

(No Model.)

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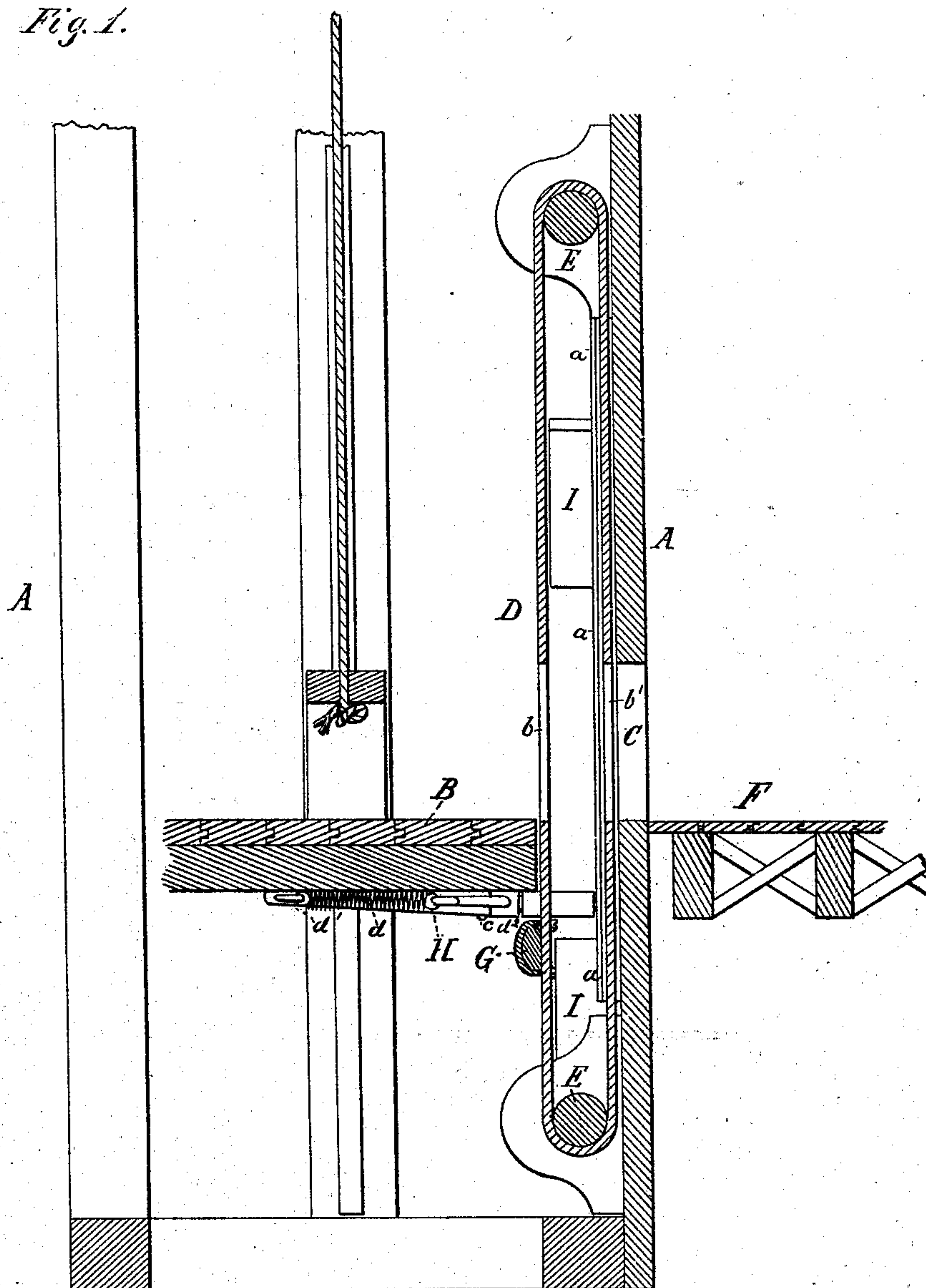
J. B. ATWATER.

SAFETY ELEVATOR FOR HATCHWAYS.

No. 258,211.

Patented May 23, 1882.

Fig. 1.



Witnesses.

Robt. L. Fenwick.

B. Carlyle Fenwick

Inventor.

John B. Abwater
by his wife

by his letters.

Mass. Fenwick & Lawrence

(No Model.)

