

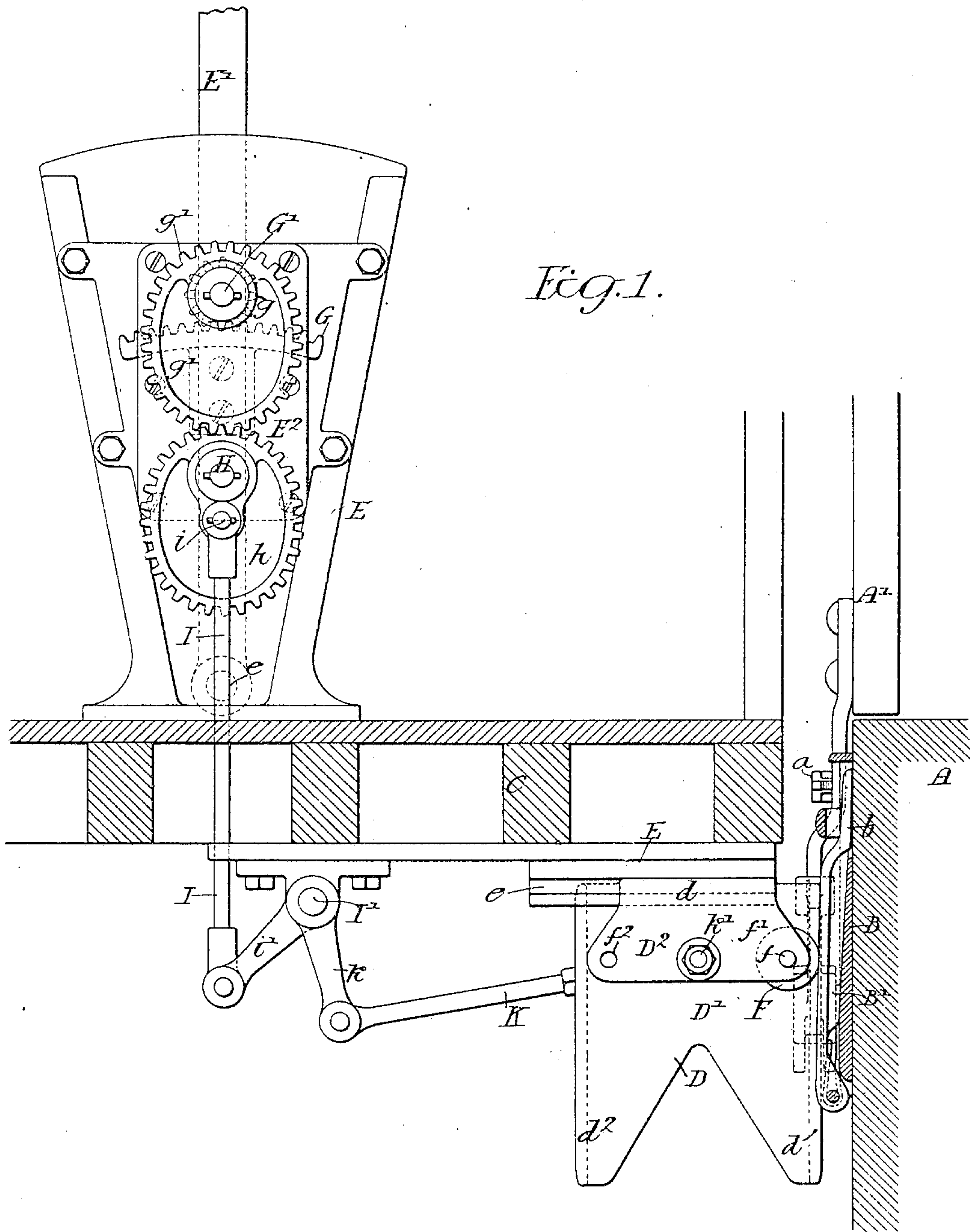
No. 787,208.

PATENTED APR. 11, 1905.

