Nov. 9, 1926. 1,606,412

C. A. GRAHAM

HOIST

Filed Oct. 21, 1921 2 Sheets-Sheet 1

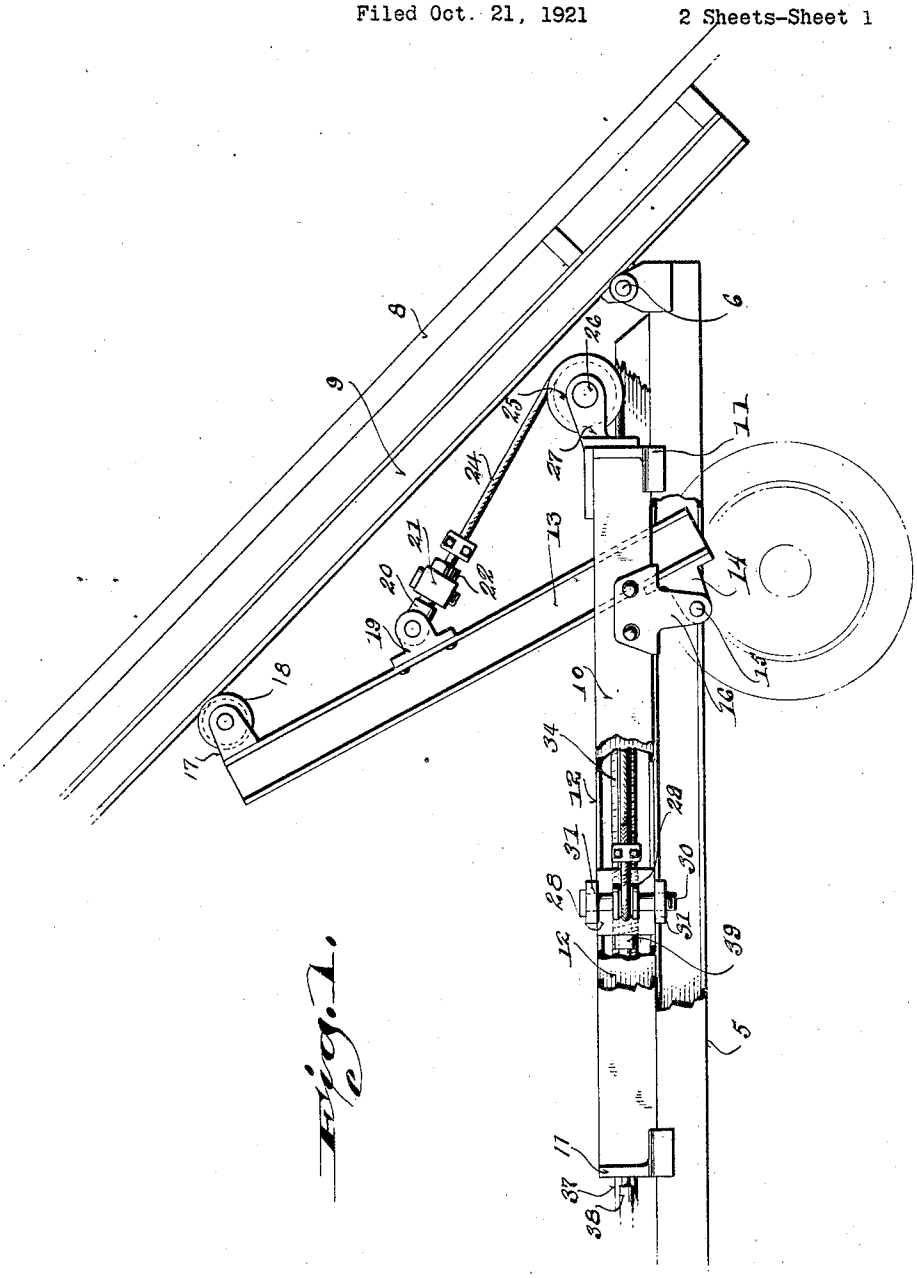


Fig. 1.

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Fig. 2.

