

(No Model.)

2 Sheets—Sheet 1.

J. S. MUCKLÉ.
ELEVATOR MECHANISM.

No. 583,331.

Patented May 25, 1897.

FIG. 1.

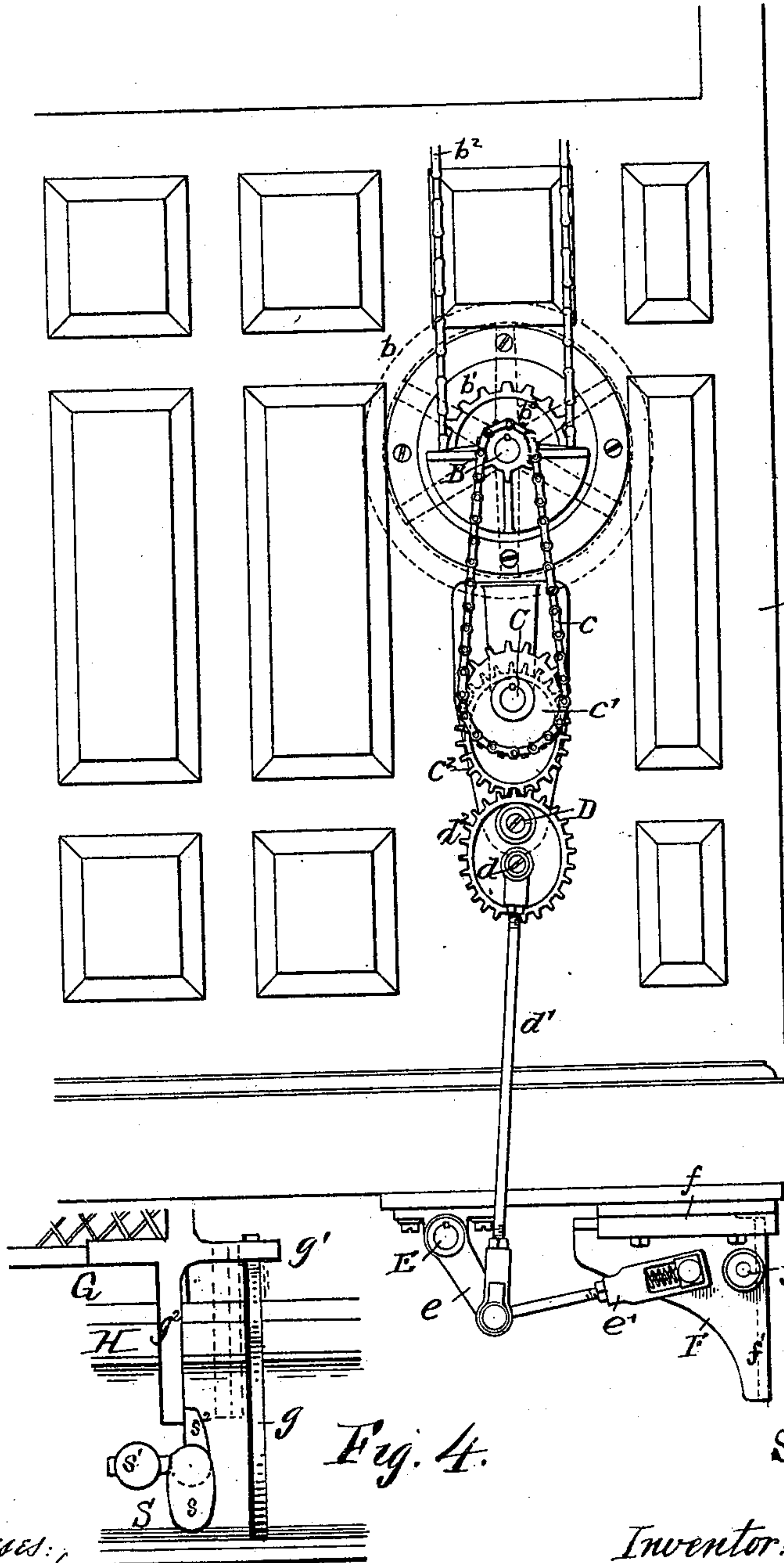


FIG. 3.

