I. N. MYERS.

LOADING DEVICE.

APPLICATION FILED AUG. 17, 1909.

998,378.

Patented July 18, 1911.

4 SHEETS—SHEET 1.

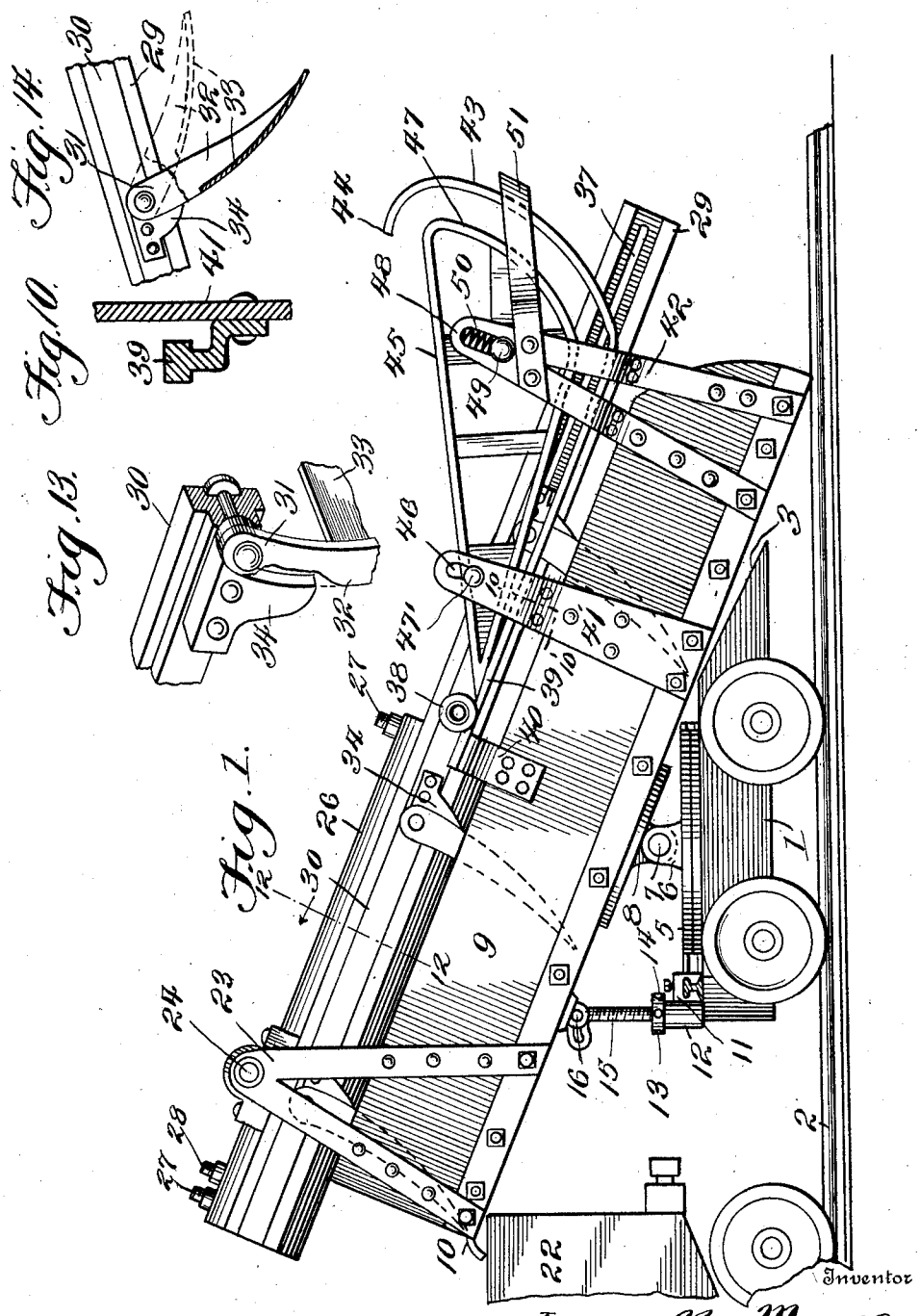

Fig. 14.