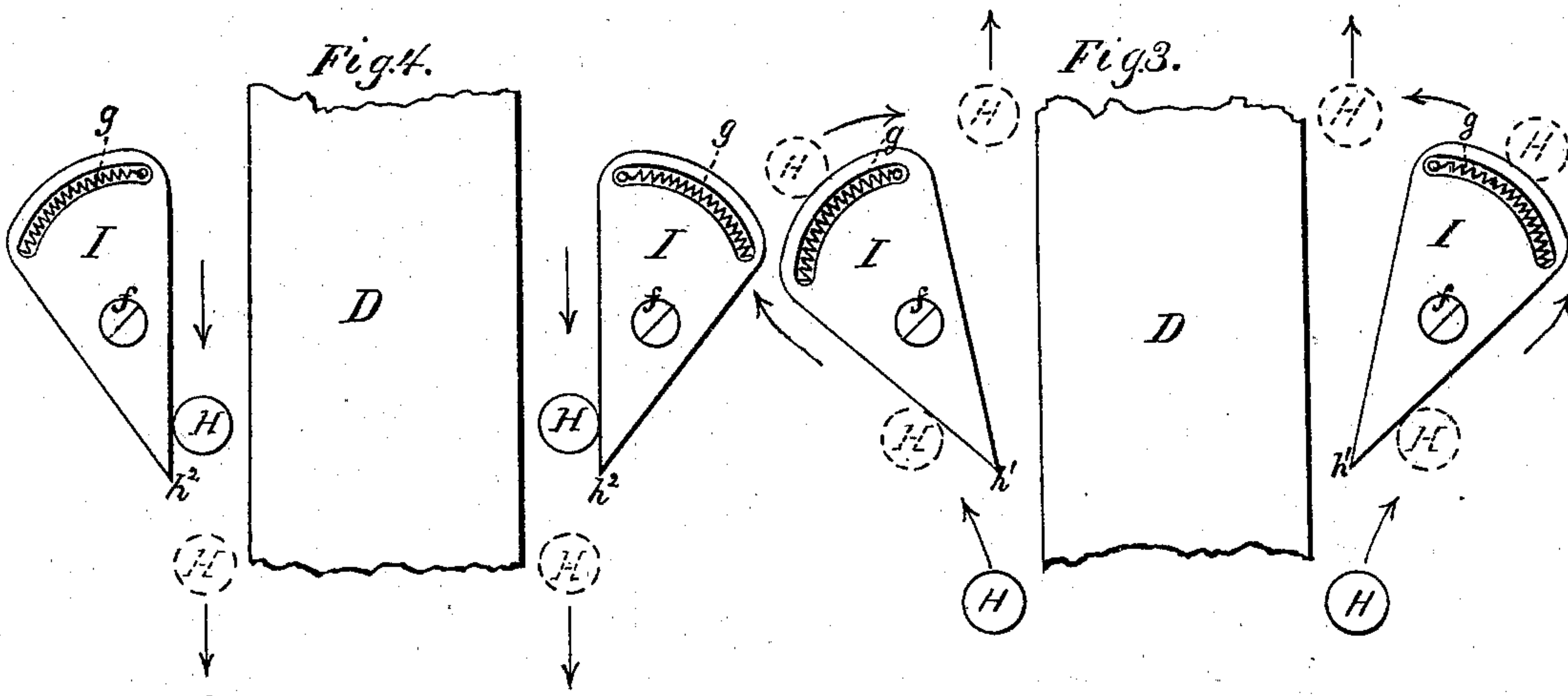
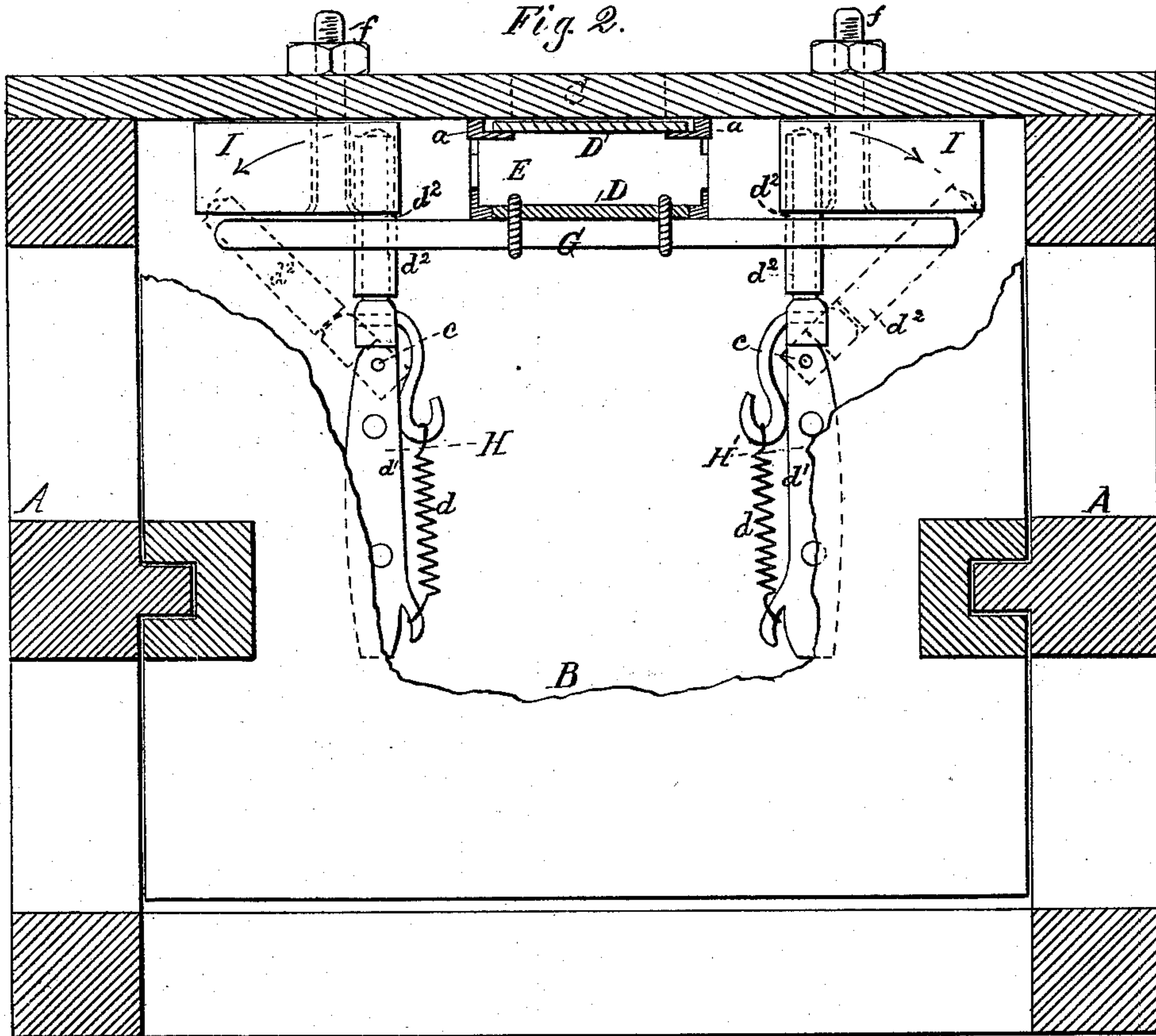
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No. 258,211.

