

No. 620,585.

Patented Mar. 7, 1899.

F. G. HAYES.
ELEVATOR.

(Application filed Oct. 27, 1898.)

No Model.)

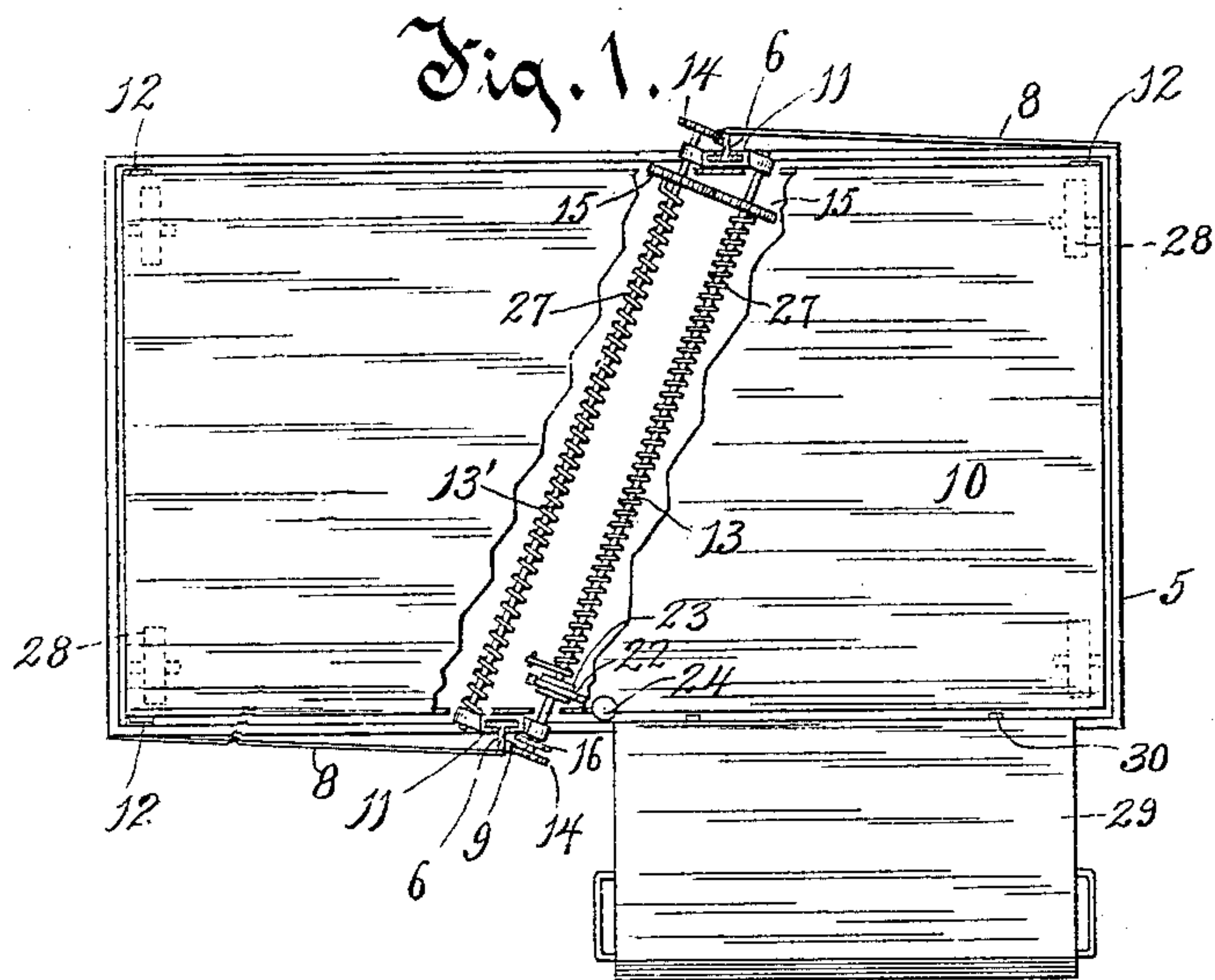


Fig. 2.

