

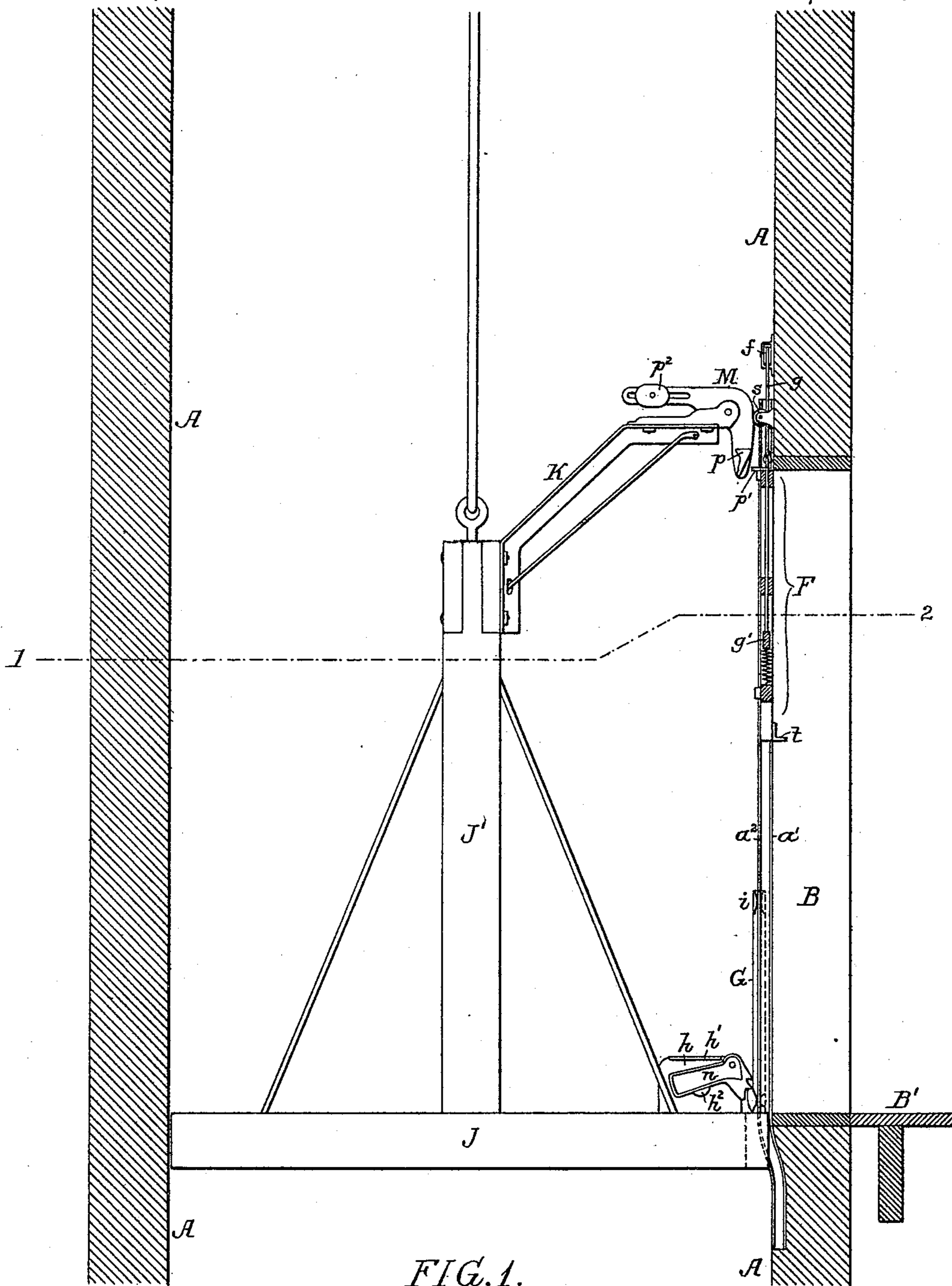
(No Model.)