Patented May 23, 1882.



Witnesses:

Witnesses:
B. Bulfinch Fenwick
Robt. L. Fenwick

Robt. L. Fenwick

Inventor:

John B. Alwater
by the Atty's
Mason, Francis Lawrence

Minor, Francis Lawrence

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(No Model.)

4 Sheets—Sheet 3.

J. B. ATWATER.

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Fig. 5.

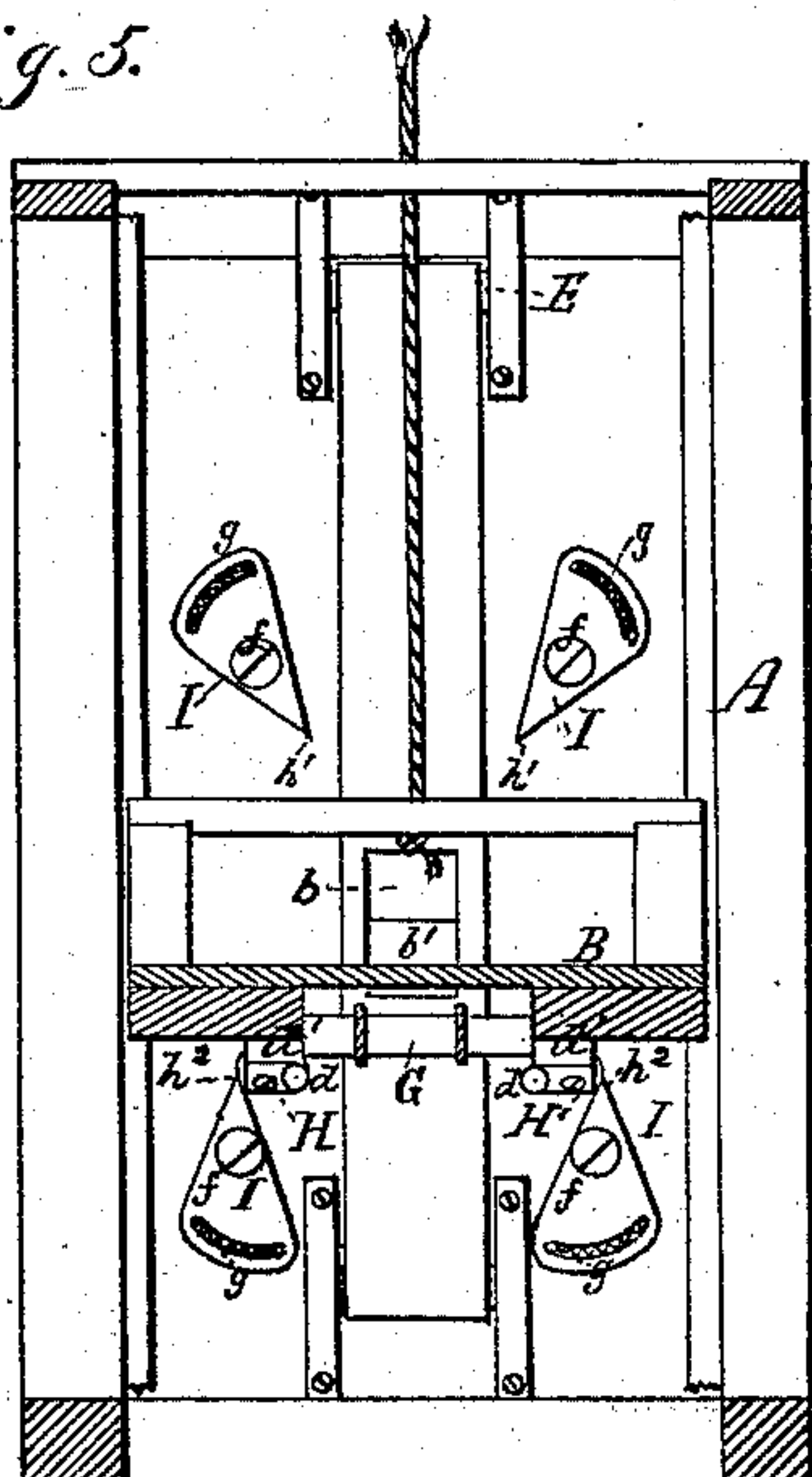


Fig. 6.

