

(No Model.)

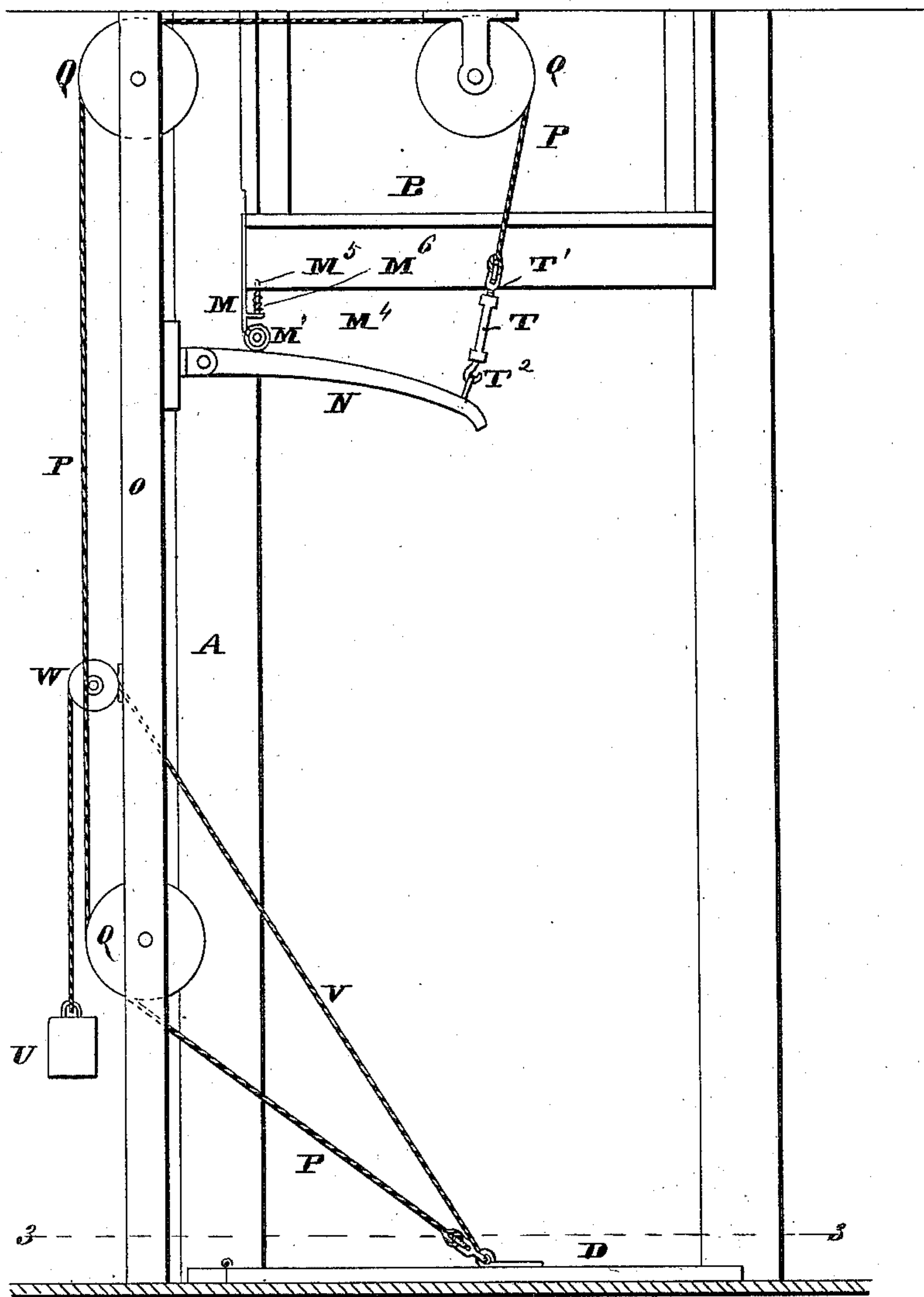
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R. D. THACKSTON.
SELF CLOSING HATCHWAY.

No. 307,688.

Patented Nov. 4, 1884.

Fig. 1



Attest!

Edward Stow.
"Great Wheelock"

Inventor:

R. D. Shackstore
By Knight Bros
attys

(No Model.)