4 Sheets—Sheet 1.

A. C. STEWART.  
DEVICE FOR OPERATING ELEVATOR GATES.

No. 460,603.

Patented Oct. 6, 1891.



Witnesses:

R. Schleicher.  
Alex. Barkoff

Inventor:

Alson C. Stewart  
by his Attorneys  
Howson & Howson

(No Model.)

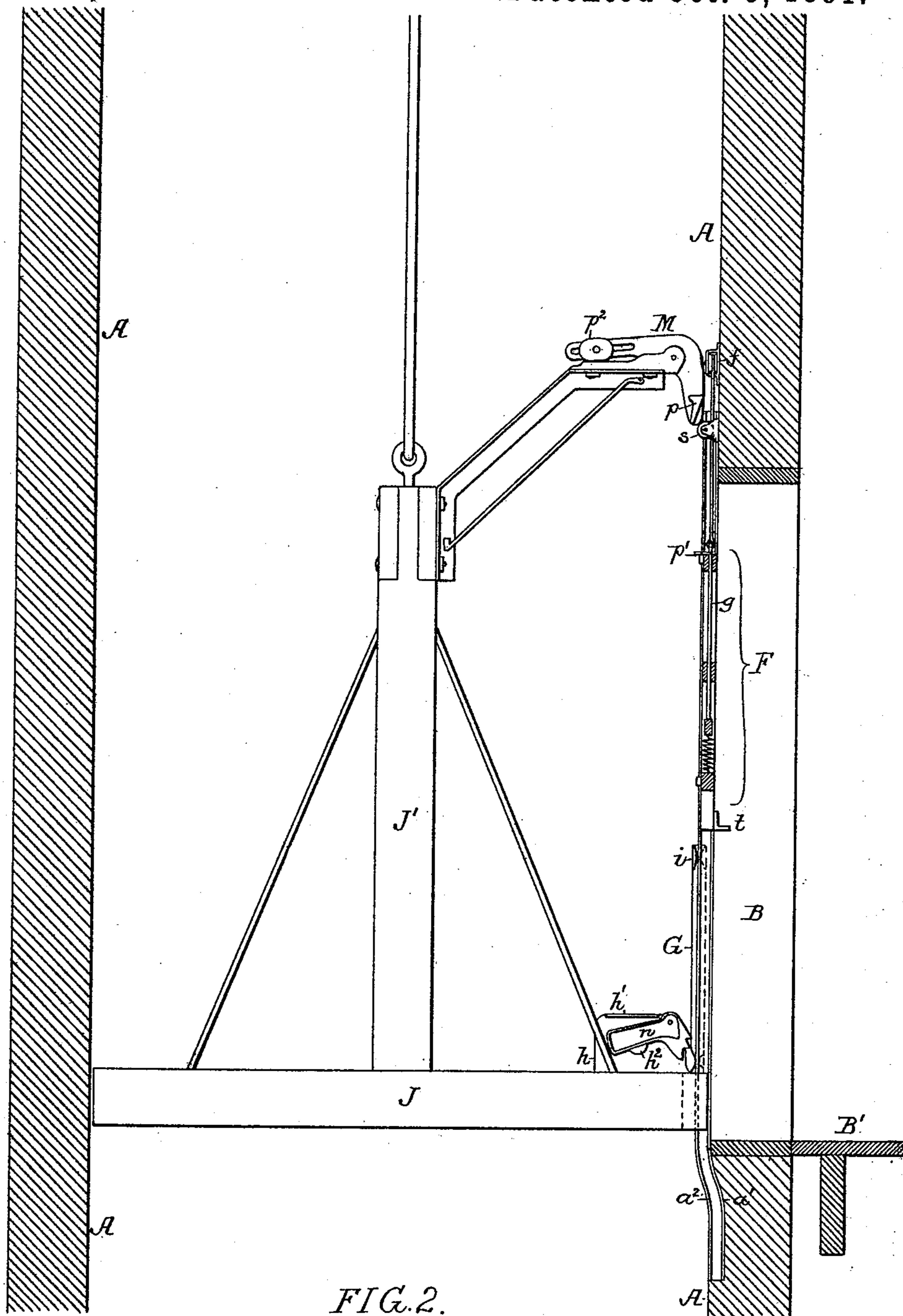
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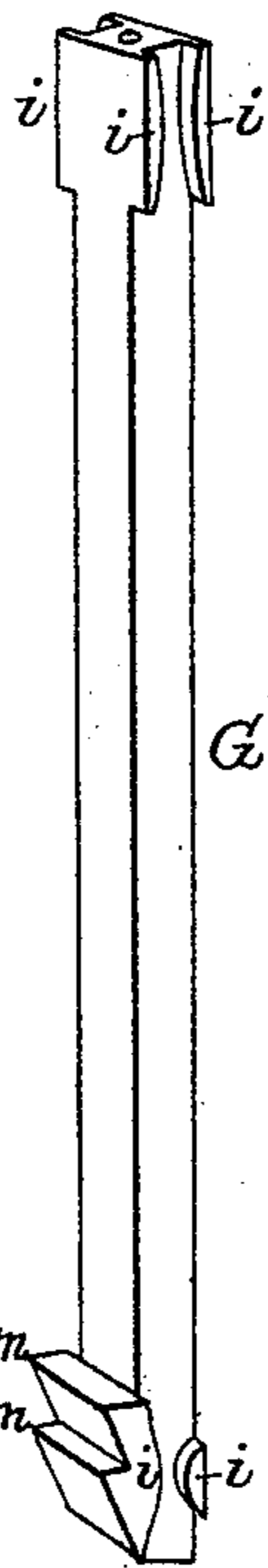
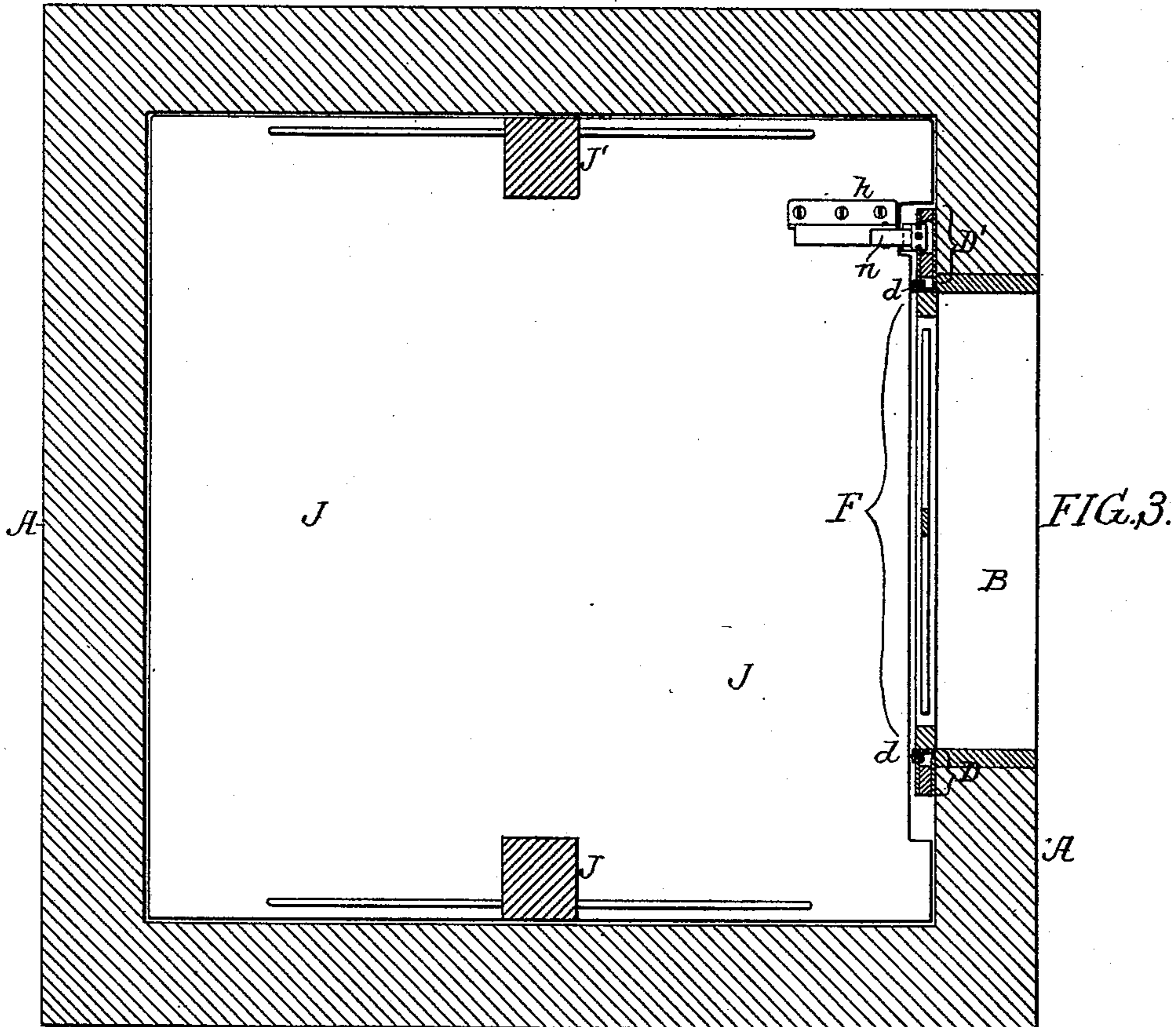