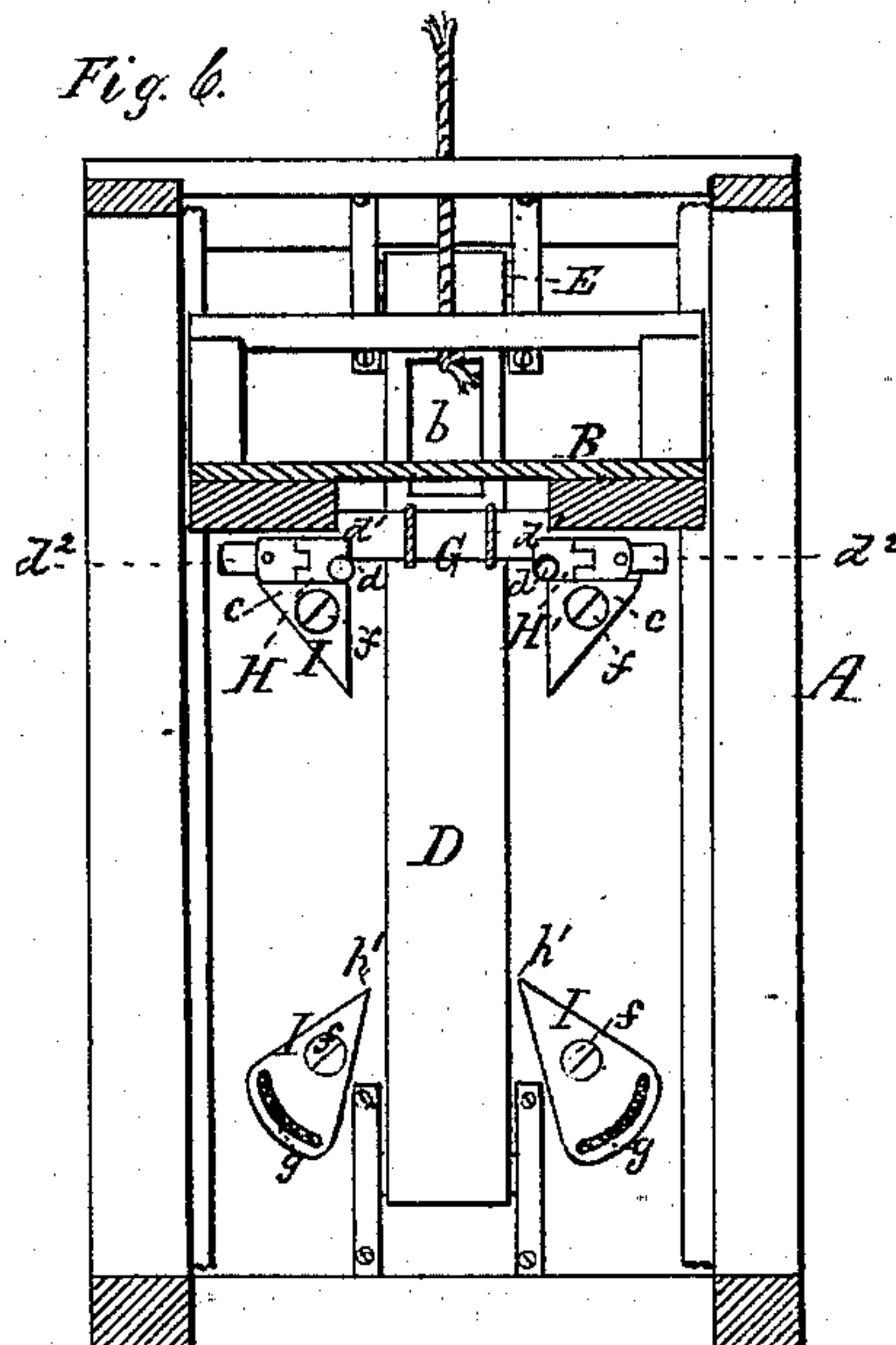


Fig. 8.