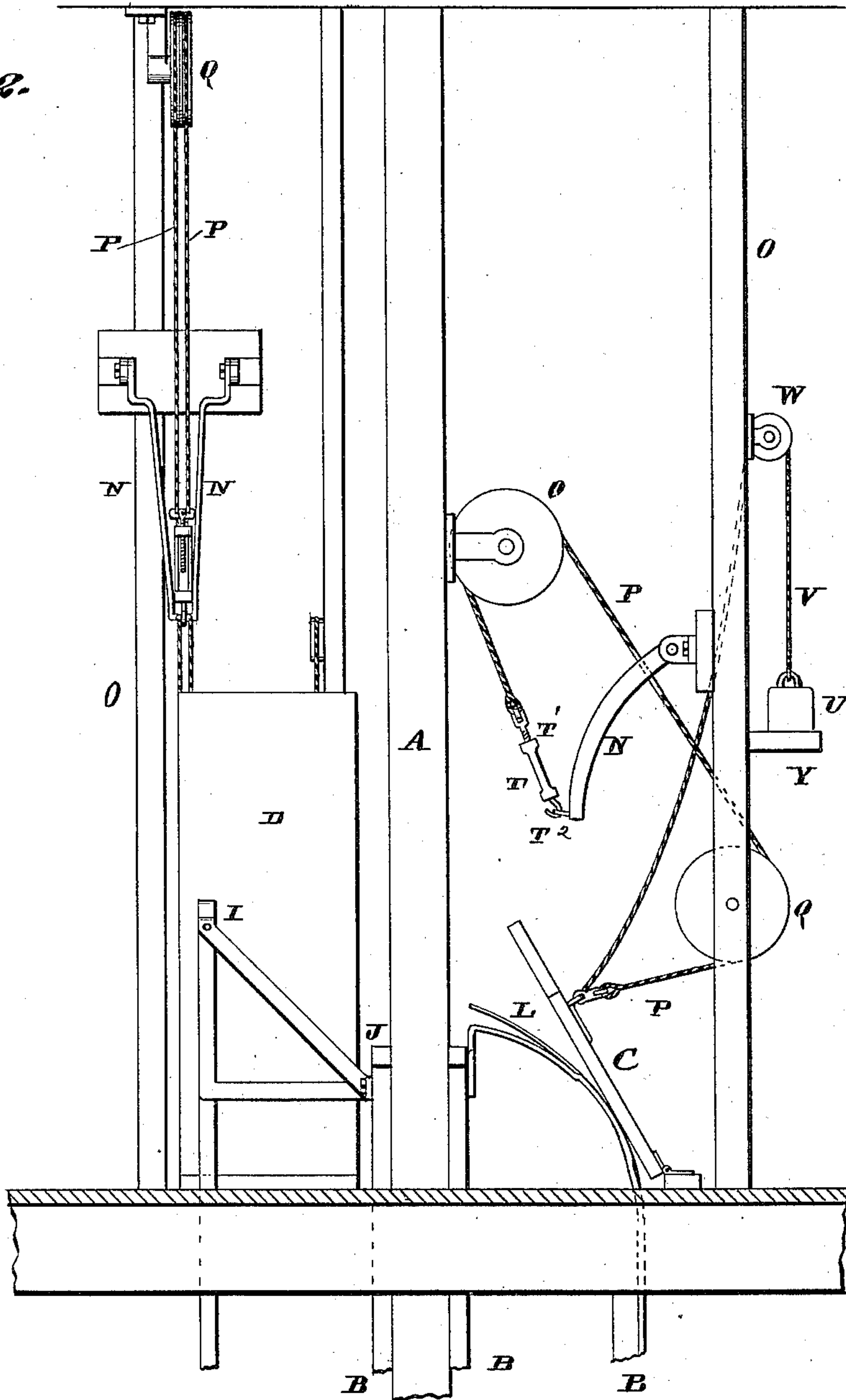
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Fig. 2.