Fig. 10.

Fig. 13.

Fig. 1.

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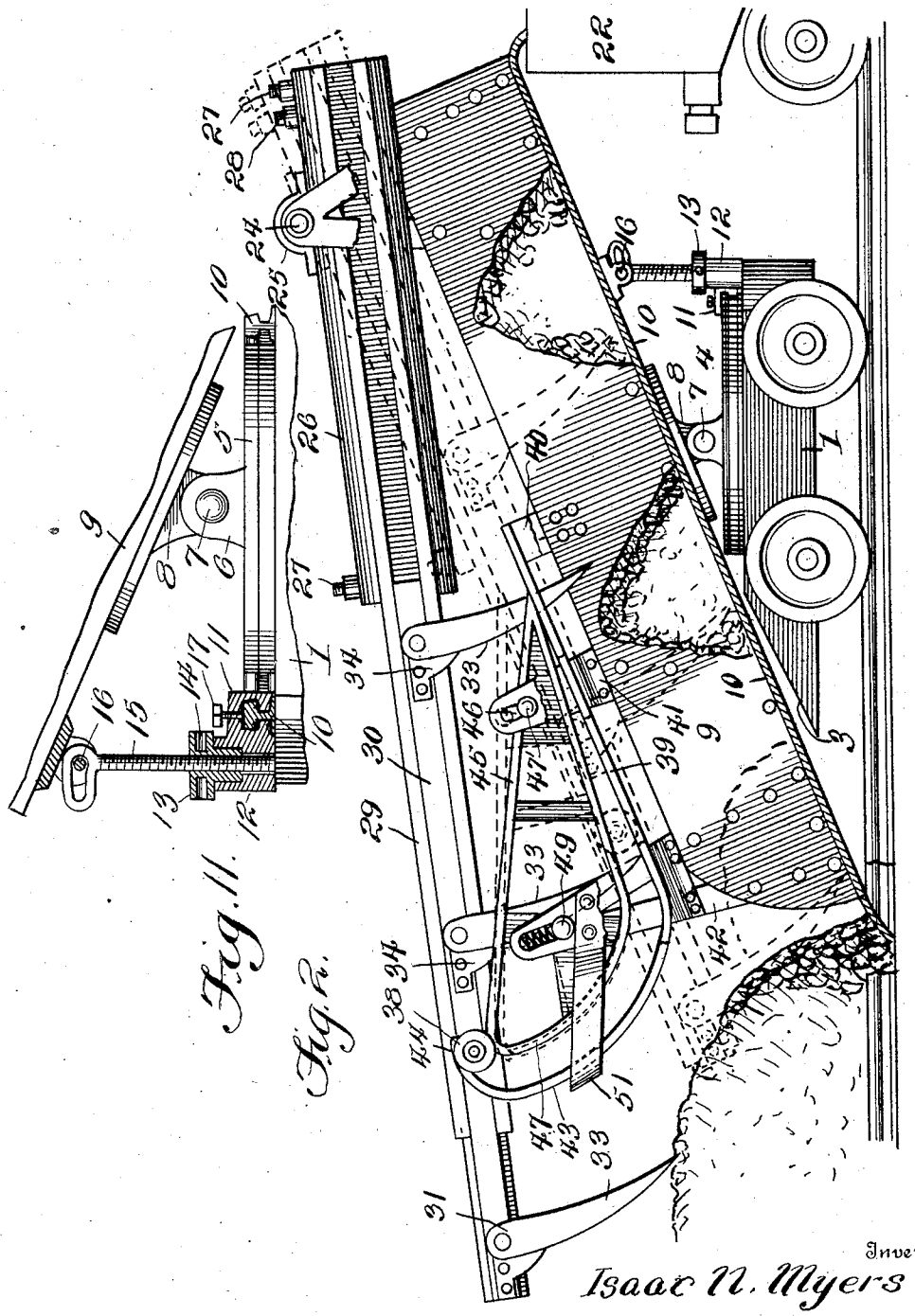

Fig. 1.

