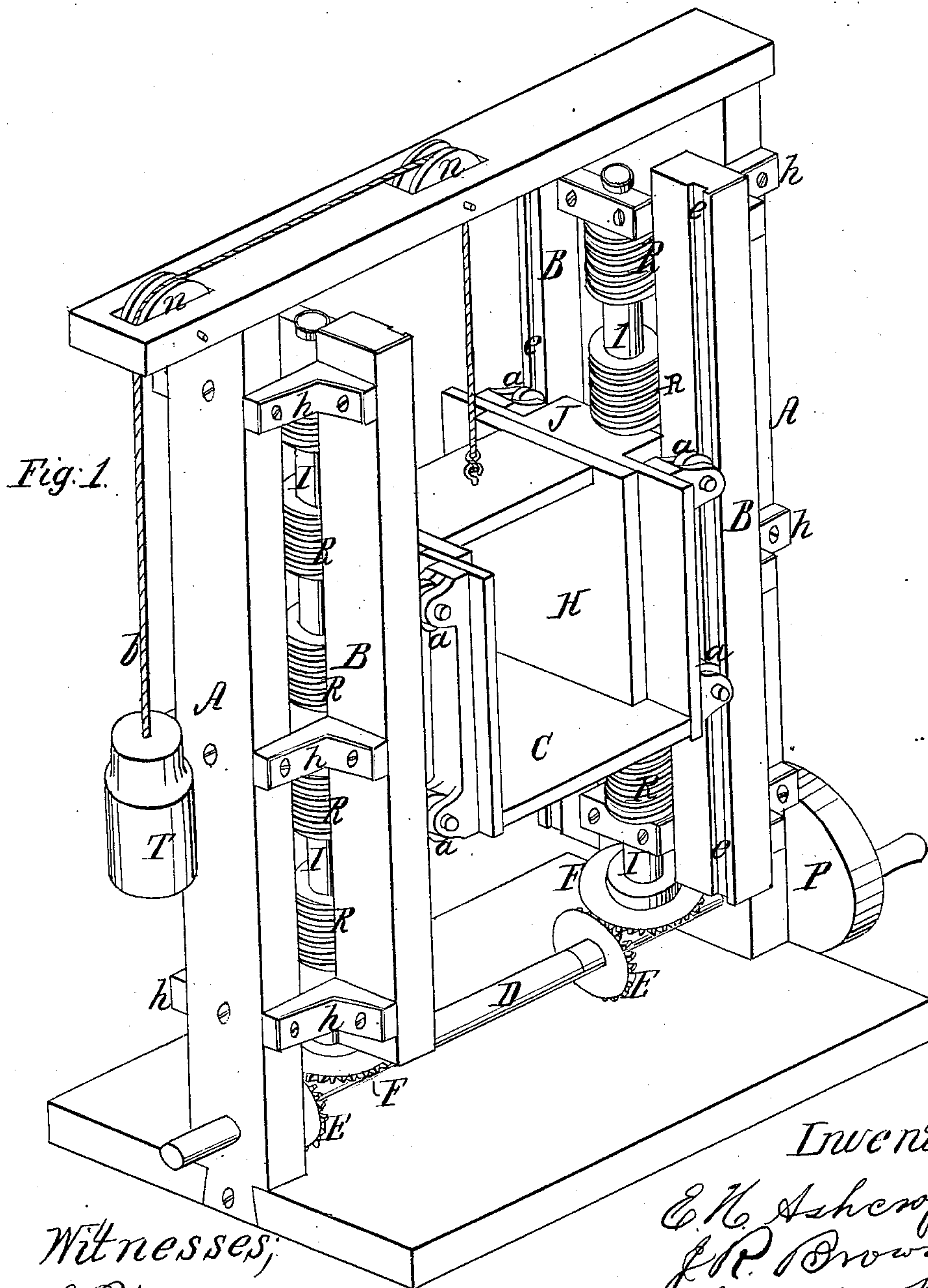


Ashcroft & Brown, ^{2 Sheets, Sheet 1.}

Elevator.

N^o 81,325.

Patented Aug. 25, 1868.



