or lower the elevator cage, the pinion 45 (see Fig. 15) is disengaged from the gear wheel 44 and connected with the gear wheel 53, as above described. The brace rods 68, 69 and brace 65 are temporarily folded but are readily placed in the position indicated in Fig. 2, when it may be desired to raise the bridge. The masts being vertical and the bridge being raised, the bridge may be extended, as above described, by merely manipulating the rope 75 (see Fig. 5). When the work is finished, the parts may be reassembled as indicated in Fig. 1. The ladders 106, 107 are disposed between the standards in any convenient manner. The elevator,

like the bridge, may be raised to the top of the highest mast. The link 65, taken in connection with the brace rods 68, 69, serves to support the bridge 72, as will be understood from Fig. 2.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a fireman's truck, the combination of a lower mast of tubular form and provided with a slot, an upper mast of tubular form, said upper mast being telescopically mounted within said lower mast and provided with a slot, means for raising and lowering said upper mast relatively to said lower mast, and a pawl mounted within said slot of said upper mast and adapted to enter said slot of said lower mast for locking said masts rigidly together in a predetermined position.

2. In a fireman's truck, the combination of a vehicle body, a tubular mast journaled thereto and adapted to be raised from horizontal to vertical position, said tubular mast being provided with slots, a second tubular mast mounted telescopically within said first-mentioned tubular mast and likewise provided with slots, and a pawl journaled upon said second-mentioned tubular mast and adapted to turn crosswise of the general length thereof so as to lodge within the slots of said first-mentioned tubular member.

3. In a fireman's truck, the combination of a vehicle body, a mast mounted thereupon, a bridge movable and lowered relatively to said mast, a link for supporting the weight of said bridge, brace rods connected with said bridge and with said link for the purpose of rendering said link rigid in relation to said bridge, and means for detachably connecting said brace rods with said link so as to allow said link and said brace rods to be folded when desired.

4. The combination of a vehicle body, a mast mounted thereupon, a carriage movable relatively to said mast and provided with wheels for engaging the same, a bridge mounted upon said carriage, means for lowering and raising said carriage so as to lift and lower said bridge, bracing members connected with said carriage and with said bridge for the purpose of supporting the latter, and means for disengaging said bracing members from said carriage so as to allow them to be folded.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CONRAD HOLST.

Witnesses:

JACOB KLOTZ,  
EPHRAIM E. FALKE.