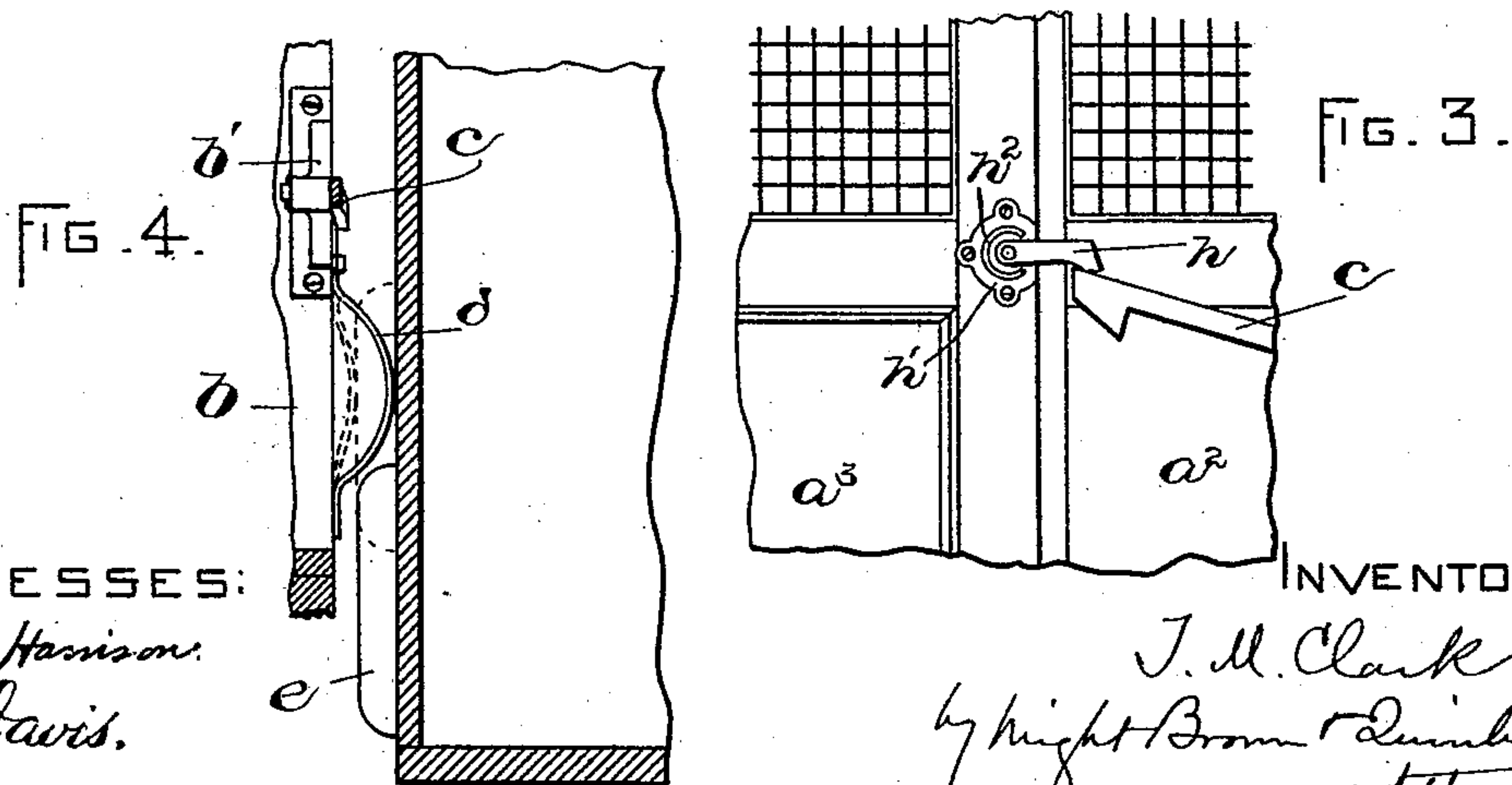
