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PATENTED NOV. 27, 1906

J. ROCKE.
WAGON JACK.

APPLICATION FILED DEC. 23, 1905.

2 SHEETS—SHEET 1

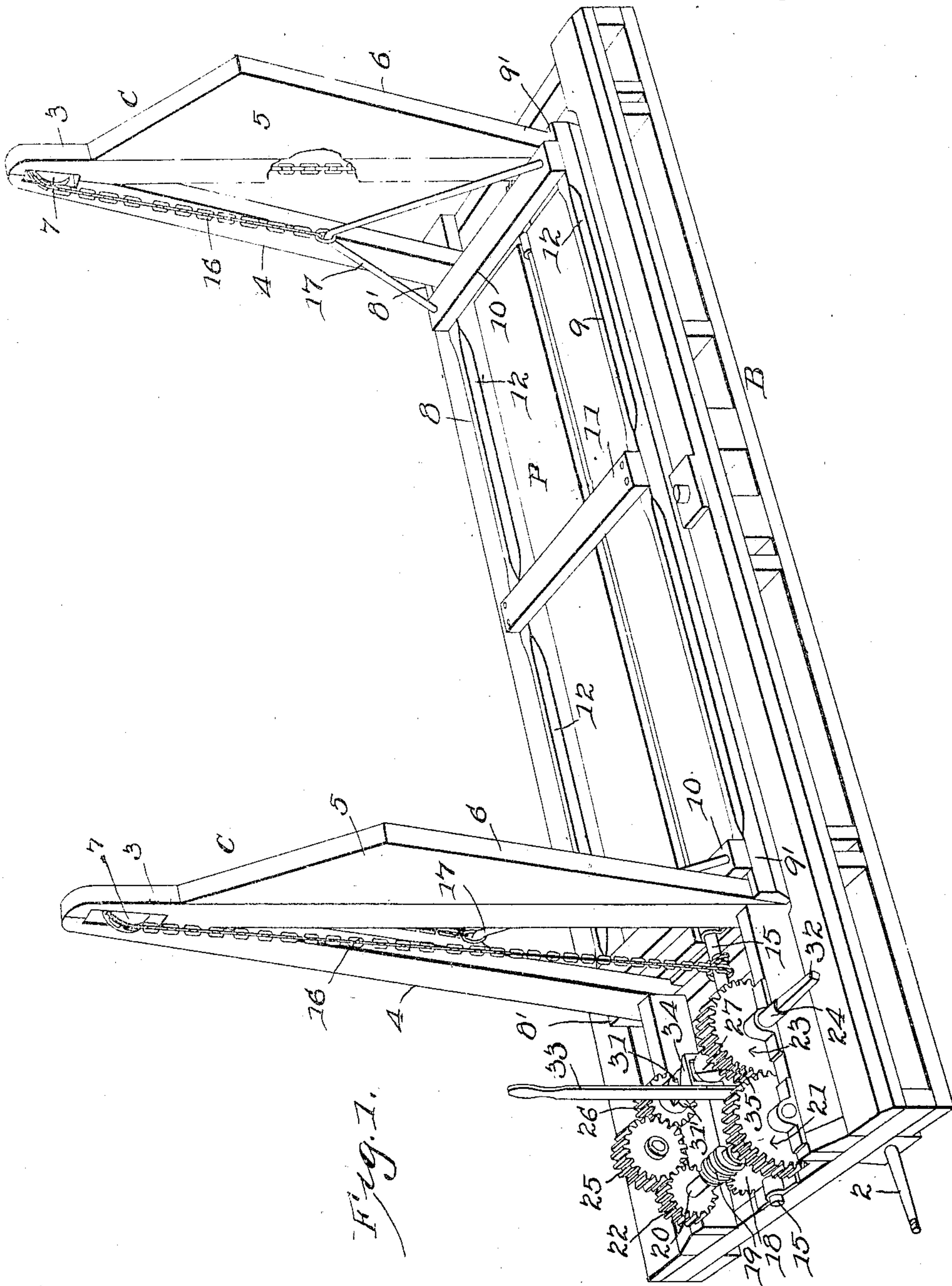


Fig. 1.