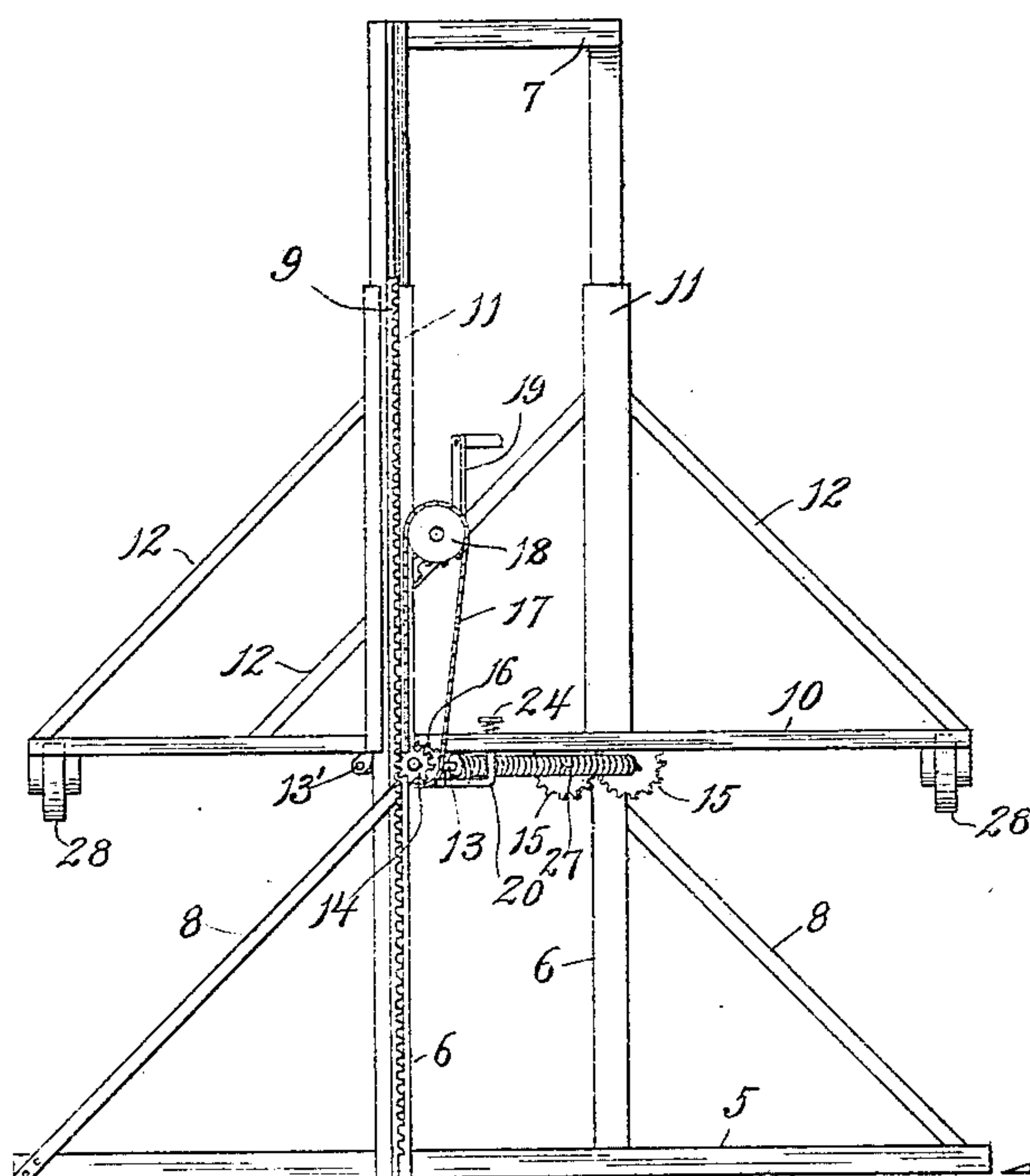
