

March 10, 1936.

H. E. JESTER

2,033,243

LOADING DEVICE

Filed Aug. 24, 1935

4 Sheets-Sheet 1

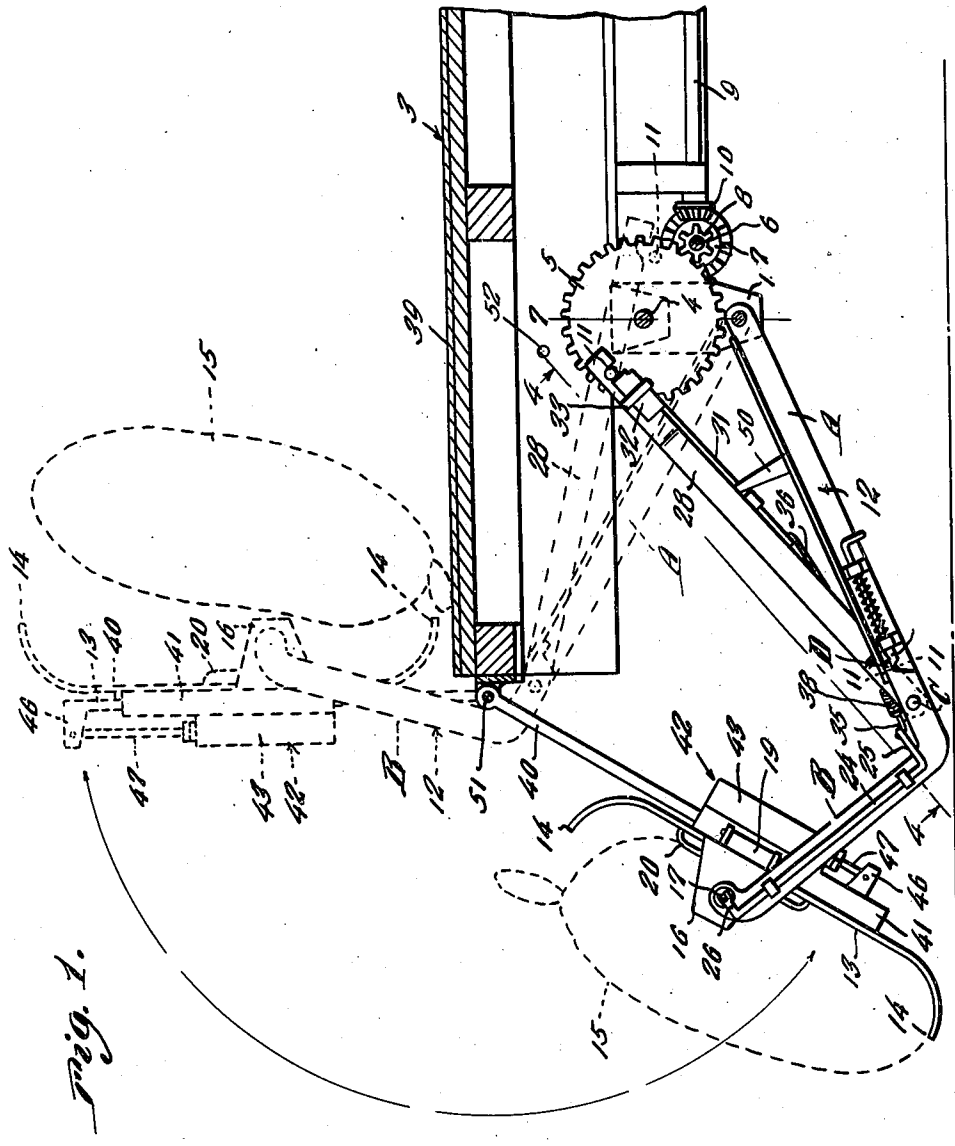


Fig. 1.

