H. F. RIOPELLE.

HOIST FOR MOTOR VEHICLES.

APPLICATION FILED AUG. 24, 1917.

1,275,751.

Patented Aug. 13, 1918.

3 SHEETS—SHEET 1.

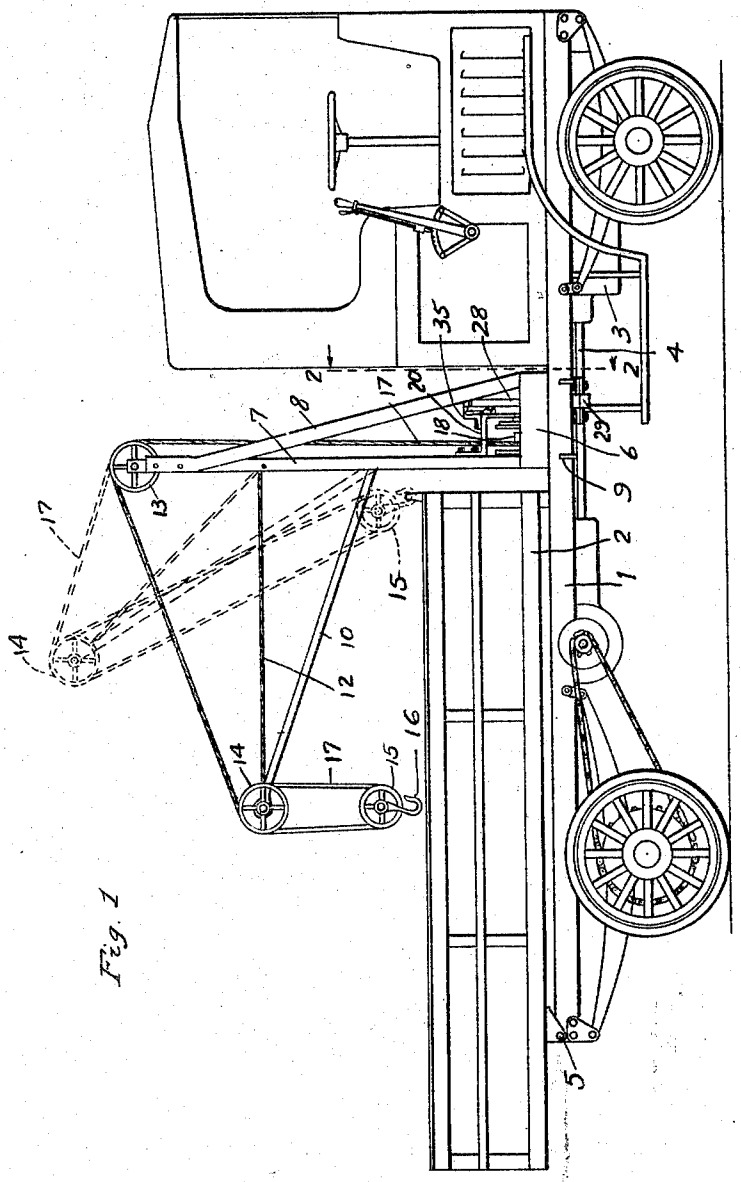


Fig. 1

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Witnesses