Fig. 2.

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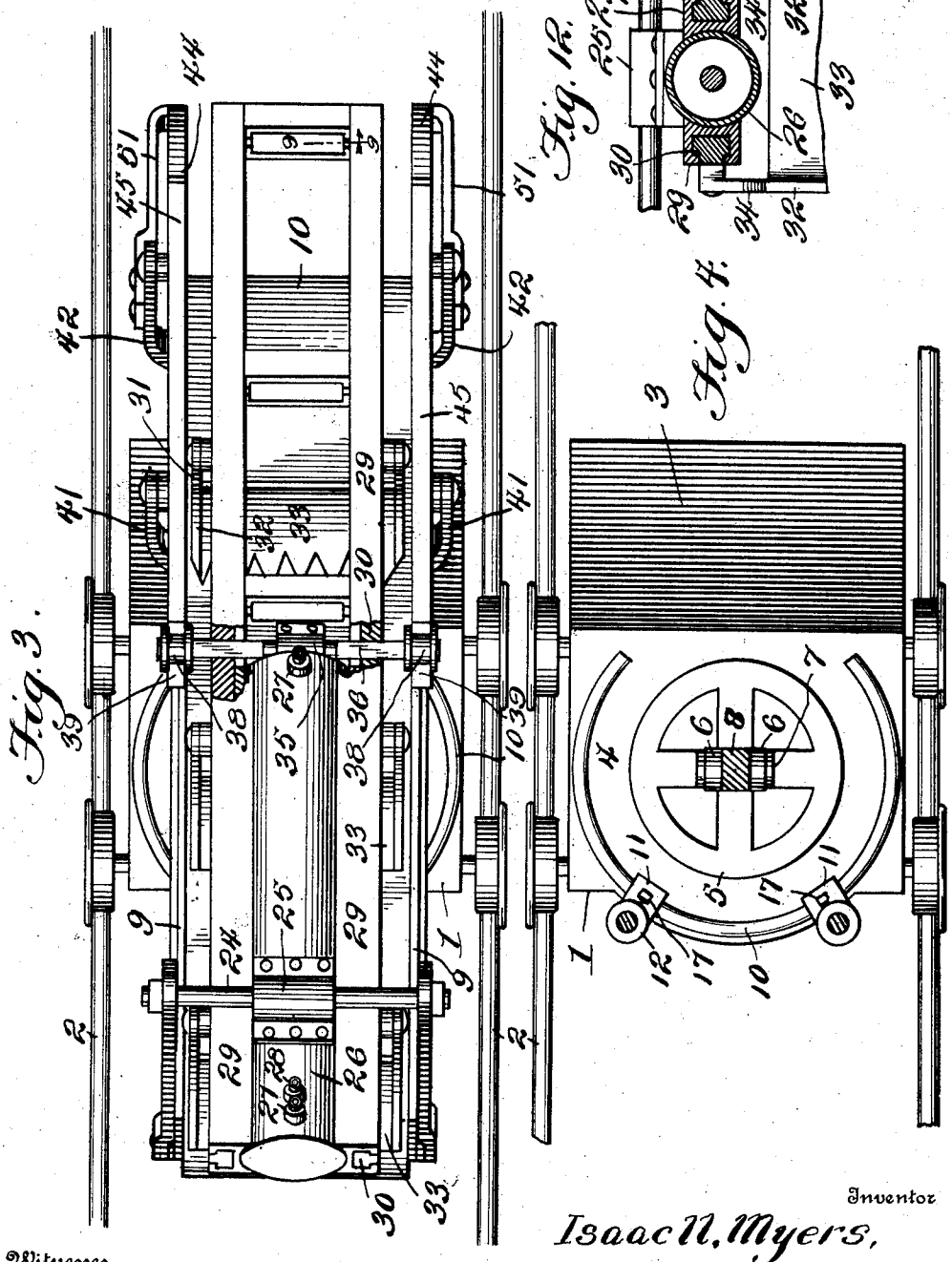

Fig. 3.