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4 Sheets-Sheet 2

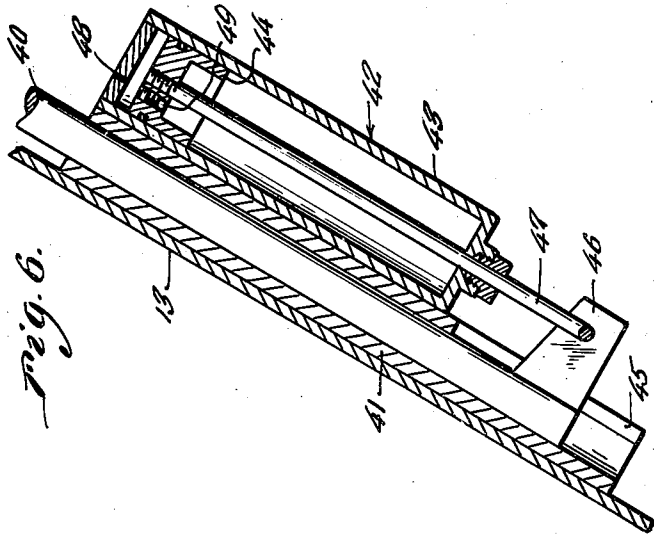


Fig. 6.

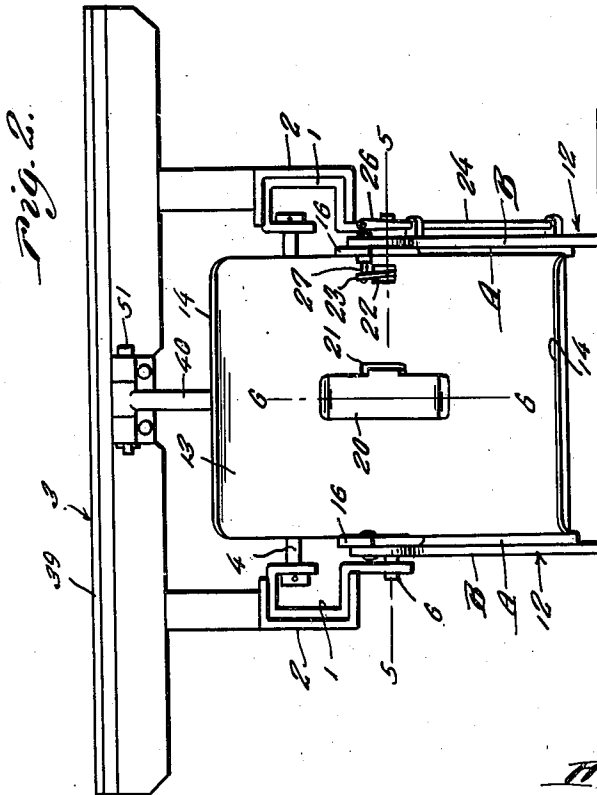


Fig. 2.

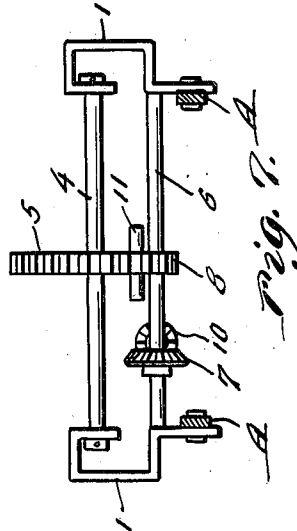


Fig. 1.

