

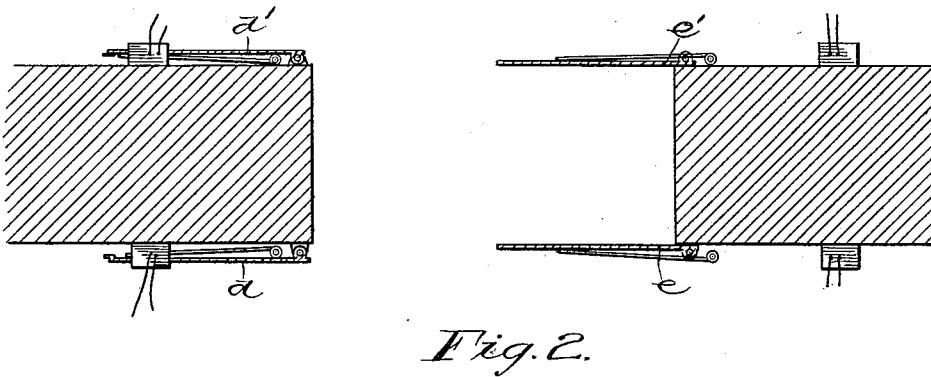
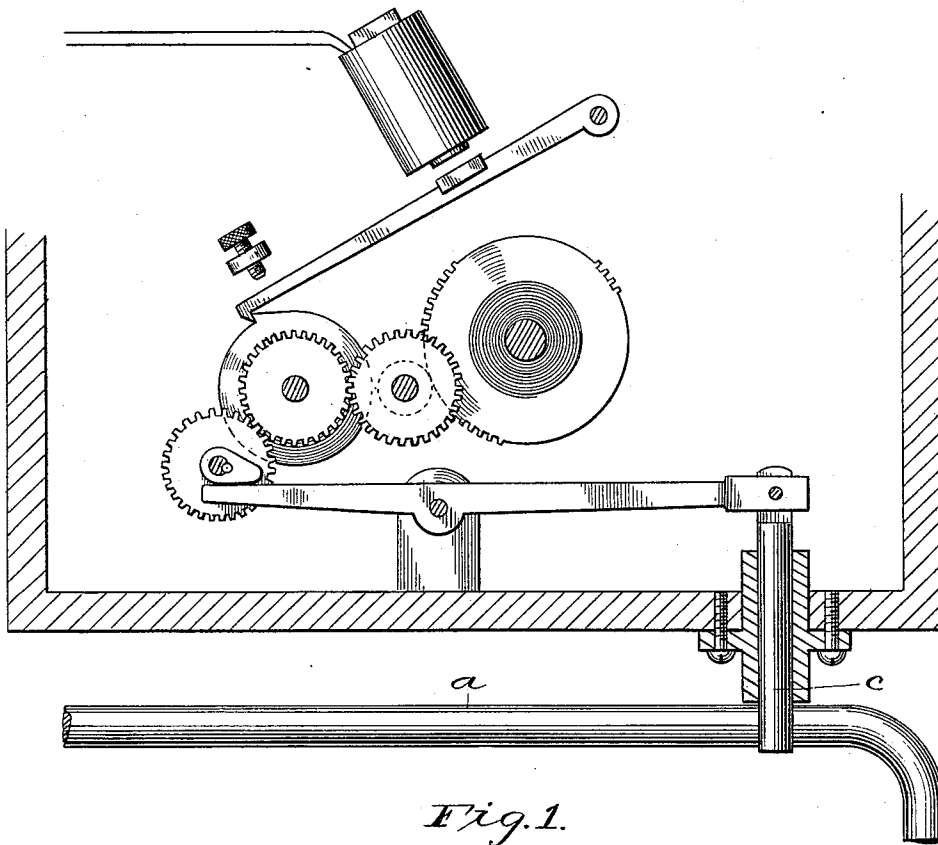
(No Model.)

2 Sheets—Sheet 1.

W. R. PATTERSON.
THERMOSTATIC DOOR CLOSER.

No. 403,484.

Patented May 14, 1889.



