No. 782,224. PATENTED FEB. 14, 1905.

F. M. EDMONDS.

SELF CLOSING DOOR.

APPLICATION FILED DEC. 12, 1904.

Fig. 2

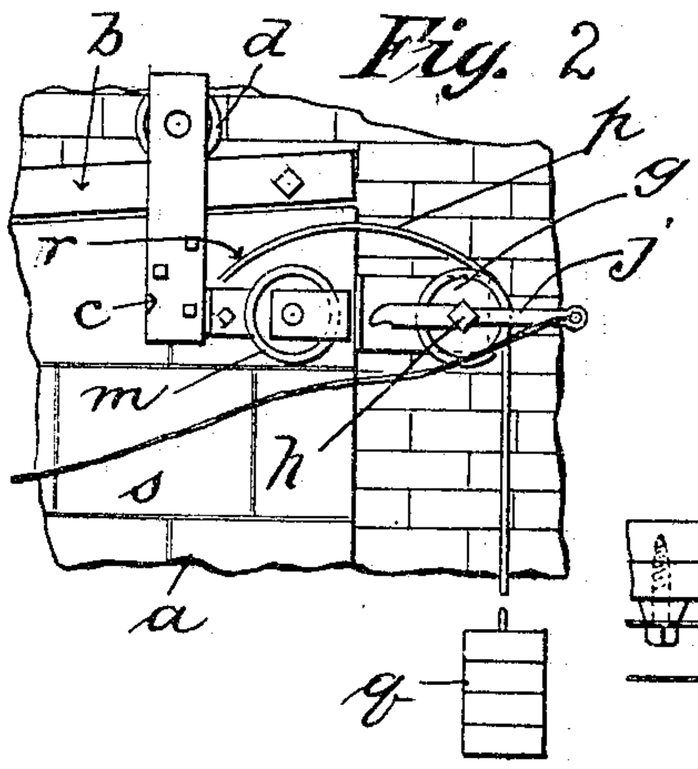


Fig. 3

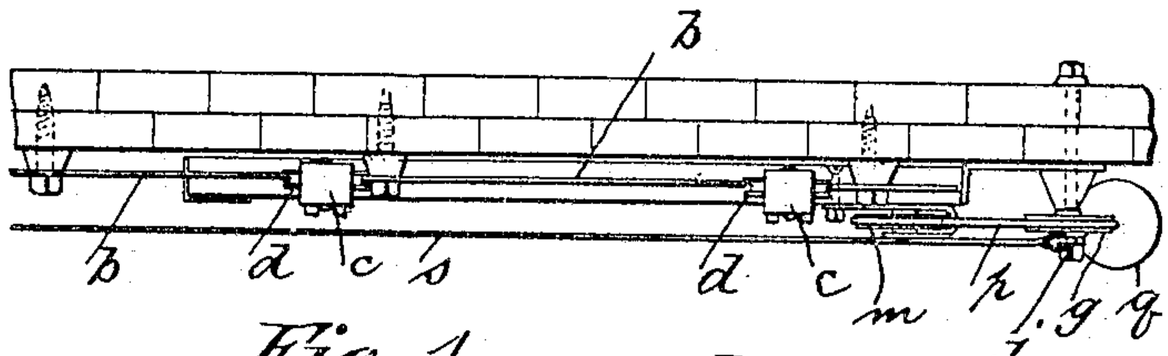
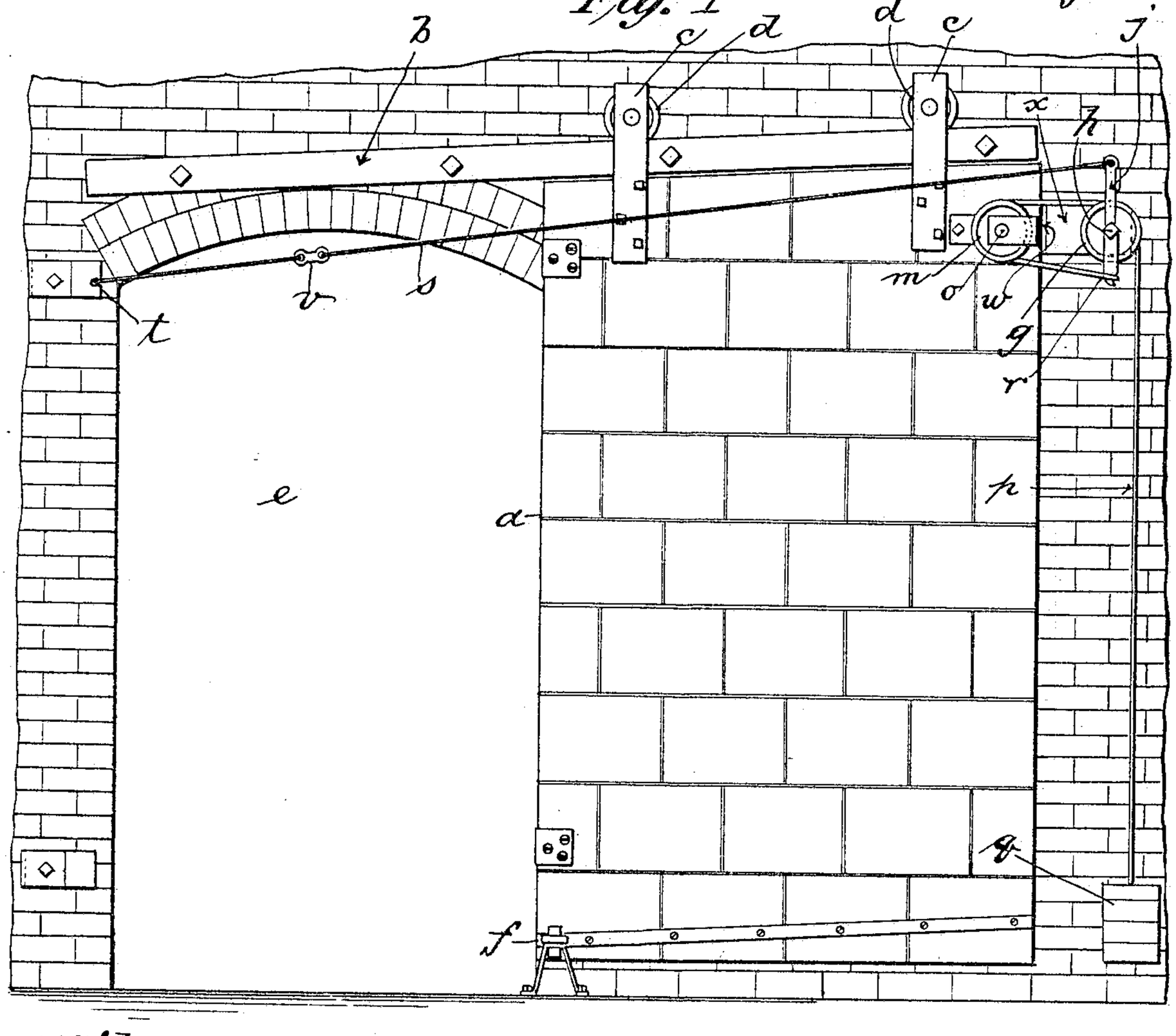


Fig. 1



Witnesses:
N. L. Sprague.
E. L. Smith.

by

Inventor:
Frank M. Edmonds
Chapin & Co
Attorneys.

No. 782,224. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

FRANK M. EDMONDS, OF HOLYOKE, MASSACHUSETTS.

SELF-CLOSING DOOR.

SPECIFICATION forming part of Letters Patent No. 782,224, dated February 14, 1905.

Application filed December 12, 1904. Serial No. 236,499.

To all whom it may concern:

Be it known that I, FRANK M. EDMONDS, a citizen of the United States of America, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Self-Closing Doors, of which the following is a specification.

This invention relates to the construction of self-closing fire-doors, the object of the invention being to provide a novel construction of a fire-door arranged to be held open by a weight, the weight being supported by means of a connection extending across the door-opening and having a fusible link or section therein.

The particular novelty of this invention resides in the construction of the door-restraining devices and their arrangement relative to the door.