J. S. MUCKLE.
LOCKING MECHANISM FOR ELEVATORS.

APPLICATION FILED MAY 20, 1904.

3 SHEETS—SHEET 1.



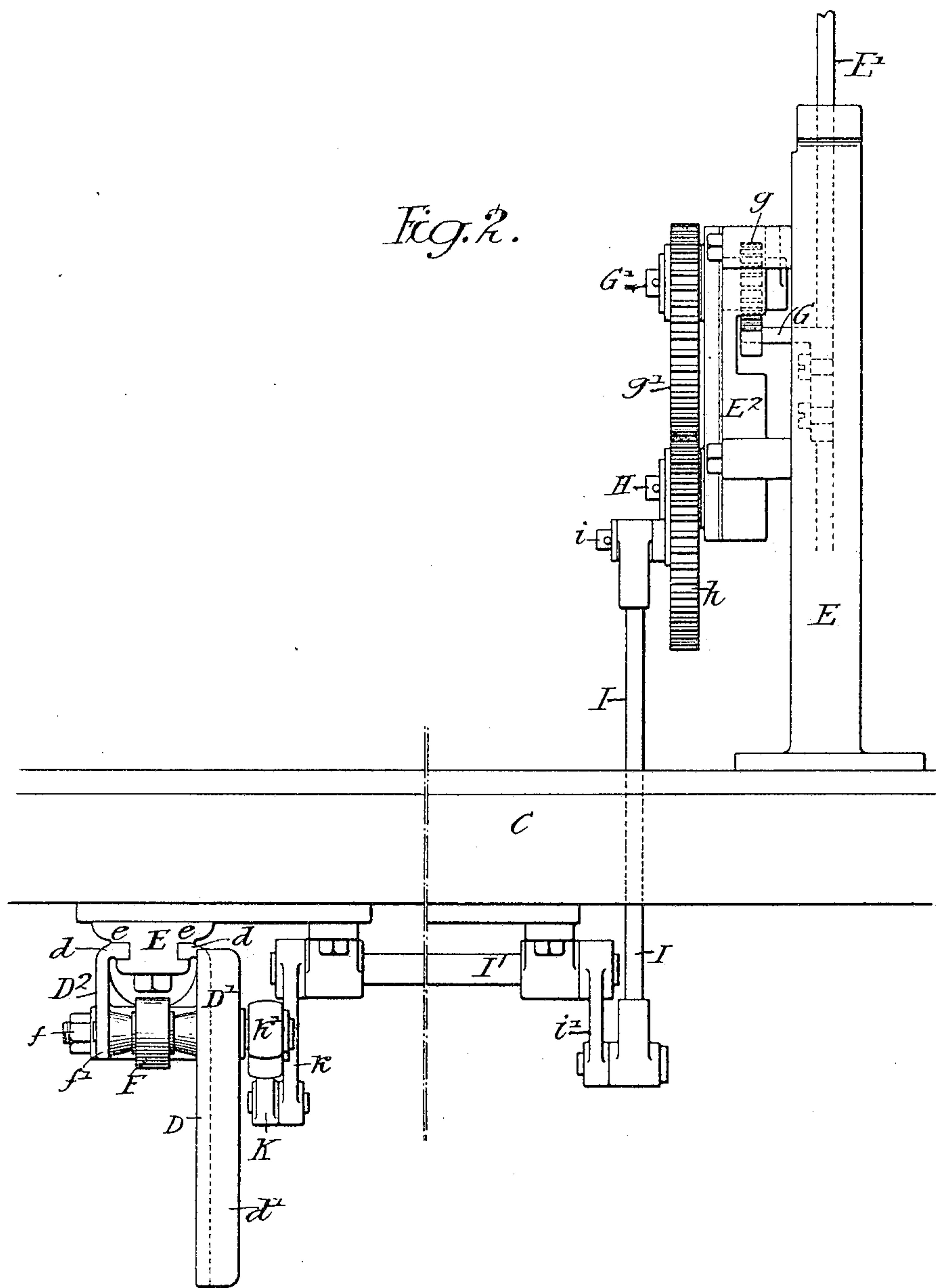
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3 SHEETS—SHEET 2.

