

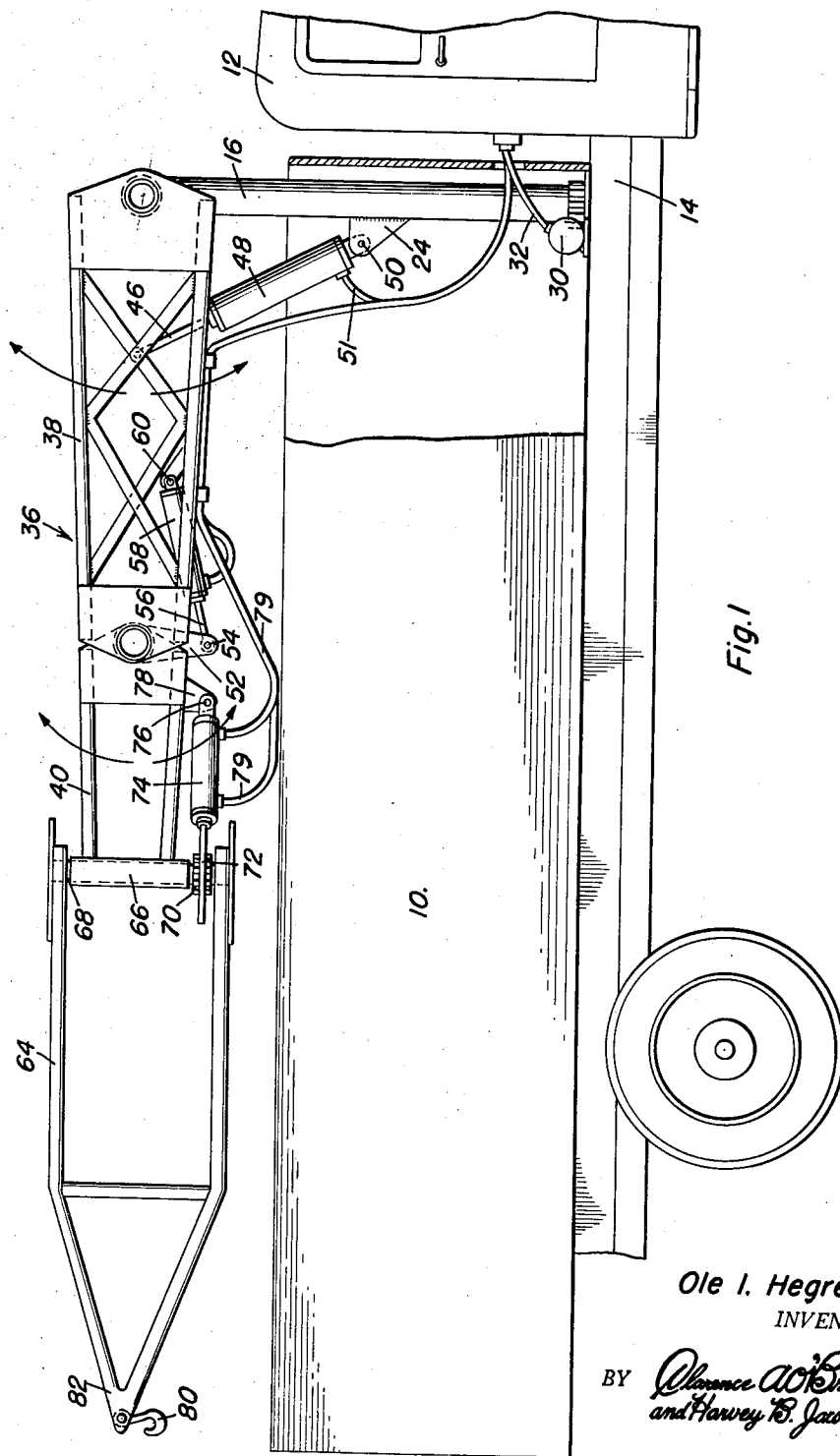
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O. I. HEGRE
HYDRAULIC HOIST

2,599,991

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2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

