

J. B. BERNIER.
FIRE ESCAPE DOOR.
APPLICATION FILED JUNE 3, 1908.

Patented Feb. 23, 1909.
2 SHEETS—SHEET 1.

913,610.

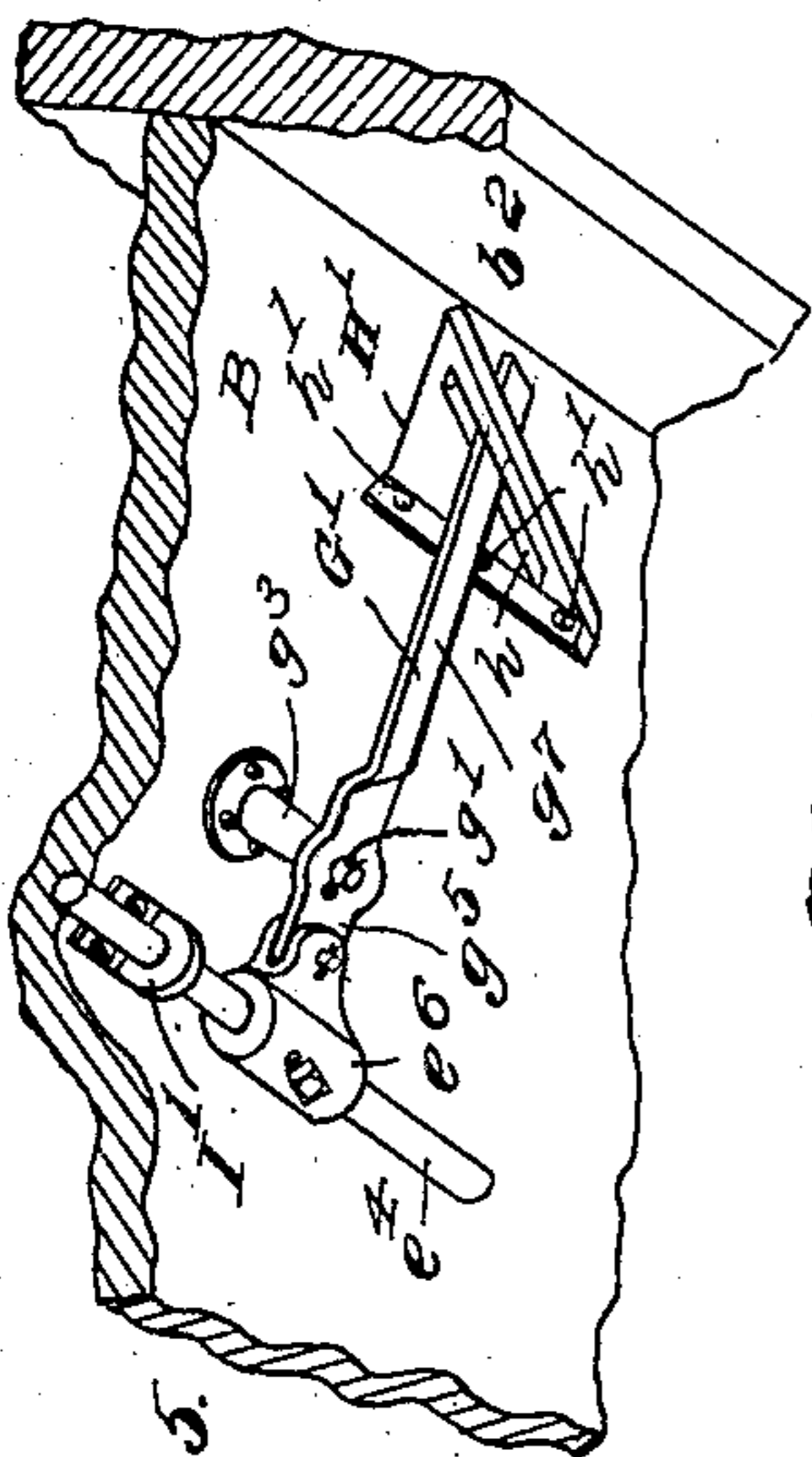


Fig. 5.