FIG. 6.

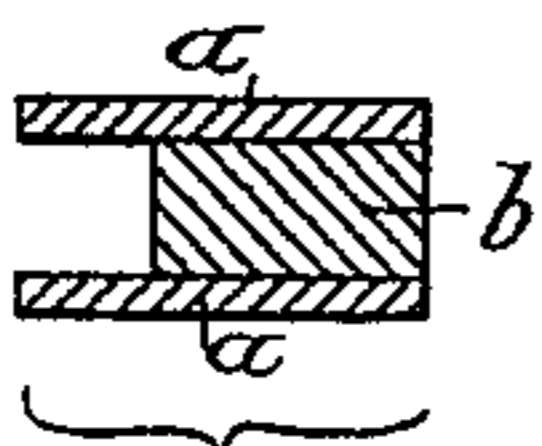
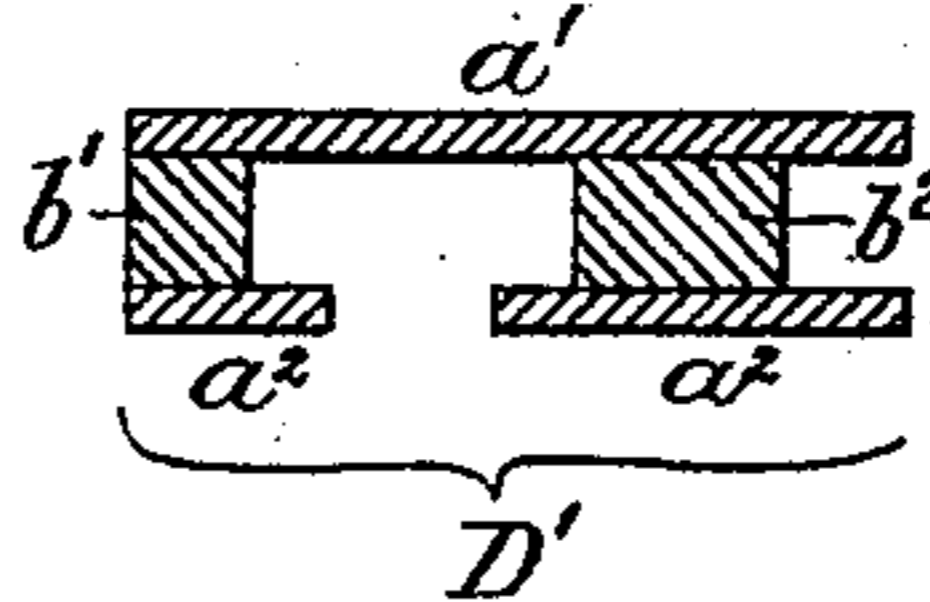


FIG. 7.