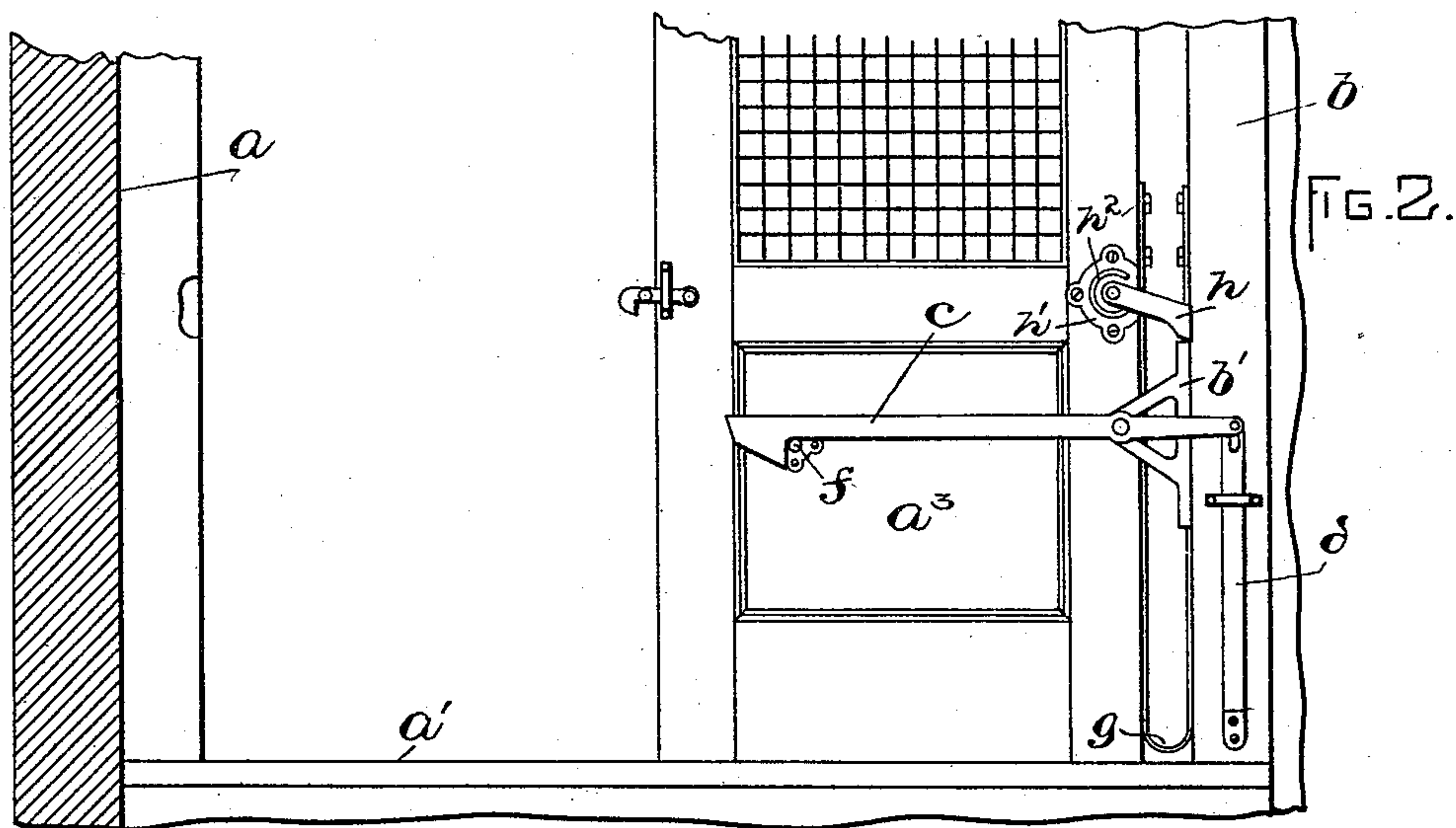