Attest:

Edward Stearns
Geo. Wheelock

Inventor:

R. D. Thackston
By Knight Bros
Attys

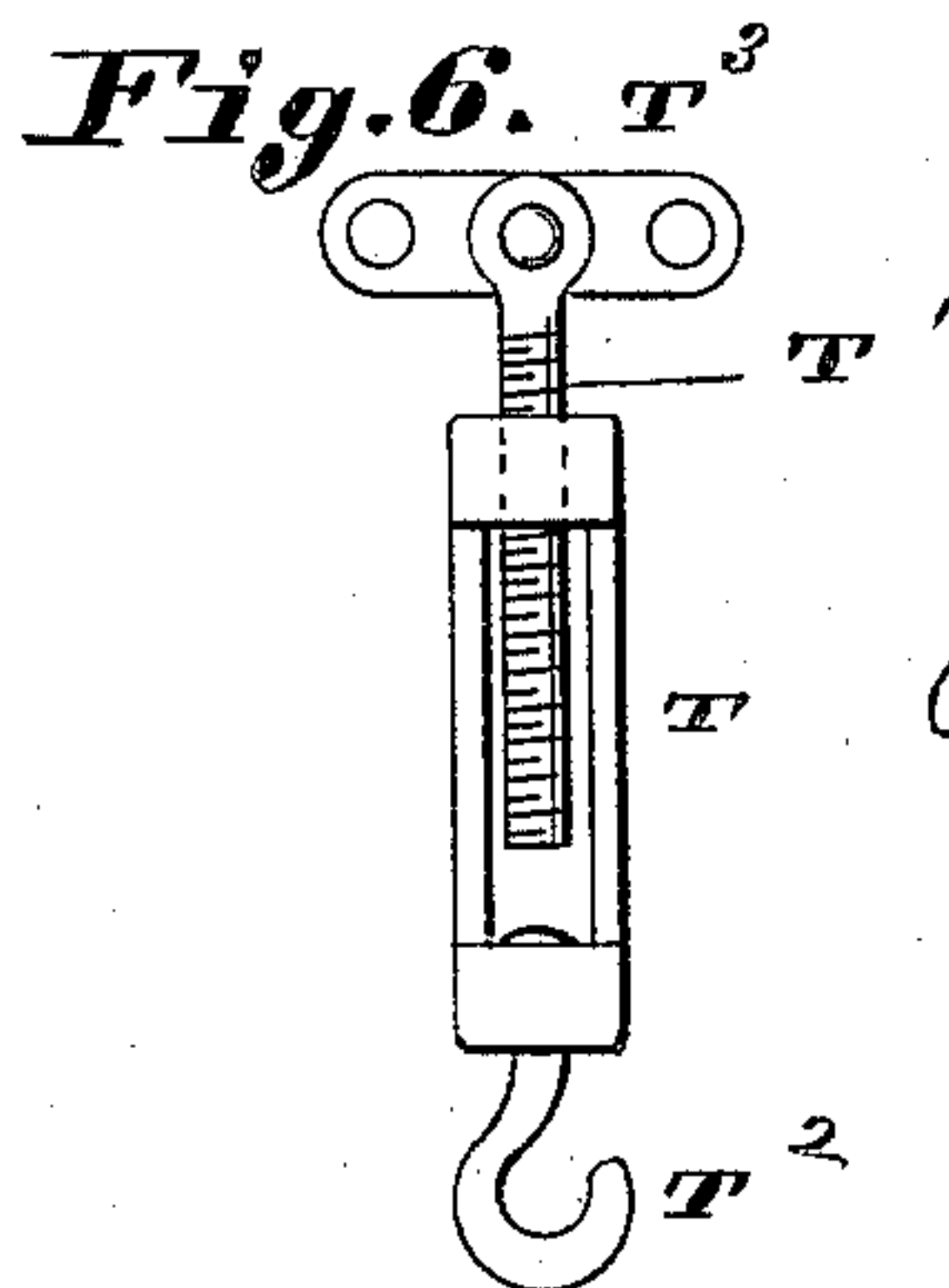
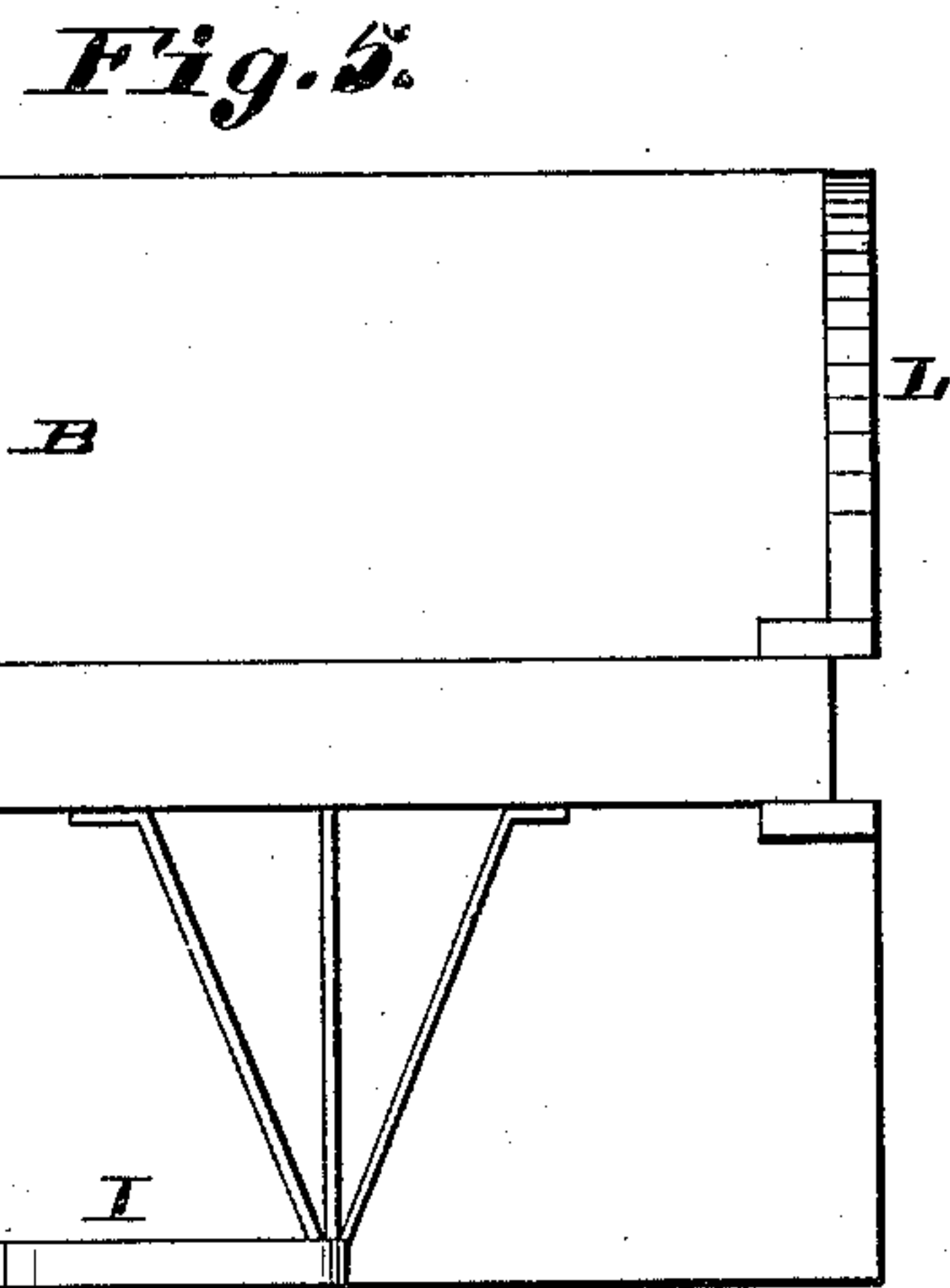
