(Model.)

3 Sheets—Sheet 1.

J. B. JOHNSON.

Elevator.

No. 237,981. Patented Feb. 22, 1881.

Fig. 1.

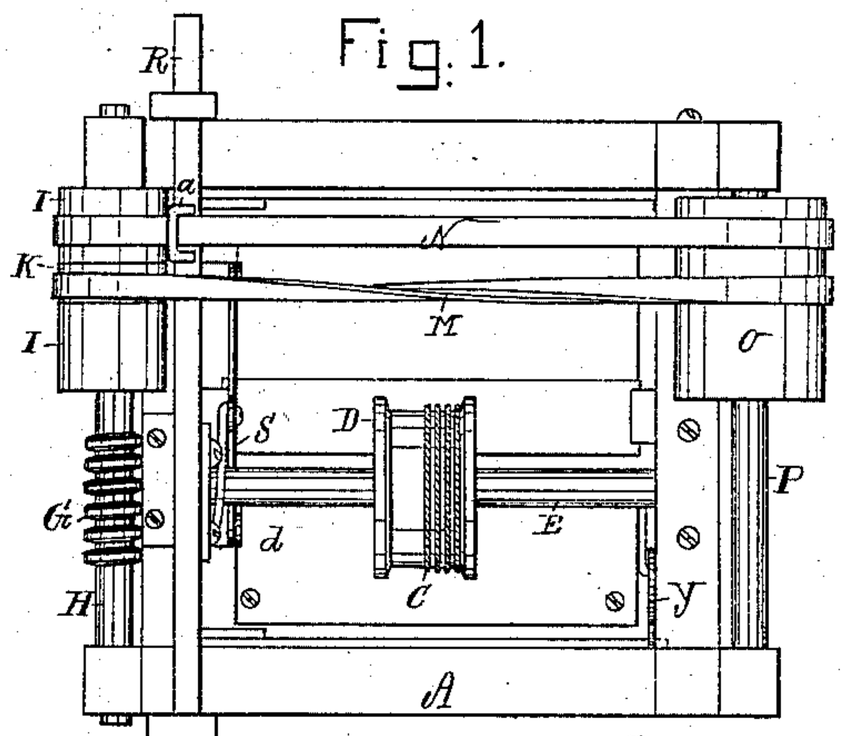


Fig. 2.