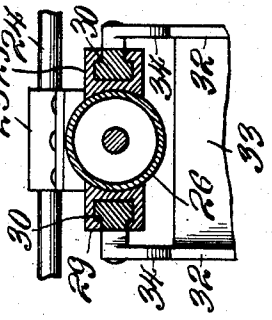

Fig. 12.

Fig. 4.

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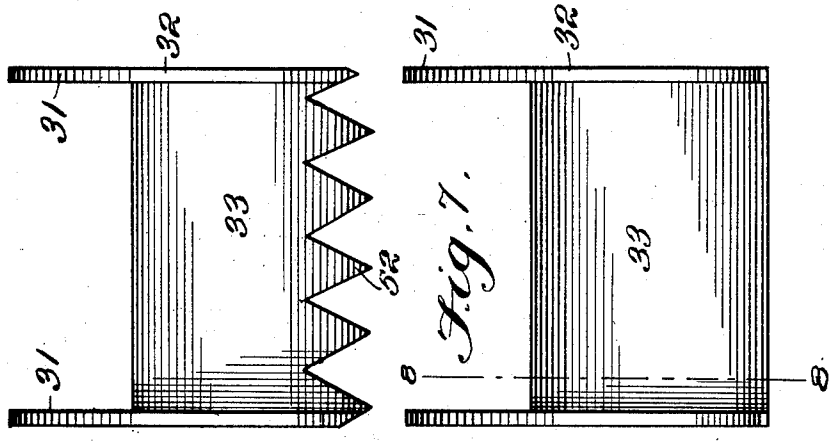

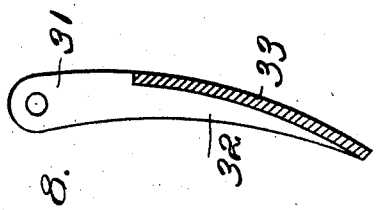

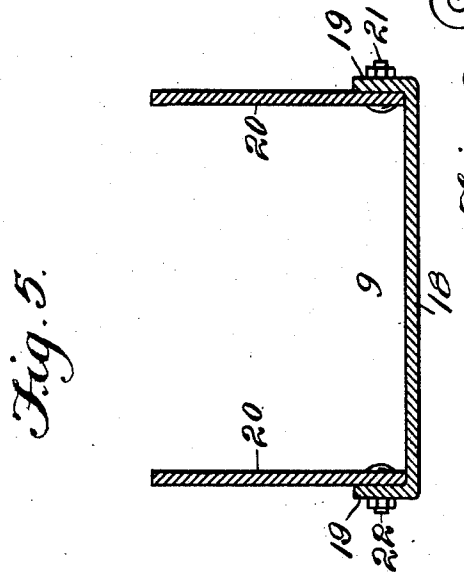

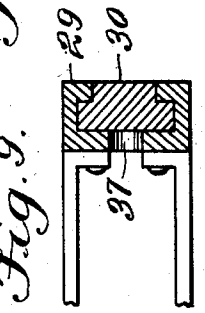

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UNITED STATES PATENT OFFICE.

ISAAC NEWTON MYERS, OF LOS ANGELES, CALIFORNIA.

LOADING DEVICE.

998,378. Specification of Letters Patent. **Patented July 18, 1911.**

Application filed August 17, 1909. Serial No. 513,221.

To all whom it may concern:

Be it known that I, ISAAC NEWTON MYERS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Loading Devices, of which the following is a specification.