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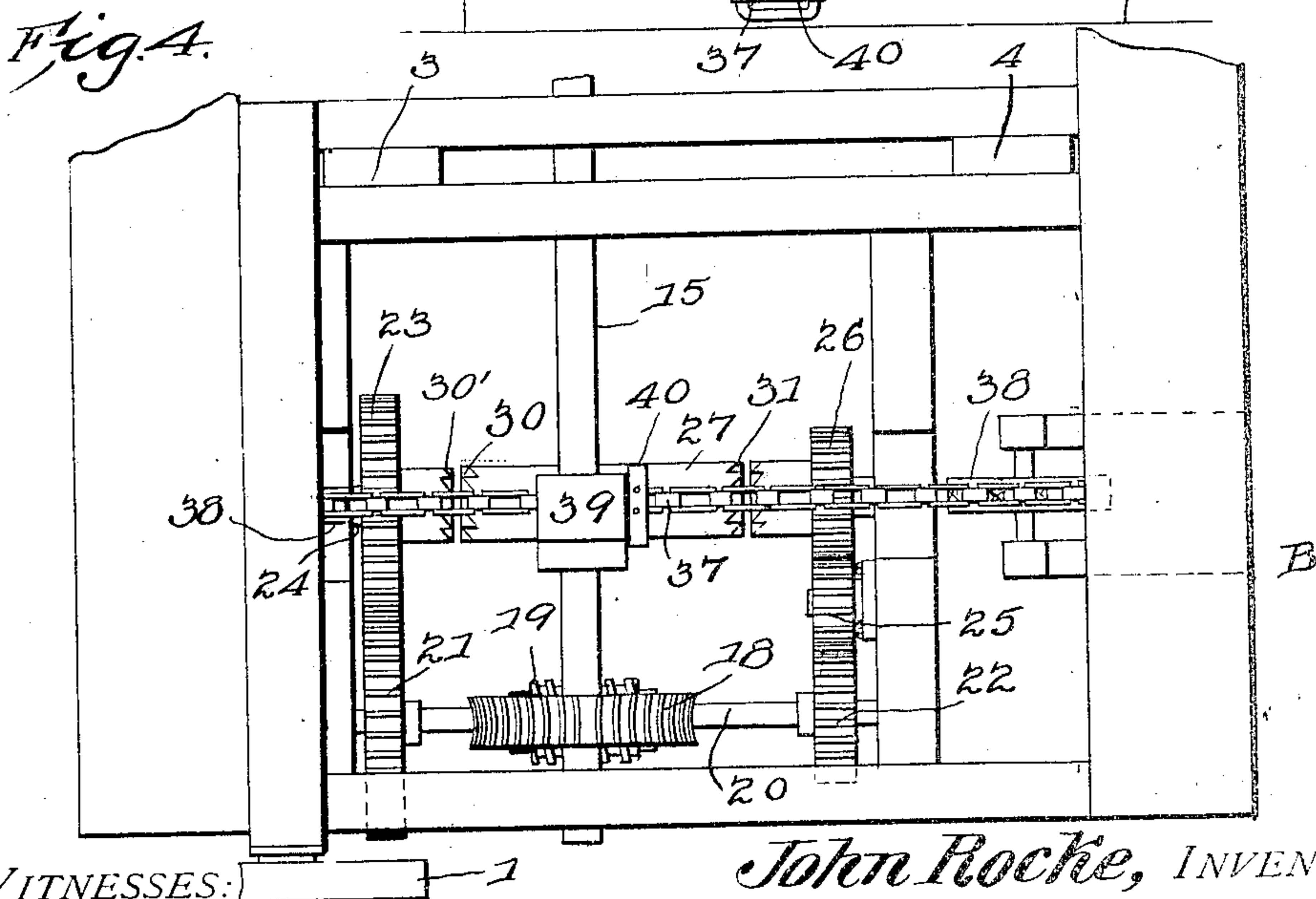
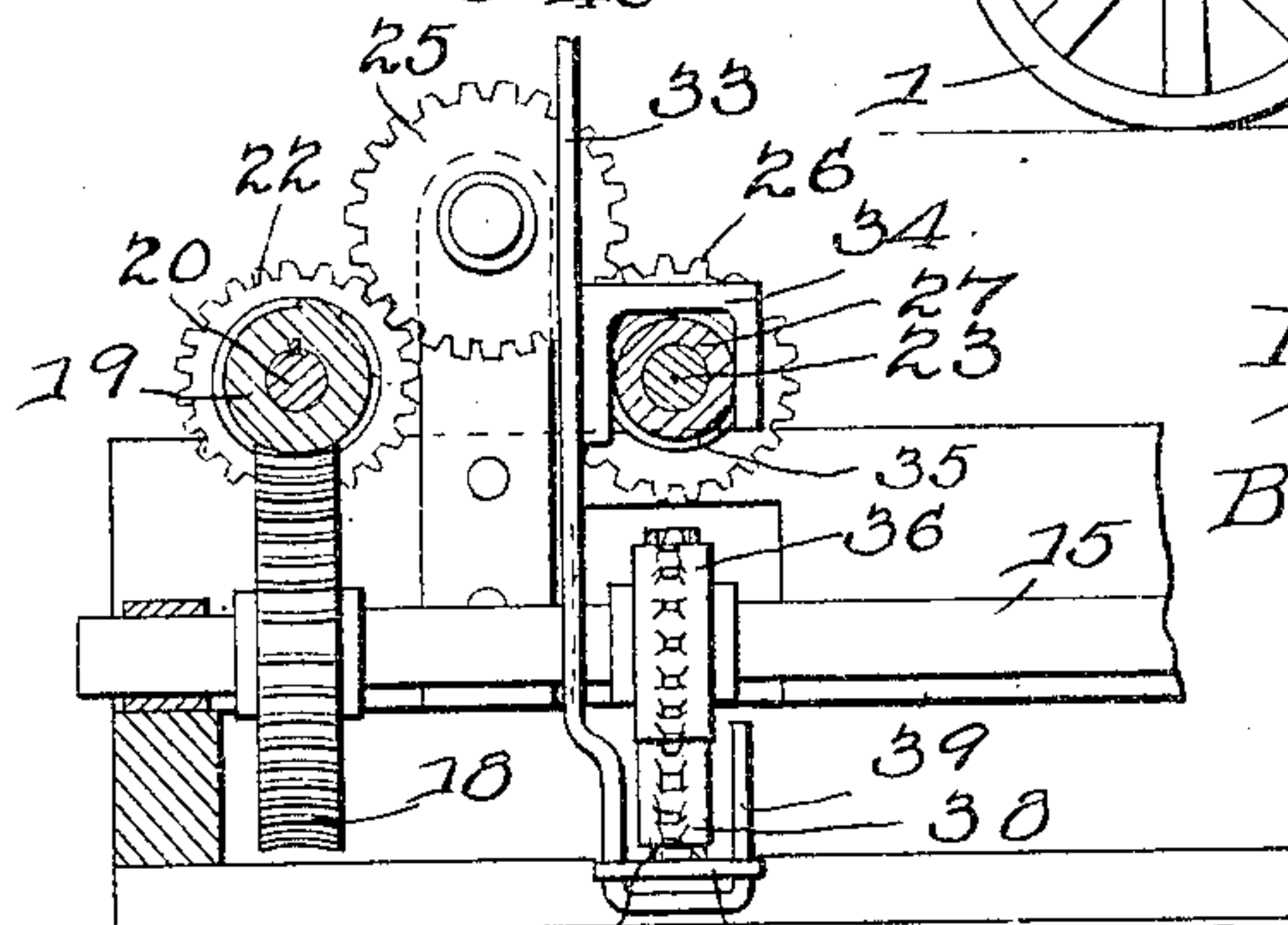