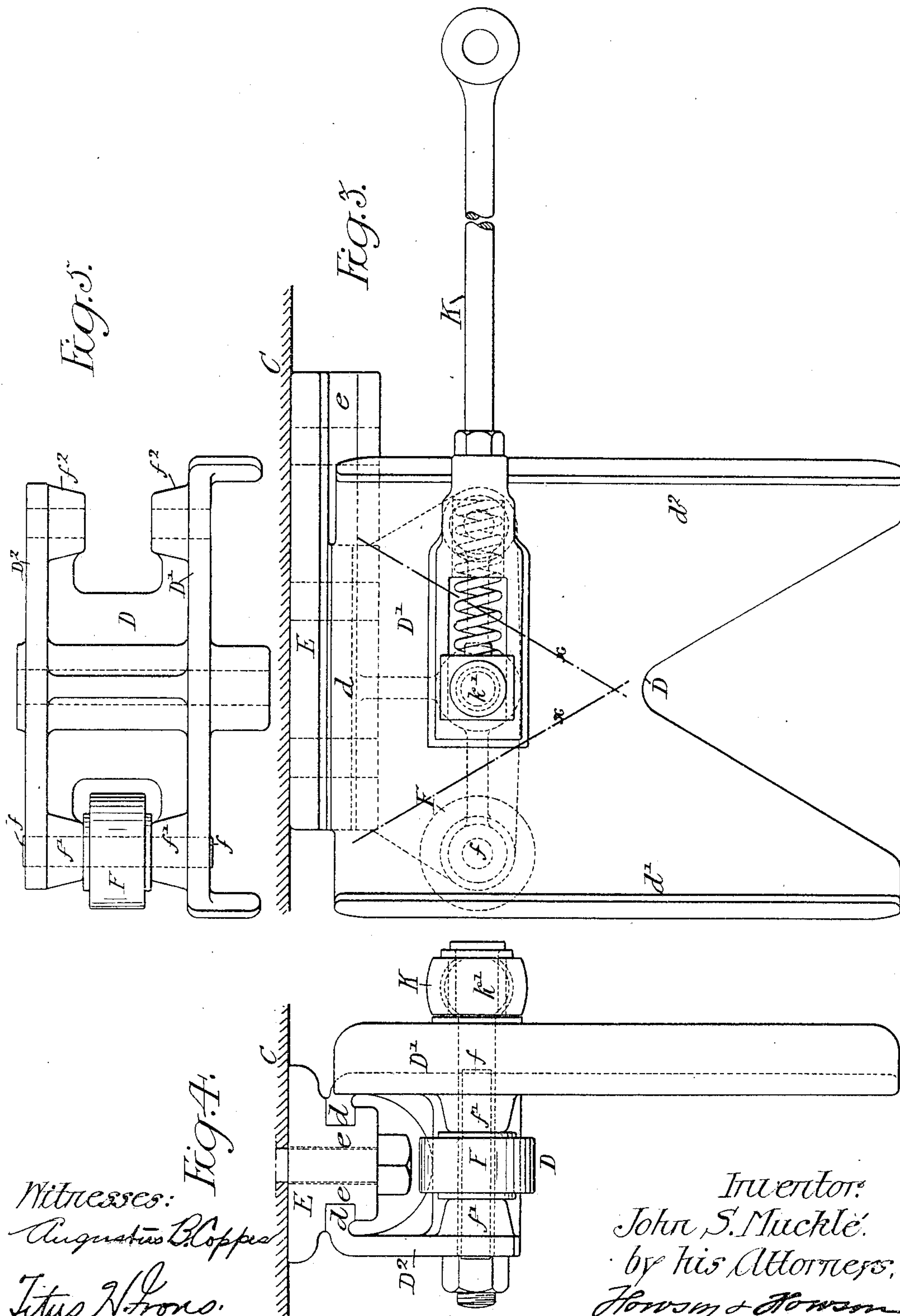


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UNITED STATES PATENT OFFICE.

