

(No Model.)

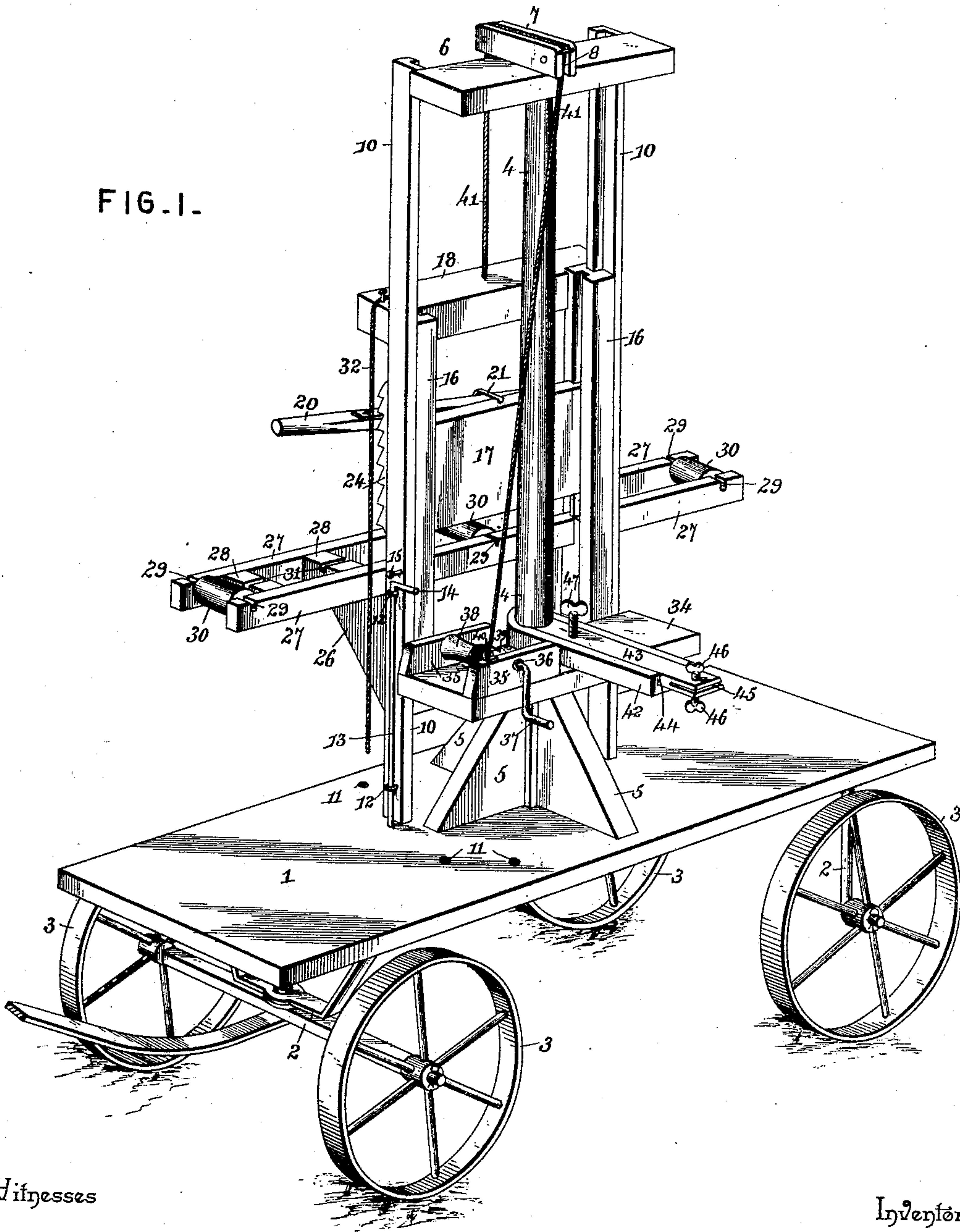
2 Sheets—Sheet 1.

H. McKINNON.
LUMBER ELEVATOR.

No. 480,824.

