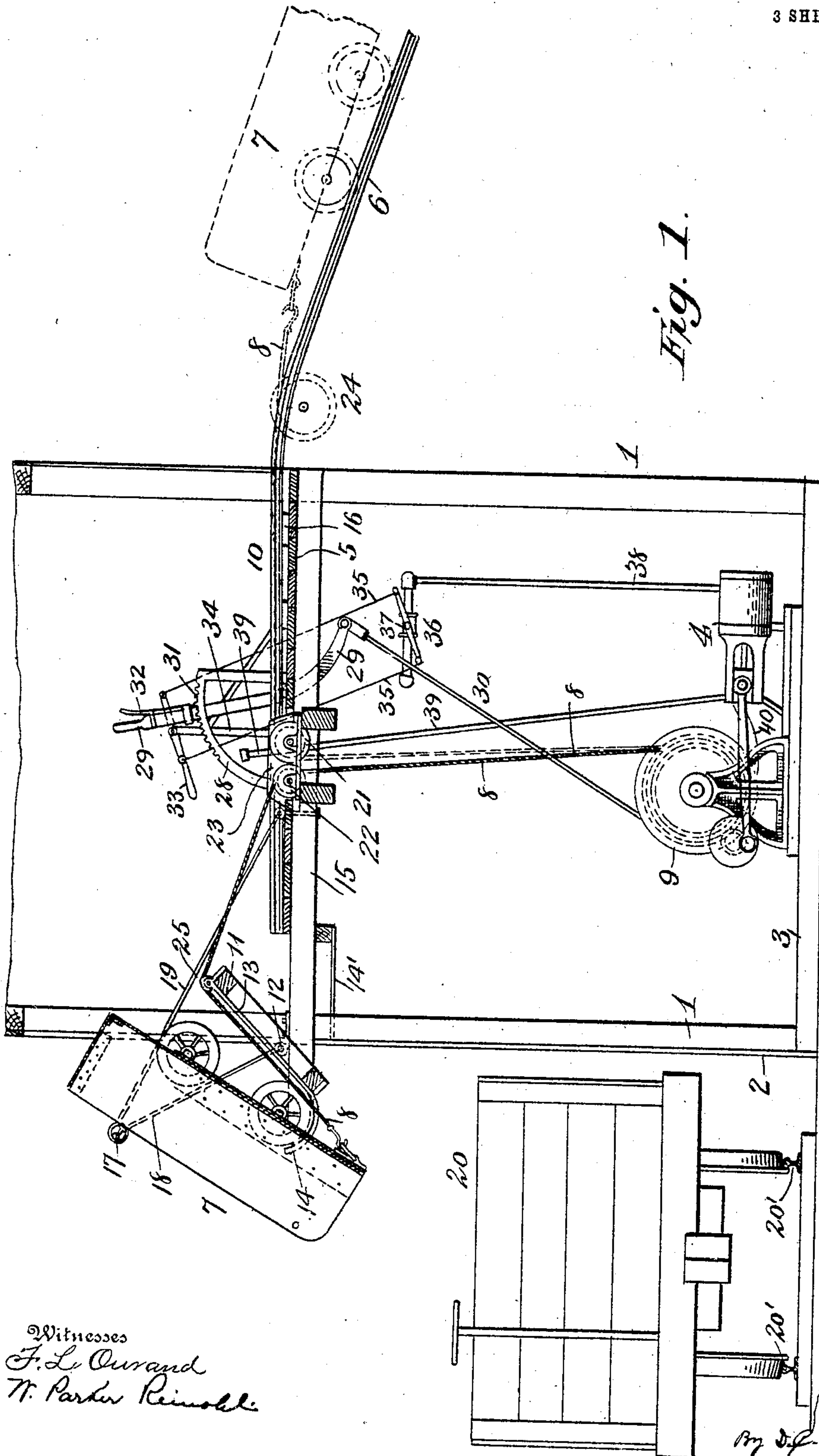


No. 835,829.

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HOISTING APPARATUS.
APPLICATION FILED AUG. 7, 1906.