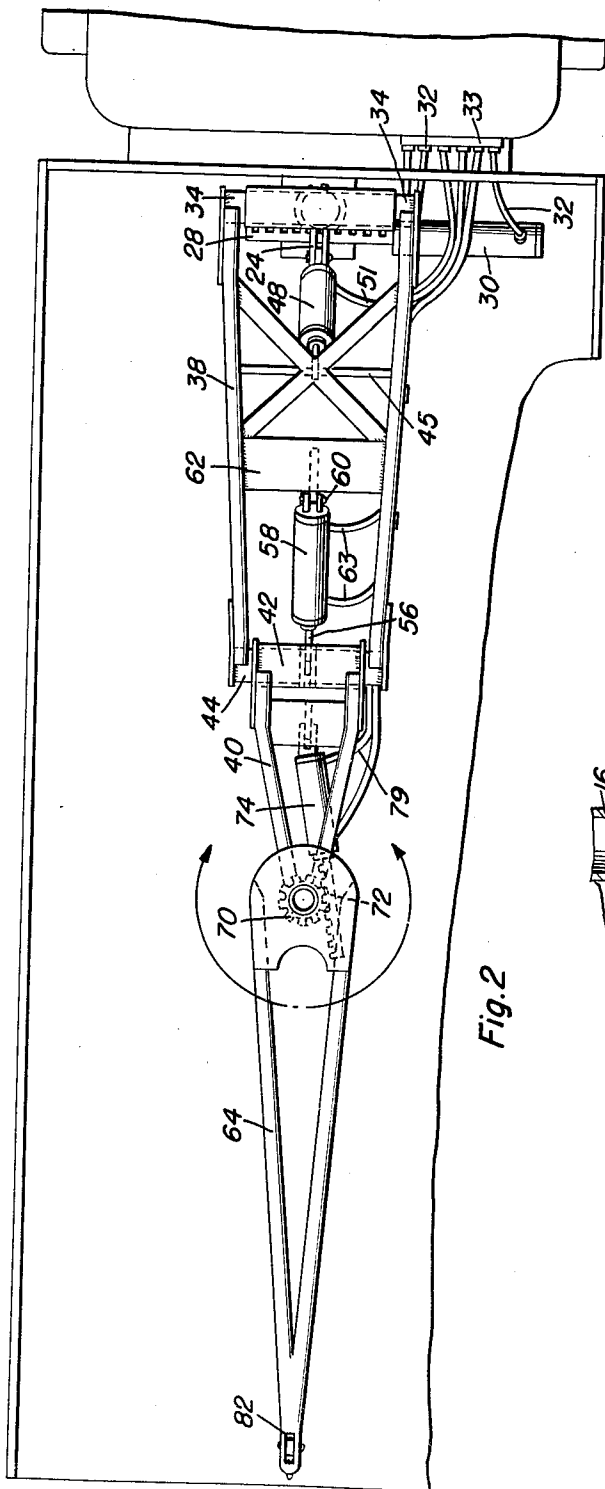


Fig. 2

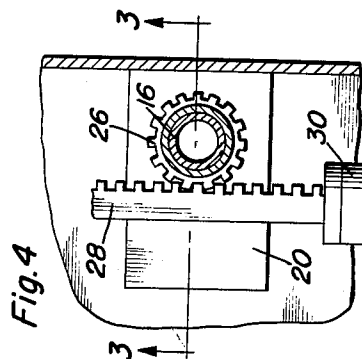


Fig. 4

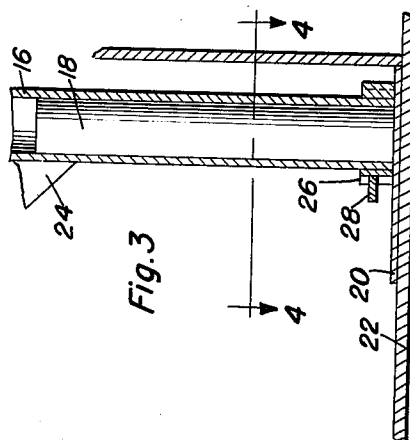


Fig. 3

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HYDRAULIC HOIST

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2 Claims. (Cl. 212—54)

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This invention comprises novel and useful improvements in a hydraulic hoist and most specifically pertains to a hoisting device applicable to the bodies of trucks and adapted to be operated from a power take-off of a truck, which shall be capable of reaching all portions within the interior of the truck body for depositing or handling loads therein.

The principal object of this invention is to provide a truck hoist capable of reaching all portions of the body of a truck and adjacent the standard or mast of the hoist, for effectively depositing or handling loads therein.