Patented Aug. 16, 1892.

FIG. 1.



Witnesses

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Inventor

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By his Attorneys,

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FIG. 2.

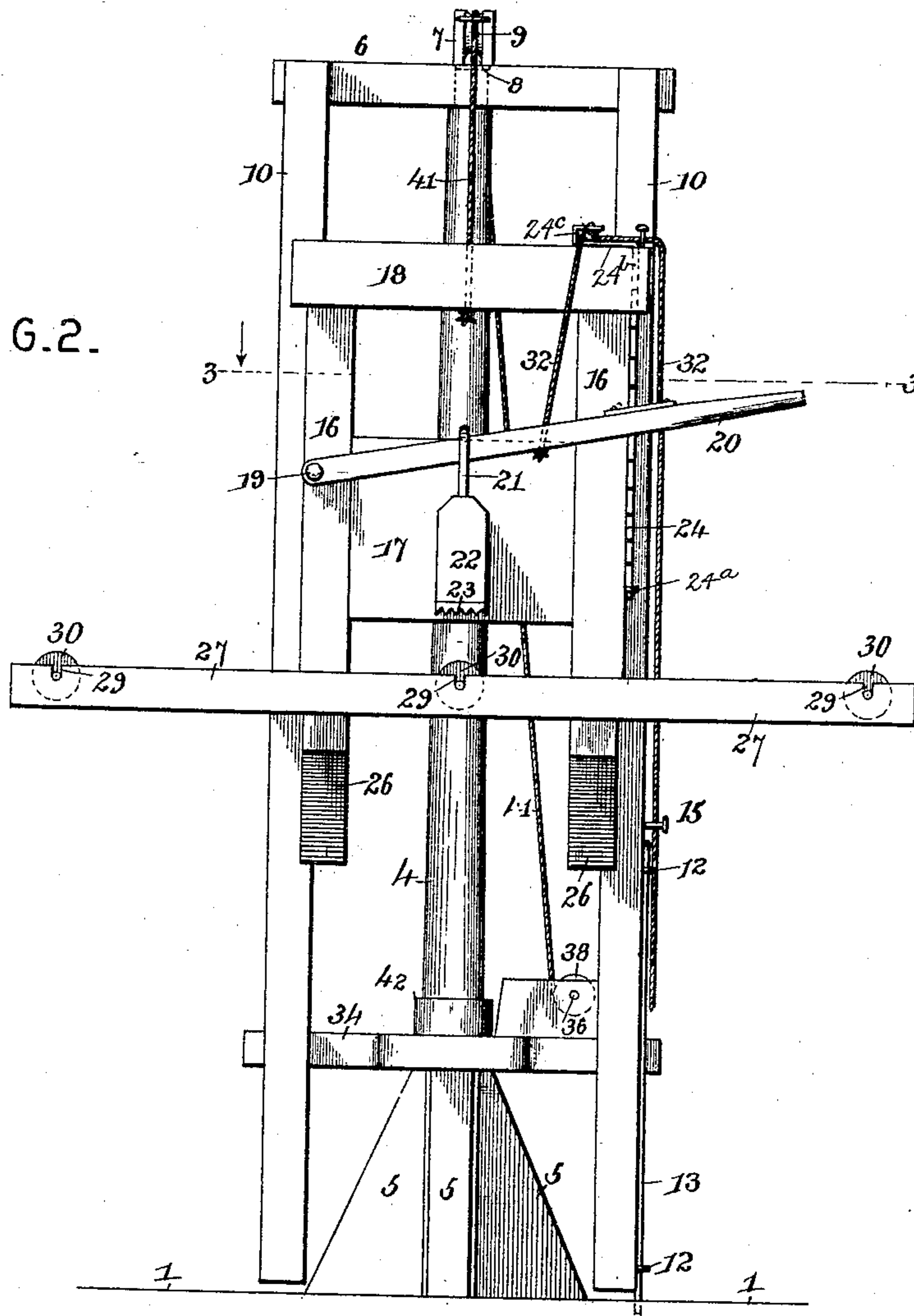
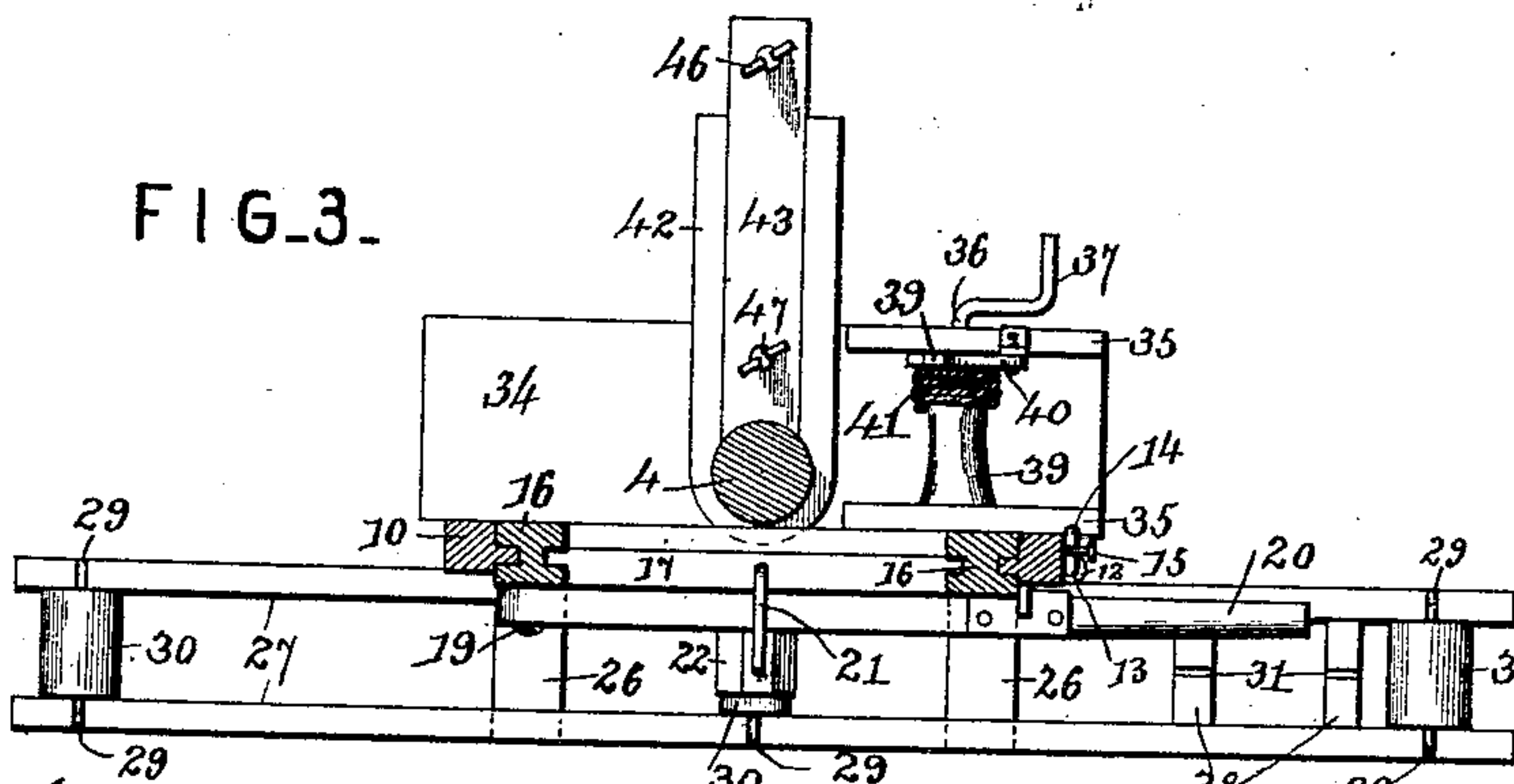


FIG. 3.