This invention relates to loading devices commonly known to the trade as muckers, and the device is primarily directed to a machine of this character whereby material can be easily and quickly loaded from a dump to a gondola car or other suitable device for transportation.

The object of the invention is to provide a machine of this character, which is comparatively cheap to manufacture which will perform the functions for which it is adapted with ease and certainty.

Another object of the invention is to provide a device having a cylinder within which is positioned a suitable piston, the rod of the piston being connected with sliding frames and the said frames carrying a plurality of gathering members or shovels which are adapted to raise and lower in traveling, the outermost of said gathering members being adapted to contact with the pile of material to be loaded and to deposit the same within the body or box of the structure, and the load thus positioned is contacted and moved forward by the remaining gathering members or shovels of the device.

A still further object of the invention is to provide a device of this character with a pivoted steam cylinder having its opposite sides provided with longitudinally extending guide ways, said cylinder being mounted upon a suitable body provided with means whereby the same may be tilted to any desired angle, the guide ways of the cylinder being provided with sliding members upon which are secured a plurality of pivoted gathering members or shovels having swinging movement in only one direction, the sliding member being provided with a suitable offset wheel adapted to engage with a track upon the body and the said track having a pivoted switch member adapted to have its point raised when the sliding members are moved rearwardly and to drop by gravity, so as to receive the said wheel when the sliding members are moved forwardly.

A still further object of the invention is to provide a device of this character mounted upon a suitable truck provided with means whereby the body of the device may be raised or lowered and whereby the body may be revolved in any direction in relation to the truck.

With the above and other objects in view, which will be more apparent as the description progresses, the invention resides in the novel construction and arrangement of parts hereinafter fully described and claimed.

In the accompanying drawings, there has been illustrated a simple and preferred embodiment of the improvement and in which,

Figure 1 is a side elevation of the device illustrating the same in its tilted position and having its open body communicating with a suitable receiving car. Fig. 2 is a central longitudinal sectional view of the device looking in an opposite direction to Fig. 1, parts being shown in elevation. Fig. 3 is a top plan view of the device. Fig. 4 is a top plan view of the truck for supporting the device. Fig. 5 is a transverse sectional view of the body of the device. Fig. 6 is a front elevation of the forward gathering member or shovel. Fig. 7 is a similar view of one of the intermediate gathering members. Fig. 8 is a sectional view upon the line 8—8 of Fig. 7. Fig. 9 is a detail sectional view upon the line 9—9 of Fig. 3. Fig. 10 is a detail sectional view upon the line 10—10 of Fig. 1. Fig. 11 is a detail view partly in section of a portion of the truck illustrating its connection with the body of the device. Fig. 12 is a sectional view upon the line 12—12 of Fig. 1. Fig. 13 is a detail perspective view of a portion of the slide and a shovel pivoted thereto. Fig. 14 is a detail of the slide showing the shovel connected thereto, the shovel being shown partly in section.

In the accompanying drawings the numeral 1 designates a truck of any desired or particular construction. The truck 1 is provided with the usual wheels which are adapted to engage with the rails 2 upon the siding of a railroad track and the truck has its forward end inclined or beveled as indicated by the numeral 3. The horizontal flat top 4 of the truck is provided with a suitable turn table 5 and centrally projecting from this turn table is a pair of spaced ears 6, between which is pivotally connected as at 7, a depending ear 8 provided upon

