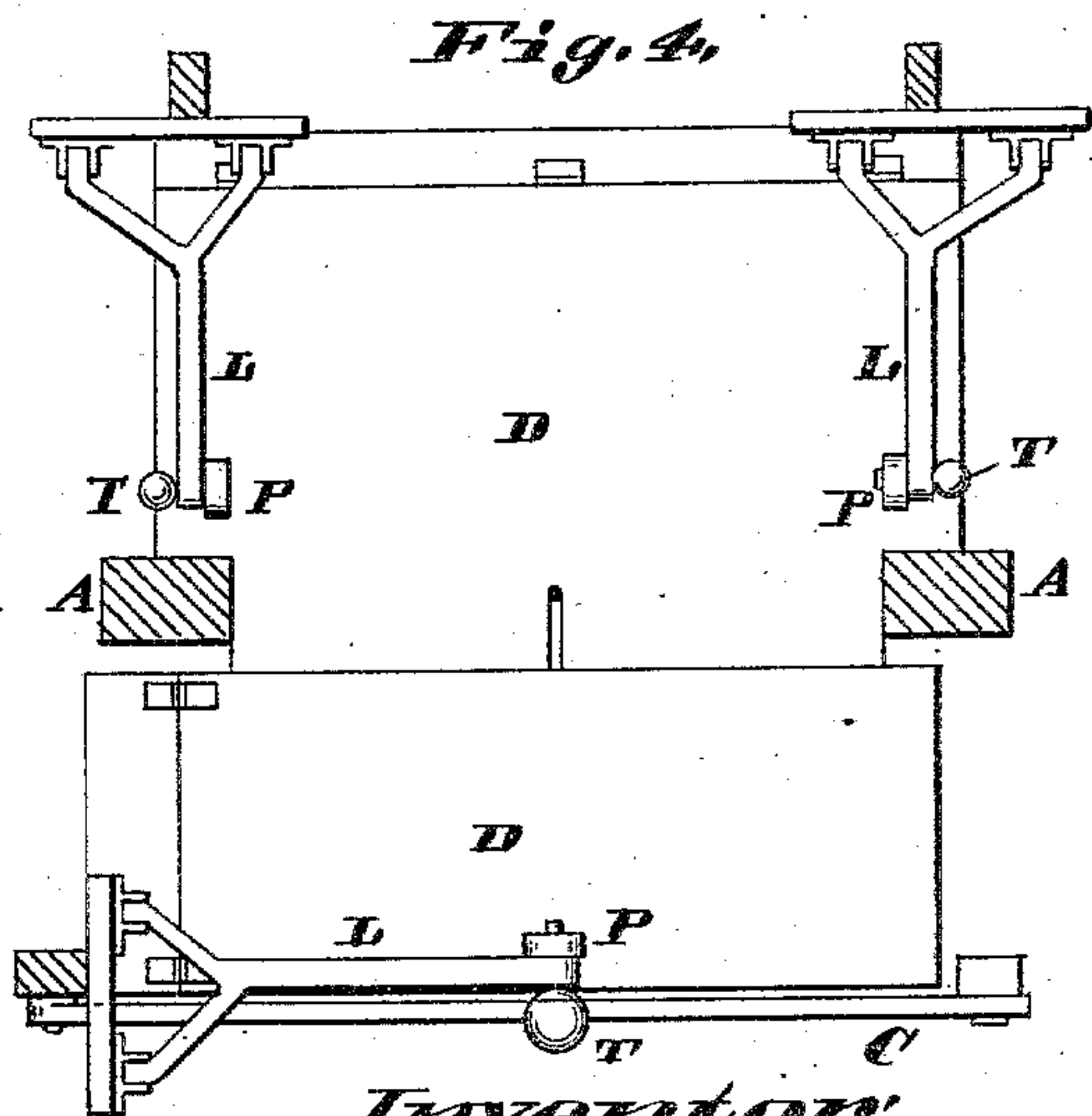
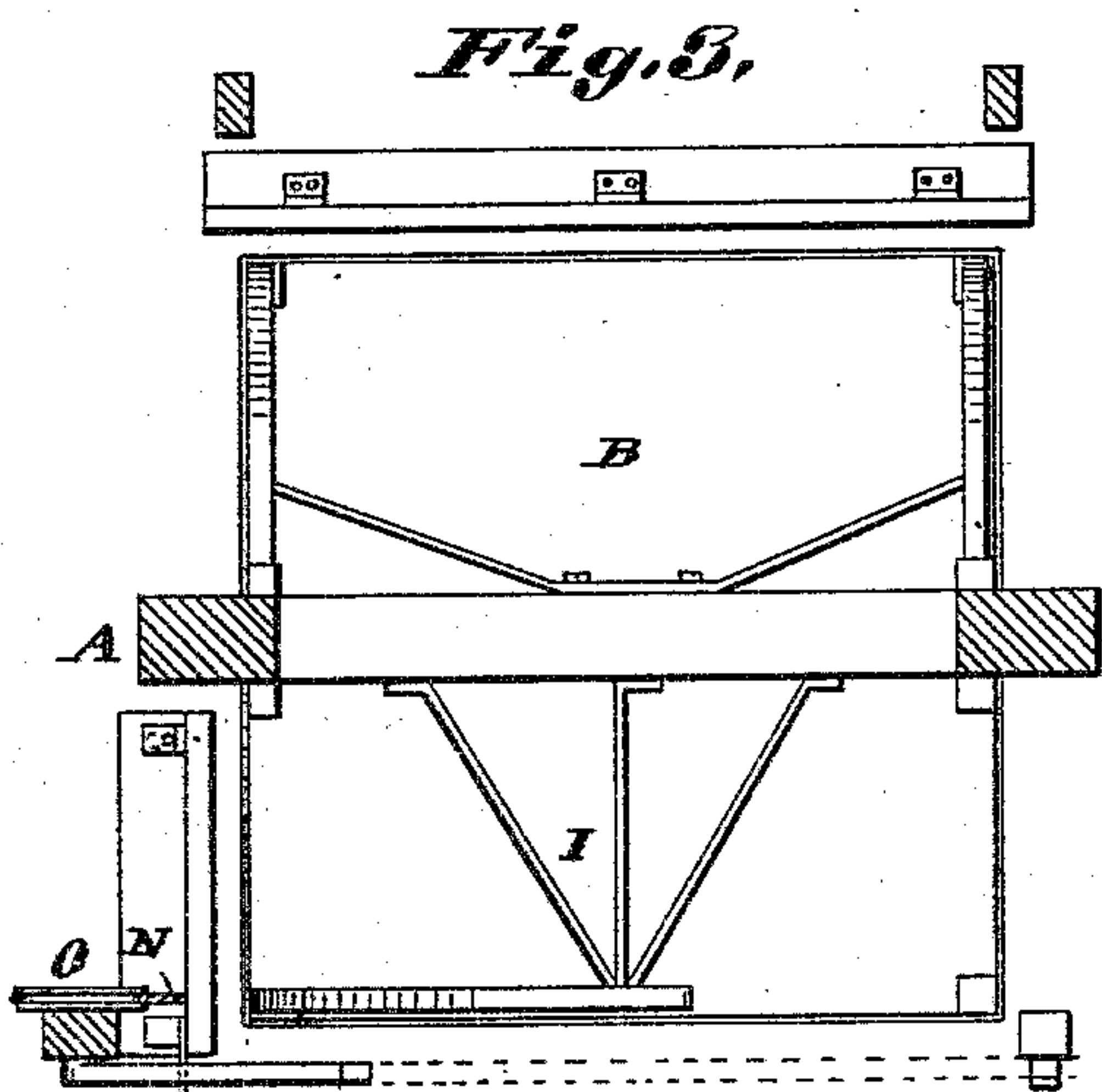
