

W. H. HILL & H. B. WRIGHT.

DUMP WAGON.

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913,135.

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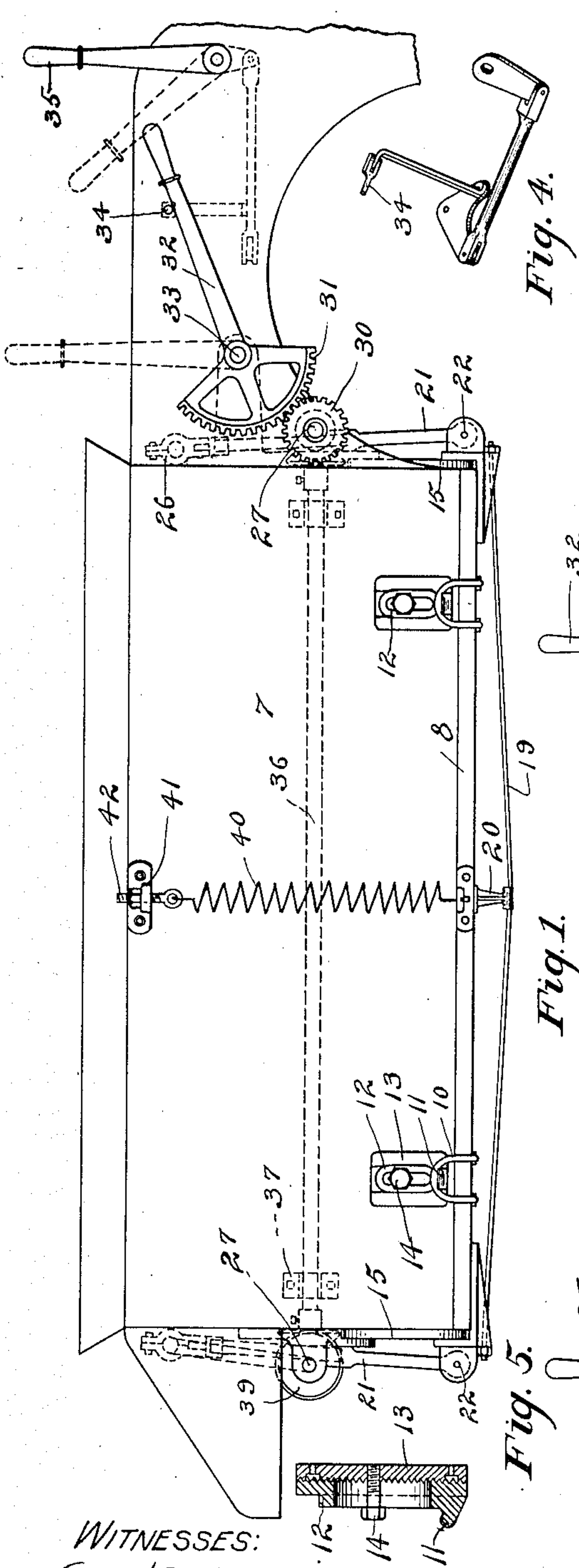


Fig. 1.

Fig. 5.