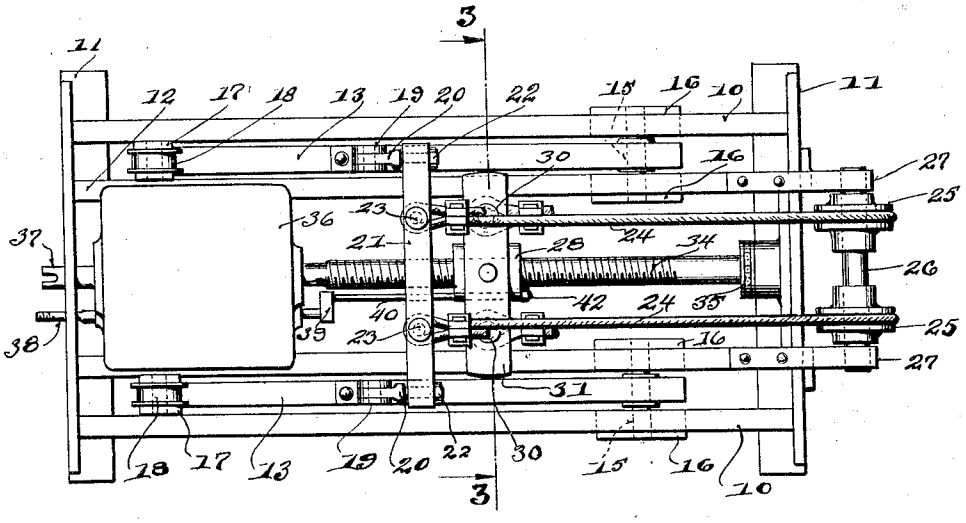
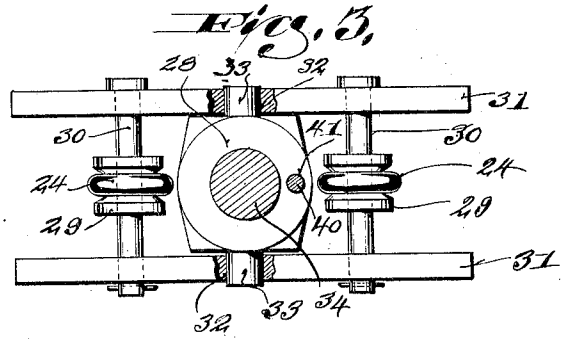


Fig. 3.



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UNITED STATES PATENT OFFICE.

CLAUDE A. GRAHAM, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO PERFECTION HOIST & ENGINE CO., OF TWO RIVERS, WISCONSIN, A CORPORATION OF WISCONSIN.

HOIST.

Application filed October 21, 1921. Serial No. 509,255.

This invention relates to certain new and useful improvements in hoists and refers more particularly to a hoist designed for use in connection with automotive trucks.

It is one of the objects of this invention to provide a hoist unit so designed and constructed as to permit its application to any type of automotive truck without necessitating alteration thereof.

This invention has for another of its objects to provide a hoist equipped with equalizing means whereby unequal stress in raising or lowering a truck, tiltable load receiving body is eliminated.

A further object of this invention is to provide a member mounted for sliding movement and carrying a pivoted bar to which hoisting cables are connected, the bar functioning as an equalizing device and as means to prevent rotation of the block member.

It is a still further object of this invention to provide a hoist which is applicable to trucks of all sizes, which combines the desirable features of the hydraulic type hoist with those of the mechanical type, and which is capable of production and sale either as an independent unit or as a part of a truck.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claim, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claim.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of an automotive truck equipped with my improved invention, parts thereof being broken away to more clearly illustrate details of construction;

Figure 2 is a top plan view of my improved hoist unit, same being illustrated as detached from the truck, and

Figure 3 is an enlarged detailed view of the cable operating member and equalizer carried thereby, said view being taken on the plane of line 3—3 of Figure 2.

Referring now more particularly to the accompanying drawings in which like numerals designate like parts throughout the several views, the numeral 5 designates the chassis frame of an automotive truck to which is pivotally mounted as at 6 a load receiving body 8, the bottom of the load receiving body being provided with two spaced parallel rails or brace beams 9 extending lengthwise thereof.

My improved unit may be said to broadly consist of two outer side beams 10 connected at their ends by end cross beams 11. Secured in, and forming a part of, the unit frame are two inner side beams 12, one adjacent each outside beam 10 to provide two spaces in which normally nest two hoist levers 13, each hoist lever having its outer end provided with a depending bracket arm 14 through which passes a pivot rod 15 having its end secured in bracket members 16 carried by the adjacent beams 10 and 12.

