Feb. 6, 1951 D. H. CRISE 2,540,569

HYDRAULIC LIFTING DEVICE FOR TRUCKS

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FIG. 1.

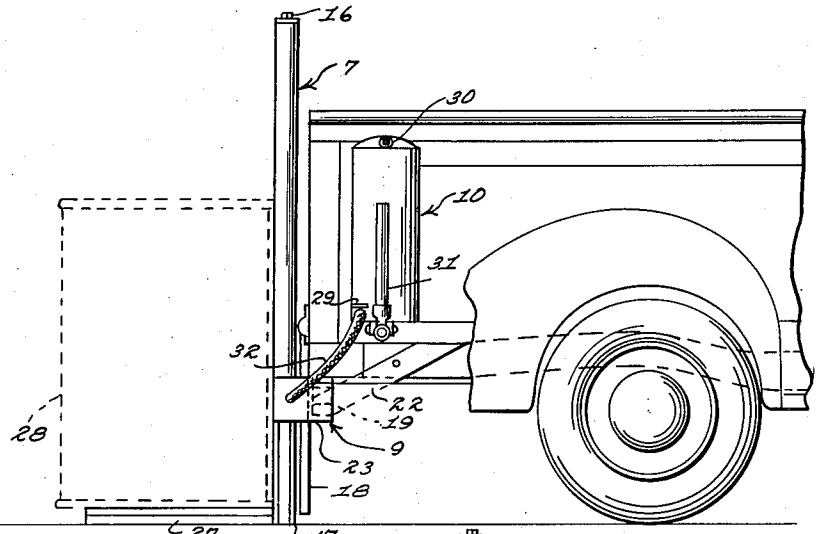
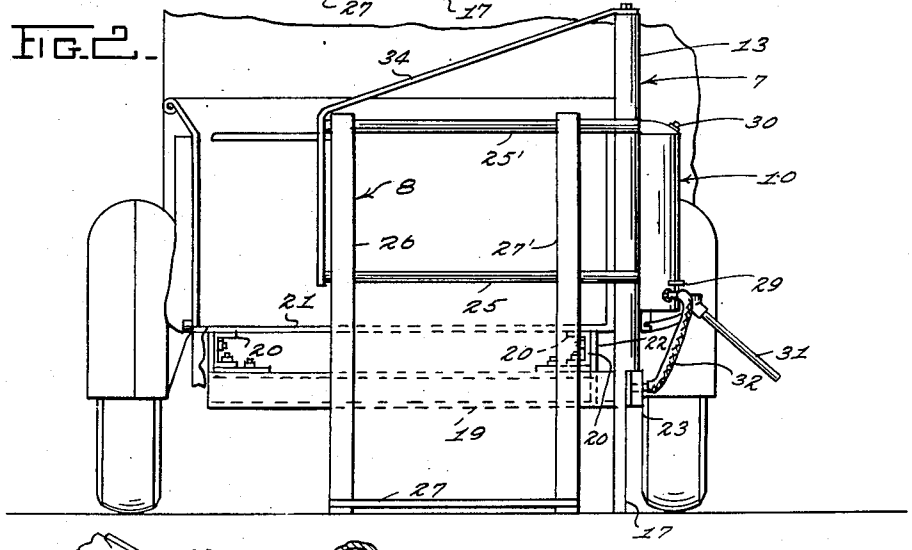


FIG. 2.



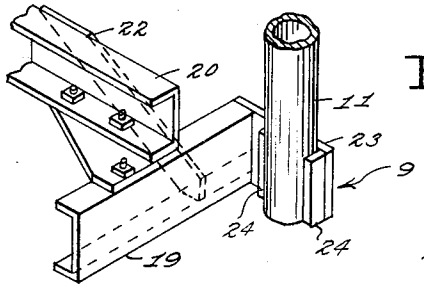


FIG. 6.

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FIG. 3.

