

May 4, 1926.

1,583,336

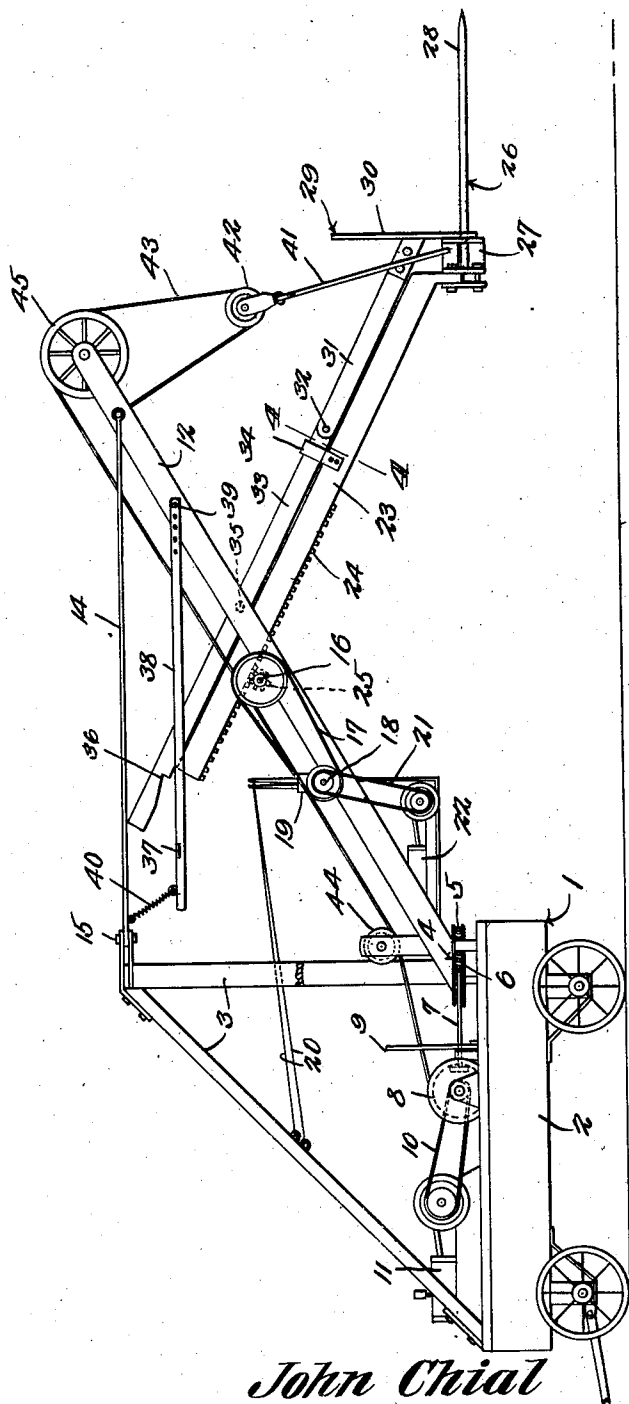
J. CHIAL

LOADER

Filed August 17, 1925

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Fig. 1.