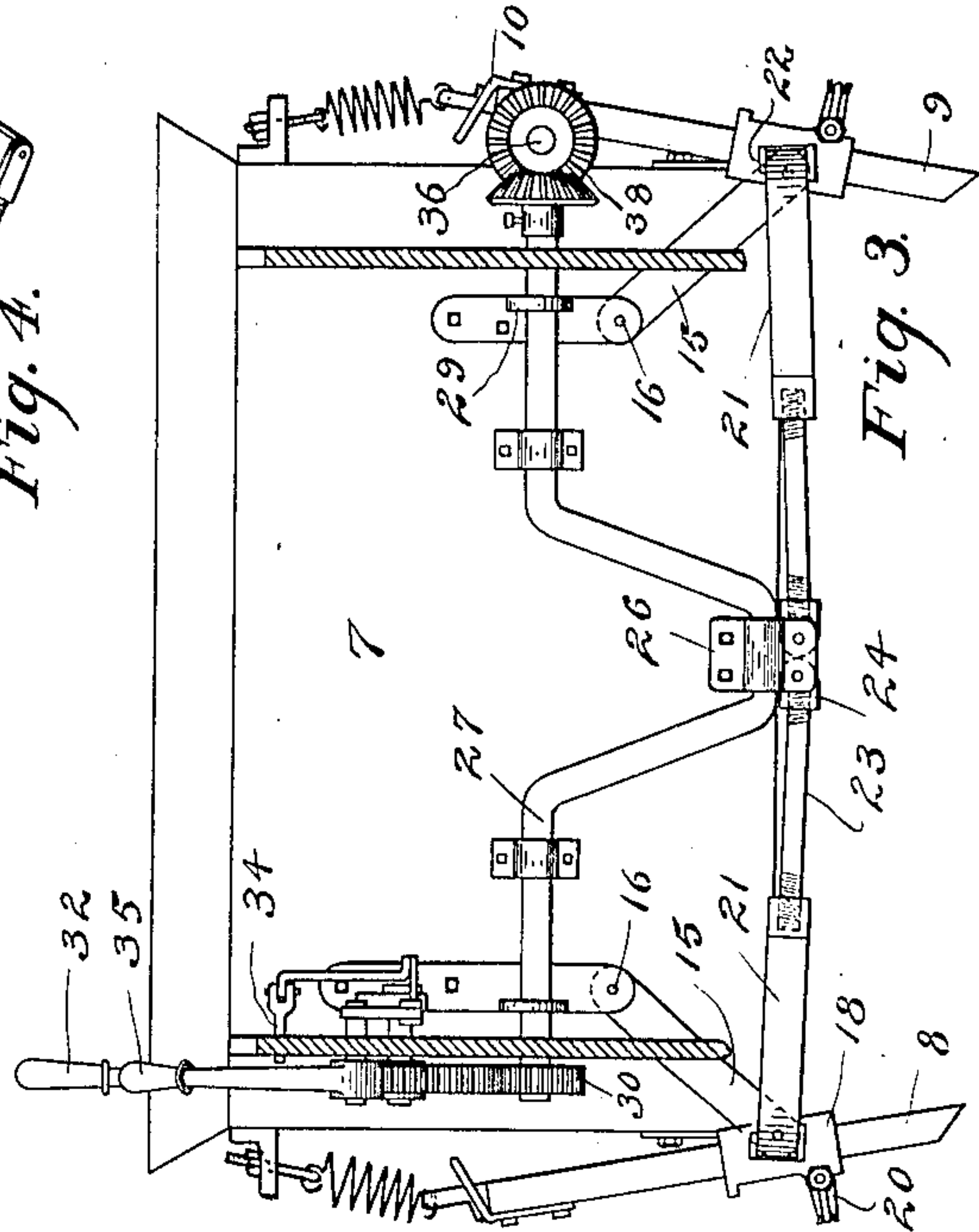


Fig. 3.

