April 28, 1931. W. E. WIESENTHAL 1,802,856

AUTOMATIC DUMP

Filed March 24, 1930 4 Sheets-Sheet 1

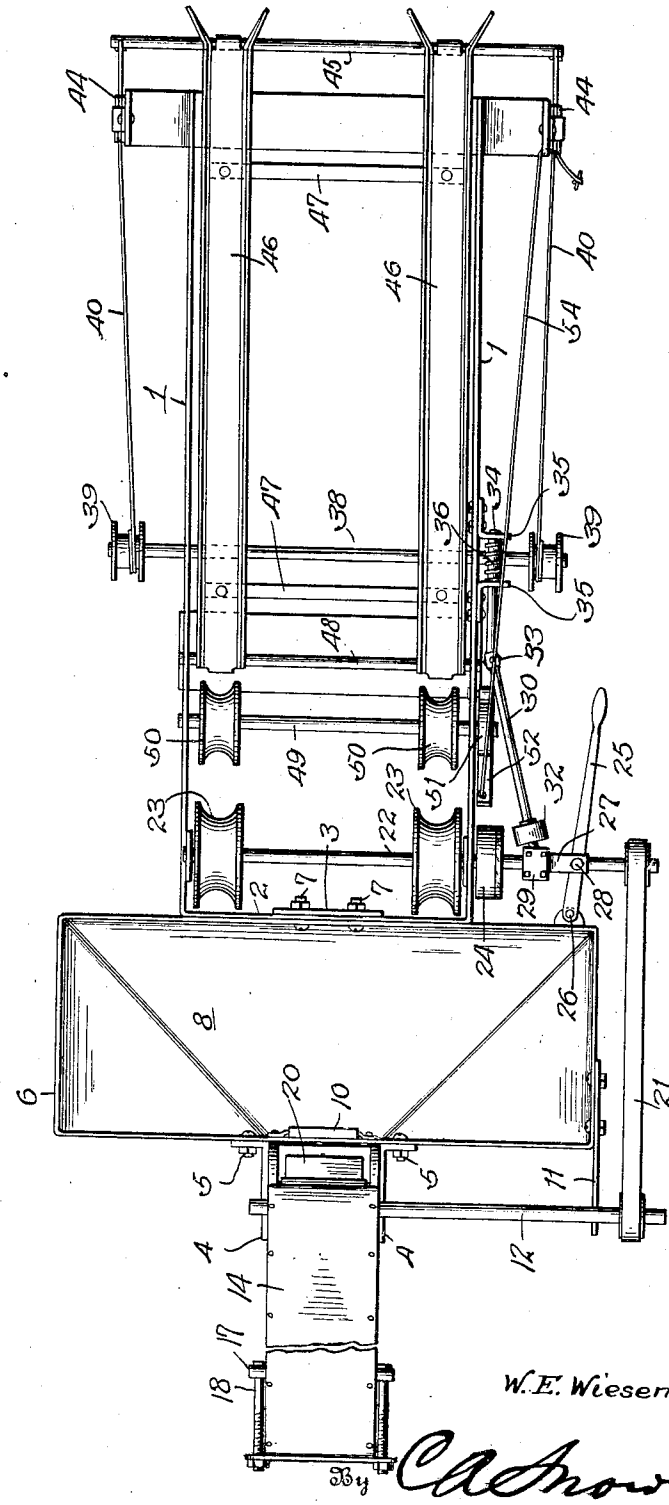


Fig. 1.

