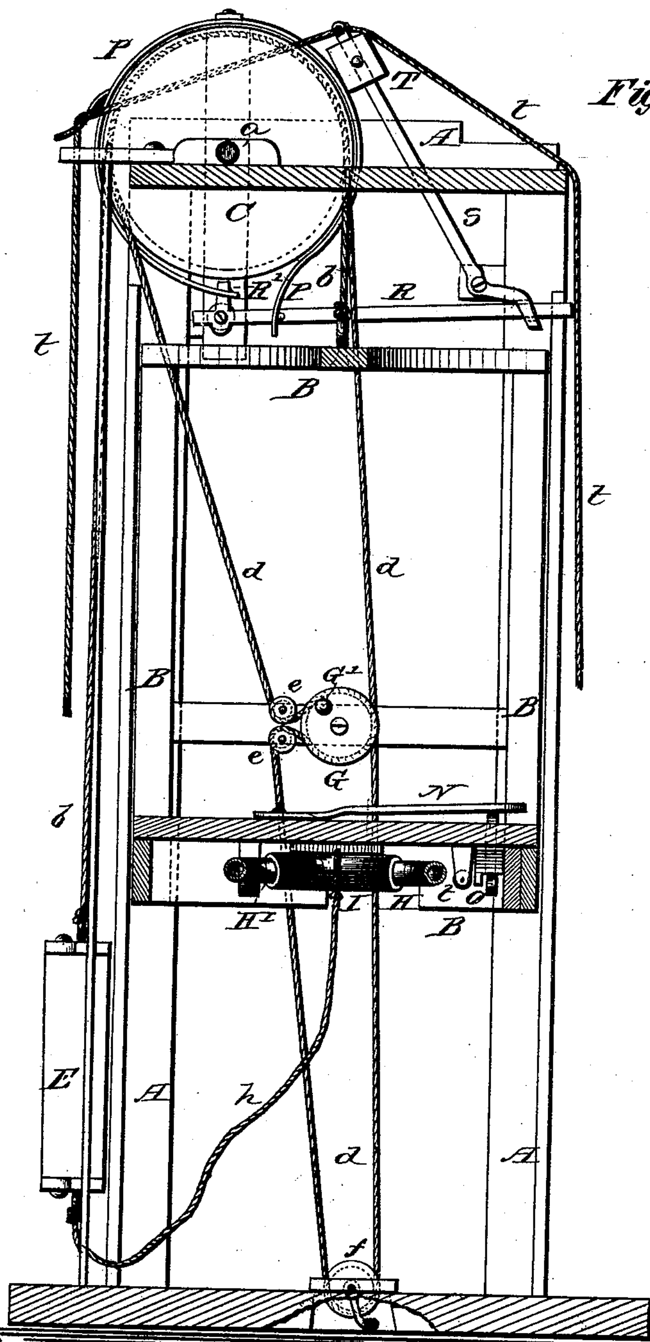
3 Sheets—Sheet 1.

C. H. MITCHELL.

PASSENGER ELEVATOR.

No. 180,361. Patented July 25, 1876.



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Wm. [illegible]

Inventor:

Charles H. Mitchell.

Per: C. H. Watson & Co. Attorneys.

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3 Sheets—Sheet 2.

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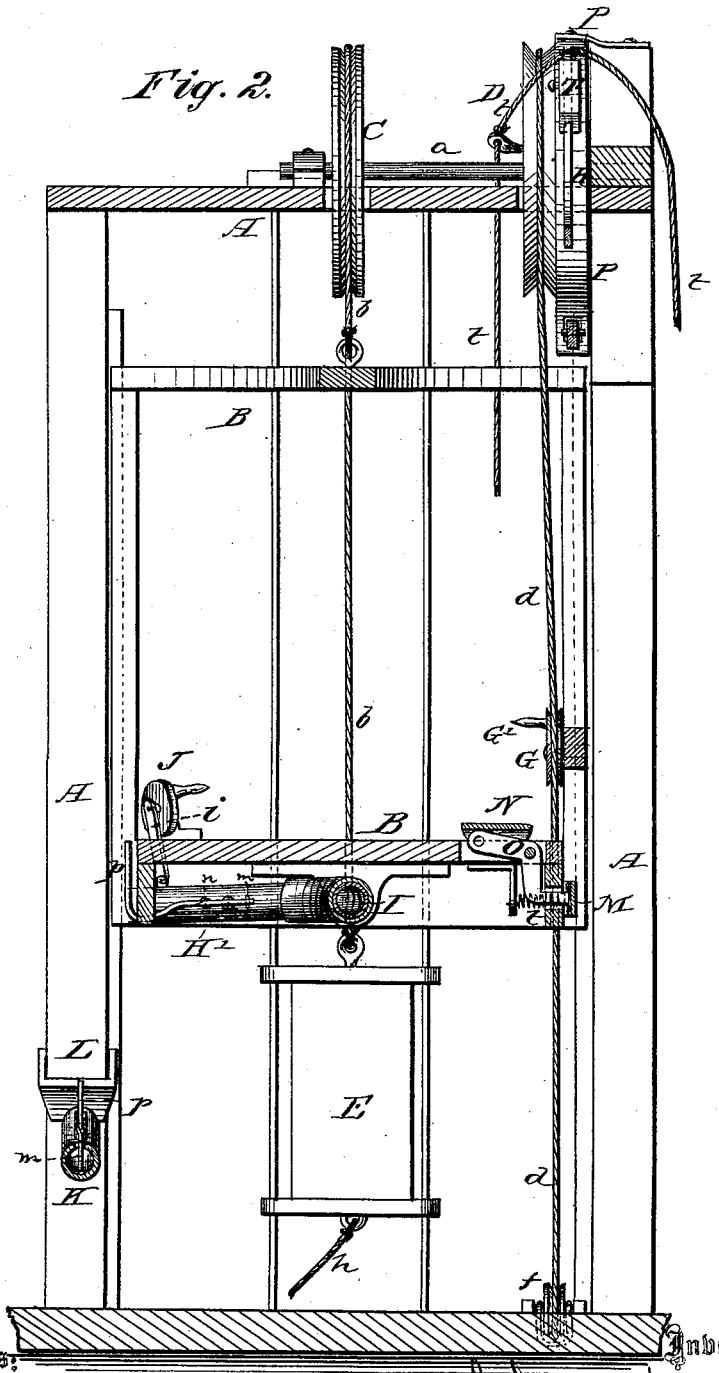
Fig. 2.



