

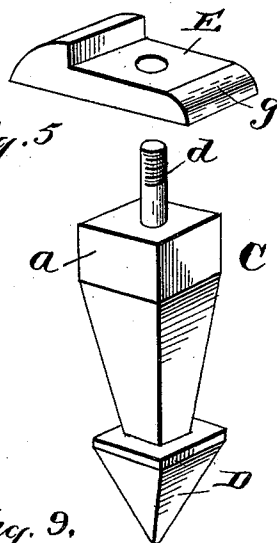
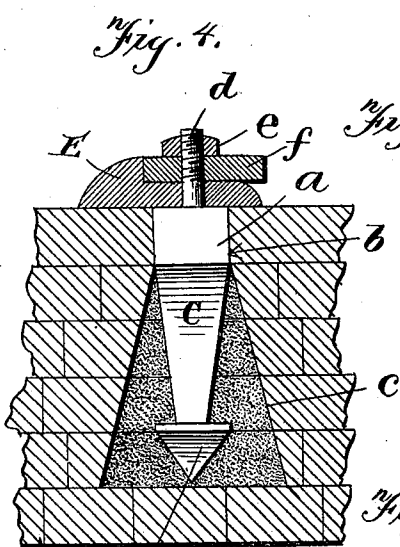
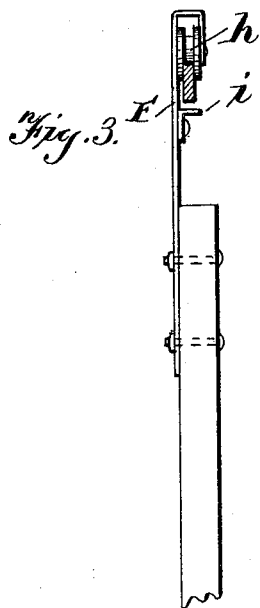
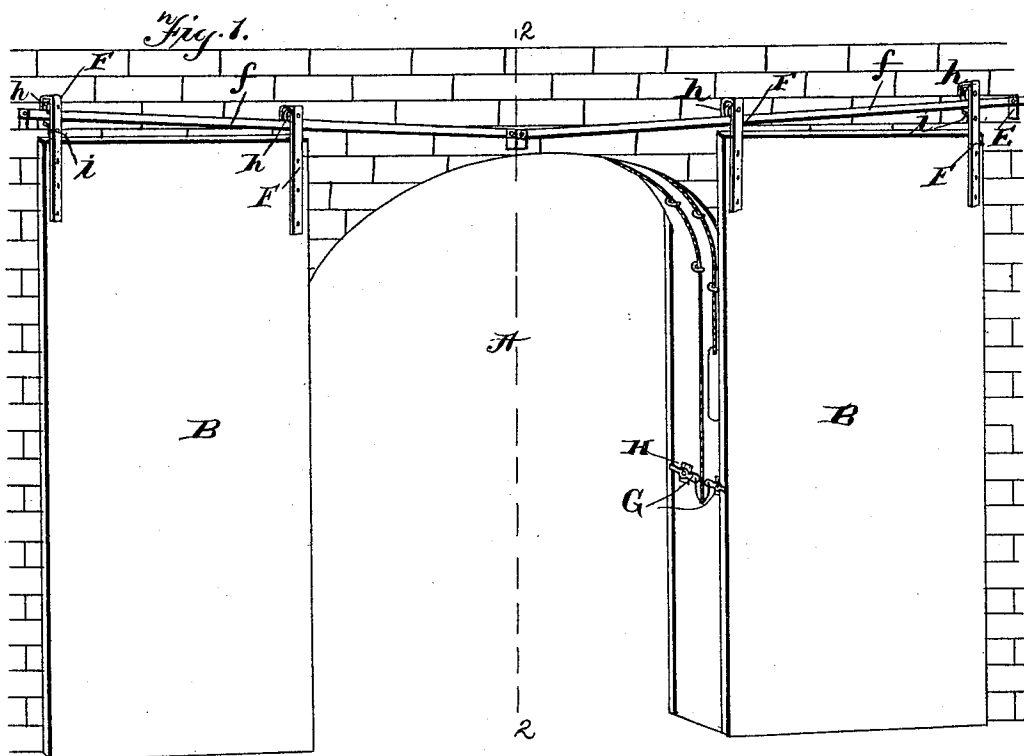
(No Model.)