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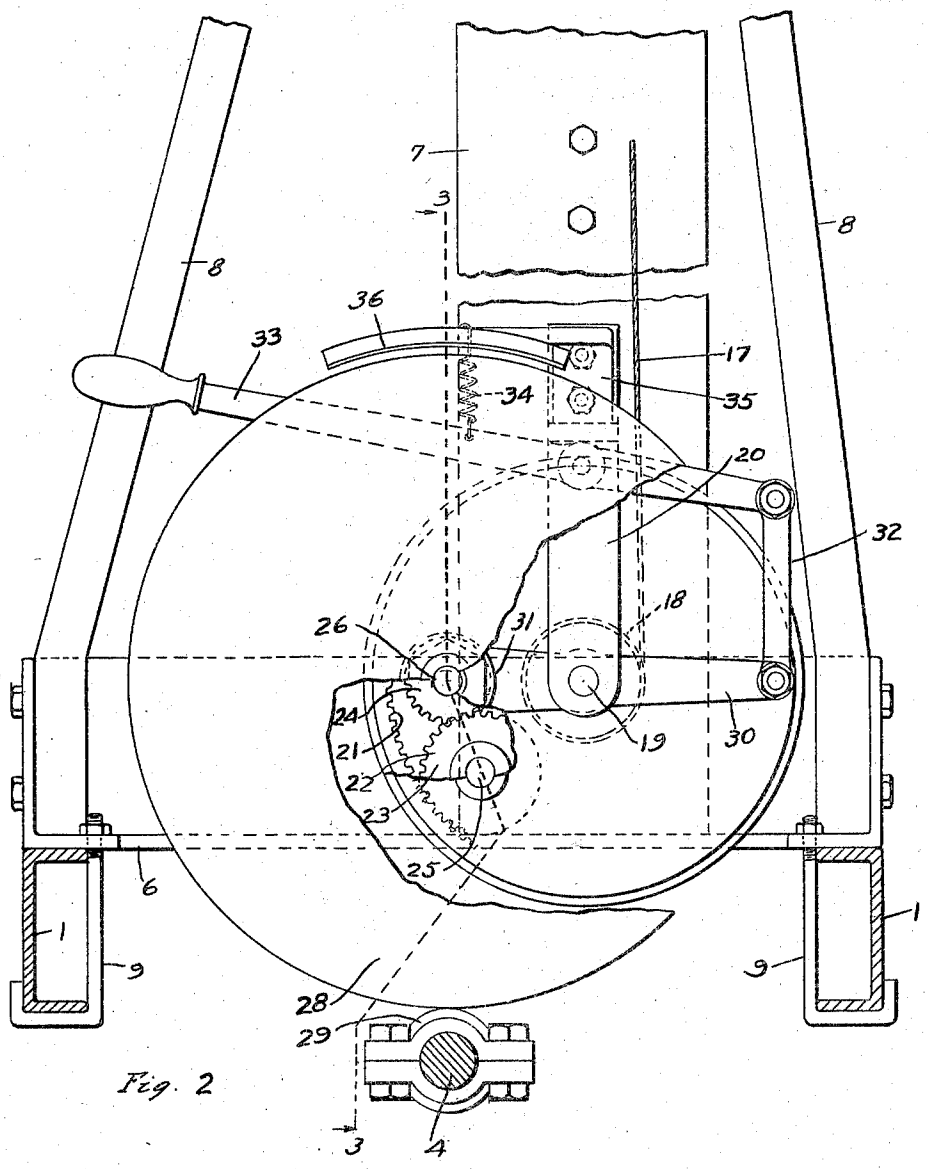


Fig. 2

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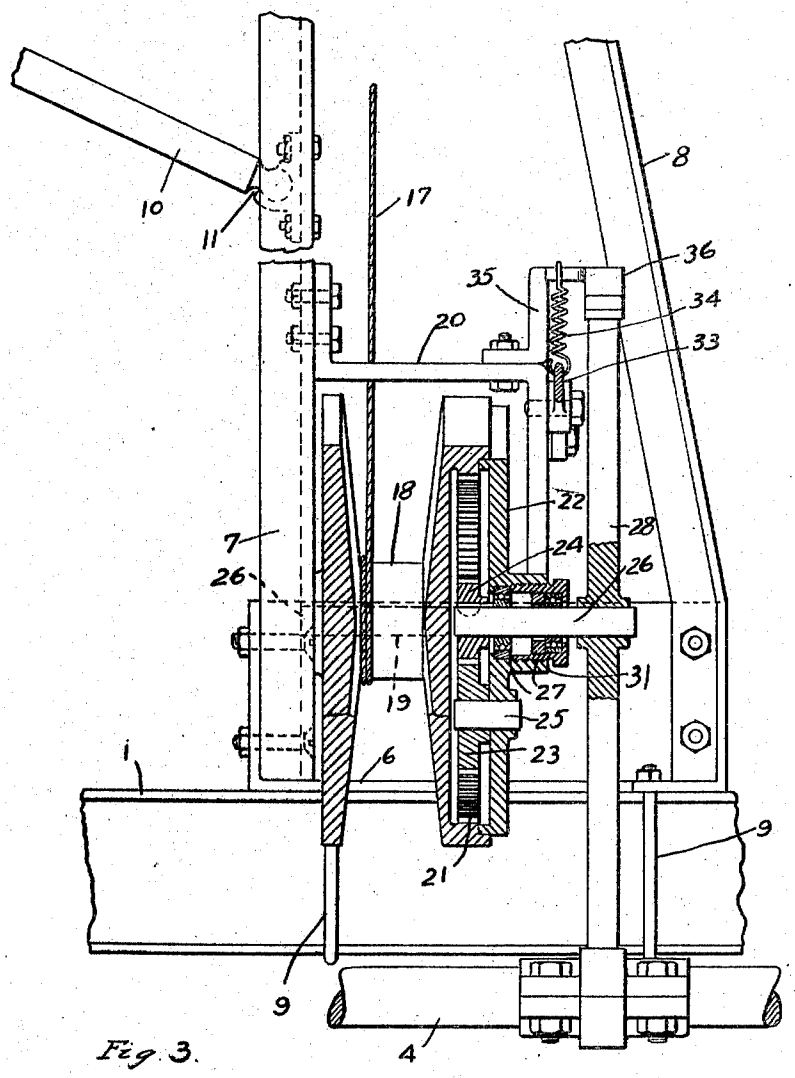


Fig. 3.