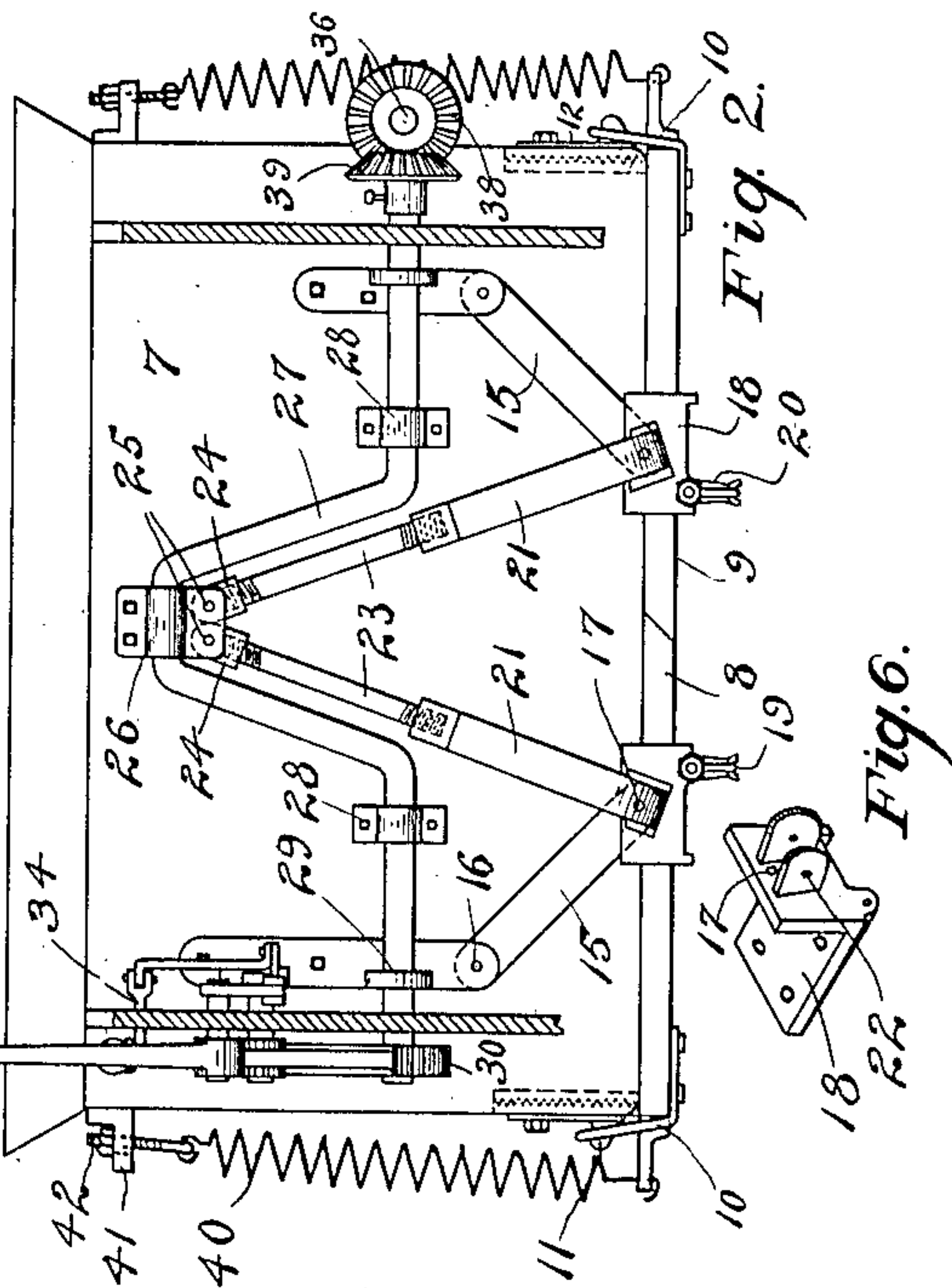


Fig. 2.

Fig. 6.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. HILL AND HERBERT B. WRIGHT, OF CHICAGO, ILLINOIS.

## DUMP-WAGON.

No. 913,135.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed November 29, 1907. Serial No. 404,280.

*To all whom it may concern:*

Be it known that we, WILLIAM H. HILL and HERBERT B. WRIGHT, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dump-Wagons, of which the following is a specification.

This invention relates more particularly to dump wagons provided with bottom doors for dumping the load, and its objects are to provide simple, substantial and convenient mechanism or devices for manipulating or operating said doors, whereby they may be held rigidly in closed position and may be swung down, out and up along the sides of the wagon body when the load is to be discharged.

We have illustrated our invention in the accompanying drawings, in which—

Figure 1 represents a side view of a wagon body provided with dumping mechanism embodying this invention; Fig. 2 is a front end view thereof; Fig. 3 is a similar view, showing the bottom doors in open position; Fig. 4 is a detail showing the locking device for holding the lever; Fig. 5 is a sectional view showing one of the adjustable supporting devices; and Fig. 6 is another detail, showing the casting or bracket used at the ends of the doors for connecting the pivoted levers.

The body 7 of the dump wagon may be made in any desired manner and is provided with bottom doors 8 and 9 which are supported along the outer edges when in closed position, by means of loops or hangers 10 which are fastened to the doors and which engage with adjustable hooks or lugs 11 on the sides of the body 7. The hooks 11 are formed integrally with a slotted bearing or supporting member 12 which is corrugated or grooved on the back side to form teeth which mesh with corresponding teeth or corrugations on the plates 13 which are rigidly attached to the sides of the body. The supporting member 12 is held in position by means of a bolt or set-screw 14. When it is desired to adjust the position of the bearing member 12, the set-screw 14 is loosened and the member moved up or down a desired number of notches and the set-screw 14 may then be tightened to hold the member in rigid position. The doors are also supported at

the ends by means of links or arms 15 which are pivoted at 16 to the ends of the wagon body or box, and are pivoted at 17 to the ends of the doors. The pivotal connection at 17 is preferably made by means of a casting or bracket 18 which is rigidly secured to the door. These castings also furnish means for holding the ends of supporting or stiffening rods 19 which pass lengthwise of the doors, being bent slightly downward toward the center where they engage with posts 20 secured to the bottom of the doors. These rods also assist in holding the brackets 18 securely against the ends of the doors.

The position of the pivots 16 and the length of the arms 15 are such that the doors may be swung down and up around the lower corners of the box until they lie along the outer sides of the box, substantially as shown in Fig. 3. In order to positively swing the doors down and up in this manner and in order to further support the doors when in closed position, we have provided the second arms or links 21 which are also pivoted to the doors but in a plane at substantially right angles to the pivots 17. These arms 21 are also preferably pivoted as at 22 to the bracket 18 which is provided with projecting lugs for this purpose. At the opposite ends of the arms 21 are adjusting rods 23 which are provided at either end with right and left hand threads and which engage rigidly with the arms 21 and with sockets or pivoted pieces 24 which are pivotally connected at 25 with a bearing 26 on the bent rod or crank-shaft 27. This bent rod or shaft is supported in bearings 28 and 29 on the end of the box 7 and is provided at one end with a gear 30 which meshes with a segmental gear or rack 31 on the end of a lever 32 which is pivoted at 33 to the projecting side or support for the body, which makes connection with the running gear. This lever 32 is locked in position when the doors are closed, by means of a bolt 34 which is connected by means of suitable arms and levers, as shown particularly in Fig. 4, with an operating lever 35 which should be within easy reach of the driver. The doors are provided at the back end of the wagon with the same supporting arms or links as above described, and in order to operate these arms or levers, which is done by giving the crank-shaft 27 the same movement in each instance,



we provide a shaft 36 which runs lengthwise of the wagon body and is supported in suitable bearings 37 and which is connected at either end by means of beveled gears 38 and 39 with the ends of the front and back crank-shafts 27. It will thus be seen that a movement of the front shaft 27 will be transmitted through the gears and shaft 36 to the rear shaft 27 which is thereby operated simultaneously.