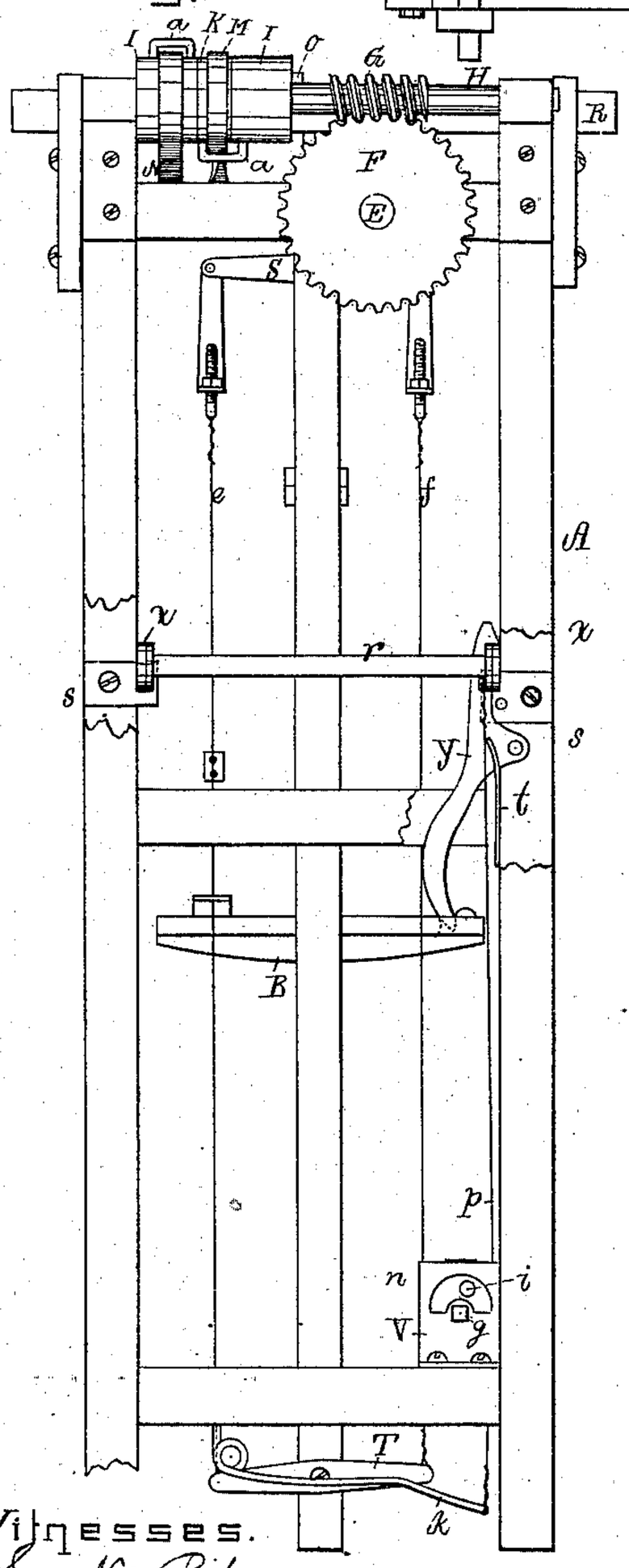
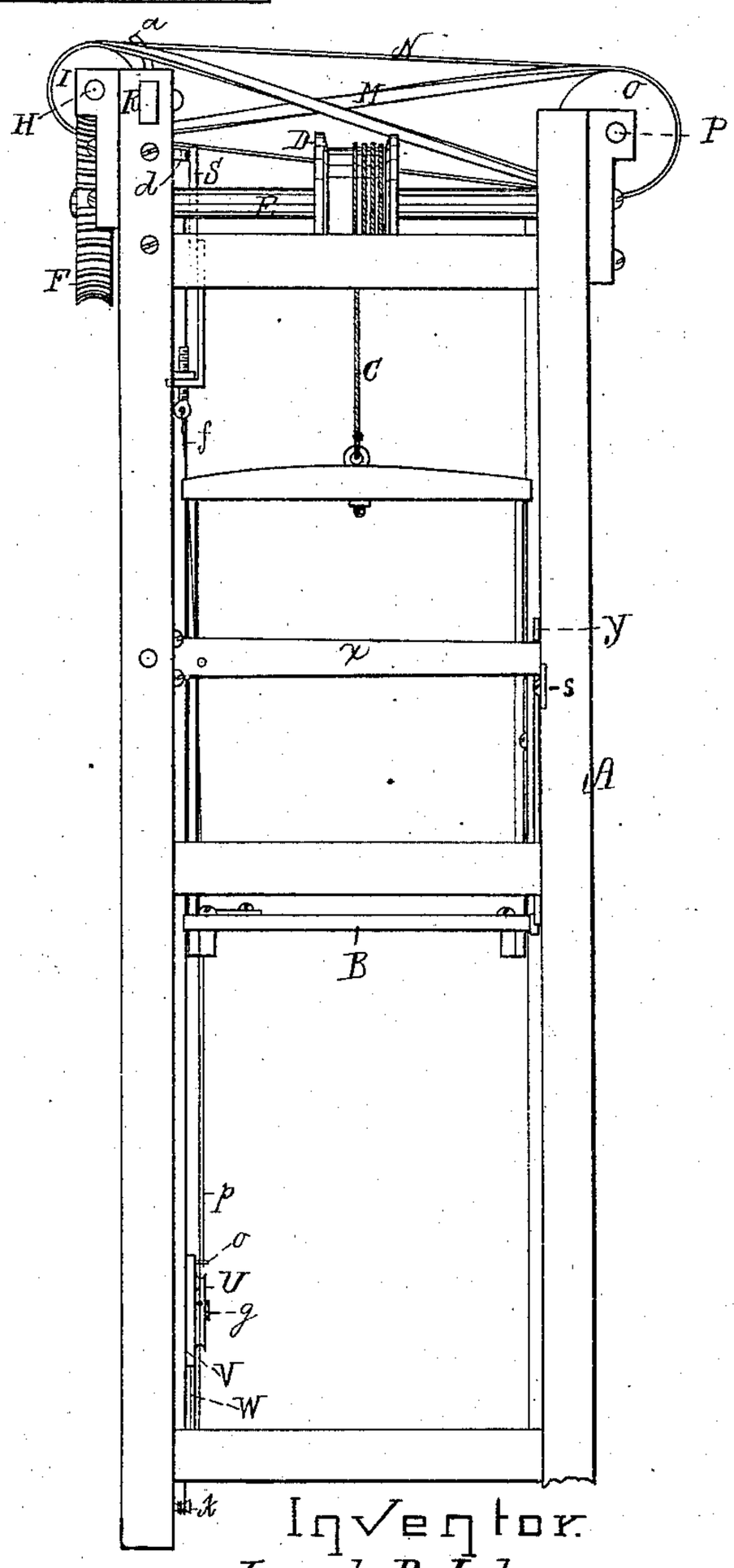


Fig. 3.