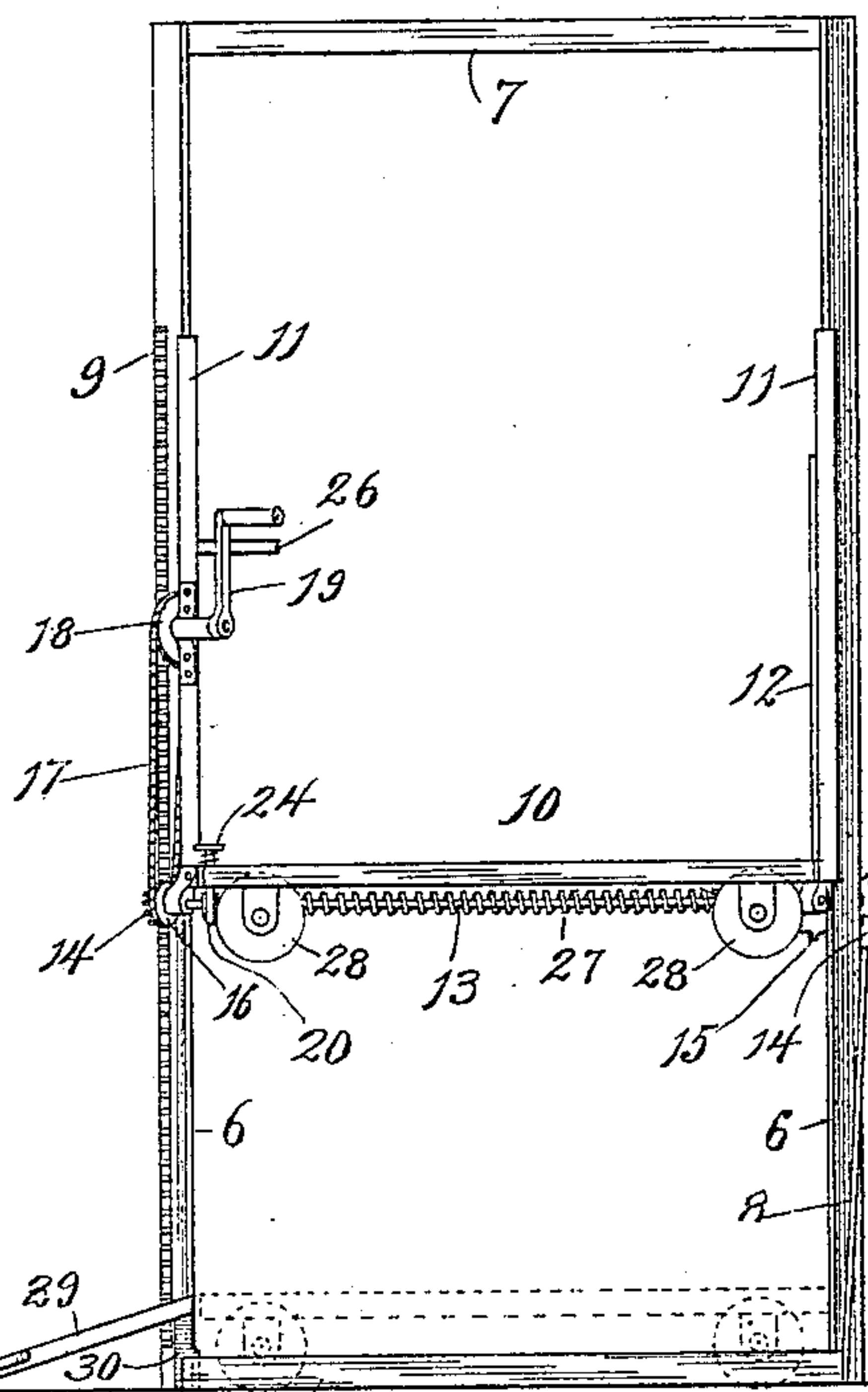


