July 14, 1942. I. D. DICKSON 2,289,487

TRUCK LOADER

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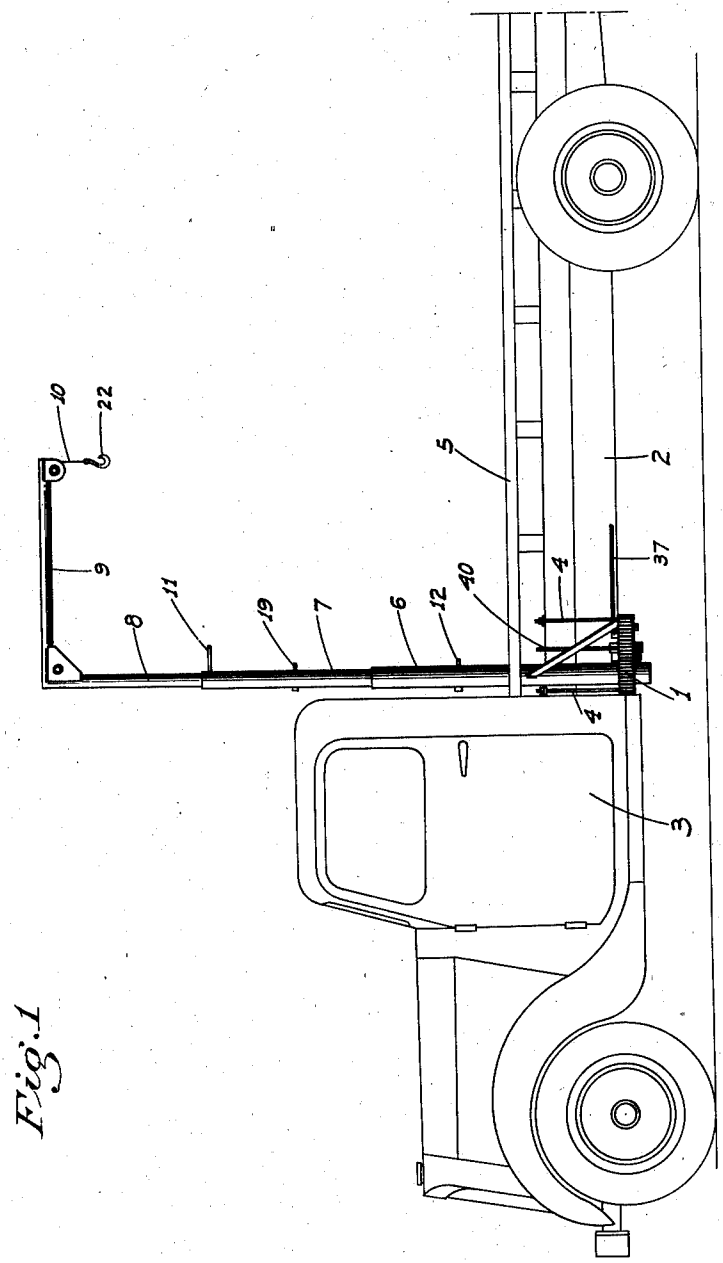