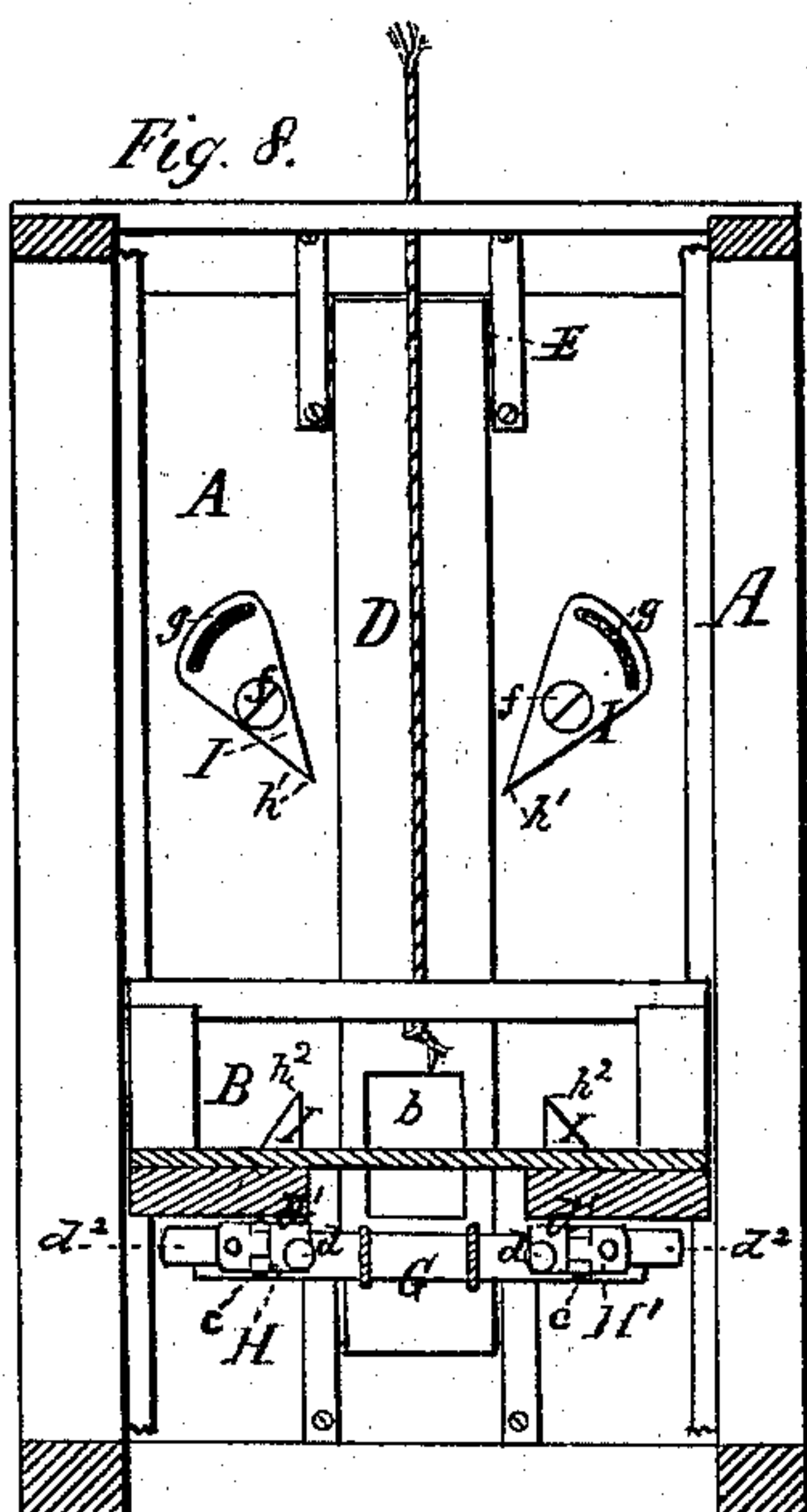
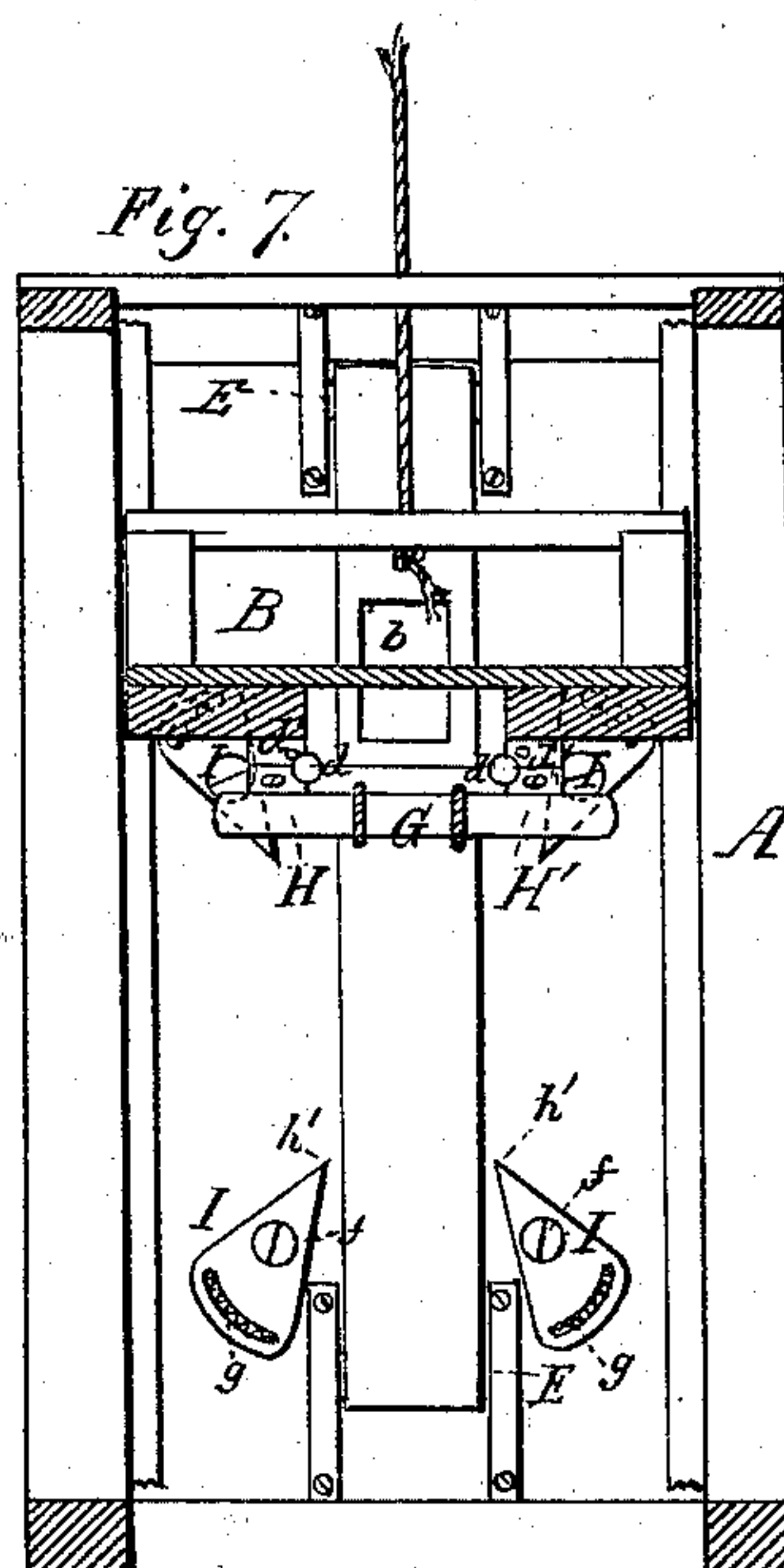


Fig. 7.



Witnesses:

Robt. L. Fennick.
B. Carlyle Fennick-

Inventor:

John B. Abwater
by his wife;
Mason, Plummer & Lawrence

(No Model.)