A still further object of the invention is to provide a simplified construction of truck hoists which shall be capable of a number of pivoting movements about angularly inclined axes of rotation.

A further object of the invention is to provide an improved truck hoist consisting of a number of pivoted members, the pivoted joints of these members being capable of actuation by hydraulic actuating means independently of each other.

These, together with various ancillary features and objects of the invention, which will later become apparent as the following description proceeds, are attained by the present invention, a preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings, wherein:

Figure 1 is a side elevational view of a portion of a truck having the improved hoist in accordance with the principles of this invention applied thereto, part of the truck being broken away;

Figure 2 is a top plan view of the construction shown in Figure 1;

Figure 3 is a fragmentary detail view, taken chiefly in vertical section, showing the construction of the standard of the hoist, this view being taken substantially from the plane indicated by the section line 3—3 of Figure 4; and,

Figure 4 is a horizontal sectional view taken substantially from the plane indicated by the section line 4—4 of Figure 3.

Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, it will be seen there is indicated a conventional form of truck, having a truck body 10, a truck cab 12, and the body further including a frame construction or chassis including the longitudinally extending frame members 14.

The body 10 as illustrated is of any conventional design and consists of an open truck body. The novel power operated truck hoist forming the subject of this invention consists of a vertical, rotatable standard 16 which supports the rest of the hoist assembly.

As will be better apparent from Figure 3, the standard 16 consists of a hollow, tubular sleeve-

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like member which embraces and is rotatably received upon at arbor 18 in the form of a shaft or the like whose lower end is secured to a bed plate 20 fixedly secured to the bottom wall 22 of the truck body 10. It will be understood that the arrangement is such that the arbor 18 is preferably stationary and rigid with respect to the truck body, and rotatably supports the tubular standard 16.

Obviously, the arbor 18 may be of any desired height to impart the necessary strength and rigidity to the standard 16, and preferably extends upwardly within the standard at least as far as a laterally extending support and mounting bracket 24 carried at the side of the standard.

As more clearly shown in Figure 4, a picket ear 26 of any desired construction is secured in any desired manner to the exterior surface of the standard 16 adjacent the lower end of the same, and constitutes the means whereby the standard may be rotated. The rotation of the standard is controlled and effected by a rack bar 28 which is constantly enmeshed with the gear 26, this rack bar being operatively connected to the piston portion, not shown, of the hydraulic actuating cylinder and piston assembly indicated generally by the numeral 30 of any conventional design, the hydraulic cylinder assembly and consequently the rack bar 28 being controllably reciprocated by means of fluid pressure supplied from the power take-off of the truck, not shown, through the agency of fluid pressure conduits 32 which are operatively connected to a master valve member generally designated by the reference character 33, and which upon operation admits fluid to opposite ends of the cylinder 30 as desired.

It will thus be apparent that by manipulating the controls of the valve member 33, that the rack bar 28 can be reciprocated in either direction, thereby selectively rotating the standard 16 and the hydraulic hoist assembly attached thereto. Thus, a horizontal swinging movement is imparted to the hydraulic hoist assembly about the vertical axis of the standard 16.

At its upper extremity, the standard 16 is provided with a pair of horizontally disposed arms 34 which extend from opposite sides of the standard and if desired may be integrally formed therewith. These arms constitute a horizontal pivot for journalling a boom indicated generally by the numeral 36, whereby the latter is mounted for movement in a vertical plane about the horizontal axis of the arms 34.

The boom 36 consists of a pair of sections of any desired construction, including a rear section 38 which is hinged to the transverse arms 34 of the standard as above pointed out, and a front section 40 which is pivotally fastened to the rear section 38 by means of a drum or sleeve 42 which

is rotatively received upon an axle 44 positioned near the outer end of section 38 and extending transversely thereof. Thus, the section 40 is hingedly connected to the section 38 for relative pivoting movement with respect thereto and upon an axis transversely thereto.

Referring again to the rear boom section 38, it will be seen that the latter is provided with a transversely disposed rod 45 to which is pivotally connected one end of a piston rod 46 having a piston not shown but reciprocable within a hydraulic cylinder 48, the lower end of which is pivotally connected as at 50 to the above mentioned supporting bracket 24. By means of the fluid pressure conduit 51, suitably connected to the cylinder 48 and control valve member 33 previously referred to, the piston in hydraulic cylinder 48 is actuated thereby causing the above mentioned pivoting movement of the boom 36.