3 SHEETS—SHEET 1.



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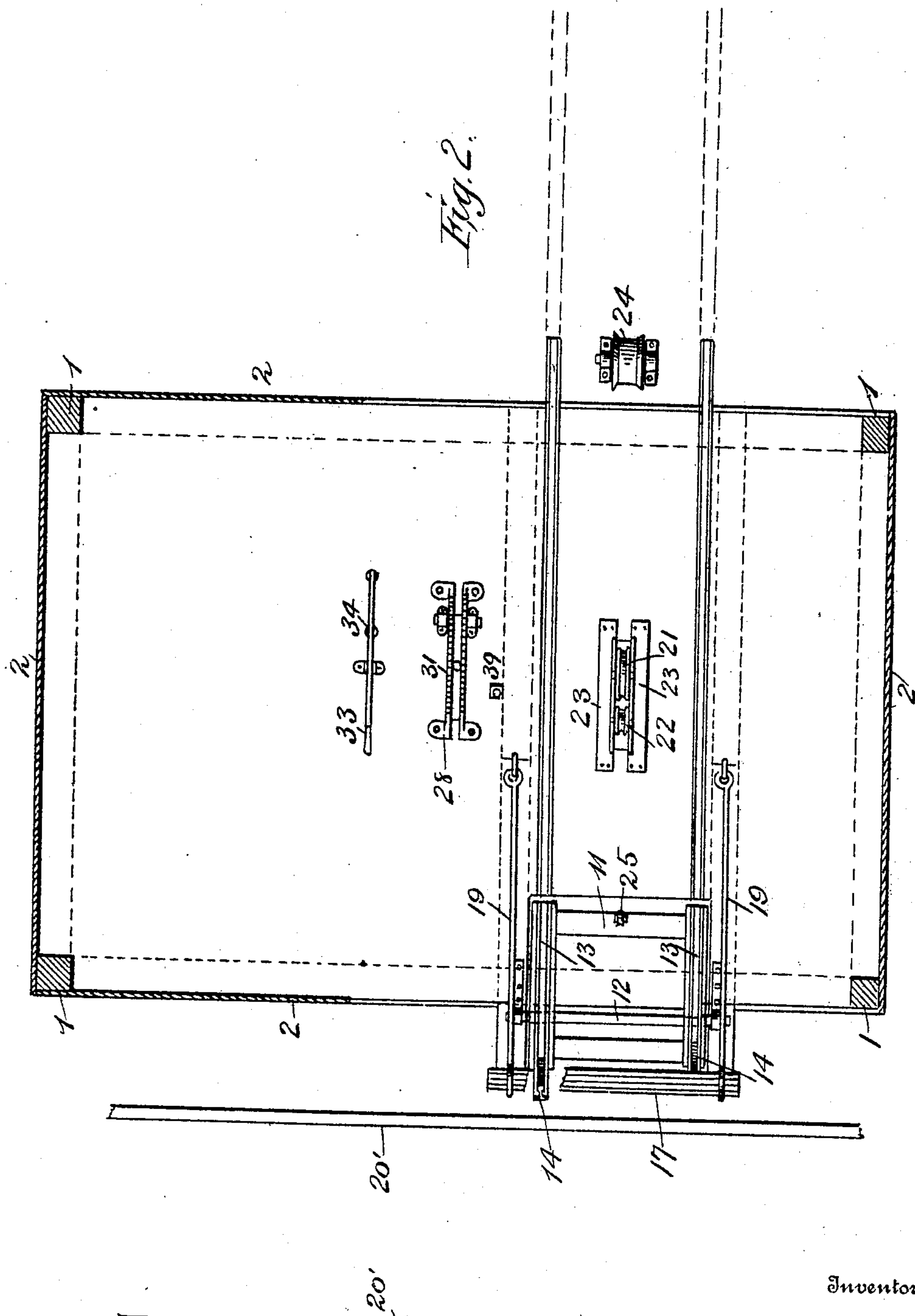
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