Witnesses.

S. N. Piper

Wm. W. Lunt

Inventor.

Joseph B Johnson.

by his attorney.

R. H. Eddy

(Model.)

3 Sheets—Sheet 2.

J. B. JOHNSON.

Elevator.

No. 237,981. Patented Feb. 22, 1881.

Fig. 4.

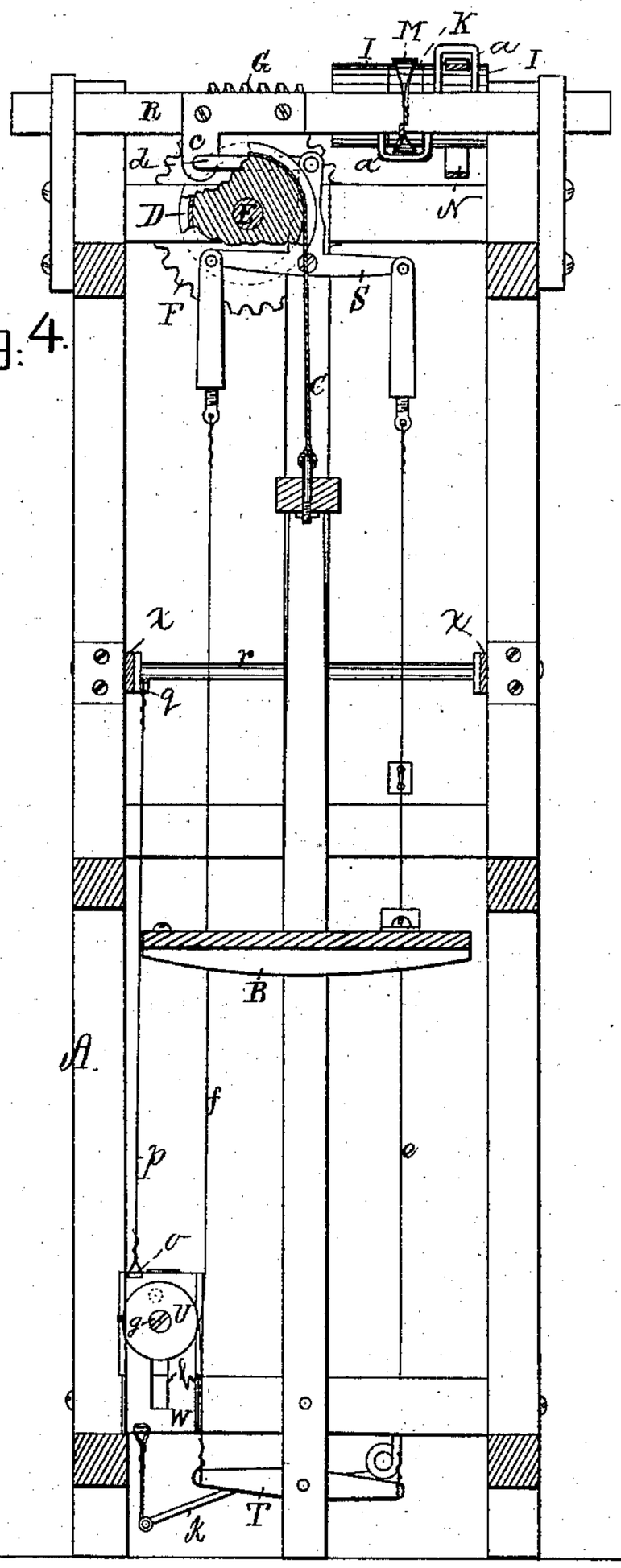


Fig. 5.