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3 Sheets—Sheet 3.

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Fig. 3.

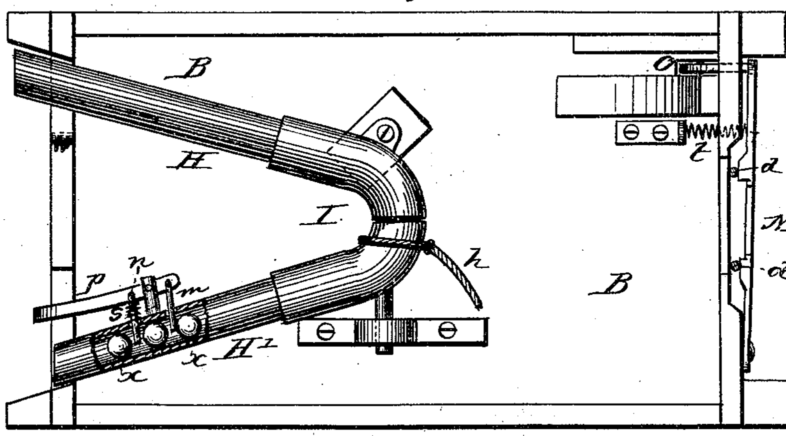
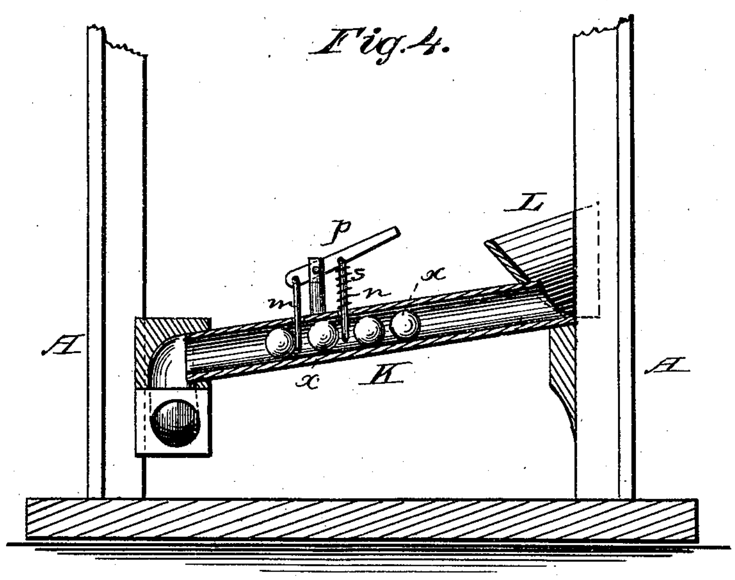


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES H. MITCHELL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PASSENGER-ELEVATORS.

Specification forming part of Letters Patent No. **180,361**, dated July 25, 1876; application filed January 21, 1876.

To all whom it may concern:

Be it known that I, CHARLES H. MITCHELL, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Passenger-Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a passenger-elevator, as will be hereinafter more fully set forth.

In the annexed drawings, Figure 1 is a side view partly in section. Fig. 2 is a front view partly in section. Fig. 3 is a bottom view of car B. Fig. 4 is a detail view.