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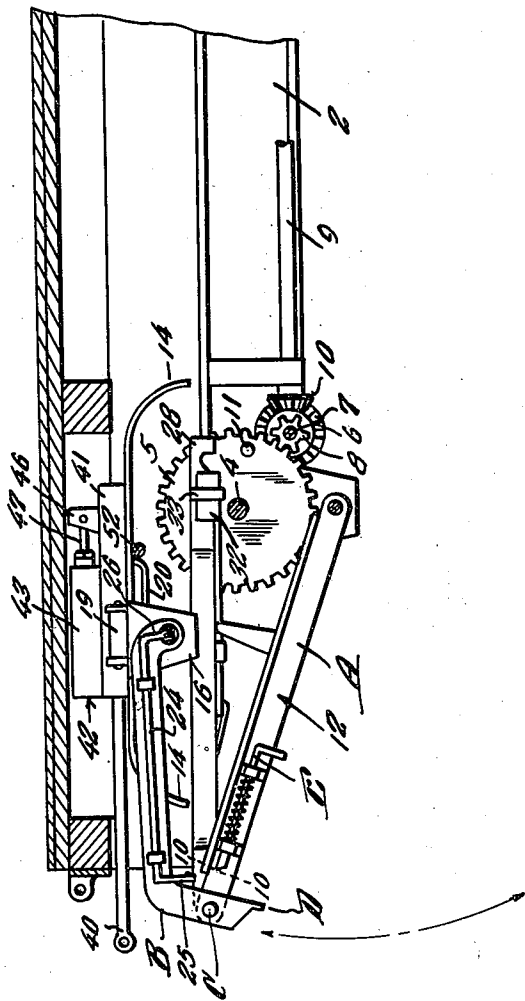
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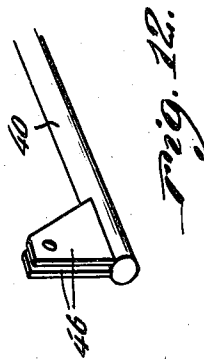
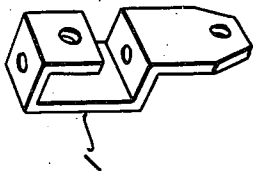
Filed Aug. 24, 1935

4 Sheets-Sheet 3

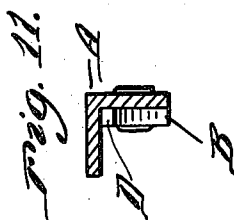
*Fig. 3.*



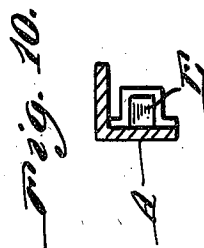
*Fig. 9.*



*Fig. 12.*



*Fig. 11.*



*Fig. 10.*

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4 Sheets-Sheet 4

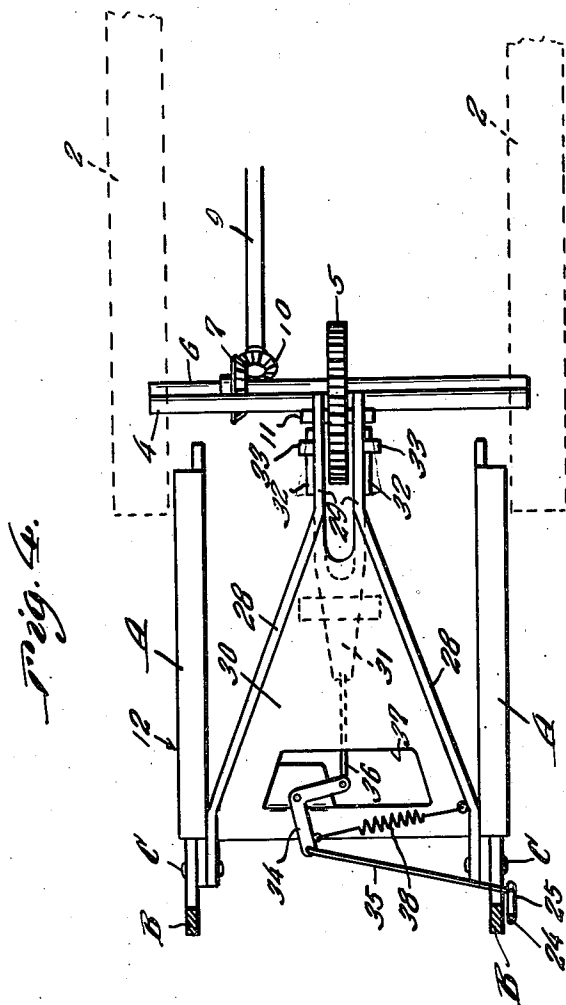


Fig. 4.

