

No. 702,373.

Patented June 10, 1902.

M. R. MUCKLÉ, JR.
LOCKING DEVICE FOR ELEVATORS.

(Application filed Nov. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

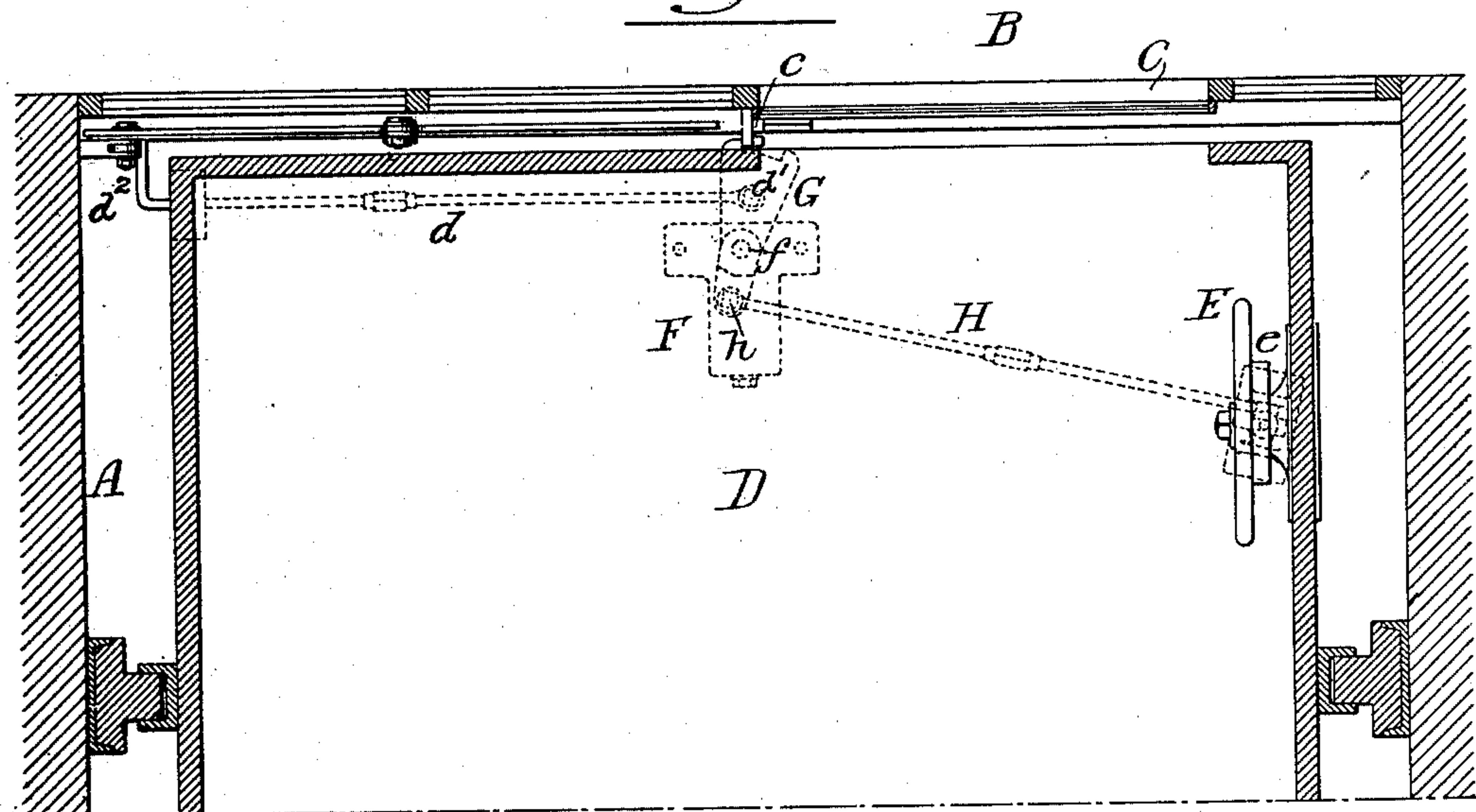
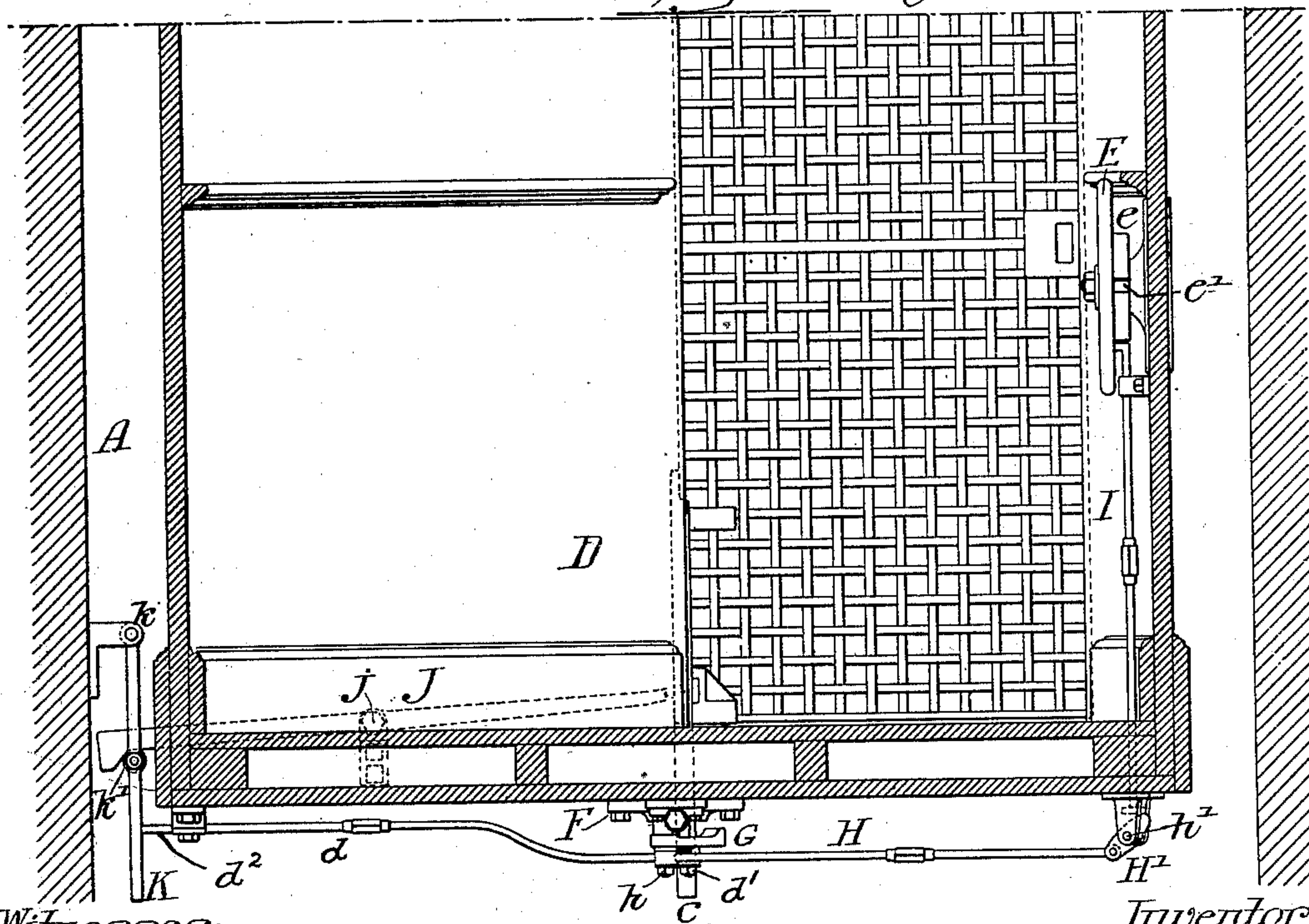