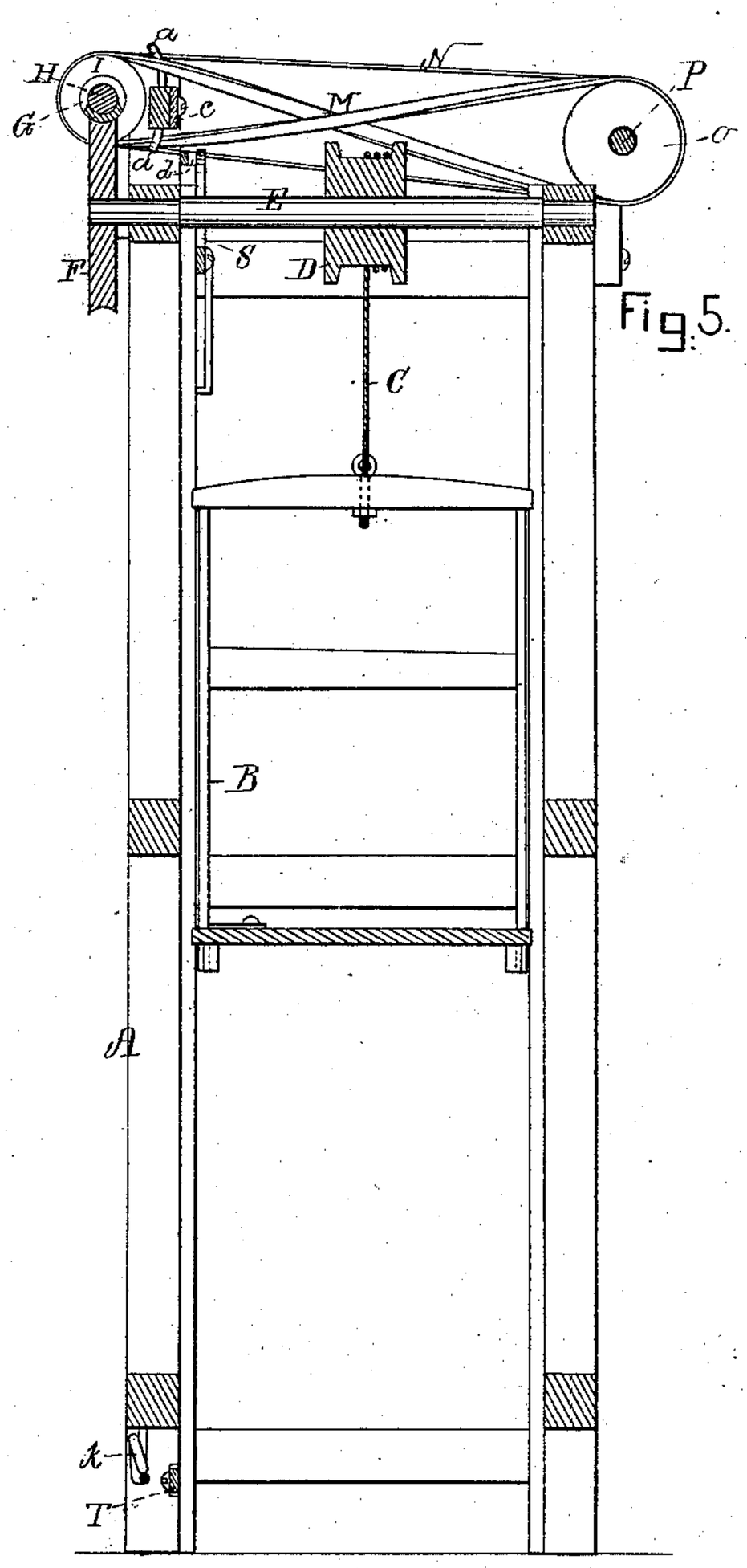


Fig. 6.

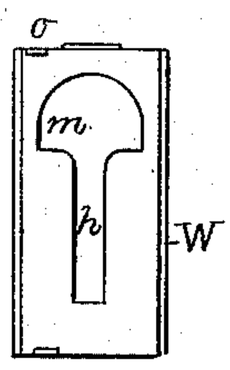


Fig. 7.

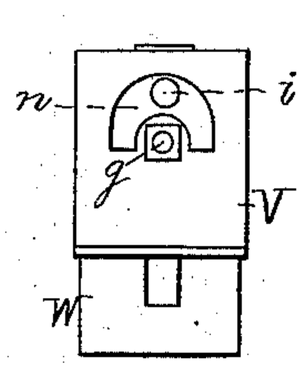


Fig. 8.