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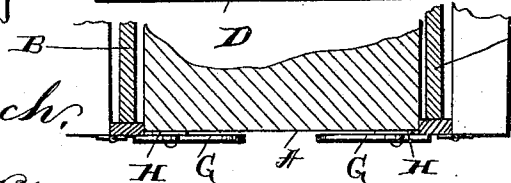
T. G. LAMB.
STANDARD FIRE DOOR.

No. 581,353.

Patented Apr. 27, 1897.



Witnesses
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James C. Evans



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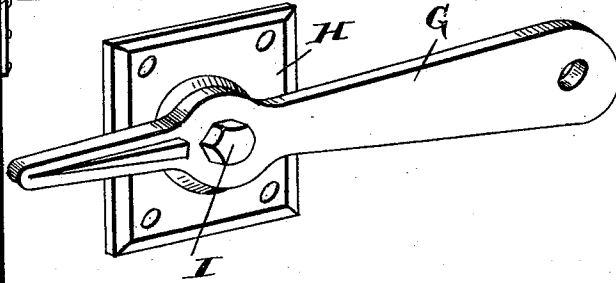
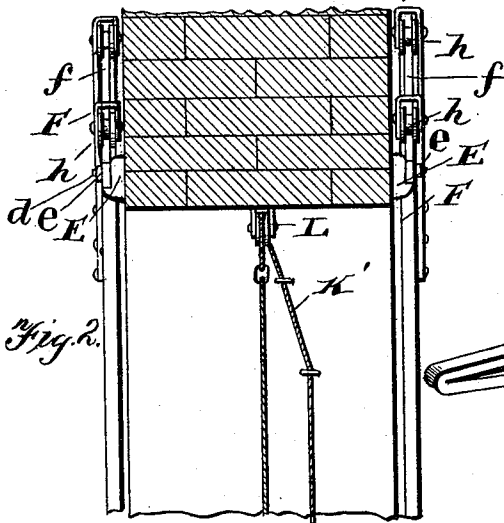


Fig. 7.

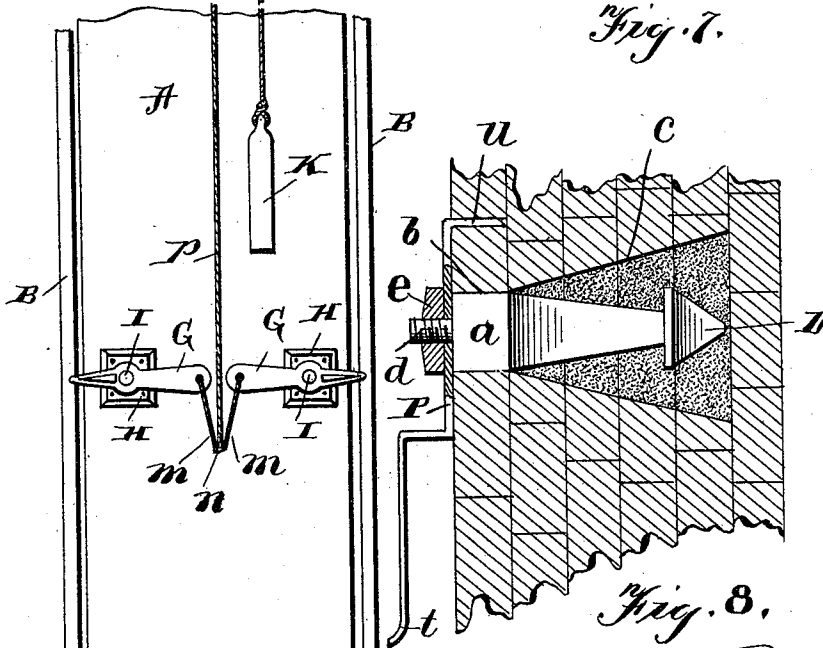
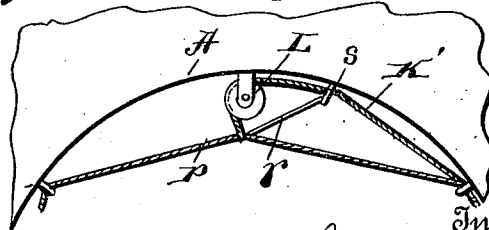


Fig. 8.