Fig. 2.



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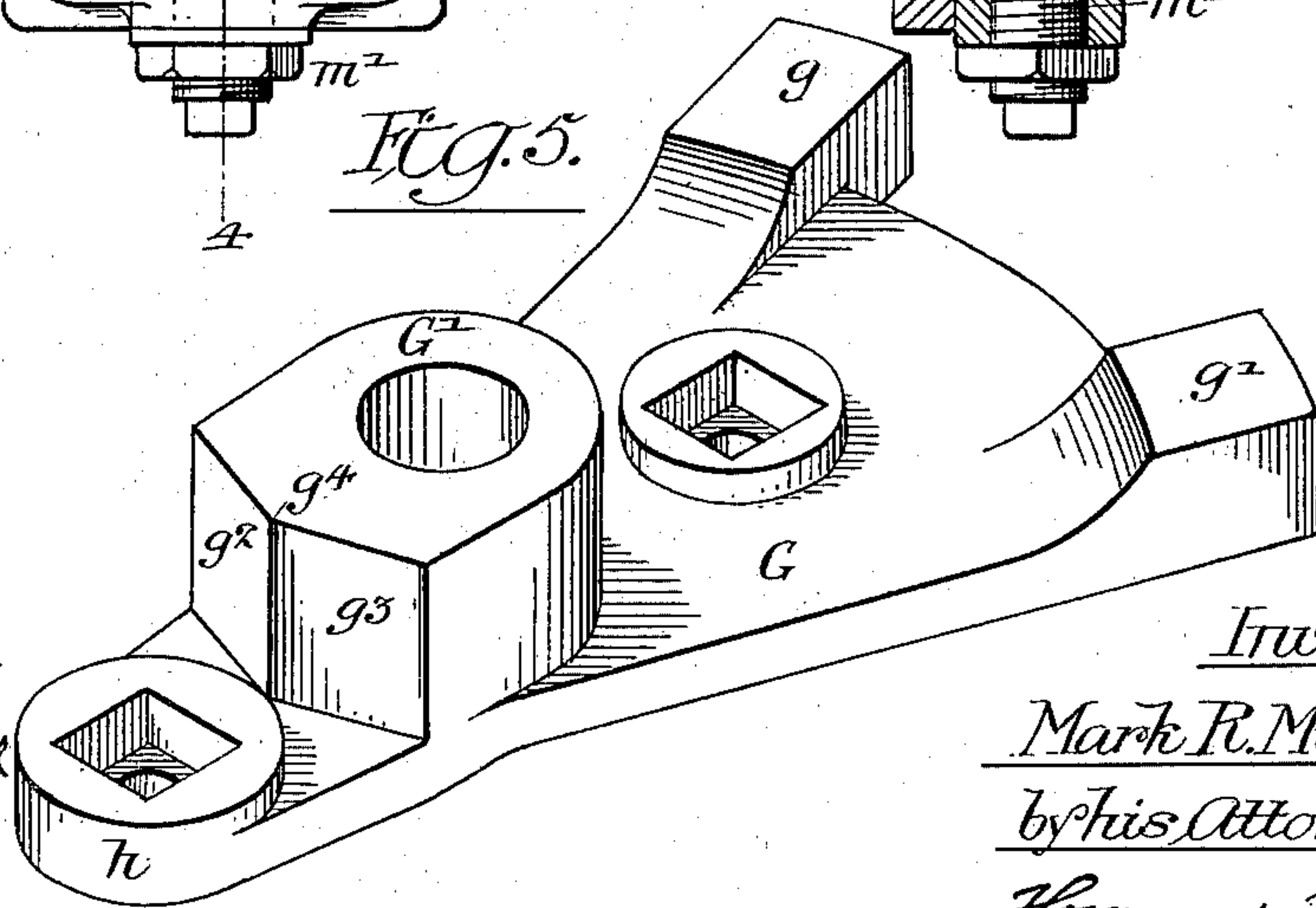
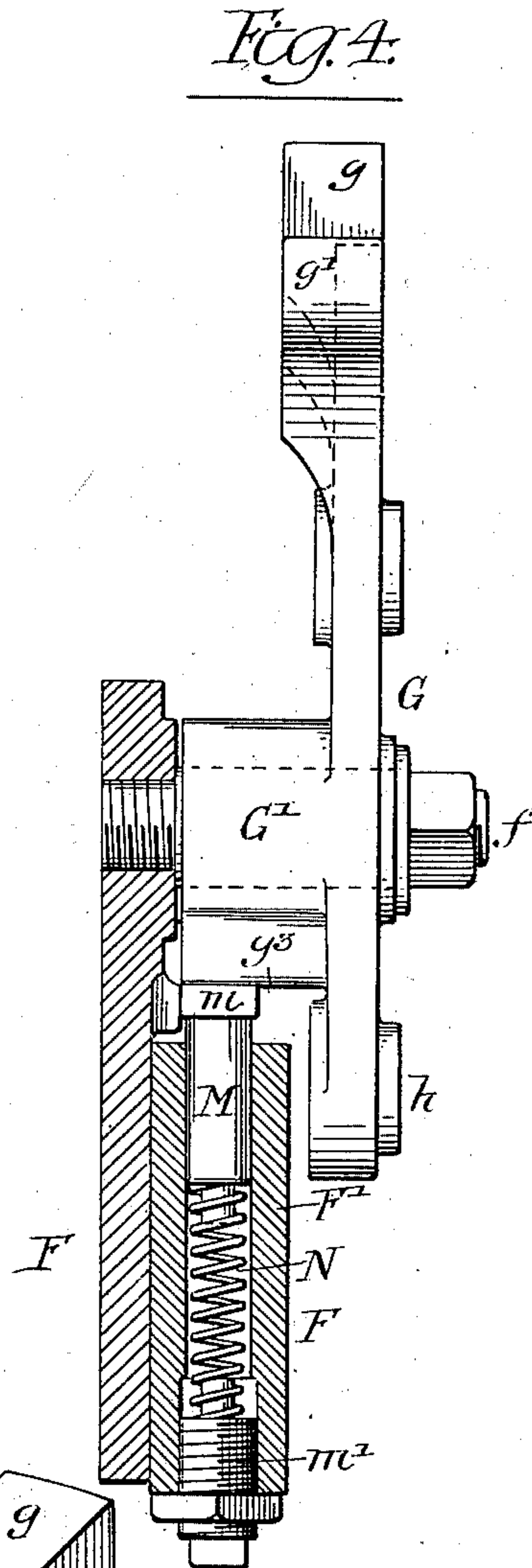