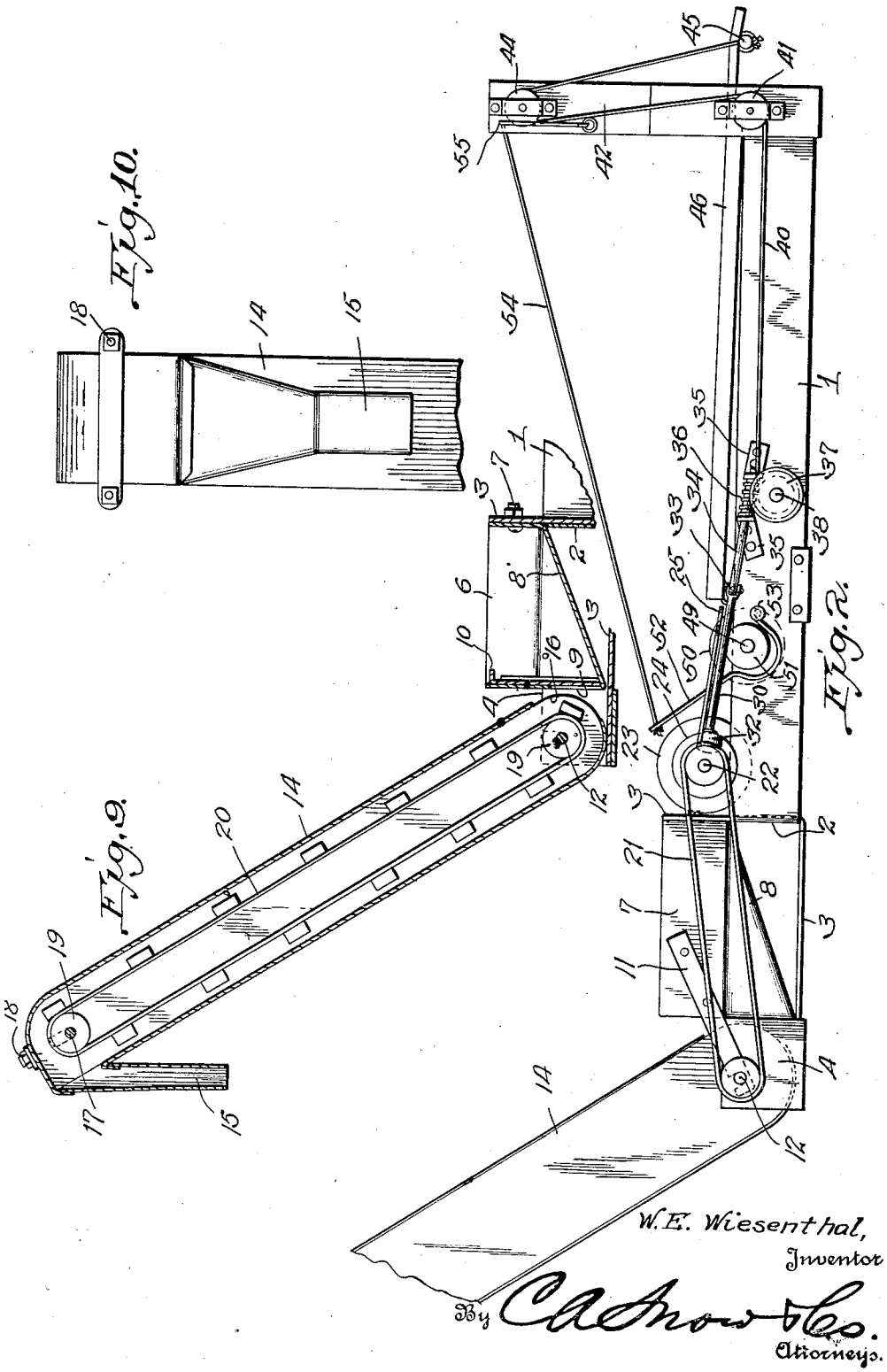
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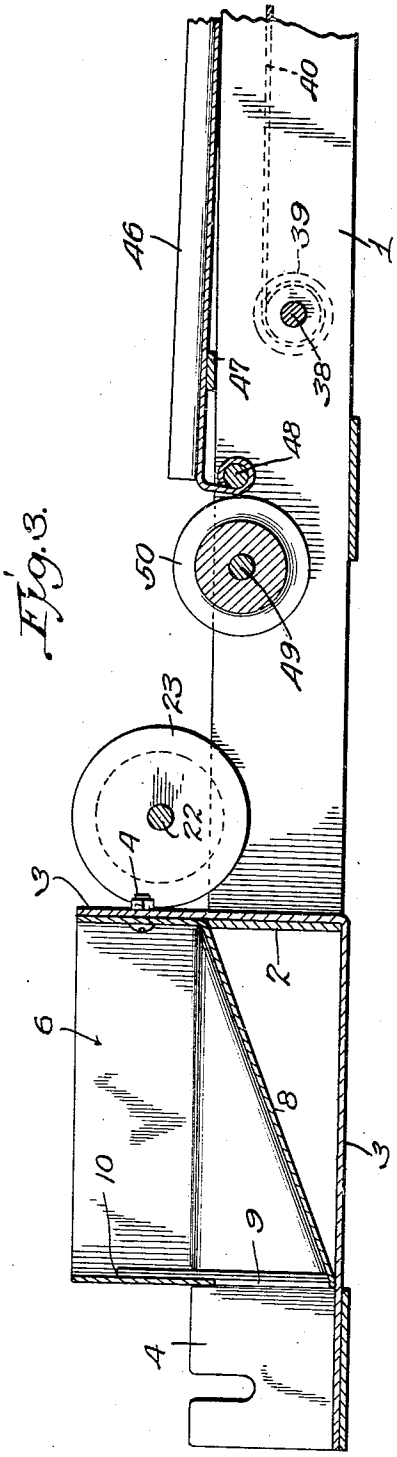


Fig. 3.