Fig. 3.

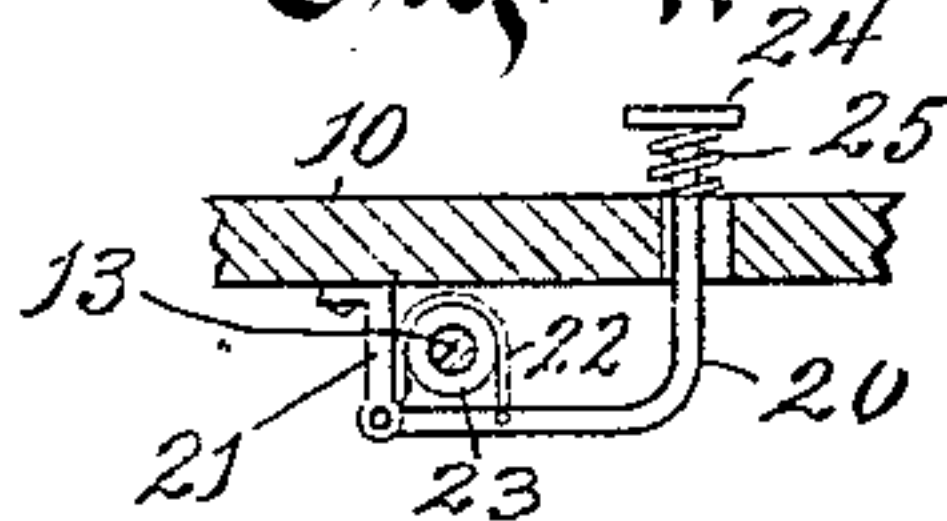


Witnesses.

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Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK G. HAYES, OF CHICAGO, ILLINOIS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 620,585, dated March 7, 1899.

Application filed October 27, 1898. Serial No. 694,705. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. HAYES, of Chicago, in the county of Cook and State of Illinois, 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.

My invention has especial reference to an elevator adapted for lifting bales of cotton or other bulky and rather heavy articles to load them into a car or wagon. The elevator is portable, and is therefore adapted to be moved from one locality to another on a plantation or farm and may be operated by a single attendant.

The invention consists of the elevator, its parts and combinations of parts, as hereinafter described and claimed, or their equivalents.

In the drawings, Figure 1 is a plan of my improved elevator, the posts being in section and parts being broken away to show other parts beneath those broken away. Fig. 2 is a side elevation of my improved elevator. Fig. 3 is an end elevation of my improved elevator. Fig. 4 is a detail of a brake or locking device.

In the drawings, 5 is an open base-frame, preferably in elongated parallelogram form. Posts 6 6 are fixed to and project upwardly from the base-frame 5 and are connected together at the top by a cross-piece 7. The posts are advisably made of T-iron and are secured to the longer sides of the base-frame at points respectively nearer one end of the frame than the other and in such positions that a right line from one post to the other crosses the base-space in an oblique direction. The T-iron posts are also so disposed that the principal rib or flange of the post projects laterally away from the base-frame. A rack 9 is secured to each of the posts 6 longitudinally thereof. Braces 8 8, fixed to the posts 6 6, are secured at their feet to the base-frame. A platform 10 of such size and form as fits loosely within the base-frame 5 is provided with slides 11, that extend upwardly therefrom and clasp loosely about the posts 6 6, whereby the platform is held in a substantially horizontal position and is adapted to move freely vertically on the posts. Braces

12, fixed to the slides and to the platform, strengthen the construction. Two shafts 13 13', parallel to each other, are mounted near their respective ends in boxes therefor, fixed on the slides 11. These shafts 13 are each provided with a cog-wheel 14, respectively at opposite ends of the shafts, that meshes with the adjacent rack 9 on the post 6. These shafts are geared to each other by the toothed wheels 15 thereon. The shaft 13 is provided with a sprocket-wheel 16, and a chain 17 running thereon runs also on a sprocket-wheel 18, mounted on a slide 11 above the platform 10, and its axle is provided with a crank-handle 19, whereby the attendant can rotate the sprocket-wheel, and thereby can raise or lower the platform 10.