Witnesses;
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P. F. Dodge

Inventors;
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by Dodge & Mun
their attys

Ashcroft & Brown, ^{2 Sheets, Sheet 2.}

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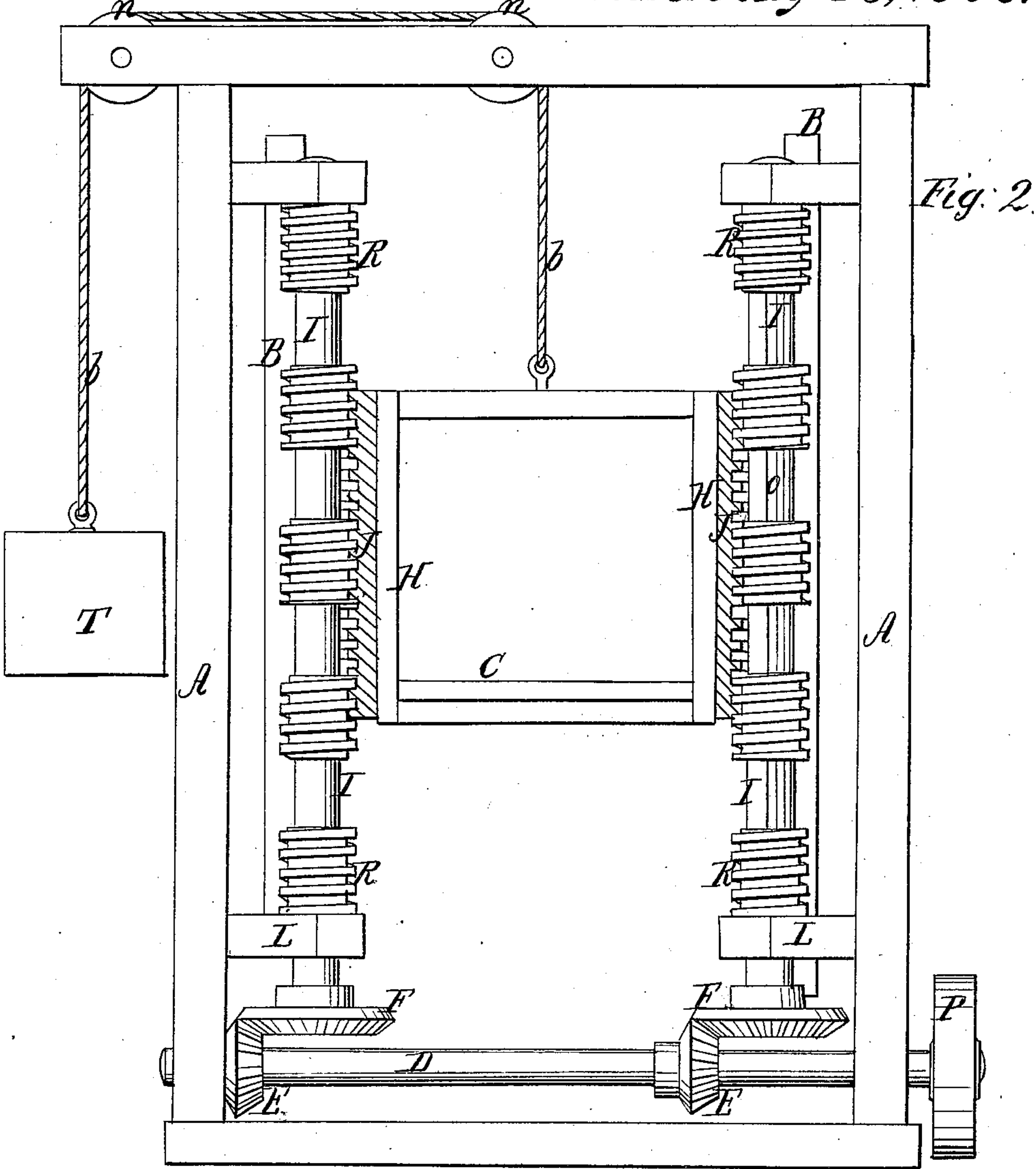


Fig. 2.