The operation of the apparatus will be readily understood from the above description and the drawings. When the crank-shaft 27 is at its uppermost position, as shown in Figs. 1 and 2, the doors will be locked in closed position, the loops and hooks at the outer edges assisting in supporting the doors and carrying a portion of the load. When the crank-shaft 27 is turned, as by means of the lever 32 acting through the rack 31 and gear 30, it will be thrown past the dead-center, thereby releasing the support furnished by the arms 21, and the doors will tend to swing down under the influence of the load. However, when the doors have swung down they are frequently in the way of the material which has been discharged, and it is frequently desirable to swing the doors up and out of the way. This is readily accomplished by our improved device by simply raising the lever 32 which continues the downward turning movement of the crank portion of the shaft 27, thereby pressing down and out on the arms 21 which swing the doors out and up as indicated in Fig. 3, in which position they are out of the way and the wagon will be free to pass over the pile of discharged material. It will be noted that the loops 10 disengage from the hooks 11 when the doors are swung up; but when the lever 32 is again pressed down and the doors swung down and back to closed position, the loops will again engage with the hooks and be ready for the next load.

While the mechanism thus described forms a practical and efficient means for operating the doors and supporting the same, we further provide means for the automatic operation of the doors to raise them up alongside the wagon box, which consists in the springs 40 which are attached at their bottom ends to the outer edges of the doors and are adjustably secured at their upper ends to lugs or bearings 41 by means of the adjustable rods 42. These springs tend to raise the doors and, if made sufficiently strong, will swing said doors up into position alongside the box as soon as they are released from closed position.

Having thus described our invention, which we do not wish to limit to the exact details of construction herein shown and described, what we claim and desire to secure by Letters Patent is:

1. The combination with a wagon body, of a bottom door, arms pivotally connected with the ends of said door and with the body and adapted to support the door while it is swinging open, a crank-shaft and an arm connecting between said crank-shaft and said door for swinging said door and turning it with relation to said first-named arms whereby it will swing around the lower corner of the body and up along the side thereof.

2. The combination with a wagon box, of a bottom door, arms pivotally connecting said door with said box, a crank-shaft mounted crosswise of said box at one end thereof, means for turning said crank-shaft, and means connecting between said crank-shaft and the door for forcing said door either open or shut.

3. The combination with a wagon box, of a door pivotally connected with said box, a bent shaft at one end of said box, and an arm connecting between said bent shaft and said door whereby said door may be swung down and out and up along the side of said box when said shaft is turned.

4. The combination with a wagon box, of bottom doors for said box, pivoted arms connecting between said doors and said box, crank-shafts arranged at the ends of said box, means for transmitting the movement of one of said shafts to the other shaft, and arms pivotally connected with said cranks and pivoted to said doors in such a manner that when the cranks are swung down the doors will be forced out and up along the sides of the box.

5. The combination of a wagon box, doors for said box, bearings for the outer edges of said doors when in closed position, arms pivotally connected with said box and said doors and adapted to swing in a plane parallel to the ends of said box, adjustable arms pivotally connected to the ends of said doors, a crank-shaft with which said adjustable arms are also pivotally connected, and means for turning said crank-shaft, the arrangement being such that when the crank shaft is swung down, the adjustable arms will press the doors down and out and will guide them so that they will swing up along the sides of the box after the edge supports have become disengaged.

6. A support for a wagon box, comprising a loop, a bearing having a hook for engagement with said loop, corrugations on said bearing, a corrugated plate adapted to engage with the corrugations of said bearing, and a set-screw or the like for connecting said bearing with said plate.

7. The combination with a wagon box, of bottom doors for said box, adjustable hook supports for the outer edges of said doors, brackets at the end of said doors, rods connecting between said brackets, links pivot-



ally connected to said brackets and to the  
ends of said box, crank-shafts having bear-  
ings on the ends of said box, a shaft and  
beveled gears connecting between said crank-  
5 shafts, arms pivotally connected with said  
crank-shafts and said brackets, a gear on one  
of said crank-shafts, a rack lever for oper-  
ating said gear, and springs connecting be-

tween the outer edges of said doors and the  
upper part of said box.

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