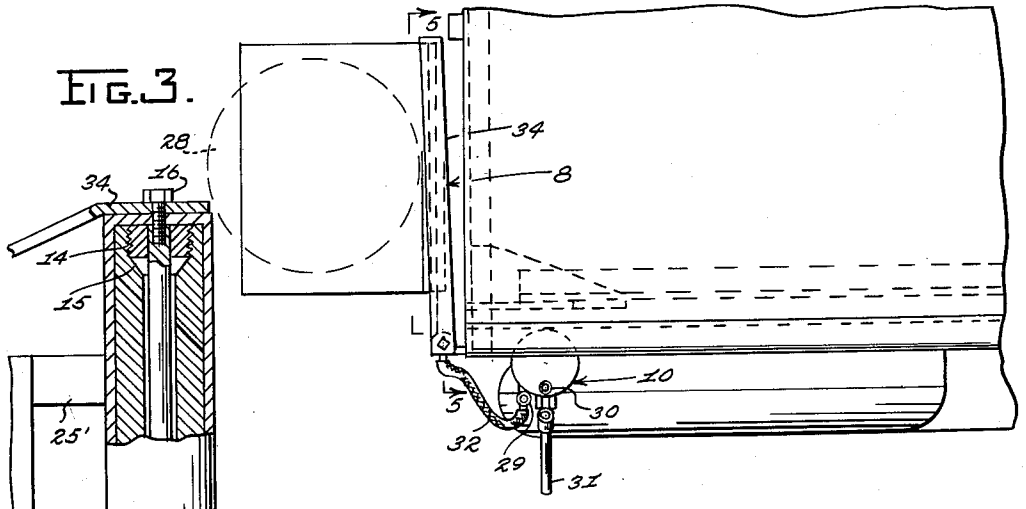

FIG. 5.

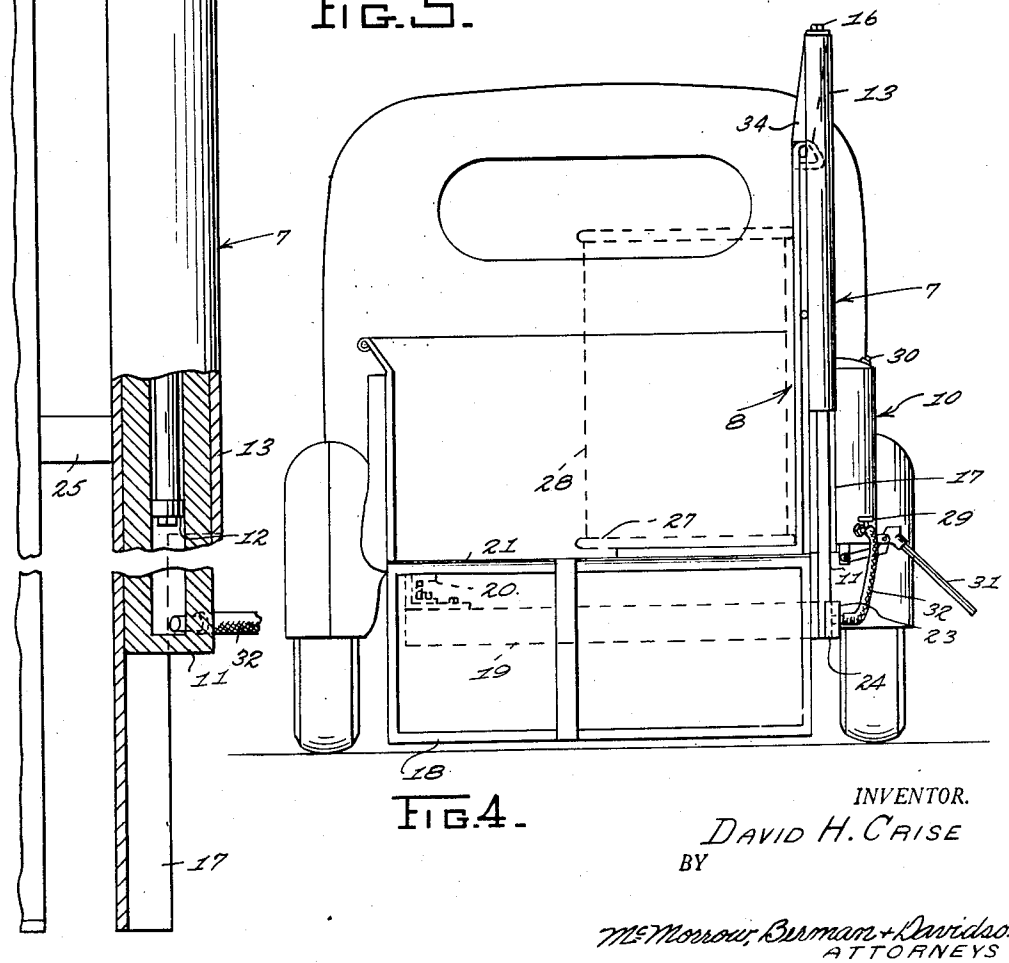

FIG. 4.