the body 9 of the machine. The face 4 of the truck is also provided with a circular track and this track is adapted for the reception of a pair of spaced sliding members 11. These members 11 are each provided with a tubular portion 12 which normally extends beyond the face of the said truck 1. These tubular members 12 are each provided with a preferably cylindrical headed member 13, which is provided with a centrally threaded opening and which is free to revolve within the said collar. This member 13 has its enlarged face provided with a plurality of openings 14 which are adapted for the reception of any suitable bar whereby the said member may be easily rotated and the threaded bore of this member is adapted for the reception of a threaded rod 15, pivotally connected as at 16 to the bottom of the body member 9. By this arrangement it will be noted that the body 9 may have its rear portion elevated so as to bring the said body to any desired angle in relation to the truck 1 and it will be further noted that by providing the truck with the turn table 5 the body 9 may be rotated to any desired position and may be retained in said position through the medium of suitable threaded elements 17 carried by the members 11 and adapted to contact with the track 10. The body 9 of the device, see Fig. 5, comprises a detachable bottom portion 18 having its longitudinal edge upturned as at 19, to provide supports for the side members 20. It is to be understood that the upturned portions or offsets 19, as well as the lower portions of the side members 20 are each provided with suitable alining openings adapted for the reception of suitable removable securing members 21.

It will be noted that the greatest strain is imparted to the bottom 18 and this portion of the body frequently becomes worn or mutilated and by constructing this element as a detachable member a new bottom may be readily substituted when necessary. The bottom 18 is adapted to extend a suitable distance beyond the sides 20 and the forward extending portion of the said bottom is arranged at a slight inclination so that it may be readily positioned between the rails 2 in close proximity with the material to be gathered, while the opposite or back portion of the body 9 is of a curved formation, shown at 10 to provide a lip or chute whereby the coal or other material may be guided to a car or other receiving device 22. The rear end of the body 9 is provided upon both of its sides with suitable upstanding standards 23, each of an approximately V-shaped formation so as to provide a pair of spaced legs whereby great strength will be imparted to the said standards. These standards 23 have their upper portions or apexes provided with alining openings and these openings are adapted for the reception of a suitable shaft 24 which is received within a suitable bearing 25 provided upon a cylinder or steam chest 26. This steam chest 26 is provided with suitable inlet and outlet ports 27 and 28 one of which is connected with a suitable boiler or other source of steam supply, which in this instance is not illustrated. The steam chest or cylinder 26 is provided upon its opposite sides with longitudinally extend guide ways or members 29. The guide ways 29 are each adapted for the reception of a suitable slide member 30 and these members 30 are provided with suitable bearings whereby the projecting ears 31 arranged upon the sides 32 of gathering shovels 33 are connected with the side guides. By reference to Figs. 1 and 2 of the drawings it will be noted that the shovel members 33 are of a curved or arcuate formation and it will be also noted that the slide members 30 are each provided with suitable blocks or members 34 which bear against one side of the ears 31 so as to prevent the rotary movement of the shovels in one direction.

Positioned within the steam cylinder 26 is a suitable piston provided with the usual piston rod and secured to the end of the piston rod as at 35 is a cross beam 36. It will be noted that the guides 29 project a suitable distance beyond the front face of the cylinder 26 and the central groove of these projecting portions is provided with longitudinally extending slots 37, Fig. 1. The cross beam 36 is adapted to extend through these slots and to have its opposite ends provided with grooved wheels 38. The wheels 38 ride upon the track 39 supported in suitable bearings 40, 41 and 42 carried by the sides of the body. The stationary track 39 has its outer extremity curved upwardly as designated by the numeral 43 and the extremity of this curved portion is bent rearwardly as indicated by the numeral 44. Pivotally mounted upon the bearing 42 is a switch member 45. This switch member is of an approximately V-shaped construction and has its apex normally resting upon the permanent track 39, while its rear upwardly curved surface 49 is retained in spaced relation with the upwardly turned portion of the said track 39. The member 41 has its upper extremity provided with an arcuate slot 46 which is adapted for the reception of a headed member 47 carried by the said switch 45. The supporting member 42 is also provided at its upper portion with an elongated slot 48 and this slot is adapted for the reception of a similar headed portion 49 carried by a car or supporting beam for the said switch member. Positioned within this slot and adapted to bear upon the body of the headed member 49 is a helical spring 50 which normally forces the lower portion of

the V-shaped switch toward the permanent track 39. The upturned portion 43 of the track 39 is supported by a suitable bail 51 also provided upon the supports 42. By reference to Fig. 3 of the drawings it will be noted that the tracks 39 and the switches 45 are positioned a suitable distance away from the sliding members 30 so as to allow a sufficient space for the gathering members or shovels 33 to work therebetween.