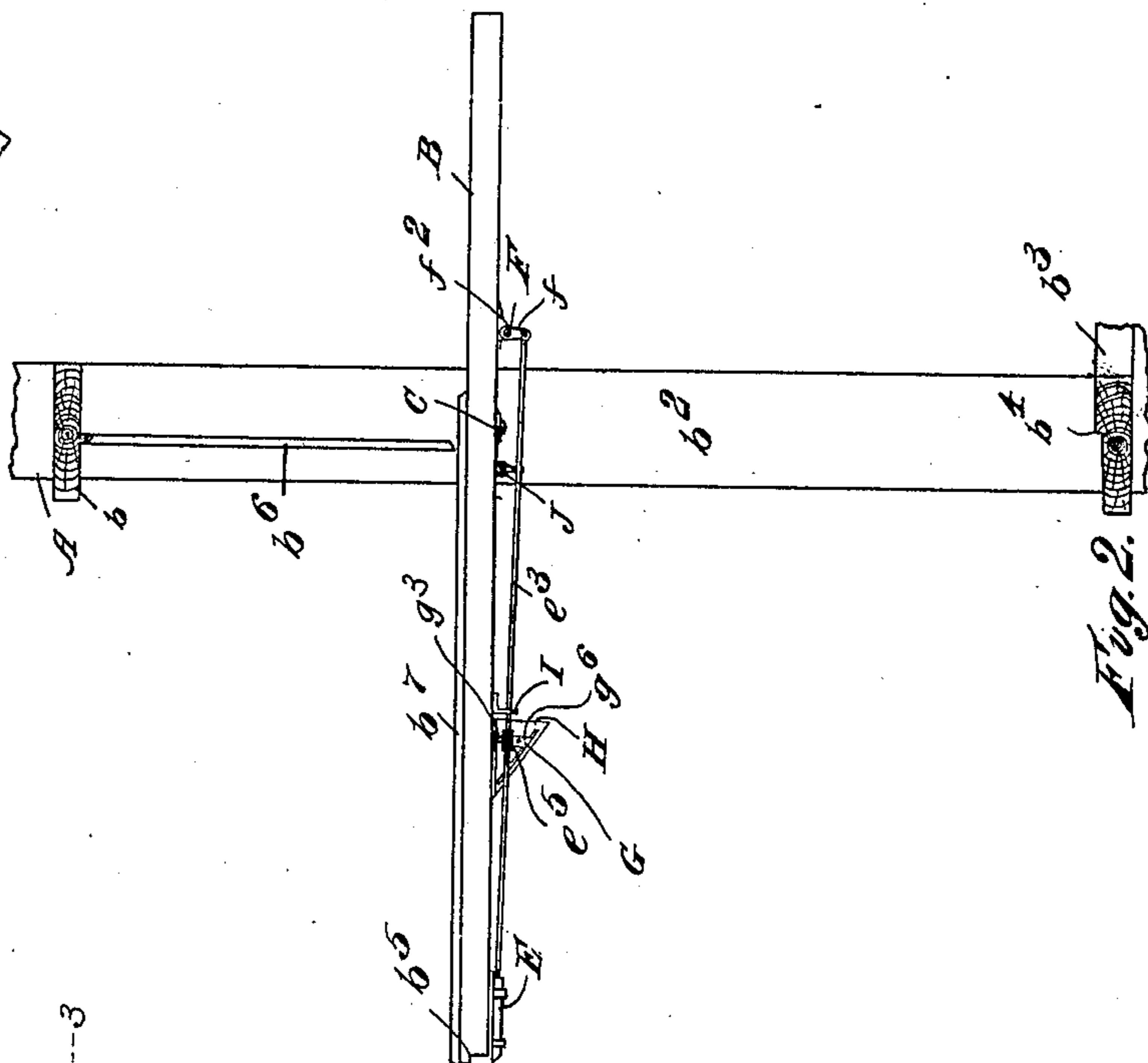
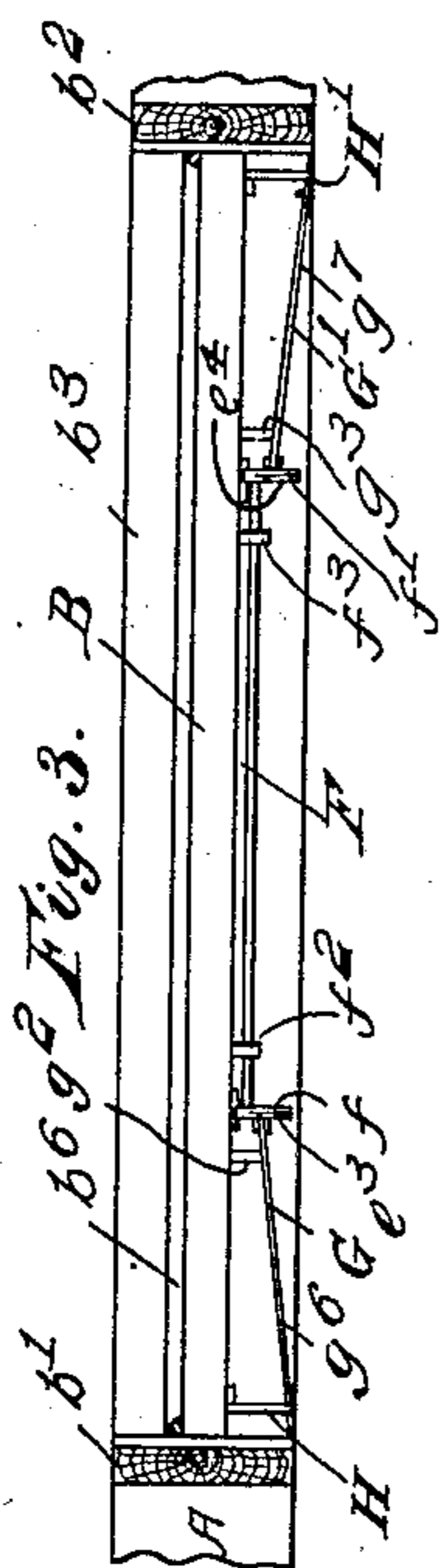