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UNITED STATES PATENT OFFICE

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HYDRAULIC LIFTING DEVICE FOR TRUCKS

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3 Claims. (Cl. 214—75)

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This invention relates to hydraulic lifting devices, and more particularly to a hydraulic lifting device adapted for use with motor vehicles.

The principal object of this invention is to provide a hydraulic lifting device for mounting on the frame of a truck adjacent the loading platform thereof, and which is efficiently and easily operated to load and unload the truck.

Another object of this invention is to provide a hydraulic lifting device which is designed to lift a piece of work from a ground level position to a level adjacent the loading platform of the truck, and then to shift the work onto the platform.

A further object of this invention is to provide a hydraulic lifting device which is simply and cheaply manufactured, and which is easily adapted to all makes of trucks and motor vehicles.

Other and further objects and advantages will become apparent from the following claims and detailed description of the drawing, forming a part of this specification, and in which drawing

Figure 1 is a side elevational view of the device of this invention, with the device mounted on the rear of a conventional pick-up truck and illustrating a piece of work located on the device in its ground level loading position.

Figure 2 is a rear view of the device shown in Figure 1.

Figure 3 is a top plan view of the device shown in Figure 1.

Figure 4 is a rear elevational view of the device in its truck platform loading position.

Figure 5 is an elevational view in partial cross-section of the hydraulic lifting means forming a part of this invention.

Figure 6 is a fragmentary perspective view of the bracket means used to mount the lifting device on the frame of a truck.

In the drawing wherein like reference numerals refer to identical parts, the lifting device of this invention comprises a hydraulic lifting means 7 adapted to be supported on the frame of a conventional "pick-up" truck adjacent the loading platform thereof, a work supporting means 8 carried by the hydraulic lifting means, a bracket assembly 9 to mount the device to the truck frame, and a standard hydraulic pump 10 operatively connected to the lifting means to provide the device with pressure necessary for its operation.

The hydraulic lifting means 7, as shown clearly in Figure 5, includes a vertically mounted hydraulic cylinder 11, a piston 12 slidably mounted in the cylinder, and a tubular member 13 circumposing the hydraulic cylinder. The hydraulic cylinder 11 is preferably of a sturdy tubular con-

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struction with one end closed and the opposite end threaded to receive a bushing 14. The bushing 14 together with the packing 15 form a suitable packing gland through which the piston 12 may freely reciprocate. The upper end of the piston 12 is secured to the tubular member 13 by means of a bolt 16. The tubular member 13 is movable with the piston 13 and is slidable vertically and freely rotatable about the outer surface of the hydraulic cylinder 11, the cylinder 11 being fixedly mounted to the frame of the truck, in a manner to be subsequently described. The tubular member 13 is split axially at its lower end 17 for a purpose to be later disclosed.

The lifting means 7 is preferably mounted on the frame of the truck adjacent its tailgate 18, but free of the pivotal movement of the latter. A bracket assembly 9, as shown in Figs. 1 and 6, is preferably used to support the lifting means 7. The assembly 9 includes a transverse channel member 19, which is suitably bolted or welded to the ends of the longitudinal channels 20 located beneath the loading platform 21 of the truck. The transverse channel member 19 may be braced by a member 22, and is provided with a projecting bracket 23 secured to its one end. The projecting bracket 23 is provided with a pair of embracing arms 24 in which the lower end of the hydraulic cylinder 11 is secured as by welding.

The work supporting means 8, carried by the tubular member 13 of the hydraulic lifting means 7, comprises a pair of transverse bars 25, 25 attached at their one end to the tubular member 13 and arranged in spaced parallel relationship. A pair of vertical bars 26, 26' are pivotally attached at their upper ends to the upper transverse bar 25' and are arranged in spaced parallel relation. A horizontal platform 27 is secured to the lower ends of the vertical bars 26, 26' and is suitable for supporting a piece of work, such as a drum 28. A brace 34 connects the ends of the bars 25, 25' to the top of the tubular member 13, to thereby provide a firm structure. The work supporting means 8, when loaded, is self-leveling due to the pivotal connection of the vertical bars 26, 26' with the transverse bar 25'.