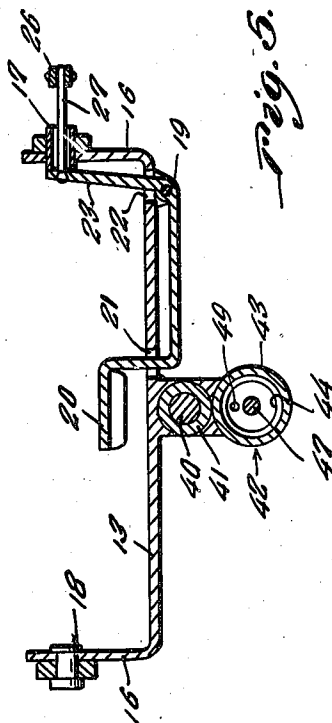


Fig. 5.

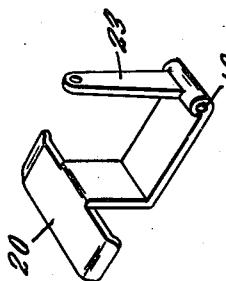


Fig. 6.

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# UNITED STATES PATENT OFFICE

2,033,243

## LOADING DEVICE

Harry E. Jester, Jennings, La.

Application August 24, 1935, Serial No. 37,731

4 Claims. (Cl. 214-77)

The present invention relates to new and useful improvements in loading devices and has for its primary object to materially facilitate and expedite the loading of highway and other vehicles with heavy material, such as bags of rice, etc.

Another important object of the invention is to provide a loading apparatus of the aforementioned character which may be permanently installed on the vehicle without the necessity of materially altering said vehicle structurally.

Still another very important object of the invention is to provide a loading device of the character described which is power driven and which includes novel means for automatically disconnecting said device from the source of power until after a load is placed thereon.

Still another very important object of the invention is to provide a loading device of the character set forth comprising novel shock absorbing means for preventing damage to the apparatus when said apparatus returns to loading position.

Another important object of the invention is to provide, in a manner as hereinafter set forth, a loading device which, when not in use, may be expeditiously folded to an out-of-the-way position beneath the body of the vehicle.

Other objects of the invention are to provide a loading device of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in operation, compact and which may be manufactured and installed at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designates corresponding parts throughout the several views, and wherein:—

Figure 1 is a view principally in side elevation of a loading device constructed in accordance with the present invention, showing said device in lowered or loading position.

Figure 2 is a view in rear elevation of the invention.

Figure 3 is a view principally in side elevation, showing the device in folded or inoperative position.

Figure 4 is a sectional view, taken substantially on the line 4-4 of Figure 1, with parts omitted.

Figure 5 is a view in transverse section, taken substantially on the line 5-5 of Figure 2.

Figure 6 is a fragmentary view in vertical longitudinal section, taken substantially on the line 6-6 of Figure 2, the treadle being omitted.

Figure 7 is a view in vertical transverse section, taken substantially on the line 7-7 of Figure 1.

Figure 8 is a detail view in perspective of the treadle.

Figure 9 is a detail view in perspective of one of the attaching brackets.

Figure 10 is a detail view in transverse section through one of the arm members, taken substantially on the line 10-10 of Figure 3.

Figure 11 is a detail view in transverse section through one of the arm members, taken substantially on the line 11-11 of Figure 1.