A represents the frame-work in which the car B is to move vertically up and down. On top of this frame-work are two sheaves or pulleys, C and D, mounted upon one shaft, *a*. The sheave C supports the cable or rope *b*, running from the center of the top beam of the car B to the counterpoise-weight E. The sheave D supports the endless rope *d*, which passes down on one side around a sheave, G, of larger size, and one or more smaller sheaves, E, attached to the stile of the car; thence down to the bottom of the elevator under a sheave, *f*, which is weighted in order to give tension to the rope; thence up again to the other side of the sheave D. The sheave G has a crank, G′, attached to it, by turning which the rope *d* is pulled and turns the sheave D, thereby causing the car to move up or down. The object of passing the rope *d* around the smaller sheaves *e* on the car is to prevent it from chafing, and this may be accomplished by using one or two such sheaves of the same or different size, and they may be arranged in various ways and yet answer the same purpose. The bottom of the car B is connected with the lower end of the counterpoise-weight E by means of a rope, *h*, for the purpose of equalizing the weight of the cable *b*. Without this rope *h* the car would weigh more at the bottom of elevator than it would at the top, in consequence of the additional weight of the cable on that side of the sheave C. Under the bottom of the car are two tubes, H H′, joined together at their inner ends by a curved pivot-joint, I, and arranged in V form. The tube H projects through the side of the car, and is attached thereto in such a position as to incline slightly downward from the outer to the inner end. The tube H′ is connected by a rod, *i*, with a crank-wheel, J, on the car, by the turning of which wheel the outer end of said tube H′ may be raised or lowered, as required. These tubes are for the purpose of receiving, holding, and discharging as many balls as may be necessary to balance the car with the passenger thereon. The device for gating the balls *x* into this receiver is an incline, K, leading from a stationary box, L, on the lower floor, the outlet of this incline coming flush with the outer end of the tube H under the car. The balls are held in position in this incline by a slide, *m*, connected with a lever, *p*, pivoted to a post on the top of the incline. To this lever on the other side of the pivot is connected another slide, *n*, and a spring, *s*, is arranged to operate on the lever in such a manner as to keep the slide *m* closed while the slide *n* is open. By operating the lever *p*, so as to raise the slide *m*, one ball only passes out, the others being kept back by the slide *n*, which is lowered by the same movement that raises the slide *m*. Therefore, if it is desired to add thirty pounds to the car, the car is placed in position against the incline, the lever operated three times, and three balls are thus let into the tubes under the car—each ball weighing any desired number of pounds. The spring *s* each time brings the lever *p* back in position again.

In case it is desired to take out any balls from the car, it is raised till the tube H′ can be lowered over the box L, when one or more balls may be dropped out, said tube being provided with similar gates, lever, and spring, as described for the incline K.

On the side of the car B is a break-lever, M, which presses the rope *d* to the side of the car and holds it there. This break-lever is operated by a spring, *t*, as shown, and is released by means of a pedal, N, on the car, which, being stepped upon, turns an elbow-lever, O, so that one arm thereof will press the brake-

lever away from the side of the car, and thereby release the rope. Around the sheave D, which carries the operating-rope *d*, is passed a metal band, P, one end of which is passed over the short arm R′ of an elbow-lever pivoted below said sheave, and the other end of said band is passed over the long arm R of said lever. The outer end of said arm R is passed through a slot in the short arm of a pivoted locking-lever, S, the long arm of which has a weight, T, adjustable upon it. By pulling the rope or line that throws the brake, the lever R R′ operating the band is pulled up at the same time, thus dispensing with any weights which are generally used for that purpose. The car being weighted—say, for one hundred and seventy-five pounds—and being at the lower floor, a person weighing only one hundred and forty-five pounds desires to ascend. He then, by means of the devices already described, adds three balls, or thirty pounds, to the weight, then steps on the pedal to release the rope, and turns the crank-sheave, when he will easily go upward. If the passenger weighs, say, one hundred and ninety-five pounds, he raises the car till he can discharge two balls, or twenty pounds, from the tubes under the car, and thus reduce the weight.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a passenger-elevator, the combination of the sheave D on top of elevator, endless rope *d*, the crank-sheave G, and one or more idle pulleys, *e*, on the car, and the weighted pulley *f* at the foot of elevator, all substantially as and for the purposes herein set forth.

2. The tubes H H′, connected by a pivot-joint, I, under the car of a passenger-elevator, and the tube H′ adjusted up and down, as desired, and provided with slides, as described, substantially for the purposes set forth.

3. The box L, and incline K, provided with slides, as described, in combination with the tubes H H′, under the car B, for the purposes herein set forth.

4. The combination, with the car B and rope *d*, of the brake-lever M, spring *t*, pedal N, and elbow-lever O, substantially as and for the purposes herein set forth.

5. The combination, with the sheave D, of the metal band P, elbow-lever R R′, and weighted locking-lever S, all constructed substantially as and for the purposes herein set forth.

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

CHARLES H. MITCHELL.

Witnesses:
WILLIAM SMITH,
THOS. SMITH.