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Patented Apr. 9, 1901.

J. M. WOLFMAN & H. H. JENSEN.

ELEVATOR.

(Application filed Sept. 8, 1900.)

(No Model.)

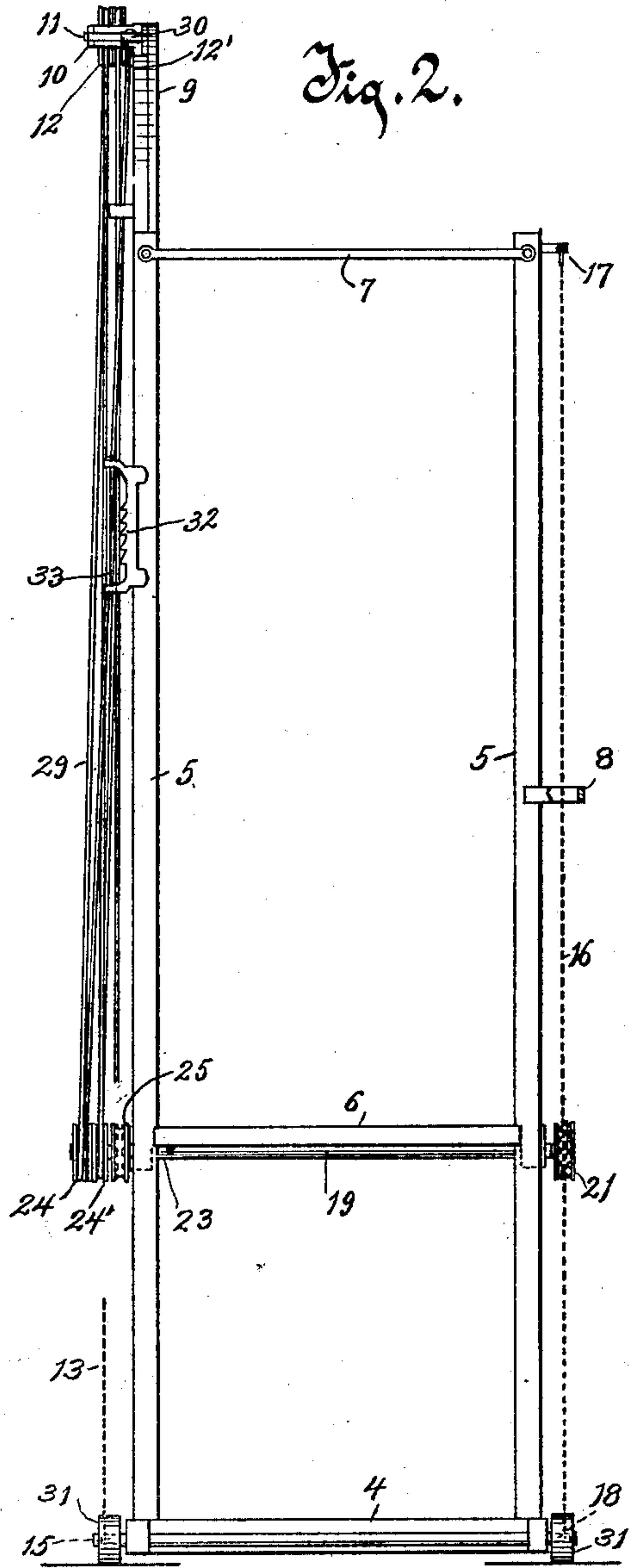