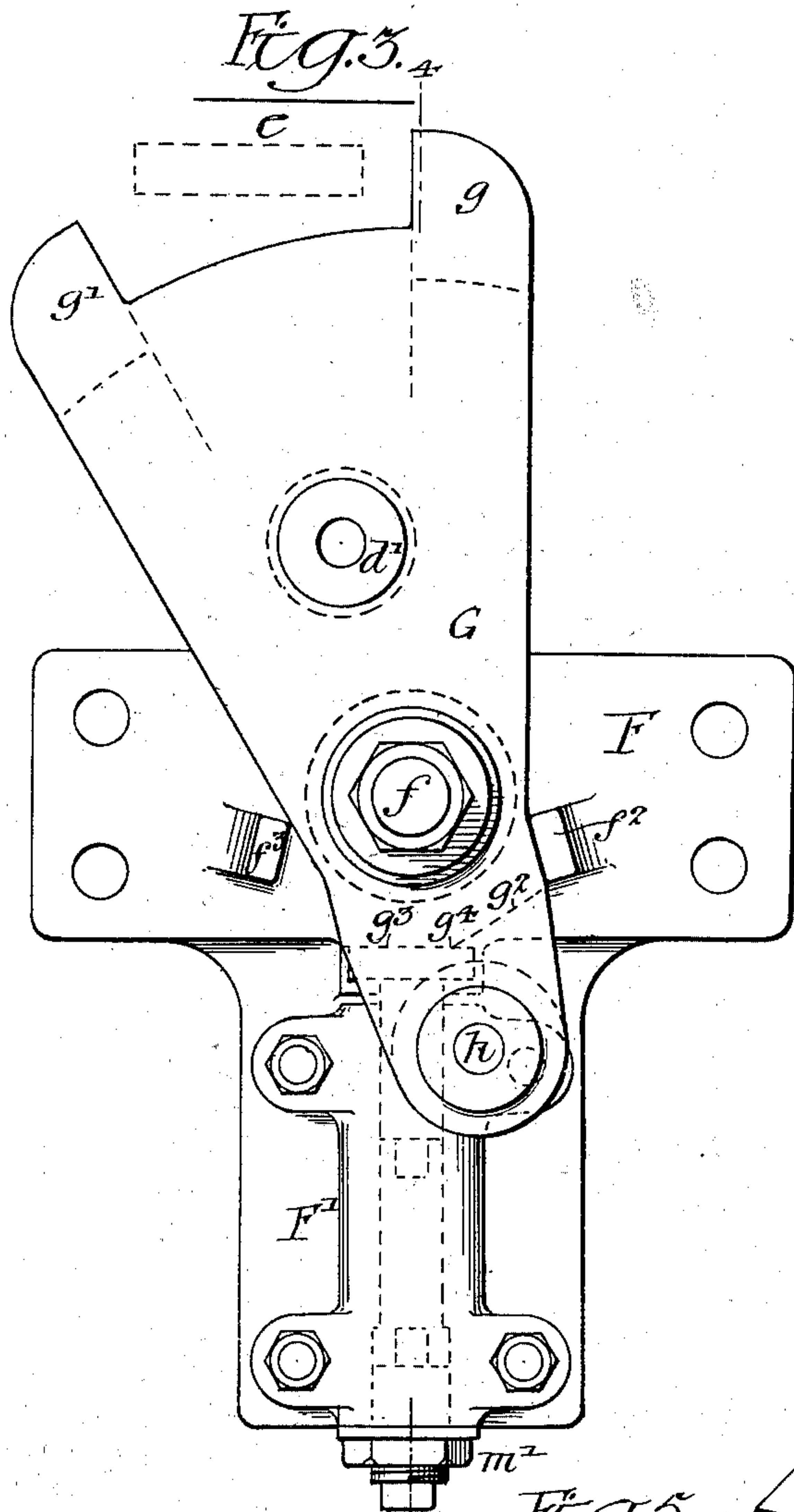
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2 Sheets—Sheet 2.