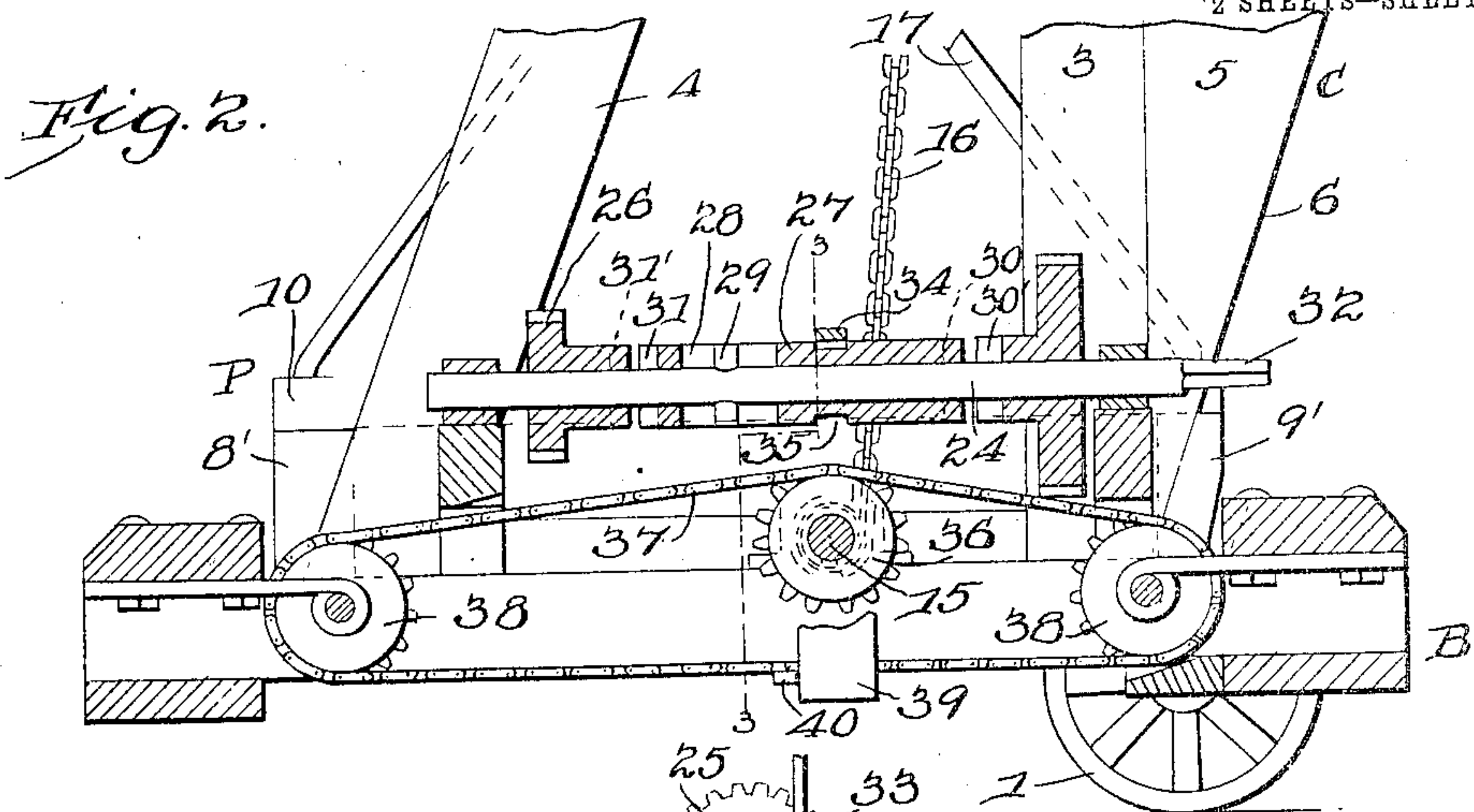
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN ROCKE, OF MEADOWS, ILLINOIS.