Fig. 2.



WITNESSES:

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Fig. 1.

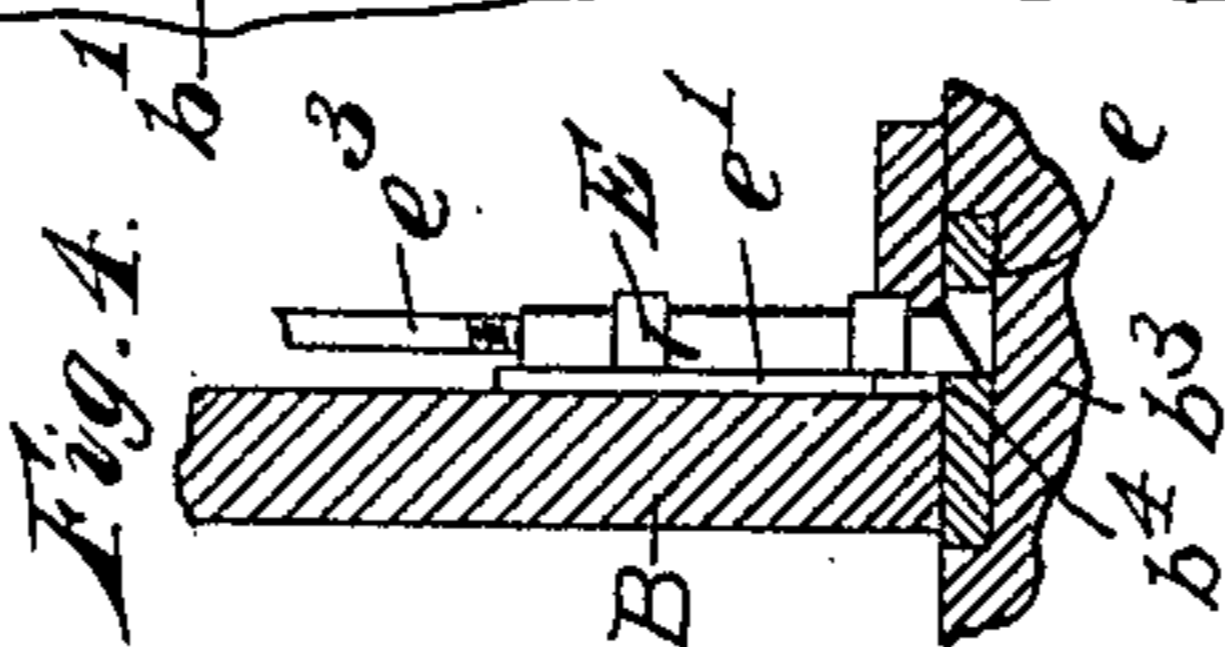
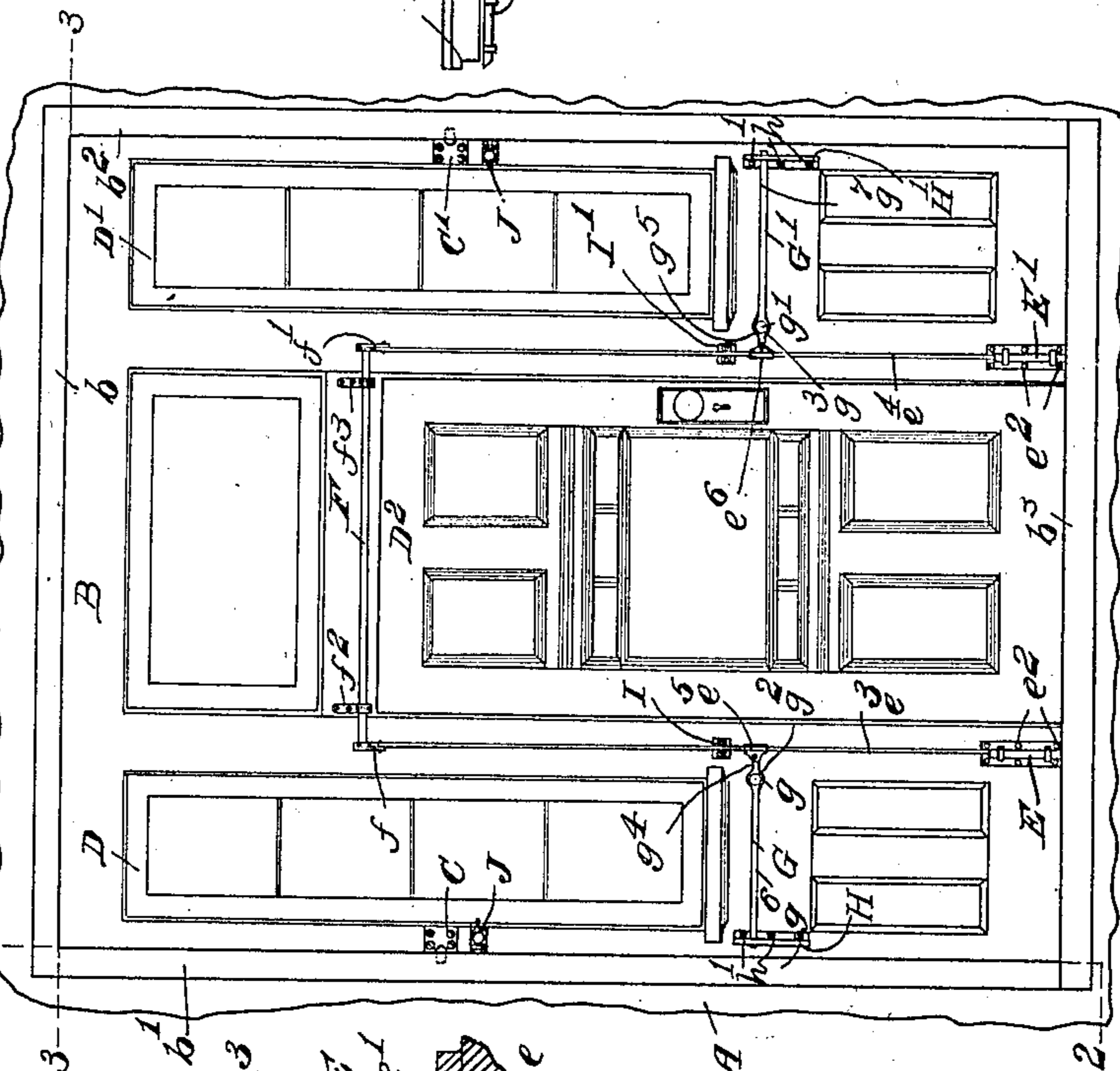