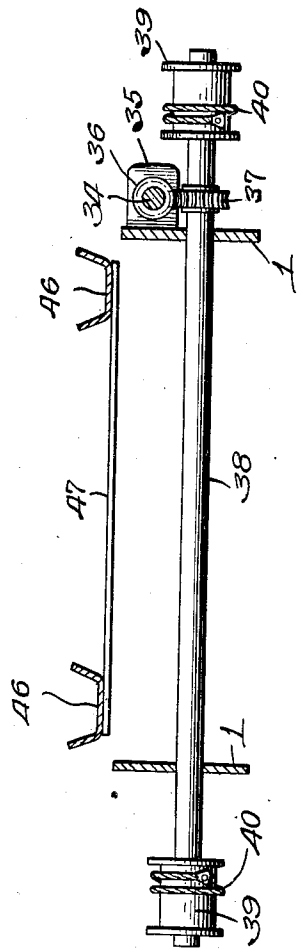


Fig. 4.

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Fig. 5.

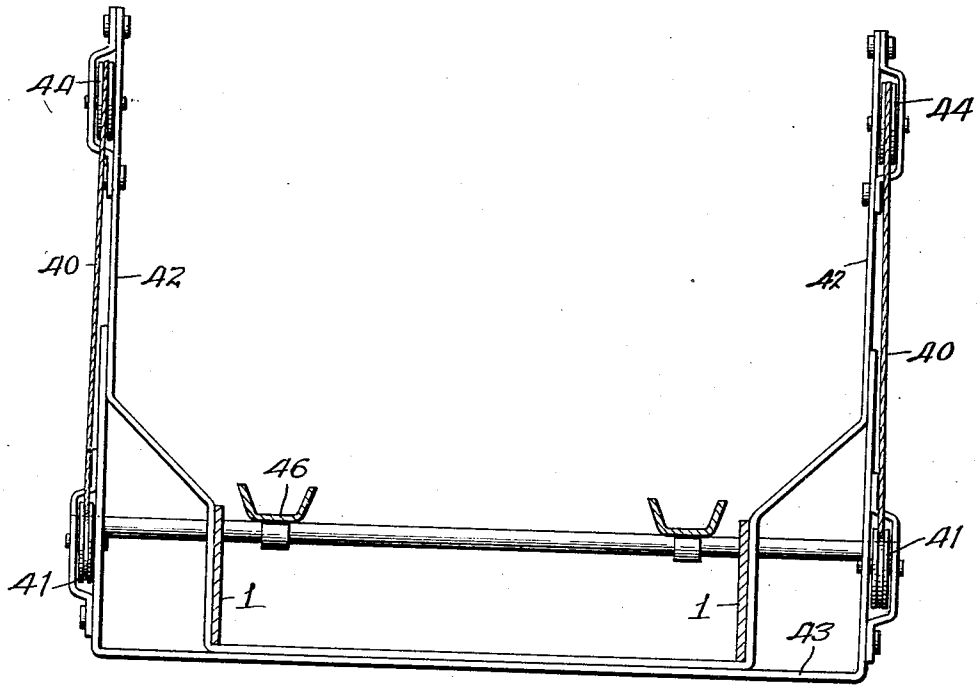


Fig. 6.

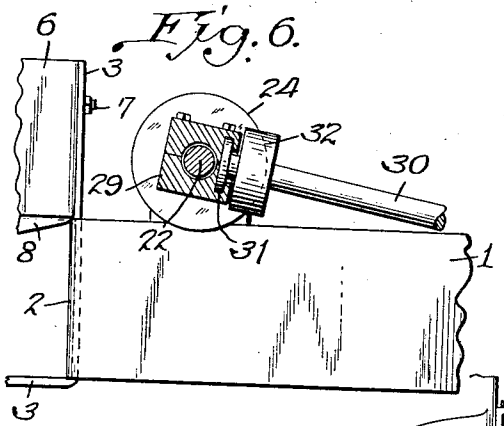
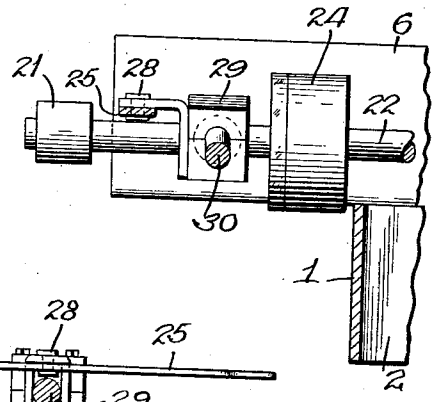


Fig. 7



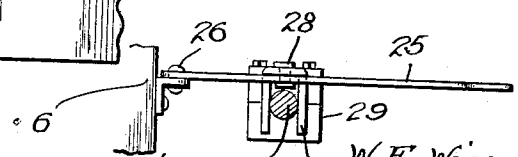


Fig. 8.