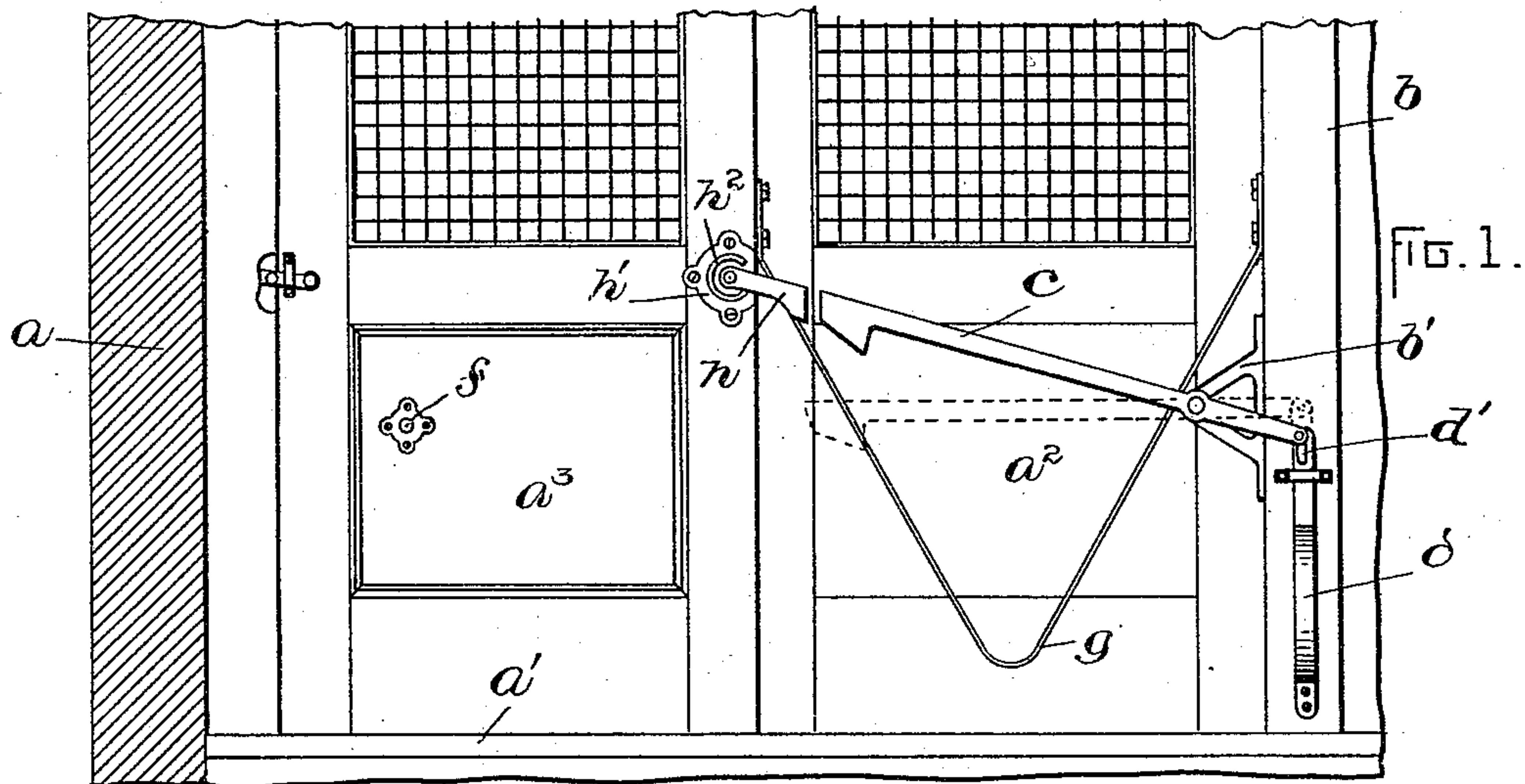