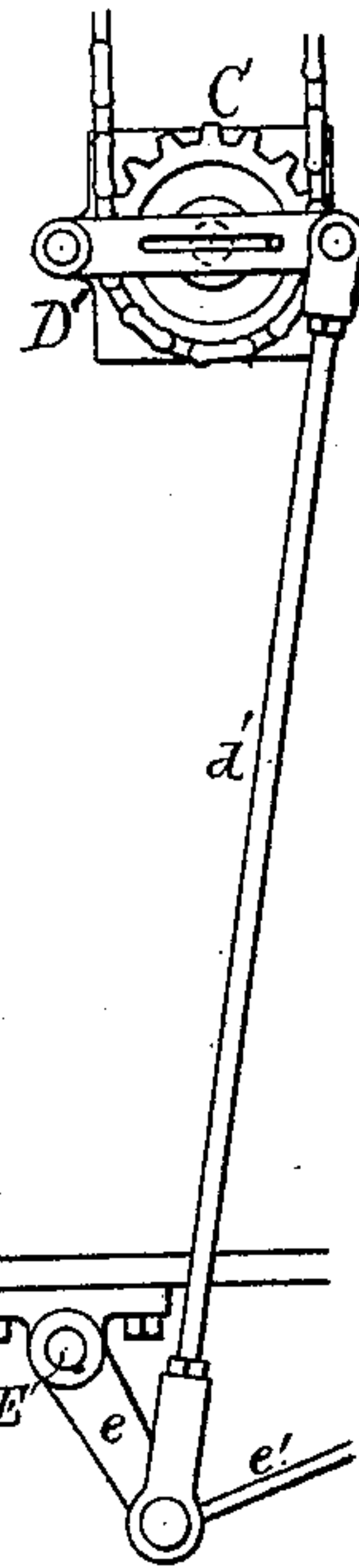


Fig. 4.

Witnesses:
Joseph Klein
Harry Smith

Inventor:
John S. Mucklé
by his Attorneys Howson & Howson

(No Model.)

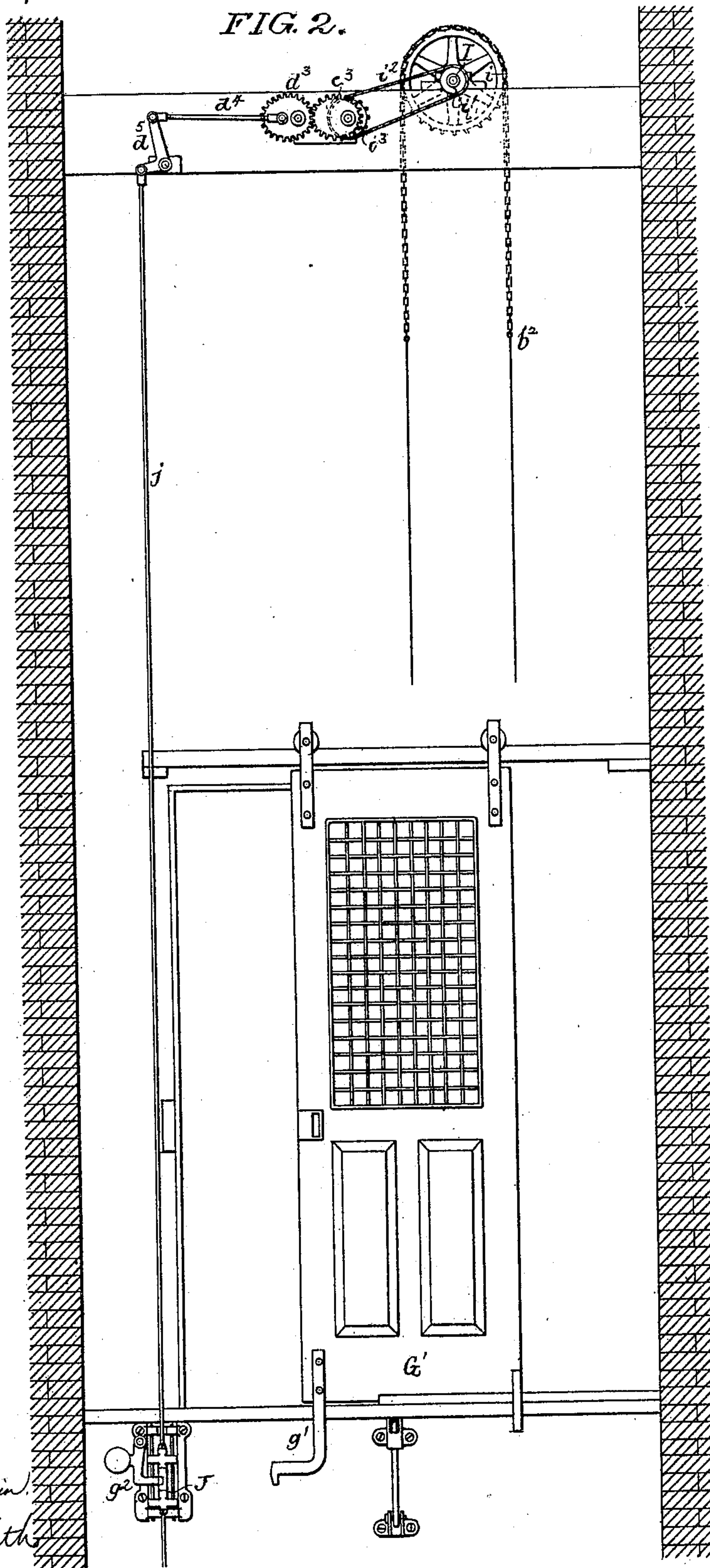
2 Sheets—Sheet 2.

