Nov. 11, 1930. J. H. SIRMANS 1,781,480

OPERATING MECHANISM FOR LOADING DEVICES

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Fig. 1.

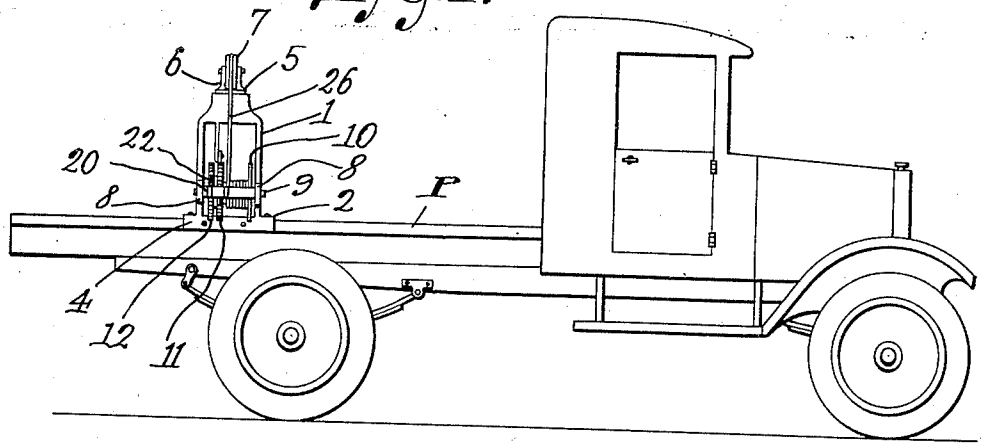



Fig. 2.

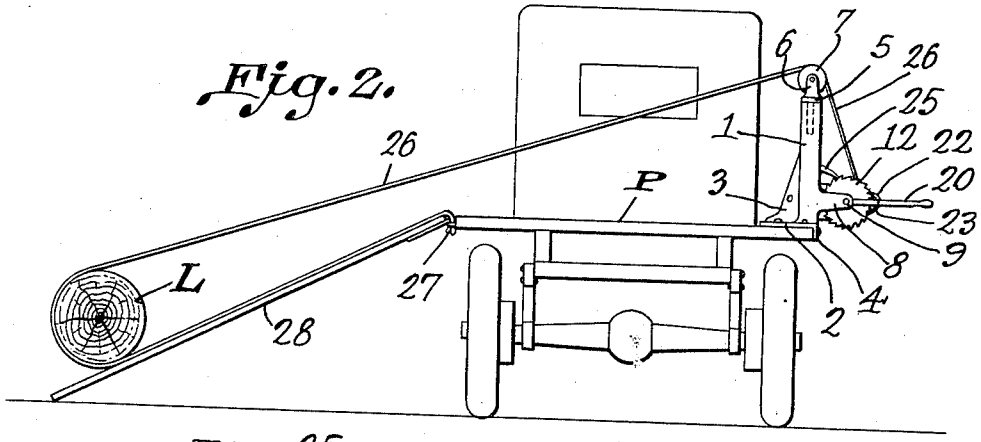
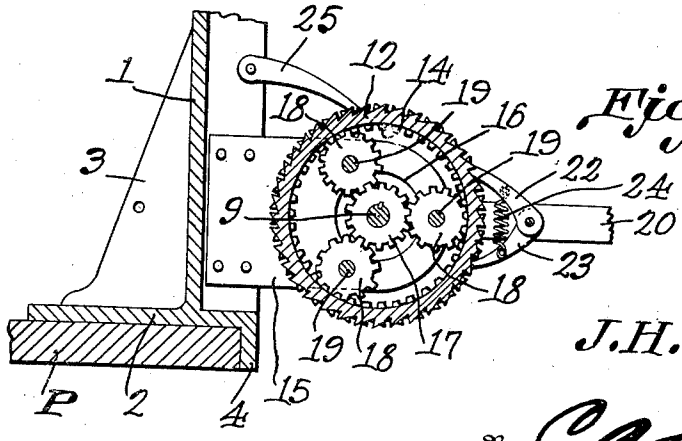



Fig. 6.




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Fig. 3.

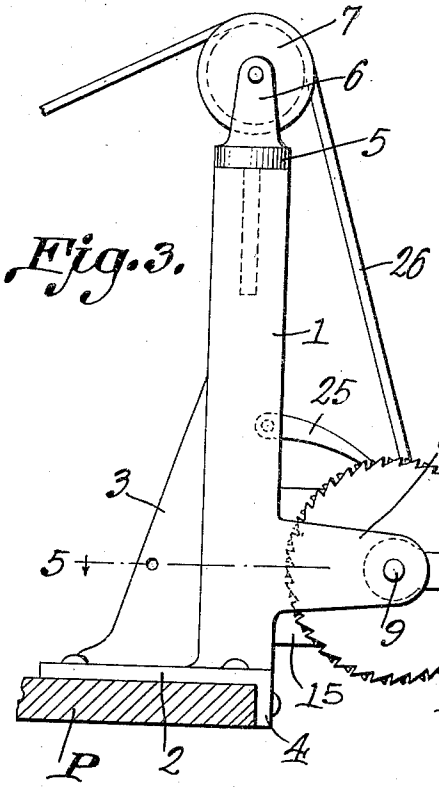



Fig. 4.