Witnesses:-

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UNITED STATES PATENT OFFICE.

MARK RICHARDS MUCKLÉ, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO JOHN S. MUCKLE AND THOMAS CARPENTER SMITH, OF PHILADELPHIA, PENNSYLVANIA.

LOCKING DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 702,373, dated June 10, 1902.

Application filed November 8, 1901. Serial No. 81,573. (No model.)

To all whom it may concern:

Be it known that I, MARK RICHARDS MUCKLÉ, JR., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Locking Devices for Elevators, of which the following is a specification.

My invention relates to certain improvements in interlocking mechanism between the door and the starting and stopping devices of an elevator.

My invention is an improvement on the device illustrated in the patent granted to T. W. Jenkins, No. 540,813, dated June 11, 1895.

The object of my invention is to provide means whereby the lock will be thrown quickly and positively into and out of engagement, as fully described hereinafter.

In the accompanying drawings, Figure 1 is a plan view of sufficient of an elevator-car to illustrate my invention. Fig. 2 is a sectional elevation of part of the car. Fig. 3 is an inverted plan view of the shifting lever. Fig. 4 is a side view, partly in section, on the line 4-4, Fig. 3. Fig. 5 is a perspective view of the shifting lever.

A is the elevator-well.

B is the landing, and C is the door at the landing, arranged to slide in the present instance. Extending from the door is an arm which operates the locking mechanism on the car, described hereinafter.

D is the car.

E is the hand-wheel for operating the valves or other mechanism for starting and stopping the car. It will be understood that a lever may be used in place of the hand-wheel without departing from my invention. On the back of the hand-wheel is a disk *e*, having a notch *e'*, with which the bolt of the locking mechanism engages.

Secured to the bottom of the car is a plate F, having a pivot *f*, on which is hung a lever G, notched at one end, forming two arms *g g'*, which are engaged by the bar *c*, depending from the sliding door C of the landing. Pivoted at *h* to one arm of the lever G is a rod H, which extends to a lever H', pivoted at *h'* to a bracket secured to the under portion of the car.

I is a locking-bolt having a head which rests upon one arm of the lever H' and is arranged to enter the notch *e'* in the disk *e* of the hand-wheel E when the lever G is shifted on opening the door.