WAGON-JACK.

No. 836,829.

Specification of Letters Patent.

Patented Nov. 27, 1906.

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To all whom it may concern:

Be it known that I, JOHN ROCKE, a citizen of the United States, residing at Meadows, in the county of McLean and State of Illinois, have invented a new and useful Wagon-Jack, of which the following is a specification.

This invention relates to an improved wagon-jack or lifting device intended and adapted to be used in connection with portable grain-elevators for the purpose of tipping or tilting wagons loaded with grain for the purpose of discharging the contents of such wagons into carrier-troughs connected with the elevating mechanism; and the objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be made when desired.

In the drawings, Figure 1 is a perspective view of a wagon-jack or lifting apparatus constructed in accordance with the principles of the invention and showing the same, with the transporting-wheels removed, in position for operation. Fig. 2 is a vertical sectional view taken longitudinally through the hoisting mechanism. Fig. 3 is a transverse sectional view taken through the hoisting mechanism on the plane indicated by the line 3 3 in Fig. 2. Fig. 4 is a bottom plan view of the hoisting mechanism.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The improved apparatus comprises a suitably-constructed base-frame B, for the convenient transportation of which it may be provided with a pair of transporting-wheels, as 1. (Best seen in Figs. 2 and 4 of the drawings.) The transporting-wheels, however, are detached when the machine is placed in position for operation, as will be seen in Fig.

1 of the drawings, it being understood that the wheels may be removed from the spindles, as shown in Fig. 1, or that the spindle-carrying stub-axes, one of which has been shown at 2, may be bodily removed, if preferred.

Near the ends of the frame are located a pair of supporting devices C C; each including an upright approximately vertical post or member 3, an inclined brace 4, and a triangular guide member 5. The inclined braces 4 4 are disposed in front of the posts 3 3 and are connected with the upper ends of the latter, and the triangular guide members 5 are secured upon the rear sides of the uprights or posts 3 3, said guide members having rear edges 6, that are approximately parallel to the front edges of the inclined braces 4. Guide-pulleys 7 are supported for rotation near the upper ends of the posts 3.