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LOCKING MECHANISM FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 787,208, dated April 11, 1905.

Application filed May 20, 1904. Serial No. 208,962.

To all whom it may concern:

Be it known that I, JOHN S. MUCKLÉ, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Locking Mechanism for Elevators, of which the following is a specification.

The main object of my invention is to so design the plunger of a locking device for elevators that it can be cheaply and accurately
10 made and can be used in connection with a door opening either to the right or left.

A further object of the invention is to provide a lever-controlled elevator mechanism,
15 preferably of the type in which ropes are used, with means for locking said mechanism when the elevator is at a landing and the door is opened.

These objects I attain in the following manner, reference being had to the accompanying
20 drawings, in which—

Figure 1 is a sectional view of an elevator-car and part of the well, illustrating my invention. Fig. 2 is an end view of the elevator-car shown in Fig. 1. Fig. 3 is an enlarged side view of the plunger and its slide.
25 Fig. 4 is an end view of Fig. 3, and Fig. 5 is an inverted plan view of Fig. 3.

A is the landing, having a door A' locked
30 in its closed position by a spring-actuated arm *b*, which is mounted on a plate B, secured to the wall of the elevator-well. This arm engages a catch *a* on the door and can only be released by means of a plunger on the car.

C is a car, and D is a plunger, which is
35 mounted on a slideway E, secured to the under side of the car. The plunger is operated by mechanism connected to the operating-lever of the car, so that it can be forced out
40 to contact with the spring-arm, which locks the landing-door. Heretofore this plunger had to be specially designed for either a right or left hand door; but my improved plunger is so designed that it can be used either for a
45 right or a left hand door.

The slideway E has a groove *e* at each side, in which slide the flanges *d d* on the side plates D' D² of the plunger D. These side

plates are spaced a sufficient distance apart for the reception of the roller F for actuating
50 the arm *b* on the plate B. The roller is mounted on a stud *f*, carried by bearings *f'* on one end of the plunger. There are also bearings *f²* on the opposite end of the plunger, as clearly shown in Fig. 5, so that the
55 roller and its stud can be mounted at either end of the plunger. The side plate D' is extended, as clearly shown in Figs. 3 and 4, forming a V-shaped recess, and at one end of the plate is a flange *d'* and at the opposite end
60 of the plate is a flange *d²*.

On the plate B, attached to the wall of the elevator-well, is a weighted lever B', which is released when the door is moved, and as soon
65 as it is released it engages in the present instance the flange *d'* of the plunger, locking the plunger to the elevator-well. The plunger, as will be described hereinafter, is connected directly to the lever mechanism for
70 starting and stopping the car, so that it will be seen that as soon as the plunger is locked the operator cannot move the car until the door is again closed and the locking-lever B' thrown to such a position that it releases the
75 plunger.

E is a lever-stand within the car. This stand is mounted on the floor of the car, and pivoted to the stand at *e* is an operating-lever E'. By moving this operating-lever
80 from the center to the right, for instance, the operating mechanism can be shifted so as to raise the car, whereas by moving it to the left the mechanism will be shifted to lower the car, and if the lever remains in the
85 central position then the lever mechanism is at rest. When the car is at a landing, the lever is always in the center position. The lever and the operating mechanism form no
90 part of my present invention; but it is the application of my improved locking mechanism to this form of controlling device that I wish to claim.