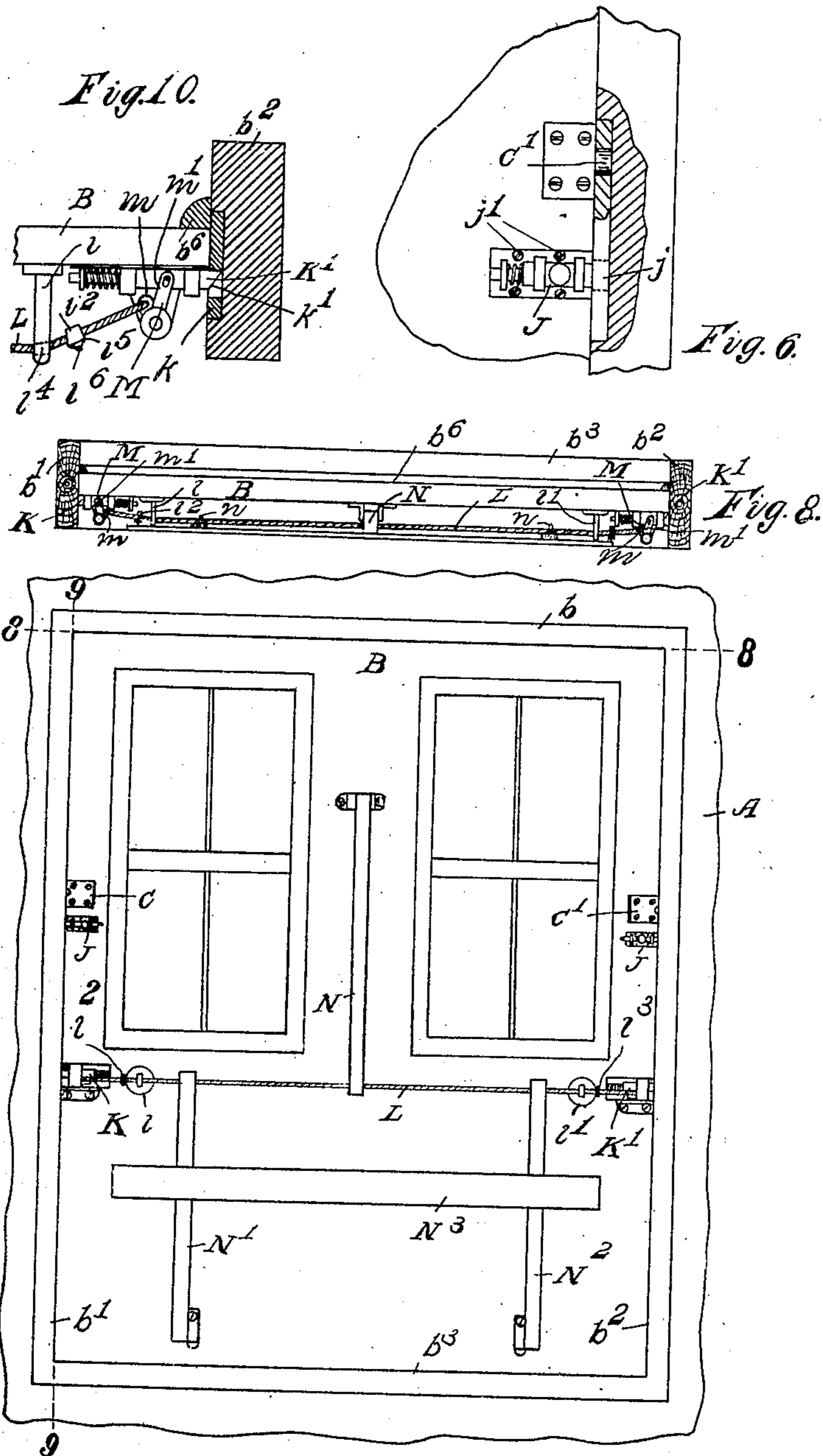
Fig. 4.

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UNITED STATES PATENT OFFICE.

JEAN B. BERNIER, OF LOWELL, MASSACHUSETTS.

FIRE-ESCAPE DOOR.

No. 913,610.

Specification of Letters Patent.

Patented Feb. 23, 1909.

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To all whom it may concern:

Be it known that I, JEAN B. BERNIER, a subject of the United Kingdom of Great Britain and Ireland, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Fire-Escape Doors, of which the following is a specification.

10 This invention relates to fire-escape doors, its object being to furnish ample egress in case of fire or other sudden emergency for a large number of people who will force open a normally locked door by merely pressing 15 against it even when too panic-stricken to understand clearly what they are doing, those nearest the door being crowded against the door or its releasing means by those behind.