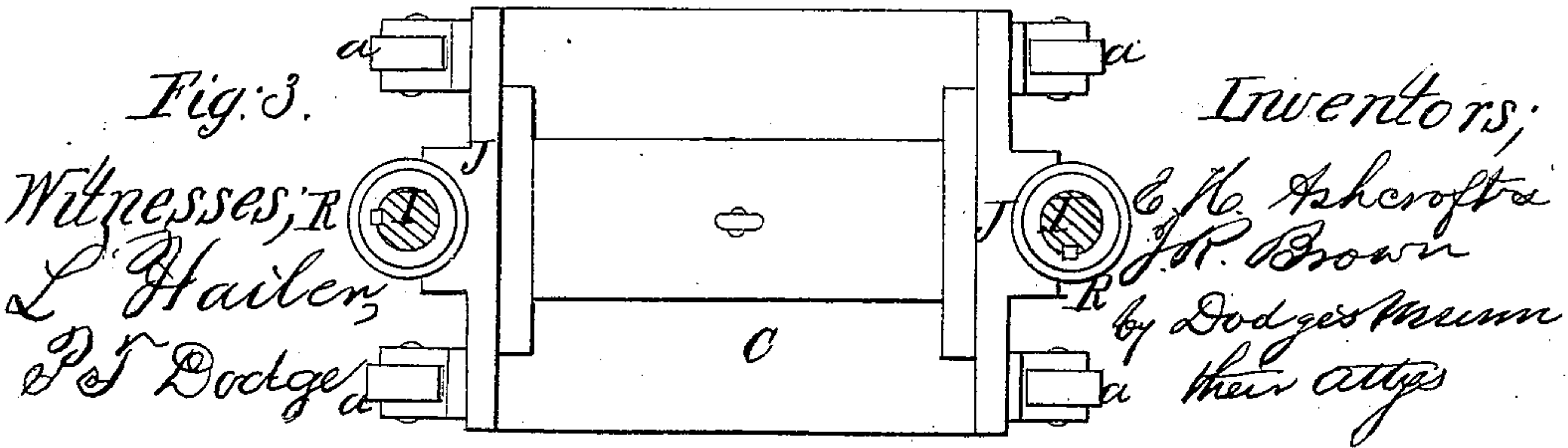


Fig. 3.

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UNITED STATES PATENT OFFICE.

E. H. ASHCROFT AND J. R. BROWN, OF BOSTON, MASSACHUSETTS, ASSIGNORS
TO E. H. ASHCROFT.

IMPROVED ELEVATOR.

Specification forming part of Letters Patent No. **81,325**, dated August 25, 1868.

To all whom it may concern:

Be it known that we, E. H. ASHCROFT and J. R. BROWN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Elevators for Hotels, Stores, &c.; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use our invention, we will proceed to describe it.

Our invention consists in an improved method of constructing elevators for use in hotels, stores, and similar buildings, the elevator to be operated by screws constructed and arranged in a novel manner, as hereinafter more fully explained.

Figure 1 is a perspective view of our improved apparatus. Fig. 2 is a front elevation, shown partly in section; and Fig. 3 is a top-plan view of the cage with the screw-rods shown in section.

In making elevators of this class it has long been an object to so construct them that while they might be operated with the requisite speed and power, they should not become detached and fall by an accidental disarrangement of the mechanism, or of any of the parts.

In constructing our improved apparatus, we erect a suitable frame, consisting of an upright post, A, extending on each side of the hatchway from the bottom to the top of the building, or as far as it is desired to have the platform or cage move, these posts being secured firmly in place by being framed or bolted to floor, joists, and body of the building.

To the inner face of each of these posts we secure a vertical shaft, I, which is mounted in bearings or boxes L in such a manner as to permit their free rotation, as shown in Fig. 2. These shafts I may be about two and one-half inches in diameter, and are turned off smooth, and have a key-slot, o, cut in them their entire length, their diameter being, however, greater or less, according to their length, it only being required to have them of such a size as to

resist the torsional strain exerted upon them in operating the device.

Upon these shafts I we secure a series of bosses or screws, R, of a diameter of six inches or more, they being placed at uniform intervals or distances apart, as shown clearly in Fig. 2, and secured firmly on the shafts by keys, as represented in Fig. 3, or by pins or screws passing transversely through them. These bosses or screws we make of the best gun-iron, and cast them with a core, forming a hole of the proper size to fit the shaft I, though it is obvious that they may be cast solid and bored out, if preferred.