Figure 12 is a perspective view of an end portion of the guide rod.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a pair of duplicate brackets 1 which are rigidly secured in any suitable manner on opposite sides of the frame 2 of the vehicle, a portion only of said vehicle being shown and designated generally by the reference numeral 3. As illustrated to advantage in Figure 7 of the drawings, the brackets 1 include downturned upper and lower end portions. Extending between the upper end portions of the brackets 1 is a rotary shaft 4 on which a gear 5 is fixed. The reference numeral 6 designates a transverse shaft which is journaled in the frame 2 forwardly of the brackets 1. Fixed on the shaft 6 is a beveled gear 7 and a pinion gear 8, the latter being meshed with the gear 5. A shaft 9, from any suitable source of power, such as a power take-off from the engine of the vehicle, drives the gear 7 through a beveled gear 10. Mounted transversely in the gear 5 is a pin 11, the purpose of which will be presently set forth.

Mounted for swinging movement in a vertical plane on the lower end portions of the brackets 1 is a pair of arms which are designated generally by the reference numeral 12, said arms including inner sections A of angle iron and angular outer sections B which are pivotally connected to said sections A, as at C. The pivoted ends of the arm sections B are engageable beneath one of the legs of the angle iron sections A for limiting the swinging movement of said sections B in one direction, as shown to advantage in Figure 1 of the drawings. Further, the pivoted ends of the arm sections B have projecting longitudinally therefrom lugs D beneath which spring projected bolts E are engageable for releasably securing said sections B in unfolded or operative position, said bolts E being slidably mounted on the inner arm sections A.

Pivotally mounted between the free end portions of the outer arm sections B is a platform 13 having upturned end portions 14, said platform being adapted to receive the material to be loaded, as at 15. Rising from the side edges of the platform 13 are ears 16 in which trunnions 17 and 18 (see Figure 5) are mounted, the former being

tubular. The trunnions 17 and 18 are journaled in the free end portions of the arm sections B.

Pivotally mounted, as at 19, beneath the platform 13 is a treadle 20, said treadle extending upwardly through an opening 21 which is provided therefor in said platform 13 for engagement and actuation by the material 15. Rising from the pivoted end of the treadle 20 and operable in an opening 22 which is provided therefor in the platform 13 is an arm 23. Journaled on the adjacent arm section B is a rocker shaft 24 which terminates, at one end, in an arm 25 and at its other end in an arm 26, the latter being connected to the arm 23 by a link 27 which extends through the tubular trunnion 17.

The pivots C also constitute means for connecting a pair of forwardly converging lifting hooks 28 to the arms 12. The lifting hooks 28 comprise spaced, parallel free end portions 29 (see Figure 4) which straddle the gear 5 for engagement and actuation by the pin 11. The reference numeral 30 designates a substantially triangular plate which is mounted between the lifting hooks 28. Slidably mounted beneath the plate 30 is a fork 31 the arms of which carry guards 32 which are adapted to close the hooks 28 in a manner to prevent engagement of the pin 11 in said hooks. The guards 32 are slidable in guides 33 which are provided therefor on the end portions 29 of the hooks 28. Pivotally mounted on the plate 30 is a bell crank lever 34 which is connected, at one end, with the arm 25 through the medium of a link 35. The other end of the bell crank lever 34 is connected by a link 36 to the fork 31, said link 36 passing through an opening 37 which is provided therefor in the plate 30. A spring 38 is connected to the bell crank lever 34 for yieldingly urging the guards 32 toward operative position.

Pivotally and detachably mounted on the rear end of the bed 39 of the vehicle 3 is a guide rod 40 which is slidably engaged in a sleeve 41 which is fixed longitudinally beneath the platform 13. Mounted longitudinally on the sleeve 41 is a shock absorber which is designated generally by the reference numeral 42. Referring now to Figure 6 of the drawings, it will be seen that the shock absorber 42 comprises an air cylinder 43, in which a piston 44 is mounted for reciprocation. The outer end portion of the sleeve 41 has formed longitudinally therein a slot 45 in which ears 46, which project from the guide rod 40, are operable. A connecting rod 47 couples the piston 44 to the ears 46, said rod passing slidably through the outer end of the cylinder 43. The inner end of the cylinder 43 has formed therein a vent 48. Mounted in the piston 44 is a check valve 49 which, it will be noted, is arranged to open to permit free passage of the air when said piston is moved away from the vented end of the cylinder but which closes against the passage of air when the piston is moved toward said vented end of the cylinder. The construction and arrangement is such that the apparatus may be swung rapidly upward to dumping position, as shown in dotted lines in Figure 1 of the drawings, but said apparatus may return by gravity to loading position only as rapidly as is permitted by the air escaping through the vent 48.