A lifting frame or platform P is provided, the same being composed of front and rear members 8 and 9, that are suitably connected and spaced apart by means of end members 10 10 and, if desired, by one or more intermediate connecting-pieces or cross members, as 11. The front and rear members have terminal extensions 8' and 9', engaging the front edge of the inclined brace 4 and the rear edge of the guide member 5, whereby the lifting-platform will be guided when it is being elevated, as will be presently described. The front and rear members 8 and 9 of the lifting-platform may be suitably beveled, as shown in Fig. 1 of the drawings, at 12, to enable the front wheels of a wagon that is to be tilted to be conveniently supported thereon.

The base-frame is provided with suitable bearings for a shaft 15, said shaft constituting a drum to which are attached flexible hoisting elements, such as chains 16, which are guided over the pulleys 7 and connected with the apices of yokes 17, that are suitably connected with the ends of the hoisting-platform. The shaft 15 carries a worm-gear 18, meshing with a worm 19 upon a shaft 20, which latter is journaled in suitable bearings upon the base-frame, preferably above and at right angles to the shaft 15. The shaft 20 carries a pair of pinions 21 and 22, one of which, 21, meshes directly with a pinion 23, supported for rotation upon a shaft 24, which latter is mounted in suitable bearings parallel to the shaft 20. The pinion 22 meshes with a suitably-supported idler 25, which in turn

meshes with a second pinion 26, supported loosely upon the shaft 24. Supported slidably upon and rotatable with the shaft 24 is a sleeve 27, which latter has been shown as provided with a slot 28, engaging a pin or key 29, which latter extends transversely through the shaft 24, with which the sleeve 27 is in this manner connected. It is to be understood, however, that the manner of connecting the sleeve slidably with the shaft 24 may be varied within the scope of the invention. The sleeve 27 has terminal clutch members 30 and 31, both facing in the same direction and adapted for engagement with clutch members 30' and 31', formed upon the hubs of the pinions 23 and 26, respectively. The shaft 24 has been illustrated as provided with a non-circular terminal 32, adapted to be connected, as by means of a tumbling-rod, with some suitable source of power, which may be some driven shaft or other portion of a portable grain-elevator in connection with which the device of the present invention is to be used.

The sleeve 27 is operated by means of a shifting-lever 33, which for the purposes of the present invention may be conveniently fulcrumed upon the shaft 15, said shifting-lever being provided with a fork 34, engaging an annular groove 35 in the sleeve. The shaft 15 carries a sprocket-wheel 36, over which is guided a chain 37, the ends of which are carried by sprocket-wheels 38, suitably supported for rotation by the base-frame. The lower lead of the chain 37 is guided through a fork 39, formed upon the lower end of the lever 33, and a link of said chain has a cross-bar 40, adapted to engage the fork 39.

In the operation of this invention the transporting-wheels are removed, and the device is placed in suitable relation to the portable grain-elevator in connection with which it is to be operated, but which, as it forms no part of the present invention, does not require to be described or illustrated in connection with this application. It may be generally stated, however, that the device of the present invention is adapted to be used in connection with a portable grain-elevator of the type described and shown in Letters Patent of the United States No. 784,180, granted to me on the 7th day of March, 1905. It may be further stated that the base-frame of the present invention and the supporting-frame of the portable-elevator may be conveniently connected or hitched together for transportation and that a tongue may be attached to or connected with the base-frame of the present device. Suitable approaches may also be provided to enable the front wheels of the wagon that is to be unloaded to be driven onto the lifting-platform, although such approaches may not be needed, as it is the intention to place the platform as low down as possible. The shaft 24 is then connected with

the driving mechanism and will to all intents and purposes be constantly driven, the clutch-sleeve 27 occupying an intermediate position between the pinions 23 and 26 when the lifting device is not to be operated. To operate the shaft 15, the shifting-lever is operated by hand, so as to place one of the clutches 30 or 31 in engagement with the corresponding clutch member 30' or 31' of one of the pinions 23 or 26. If the clutch member 30 is placed in engagement with the clutch member 30' of the pinion 23, the latter will engage the pinion 21 to rotate the shaft 20, the worm 19 of which meshes with the worm-gear 18 upon the shaft 15, which is thereby driven in one direction, the direction of rotation being reversed by manipulating the shifting-lever to move the sleeve 27 until the clutch member 31 engages the clutch member 31' of the pinion 26, which latter, through the idler 25, will transmit motion to the pinion 22 of the shaft 20. It is obvious that when one of the pinions 23 or 26 is driven positively by the clutch-sleeve 27 the other one of said pinions will rotate idly in the opposite direction upon its supporting-shaft. It is also obvious that either one of the pinions 23 or 26 may be utilized to rotate the shaft 15 to hoist the platform, the direction of rotation being governed by the direction of the pitch of the worm 19.