Fig. 1

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Fig. 2

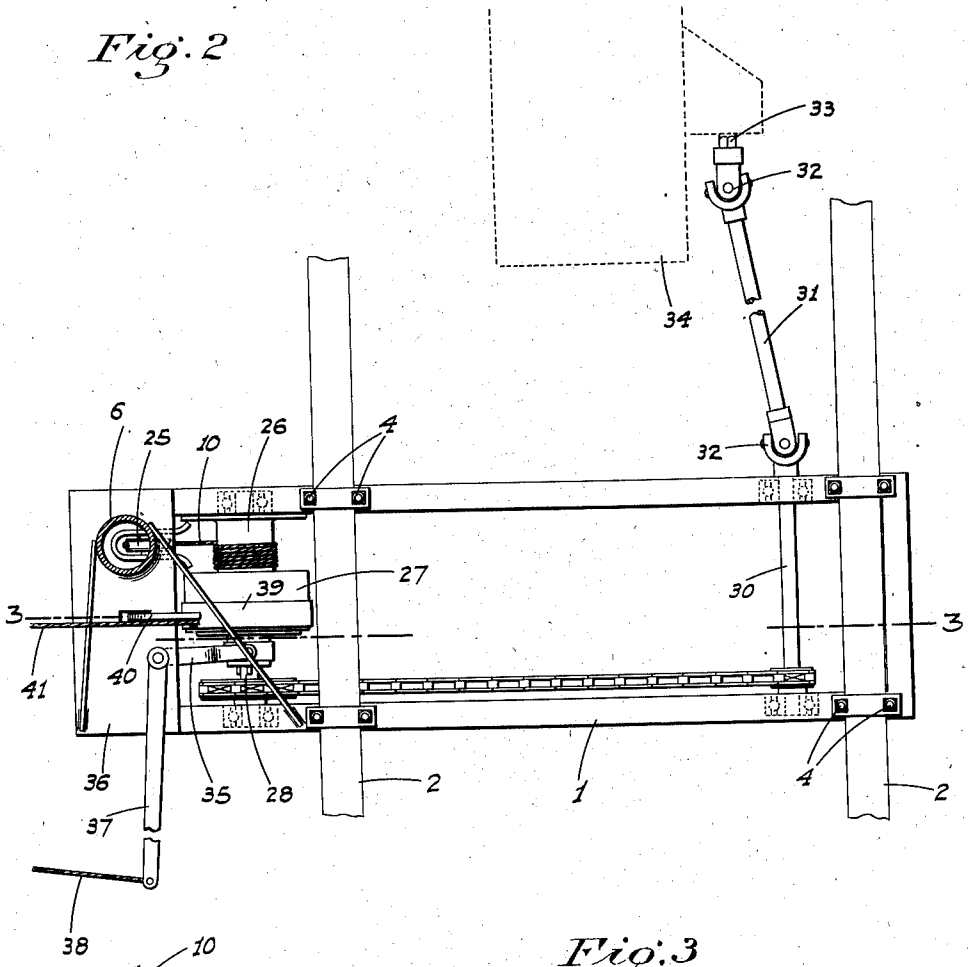
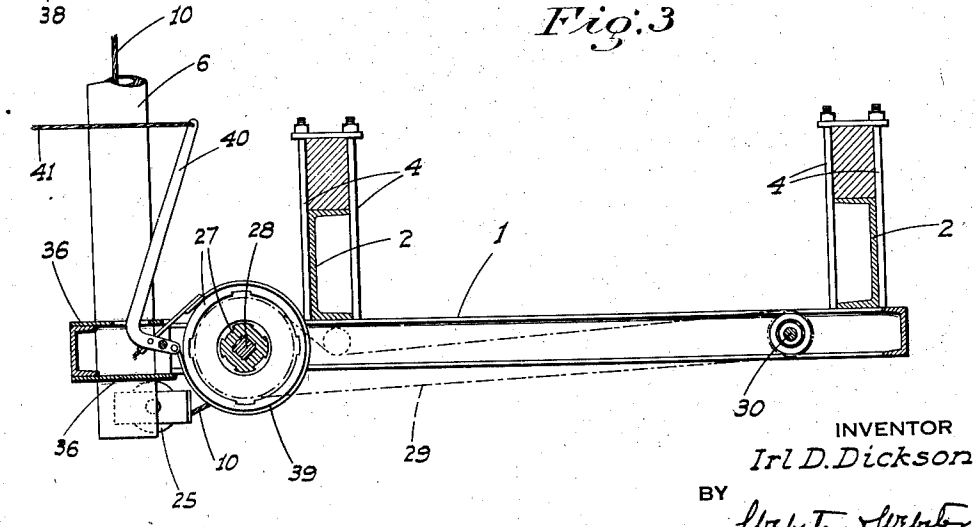