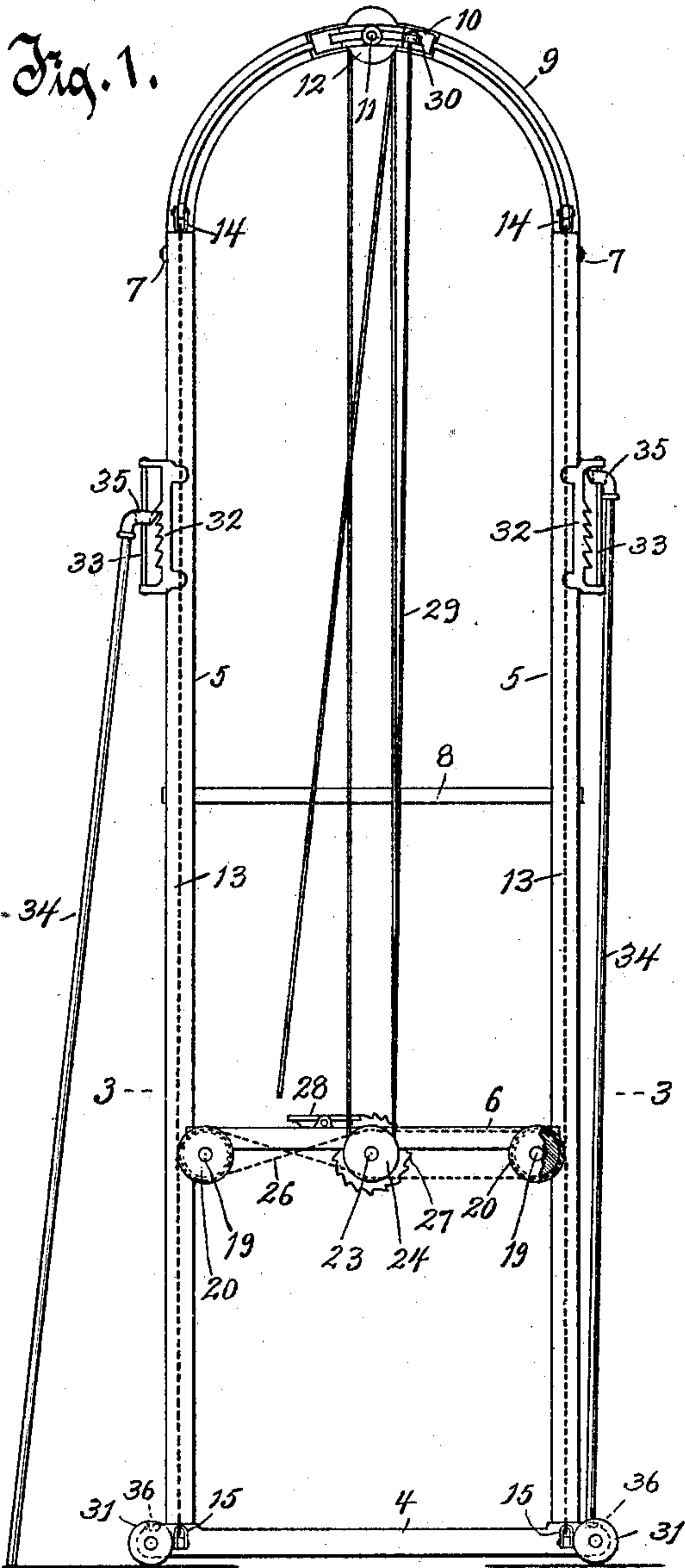
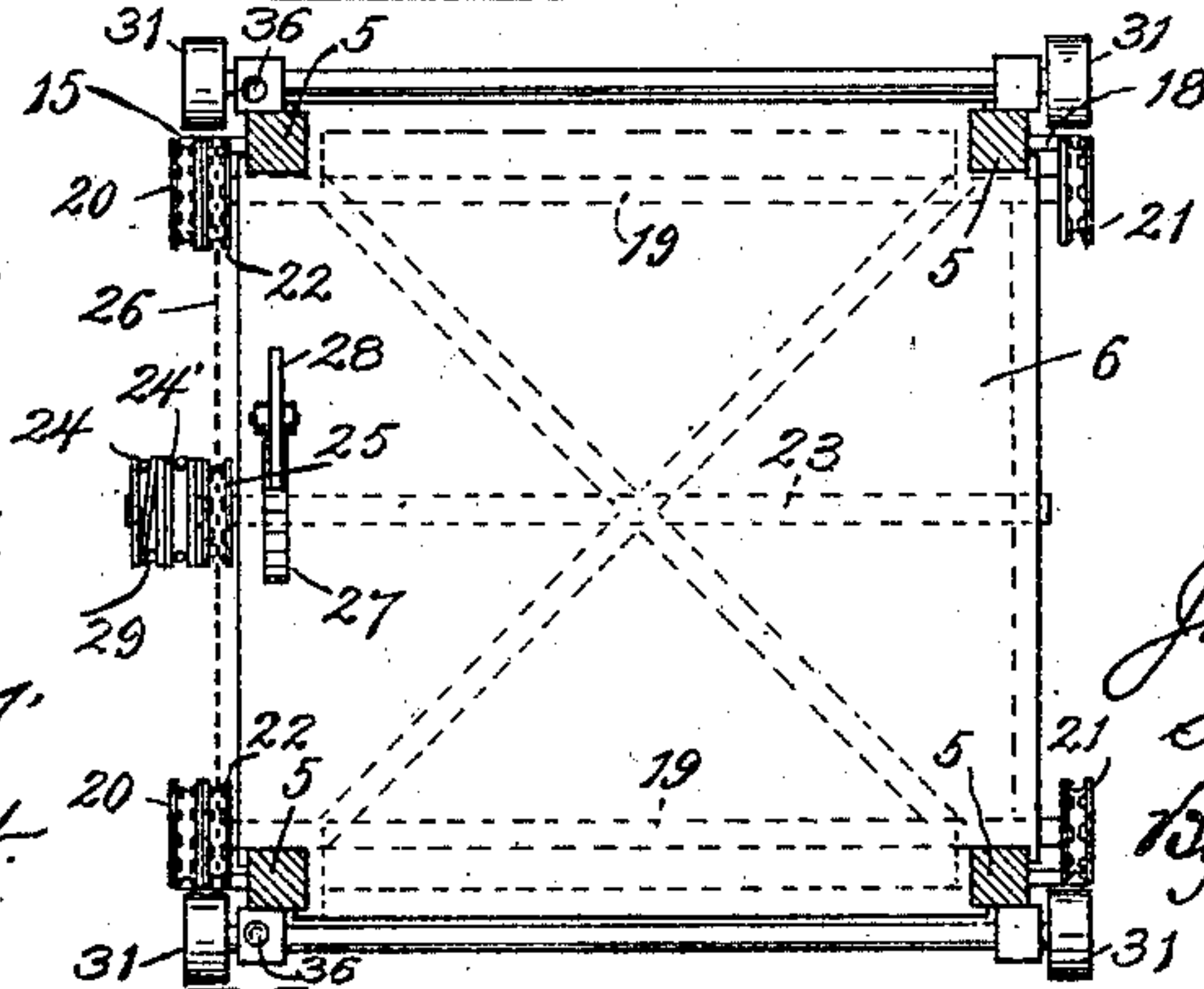