The sprocket-wheel 36 upon the shaft 15 serves when the machine is in operation to drive the chain 37 having the cross-bar 40, which latter will eventually strike the fork 39 at the lower end of the lever 33, thus shifting the position of said lever and moving the clutch-sleeve 27 to a position intermediate the pinions 23 and 26, where the clutch members at the ends of the sleeve will be out of engagement with the clutch members upon the hubs of the pinions. By this simple mechanism the shifting-lever will be automatically operated when the lifting-platform reaches the upper and lower terminals of its movement, thus throwing the operating mechanism out of gear and preventing breakage of parts of the machinery. The shaft 15 will be locked by the worm-gear 18 meshing with the worm 19 and will thus be prevented from being rotated by the weight of the wagon supported upon the lifting-platform when the driving mechanism is thrown out of gear while the platform is near the upper limit of its movement.

When the lifting-platform moves in an upward direction, it is guided, as herein described, by the inclined braces 4 and the guides 5, the movement being approximately in an arc concentric with the hind axle of the vehicle, thus preventing any considerable displacement of the hind wheels during the process of lifting or elevating the front part of the vehicle. This is of considerable importance in order to avoid the displacement

of the tail-gate of the wagon from over the trough or receiver into which the contents of the wagon-body is to be discharged.

This improved lifting device, as will be seen from the foregoing description, is simple in construction and may be provided at a moderate expense. It is easily operated and thoroughly efficient for the purposes for which it is provided.

Having thus described the invention, what is claimed is—

1. A portable base having uprights, inclined braces connected with said uprights, triangular guides connected with the uprights and having guide edges approximately parallel to the inclined braces, guide members near the upper ends of the uprights, suitably-operated flexible hoisting elements guided over the guide members, and a lifting-platform connected with the hoisting elements and guided over the inclined braces and guides.

2. A portable base having uprights, inclined braces and inclined guide members connected with said uprights, a lifting-platform having terminal extensions engaging the inclined braces and guide members, and hoisting means for the platform.

3. A base having uprights, inclined braces and guide members connected with the uprights, a lifting-platform having terminal extensions engaging the inclined braces and the guide members, yokes connected with the ends of the platform, and suitably operated and guided flexible hoisting elements connected with the yokes.

4. In a device of the class described, a portable base, uprights near the ends of said base, a platform guided between said uprights, a shaft below said platform, guide members at the upper ends of the uprights, hoisting elements guided over said members and connecting the shaft and the platform, a worm-gear upon the shaft, a shaft support-

ing a worm meshing with said worm-gear, a pair of pinions upon the worm-carrying shaft, a counter-shaft, a pinion upon the counter-shaft meshing with one of the pinions upon the worm-carrying shaft, an idler meshing with the other pinion upon the worm-carrying shaft, a pinion upon the counter-shaft meshing with the idler, clutch members upon the hubs of the pinions upon the counter-shaft, a sleeve slidable upon and rotatable with the counter-shaft and having terminal clutch members adapted to engage the clutch members upon the hubs of the pinions, and shifting means for the clutch-sleeve; said means including a shifting-lever for said sleeve fulcrumed upon the shaft with which the hoisting elements are connected, said lever having a terminal fork, and a suitably-supported sprocket-chain guided through the fork of the shifting-lever and having a cross-bar adapted to engage the prongs of the fork.

5. In a device of the class described, a drum or shaft, a constantly-driven shaft, means for transmitting motion from the latter to the drum in two directions said means including a sleeve having terminal clutch members and a shifting-lever for said sleeve fulcrumed upon the drum-shaft, said lever having a terminal fork; and a suitably-supported chain guided through the fork of the shifting-lever, driven by a sprocket-wheel upon the drum, and a cross-bar upon said chain adapted to engage the prongs of the fork upon the lever to shift the position of the latter.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN ROCKE.

Witnesses:

A. B. FOLKERS,
J. L. ENGEL.