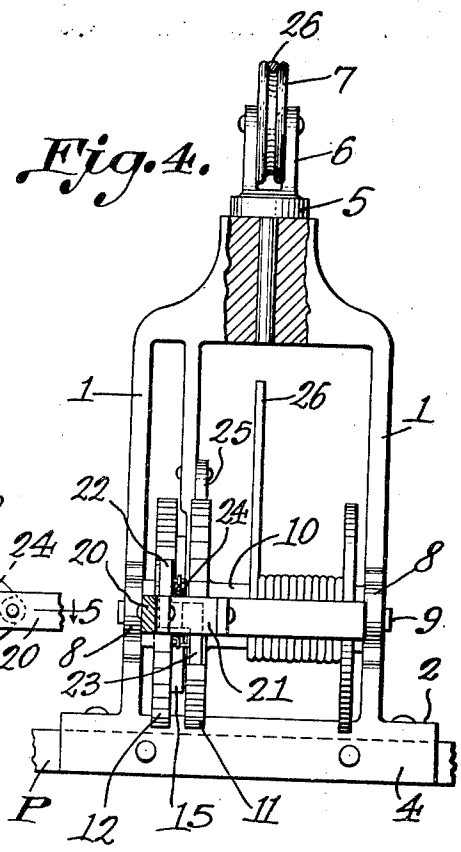



Fig. 5.

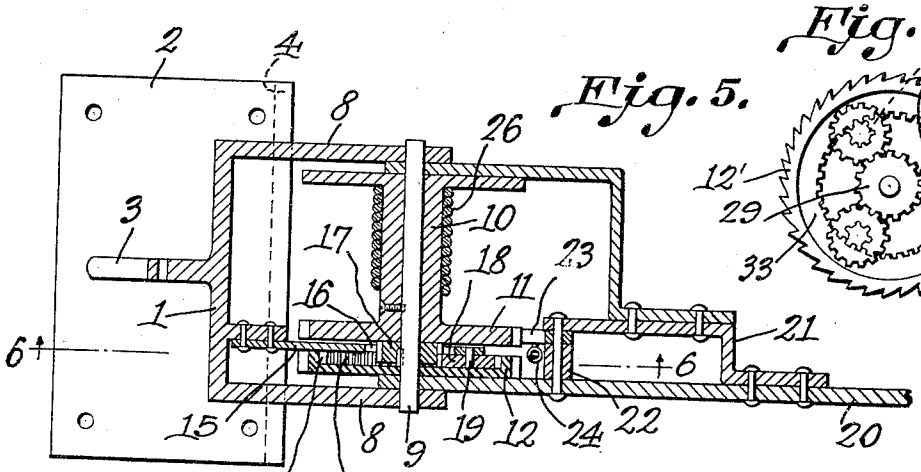
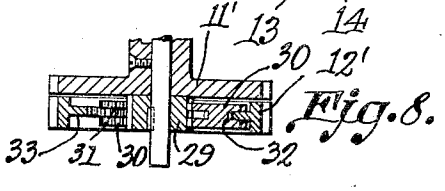



Fig. 7.




Fig. 8.




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# UNITED STATES PATENT OFFICE

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## OPERATING MECHANISM FOR LOADING DEVICES

Application filed May 19, 1928. Serial No. 279,095.

This invention relates to a loading device designed primarily for use on trucks, trailers, and the like, one of the objects being to provide a simple form of attachment which can be utilized for loading logs and similar articles on to a truck.

Another object is to provide simple and efficient means for converting reciprocating motion into rotary motion whereby, through the back and forth actuation of a lever, a winding drum can be actuated to pull a flexible log engaging element so as to direct a log on to the structure to which the attachment is connected.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings,

Figure 1 is a side elevation of a truck having the present improvement combined therewith.

Figure 2 is a rear elevation showing the attachment applied to a truck and in use for loading a log on to the truck.

Figure 3 is an enlarged rear elevation of the attachment, the operating lever being broken away.

Figure 4 is an elevation showing the outer side of the attachment, some of the parts being in section.

Figure 5 is a section on line 5—5, Figure 3.

Figure 6 is a section on line 6—6, Figure 5.

Figure 7 is a vertical section through a modified form of gearing.

Figure 8 is a transverse section therethrough.

Referring to the figures by characters of reference 1 designates a standard having a base 2 which can be reinforced by a web 3. This base has a depending flange 4 adapted to lap one side of the platform P of a truck, trailer or the like while the base 2 rests on said platform. The base and the flange can be fastened to the platform in any suitable manner, as by means of bolts or the like. A head 5 is swivelled on the upper end of the standard and has a fork 6 in which is journalled a pulley 7.