Witnesses:  
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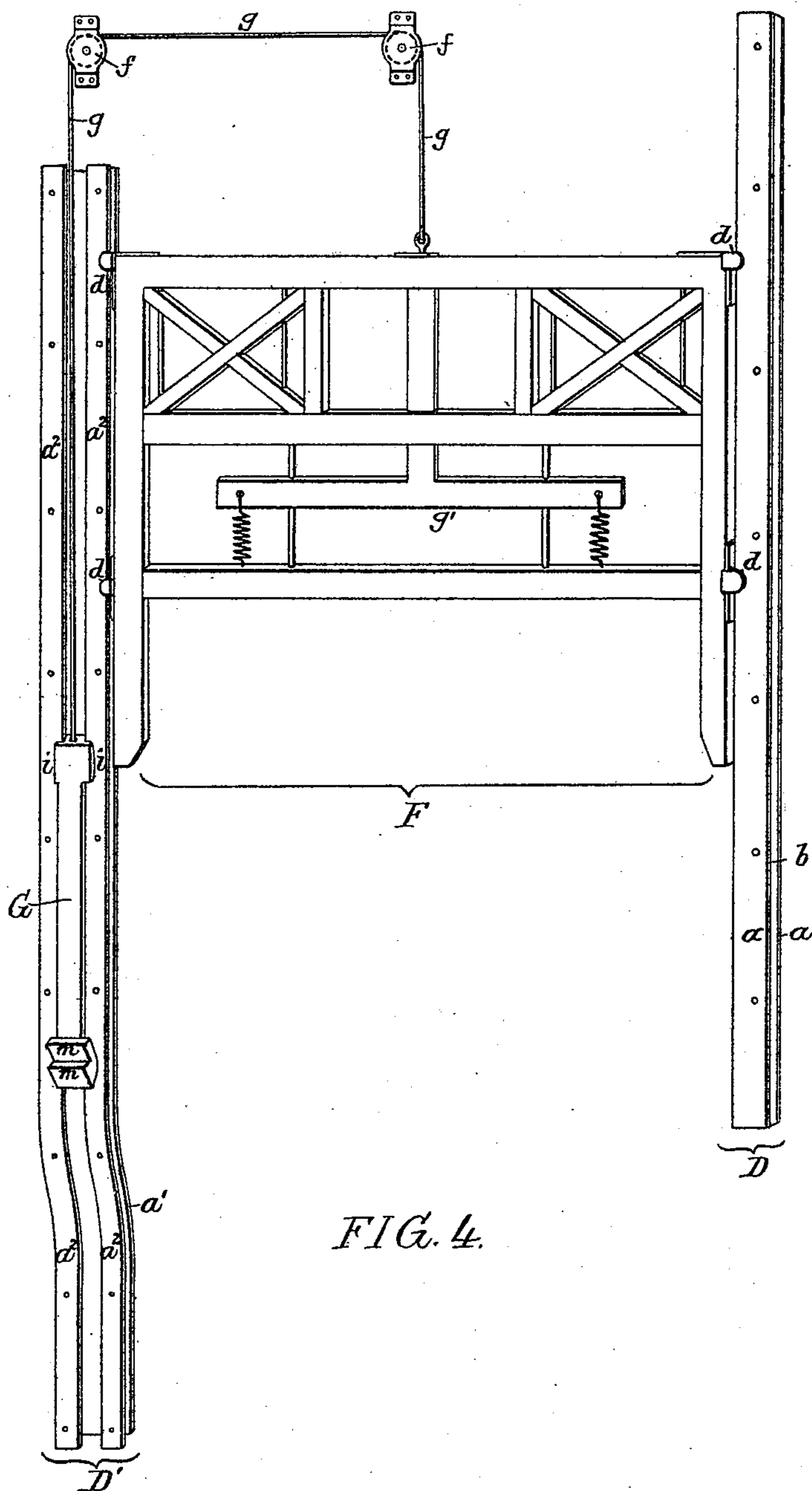
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4 Sheets—Sheet 4.