Fig. 3.



Witnesses.

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ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 671,506, dated April 9, 1901.

Application filed September 8, 1900. Serial No. 29,366. (No model.)

To all whom it may concern:

Be it known that we, JACOB M. WOLFMAN and HANS H. JENSEN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Elevators, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

Our invention has relation to improvements in elevators, and more especially to the class of portable elevators which are adapted to be moved from one position to another in a warehouse.

The primary object of the invention is to provide an improved form of mechanism for raising and lowering the elevator-platform, which shall be simple in construction and possess the capability of lifting very heavy loads with a minimum of power.

With the above primary object and other incidental objects in view the invention consists of the devices and parts or their equivalents, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of the invention. Fig. 2 is view at right angles to Fig. 1, and Fig. 3 is a horizontal section on the line 3 3 of Fig. 1.

Referring to the drawings, the numeral 4 indicates the base of the elevator, from the corners of which extend upwardly for a desired distance four uprights 5, which, together with the braces and the arch, hereinafter referred to, form the frame of the machine.

The numeral 6 indicates a movable platform, which is fitted between and is movable on the uprights, the corners of the platform being cut away at angles, as clearly shown in Fig. 3, in order to accurately fit the uprights.

The uprights may be suitably braced and connected together, and for this purpose the front and rear uprights at their upper ends are connected together by means of brace-rods 7 7, and the rear uprights are connected together at medial points by a transverse brace-bar 8, said bar 8 outstanding from the uprights a slight distance for the purpose hereinafter set forth. The upper ends of the front uprights are connected by means of an arch 9, said arch being provided at a medial point with an outstanding bearing 10, in which

is journaled a short shaft 11. Upon this shaft are mounted two grooved pulleys 12 12'.

Extending longitudinally of the front uprights are chains 13 13, the upper ends of said chains being connected to these uprights at the points 14 14 and the lower ends of said chains at the points 15 15. Similar chains 16 16 are arranged parallel with and longitudinally of the rear uprights, the upper ends of said chains being connected to the uprights at the points 17 17 and the lower ends of said chains at the points 18 18.

Journaled in bearings beneath the platform and extending parallel with the side edges of said platform are shafts 19 19, the ends of said shafts extending beyond the front and rear uprights. The extreme ends projecting beyond the front uprights have mounted thereon chain-wheels 20 20, around which the chains 13 13 are wound, and the rear ends of said shafts projecting beyond the rear uprights have chain-wheels 21 21 mounted thereon and around which the rear chains 16 16 are wound. The forwardly-projecting ends of the shafts 19 19 have also mounted thereon other chain-wheels 22 22.

Mounted beneath an intermediate portion of the platform, in suitable bearings therefor, is a shaft 23, and on the forward extremity of this shaft are mounted two grooved pulleys 24 24'. Also mounted on this projecting end of said shaft 23 and in line with the chain-wheels 22 22 is another chain-wheel 25. Connecting the several chain-wheels 22 22 and 25 is a chain 26, said chain being crossed between the central chain-wheel 25 and one of the end chain-wheels 22. A ratchet-wheel 27 is also mounted on the shaft 23, said wheel projecting through a slot therefor in the bottom of the platform in order to permit the wheel to be engaged by a spring-actuated pawl 28.

The numeral 29 indicates the hoisting and lowering rope or cable. This rope has one end secured to the arch 9 at the point 30 and is then extended downwardly and around the pulley 24, (being preferably wound a plurality of times around said pulley,) thence upwardly and around the pulley 12, thence downwardly and once around the pulley 24', thence upwardly and around pulley 12', and thence

downwardly in convenient position to be reached by the operator on the platform.

For the purpose of enabling the elevator to be readily moved from one position in a ware-
5 room to another we prefer to mount rollers 31 at the four corners of the base 4.

After the elevator has been moved to a proper position in the wareroom it is desirable that some means should be employed for
10 preventing any possibility of tilting of the elevator and for also holding the elevator securely against movement on the rollers 31. Any approved form of mechanism may be employed for this purpose; but we prefer to
15 provide the construction shown in the accompanying drawings, wherein are illustrated two rack-bars 32 32 connected to the front up- rights 13 and projecting laterally therefrom. These rack-bars are provided with laterally-
20 extending fingers, which are connected by vertical rods 33 33.

The numerals 34 34 indicate supporting-braces, which are provided at their upper ends with inwardly-extending dogs 35 35. These
25 dogs are provided with openings through which the rods 33 loosely pass, thereby permitting the braces to be raised or lowered on the rods and also permitting said braces to be swung outwardly at their lower ends. Nor-
30 mally the lower ends of the braces are fitted in recesses 36, so that the elevator may be freely moved from one location to another. In Fig. 1 the right-hand brace is shown as engaging one of the recesses 36, while the left-
35 hand brace is shown as disengaged from its recess and swung out at its lower end. When it is desired to anchor or secure the elevator at a certain point of location, both braces 34 are swung out in the manner in which the left-
40 hand brace is shown in Fig. 1. This swinging outwardly of the braces will throw the dogs at the upper ends thereof into engagement with the teeth of the racks 32, and consequently the elevator will be firmly secured or
45 anchored in adjusted position.