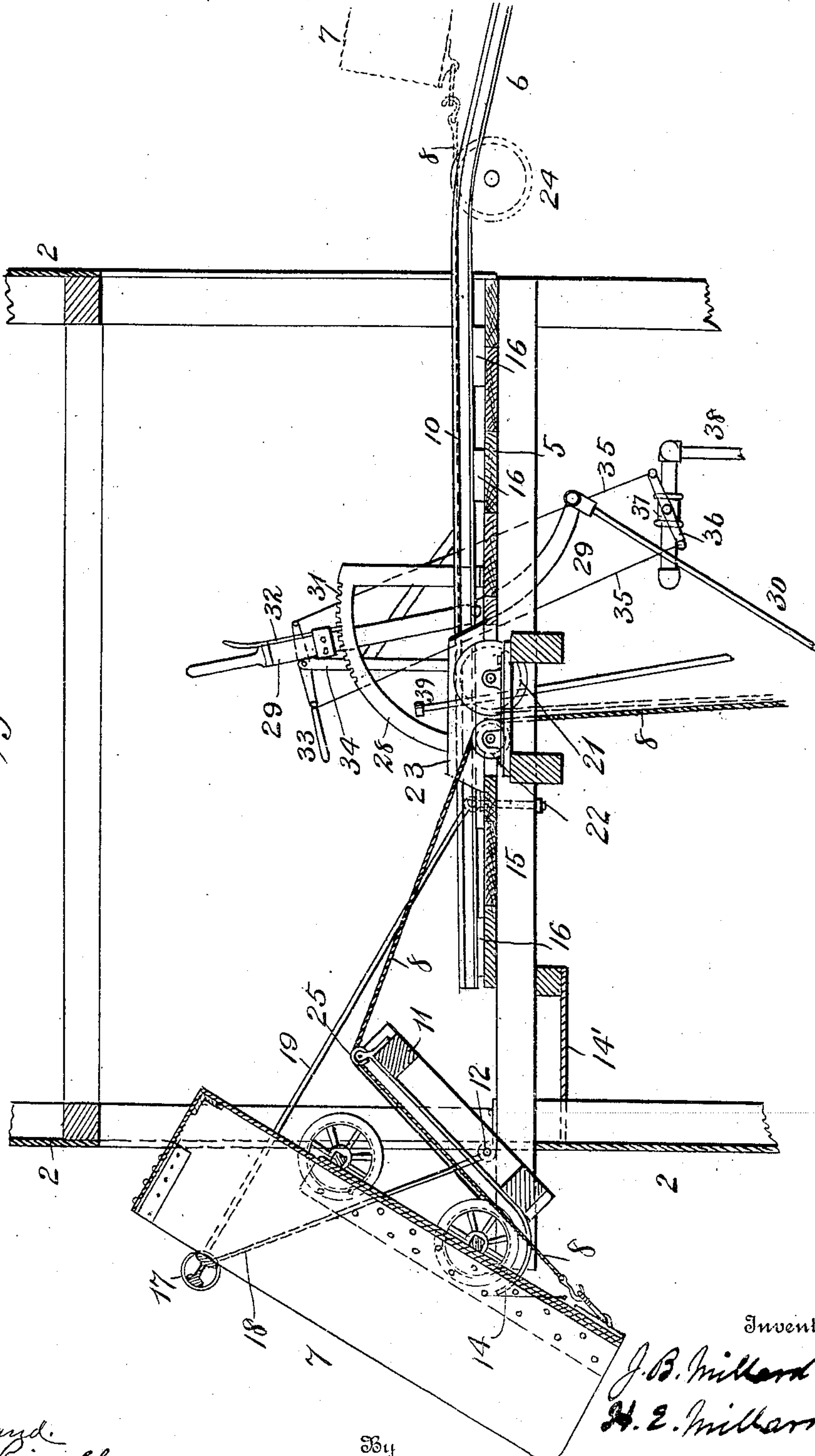
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JACOB B. MILLARD AND HARRY E. MILLARD, OF LEBANON,
PENNSYLVANIA.