Witnesses

Inventor

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UNITED STATES PATENT OFFICE.

HECTOR MCKINNON, OF EUREKA, CALIFORNIA.

LUMBER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 480,824, dated August 16, 1892.

Application filed May 19, 1892. Serial No. 433,580. (No model.)

To all whom it may concern:

Be it known that I, HECTOR MCKINNON, a citizen of the United States, residing at Eureka, in the county of Humboldt and State of California, have invented a new and useful Lumber-Elevator, of which the following is a specification.

My invention relates to improvements in derricks or lumber-elevators, the objects in view being to provide a device adapted to receive and elevate lumber to the tops of piles of the same in lumber-yards, kilns, &c., whereby said piles may be formed with greater facility and less labor than when accomplished by hand, and, furthermore, to provide a device that may be employed in reducing the piles when occasion requires.

With these main objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of an elevator constructed in accordance with my invention. Fig. 2 is a side elevation. Fig. 3 is a transverse section on line 3 3 of Fig. 2.

Like numerals of reference indicate like parts in all the figures of the drawings.

The machine is mounted upon any suitable base—in this instance a truck—whereby it is rendered portable and may be easily moved to and from the pile. The truck in this instance comprises the platform 1 and the supporting-axles 2 and wheels 3. From the platform there rises a cylindrical mast 4, the base of which is squared and embraced by triangular braces or blocks 5. Mounted on the upper end of the mast and adapted to revolve is a cross-head 6, having a central opening for the reception of the upper end of said mast, and the cross-head has mounted over the opening a transverse bar 7, which is grooved at 8 and at its ends provided with grooved pulleys or sheaves 9. To the front face of the cross-head 6 at the ends thereof there is secured a pair of depending parallel vertical guide-bars 10, and the same terminate at their lower ends just above the base or platform 1. This base or platform 1 is provided at one side of the mast and concentric therewith with a series of holes 11. In vertically-opposite

eyes 12, secured to the outer side of one of the vertical guide-bars 10, is a vertically-reciprocating bolt 13, the upper end of which is laterally bent at 14, and the bolt may be raised and said bent end swung over a pin 15, whereby the bolt is maintained in its elevated position. By swinging said bent end outwardly and lowering the bolt it may be engaged with any one of the adjusting-holes 11 of the base, and when in such engagement may be turned laterally, so as to be prevented from any accidental removal. By this means the frame, so far as described, may be swung upon the mast, it will be observed, and may be locked at any point of the circle in which it swings.

Between the guide-bars 10 there is mounted for vertical movement the elevating-frame, and the same comprises opposite vertical side bars 16, which are rabbeted at their inner and outer edges, the outer rabbets receiving the guide-bars 10, upon which they move, and the inner rabbets receiving a sliding block or plunger 17. The side bars 16 are connected by a cross-bar 18, and to one of said side bars below the cross-bar there is loosely fulcrumed at 19 a transversely-disposed vibratory lever 20, which is connected to the sliding block in a loose manner by a keeper 21, extending from the block and to a clamping-block 22, which latter is located upon the front face of the block or plunger 17. The block 22 has its under side roughened or provided with teeth 23, the purpose of which will hereinafter appear. By raising and lowering the lever 20 the plunger and clamping blocks 17 and 22, respectively, will be likewise raised and lowered in the rabbets of the bars 16. The lever may be locked at any desired point of depression, and thus lock the blocks 17 and 22 through the medium of a plate 23, with which the lever is provided and which is designed to engage under any one of a series of downwardly-disposed teeth formed upon a rack-bar 24, located upon the side of one of the bars 16. The lever is preferably slightly resilient, for a purpose hereinafter apparent. The rack-bar is loosely swiveled in eyes 24^a, located upon one of the bars 10, and at its upper end is bent at a right angle to its lower portion to form an arm 24^b, which supports a loose pulley 24^c.