The inner end of each lever 13 has an upstanding bearing bracket 17 secured thereto between which is journaled a grooved roller 18 for engagement with the adjacent body carried rail or beam 9. Secured to the upper face of each lever 13 at a desired intermediate point according to the leverage necessary, is a bracket member 19 to which is pivotally secured a link member 20 having its outer end adjustably secured to the adjacent end of a bar 21 by a lock nut 22.

As clearly shown in Figure 2, the bar 21 connects levers 13, and secured at their ends to the equalizing bar, one to each side of the center thereof as at 23, are two hoisting cables 24 which extend rearwardly around guide sheaves 25, carried by a shaft 26 mounted in bracket members 27 secured to the rear end of the unit frame, and then extending forwardly through openings in the rear transverse beam 11 to be connected with a block member 28 by means of an equalizing device now about to be described.

The cables 24 have their ends connected with the block 28 secured to spools 29 formed on pin members 30 which connect two equalizing bars 31 having their centers axially apertured as at 32 for pivotal engagement with pins 33 extended from opposite sides of the block member. The block

member 28 is preferably in the form of a large nut and is threaded on a screw shaft 34, one end of which is journaled in a self-aligning bearing 35, of any desired construction, secured to the outer end beam 11 and the other end of which is terminated and journaled in a transmission housing 36.

The forward end of shaft 34 is connected, through a transmission device (not shown), with a shaft 37 connected by means (not shown) with the truck power plant (not shown), the transmission device being actuated from some convenient point by a control rod 38 to render shaft 34 inoperative or to cause the same to be rotated in any direction. Control rod 38 extends rearwardly and is provided with a stop 39 from which leads a rod 40 slidably mounted in an aperture 41 in block member 28, the outer end of said rod being provided with an adjustable stop 42 preferably in the form of a nut.

With this construction it will be obvious that, when block member 28 reaches its outer limit of movement with the body 8 in normal position, nut 42 will be engaged thereby to shift rod 38 and render shaft 34 inactive and, when the block member reaches its inner limit of movement with the body in full dumping or tilting position, nut 38 will engage stop 39 and render shaft 34 inactive.

From the foregoing description taken in connection with the accompanying drawings, it will be readily obvious to those skilled in the art to which an invention of this character appertains that with the parts in their positions illustrated in Figure 2, a sliding of rod 38 to the right by the operator through the medium of a suitable control (not shown) the transmssion device 36 will be rendered operative to rotate shaft 34 in a clockwise direction with reference to Figure 3 when nut 28 is caused to move inwardly lengthening the lower run of the cables consequently shortening the upper run and raising levers 13 to tilt body 8.

In the event the operator neglects to shift rod 38 to its neutral position when the body reaches full tilting position, the inner end of member 28 will strike stop 39 to shift rod 38 and consequently render shaft 34 inoperative. The body is held in its dumping position by reason of the screw thread connection between shaft 34 and member 28.

When it is desired to lower body 8, lever 38 is shifted to the left, with reference to Figure 1, and shaft 34 connected with the truck power plant (not shown) through the transmission and shaft 37 and rotated in a counter-clockwise direction with reference to Figure 3, moving member 28 rearwardly and permitting the body to return to its normal position. Should the operator fail to render the drive inoperative when the body reaches normal position, the outer end of member 28 will strike stop 42 shifting rod 38 to neutral position, as will be readily obvious. Block member 28 is restrained from rotary movement by the equalizing device formed of bars 31, the ends of which extend over the longitudinal beams 12, as clearly illustrated in Figure 2.

In the event of the stress on the body being unequal the same will be readily compensated for by equalizing devices formed by bars 21 and 31 which insure an even pull on levers 13 at all times and permit their giving to accommodate for any torque.

What I claim as my invention is:

A hoist, comprising a pair of levers pivotally mounted at their inner ends, a transverse bar, link means pivotally connecting the bar with the levers outwardly of their pivots, and a strain cable connected with the transverse bar.

In testimony whereof, I affix my signature.

CLAUDE A. GRAHAM.