Extending laterally from the sides of the standard 1 are arms 8 supporting a shaft 9. These arms are spaced apart a sufficient distance to receive between them a winding drum or windlass 10 which is secured to and rotates with the shaft 9. One end of the windlass is in the form of a ratchet wheel 11. Another ratchet wheel 12 is mounted for rotation on the shaft 9 between the ratchet wheel 11 and one of the arms 8. The inner side of the ratchet wheel 12 is formed with a circular concentric recess 13 the wall of which is toothed to provide an internal gear 14 as shown particularly in Figure 6.

Secured to the standard 1 at a point between the sides thereof is a plate 15 which extends between the drum 10 and the ratchet wheel 12 and has a central circular opening 16 in which is arranged a small gear 17. This gear is secured to and rotates with the shaft 9 and meshes with intermediate gears 18 which are journalled on pins 19 carried by the plate 15. These intermediate gears mesh with the internal gear 14.

An operating lever 20 is mounted on the shaft 9 between one of the arms 8 and the ratchet wheel 12 and attached to one side of this lever is a bracket 21. Between the bracket and lever 20 are arranged two oppositely disposed pawls 22 and 23 which are held normally drawn toward each other by a spring 24. The upwardly extending pawl 22 engages the ratchet wheel 12 while the downwardly extending pawl 23 engages the ratchet wheel 11. A detent 25 is pivotally connected to the standard 1 and engages the ratchet wheel 11 so as to hold it against retrograde movement.

Attached to the drum or windlass 10 is one end of a flexible hoisting element 26 which can be in the form of a cable, chain, belt or the like. This flexible element is guided over the pulley 7 and is adapted to be attached to

the platform P at that side thereof opposite the standard 1 as shown at 27. An inclined board or skid 28 is adapted to be placed against one side of the platform P with its lower end resting on the ground.

In using the apparatus the flexible element 26 is looped over and under a log L to be loaded on to the truck and the skid 28 is placed in an inclined position to guide the log upwardly on to the platform. If the log is a short one only one attachment such as constitutes the present invention need be provided. One or more skids 28 can be used. If, however, the log is a long one, requiring the use of a trailer, one of the attachments constituting this invention will be applied to the truck while another attachment will be applied to the trailer. After the flexible elements or element have been looped about the log L said log can be elevated on to the truck simply by oscillating the lever 20. When this lever moves upwardly it transmits motion through the pawl 22 to the ratchet wheel 12 and motion is thus transmitted through the gearing 14, 18, and 17 to the shaft 9 with the result that the drum or windlass 10 and the ratchet wheel 11 will be rotated in a clockwise direction and the flexible element 26 will be wound on the drum. The teeth of the ratchet wheel 11 will of course slip under the pawl 25 if the same is in lowered position. However, it is preferred to raise this pawl during the actuation of the ratchet wheels by the lever so that their operation will not be interfered with. When the lever 20 is moved downwardly the pawl 23 will thrust against the adjacent tooth of the ratchet wheel 11 and will cause said wheel to continue to rotate in a clockwise direction with the drum or windlass 10 while at the same time the ratchet wheel 12 will be moved in a counter-clockwise direction. Thus, as the lever 20 is oscillated, a continuous or substantially continuous rotation of the drum or windlass 10 in one direction will be set up and the flexible element 26, which is looped about the log L, will roll this log upwardly along the skid or skids 28 until it assumes a position on the platform P. At any time during the operation when it is desired to hold the parts against retrograde movement, the pawl 25 can be swung downwardly into engagement with the ratchet wheel 11.

Instead of using the gearing illustrated in Figures 5 and 6 a modified structure such as shown in figures 7 and 8 can be employed. In this modified structure a gear 29 corresponding with the gear 17 rotates with the ratchet wheel 11′ and meshes with gears 30. The teeth of each of these gears 30 are intersected by an annular groove 31 extending around a small gear 32 which, in turn, meshes with the internal gear 33 in the form of a flange extending inwardly from the ratchet wheel 12′. With this arrangement it becomes unnecessary to utilize the plate 15 as a support for the gears.

What is claimed is:

Mechanism of the class described including a shaft, a drum rotatable therewith, a ratchet wheel forming a part of the drum, a second ratchet wheel mounted for rotation on the shaft and having a recess in one face, the wall of the recess constituting an internal gear, a gear in the recess secured to the shaft, a stationary member extending between the ratchet wheels, gears carried thereby and supported between and in mesh with the internal gear and the gear on the shaft, the teeth of the two ratchet wheels being pitched in opposite directions respectively, an actuating lever mounted for oscillation on the shaft, oppositely extending pawls carried thereby, and a resilient connection between the pawls for holding them normally in engagement with the respective ratchet wheels, and means engaging one of the ratchet wheels for holding the drum against retrograde movement.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JOSEPH HARDMAN SIRMANS.