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FIG. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN S. MUCKLÉ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO M. R. MUCKLÉ, JR., & CO., OF SAME PLACE.

ELEVATOR MECHANISM.

SPECIFICATION forming part of Letters Patent No. 583,331, dated May 25, 1897.

Application filed May 11, 1896. Serial No. 591,110. (No model.)

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 Elevator Mechanism, of which the following is a specification.

My invention relates to certain improvements in passenger and freight elevators in which controlling mechanism is used for stopping the car at the different landings. In all
10 elevator-controlling mechanism there is a point where the movement of the mechanism exercises no effect to stop or start the car. This movement I will call hereinafter the "idle" movement of the controlling mechanism.
15

The object of my invention is to utilize this idle movement of the controlling mechanism to release the door when the car is at a landing and to lock the door when the door is
20 closed and before the car is moved.

My apparatus is so arranged that after the controlling mechanism is shifted and has stopped the car, for instance, further movement of this mechanism is utilized to move a
25 slide or other locking device to release the door, and when the door is opened the said slide will be locked and thus lock the controlling mechanism while the door is open, and a continued further movement or return
30 movement of the controlling mechanism after the door is closed is utilized to lock the door, the door when closed releasing the controlling mechanism, so that it can be operated to start the car.

In the accompanying drawings, Figure 1 is a side view of sufficient of an elevator well and car to illustrate my invention. Fig. 2 is a view of a modified form of the mechanism. Fig. 3 is a view of a still further modification
40 of the invention, and Fig. 4 is a detailed view of the mechanism shown in Fig. 1.

Referring in the first instance to Figs. 1 and 4, A is the car, which is adapted to travel up and down in the elevator-well. H is the landing, and in the present instance G is a sliding door.
45

Mounted in suitable bearings in the car is a shaft B, having a hand-wheel b within the car and a sprocket-wheel b' on the outside of the
50 car around which passes the valve-controlling chain b^2 . The shaft, hand-wheel, and

sprocket-wheel form the controlling mechanism on the car. On the shaft B is a pinion b^3 , around which passes a chain c to the chain-wheel c' on the intermediate shaft C. On
55 this shaft C is an eccentric gear-wheel c^2 , which meshes with an eccentric gear-wheel d^2 on the stud D.

To a crank-pin d on the wheel d^2 is connected a rod d' , attached to an arm e on the
60 rock-shaft E, adapted to bearings secured to the under side of the car in the present instance.

F is a slide adapted to guides f , and this slide is connected to the arm e on the rock-
65 shaft E by a rod e' . This slide has at its outer end a flange f' on one side and a roller f^2 on the opposite side and is the movable element.