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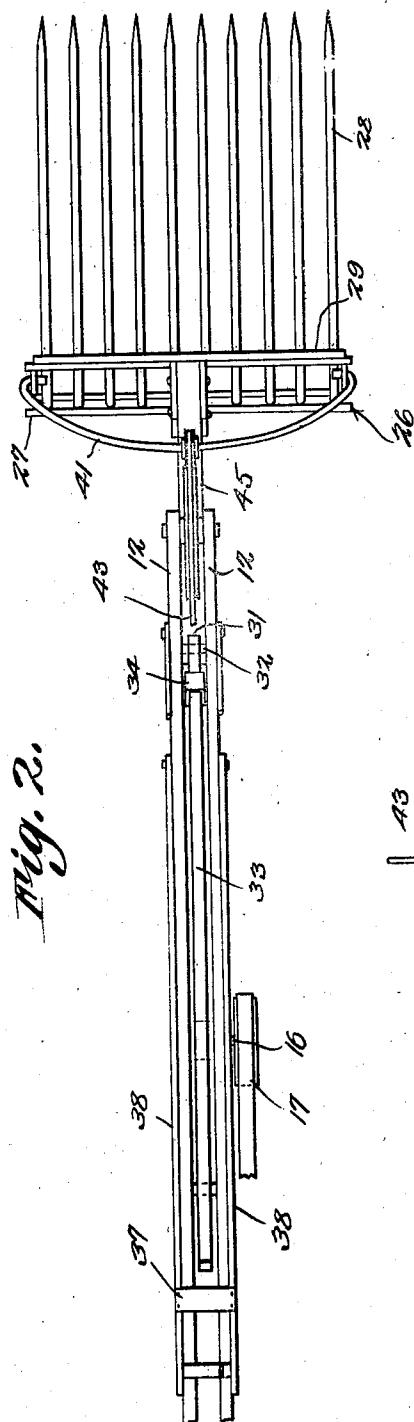
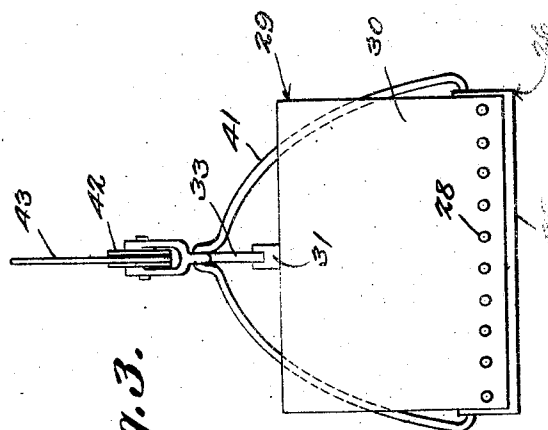
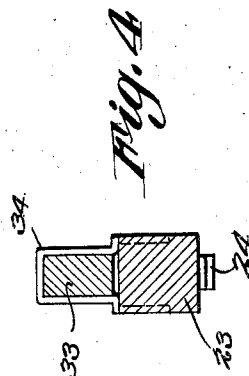
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Fig. 5.

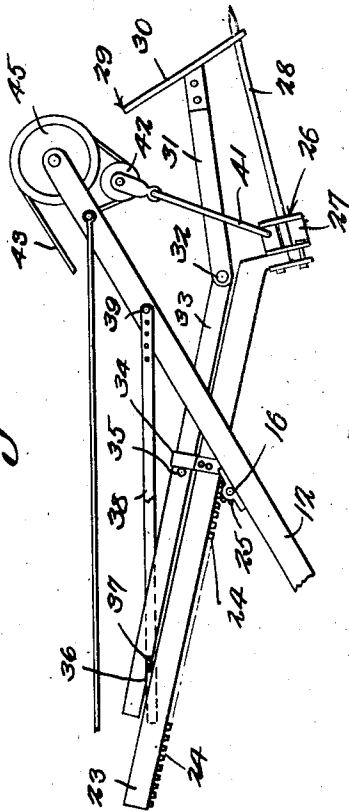


Fig. 6.

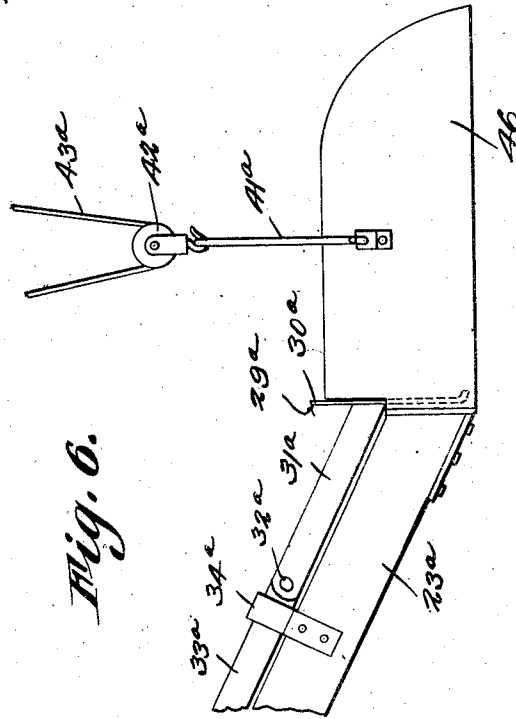
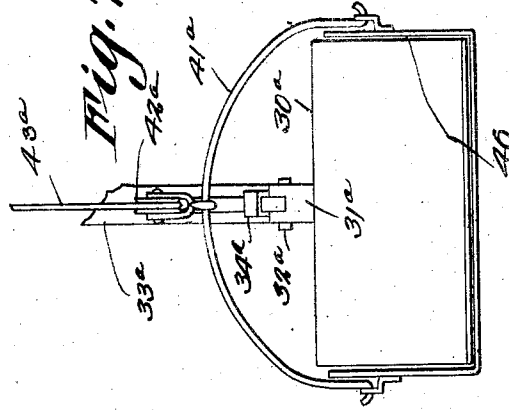