A brake device is employed, consisting of a bent arm 20, pivoted at one extremity to a bracket 21, fixed on the under surface of the platform 10, and a flexible metal strap 22, attached at one end to the bracket 21 and at the other extremity to the bent arm 20, and that medially passes over and bears on an annular collar 23, fixed on the shaft 13. The free end of the arm 20 extends upwardly through an aperture therefor in the platform 10 and is provided with a foot-pedal 24 and is supported in position yieldingly by a spring 25, coiled around the arm 20 and interposed between the pedal 24 and the platform 10. I may also employ a removable pin 26, that, being inserted in the slide 11, engages the crank-handle 19 and prevents the rotation thereof.

For the purpose of accumulating energy and assisting in the raising of the platform 10 and its load, especially at the moment of commencing its movement upwardly with a load thereon, I provide springs 27, coiled in cylindrical form about the shafts 13 13', respectively, the springs being secured at one extremity to a relatively-fixed support and at the other extremity to the wheels 15. As the shafts 13 and 13' revolve in opposite directions these springs are coiled in reverse directions, so that as the platform descends these springs will be wound up, and thereby accumulate torsional energy, so that thereafter when a load is placed on the platform 10 and it is desired to elevate the platform and its load some assistance is given to the operator by the resilience or accumulated energy

of these springs. The platform 10 is also provided with supporting-wheels 28, axled thereon and of such size and so disposed that when the platform is forced down by the operator
5 by rotating the crank 19 to its limit of travel the frame 5 and the post 6 thereon are raised to such extent that the wheels 28 rest on the floor, supporting the entire elevator thereon and permitting it to be moved about on a floor
10 or the ground as a portable device.

By reason of the location of the posts 6 at a distance from one end of the frame 5 there is considerable space between these posts and that end of the platform, and I utilize this
15 space as convenient for loading the platform, and therefore I provide a detachable bridge 29, provided with hooks or socket-pins 20, that are adapted to take into the frame 5, and thereby provide a floor or passage-way for a
20 truck to be run from the floor up onto the platform with a cotton bale thereon or other load.

What I claim as my invention is—

1. In a portable elevator, the combination
25 with an open base-frame provided with posts, of a platform movable vertically on the posts above and through the open base, coacting means on the platform and posts adapted to move the platform through the base-frame
30 and lift and support the base-frame on the platform, and wheels on the platform adapted to support it movably on a floor.

2. In a portable elevator, the combination with an open base-frame, upright posts fixed
35 thereon, and a rack on and longitudinally of a post, of a platform provided with slides adapted to move on said posts above and through the base-frame, a cog-wheel mounted on the platform meshing with the rack, means
40 for rotating the cog-wheel, and wheels on the platform adapted to support said platform movably on the floor.

3. In an elevator, the combination of a base, posts fixed on the base, racks on the posts, a
45 platform above the base movable vertically on the posts, a cog-wheel mounted on the plat-

form meshing with a rack, a sprocket-wheel supported on and above the platform and provided with a hand-crank, a sprocket-chain running on said sprocket-wheel and on another sprocket-wheel on the axle of said cog-wheel.

4. The combination of a base, posts fixed on the base, racks on the posts, a platform provided with elongated slides movable vertically on the posts, transverse shafts mounted on the platform, said shafts being geared to each other and one of them being geared to one of said post-racks, a sprocket-wheel on one of said shafts, and a sprocket-chain running on said sprocket-wheel and on another sprocket-wheel mounted on and above the platform and provided with a crank-handle.

5. In an elevator, the combination of a base-frame in parallelogram form and posts fixed thereon on opposite sides thereof at unequal distances from the ends of the frame and on opposite sides of a middle transverse line of the platform, a platform slidable vertically on the posts, shafts mounted on the platform obliquely thereof geared to each other and severally geared to racks on the posts, and means for rotating the shafts.

6. In an elevator, the combination with a base-frame and posts fixed thereon, of a platform movable vertically on the posts, transverse shafts mounted on the platform gearing with each other and with racks on the posts, and springs coiled about the shafts secured at one extremity to the shafts and at the other extremity to a relatively-fixed support adapted to accumulate torsional energy as the platform goes down and by resilience to employ that energy as the platform is permitted to go up.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK G. HAYES.

Witnesses:

D. L. HEURICH,
R. J. MERSHAN.