On the walls of the elevator-well near each landing is a spring-latch g , which engages with
70 a latch g' on the door G, and at one side of this spring-latch is hung a lever S, having an arm s , adapted to pass back of the flange f' on the slide F when the said slide is projected and the door opened. s' is a weighted arm,
75 and s^2 is an arm with which comes in contact a finger g^2 on the door, so that when the door is closed this finger strikes the arm s^2 , turning the lever and throwing its arm s away from the flange f' , and thus releasing the slide.
80 Thus it will be seen that when the lever S engages with the slide it will prevent the operator from turning the controlling mechanism, as the slide is connected with said mechanism.

The above-described mechanism with the
85 exception of the eccentric gears is fully described and set forth in the Patent No. 555,825, on March 3, 1896.

By arranging the eccentric gears in the manner shown I am enabled to so regulate the
90 throw of the slide that during the time that the valve mechanism is shifting very little motion is imparted to the slide, but immediately after shifting the valve the gears are brought into such relation to each other and
95 to the crank-pin that the slide is projected its full extent.

In all elevating mechanism a certain amount of motion is given to the wheel, if a wheel is used, beyond that required to shift
100 the valve to stop the elevator, and it is this motion that I utilize to shift the slide. The

same motion is utilized on the return of the wheel to withdraw the slide before the valve is reversed to start the car, the door in the meantime having been closed so as to release the slide from the mechanism hung to the elevator-well.

In Fig. 2 I have shown the eccentric gears arranged at the head of the elevator-well and actuated by the controlling rope or chain b^2 through the medium of the wheel i , mounted on the shaft I, sprocket-wheel i' , chain i^2 , and sprocket-wheel i^3 , mounted on an intermediate shaft on which is an eccentric gear c^3 , meshing with an eccentric gear d^3 . On this gear is a crank-pin to which is attached a rod d^4 , connected to the bell-crank lever d^5 , to which is attached the rope j , having the blocks J at each landing. These blocks engage with an L-shaped latch g' on the elevator-door G' and are engaged by a weighted lever g^2 when the door is open. This particular mechanism is described and claimed in an application filed by me on the 20th day of February, 1896, Serial No. 580,119, with the exception of the elliptical gears. By placing the elliptical gears in the position shown the same result is accomplished as by that shown in Fig. 1.

I may dispense in some instances with the elliptical gears, as shown in Fig. 3, and connect the rod d' to a slotted arm D' , pivoted to a frame, and in the slot of this arm is a pin projecting from the gear-wheel C. By this means I obtain a differential motion, the parts being so timed that the slow movement is given to the slide while the valve-shifting mechanism is operating and the quick motion is given either after or before the valve mechanism is operated.

It will be understood that my invention can be applied to belt-shifting mechanism or clutch mechanism as well as to valve mechanism and can be also applied to shifting mechanism of an electric elevator.

I claim as my invention—

1. The combination in elevator-locking mechanism, of a car, a door, a lock therefor, a device for operating the controller whereby the car is caused to ascend or descend, mechanism for actuating the lock to release the door after the car is brought to a stop at the door and means whereby said mechanism is operated from the controlling device after the latter has been moved so as to stop the car, substantially as described.

2. The combination in elevator-locking mechanism of a car, a door, a lock therefor, a device on the car for operating the controller whereby the car is caused to ascend or descend, mechanism for actuating the lock to release the door after the car is brought to a stop at the door and means whereby said mechanism is operated from the controller device on the car after the latter has been moved so as to stop the car, and a device for locking the controller and its mechanism when the door is opened, said device being actuated to release the controller when the door is closed so that the said mechanism can be operated to again lock the door before the controller device is moved sufficiently to start the car, substantially as described.

3. The combination in an elevator-car, of the door, a lock therefor, controlling mechanism on the car, a movable element adapted to actuate the door-lock, with elliptical gearing between said controlling mechanism and the movable element whereby said element will be moved slowly during the stopping and starting of the car, and will be moved quickly after or before the controlling mechanism is actuated to stop or start the car, 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:

WILL. A. BARR,
JOS. H. KLEIN.