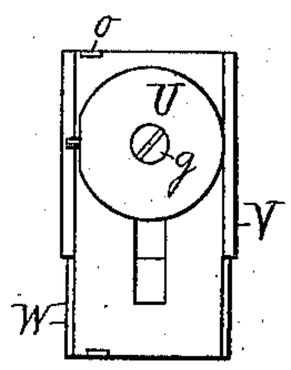


Fig. 9.

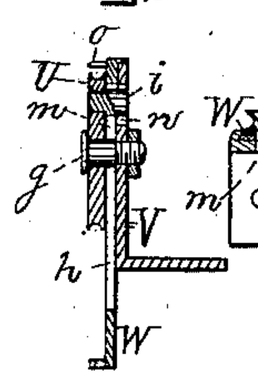
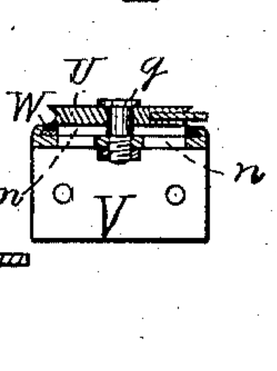


Fig. 10.



Witnesses.

S. N. Piper

Wm. W. Lunt

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R. H. Eddy

(Model.)

3 Sheets—Sheet 3.

J. B. JOHNSON.

Elevator.

No. 237,981. **Patented Feb. 22, 1881.**

Fig. 11.