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UNITED STATES PATENT OFFICE.

HARRY F. RIOPELLE, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO ANTOINETTE T. SANSCRAINTE, OF ECORSE, MICHIGAN.

HOIST FOR MOTOR-VEHICLES.

1,275,751. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed August 24, 1917. Serial No. 187,974.

To all whom it may concern:

Be it known that I, HARRY F. RIOPELLE, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Hoist for Motor-Vehicles, of which the following is a specification.

This invention relates to derricks or hoisting mechanism for motor trucks, such as is employed to load or unload heavy articles or to tilt the platform or bed of the truck to or from a dumping position.

It is the object of the invention to provide a hoist mechanism particularly adapted to be quickly and detachably mounted for use upon a motor truck of any standard construction and actuable by the motor of such a truck.

Another object is to provide a hoist mechanism for a motor vehicle adapted to be driven by the motor of the vehicle through a pair of friction wheels normally out of driving engagement but adapted to be shifted into contact, and to automatically maintain the frictional intensity of such driving contact proportional to the load under which the hoist is working.

The novel features of construction whereby these objects are attained are hereinafter fully described, and a preferred structural arrangement is illustrated in the accompanying drawings, wherein,

Figure 1 is a view in side elevation of a motor truck equipped with the herein described hoist mechanism, two working positions of the latter being shown, one in full and the other in dash lines.

Fig. 2 is a sectional elevation taken on section line 2—2 of Fig. 1, showing the lower portion of the hoist mechanism, and having portions thereof broken away to show the interior arrangement of parts.

Fig. 3 is a section taken upon zigzag line 3—3 of Fig. 2, showing particularly the novel features of the hoist drum and the mounting of drive gearing for said drum.

In these views the reference character 1 designates the side sills, 2 the platform or box, 3 the motor and 4 the main drive-shaft of a motor truck. The box 2 is shown as having its rear end pivoted at 5 to the sills 1, so that the truck may be unloaded or dumped by raising the front end of the box. It is to be understood, however, that the invention is by no means limited to trucks of the self-dumping type. The hoist mechanism is carried by a frame comprising a base 6, a mast 7 rigidly upstanding from said base, and a pair of brace bars 8 extended to the base from the top of the mast, which frame is adapted to be quickly mounted upon a motor truck just in front of the box 2 by means of L-shaped bolts 9 engaging the extremities of the base and hooking around the sills 1 of the truck. (See Fig. 2).

At an intermediate point of the mast, a boom 10 extends rearwardly at an incline therefrom, the connection of the same with the mast being through a ball-and-socket joint 11, which permits the boom to be swung to overhang the sides of the truck, or to occupy the relatively raised inclined position shown in dash lines in Fig. 1. To retain the boom raised in either of the positions shown in said figure, a cable 12 is extended between the end of the boom and the top portion of the mast. At the mast top is mounted a sheave 13, another sheave 14 is carried at the outer end of the boom, and a third sheave 15, carrying a hook 16, is suspended by a cable 17 rove over the sheaves 13 and 14, and is adapted to be wound upon a drum 18. This drum is mounted upon a shaft 19 parallel to the drive-shaft 4, having its rear end journaled in the mast 7 and its front end in the lower end of a bracket 20 mounted upon the mast. The rim portion of the front head of the drum 18 forms an internal gear 21, and the space within said gear is closed by a plate 22 loose upon the shaft 19 and adapted to be rocked or oscillated upon said shaft by a means hereinafter described. Within the chamber formed by the internal gear 21 and plate 22 are disposed pinions 23 and 24, the former meshing with said internal gear and being carried by a stud shaft 25 projecting from the plate 22, and the latter being mounted