HOISTING APPARATUS.

No. 835,829.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed August 7, 1906. Serial No. 329,558.

To all whom it may concern:

Be it known that we, JACOB B. MILLARD and HARRY E. MILLARD, citizens of the United States, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in Hoisting Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to hoisting apparatus for loading cars or other receptacles, has for its object economy and efficiency in its operation, and consists in certain improvements in construction, which will be fully disclosed in the following specification and claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents a side elevation, partly in section, of a hoisting apparatus embodying our invention; Fig. 2, a top plan view of the same, the cars being omitted; and Fig. 3, a side elevation, partly in section and on an enlarged scale.

Reference being had to the drawings and the designating characters thereon, the numeral 1 indicates the posts of the building; 2, the inclosing sides and ends; 3, the lower or first floor on which the hoisting-engine 4 rests; 5, the upper or second floor; 6, the inclined track leading from a quarry or other place from which material to be hoisted is supplied to the floor 5; 7, the car or truck; 8, the cable; 9, the hoisting-drum, from which the cable extends to the car. The engine and the hoisting-drum are of well-known construction, and therefore require no further elucidation except the means employed for manipulating them in operating the car for unloading the car and returning the car to be loaded again.

The track on which the car 7 travels is inclined in opposite directions, one portion or section 6 leading to the place for loading the car, and the other portion or section 10 on the floor 5 is inclined from the summit of the section 6 outward toward the tilting track-section 11 to cause the car to gravitate from the summit of the section 6 to the section 11. The section 11 is pivoted on a rod 12 and provided with rails 13, having upturned outer ends 14 to prevent the car running off said

section, and under the inner portion of the section 11 is a supplemental floor 14' to prevent any material falling through to the machinery on the floor 3.

The floor 5 is supported on joists or string-pieces 15, and the track 10 rests on sills or ties 16.

17 indicates a stop-bar connected by rods 18 to the rod 12 and by rods 19 to the string-pieces and serves to limit the elevation of the rear end of the car when it is tilted, with the section 11, to discharge the car into the car 20.

The cable 8 is supported on sheaves 21 22 above the hoisting-drum 9, which are protected by guard-irons 23, a sheave 24 at the upper end of the section 6, and a sheave 25 on the section 11.

On the floor 5 is a quadrant 28, engaged by a lever 29, extending through the floor and connected at its lower end to one end of a rod 30, the opposite or lower end of which is connected to the clutch (not shown) of the hoisting-drum to throw it in and out of operation. The upper edge of the quadrant is provided with teeth 31, engaged by a dog 32 to hold the lever 29 in any desired position on the quadrant.

33 indicates another lever supported on stand 34 and is connected by rods 35 35 to a bar 36 on the stem or rod of a throttle-valve 37 for controlling the supply of motor fluid to the engine 4 through pipe 38.

39 indicates a rod also extending through the floor 5 and connected at its lower end to a brake-lever 40, connected to an ordinary brake strap or band which engages the hoisting-drum 9 and by which the attendant regulates the speed of the car 7 when power is cut off and the car is traveling down over the inclined section 10 of the track toward the tilting track-section or tipple 11 to be discharged.

The clutch mechanism and the brake of the hoisting-drum may be of any approved form of construction.

In operating the hoisting apparatus the attendant takes his position on the floor 5 between the levers 29 and 33, controlling the clutch mechanism and the throttle-valve, respectively, and draws the car 7 up the inclined section 6 until the car reaches the summit thereof and has gotten on the section 10, when the throttle-valve 37 is closed and the

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clutch mechanism disengaged. The car then gravitates down the section 10 to the tilting track 11, its speed being controlled by the rod or foot-lever 39 and the brake-lever 40 5 by the attendant pressing upon the rod with his foot. The car having reached the section or tipple 11, the section and the car 7 tilt into the position shown in Figs. 1 and 3, and the car discharges its contents into car 10 20, resting upon rails 20'. The hoisting-drum is then again put into operation and returns section 11 to its normal or horizontal position and draws the car up the inclined section 10 until it has passed its summit, 15 when power is cut off and the car allowed to gravitate down the inclined section 6, its speed being controlled by the brake mechanism of the hoisting-drum.

Having thus fully described our invention, 20 what we claim is—

1. A hoisting apparatus comprising a car, an inclined section over which the loaded car is drawn, an oppositely-inclined section over which the loaded car gravitates, a tilting 25 track-section, means for drawing the car to the summit of the first section and returning it thereto, means for controlling the speed of the car on the gravity-section, and means for limiting the tilting of the car and the tilt- 30 ing track-section.

2. A hoisting apparatus comprising a car, an inclined section over which the loaded car

is drawn, an oppositely-inclined section over which the loaded car gravitates, a tilting track-section, a hoisting-engine below said 35 oppositely-inclined section and connected to the car, means on the upper floor for controlling the engine and means for controlling the car.

3. A hoisting apparatus comprising a car, 40 a track having oppositely-inclined sections, and a tilting track-section, a rod pivotally supporting the latter section, a bar for arresting the car and said latter section, and connections between said rod, said bar and 45 the structural work.

4. A hoisting apparatus comprising a car, a track having an inclined section over which the loaded car is drawn, a tilting track-section, and an intermediate section, a hoisting- 50 engine and drum under said intermediate section, a lever for operating the clutch mechanism, a foot-lever for operating the brake of said drum, and a lever for operating the throttle-valve of the engine, all of said 55 levers being operated on the floor supporting the intermediate section of the track.

In testimony whereof we affix our signatures in presence of two witnesses.

JACOB B. MILLARD.
HARRY E. MILLARD.

Witnesses:

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