Fig. 3



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Fig. 4

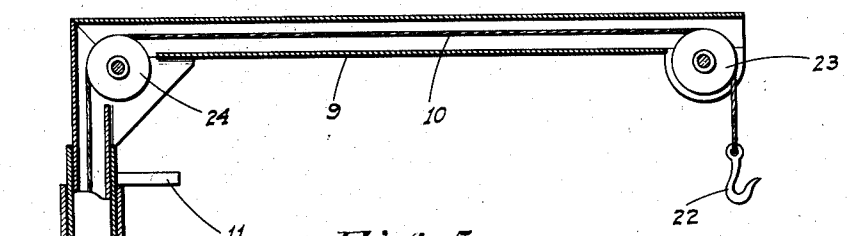


Fig. 5

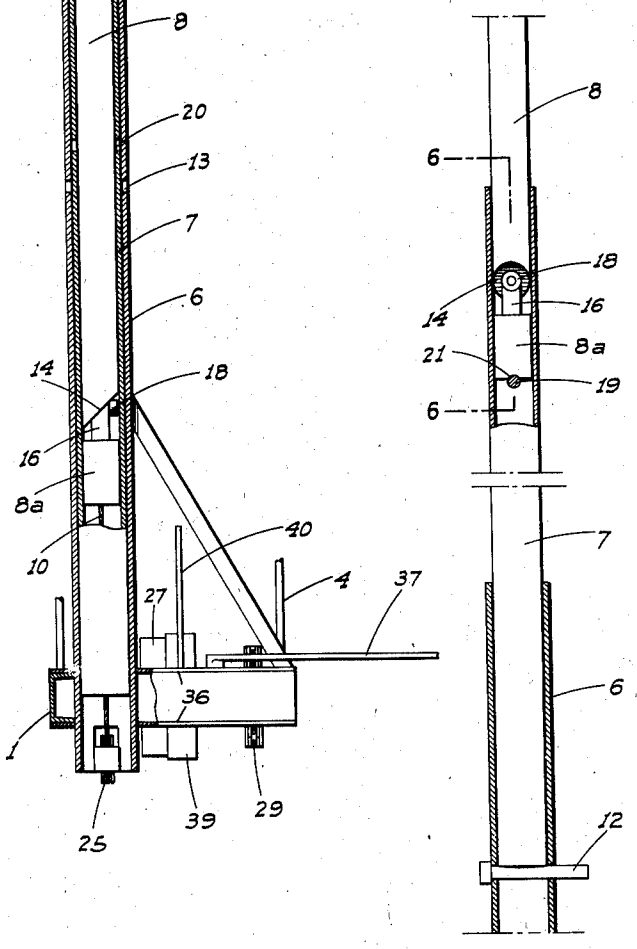
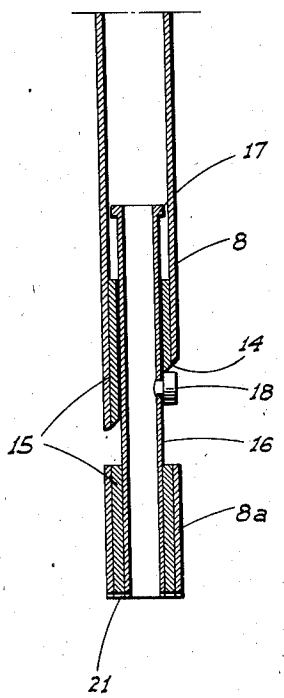


Fig. 6



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UNITED STATES PATENT OFFICE

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TRUCK LOADER

Irl D. Dickson, Fair Oaks, Calif.

Application September 26, 1941, Serial No. 412,447

7 Claims. (Cl. 212—51)

This invention relates to loading devices for trucks, my principal object being to provide a loader or hoist for the purpose, adapted to be mounted on the truck, and by means of which baled hay, sacked grain, or the like, can be quickly lifted from the ground and swung into place on the truck with little effort.

A further object is to provide a device of this kind arranged as a self-contained unit which may be readily mounted on a standard truck of the flat-bed or open-body type.

Another object is to construct and arrange the cable-control mechanism of the device so that it may be driven from the side power take-off shaft of the truck, and may be conveniently controlled from a point on the ground laterally offset from the truck.

Another object is to provide a device which is small and compact and yet quite powerful, and which will not take up any load-carrying area on the truck, and which is not in the way when it is not being used.

A further object of the invention is to provide a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side outline of a conventional truck, showing my improved loader mounted thereon.

Figure 2 is a top plan view of the loader, showing the boom-supporting mast in section.

Figure 3 is a sectional elevation of the loader on the line 3—3 of Fig. 2.

Figure 4 is a sectional elevation of the telescoping mast and boom structure contracted.

Figure 5 is a fragmentary elevation of the mast structure extended.

Figure 6 is an enlarged fragmentary sectional elevation of the upper swinging unit of the mast taken on the line 6—6 of Fig. 5.

Referring now more particularly to the characters of reference on the drawings, the loader comprises a rectangular, open horizontal frame adapted to extend under and across the main side frames 2 of a truck just back of the cab 3. The frame 1 is rigidly but removably strapped to the frames 2 by upstanding bolt units 4.

Rigidly secured on and upstanding from the frame 1 adjacent one forward corner, which corner is close to the corresponding side edge of the load-receiving beam 5 of the truck, is the lower mast section 6, of tubular form. Slidable in the section 6 is the central mast section 7, while slidable and turnable in the section 7 is the upper mast section 8, from the upper end of which a short boom 9 projects horizontally. The mast sections and boom are all tubular so that the hoist cable 10 may project therethrough from end to end.

The central section 7 is provided adjacent its upper end with a handle 11 whereby it may be readily pulled up, as well as being prevented from sliding all the way into the lower section 6. Said section 7 is held up when desired by a pin 12 projected through holes 13 in the lower section 6, said pin being sufficiently small in diameter so as not to interfere with the cable.

The lower end portion of the upper mast section is constructed so that when in operative position the boom will tend to swing of itself through a relatively wide arc, from overhanging relation to the ground into overhanging relation to the truck, or vice versa, as may be desired. This construction is as follows:

A short bottom member 8a of the upper mast section is separate from the main section 8, and the lower end of said section 8 is cut on a diagonal as shown at 14. The member 8a and the adjacent portion of the section 8 are bushed as at 15, and a hollow stem 16 extends through the bushings. The stem is rigidly secured in the bushing of the member 8a but is slidable and turnable in the upper bushing, having a head 17 on its upper end overlapping said bushing. The stem has a roller 18 secured thereon on one side and riding the inclined track formed by the diagonal cut 14. It will therefore be seen that when the roller engages the low point of the incline the section 8 will tend to swing around of itself until the roller reaches the high point of the incline, if said roller is maintained stationary.