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# UNITED STATES PATENT OFFICE.

ALSON C. STEWART, OF PHILADELPHIA, PENNSYLVANIA.

## DEVICE FOR OPERATING ELEVATOR-GATES.

SPECIFICATION forming part of Letters Patent No. 460,603, dated October 6, 1891.

Application filed July 25, 1890. Serial No. 359,872. (No model.)

*To all whom it may concern:*

Be it known that I, ALSON C. STEWART, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Automatic Gate-Operating Devices for Elevators, of which the following is a specification.

My invention relates to that class of gate-operating devices for elevators in which a suspended gate is connected to a counterbalance-weight, the opening and closing of the gate being automatically effected as the elevator cage or platform descends or rises, and such operation of the gate being effected by the engagement of either the gate or its counterbalance-weight with certain catches or projections on the elevator platform or cage.

The objects of my invention are to simplify the construction and operation of the attachments on the platform or cage and to readily apply the gate and its counter-balance to that class of elevator-wells which are inclosed in brick or masonry. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section, partly in elevation, of an elevator well and platform with my improved gate-operating devices, the platform being shown in line with the bottom of the doorway in the well. Fig. 2 is a similar view showing the parts in a different position. Fig. 3 is a sectional plan view on the line 1 2, Fig. 1. Fig. 4 is a perspective view of the gate, its counterbalance-weight and guides for these parts detached from the well. Fig. 5 is a detached perspective view of the counterbalance-weight, and Figs. 6 and 7 are enlarged sectional views of the guides.

A represents the brick or masonry structure surrounding or forming the elevator-well, and B is a doorway or opening into the same and providing access to the well from one of the floors B' of the building. To the inside of the well, on each side of the opening or doorway B, are bolted guides D D', the guide D consisting of two plates  $a$ , preferably of wrought-iron or steel and a filling-piece  $b$ , as shown in Fig. 6, and the guide D' consisting of an outer plate  $a'$  and inner plates  $a^2$   $a^2$  with filling-pieces  $b'$   $b^2$ , as shown in Fig. 7. Those edges of the inner plates  $a$   $a^2$  of the guides which

are adjacent to the doorway are engaged by brackets  $d$ , secured to the opposite side bars or rails of the gate F, as shown in Figs. 3 and 4, so that said gate is guided in its movement wholly by these plates.

To the inside of the well above the opening or doorway B are hung pulleys  $f$ , over which passes a rope  $g$ , one end of which is connected to a spring-slide  $g'$  on the gate, the other end of the rope being connected to a weight G, which almost but not quite counterbalances the gate F, this weight being guided by the inner plates  $a^2$  of the guide D'. The plates constituting this guide D' are offset or let into the front wall of the elevator-well at the bottom of the opening or doorway B, as shown in Figs. 1 and 2, and the lugs  $i$ , which are formed upon the weight G for engagement with the guide-plates  $a^2$ , are rounded or beveled on their inner or guide-faces, as shown in Figs. 1, 2, and 5, one set of guide-lugs being at the top and the other set at the bottom of the weight, so that the latter is free to assume an inclined position as its lower end is thrown outward by the offset portion of the guide D'. One of the lower guide-lugs  $i$  of the weight projects so as to form shoulders  $m$ , and on the base of the cage or platform J is a plate  $h$ , to which is pivoted a catch  $n$ , this catch being in the form of a lever, one arm of which is weighted, while its other arm is notched for engagement with one or other of the shoulders  $m$  of the weight G, there being in the present instance two of these notches, for a purpose described hereinafter. The swinging movement of the catch  $n$  is restricted in one direction by a flange  $h'$  on the plate  $h$  and in the other direction by a projecting lug  $h^2$  on said plate.