It will be noted by reference to Fig. 6 of the drawing that the forward shovel member has its lower face provided with a plurality of teeth 52 whereby the said shovel will be permitted to dig within the pile of coal or other material to be elevated to the car 22. In operating the device the cylinder 26 is swung downwardly from its pivot 24 and the slides 30 carrying the shovel members 33 are forced rearwardly against the cylinder within the guides 29. When steam is applied within a cylinder to the rear of the piston carried therein the piston rod will force the guide members forward through the medium of the beam 36 and the grooved wheels 39 will travel upon the projecting portion of the permanent track 39 and from thence will mount the upwardly inclined surface provided by the switch 45. When the sliding members are thus elevated it will be noted that the shovels are also raised and that the steam cylinder will be also upwardly inclined upon its pivots 34. As the wheels 38 reach the extremity of the said switch member 45 the same will be guided downwardly upon the upwardly turned portion 43 of the permanent track 39 and the downwardly extending enlarged portion 47 of the V-shaped switch 45. As the wheels describe this downward motion it will be noted that the forward shovel member 33 will be forced within a pile of material to be gathered within the body of the device and when the wheels reach the horizontal portion of the track 39 the car of the piston within the cylinder is reversed so as to draw the slides 30 rearwardly within the guides and again lowering the slides and cylinder, thus allowing the intermediate shovel members to sweep the material previously gathered by the outermost shovel to the car 22. It will be noted that the V-shaped switch 45 will readily yield as the wheels 38 engage the same while traveling upon the permanent track 39, and it will be further noted that by this construction a great amount of material may be elevated to the car 22 in a comparatively short length of time.

Having thus fully described the invention what is claimed as new is:

1. A pivoted steam chest or cylinder, guide ways upon the sides of the cylinder, slides carried by the guides, shovel members carried by the slides and depending therefrom, means upon the slides for preventing the swinging of the shovels in one direction, means for tilting the cylinder to elevate the slides and shovels, means for lowering the slides and for returning the slides and shovels to their initial position.

2. In a device for the purpose set forth, a body member, a steam cylinder pivotally connected with the body member, guide members secured to the cylinder and projecting from one end thereof, slide members within the guide members, shovels pivotally connected with the slide members, stops upon the slide members for preventing the swinging of the shovels in one direction, means for inclining the cylinder and for projecting the slides, means for lowering the slides and shovels to allow the shovels to contact with the body and to return to their first position.

3. In a device of the class described, a body having sides and open ends, and a top, a steam cylinder pivotally connected to the sides of the body and positioned above the latter, said cylinder having its sides provided with extending guides, slides within the guides, shovel members having curved rear faces pivotally connected with the slides, means provided upon the slides for preventing the swinging of the cylindrical member in one direction, means provided upon the body for tilting the cylinder and slides as the slides are forced away from the cylinder, said means being also adapted to lower the slides and shovels and for returning the said slides and shovels to their first position.

4. In a device of the character described, the combination with a wheeled truck, of a body member pivotally connected with said truck, means between the body and the truck for inclining the said body, means for sustaining the body in its rotated position, a steam cylinder pivotally connected with the body, a piston within the cylinder, sliding members connected with the piston, pivoted shovels carried by the sliding members, stops upon the sliding members for preventing the rotation of the shovels in one direction, means carried by the body for tilting the cylinder so as to incline the slides and shovels carried thereby when the said slides are forced away from the cylinder, and means for returning the slides and the shovels to their initial position when the piston has completed its return stroke.