When the upper section, which includes the member 8a, is lifted into an operating position a cross pin 19 is placed through holes 20 in the central section 7 and passes under the member 8a, supporting the same. The entire weight of the main upper section 8 then of course rests on the roller 18. In order to prevent rotation of the member 8a, so that the roller will be maintained stationary as above stated, said member is provided with a seat 21 for the pin 19.

The cable 10 extends from a hook 22 or the

like at its outer end about a pulley 23 at the outer end of the boom, along the boom, about a pulley 24 in the junction of the boom and mast section 8, and down through the mast sections centrally thereof to a direction changing pulley 25 at the lower end of the mast, below the frame 1.

The cable then passes under and about a drum 26. This drum, together with a clutch and brake drum unit 27 of conventional character, is turnable on a shaft 28 extending lengthwise of the truck frames 2 and journaled in the frame 1 between the mast and the adjacent frame member 2. The shaft 28 is connected by a chain drive 29 or the like with another shaft 30 parallel to the shaft 28 but journaled in the frame 1 adjacent the opposite truck frame member 2. An extension shaft 31 provided with universal joints 32 projects from the forward end of the shaft 30 and is connected to the power take-off shaft 33 of the truck, where it projects from the adjacent side of the transmission housing 34 of the truck.

The clutch of the unit 27 is normally disengaged and is engaged when desired to rotate the drum 26 and wind the cable thereon, by a shifting unit including a fork 35 journaled in the top and bottom plates 36 of the adjacent portion of the frame 1. A substantially horizontal lever 37 extends from the pivot of the fork, being connected to a pull rope 38 so that the clutch may be operated from any desired point on the ground away from the truck. The brake band 39 of the unit 27 is normally slack and is applied when desired by an actuating lever 40 connected to the band and projecting upwardly through a slot in the upper plate 36, as shown in Fig. 3. This lever 40 also has a pull rope 41 connected thereto so that the brake can be operated from the same point as the clutch.

When the loader is in use the mast sections are extended, and the member 8 is set so that the automatic swinging of the boom will be toward or away from the truck, as loading or unloading conditions may require. Two operators only are necessary—one on the ground to manipulate the controls and attach the load to the cable, and the other on the truck to swing the boom if necessary and detach the load and place it in position on the truck. When the loader is not in use, the pins 12 and 19 are removed and the mast sections are telescoped into the main section 8, the boom being then swung to lie transversely of the truck behind the cab.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A loading attachment for a truck including a horizontal frame adapted to extend transversely of a truck below and against the side frame beams of the truck, means to secure the frame and beams together, a mast secured on and upstanding from the frame laterally out from one side beam, a boom turnably projecting from the upper end of the mast, a hoist cable extending from the outer end of the boom to the lower end of the mast and a cable drum mounted on the frame.

2. An attachment as in claim 1, with means to drive the drum including a shaft unit projecting from the frame and adapted for connection with the power take-off shaft of the truck.

3. In a hoist, a tubular relatively stationary mast section, another tubular mast section slidable and turnable in the first named section, and movable upward from a telescoped position therein, a boom projecting from the upper end of the other section, a detachable element to support the other section when raised and means between said element and said other section to allow of rotation thereof when thus raised and supported.

4. In a hoist, a tubular relatively stationary mast section, another tubular mast section slidable and turnable in the first named section, and movable upward from a telescoped position therein, a boom projecting from the upper end of the other section, a detachable element to support the other section when raised and means between said element and said other section to allow of rotation thereof when thus raised and supported and tending to cause said section to rotate of itself in one direction through a predetermined arc.

5. In a hoist, a tubular relatively stationary mast section, another tubular mast section slidable and turnable in the first named section, and movable upward from a telescoped position therein, a boom projecting from the upper end of the other section, said other section including a bottom member and an upper member separate therefrom, a central connecting element between the members allowing of limited axial separation thereof, means to support and hold the lower member against rotation when the mast section is raised and means between the element and upper member tending to cause the latter to rotate of itself in one direction through a predetermined arc.

6. A structure as in claim 5, in which said member supporting means comprises a removable cross pin mounted in the first named mast section and on which the lower member rests, the bottom of said lower member having a diametral pin engaging seat formed therein.

7. A structure as in claim 5, in which said last named means comprises a roller mounted on a horizontal axis on the element on the outside thereof; the bottom edge of the upper member resting on the roller and being cut diagonally relative to the axis of said member.

IRL D. DICKSON.