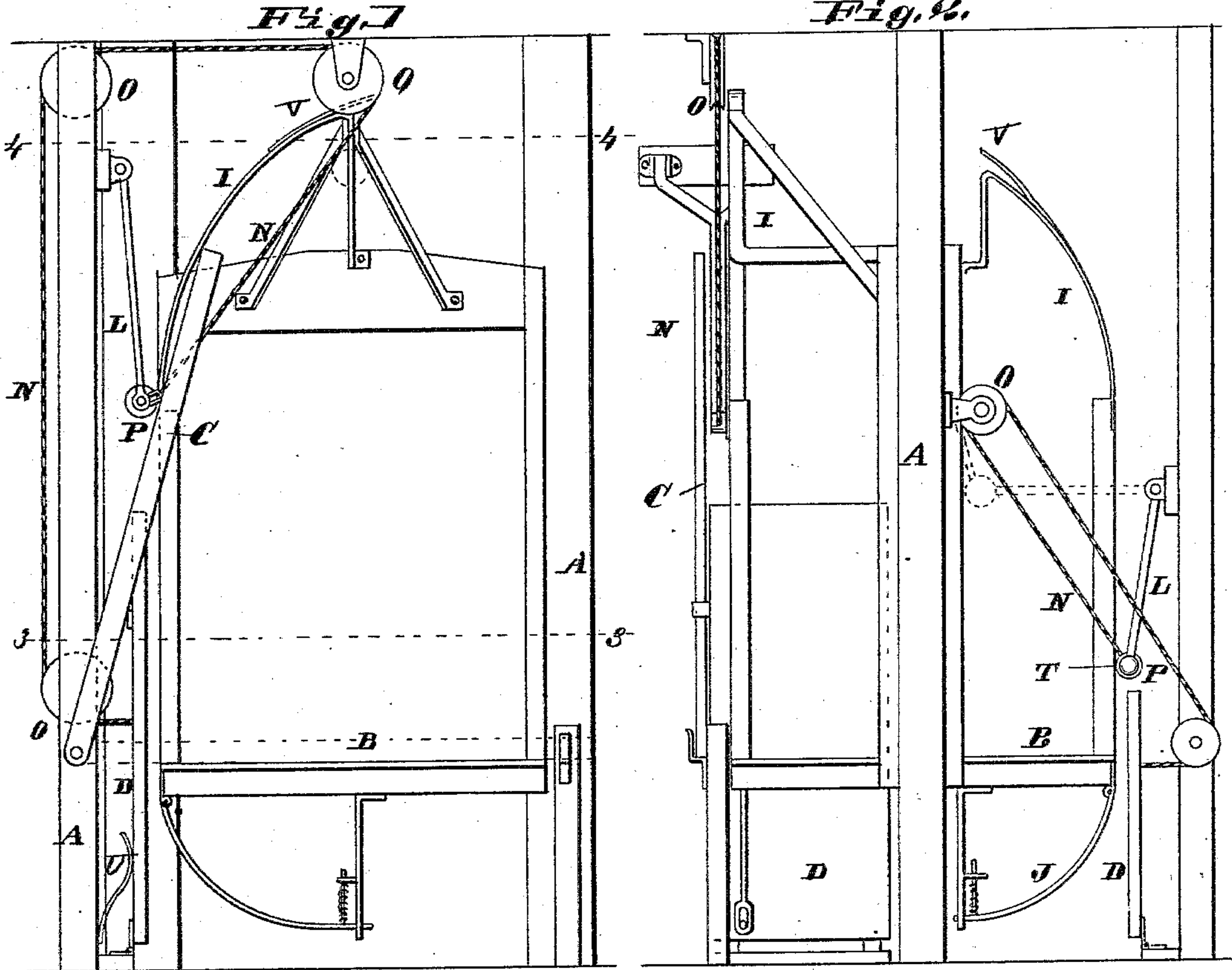