(No Model.)

T. M. CLARK.  
SAFETY DEVICE FOR ELEVATORS.

No. 543,569.

Patented July 30, 1895.



WITNESSES:  
A. D. Harrison.  
P. Davis.

INVENTOR:

T. M. Clark  
by Knight Brown & Quincy  
Attys.



# UNITED STATES PATENT OFFICE.

THEODORE M. CLARK, OF NEWTON, MASSACHUSETTS.

## SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 543,569, dated July 30, 1895.

Application filed November 19, 1894. Serial No. 529,213. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORE M. CLARK, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a specification.

This invention relates to devices for guarding against accidents resulting from doors of elevator-hatchways being open into the hatchway when the car is away, the object being to provide locking means which make the opening of the door impossible when the elevator-car is away from it.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 shows the inner side of part of an elevator-hatchway with my improvement applied, the parts appearing in normal adjustment or that adjustment which obtains when the car is away from the door. Fig. 2 shows the same parts in the positions they assume when the door is opened, it being supposed that the car is at the door, although it is omitted to avoid obscurity. Fig. 3 shows the manner in which a certain pivotal abutment-piece on the door passes a certain latch in the closing of the door. Fig. 4 shows a section on line 4 4 of Fig. 1 with part of the car in section.

The letter  $a$  designates one side wall of an elevator-hatchway;  $a'$ , the sill at one floor of the building;  $a^2$ , a fixed panel on said floor and closing part of the front of the hatchway, and  $a^3$  a sliding door controlling an opening into the hatchway and arranged to move behind the said panel  $a^2$  when opened.

Fastened to a post  $b$  in one corner of the hatchway opposite the wall  $a$  is a bracket  $b'$ , to which there is pivoted a latch  $c$  intermediate of its ends, so as to provide a tail which extends part way across the inner side of the post  $b$  and a long arm extending part way across the panel  $a^2$ . A bowed spring  $d$  is fastened at one end to the post  $b$  and engaged at the opposite end with the tail of the latch  $c$ . Normally the tail of the latch is held down by the bowed spring and its long arm up.

The car has fastened to it at a suitable part an elongated projection  $e$ , (see Fig. 4,) which

is designed to act against the spring  $d$ , and by flattening it cause the latch to drop to the broken-line position shown in Fig. 1.

There is a stud  $f$ , fastened to the door  $a^3$  at such location that when the door is opened with the latch lowered this pin strikes an under beveled edge of the latch and raises it sufficiently to pass by the shoulder of the latch and let the latter drop in front of the stud. The upward movement of the latch is permitted by a slot  $d'$  in the spring  $d$ , where a pin of the latch engages it. A V-shaped spring  $g$ , fastened at one end to the door and at the other to the post  $a^2$ , exerts itself constantly to close the door, and so, when the car moves on and its projection  $e$  leaves the spring  $d$ , allowing the latter to lift the latch, the spring  $g$  closes the door.

Located at a higher point on the door than the stud  $f$  there is an abutment-arm  $h$ , which is designed to stand in front of the latch  $c$  when the latter is in its normal raised position. This abutment-arm is pivoted to a bearing  $h'$ , fastened on the door, and is limited to slight play on its pivot by a flange  $h^2$ , formed on said bearing, and between which the arm has position. Normally—that is, when the door is closed and the car is away—the abutment-arm rests in its lowest position with its free outer end confronting the end of the latch, as clearly shown in Fig. 1, and there is but a slight space between these confronting ends, so that in the very beginning of an attempt to open the door the abutment-arm is brought against the latch. Thus the door is locked against opening.

When the car arrives opposite the door and its platform comes flush with the sill  $a'$ , the flattening of the spring  $d$  takes place, as before explained, and the latch drops, so that the door is no longer locked and can be freely opened.

When the car leaves and the latch is lifted from engagement with the stud  $f$ , so that the spring  $g$  closes the door, as previously explained, the abutment-arm  $h$  rides over the latch, turning on its pivot, as illustrated in Fig. 3, and then drops down in front of the latch.

It will be seen that the arrangement de-



scribed makes it impossible to open the door except when the car is opposite the same.

What I claim as my invention is as follows:

1. In a safety device for elevator doors, the  
5 combination of a latch pivoted to the hatchway, a bowed spring fastened at one end to the hatchway and engaged at its free end with the tail of the latch, said bowed spring standing in the path of a projection on the car, a  
10 stud on the door and arranged to be engaged by the latch when the door is opened, and an abutment-piece on the door and arranged to come against the end of the latch except when the latter is displaced by the engagement of  
15 the projection on the car with the bowed spring.

2. In a safety device for elevator doors, the combination of a latch pivoted to the hatchway, a bowed spring fastened at one end to  
20 the hatchway and engaged at its free end with

the tail of the latch, said bowed spring standing in the path of a projection on the car, a stud on the door and arranged to be engaged by the latch when the door is opened, and an abutment-piece pivoted to the door and arranged to come against the end of the latch except when the latter is displaced by the engagement of the projection on the car with the bowed spring, and to ride over the latch by movement on its pivot in the closing of  
25 the door, substantially as described. 30

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of November, A. D. 1894.

THEODORE M. CLARK.

Witnesses:

HORACE BROWN,  
FRANK PARKER DAVIS.