20 The door in this invention is so hung as to be readily opened outward and is horizontally pivoted at such a height as to allow people to pass freely below its pivots when open. Means are provided for fastening the 25 door open and bolts are used normally to prevent the door from being opened from the outside, these bolts being connected by yielding means which being pressed against by people who are trying to escape will draw 30 the bolts so that further pressure opens the door. This door which is really a sufficiently large section of the wall to allow for the simultaneous escape of a large number of people, may if necessary or desired include windows and one or more smaller doors 35 for ordinary use, such smaller doors opening outward so that if partly opened they may not interfere with the outward swinging of the lower part of the fire-escape door 40 or wall-section.

In the accompanying drawing on two sheets, Figure 1 is an inside elevation of a fire-escape door embodying my invention, the door being closed and locked, with the 45 door casing and parts of the wall adjacent to said door; Fig. 2, a vertical section of the wall and door-casing on the line 2 2 in Fig. 1 and a side elevation of the door, a bolt and the unlocking mechanism, the door being 50 open; Fig. 3, a horizontal section of the wall and door-casing on the line 3 3 in Fig.

1, showing the closed door in plan; Fig. 4, a vertical section of a part of the fire-escape door and threshold showing the bolt and catch in side elevation; Fig. 5, an isometric 55 perspective view of the unlocking rod, lever and incline; Fig. 6 is a front elevation of a part of the fire-escape door, jamb and adjacent part of the door with one of the horizontal pivots and with one of the bolts which 60 holds the door open; Fig. 7, an inside elevation of a fire-escape door and the adjacent wall with spring locking bolts which enter the jambs and are united by a flexible inextensible connection, and unlocking means 65 for said bolts; Fig. 8 is a horizontal section on the line 8 8 in Fig. 7, showing the fire-escape door provided with my invention in plan; Fig. 9, a vertical section on the line 9 9 in Fig. 7, showing the fire-escape door, 70 with my invention, in left side elevation; Fig. 10, an enlarged plan of the locking device at the right of Fig. 7.

A indicates the wall of a building; b , the lintel; b^1 b^2 , the jambs and b^3 , the threshold 75 of the frame of a fire-escape door or large hinged wall section B, which is pivoted on horizontal pivots C C^1 , arranged above the middle of the wall section at such a height above the threshold that people may readily 80 walk under said door when the same is turned on said pivots to the horizontal position shown in Fig. 2. Within the door B may be arranged windows D D^1 and also a small door D^2 , the latter being hinged in the 85 usual manner to swing outward, so that if accidentally left opened it will not interfere with the opening of the fire-escape door B.

The threshold b^3 is represented in Fig. 2 as provided with a rabbet b^4 to fit a corresponding shoulder b^5 on the door B and moldings b^6 are secured to the jambs above the pivots C C^1 and other moldings b^7 to the 90 outer side of the fire-escape door to exclude dust, wind and rain. 95

The fire-escape door B is represented in Figs. 1-4 as carrying two sliding bolts E E^1 which are arranged to engage catch-plates, one of which is shown at e in Fig. 4, each bolt on a plate e^1 secured as by screws e^2 to 100 the inner face of the door at the bottom of the same. The lower ends of the bolts E E^1

are so beveled as to ride over the outer edge of the threshold when the door is being closed. The bolts $E E^1$ are secured to stiff rods $e^3 e^4$ which extend upward and are
 5 jointed to the arms $f f^1$ of a horizontal rock-shaft F journaled in suitable brackets $f^2 f^3$ which are secured to the inner face of the door B above the small door D^2 . The weight of the rods $e^3 e^4$ is sufficient to force down
 10 the bolts $E E^1$ into the catch-plates e and to rock the shaft F .

Unlocking levers $G G^1$ are pivoted at $g g^1$ on stands $g^2 g^3$ on the door B on opposite sides of the small door D^2 and their short
 15 inner arms $g^4 g^5$ are jointed to clips $e^5 e^6$ secured on the vertical rods $e^3 e^4$, so that depressing the outer arm $g^6 g^7$ of either unlocking lever will raise the corresponding bolt, rock the shaft F and thus raise the
 20 other bolt leaving the door B free to be opened. (See also Fig. 5.) The outer ends of the arms $g^6 g^7$ extend through downwardly- and backwardly-inclined slots h in angle-plates $H H^1$ secured as by screws h^1
 25 to the inner face of the door B so that when said arms $g^6 g^7$ are pressed backward their free ends will be depressed raising both bolts as above described and subsequent pressure against said arms $g^6 g^7$ or against
 30 any part of the inner face of said door below the pivots $C C^1$ will crowd the lower part of said door B outward into the position shown in Fig. 2. Guide brackets $I I^1$ are secured as shown in Fig. 5, to the inner face
 35 of the door and surround the rods $e^3 e^4$ and prevent the lateral bending of said rods and the pivots of the levers $G G^1$ and the joints which connect said levers and the clips $e^5 e^6$ are loose enough to allow any of these parts
 40 to move freely without cramping the others.