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Patented Apr. 28, 1931 1,802,856

UNITED STATES PATENT OFFICE

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AUTOMATIC DUMP

Application filed March 24, 1930. Serial No. 438,607.

This invention aims to provide a means whereby a vehicle may be raised by its own power, to dump the contents of the vehicle, novel means being provided for carrying away the contents of the vehicle after the dumping has taken place.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes may be made in the precise embodiment of the invention herein disclosed, within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Figure 1 shows in top plan, a device constructed in accordance with the invention;

Figure 2 is a side elevation wherein parts are broken away;

Figure 3 is a longitudinal section;

Figure 4 is a transverse section taken adjacent to one of the shafts;

Figure 5 is a transverse section taken adjacent to one end of the frame;

Figure 6 is a sectional view disclosing a portion of the driving mechanism;

Figure 7 is a sectional view at right angles to the cutting plane in Figure 6, and showing the mechanism delineated in Figure 6;

Figure 8 is a sectional view showing the lever which shifts the parts of Figures 6 and 7;

Figure 9 is a fragmental vertical section of the conveyor mechanism and attendant parts;

Figure 10 is an elevation showing the upper end of the conveyor casing.

In carrying out the invention, there is provided a frame 1. A bracket 3 is secured to one end 2 of the frame 1. The bracket 3 has bearings 4. The bearings 4 are secured at 5, as shown in Figure 1, to a hopper 6. The hopper 6 is secured at 7 (Figure 1) to the inner end of the bracket 3. The hopper 6 has an inclined bottom 8 (Figure 3) which slopes toward an opening 9 in the rear wall of the hopper 6, the opening 9 being controlled by a vertically slidable gate 10 on the rear wall of the hopper.

A bearing 11 (Figure 1) is mounted on one end of the hopper 6. A transverse shaft 12 is journaled in the bearings 11 and 4. An upwardly extended and rearwardly inclined casing 14 is mounted to swing on the shaft 12. The casing 14 has a depending discharge spout 15. The lower end of the casing 14 is open, as shown at 16 in Figure 9, opposite to the opening 9 in the rear wall of the hopper 6. There are adjustable bearings 18 at the upper end of the casing 14. A shaft 17 is mounted in the bearings 18. There are pulleys 19 on the shafts 17 and 12. A conveyor 20 is engaged with the pulleys 19 and operates in the casing 14, as shown in Figure 9.

The shaft 12 is united operatively by a belt and pulley connection 21, or in any other suitable way, with a transverse drive shaft 22, which is journaled for rotation in the frame 1. The drive shaft 22 carries grooved wheels 23 located within the frame 1. There is a friction disc 24 on the shaft 22, outwardly of the frame 1 (Figure 1).

A lever 25 is fulcrumed at 26 on the hopper 6 or elsewhere. A depending angle bracket 27 (Figures 7 and 8) is pivoted at 28 to the lever 25. The bracket 27 saddles the shaft 22 and is adapted to engage a bearing 29 on the shaft 22. The bearing 29 can slide lengthwise of the shaft 22, and the shaft 22 can rotate in the bearing 29.

The numeral 30 (Figure 6) marks a shaft extended longitudinally of the frame 1, with a slight inward inclination. The rear end of the shaft 30 (Figure 6) is loosely held at

31 for rotation in the shiftable bearing 29. There is a friction wheel 32 on the shaft 30, adjacent to the bearing 29. The friction wheel 32 may be brought into engagement with the friction disc 24 on the shaft 22.

By means of a universal joint 33, the forward end of the shaft 30 is connected to a shaft 34 journaled in bearings 35 on the frame 1. The shaft 34 has a worm 36 (Figure 1). The worm 36 meshes with a worm wheel 37 (Figure 4) on a transverse shaft 38 mounted to rotate in the frame 1.

There are drums 39 on the ends of the shaft 38. Flexible elements 40 are secured to the drums 39 and are wound thereabout. The flexible elements 40 extend forwardly (Figure 2) around idlers 41 journaled on the lower ends of posts 42. The posts 42 are held by a supplemental frame 43 (Figure 5) on the forward end of the main frame 1. From the idlers 41, the flexible elements 40 extend upwardly around pulleys 44 journaled on the posts 42 near to the upper ends of the posts. From the pulleys 44, the flexible elements 40 are extended downwardly.