In the use of our invention the elevator is moved to the desired point and the braces adjusted in the manner pointed out. If now
50 it is desired to lift a box or a heavy load, the platform is lowered to its full extent, so as to permit the box or load to be conveniently deposited thereon. The operator then stands on the platform and pulls downwardly on the free end of the rope or cable. As the rope en-
55 gages the pulleys 24 and 24' the shaft 23 is necessarily rotated and hence the chain-wheel 25 on said shaft. This chain-wheel will impart motion to the chain 26 and through said chain cause the shafts 19 19 to rotate. As the
60 chain-wheels 20 20 and 21 21 are mounted on these shafts, said chain-wheels will be caused to ride up on the chains 13, and consequently the platform will necessarily be raised. In view of the fact that the brace-bar 8 stands
65 outwardly from the rear uprights 5, said bar offers no obstruction to the free up movement of the platform, the chain-wheels 21 being per-

mitted to pass between said bar and the up- rights. As the chains 13 are engaged by the chain-wheels 20 20 and 21 21 on opposite sides
70 of the platform, of course said platform is caused to ascend and descend without any tendency to sidewise tilting.

In order to multiply the power, it is desirable that the rope or cable 29 should pass a
75 plurality of times around the pulley 24. In the drawings we have indicated said rope as passing twice around said pulley. It is of course obvious that if greater power is re-
80 quired the rope may be wound a greater number of times around said pulley.

Of course after the platform has been raised to the required height it is held in its adjusted position by means of the engagement of the
85 dog 28 with the ratchet-wheel 27. After the load is removed from the platform and placed on shelves or on top of other boxes foot-pres- sure is exerted on the lever 28, and by the op-
90 erator retaining hold of the rope 29 the descent of the platform may be regulated.

Of course instead of lifting a load in the first place the platform may be raised and a
95 load removed from an upper position or shelving and placed on the platform and lowered.

Our invention will be found of great util-
100 ity in large warehouses, particularly tobacco-warehouses, where it is necessary to raise heavy loads to high points or lower such loads from high points and at different locations of the wareroom. It will be seen that our inven-
105 tion answers all requirements for the purpose indicated.

What we claim as our invention is—

1. In an elevator, the combination of an elevator-frame, a platform movable in said
105 frame, vertically-arranged wheel-engaging means at the front and rear of said platform, shafts mounted in the platform, wheels carried by said shaft and engaging the said means, another shaft mounted in the platform
110 and carrying one or more pulley-wheels, means for transferring the rotation of this shaft to the other two shafts, a pulley or pulleys mounted in the upper portion of the frame, a rope or cable extended back and forth
115 between the pulleys, and means for holding the platform in adjusted position.

2. In an elevator, the combination of an elevator-frame, a platform movable in said
120 frame, vertically-arranged chain-engaging means at the front and rear of said platform, shafts mounted in the platform, wheels carried by said shafts and engaging the said means, another shaft mounted in the platform
125 and carrying a plurality of pulleys, means for transferring the rotation of this shaft to the other two shafts, a plurality of pulleys mounted in the upper portion of the frame, a rope or cable extended back and forth between the
130 pulleys, and wound a plurality of times around one of the lower pulleys, and means for holding the platform in adjusted position.

3. The combination of a frame, racks se- cured to the frame, said racks provided with

5 laterally-extending fingers, vertical rods connecting the fingers, and brace-bars provided at their upper ends with inwardly-extending dogs, said dogs provided with openings through which the vertical rods freely pass, and said dogs, when the brace-bars are swung outwardly at their lower ends, adapted to engage the rack-bars.

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

JACOB M. WOLFMAN.
HANS H. JENSEN.

Witnesses:

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