(No Model.)

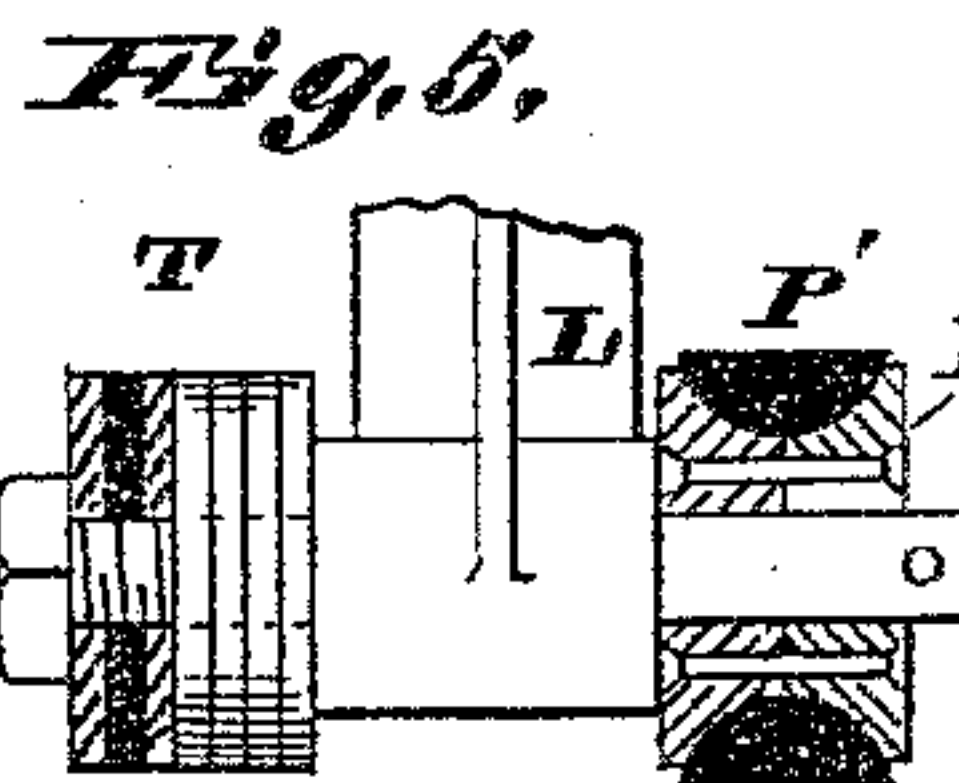
R. D. THACKSTON.  
SELF CLOSING HATCHWAY.