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UNITED STATES PATENT OFFICE.

THOMAS G. LAMB, OF HOMESTEAD, PENNSYLVANIA.

STANDARD FIRE-DOOR.

SPECIFICATION forming part of Letters Patent No. 581,353, dated April 27, 1897.

Application filed July 9, 1896. Serial No. 598,608. (No model.)

To all whom it may concern:

Be it known that I, THOMAS G. LAMB, of Homestead, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Standard Fire-Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in standard fire-doors and pertains to that class of doors supported upon an incline track.

The object of my invention is to improve the means for supporting this class of doors, whereby the difficulty and trouble heretofore arising on account of the anchor-bolts working loose is avoided; to provide an improved stop for the doors which also avoids the working loose or displacement thereof; to provide an improved hanger for the doors, whereby they are held upon the track against any possible displacement, and to provide improved latching and releasing devices adapted to be employed to doors supported at opposite sides of an archway or opening, all of which will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a perspective view of an archway, showing my invention applied thereto. Fig. 2 is a vertical section taken on the dotted line 2 2 of Fig. 1 and showing the arrangement of the latches for holding and releasing the doors. Fig. 3 is an enlarged detached view of the rear hanger of the door. Fig. 4 is a sectional view showing the manner of securing the anchor-bolts in position and supporting the track thereon. Fig. 5 is a detached perspective view of the anchor-bolts. Fig. 6 is a detached perspective view of one of the door-latches and its supporting bracket or block. Fig. 7 is a sectional view showing the manner of anchoring the stop for the door. Fig. 8 is an enlarged side view of the upper portion of the archway, showing the arrangement of the cords and the sheaves around which the cords pass. Fig. 9 is an enlarged horizontal section through the walls of the building just above the latches G G.

Referring now to the drawings, A indicates an archway or other opening in the wall of a

building, and B the doors adapted to close the same. As here shown, the doors B are situated at opposite sides of the wall, and where the opening is large, such as shown in Fig. 1, four doors are provided, two at each side, each door adapted to close half of the opening at each side.

The anchor-bolts C are provided with spear-heads D at their inner ends, their outer ends being square, preferably, and provided with straight sides *a* for a short distance, as clearly shown. The wall to which the anchor-bolt is applied is provided with an opening *b*, made to conform to the shape of the outer end of the anchor-bolt and is then cut or flared outward by means of a suitable tool to form an enlarged recess *c*. (Shown clearly in Fig. 4.) This recess *c* is filled with cement, and the anchor-bolt is then driven therein to the position shown in Fig. 4, which forces some of the cement between the straight portion *a* of the outer end of the anchor-bolt and the correspondingly-shaped opening *b*. This construction is found to make a rigid fastening means for the said anchor-bolt and prevents it from working loose, an objection heretofore common in standard fire-doors.

The anchor-bolt is provided with a projecting bolt or arm *d*, having its outer end screw-threaded and adapted to receive a nut *e*, and a step E is provided with an opening to receive the said bolt *d* and placed in position thereon, as shown in Fig. 4. This step receives the track-iron *f*, upon which the door is supported. This construction enables me to use an ordinary metal bar as a track, in contradistinction to expensive tracks heretofore used in similar constructions. The upper end of the step E is rounded off, as shown at *g*, so that the flanges of the supporting-wheels *h* will not strike the step, but freely pass by the same.

Each hanger consists of a flat metal bar F, having its upper end doubled upon itself in U shape, as clearly shown in Fig. 3, and in this U-shaped end is journaled the sheave or pulley *h*. The groove in the pulley or sheave *h* is made deep to make it more difficult to remove from the rail *f*, and the rear hanger, which extends considerably above the door, as clearly shown in Fig. 1, is provided with a stop *i*, situated a short distance below the track. The purpose of this knee or stop *i* is

to prevent the door when closing suddenly from jumping the track, the front end of the door being held upon the track owing to its close proximity thereto.