The object of making the shafts and bosses thus is, that it is much cheaper than to take a shaft of the necessary size and cut a screw in it its whole length, and by making the bosses of so much greater diameter than the shaft it affords an opportunity to attach pedestal boxes or bearings to the posts A, for the support of the shafts I, at frequent intervals between the bosses R, thus affording any desired number of supporting-points for the shafts, and enabling us to use smaller shafts, and keep them rigid, and at the same time use bosses or screws of large diameter, and consequently giving much larger bearing-surfaces to the screw-threads on the bosses, which, as will be seen hereinafter, support and move the load to be raised or lowered.

To each shaft I, at its lower end, we secure a bevel-gear wheel, F, which engages with a corresponding bevel-pinion, E, mounted on a horizontal shaft, D, as shown in Figs. 1 and 2, motion being imparted to the shaft D through the medium of a pulley, P, or gear-wheels, driven by an engine or any suitable motor.

To the posts A, on opposite sides of the screw-shafts I, we secure firmly a vertical timber or plate, B, having a groove, e, cut in its face, as shown in Fig. 1, these pieces B being secured to the posts by brackets h; or they may be secured to the buildings the same as the posts A are, their functions being to serve as guides for the cage or platform. We then construct a cage or platform, C, in any suitable manner, of such a width as, when complete, to fill the space crosswise between the screw-shafts.

To the outer faces of the sides H of the cage we firmly secure a plate, J, which reaches from top to bottom of the cage C, these plates J being formed with a semicircular groove, running vertically on their outer faces, of a size corresponding to the diameter of the bosses R, and having a screw-thread cut in these grooves to correspond with the thread on the bosses R.

The bosses we make usually about a foot in length, and the plates J should be of such a length that when the cage is placed in position, the plates will bear on not less than two of the bosses on each side at all times, as shown in Fig. 2. It is obvious that, if desired, they may be arranged to bear on more of the bosses, and where they are intended to raise heavy weights, this may be desirable.

From the sides of the cage opposite the guide-plates or timbers B project rollers *a*, as represented in Figs. 1 and 3, these rollers working in the grooves *e* in the face of the guides B, thus serving to hold and guide the cage in its ascent and descent. If preferred, the rollers may be grooved and arranged to run on a rail of corresponding form and size, the object and result being the same; and, if desired, the frame consisting of the posts A and the guide-plates B, with the bearings for the shafts I, may be cast together, in sections of suitable length, and any number of these sections may be united by flanges and bolts, and thus elevators made ready to set up in any building or place when desired, and to any required height.

It will readily be perceived that an elevator constructed on this plan can be made to raise a very heavy weight, and at the same time, by so arranging the driving mechanism as to give to the shafts I a rapid rotation, the cage can be raised or lowered with rapidity when desired.

Another great advantage of this plan is, that there is but little or no danger of the cage falling, as it will stand wherever stopped, unless the screw-threads be made with great pitch.

When it is desired to use the elevator for raising heavy weights, the screw should have less pitch; but where the weight to be raised is less, the pitch of the screws may be increased, and they may be made with double or treble threads, if desired.

A counterweight, T, may be connected to the cage by means of a cord, *b*, passing over pulleys *n*, located above, as represented in Figs. 1 and 2.

Having thus described our invention, what we claim is—

1. The shafts I, having a series of screws or bosses, R, arranged therein, substantially as and for the purpose described.

2. In combination with the shafts I, having the bosses R secured thereon, the plates J, having the semicircular grooves with screw-threads cut therein, said parts being arranged for joint operation, substantially as described.

3. An elevator consisting of a cage or platform having the screw-plates J and the guide-rollers *a* attached, and the shafts I, with the bosses R, mounted in a suitable frame, and arranged to operate substantially as herein described.

In witness whereof, of the foregoing-described invention, we hereby subscribe our names.

E. H. ASHCROFT.
J. R. BROWN.

Witnesses:

EDWIN J. WRIGHT,
C. E. ASHCROFT.