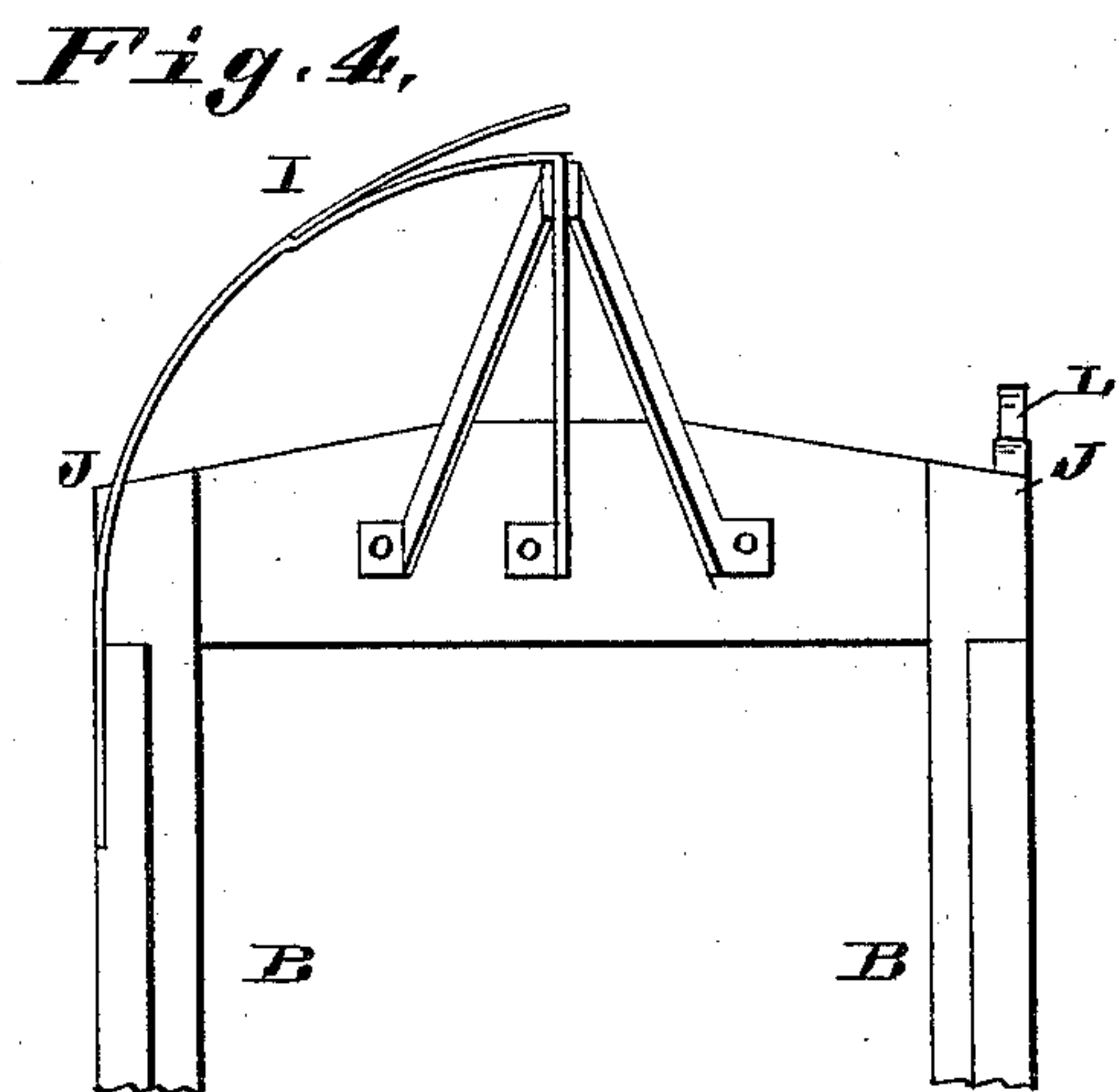
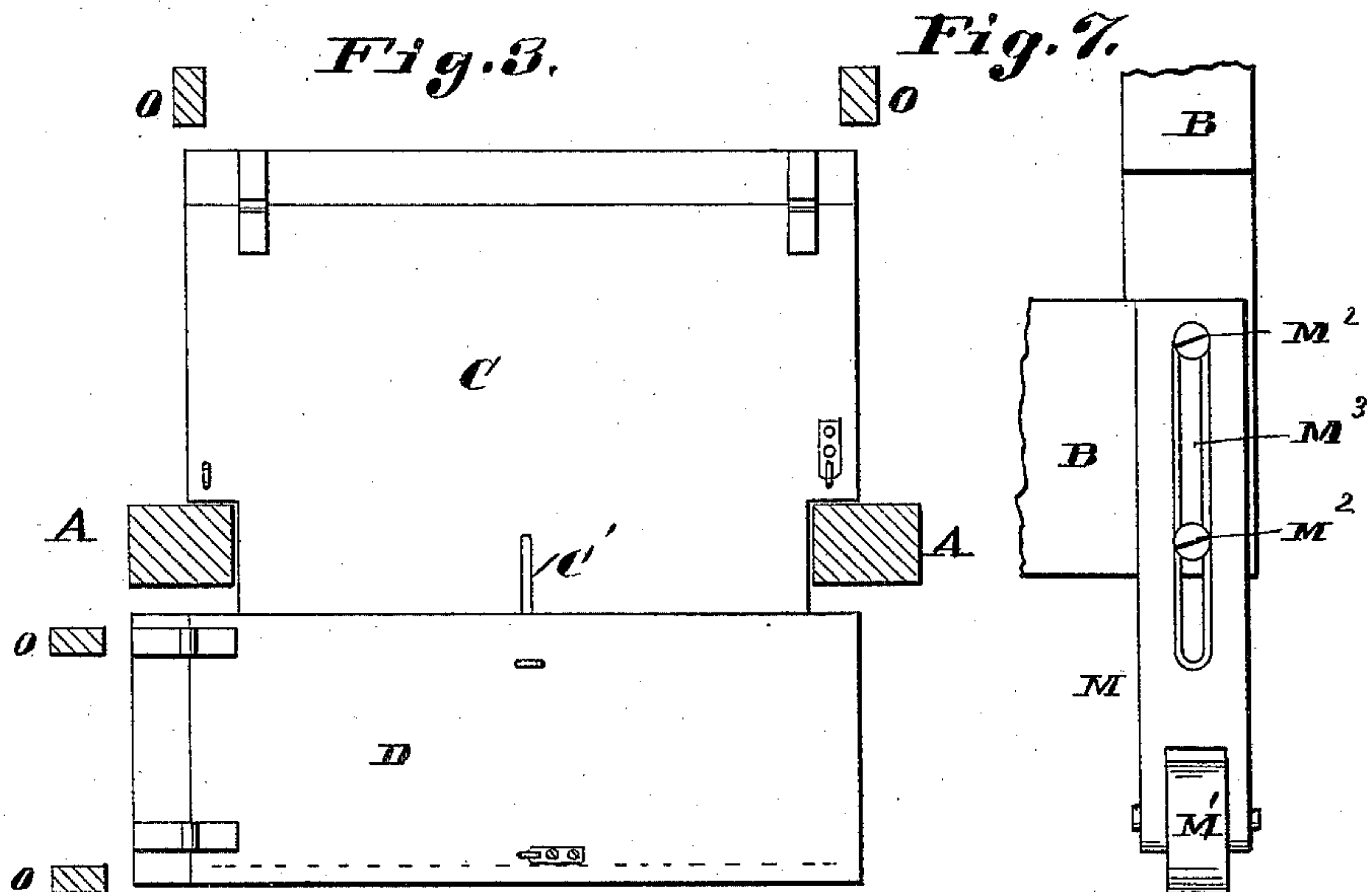
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Attest,
Edward Stearns
Geo. Wheelock