Secured to the lever E', by bolts in the present instance, is a toothed segment G, which meshes with a pinion *g* on a shaft G',
95 having its bearings in a casting E², secured

to the frame E. On the shaft G' is an elliptical gear-wheel g' , which meshes with another elliptical gear, h , on a shaft H. Projecting from the gear h is a pin i , to which is connected a rod I, in the present instance attached to a lever i' on a rock-shaft I', mounted in bearings on the under side of the car. On the shaft I' is a second lever k , which is connected by a rod K to a pin k' on the plunger D, as clearly shown in Fig. 3, so that when the lever is in its central position the plunger is projected, and if the car is in line with the platform it will actuate the spring-arm b on the plate in the elevator-well and release the door A', and as soon as the door is opened the locking-lever B' will engage the flange of the plunger and hold the plunger and the operating mechanism on the car until the door is closed. As soon as the lever is moved to start the car in either direction the plunger is withdrawn and the door is locked and cannot be opened until the car is at the landing.

In equipping the elevators in buildings with the improved locking attachment the plunger has to be arranged for either doors opening at the right or left hand side of the elevator-well, and by providing the plunger with the two flanges d' d'' , as shown in Figs. 3 and 5, the plunger can be adjusted in the slideway so that the locking-lever will properly engage the flange. The plate B is also made double, and the locking-lever B' can be located on either side of the plate, as fully set forth in an application for patent filed by me on the 14th day of July, 1903, Serial No. 165,481.

The plunger D, which has a flange at each end, as described, is so made that if it is desired to remove one of the flanges and one of the bearings f' or f'' the plunger may be broken on either of the diagonal lines x , the plunger being so designed that the removal of a portion of the plunger will not reduce its bearing on the slide nor change the position of the connecting-pin k' . The casting can be grooved, if desired, on the lines x to indicate the line of fracture. The object of making the plunger in such a manner is to enable it to be used in places where the full plunger would interfere with some of the mechanism under the elevator-car.

I claim as my invention—

1. A plunger for the locking mechanism of an elevator, consisting of two side plates each having a flange and spaced apart to receive a roller, substantially as described.

2. A plunger for the locking mechanism of an elevator, consisting of two side plates each having a flange and spaced apart to receive a roller, one side plate having a vertical flange at one edge, substantially as described.

3. A plunger for the locking mechanism of an elevator, having two side plates spaced

apart, one side plate being more extended than the other and having a flange at each edge, so that the plunger can be reversed, and each side plate having an inwardly-projecting flange at the upper edge, substantially as described.

4. A plunger for the locking mechanism of an elevator, having two side plates, one side plate being more extended than the other and having a vertical flange at each edge, and each plate having an inwardly-projecting flange at the upper edge and said plates being spaced apart to receive a roller, substantially as described.

5. A plunger for the locking mechanism of an elevator, having a central pin for a connecting-rod and having a vertical flange at each end, a bearing back of each flange for a roller, and flanges adapted to a slideway, the plunger having a V-shaped recess in its under side, the plunger being so proportioned that one of the vertical flanges and a bearing can be removed without interfering with the balance of the plunger, substantially as described.

6. A plunger for the locking mechanism of an elevator, consisting of two plates connected together and having flanges adapted to a slideway, one of said plates having vertical flanges at each end, with a bearing at each end of the plate for the spindle of a roller so that the roller can be placed at either end of the plunger, substantially as described.

7. The combination of a guideway secured to the bottom of an elevator having grooves at each side, a plunger having two side plates each provided with an intumed flange adapted to the grooves in the slideway, and a vertical flange at each end of one of the plates, substantially as described.

8. The combination of an elevator-car, a stand therein, an operating-lever pivoted to the stand, a segment attached to the operating-lever, a frame secured to the stand and having bearings, two shafts mounted in the bearings, a pinion on one shaft meshing with the segment, an elliptical gear on the said shaft, an elliptical gear on the other shaft meshing with the first-mentioned elliptical gear, a rock-shaft on the car, two arms on the rock-shaft, a connecting-rod attaching the crank-pin of one elliptical gear to one arm of the rock-shaft, a plunger mounted on a slideway on the car, and a connecting-rod attaching the other arm of the rock-shaft to the plunger, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN S. MUCKLÉ.

Witnesses:

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JOS. H. KLEIN.