In constructions of this description which comprise a flexible cord or the like as one of the component parts of the door-restraining devices it has been found in practice that when these devices are released more or less of the cord is likely to become entangled with some of the parts during the closing movement of the door and prevent the completion of the closing movement. This invention is directed especially to means to overcome this defect, the door-restraining devices being so constructed that immediately upon the rupture of the fusible section referred to the weight which has held the door open will operate to throw the restraining-cord away from the door, thereby rendering it impossible for the cord to in any way interfere with the free closing movement of the latter.

The invention is fully illustrated in the accompanying drawings, in which in—

Figure 1 a door-opening is shown with the door suspended on an inclined track, the door-restraining devices and tripping devices forming the subject of this application being shown applied thereto, the door being held in an open position. Fig. 2 is a view similar to Fig. 1 of the door-restraining devices in the position they would occupy immediately after tripping. Fig. 3 is a plan view of the devices shown in Fig. 1.

Referring to the drawings, the door *a* is suspended on an inclined track *b* by means of the hangers *c*, extending upwardly from the upper part of the door and carrying grooved rolls *d* to fit the track, the track being so located relative to the door-opening *e* that if not restrained the door will run down the track and close said opening in the well-known manner. As usual, the door is guided at the bottom by a guide-roll *f* to prevent its swinging away from the wall.

On the wall near the upper outer corner of the door *a* is a grooved pulley *g*, supported to turn freely on a bolt or pin *h*. On this pin is mounted a freely-swinging arm *j*. In substantially the same horizontal plane another grooved pulley, *m*, is mounted on the door to rotate freely on its axis *o*, the two pulleys *g* and *m* being so disposed that a flexible cord *p*, carrying the weight *q* at the lower end thereof, may be passed over the pulley *g*, then partly around the pulley *m*, and the end *r* of the cord be hooked onto the lower end of the arm *j*. Preferably this end *r* of the cord is provided with a metal gromet, so that it will slip off the lower end of the arm *j* easily when said arm is tilted toward the pulley *m*. The upper end of the arm *j* has connected thereto a flexible cord or wire *s*, which extends therefrom across the upper part of the door-opening *e* and is attached to the wall on the other side of said opening, as at *t*, in any suitable manner, and in this cord or wire *s* a fusible link *v* is inserted, which is located substantially at the center of the upper part of the door-opening. When the parts are in operative door-restraining position, as shown in Fig. 1, the weight *q* is supported on the cord or connection *p* far enough above the ground or floor, so that when it falls upon the rupture of the fusible connection *v* it will throw the end of the cord *p*, which is attached to the arm *j*, around and away from the pulley *m* on the door, and the natural movement of the cord under these conditions will carry the end thereof off of the pulley *g* also, and thus away from the door, leaving the latter free to run down its inclined track *b*. When the cord *p* is attached to the lower end of the arm *j* in the manner described and the upper end of the lever is attached to the wall by means of

the connections *s*, the weight *q* obviously tends to draw the door toward said arm *j* and against a suitable stop, as *w*, this stop being formed by bending outwardly the end of the plate *x*, on which the wheel *g* is mounted. Any kind of a stop may be arranged as a substitute for this, of course. Upon the rupture of the fusible section *v* the weight will obviously cause the cord *p* to swing the arm *j* around to the horizontal position, (shown in Fig. 2,) thus permitting the eye in the end *r* of the cord or connection *p* to slip off the end of said arm and around and off of the pulley *m*, substantially in the manner shown in said figure. At the same time the quick movement of the upper end of the arm *j* will also pull the cord *s* quickly in the direction opposite to the closing movement of the door, throwing said cord *s* far enough to one side to prevent its ever becoming entangled with the door as the latter closes.

This construction of door-restraining devices does away with many of the disadvantages of constructions of this type as heretofore made, in that all of those parts of the device which might interfere with the closing movement of the door are located at the rear side of the latter and immediately thrown out of the way upon the rupture of the fusible connection *v*.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The combination with a gravity-closing door, of a restraining device to hold the door open consisting of a pulley secured to the wall at the rear of the door, a pulley secured to the door, a pivoted arm on the wall, and a cord running over said pulleys and having one of its ends removably attached to one end of said arm, the other end of the cord being provided with a weight; a connection extending from the opposite end of the arm across the door-opening and attached to the wall, there being a fusible link in that part of said connection opposite the door-opening.

FRANK M. EDMONDS.

Witnesses:
WM. H. CHAPIN,
K. I. CLEMONS.