4 Sheets—Sheet 4.

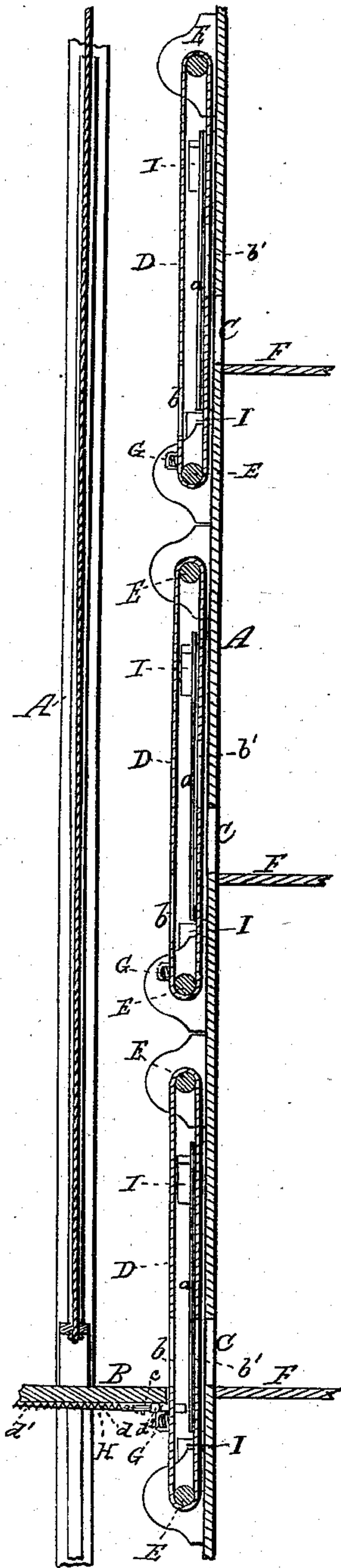
J. B. ATWATER.

SAFETY ELEVATOR FOR HATCHWAYS.

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Patented May 23, 1882.

Fig. 9.



Witnesses:

B. Carlyle Fenwick.
Robt. S. Fenwick.

Inventor:

John B. Atwater
by his Attorneys
Mason Fenwick Lawrence

UNITED STATES PATENT OFFICE.

JOHN B. ATWATER, OF CHICAGO, ILLINOIS, ASSIGNOR TO PETER J. SINGER,
OF SAME PLACE.

SAFETY-ELEVATOR FOR HATCHWAYS.

SPECIFICATION forming part of Letters Patent No. 258,211, dated May 23, 1882.

Application filed January 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ATWATER, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Safety-Elevators for Hatchways of Stores, Hotels, and other Buildings, of which the following is a specification.

My invention relates to an elevator having a doorway at each of its landings and provided with a number of independent endless belts, which are respectively provided with a doorway-opening, and are respectively applied between the respective floors of the different stories of a building and opposite the respective doorways leading from and to landings of the hatchway, whereby the elevator platform or cab, while either ascending or descending, will both open and close the doorways leading to the respective landing-floors of a building, and thus prevent persons losing their lives by entering the hatchway and falling through the same after the elevator-cab has passed up above a doorway or doorways, or has passed down below a doorway or doorways.

My invention will be understood from the accompanying drawings, following description, and claims.

Figure 1 is vertical transverse section of a portion of a hatchway of a building, showing also a section of a landing of a building, and also of an elevator-cab, and my invention applied to the said hatchway and cab. Fig. 2 is a partial horizontal section and elevation of the parts shown in Fig. 1, portions of the platform being broken away to expose other parts. Fig. 3 is a diagram illustrating the operation of the bars which actuate the endless belts while the cab is going upward; and Fig. 4 is a similar diagram, illustrating the same thing while the cab is going downward. Fig. 5 is a vertical section of the elevator-cab and of a part of the hatchway. In this view the cab is illustrated as in the act of going up and operating a belt for the purpose of opening the doorway from the hatchway and a cab to a landing of a building. Fig. 6 is a similar section, showing the cab moved farther up and in a position where the hinged ends of interlocking lifting-bars are turned outward by inclined

stops of the hatchway, so that they shall pass from a position beneath the interlocking slat of the endless belt to a position above it, as illustrated in other figures. Fig. 7 is a similar section to Fig. 6, but showing the cab as it appears while moving down for opening a doorway; and Fig. 8 shows a similar section to Fig. 7, but the stops are in the act of turning out the interlocking bars of the cab, so as to bring them again underneath the interlocking slat of a belt. Fig. 9 is a broken vertical section of a hatchway elevator and platform with my invention applied thereto, this view showing the platform in the same position as in Fig. 1 with respect to the interlocking slat of one of the endless belts, and it also showing three belts, two of which are in positions which close the doorways of the hatchway, and the other has its openings coinciding with a doorway of the hatchway.