Inventor,
R. D. Thackston
By Knight Bros
attys

UNITED STATES PATENT OFFICE.

RICHARD DABNEY THACKSTON, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO HENRY J. COE, OF SAME PLACE.

SELF-CLOSING HATCHWAY.

SPECIFICATION forming part of Letters Patent No. 307,688, dated November 4, 1884.

Application filed February 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, RICHARD D. THACKSTON, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Self-Closing Hatchways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a front elevation. Fig. 2 is a side elevation. Fig. 3 is a horizontal section taken on line 3 3, Fig. 1. Fig. 4 is a front view of the upper part of the cage, showing the cams. Fig. 5 is a top view of the cage. Fig. 6 is a side view of an adjustable connecting device; and Fig. 7 is a view of one of the lower corners of the cage, (enlarged,) showing the sliding cams, or one of them.

My present invention relates to certain improvements in self-closing hatchways, hereinafter fully described; and my invention consists in features of novelty described, and pointed out in the claims.

Referring to the drawings, A represents the uprights of an elevator-shaft, B the cage, and C D the doors. The doors open vertically, as distinguished from horizontally-moving doors. They are hinged to proper supports, as shown in Fig. 3, and they preferably open in different directions, as illustrated in Figs. 2 and 3. The door C covers more and the door D less than one-half of the opening, as shown, the door D not extending quite to the uprights A, and the door C extending past them, so that the entire opening is closed. The door C should have a slot, C', for the passage of the hoisting-cable. There is a great practical advantage in not having the door D extend quite to the uprights—i. e., the cam I on the cage that raises or opens this door can be made much lower and with much less incline or pitch, as it is not necessary for it to commence to raise the door to avoid the corners J of the uprights or posts of the cage from striking it, these corners of the posts passing up between the door and the uprights A before the cam reaches or opens the door fully. If the door extended over to the uprights A, the cam I would have to be sufficiently high to open the door a con-

siderable distance before the upper end of the post on the hinge side of the door came on the level with the door when closed. In fact, the door would have to be almost or quite opened to avoid this contact; but with the door made as shown in Fig. 3, (the other door being extended over to close the opening,) the cam I may be made very low and with a very gentle incline, which is a great accommodation in buildings with low ceilings and in fast-running elevators. I represents the cam on the cage for opening the door C in the ascent of the cage. As the door C is opened directly away from the uprights A, there is no danger of the upper ends of the posts of the cage striking it. In the descent of the cage the doors are opened by cams M on the bottom of the cage coming against arms N, hinged or pivoted to posts O or other suitable supports, and their outer ends connected to the doors by ropes, cords, or chains P, passing over pulleys Q, secured to suitable supports. The cams M consist of strips with anti-friction rollers M' journaled in their lower ends and secured to the cage by screws or bolts M², fitting in a slot, M³. (See Fig. 7.) Extending inward from each strip is a projection, M⁴, on which is a post, M⁵, surrounded by a spiral spring, M⁶. The spring acts to hold the cam in its lower position until it comes against its arm N, and then it (the cam) is allowed to yield slightly, producing a cushioning effect. The arms N are preferably V-shaped and slightly curved, as shown in Fig. 2. The anti-friction rollers on the cams M merely bear against one side of the arms—the inner side, of course. The cords, ropes, or chains are secured to the arms by means of swivel-blocks T, with screw-eye bolts T' on their outer ends, to which the ropes are connected, and hooks T² on their inner ends, which engage loops on the arms. (See Figs. 2 and 6.) There are preferably two ropes, P, to each door, (see Fig. 2,) and they are connected to the bolts T' by cross-bars T³, riveted to the bolts. (See Fig. 6.) The pulleys Q have two grooves each—one for each rope—as shown in the upper left-hand corner of Fig. 2. By the swivel-blocks the ropes, cords, or chains can be lengthened or shortened slightly.

To assist in opening the doors, and to prevent them from closing too rapidly, I secure counter-balances U to them by ropes, cords, or chains V, passing over pulleys W, secured to the posts O. Brackets Y may be secured to the posts to receive the weights U after the doors have a certain inclination—say an angle of forty-five degrees.

I claim as my invention—

10 1. In a self-closing hatchway, the combination of two vertically-opening doors, CD, one door, C, extending across the path of the cage between and beyond the elevator-uprights, and the other door, D, hinged at one side of the
15 elevator on one side of the cage-uprights, as and for the purpose set forth.

2. In a self-closing hatchway, the sliding spring-cam secured to the cage, in combination with an arm hinged to a support, grooved pul-
20 leys, and door having two cords or chains, one

chain passing from the door over the pulleys to the arm, and the other cord or chain connected to a counterbalance-weight, as set forth.

3. In a self-closing hatchway, a sliding spring-cam secured to the cage, consisting of a
25 slotted plate connected to the cage by bolts or screws fitting in the slot, a friction-roller journaled in the lower end of the plate, a projection on the plate, a post on the projection, and a spiral spring surrounding the post, in
30 combination with a V-shaped arm hinged to a suitable support and connected to the door by two ropes, cords, or chains passing over double-grooved pulleys, substantially as and for the purpose set forth.

RICHARD DABNEY THACKSTON.

In presence of—

GEO. H. KNIGHT,

BENJN. A. KNIGHT.