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

Inventor:
William R. Patterson.
By George M. Barton
Attorney

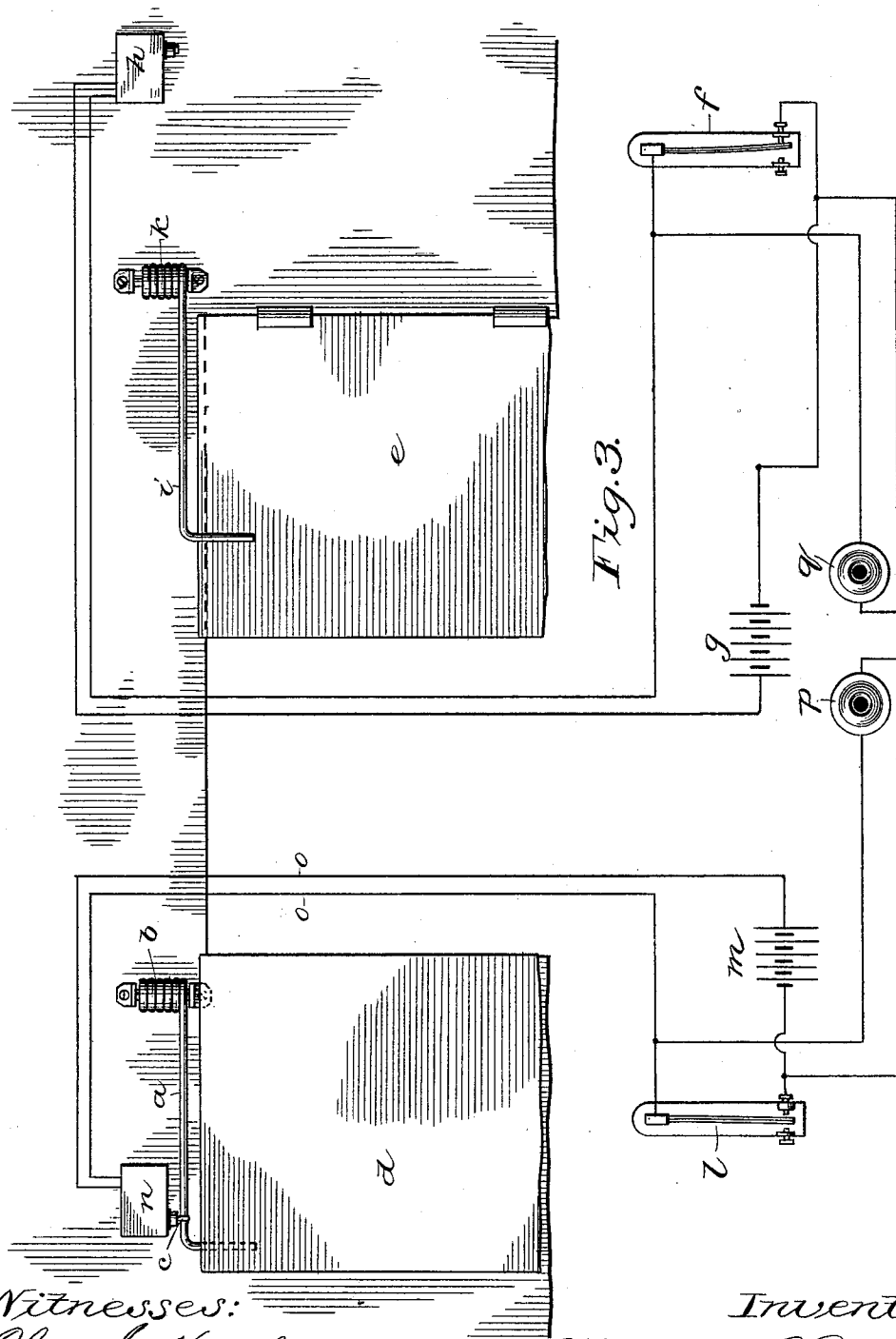
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UNITED STATES PATENT OFFICE.

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

THERMOSTATIC DOOR-CLOSER.

SPECIFICATION forming part of Letters Patent No. 403,484, dated May 14, 1889.