To an arm K projecting from one of the side posts or standards J' of the cage or platform is hung a lever M, one arm of which is provided with a catch-finger  $p$  for engagement with a lug  $p'$ , projecting inward from the top of the gate, the other arm of the lever having an adjustable weight  $p^2$ , the tendency of which is to so operate the lever as to cause its finger  $p$  to engage with the lug  $p'$  of the gate.

The operation of the device is as follows: Supposing that the elevator-platform is descending, and that one of the shoulders  $m$  of

the weight *G* is in engagement with one of the notches of the catch *n* on the platform, the result will be that said weight will be carried down with the platform and the gate will be raised, as shown in Fig. 2, for instance. As the elevator descends past the bottom of the doorway or opening *B*, however, the shoulder *m* of the weight will by reason of the offsetting of the guide *D'* be withdrawn from engagement with the notch of the catch *n*. By this time, however, the catch-finger *p* of the lever *M* has been brought into engagement with the lug *p'* of the gate. Hence the latter is lowered as the platform descends, the weight *G* being free to rise owing to the fact that the catch *n* has been carried beneath the shoulders *m* of the weight, and when the door is down it may be supported by projecting lugs *t*, resting on the sill of the doorway or opening, or in any other suitable manner. On the rise of the platform the lug *p'* of the gate is caught by the finger *p* of the lever *M*, and the gate is raised until said finger is pushed from beneath the lug by the action of the roller *s* upon the lever *M*, one of the notches of the catch-finger *n*, however, having by this time engaged one of the shoulders *m* of the weight *G*, so that said weight rises with the cage or platform and the gate is gradually permitted to descend.

The object of providing the catch *n* with two notches and the weight *G* with two shoulders is to insure engagement of the catch and weight under all circumstances of expansion and contraction of the rope *g*, whereby the weight is connected to the gate.

I am aware that devices for automatically raising and lowering a gate under control of a moving cage or platform have been heretofore devised, and I am also aware that it is not new to withdraw the shoulder on a weight from a catch on the platform by means of an offset guideway, the features of my invention, so far as the catches are concerned, being mainly the simplicity of construction, the fewness of the parts employed, and the freedom from springs. The main feature of my invention, however, consists in the construction and arrangement of the guides, the gate, and the counterbalance-weight, so that they can be applied to brick or masonry wells, which are very often provided with iron door-frames and afford no opportunity for the guid-

ance of the door or weight or for the attachment of guides therefor.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination of the elevator well or casing, the sliding gate for closing an opening therein, the counterbalance-weight for said gate, a lever hung to the cage or platform and having a catch-finger engaging with the gate, a weight adjustable from and toward the fulcrum of the lever, and an anti-friction roller mounted in the well above the doorway and acting upon said lever so as to release its catch-finger from engagement with the gate, substantially as specified.

2. The combination of the elevator well or casing and its doorway, a sliding gate for said doorway, a sliding counterbalance-weight for said gate, an offset guide for said weight, and a cage or platform having a swinging catch for engagement with said weight, one of said engaging parts having a series of engaging portions, substantially as specified.

3. The combination of the elevator well or casing having a doorway with metal sill, a sliding gate for closing said doorway, a counterbalance-weight for the gate, and guides for said gate and counterbalance-weight, comprising plates at the side of the doorway, the upper and lower portions of said guides at one side being in different vertical planes, the upper portion being secured to the inner face of the elevator-well and the lower portion being offset and let into the wall of the well at a point below the metal sill of the doorway, substantially as specified.

4. The combination of the elevator well or casing having a doorway, the sliding gate for said doorway, the sliding counter-balance for the gate, a guide for said counter-balance, having an offset portion, and upper and lower guide-lugs formed on the counterbalance-weight for engagement with said guide, said lugs being curved or beveled on their inner or guiding faces, substantially as specified.

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

ALSON C. STEWART.

Witnesses:

EUGENE ELTERICH,  
HARRY SMITH.