In operation, with the platform 13 in loading position, as shown in full lines in Figure 1 of the drawings, the bag of rice 15 or other material is placed on said platform and the treadle 20 is depressed thereby, thus retracting the guards 32. Now, as the gear 5 rotates in a clockwise direction, the pin 11 thereon engages the lifting hooks

28 and swings the arms 12, with the platform 13 thereon, upwardly and forwardly over the bed 39 of the vehicle, during which movement the guide rod 40 rocks said platform 13 between the arm sections B. When the apparatus reaches the position shown in dotted lines in Figure 1 of the drawings, the material 15 falls by gravity therefrom onto the vehicle bed 39. Substantially at this time, the lifting hooks 28 engage the shaft 4 and said lifting hooks are disengaged thereby from the pin 11 for permitting the apparatus to return by gravity to loading position. However, as hereinbefore stated, the speed of descent to loading position is controlled and cushioned by the shock absorber 42. When the material is discharged from the platform 13, the treadle 20 is, of course, free and the spring 38 immediately shifts the guards 32 to operative position for preventing the apparatus from again being elevated until after another load is placed on said platform 13. When in loading position the lifting hooks 28 are adapted to rest on a support 50 which extends between the inner arm sections A.

To fold the apparatus to inoperative position beneath the bed 39 of the vehicle 3, as shown in Figure 3 of the drawings, the pin 51, which pivotally connects the guide rod 40 to the vehicle bed, is removed to permit the platform 13 to be swung to an inverted position. The arm sections B are then swung forwardly on the arm sections A and said sections A are swung upwardly, during which movements the platform 13 is manipulated or guided between said sections B to its proper position beneath the vehicle bed. Any suitable means, such as a removable rod 52 mounted in the vehicle, may then be employed for supporting the apparatus in folded or inoperative position.

It is believed that the many advantages of a loading device constructed in accordance with the present invention will be readily understood, and although a preferred embodiment of the apparatus is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

1. A loading device for vehicles comprising a pair of arms mounted on a vehicle for swinging movement in a vertical plane, a platform, for the reception of the material to be loaded, pivotally mounted between said arms, a sleeve mounted on said platform, a guide pivotally mounted on the vehicle and slidably engaged in said sleeve, and means connected to the arms for elevating the platform to discharging position.

2. A loading device for vehicles comprising a gear rotatably mounted on a vehicle, means for actuating the gear, a pair of arms mounted for vertical swinging movement on the vehicle, a platform, for the reception of the load, mounted between said arms, a pin mounted on the gear, and lifting hooks pivotally mounted on the arms and operatively engageable by the pin for swinging said arms to elevated position.

3. A loading device for vehicles comprising a gear rotatably mounted on a vehicle, means for actuating said gear, a pair of arms pivotally mounted for vertical swinging movement on the vehicle, a platform, for the reception of the load, mounted between the arms, a pair of lifting hooks pivotally mounted on the arms, a pin mounted in the gear and operatively engageable with said

hooks for elevating the arms, means for closing the hooks for preventing operative engagement of the pin therewith, and means mounted on the platform and operable by the load for actuating the last named means to inoperative position.

4. A loading device of the class described comprising a pair of arms pivotally mounted on a vehicle, said arms including pivotally connected inner and outer sections, means for releasably

securing said sections against relative swinging movement, a platform, for receiving and supporting the material to be loaded, pivotally mounted between the free end portions of the outer sections, means for elevating the arms, and means operatively connected to the platform for rocking said platform to discharging position when the arms are elevated. 5

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