The relative pivoting movement of the section 40 upon the section 38 is effected through the agency of a piston operated depending lever 52 which is connected to the sleeve 42, the same being pivotally connected at 54 to a piston rod 56 forming a part of the hydraulic piston and cylinder actuating assembly 58 which is of conventional design. The hydraulic cylinder assembly 58 in turn is pivotally connected as at 60 to a transversely extending support member 62 carried by the boom section 38. The piston of the cylinder 58 which is connected to rod 56 is in turn operated by hydraulic fluid admitted there- to through conduits 63.

At its outer end the section 40 is in turn provided with means for pivotally mounting an arm 64. This means consists of a vertically disposed bushing or sleeve 66 mounted on the outer end of the section 40. The arm 64 is provided with a vertically extending axle or pivot pin 68 at its inward end which is carried by and journaled rotatively within the sleeve 66 for the horizontal swinging of the arm 64 about the vertical axis of the sleeve as illustrated by the arrows in Figure 2.

This horizontal swinging movement is effected through the agency of a picket 70 fixedly secured to the depending lower end of the axle 68. Picket 70 is engaged by a rack bar 72 upwardly connected with and forming a part of a hydraulic piston and cylinder means 74, which is pivotally attached at its opposite end as at 76, to a supporting bracket 78 carried by the boom section 40. Hydraulic fluid pressure for operating the cylinder 74 is supplied through conduits 79 which are connected to the opposite ends of the cylinder assembly 74, to thus control the operation of the rack bar and consequently to effect the horizontal switch movement of the arms 64.

It will of course be understood that conventional control valve assembly 33 may be of conventional type and suitably operated to selectively control the application of the fluid pressure through the various conduits which communicate with the respective hydraulic cylinder piston actuating means for bringing about the desired pivotal movement of the interconnected sections of the hoist.

As will be apparent the arm member 64, which preferably is provided with a hook or similar member 80 positioned on the outer end portion 82 to assist in handling loads, may be rotated horizontally about its pivot support 68 and in conjunction with the other pivotal movements of

the articulated boom sections enable the operator to position the hook 80 at any desired place within the body of the truck 10, and thereby greatly facilitates the loading or unloading of the truck.

This is especially advantageous when it is desired to load, unload, or sort-out heavy articles or goods placed in the truck for transportation and delivery.

The operation of the truck hoisting mechanism will be readily understood from the above description and further explanation is deemed unnecessary.

Inasmuch as numerous modifications of the invention will readily occur to those skilled in this art after a consideration of the foregoing specification and accompanying drawings, it is not desired to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to falling within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A truck hoist comprising a vertical standard, means for rotating said standard about its vertical axis, a boom pivoted upon said standard for rotation independently of said standard, means for rotating said boom, an arm pivoted to said boom for rotation about a vertical axis, and means for rotating said arm independently of said boom, said boom comprising a pair of sections, means hinging said sections to each other for relative rotation about an axis transverse said boom, means for causing relative rotation of said sections, said last means comprising a lever secured to one section, a hydraulic actuating means secured to the other section and operatively connected to said lever.

2. A truck hoist comprising a vertical standard, means for rotating said standard about its vertical axis, a boom pivoted upon said standard for rotation independently of said standard, means for rotating said boom, an arm pivoted to said boom for rotation about a vertical axis, and means for rotating said arm independently of said boom, said boom comprising a pair of sections, means hinging said sections to each other for relative rotation about an axis transverse to said boom, means for causing relative rotation of said sections, said last means comprising a lever secured to one section, a hydraulic actuating means secured to the other section and operatively connected to said lever, said means for rotating said arm comprising a pinion secured to said arm, a hydraulic actuating means on said boom, a rack operatively connecting said pinion and hydraulic means.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
360,578	Francis	Apr. 5, 1887
1,023,438	Muncaster	Apr. 16, 1912
2,374,045	Soucia	Apr. 17, 1945
2,397,271	Ladwig	Mar. 26, 1946
2,461,401	Trombley	Feb. 8, 1949
2,539,169	Spann	Jan. 23, 1951