5 Where double doors are used, two latches G are provided, as shown in Fig. 2, and these latches are intermediately pivoted upon supporting brackets or blocks H by means of a pivotal bolt I, the inner or free end of the
10 latch being heavier than the outer end, whereby when it is released it will drop and carry the opposite end out of engagement with the door.

Wires *m* are connected to the inner heavy
15 end of the latch, and these are united at the point *n* and connected to a wire or cord *p*, which extends upward over the archway and down to the opposite side thereof and similarly connected to the latches at the opposite
20 side of the opening or archway, as clearly shown in Fig. 1. A weight K is situated at one side of the archway and connected by a wire or cord K' to the cord or wire *p*, after passing over a pulley L, situated at the top
25 of the archway. A heat-releasing device, such as a fusible link *r*, is situated at the top of the archway and is connected at one end with a staple *s* and at the other end to the weight-sustaining cord or wire, whereby
30 in the event of a fire the heat-releasing device is fused, releasing the weight, which drops and draws upward on the cord *p* and automatically draws upward the inner ends of the latches G and causes them to release the
35 doors C, which automatically move toward each other and close the opening, owing to the inclination of the tracks upon which they are supported.

The doors being quite heavy their tendency
40 to close creates sufficient friction between them and the short ends of the latches to hold the latches locked, and the connections *m* to the latches are loose, whereby they can be freely moved up and down for either locking
45 or releasing the doors, which are held opened or closed at will.

Where a single door is used for closing an opening, it is necessary to provide a stop at the opposite side thereof. In this event a
50 very firm and rigid stop must be arranged, for the door closes with considerable force, and it has been found difficult to provide a stop sufficiently rigid to stand the jar caused thereby.

55 In Fig. 7 is shown a stop that is found to be very firm and rigid and undisturbed by the sudden jar and shock caused by the closing of the door; and it consists of a flat metal plate P, bent substantially Z-shaped, and having
60 one end *t* bent outward and adapted to receive the edge of the door between it and the wall and the opposite end *u* bent inward and driven into the wall. Intermediate the ends of this flat bar P is provided an anchor-bolt
65 very similar to the anchor-bolt C already described, and which is placed in position in the wall in the same manner.

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

70 1. The combination with an opening, of a door, an inclined track therefor, a latch adapted to hold the door open, a connection for the latch extending over the archway, a weight, a connection between the weight and
75 the latch connections at a point in the opening, and the heat-releasing device sustaining the weight and situated also within the said opening, the parts adapted to operate as described.

80 2. The combination with an opening of parallel doors situated at opposite sides thereof, a latch for each door situated side by side, a connection between the latches, which connection extends upward and over the archway, a weight, a connection between the weight
85 and the said latch connection at the top of the archway, and a heat-releasing device also situated at the top of the archway and sustaining the weight, the parts adapted to operate as
90 described.

95 3. An anchor-bolt in combination with a wall, said anchor-bolt having a spear-head and its outer end with a straight portion, the wall having an opening corresponding to the shape of the straight portion and an enlarged cavity, and cement placed within the cavity,
substantially as described.

100 4. The combination of the wall having therein an enlarged cavity with a contracted opening, of an anchor-bolt with its outer end formed to the shape of the contracted end of the recess, and a shouldered inner end, and a bed of cement within the recess, substantially
105 as described.

110 5. The combination of an anchor-bolt having an outwardly-extending bolt, a step supported upon the bolt, a track supported upon the step, the bolt passing through the track and the step and a holding-nut, substantially
as described.

115 6. The combination of an anchor-bolt having its outer end flush with the wall, a rigid bolt carried by the anchor and extending outward, a step having an opening through which
120 the bolt passes and an outwardly-projecting shoulder, a track having an opening for the said bolt and resting upon said shoulder, and a clamping-nut for the bolt, the parts combined as described.

125 7. A stop for the purpose described comprising a flat bar made substantially Z-shaped, one end separated from the wall and adapted to receive the door, its opposite end turned into the wall and an intermediate anchor-bolt also held in the wall, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS G. LAMB.

Witnesses:

WILLIAM G. BROWN,
OLIVER W. FRIES.