5. In a device for the purpose set forth, a wheeled truck, said truck being provided with a turn table, a body pivotally connected with the turn table, an adjustable support for the body, a steam cylinder pivotally connected with the body and positioned above the same, the cylinder having its sides provided with longitudinally extending guides, sliding members for these guides, curved shovel members pivotally connected with the slides, a piston having a piston rod within the cylinder, a connection between the piston rod

and the slides, stop members upon the slides for preventing the movement of the shovel members in one direction, a track upon the body member for the slides, said track having its extremity bent upwardly and inwardly toward the cylinder, a V-shaped switch having its apex normally resting upon the track, and its larger portion spaced away from the inclined end of the track, and wheels upon the slides substantially as and for the purpose set forth.

6. In a device for the purpose set forth, the combination of a truck, a body member pivotally connected with said truck, means between the body member and the truck for regulating the inclination of the body in relation to the truck, means for sustaining the body in a swung position upon the truck, a steam cylinder pivotally connected with the body, and positioned above the same, said cylinder having its sides provided with spaced longitudinally extending members comprising guides, sliding members positioned within said guides, said sliding members being provided with pivoted depending shovels, stops upon the sliding members for preventing the movement of the shovels in one direction, wheels upon the sliding members, tracks carried by the body for the wheels, said tracks having their extremities bent upwardly and inwardly, brace members for the ends of the tracks, a triangular switch carried by the body member, means for normally retaining the vertex of the triangular switch upon the rails, and the base of the triangular switch being of a contour corresponding with the curved end of the track, and being spaced away therefrom a distance equaling the diameter of the wheel upon the guides.

7. In a device for the purpose set forth, a truck, said truck having a turn table, a body member pivotally connected with the turn table, an adjustable supporting member between the body and the truck, a fluid cylinder connected with and positioned above the body, guides upon the sides of the cylinder, and projecting forwardly therefrom, slides within the guides, a piston within the cylinder, said piston being provided with a rod connected with the slides, curved shovel members pivotally secured to the slides, means provided upon the slides for preventing the movement of the shovel members in one direction, means for tilting the cylinder and elevating the slides and shovels as the guides are forced forwardly, and means for returning the slides and shovels to their initial position.

8. In a device for the purpose set forth, a truck, a body pivotally and rotatably mounted upon the truck, a steam cylinder pivotally connected with the body, a guide member connected with each of the sides of the steam cylinder and projecting a distance beyond the face of the said cylinder, a pair of oppositely disposed slide members positioned within the slides, said slide members being connected with the piston of the steam cylinder, pivoted shovel members of a width approximately equaling that of the body pivotally connected with the slides, offsets upon the slides adapted to contact the shovels to prevent the swinging of the said shovels in one direction, means connected with the body for tilting the steam cylinder and its slides to elevate the guides and shovels as the piston of the cylinder is forced outwardly from the cylinder, said means being also adapted to lower the steam cylinder, guides and slides when the piston is reciprocated in an opposite direction and to bring the shovels between the sides and adjacent the bottom of the body.

9. In a device for the purpose set forth, a body member, a wheeled truck for the body member, means for inclining the body member upon the truck, a motor pivotally connected with the body member, grooved guides upon the sides of the motor and projecting forwardly therefrom, slides within the guides, shovel members pivotally connected with the slides, a cross head connected with the motor, the slides being provided with slots, the cross head being provided with extensions projecting through the slides, wheels for these projecting portions, a track rigidly secured to the body, said track having its outer extremity curved upwardly and inwardly, standards upon the slides having their upper portions provided with arcuate slots, a substantially triangular switch member connected with these slots directly in alinement with the stationary track, said switch member having its face curved to coincide with the curved upwardly extending portion of the stationary track, a resilient element contacting the upper bearing of the track to force the same in proper spaced relation with the stationary track, and the said switch having its vertex normally lying upon the stationary track and in a direct plane with the wheels carried by the cross head, all substantially as and for the purpose set forth.

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

ISAAC NEWTON MYERS.

Witnesses:
JULIA A. MYERS,
EDITH MYERS.