Fig. 7.



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Patented May 4, 1926.

1,583,336

UNITED STATES PATENT OFFICE.

JOHN CHIAL, OF DETROIT, MINNESOTA.

LOADER.

Application filed August 17, 1925. Serial No. 50,679.

To all whom it may concern:

Be it known that I, JOHN CHIAL, a citizen of the United States, residing at Detroit, in the county of Becker and State of Minnesota, have invented a new and useful Loader, of which the following is a specification.

This invention aims to provide novel means for handling material, and, particularly, to provide novel means for removing material from a fork or bucket, as the bucket is raised.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the 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 in the precise embodiment of the invention herein disclosed, may be made within the scope or what is claimed without departing from the spirit of the invention.

In the drawings:—

Figure 1 shows in side elevation, a device constructed in accordance with the invention; Figure 2 is a top plan showing a portion of the boom and parts carried thereby; Figure 3 is an elevation showing the fork and attendant parts; Figure 4 is a cross section on the line 4—4 of Figure 1; Figure 5 is a side elevation showing certain of the parts as they will appear when the fork is drained and when the material is pushed off the fork; Figure 6 is a side elevation showing a slight modification; Figure 7 is an end elevation of the structure depicted in Figure 6.

The device forming the subject matter of this application may be applied to machines of widely different sorts, but, by way of illustration, there is shown, in Figure 1, a support 1, including a wheel-mounted truck 2 carrying a standard 3. A turntable 4 is journaled on the truck 2 and is operated in any preferred way, for instance, by means of a worm wheel 5 on the turntable, the worm wheel meshing with a worm 6 on a shaft 7 supported for rotation on the truck 2. The shaft 7 is driven from a drum 8 journaled on the truck 2, the numeral 9 designating, diagrammatically, any suitable means whereby the shaft 7 may be coupled to the drum 8, and be uncoupled from the drum, at

the will of an operator. There is an operative connection 10 between the drum 8 and a prime mover 11, on the truck 2, the prime mover being a gasoline engine, or anything else adapted for the purpose.

The machine comprises an inclined boom 12 connected at its lower end to the turntable 4 and sustained by a guy 14 which is pivoted at 15 to the upper end of the standard 3. A shaft 16 is journaled on the boom 12, intermediate the ends thereof, and is operated by a driving mechanism 17, connected by a reversing and stopping device, under the control of an operator, with a shaft 18 which is likewise journaled on the boom 12, the reversing and stopping device 19 being operated by lines 20 or the like, connected to the standard 3 and so located that a person in charge of the engine 11 may reach the line 20 readily. Any desired mechanism may be provided for operating the shaft 18. The shaft 18 may be driven, within the skill of a mechanic, from the engine 11, but, in the present embodiment of the invention, the shaft 18 is connected as indicated at 21, with an engine or motor 22 that is carried on the boom 12 near to the butt end thereof.

The numeral 23 designates an arm mounted to move endwise and to swing vertically in the boom 12. The arm 23 is provided with a rack 24 meshing with a pinion 25 carried by the shaft 16.

There is a carrier for material, on the forward end of the arm 23, and the carrier may be of various sorts. As shown in Figure 1, the carrier is in the form of a dung fork 26 including a head 27 attached to the end of the arm 23, the head carrying projecting tines 28.