upon one end of a shaft 26 journaled in bearings 27 carried by said plate. The outer end of the shaft 26 projects forwardly beyond the plate 22 and carries a large friction wheel 28 which is adapted to be engaged with and driven by a small friction wheel 29 fast upon the driving shaft 4. The front face of the plate 22 is formed with a heavy reinforcing rib 30 extending diametrically of said plate. At one end said rib merges into a boss 31 to receive the bearing 27, and at the other end the lower extremity of a link 32 is pivotally engaged with the plate 22. The upper end of said link has pivotal connection with a lever 33 intermediately pivoted upon the bracket 20 and serving to actuate a slight oscillatory movement of the plate 22, whereby the large friction wheel 28 may be shifted slightly downward from its normal raised position so as to be engaged by the small friction wheel 29. A spring 34 extending upwardly from the lever 33 to a standard 35 surmounting the bracket 20 constitutes means for holding the plate 22 normally in a position such as to maintain the friction wheel 28 raised slightly above the smaller wheel 29, in which position the rim of said wheel engages a brake shoe 36 carried by the standard 35.

In the use of the above described mechanism it will be readily understood that the exertion upon the handle of the lever 33 of sufficient pressure to overcome the spring 34 will rock the plate 22 slightly so as to elevate the part thereof to which the link 32 is attached and lower the part carrying the shafts 25 and 26. Thus the large wheel 28 will be brought into engagement with the small wheel 29 and will be driven provided the motor 3 is running. Through the gear train 24, 23, and 21, the drum 18 will also be driven, winding on the cable 17 and raising any suitable load that may be engaged with the hook 16. As soon as the cable 17 is under stress of a load, the lever 33 may be released since the rotative force acting in said drum, as a result of the load and having a direction counter to that in which the drum is given, will act upon the plate 22 through the gears 21 and 23 independently of their relative rotation and tend to maintain an intensity of friction between the two wheels 28 and 29 proportionate to the load. Thus it is automatically insured that there will be no slipping between the friction wheels, and yet an undue high intensity of friction is avoided. When the load has been raised to the desired height, an upward pull upon the end of the lever 33 will shift the wheel 28 out of engagement with the wheel 29 and into engagement with the brake shoe 36. While said pull upon the lever is maintained, the load is held raised at the desired elevation and may be shifted to or from a position above the platform 2 by swinging the boom 10 to either side of the truck. The load may then be lowered at the desired rate of speed by regulating the upward pull upon the lever 33 and thus regulating the braking friction. When the boom is shifted to the raised position disclosed in dash lines in Fig. 1 the length of the cable 12 will be shortened as also shown in dash lines so as to hold the boom elevated and enable the hook 16 of the fall to be connected with the body to elevate the same and dump the load.

I claim:

1. In a hoist mechanism, a drum, a member pivoted adjacent said drum at a point substantially in line with the axis thereof, a friction wheel for driving said drum, mechanism carried by said pivoted member for actuating the drum from said friction wheel including a friction wheel engaged with or disengaged from the driving friction wheel through rocking of said pivoted member, and means for rocking said pivoted member.

2. In a hoist mechanism, a drum, an internal gear concentrically carried by said drum, a member pivoted adjacent said gear at a point substantially in line with the axis thereof, a shaft journaled in said member, a gear carried by said shaft, adapted to drive said internal gear, means for rocking said pivoted member, and a pair of friction drive wheels, one of which is mounted upon said shaft, said wheels being engaged or disengaged through rocking of said member.

3. In a hoist mechanism, a drum, an internal gear concentrically carried by said drum, a member pivoted adjacent said gear at a point substantially in line with the axis thereof, a shaft journaled in said member, a gear carried by said shaft, adapted to drive said internal gear, means for rocking said pivoted member, a pair of friction drive wheels, one of which is mounted upon said shaft, said wheels being engaged or disengaged through rocking of said member and a brake with which the friction wheel upon said shaft is engageable when disengaged from its companion friction wheel.

4. In a hoist mechanism, a drum, an internal gear concentrically carried by said drum, a member pivoted adjacent said gear at a point substantially in line with the axis thereof, a shaft journaled in said member, a gear carried by said shaft, adapted to drive said internal gear, means for rocking said pivoted member, a pair of friction drive wheels, one of which is mounted upon said shaft, said wheels being engaged or disengaged through rocking of said member, and means normally retaining the pivoted member in a position to disengage the two friction wheels.

5. In a hoist mechanism, a drum, an in-

ternal gear concentrically carried thereby, a plate pivoted at a point substantially in line with the axis of said gear, closing the interior space thereof, means for rocking said plate upon its pivot, a shaft eccentrically journaled in said plate, a gear upon said shaft adapted to drive said internal gear, and a pair of friction wheels for driving said shaft, one of which is mounted thereupon, said wheels being engaged or disengaged through rocking of said plate.

In testimony whereof I sign this specification.

HARRY F. RIOPELLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."