A pair of brackets 26 is secured to the front faces of the bars 16 and the same support a transverse frame comprising opposite side bars 27, connected by a series of transverse bars 28. The side bars 27 are provided at each end and middle with pairs of opposite open bearing-grooves 29, in which loosely take in a removable manner the trunnions of a series of loose rollers 30. The transverse bars 28 at the end of the frame also have open bearings 31, similar to the bearings 29, and into the former may be inserted the trunnions of one of the removable rollers, whereby the latter is lengthwise journaled in the frame, for a purpose hereinafter apparent. A pull-cord 32 is secured to the lever 20, and at about its middle passes up and around the small guide-pulley 24, mounted on the bent end of the rack-bar 24, the free end of the cord depending down within reach of an attendant upon the ground. By pulling upon this cord the rack-bar will be oscillated and disengaged from the lever and the latter will be elevated, whereby the plunger and clamping blocks 17 and 22 will be elevated, also, within the inner rabbets of the side bars 16.

A cross-bar 34 is mounted on the mast immediately above the triangular braces 5 and is secured to the rear faces of the guide-bars 10, and being swiveled upon the mast will move or swing with the guide-bars. The cross-bar 34 has opposite bearings 35, mounted thereon, and in the same is journaled a transverse shaft 36, one end of which terminates in or is bent to form a crank 37. The shaft has mounted upon it a drum 38, and at one side of the drum a small ratchet-wheel 39, the teeth of which are engaged by a gravity-pawl 40, pivoted to an adjacent bearing-block 35. An elevating rope or cable 41 is secured to and adapted to be wound upon the drum and, after passing upwardly and over the guide-pulleys 9 and groove 8 of the bar 7, depends and is secured to the cross-bar 18 of the hoisting or elevating frame. By winding the crank-shaft and drum, it will be obvious that the elevating-frame will be moved vertically in the guide-frame and will be locked at any point by the pawl 40, engaging with the ratchet-wheel 39.

A stay comprising a pair of telescopic sections has its inner section 42 swiveled on the mast above the cross-bar 34 and its outer section 43 mounted for movement in ways 44, with which the inner section is provided, and at its outer or free end is provided with a pair of clamping-jaws 45. The clamping-jaws are provided with the clamping-screw 46, by which said jaws may receive and be secured upon the end of a board or plank, and at its inner end the section 43 has a set-bolt 47, by which the two sections 43 and 42 may be telescopically adjusted.

The operation of the device may be briefly stated as follows: The roller 30 is arranged in the longitudinal bearings 31, if so desired, and the guide-frame swung so as to be at the

end of the pile of lumber in the course of construction. The lumber, as is usual, is transported to the point of piling in trucks. The planks or boards are slid upon the trucks on a roller 30, and thus during the first part of the formation of the pile said roller serves to facilitate an easy skidding of the planks from the trucks as they arrive to the pile. When the pile has reached such a height as to render such handling impracticable, the real object and purpose of the device becomes apparent. The roller 30 is replaced, so as to be transversely disposed or parallel with the remainder of the series of rollers and the plank slid upon the elevating-frame. The lever 20 is then depressed, so that the clamping-block becomes locked against the board and holds it in position. The frame is now swung on the mast, so as to present the lumber toward the end of the pile and is elevated until the plank reaches the top of the pile. The attendant at the bottom of the machine now draws the rope to release the lever, and at the same time the attendant upon the pile grasps the plank and pulls it from the elevating-frame onto the pile.

By means of the telescopic stay the machine may be anchored to the pile and prevented from becoming displaced during the removal of the plank therefrom or the lifting of the plank thereon. The swiveled guide-frame is prevented from movement during the operation of applying or removing the plank by means of the locking-bolt 13 engaging with a proper perforation 11.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a very simple and convenient device that may be moved from pile to pile and will facilitate very much the piling of lumber or the reduction of such piles in lumber-yards, kilns, &c., thus enabling the piles to be made higher and requiring but little exertion to accomplish the same.

Having described the invention, what is claimed is—

1. In a machine of the class described, the combination, with a base, a mast rising therefrom, a guide-frame swiveled for rotation upon the mast, an elevating-frame mounted for movement in the guide-frame, and means for raising and lowering the elevating-frame, substantially as specified.