No. 303,194.

Patented Aug. 5, 1884.



Attest,  
Charles P. Peck  
Geos. Wheelock



Inventor:  
Richard D. Thackston  
By Knight Bros  
attys



# UNITED STATES PATENT OFFICE.

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

## SELF-CLOSING HATCHWAY.

SPECIFICATION forming part of Letters Patent No. 303,194, dated August 5, 1884.

Application filed November 10, 1883. (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  
5 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—

10 Figure 1 is an elevation of the front of the cage. Fig. 2 is a similar view of one side of the cage. Fig. 3 is a transverse section taken on line 3 3, Fig. 1, showing the cage in top view. Fig. 4 is a similar view taken on line  
15 4 4, Fig. 1, the cage being removed; and Fig. 5 is an enlarged section of one of the counter-balances and friction-rollers, showing part of their supporting-arm.

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

Referring to the drawings, A represents the uprights of an elevator-shaft, B a cage, and  
25 D doors, one of which I have shown hinged to the back and the other to one side of the shaft, the hinges being fastened to the floor of the building or to any other suitable object.

I J represent cams secured to the top and  
30 bottom of the cage, respectively, for opening the doors. Nothing novel is claimed in the construction of these cams in this application. I prefer to use three on top and three on the bottom of the cage.

35 L represents counterbalanced arms pivoted to the building or other suitable support or supports, and connected to the doors by ropes, cords, or chains N, which pass over grooved pulleys or sheave O, secured to suitable sup-  
40 ports. As the cage ascends, the cams on the top of it come in contact with and raise the doors, and as the cage descends the cams on its bottom strike friction-rollers P, secured to one side of the ends of the arms L, and  
45 force the free ends of the arms downward, thus raising the doors through means of the described connecting cords or ropes N. After the cage is passed in either direction, the counter-balances T on the ends of the arms  
50 above referred to prevent the doors from clos-

ing too fast by gravity; and as the size and weight of the doors vary greatly, it becomes very desirable to have these counter-balances so constructed that their weight can be regulated. I accomplish this (see Fig. 5) by hav- 55  
ing a pin on the arm, over which is slipped a number of disks, a greater or less number being used according to the weight required. They are held on by any suitable means. I have shown the end of the arm screw-threaded 60  
and provided with a nut. The counter-balance is on one side of the arm and the friction-roller P on the other, (of course each arm is provided with these features,) and the rollers consist of two disks, or one, if preferred, riv- 65  
eted together, and provided with a circumferential groove, in which fits a rubber or other suitable soft band, P', against which the cams strike, and which deaden the noise. The rollers may be held on their arbors or pins by 70  
any suitable means.

C represents a safety-bar, which is raised by the opening door to prevent persons get-  
ting on the closed door or doors; but this fea- 75  
ture is made the subject-matter of another application, and needs no description here. This device as above described is particularly adapted to fast-running elevators.

U represents a spring to force the door to close after the cage has passed. 80

V represents springs secured to the cams on top of the cage, which come in contact with the door or friction-roller, as the case may be, to start the movement of the door, so that it will not be started by a sudden movement, as 85  
would be the case were the cam to come abruptly against the door or rollers. If the springs should break at any time, of course the cams would still open the doors.

In another application, Serial No. 134,063, 90  
I claim the herein-described spring connected to the cam for opening the door.

I claim as my invention—

1. In a self-closing hatchway, the counter-balances consisting of removable disks secured 95  
to the ends of pivoted arms, substantially as and for the purpose set forth.

2. In a self-closing hatchway, the friction-rollers consisting of two grooved disks riveted together and provided with a soft band, and 100



secured to the ends of pivoted arms, substantially as and for the purpose set forth.

3. In a self-closing hatchway, the combination of cage, doors, independent pivoted arms  
5 connected to the doors, counter-balances, and friction-rollers secured to the ends of the pivoted arms, and cams upon the cage, all con-

structed and operating substantially as shown and described, for the purpose set forth.

RICHARD D. THACKSTON.

In presence of—

SAML. KNIGHT,  
GEO. H. KNIGHT.