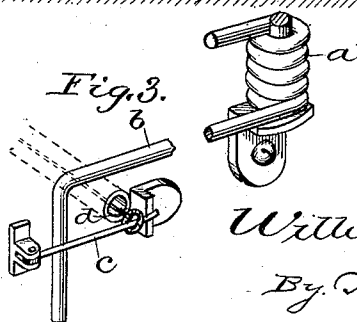
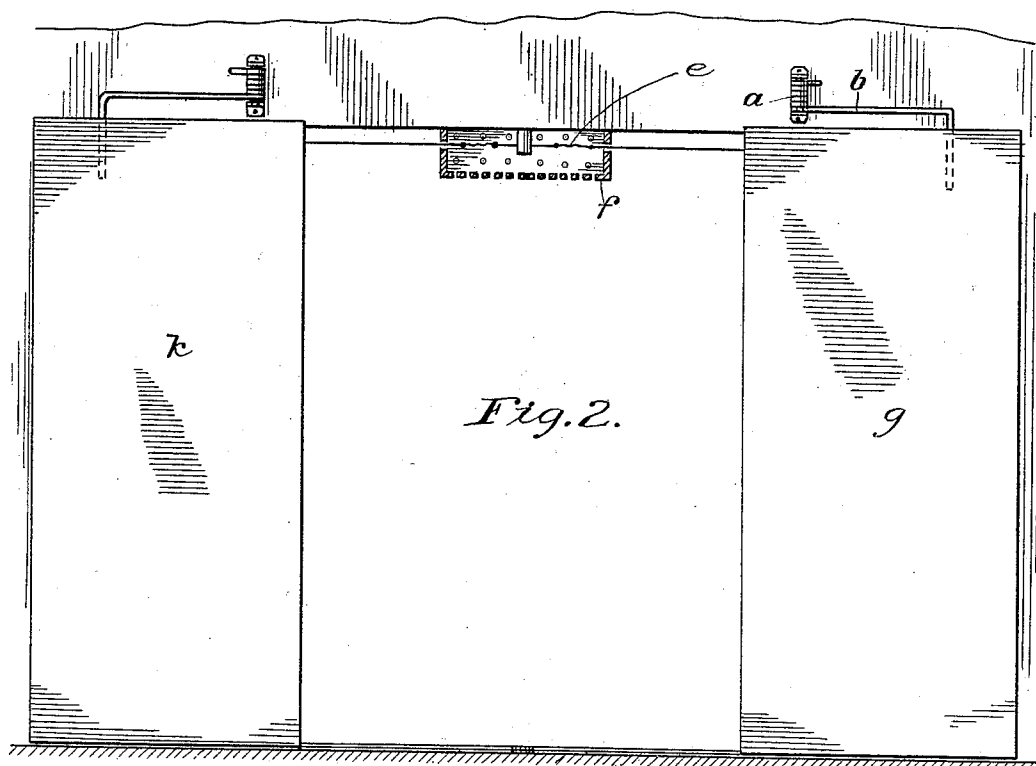
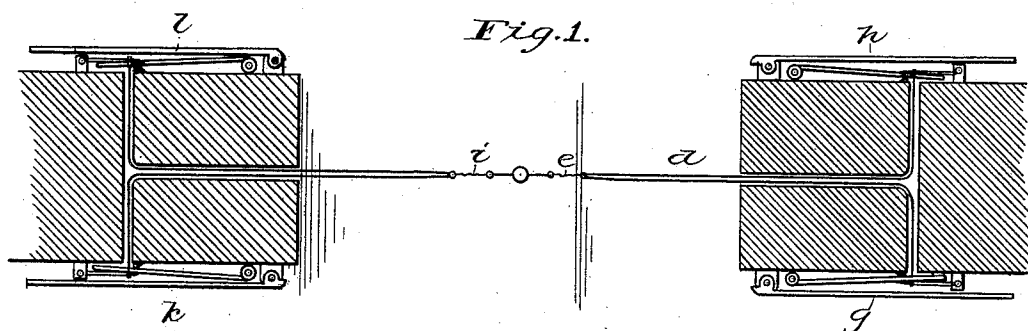


(No Model.)

W. R. PATTERSON.
THERMAL DOOR CLOSER.

No. 427,899.

Patented May 13, 1890.



Witnesses:
Chas. G. Hawley.
Geo. R. Parker.