When the door B is wide open, it is held in its horizontal position by a catch or spring bolt J (Figs. 1, 2 and 6) of ordinary construction which enters a hole j in the
 45 jamb, said catch being secured by screws j^1 to the inner face of the door B in an obvious manner.

In Figs. 7, 8 and 9, the fire-escape door B is pivoted at $C C^1$, Fig. 6, as above described,
 50 to swing outward into a horizontal position and is normally locked by spring-bolts $K K^1$ of ordinary construction, except as herein-after stated, which bolts engage slots in catch-plates, one of which is shown at k in
 55 Fig. 10, substantially like the catch-plates e but let into the jambs instead of into the threshold. The bolts $K K^1$ are beveled at k^1 (Fig. 10), to ride over the outer parts of the inner faces of the jambs when the door is
 60 closing. The bolts $K K^1$ are connected by a flexible inextensible connection L as a chain or wire rope which might be attached directly to said bolts and which passes loosely through holes, one of which is indicated by
 65 dotted lines at l^4 in Fig. 10, in brackets $l l^1$,

horizontally parallel with the inner face of said door and at such a distance therefrom as to allow sufficient space for deflection of said connection L towards said door, said
 brackets $l l^1$ being secured to the inner face 70 of said door. On the connection L between its ends and the brackets $l l^1$ are secured stops $l^2 l^3$, represented as rings l^5 larger than the holes l^4 in the brackets $l l^1$ and secured to said connection by set-screws l^6 (Fig. 10) 75 so that when one stop strikes against the adjacent bracket the corresponding end of the connection can be drawn no further and the further deflection of said connection will operate on the bolt at the other end of said 80 connection until both bolts are drawn clear of the jambs. Any further pushing outward against the connection carried thereby will open the door. The ends of the flexible part L , instead of being secured directly to 85 the bolts, may be connected to the short arms m of levers M , the long arms m^1 of which engage the bolts, in order that a less deflection of said part L may release said bolts. If desired, the connection L may pass 90 through eyes $n n^1$ on levers $N N^1 N^2$ pivoted to the inner face of the door, and two or more of these levers may be connected by a horizontal bar N^3 against which people may press instead of pressing directly against 95 said connection L .

I claim as my invention:—

1. The combination in a fire escape opening, of a section, horizontal pivots, upon which said section opens outward, said pivots 100 being arranged at such a height as to permit walking under said section when the same is open, locking means arranged below said pivots and normally preventing the opening of said section, and yielding means con- 105 nected to said locking means and adapted when pressed outward to move said locking means out of locking position.

2. The combination in a fire escape opening, of a section, horizontal pivots, upon 110 which said section opens outward, said pivots being arranged at such a height as to permit walking under said section when the same is open, bolts, normally locking the same at opposite sides thereof, and a flexible, inextensible connection between said bolts adapted 115 when deflected to draw said bolts out of locking position.

3. The combination in a fire escape opening, of a section, horizontal pivots upon 120 which said section opens outward, said pivots being arranged at such a height as to permit walking under said section when the same is open, bolts, normally locking the same at opposite sides thereof, a flexible, inextensible connection between said bolts adapted 125 when deflected to draw said bolts out of locking position, and other bolts to hold said section open.

4. The combination in a fire escape open- 130

ing, of a section, horizontal pivots upon which said section opens outward, said pivots being arranged at such a height as to permit walking under said section when the same is open, bolts normally locking the same at opposite sides thereof, a flexible, inextensible connection, brackets secured to the inner face of said section and supporting said connec-

tion and levers actuated by the deflection of said connection to draw said bolts.

10

In witness whereof, I have affixed my signature in presence of two witnesses.

JEAN B. BERNIER.

Witnesses:

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GRACE CROWLEY.