Application filed February 7, 1889. Serial No. 299,084. (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 Electric Automatic Door-Closers, (Case 79,) 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 electrical apparatus and spring devices connected with fire-doors and arranged to close the doors automatically when the heat within the rooms to be protected rises above certain limits.

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

Figure 1 is a detailed view of an electrically-controlled mechanism for releasing the spring which operates to close the door. Fig. 2 is a plan view showing the position of two doors on each side of the opening in a wall. Fig. 3 is a diagram illustrative of the circuits in connection with a pair of doors and the springs for closing the same.

The arm *a* is adapted to be forced against the door by a spring, *b*, to close the door when the arm is released by the withdrawal of bolt *c*. As a heavy spring, *b*, is required for doing the work, I provide a train operated by a spring in connection with an electro-magnetic releasing device, so arranged that when the current is closed through the electro-magnet of the releasing device the train will be set in motion to withdraw the bolt *c*, so as to allow the arm *a* to be carried by the spring against the door to close the same.

It is evident that the particular form of the train may be varied as circumstances may require. In fact, a weight might be arranged to be dropped to withdraw the bolt, after the manner of horse-unhitchers, now generally used at engine-houses. As shown in Fig. 3, the doors *d* and *e* constitute a pair of doors at a single opening in the wall of a building.

In Fig. 2 I have shown a pair, *d e*, on one side of the opening and another pair, *d' e'*, on the opposite side. In order that these doors may be securely closed, the doors *e e'* must close before the doors *d d'*—that is to say, a

particular door of each pair must be closed first.

In Fig. 3 I have shown circuits and apparatus so arranged that when the heat reaches a certain limit door *e* will be closed, as shown, and immediately thereafter, on a further increase in the temperature, the door *d* will be closed.

The thermostat *f* is of a well-known construction. We will say that it is adjusted so as to close the circuit of battery *g* when the temperature reaches 150° Fahrenheit. The circuit of battery *g* being closed through the electro-magnetic releasing device contained in the box *h*, the arm *i* is released and is forced by the action of spring *k* against the door *e* to close the same, as shown.

The thermostat *l* is set or adjusted to close the circuit of battery *m*, through the electro-magnetic device contained in box *n*, when the temperature rises to, say, 160° Fahrenheit. Therefore, after the temperature reaches this predetermined number of degrees the circuit *o* of battery *m* will be closed through the electro-magnet of the electro-magnetic releasing device contained in box *n*, and thus the bolt *c* will be withdrawn, and the arm *a*, being forced against the door *d* by the action of spring *b*, the door *d* will be closed against the previously-closed door *e*. The sequence of the closing of the doors is thus automatically controlled.

It is evident that opposite doors, as *e e'*, may be closed simultaneously by the operation of releasing devices connected in circuit with the same releasing device *f*. Thus the opposite doors, *e e'*, may be first closed and immediately thereafter the corresponding opposite doors, *d d'*.

The springs *b* and *k* should be of such tension that the arms *a* and *i* will press against the doors *d* and *e* when the doors are closed. The doors will thus be entirely closed. It should be noted, however, that the doors will not be held so as to prevent firemen or others from opening the same as occasion may require.

The push-buttons *p q* may be arranged in any convenient place, as in the engine-room, so that the doors may be closed, if desired,

before the temperature has risen sufficiently to operate the thermostats.

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

5 1. The combination, with a pair of doors, of spring-closing devices, one for each door, and electrical apparatus adapted to be operated to close the doors by releasing the said springs
10 in a particular sequence when the temperature rises above certain predetermined limits, substantially as and for the purpose specified.

2. The combination, with a pair of doors and spring-closing devices, one for each of the pair, and independent electrically-operated re-
15 leasing bolts and circuits containing thermostats adjusted to different temperatures

and adapted to operate respectively to withdraw the bolts in a particular sequence, substantially as and for the purpose specified.

3. The combination, with a door, of a spring 20 device adjusted to close the same when released, of an electric circuit containing a thermostat and electro-magnetic releasing mechanism whereby on the temperature rising to close the thermostat the door is closed, sub- 25 stantially as and for the purpose specified.

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

WILLIAM R. PATTERSON.

Witnesses:

GEORGE P. BARTON,
ELLA EDLER.