Inventor:
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By: J. R. Barton
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM R. PATTERSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN
ELECTRIC COMPANY, OF SAME PLACE.

THERMAL DOOR-CLOSER.

SPECIFICATION forming part of Letters Patent No. 427,899, dated May 13, 1890.

Application filed January 31, 1889. Serial No. 298,226. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. PATTERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Thermal Door-Closers, (Case No. 77,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to automatic means for closing fire-doors and fire-shutters, and its object is to close up the openings in a building whenever the heat increases above a certain predetermined limit. In case of wide openings double doors on each side of the opening are usually provided, and in such cases it is necessary that a particular door of each pair shall close before the other in order that the doors may be latched together and the opening completely closed. Large windows are also closed in a similar manner by a single pair of shutters.

My invention consists in springs held at the desired tension by fusible devices and arranged to act upon the doors and shutters whenever the temperature rises sufficiently to melt the fusible wire or link which retains the spring or the locking mechanism thereof.

My invention also consists in such an arrangement of the mechanism as will cause the proper door or shutter of each pair to close first, in order that the opening, whether in an interior wall or outside wall, may be securely closed where pairs of doors or shutters are used. The doors or shutters, when closed, will be held by the tension of the springs only, but will not be locked so as to prevent the firemen from opening them as occasion may require.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan showing two sets of doors open in connection with my automatic closing devices. Fig. 2 is a front elevation of one side of the wall shown in Fig. 1. Fig. 3 is a detailed view of one of the springs and the locking device which is released when the wire connected therewith is fused.

Like parts are indicated by similar letters of reference throughout the different figures.

In connection with each door I provide a spring device, preferably of the form illustrated in Fig. 3. This spring device consists of the coil *a*, with which is connected an arm *b*. The tension of the spring is such that when the arm *b* is released it may be forced against the door to close the same, the spring being so set as to exert some pressure upon the door when the door is closed. The arm *b* is normally held in the position shown by a lever *c*, pivoted as shown and held in position by a cord or wire *d*, in which is included a fusible piece or link *e*. This fusible link *e* is preferably placed near the top of the opening, so that it will be within any hot draft of air that may be forced through the opening. This link may be protected from mechanical injury by a perforated jacket *f*. As shown in the drawings, the fusible link *e* is connected in the cords *d*, which hold the locking devices of the springs of doors *g h*. It will be understood that similar devices for retaining the spring closing device of each door will be provided.

We will suppose the link *e* to be fusible at 150° Fahrenheit. Thus when the temperature rises to 150° the link *e* will be fused, thus releasing cords *d*, and the doors *g h* will be closed. These doors being thus closed, there will be a smaller opening, and, the blast of hot air being now forced through the smaller opening, the temperature will be increased to fuse the link *i*, which is a higher melting-point—we will say, for example, 170°. The doors *k l* will therefore be closed immediately after the doors *g h*. In this manner it will be seen that I am enabled to close the doors automatically and in the particular sequence required.

It will be seen that when the fusible links are placed in the opening the doors will not be closed unless the draft is from the fire through the opening. If the draft is from without through the opening toward the fire, the links will not be fused and the doors will remain open, thus preventing the room from becoming filled with smoke. I therefore preferably place the fusible parts below the lintel of the door, as shown.

The springs are preferably placed on the wall above the doors, so as to be out of the way, but ready to operate with the greatest

efficiency. In case of shutters, for convenience in resetting the springs, they may be placed below upon the wall in a corresponding position. In case of windows the fusible portions would of course be placed under the lintel of the window-frame.

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

10 1. The combination, with a pair of doors or shutters, of spring closing devices, one for each door, adapted to press against the doors, respectively, and close the same when set in action, said spring devices being normally
15 held out of action by retaining devices, each retaining device containing a fusible link, the fusible links being placed at or near the upper portion of the opening and being
20 whereby the doors may be automatically

closed in a particular sequence, substantially as and for the purpose specified.

2. The combination, with a pair of doors or shutters, of spring closing devices, one for each door, adapted to press against the doors
25 respectively, and close the same when set in action, said spring devices being normally held out of action by retaining devices, each retaining device containing a fusible link,
30 the fusible links being adapted to fuse at different temperatures, whereby the doors may be automatically closed in a particular sequence, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 22d day of January, A. D. 1889. 35

WILLIAM R. PATTERSON.

Witnesses:

GEORGE P. BARTON,
ELLA EDLER.