The lower ends of the flexible elements 40 are united to a connecting rod 45 mounted on the forward ends of trough-shaped tracks 46 (Figure 5). The tracks 46 are united by ties 47 shown in Figure 1. The rear ends of the tracks 46 (Figure 3) are mounted to swing on a support or rod 48 which extends across the frame 1. The tracks 46, therefore, are mounted for vertical swinging movement on the frame 1.

Near to the inner end of the tracks 46 is located a shaft 49 which is journaled in the frame 1. The shaft 49 carries grooved wheels 50. Figure 1 shows that the wheels 50 and 23 are aligned to form a seat in which the rear wheels of a truck (not shown) are adapted to be received. There is a brake disc 51 on the shaft 49. A brake lever 52 (Figure 2) is fulcrumed at 53 on the frame 1 and is adapted to cooperate with the brake disc 51. A flexible element 54 is connected to the upper end of the brake lever 52. The flexible element 54 is extended forwardly, and is rove through a hole 55 in one of the posts 42.

In practical operation, the tracks 46 are swung downwardly on their pivotal mounting 48 from the position of Figure 2, until the forward ends of the tracks rest on the ground. A loaded truck is run up along the tracks 46, the power-driven wheels of the truck coming to a seat between the grooved wheels 50 and 23. When the engine on the truck is put into operation, to turn the wheels of the truck, the wheels 23 will rotate the shaft 22. The lever 25 is swung inwardly, the bracket 27 sliding to the right in Figure 7, and carrying the bearing 29 to the right in Figure 7, the friction wheel 32 of the shaft 30 being brought into contact with the friction disc 24 on the shaft 22. The shaft 22 is being rotated, it will be recalled, by the truck wheels, and rotation will be imparted to the shaft 30 by the friction disc 24 and the friction wheel 32. The universal joint 33 transmits rotation to the shaft 34, and the shaft 38 is rotated through the instrumentality of the worm wheel 37 and the worm 36. When the shaft 39 is rotated, the flexible elements 40 are wound upon the drums 39 and the forward ends of the tracks are raised, the tracks swinging upwardly on their pivotal mounting 48. In this way, the tracks can be elevated so that the load will slide out of the truck into the hopper 6, the material following the inclined bottom 8 of the hopper 6 and passing through the opening 9, into the field of operation of the conveyor 20.

The operator reverses the driving gears in the truck, reverse rotation is imparted to the wheels 23 and to the shaft 22, and the truck is lowered. By means of the flexible element 54, the brake lever 52 can be applied to the brake disc 51, to hold the shaft 49 and the wheels 50 against rotation. It is desirable or necessary to hold the wheels 50 against rotation, so that the truck wheels can climb over the wheels 50, and onto the tracks 46.

From the shaft 22, rotation is imparted to the shaft 12 by the belt drive 21 or its equivalent. The shaft 12 operates the conveyor 20 and the material is carried upwardly and discharged through the spout 15. The conveyor casing 14 may be swung to various angles on the shaft 12, as required, and may be held by any suitable means, forming no part of this invention, in the position to which it has been adjusted.

Having thus described the invention, what is claimed is:—

In a device of the class described, a substantially horizontal frame, posts at one end of the frame, upper and lower pulleys journaled on the posts, a vehicle track mounted at its inner end on the frame for vertical swinging movement, a first shaft journaled on the frame and located intermediate the ends of the track, flexible elements disposed at the sides of the track, the flexible elements being wound about the ends of the first shaft, extended along the sides of the frame, upwardly about the lower pulleys and downwardly about the upper pulleys, the flexible elements being secured to the outer end of the track, a second shaft and a third shaft journaled one in front of the other on the frame and in front of the first shaft, wheels for engagement with the wheels of a vehicle and mounted on the second and third shafts at the inner end of the track, load-elevating mechanism operatively connected with the third shaft, a brake under the control of an operator and engaging the second shaft, a friction wheel on the third shaft, a laterally flexible shaft, a friction wheel on the laterally flexible shaft, means for supporting the lat-

erally flexible shaft at one end for rotation on the frame, a worm and pinion drive connecting the laterally flexible shaft with the first shaft, means for supporting the laterally flexible shaft for rotation and for lateral movement on the third shaft, and means for moving the laterally flexible shaft laterally, at the will of an operator, to bring the friction wheel of said shaft into and out of engagement with the friction wheel on the third shaft.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

WALTER E. WIESENTHAL.