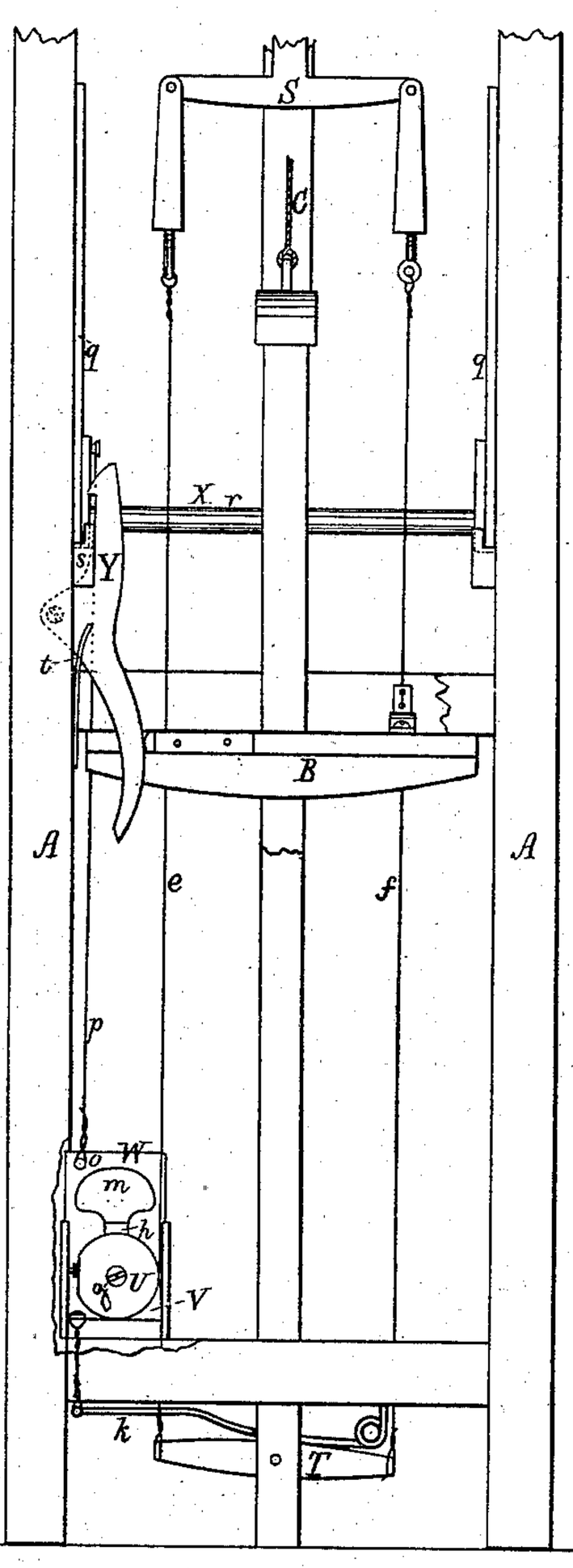
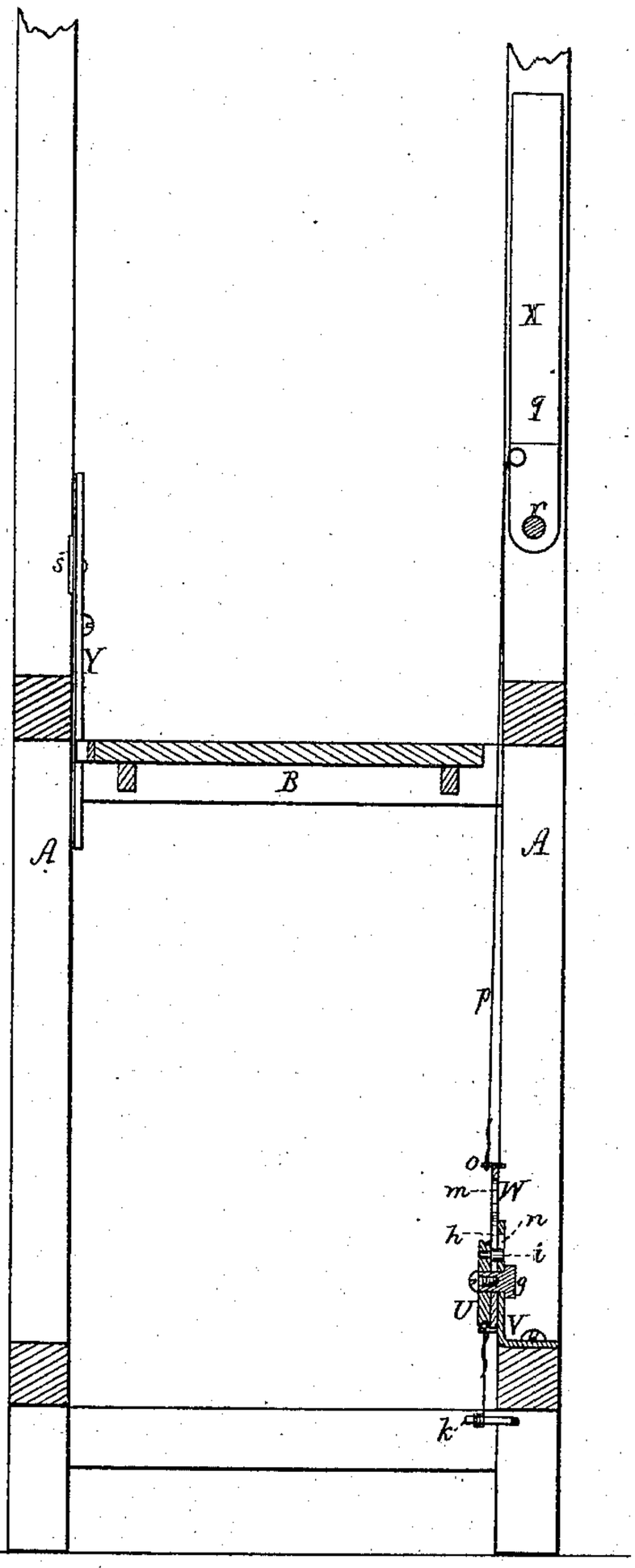


Fig. 12.



Witnesses.

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Wm. W. Lyon

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R. H. Eddy

UNITED STATES PATENT OFFICE.

JOSEPH B. JOHNSON, OF LYNN, MASSACHUSETTS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 237,981, dated February 22, 1881.

Application filed June 24, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH B. JOHNSON, of Lynn, of the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Goods or Passenger Elevators; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, Fig. 3 a side elevation, and Figs. 4 and 5 are transverse sections, of an elevator provided with my invention. Fig. 6 is a side view of the locking-plate of the belt-shipper lock, to be hereinafter described. Fig. 7 is a front view, Fig. 8 a back view, Fig. 9 a vertical section, and Fig. 10 a horizontal section, of the belt-shipper lock. Fig. 11 is a side elevation of the elevator, showing the locking-plate and guard in their raised positions. Fig. 12 is a vertical section taken through the locking-plate.

The nature of my invention is fully set forth in the claim or claims hereinafter presented.

By means of the door of the well of an elevator having accidentally been left open, or it being in proximity with one or more others, severe accidents have not infrequently taken place—that is, a person has entered and fallen into the well and been seriously injured or killed.

My invention has for its object the prevention of accidents from causes above mentioned.