J is a two-armed lever pivoted at *j* to the wall of the elevator and so arranged that when in one position it will be in the path of the door C and when in the other position it will be clear of the door. Hung at *k* from the elevator-wall is an arm K, which has a pin or roller *k'*, upon which the inclined portion of the lever J rests. Mounted in bearings on the car D is a shifting rod *d*, which is connected to the lever G at *d'*, and has an L-shaped portion *d''* in the present instance which engages the arm K when the lever G is operated. The lever J rests normally in the path of the door, its end being a distance from the end of the door, and when the car is stopped at the landing the door can be moved a certain distance to shift the lever G and throw the shifting rod against the arm K, which will tip the lever J clear of the door, so as to allow the door to be opened the full way. The moment the door is closed the rod is drawn away from the arm and the lever J assumes a position in the path of the door, preventing accidental opening of the door.

In some instances in place of the shifting rod *d* an arm may be secured directly to the car and operate the arm K at the landing. This construction is objectionable on account of the noise occasioned by the projection striking the arms as it passes the floors.

In order to throw the locking-bolt quickly either into or out of engagement with the operating-wheel, I form on the hub G' of the lever G two surfaces *g² g³*, one on each side of the center line drawn through the lever. These surfaces are inclined one in respect to the other.

Secured to the plate F, by bolts *f'*, is a box F', and within this box is a plunger M, having a head *m*, which bears against either of the surfaces *g² g³* of the lever G. Confined between the plunger M and a plug *m'*, screwed into the end of the box M', is a spring N, which tends to force the plunger M against the hub of the lever G, so that the moment

the lever is shifted and the edge g^4 passes the center of the plunger the plunger will force over the lever very quickly and will rest against either the surface g^2 or g^3 . On the plate F are stops $f^2 f^3$, which limit the movement of the lever in either direction.

The operation of the device is as follows: If, for instance, the car is coming up to a landing and the door is closed and locked by the lever J, the rod d on the car will shift the lever so as to allow the door to open, and as soon as the car is brought to a standstill by the operator turning the hand-wheel E the notch e' in the flange of the hand-wheel will come directly above the bolt, so that when the door is opened its arm c will strike the arm g of the lever G and shift the lever from the position shown in full lines, with the plunger M bearing against the face g^3 , to the opposite position, with the plunger bearing against the face g^2 . The moment the door is opened the edge g^4 is moved past the center of the plunger M and the plunger will immediately complete the movement of the lever and throw it over full against the stop, so as to insure the immediate throwing of the bolt and the locking of the operating-wheel. When the door is closed by the operator, the arm c on the door will again shift the lever G, throwing it over to the opposite position, and the spring-plunger will complete the movement of the lever and withdraw the bolt from engagement with the operating-wheel.

I claim as my invention—

1. The combination in an elevating mechanism, of a landing, a door, an arm on the door, a car, a plate on the car and a lever pivotally carried thereon, said lever being in the path of the arm, starting and stopping mechanism, a bolt arranged to engage with said mechanism, means connecting the operating-bolt and the lever, a casing on the plate and a spring-plunger carried thereby in engagement with the lever, said plunger being

arranged to complete the movement of the lever when this is moved by the opening of the landing-door, together with means for limiting the motion of the lever, substantially as described.

2. The combination in an elevator, of the landing, a door at the landing having an arm, a car, a lever pivoted to the car and having two arms arranged to be engaged by the arm on the door, starting and stopping mechanism on the car, a bolt arranged to engage the said means, a connection between the bolt and the said lever, the lever having a projecting hub portion provided with two bearing-faces one at an angle to the other, a spring-plunger arranged to bear against either of said faces, bearing against one face when the door is opened and bearing against the other face when the car-door is closed, substantially as described.

3. The combination of an elevator, a landing, a door at the landing, an arm projecting from the door, a car, starting and stopping mechanism on the car, a locking-bolt arranged to engage the starting and stopping mechanism, a plate on the bottom of the car, a lever pivoted to said plate and connected to the locking-bolt, said lever having two bearing-faces one at an angle to the other and joining on a center line through the lever, a casing on the plate, a plunger in said casing having a head arranged to bear against either one or the other of the said bearing-surfaces of the lever, a spring back of the plunger within the casing, and a screw-plug back of the spring, substantially as described.

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

MARK RICHARDS MUCKLÉ, JR.

Witnesses:

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