To apply my invention to a building having a number of stories, and with more than one landing, the following construction is adopted:

A hatchway, A, extending from the lowest part of the building to the highest, may be constructed, and a cab, B, provided with safety-stops and operated in the usual manner, may be arranged to move up and down in this hatchway. In the sheathing or boarding of the hatchway doorways, as at C, are provided; but the same are not to be closed by doors. On the inside of the hatchway, opposite each doorway, an endless traveling belt, D, is arranged upon rollers E, one roller being below a landing or platform, F, of the hatchway and the other a suitable distance above the top of the doorway, as shown. The edges of this belt are to be fitted in rabbeted guideways *a a* of the hatchway, so that the belt shall not be displaced by a person pressing against it from the outside of the hatchway. This belt is to be provided with doorway-openings *b b'*, corresponding and registering at times with the doorway C of the hatchway, and on the inner side of the belt an interlocking horizontal slat, G, is firmly fastened, the ends of said slat extending laterally beyond the edges of the belt a considerable distance.

On the cab or platform jointed interlocking bars H H' are provided for taking hold of the

slat G of the respective belts, both on the up and downward movements of the cab or platform, and on the inside of the boarding of the hatchway inclined tripping-stops I are applied for the purpose of freeing these bars from the under side of the slat after the belt is operated and a doorway has been opened and closed, and allowing them to stand above the slat of the belt which has been thus operated, this adjustment of the bars allowing them to pass up farther to take hold of the slat of another belt for the purpose of opening another doorway at a different landing.

The bars H have joints at c , which are constructed to be rigid in one direction and flexible in the other, and across the joints spiral springs d are applied, one end of a spring being fastened to the permanent part d' of the bar and the other end to the movable part d^2 of the bar, as shown. These springs keep the movable parts of the bars in line with the permanent parts while the cab or platform is moving between two pairs of stops; but they yield and allow the movable parts of the bars to turn on their hinged joints when they are moved by the inclined stops I from their normal position (shown in full black lines in Fig. 2) to the position shown in dotted lines in same figure. When the hinged parts of the bars are thus operated they can rise up from under the slat of the respective belts, and will stand above them when they are moved by the springs d to their normal position in line with the permanent part of the bars.

In order to avoid friction between the stops I and hinged ends of the bars friction roller-sleeves are applied on said ends of the bars.

The respective inclined stops I are hung on pivots f , and to each stop one end of a spiral spring, g , is fastened, the other end of said spring being attached to the boarding of the hatchway. The spiral springs g occupy places within curved grooves of the stops, as shown. These inclined stops are caused by their springs g to stand in such positions with respect to the centers of the bars H that these bars cannot pass in their ascent between them and the edges of the belt D when the points of the stops are caused to stand by the action of the springs, as illustrated at h' , but must pass upward on the outside of the stops, and the hinged ends of the bars, by thus passing on the outside of the stops, will be turned outward on their hinged joints until they have escaped from beneath the slat G of a belt to a position above the slat and the stops which caused their hinged ends to turn outward. The springs g of the stops always readjust the pairs of stops, respectively, to the two positions shown at h' h^2 .

In Fig. 3 of the drawings the position to which the hinged ends of the bars H are moved outward by the inclined stops I is illus-

trated, the full circle showing the hinged end of a bar as it appears when it is about being arrested, and the dotted circles showing its position while passing and after it has passed the stops. In this view the cab is supposed to be moving upward, and the arrows indicate such movement, and also the movements of the bars.

In Fig. 4 the bar H is represented by a full circle, and is shown as coming down, its partly-descended portion being indicated by a dotted circle, and the arrows indicating the movement of the cab and the bars attached to it.

Whenever, after ascending to a given landing, it is desired to return, it is necessary for the cab to ascend sufficiently far to insure the passage of the parts d^2 above the slat G, else the opening at said landing would not be closed. Similarly, after descending to a landing, if it is desired to return, the cab must still farther descend sufficiently to enable the parts d^2 to pass slat G before starting to ascend.

By my invention the necessity of using a single belt, extending entirely over the elevator, and from top to bottom of the same, is avoided, and the inconvenience from sagging will not be experienced, and at the same time it will answer effectually for preventing loss of human life by accidentally falling into the hatchway or by mistake of stepping into the same when the cab or platform has passed a doorway either in its ascent or descent.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An elevator provided with one or more belts, as D, separate from the cab and having doorways through them, and with mechanical appliances whereby the belts are successively operated and caused to open and close the doorways from a hatchway to landings and from landings to a hatchway in either the ascent or descent of the cab or platform B of the elevator, substantially as described.

2. The combination of the belt D, having doorways through it and provided with an interlocking slat, G, a hatchway, A, provided with unlocking-stops I, and a cab or platform provided with interlocking bars H, having joints c , substantially as and for the purpose described.

3. The combination of the interlocking bars H, composed of parts d' d^2 , jointed at c , and springs d , with a platform or cab, B, substantially as described.

4. The combination of the unlocking inclined stops I, pivoted to the boarding or framing of the hatchway A, and springs g , substantially as and for the purpose described.

JOHN B. ATWATER.

Witnesses:

R. W. HOLTON,
CHAS. S. READ.