A suitable hydraulic hand pump 10 is mounted on the side of the vehicle, and is capable of providing the lifting means 7 with sufficient pressure to permit the efficient operation of the latter. The pump 10 is equipped with a control valve 29, an air-relief valve 30, and a handle 31. A hose 32 connects the control valve 29 with the hydraulic cylinder 11. The projecting bracket 23 is suitably apertured to permit the introduction

of the hose therethrough and its connection to the adjacent surface of the hydraulic cylinder 11. The tubular member 13 is free to reciprocate without interference with either hose 32 or the bracket assembly 9 due to the split lower end 17 of the former.

In operation, the device is placed in its ground level loading position, as shown in Figs. 1 and 2. In this position the work supporting means 8 is locked against rotation due to the split lower end 17 of the tubular member 3 being in abutting relationship with the embracing arms 24. After a piece of work, such as a drum, has been loaded in the platform 27, the hand pump handle 31 is operated with valve 29 closed to provide the hydraulic cylinder 11 with adequate pressure to lift the work to a truck platform unloading position, as shown in Fig. 4. The work supporting means 8, which is carried on the tubular member 13, may be then manually rotated into the truck, as indicated by the arrow in Fig. 3. The reverse operation is utilized to unload the truck.

It is to be understood that the embodiment of the invention, described, and shown in the drawing, is used illustratively only, and does not necessarily define the scope of the invention which is expressed in the claims of this specification.

What I claim is:

1. In a lifting device for mounting on the frame of a truck adjacent the loading platform thereof, a vertical hydraulic cylinder, fixedly carried by said frame adjacent said platform, a piston slidably mounted within said cylinder, a tubular member circumposing said hydraulic cylinder and operatively secured to said piston, said tubular member being mounted for slidable vertical and rotational movement relative to said hydraulic cylinder, work supporting means carried by said tubular member and adapted for movement with the latter to assume ground level loading and truck platform loading positions, and hydraulic pressure means operatively connected to said hydraulic cylinder.

2. In a lifting device for mounting on the frame of a truck adjacent the loading platform thereof, a vertical hydraulic cylinder, fixedly carried by said frame adjacent said platform, a piston slidably mounted within said cylinder, a tubular member circumposing said hydraulic cylinder and operatively secured to said piston, said tubular member being mounted for slidable vertical and rotational movement relative to said hydraulic cylinder, work supporting means carried by said tubular member and adapted for movement with the latter to assume ground level loading and truck platform loading positions, said work supporting means including a pair of transverse bars attached at their one end to said tubular member and arranged in spaced parallel relation, a pair of vertical bars pivotally attached at their upper ends to the upper transverse bar and arranged in spaced parallel relation, a horizontal platform member secured to the lower ends of said vertical bars, said work supporting means being rotatable with said tubular member so that said platform member may be positioned within said truck when said work supporting means is in a truck platform loading position, and hydraulic pressure means operatively connected to said hydraulic cylinder.

3. In a lifting device for mounting on the frame of a truck adjacent the loading platform thereof, a vertical hydraulic cylinder, fixedly carried by said frame adjacent said platform, a piston slidably mounted within said cylinder, a tubular member circumposing said hydraulic cylinder and operatively secured to said piston, said tubular member being mounted for slidable vertical and rotational movement relative to said hydraulic cylinder, work supporting means carried by said tubular member and adapted for movement with the latter to assume ground level loading and truck platform loading positions, said work supporting means including a pair of transverse bars attached at their one end to said tubular member and arranged in spaced parallel relation, a pair of vertical bars pivotally attached at their upper ends to the upper transverse bar and arranged in spaced parallel relation, a horizontal platform member secured to the lower ends of said vertical bars, said work supporting means being rotatable with said tubular member so that said platform member may be positioned within said truck when said work supporting means is in a truck platform loading position, hydraulic pressure means operatively connected to said hydraulic cylinder, and means secured to said frame adjacent the rear of said truck for supporting said device, said last mentioned means comprising a transverse channel member secured to the longitudinal channels of said truck frame beneath said loading platform, a projecting bracket secured to one end of said transverse channel and extending rearwardly of said truck, said hydraulic cylinder member being fixedly secured to said bracket.

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