In the drawings, A denotes the well or frame within which the elevator-car B is placed, and traverses vertically from floor to floor of a building.

C is the lifting and lowering rope of the car, such rope being fixed to and wound around a drum, D, carried by a cross-shaft, E.

A worm-gear, F, fixed on the shaft E, engages with a screw or worm, G, fixed on a shaft, H, provided with two loose pulleys, I I, and an intermediate or fast pulley, K. Two endless belts, M N, work around the said pulleys and a drum, O, the latter being fixed on a driving-shaft, P, arranged as shown. One of such belts—viz., that marked M—is what is usually termed a "crossed belt." The said belts pass through the eyes *a a* of a bar or shipper, R, adapted to slide longitudinally and horizontally in the frame A.

An arm, *c*, projecting down from the bar R, is connected to the medial arm of a tri-armed lever, S, by a connecting-rod, *d*. From the horizontal arms of the tri-armed lever ropes *e f* extend down to the arms of a lever, T, arranged at the lower part of the frame A. One of these ropes winds once, at least, around a lock-wheel, U, and at a part of the periphery of the latter the rope is fastened thereto. The said wheel is adapted to revolve on a stationary arbor, *g*, projecting from an upright, V, within which, and applied thereto so as to be capable of being moved vertically, is the locking-plate W. This plate W has a slot, *h*, made in it medially and downward from a semicircular aperture, *m*, made in the plate to receive a stud, *i*, projecting from the lock-wheel U. A spring, *k*, suitably applied to the frame A and the locking-plate, serves to pull the latter downward out of engagement with the stud, as may be required. There is in the standard V, and opposite the said aperture *m*, another such aperture, (marked *n*,) the stud *i* also being extended into the aperture *n*.

Furthermore, there is fixed to the upper part of the locking-plate, or to a projection, *o*, thereof, a rope, *p*, that is extended upward to and fixed to one arm, *q*, of a guard, X, which, as shown, consists of two such arms and a shaft, *r*, from which they are projected, the well being supposed to have doorways at two opposite sides of it, at each floor of the building in which the elevator may be arranged. When, however, there is to be to the well but one doorway to each floor or story of the building the guard need have one arm only. The guard is to be pivoted to the frame in a manner to enable the guard to be turned from a horizontal to a vertical position, it being, when in a horizontal position across the doorway, at a proper height to prevent a person from passing into or from the car, or from accidentally stepping or falling into the well, as he might, should there be no guard to the doorway. When down, each arm of the guard rests upon one of two stops, *s*, fixed to the frame, one arm being held down upon its stop by a lever-latch, Y, provided with an actuating-spring, *t*, arranged as shown. While descending, and just before it may reach the threshold of the doorway, the car comes into contact with the curved bail of the latch, and continuing to descend meets and moves the latch out of engagement with the guard-arm,

in order to enable a person to raise the guard up to a vertical position and pass into or out of the car. In so raising the guard the locking-plate W will simultaneously be drawn upward and be made to engage with the stud *i* in a manner to prevent the lock-wheel U from being revolved, and of course the shipper from being moved prematurely. From this it will be seen that before the shipper R can be moved by a person in the car, or one on a floor, either above or below that at which the car may be, the guard must be turned down. On depressing the guard the actuating-spring of the locking-plate will draw the said plate down out of engagement with the stud of the lock-wheel.

I would remark that each guard of the well is to be connected to the locking-plate in a manner and by means which will cause it, the said locking-plate, to be pulled upward into engagement with the stud of the lock-wheel on such guard being raised up and into a vertical position.

From the above it will be seen that the guard is always in place across the well-doorway of any floor when the car may not be at such doorway, and that the car cannot be started by a person in it, or above or below it, until the guard may have been drawn down to a horizontal position.

I claim—

1. In combination with the well A and car B of an elevator, provided with means, as described, for effecting the hoisting and lowering of the car, and the stopping of it at any of the doorways of the well, the guard X, its spring-latch Y, and the locking-plate W, its spring *k*, and studded wheel U, all being constructed and adapted to operate substantially as and for the purpose or purposes set forth.

2. The combination of the elevator-car guard and its lock, consisting of the studded wheel, the slotted locking-plate, and its actuating-spring, arranged and supported by means essentially as specified, such wheel being for application to a belt-shipper rope, in manner as set forth.

JOSEPH B. JOHNSON.

Witnesses:
R. H. EDDY,
S. N. PIPER.