2. In a machine of the class described, a base, a mast rising therefrom, a rotatably-mounted guide-frame, an elevating-frame mounted for movement in the guide-frame, means for raising and lowering the elevating-frame for locking the same at any point of elevation, and means for locking the guide-frame at any point of its circle, substantially as specified.

3. In a machine of the class described, a base, a mast rising therefrom, a guide-frame swiveled for rotation upon the mast, in combination with an elevating-frame mounted for vertical reciprocation upon the guide-

frame, means for locking the guide-frame, and means for raising and lowering the elevating-frame, substantially as specified.

4. In a machine of the class described, the combination, with the base, the mast rising therefrom, the swiveled guide-frame, and the vertically-movable elevator-frame, of a horizontal frame supported upon the elevating-frame and means for raising and lowering the elevating-frame and for locking it, substantially as specified.

5. In a machine of the class described, the base, the mast rising therefrom, the swiveled guide-frame, the elevating-frame mounted therein, and means for raising and lowering the same, of a horizontal plank-supporting frame supported by the elevating-frame and provided with a series of transverse rollers, substantially as specified.

6. In a machine of the class described, the base, the mast rising therefrom, the swiveled guide-frame, the elevating-frame mounted therein, and means for raising and lowering the same, of a horizontal plank-supporting frame comprising opposite parallel bars having pairs of opposite open bearings, rollers having trunnions removably mounted in the bearings, and cross-bars having openings for removably receiving the trunnions of one of the rollers, substantially as specified.

7. In a machine of the class described, the combination, with the base, the mast rising therefrom, the swiveled guide-frame, and means for locking the same, of an elevating-frame mounted for movement in the guide-frame and having a horizontal plank or board support, and a board-clamp mounted over the same, substantially as specified.

8. In a machine of the class described, the combination, with the base, the mast rising therefrom, the swiveled frame having opposite guide-bars and the elevating-frame having opposite guide-bars mounted for vertical movement in the guide-bars of the swiveled frame, of a horizontal plank-supporting frame secured to the side bars of the elevating-frame, a plunger-block mounted for vertical movement in the ways of the side bars of the elevating-frame, a clamping-block secured to the front face of the same, a lever pivoted to one of the side bars, a keeper connecting the lever with the blocks, a plate upon the lever, and a toothed rack-bar projecting from one

of the side bars and adapted to engage the plate, substantially as specified.

9. In a machine of the class described, the combination, with the base, the mast, the cross-bar swiveled thereon, the vertical guide-bars depending from the cross-bar, the rabbeted side bars mounted for movement in the guide-bars and having their upper ends connected by the cross-bar, of the brackets extending from the side bars, the plank-supporting frame mounted on the brackets, the rack-bar extending from one of the side bars and having its upper end bent to form an arm and carrying a pulley, the lever fulcrumed to the other and having a plate for engaging the rack-bar, a rope extending from the lever over the pulley on the arm of the rack-bar and depending from the same, a plunger-block mounted in the rabbets of the side bars and carrying a clamping-block and a keeper connecting the clamping-block and lever, and means for elevating and lowering the side bars and transporting-frame, substantially as specified.

10. In a machine of the class described, the combination, with the base, the mast rising therefrom, and an annular series of concentric perforations formed in the base, of the elevator-frame carrying guide-frames swiveled on the mast and provided with vertically-opposite keepers and a pin and an inverted-L-shaped bolt mounted in the keepers, adapted at its lower end to engage the perforations of the base and at its upper end to be swung over and under the pin, substantially as specified.

11. In a machine of the class described, the combination, with the base, mast, swiveled guide-frame, elevating-frame, and means for operating the same, of the stay consisting of two telescopic sections adjustably connected, the inner section being swiveled on the mast and the outer section terminating in plank-engaging jaws having a clamping-screw, substantially as specified.

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

HECTOR MCKINNON.

Witnesses:

G. W. MCKINNON,
ROBERT DUFFY.