The numeral 29 marks a cleaner, including a body or plate 30 mounted loosely for reciprocation and for tilting movement on the tines 28 of the fork 26, the body of the cleaner being connected to a stem 31 which is pivoted at 32 to an operating member 33, in the form of a bar, the operating member being mounted for sliding movement in a guide 34 carried by the boom 12, the operating member 33 being provided with a stop 35 adapted to cooperate with the guide 34. On its lower edge and near its rear end, the operating member 33 has a shoulder 35.

The shoulder 36 on the operating member 33 is adapted to cooperate with a cross bar 37 forming part of a stop frame 38, the stop frame including parallel bars which are ad-

justably connected at 39 to the boom 12, the rear end of the stop frame 38 being carried by a suspension means 40 of any desired sort, for instance, a strong spring connected to the guy 14, and, therefore, to the support 1.

A bail 41 is pivoted to the head 27 of the fork 26 and carries a sheave 42 about which is looped a flexible element 43, one end of which is connected to the boom 12, the flexible element being carried upwardly and rearwardly around a pulley 45 journaled on the end of the boom 12, the flexible element being extended beneath a guide pulley 44 supported for rotation on the butt end of the boom 12, the flexible element 43 being wound about the drum 8.

The operating member 23 is moved endwise by a train of elements including the engine 22, the connection 21, the shaft 18, the connection 17, the shaft 16, the pinion 25 and the rack 24, the last-specified train of elements being under the governance of an operator by means of the reversing and stopping device 19 and the lines 20 or their equivalent. The turntable 4 is rotated, and the boom 12 is swung sidewise, by a train of elements deriving motion from the drum 8, that train being under the control of an operator, by means of the clutch mechanism 9, and including the shaft 7, the worm 6 and the worm wheel 5.

When the arm 23 is swung upwardly and carried rearwardly, the rear end of the operating member 33 comes into contact with the cross bar 37 of the stop frame 38, the said cross bar engaging the shoulder 36 on the operating member. The operating member, thus, is brought to rest, and the arm 23, carrying the fork 26 is carried rearwardly, with respect to the body 30 of the cleaner 29, the body of the cleaner pushing the material off the tines 28 of the fork 26, the parts arriving ultimately in the position shown in Figure 5, the stem 31 of the cleaner pivoting at 32 with respect to the operating member 33. The stop 35, which engages the guy 34, prevents the body 30 of the cleaner from sliding off the tines 28 of the fork 26. The spring 40 may be omitted if desired, but when it is used, it will support the rear end of the stop frame 38 yieldably, and thus

prevent undue strains, should the inner end of the arm 23 continue to swing downwardly for a little while, after the rear end of the operating member 33 has come into contact with the cross bar 37 of the stop frame.

The carrier need not be in the form of a fork. In Figures 6 and 7, parts hereinbefore described have been designated by numerals previously used, the carrier being in the form of a scoop 46, and the body 30^a of the cleaner 29^a being mounted to move within the scoop.

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

1. In a device of the class described, a support, an arm mounted on the support to swing vertically and move longitudinally, means for swinging the arm vertically, means for moving the arm longitudinally, a carrier and means for mounting the carrier on the support, a cleaner slidable on the carrier, and means for arresting the movement of the cleaner when the arm is swung vertically and moved longitudinally, thereby causing the cleaner to remove material from the carrier.

2. In a device of the class described, a support, an arm mounted on the support, to swing vertically and to move longitudinally, means for swinging the arm vertically, means for moving the arm longitudinally, a carrier and means for mounting the carrier on the support, a cleaner slidable on the carrier, and a stop frame wherewith a portion of the cleaner cooperates, when the arm is swung vertically and moved longitudinally, thereby causing the cleaner to remove material from the carrier.

3. In a device of the class described, a support comprising a boom, an arm, means for moving the arm lengthwise on the boom, means for swinging the arm vertically on the boom, a carrier mounted on the boom, a cleaner slidable on the carrier, and means for arresting the movement of the cleaner when the arm is swung vertically and moved lengthwise.

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

JOHN CHIAL.