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FIRE DOOR CLOSING APPARATUS.
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2 SHEETS—SHEET 2.

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By
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To all whom it may concern:

Be it known that I, LAWRENCE S. AKERS, a citizen of the United States, residing at Memphis, Shelby county, and State of Tennessee, have invented and discovered certain new and useful Improvements in Fire-Door-Closing Apparatus, of which the following is a specification.

My said invention relates to fire-door-closing apparatus and consists in the combinations and arrangements of elements herein-after described and particularly set forth in the accompanying claims.

The purpose of the invention is to provide a means for automatically closing fire-doors in the event of fire without requiring the operation of such apparatus during the ordinary opening and closing movements of the door, and wherein it will not be necessary to mount the door on an inclined track to assist in the closing operation as is now practised.

A further object of the invention resides in producing an automatic fire-door closing apparatus in which the operative controlling means is distributed at different locations through the building to the end that the fire-door will be promptly closed at the moment a fire starts at any such point however remote.

The invention is disclosed by way of illustration in the accompanying drawings wherein:

Figure 1 is an elevational view of the fire-door and the operating system.

Fig. 2 is a detail view of the door closing device with parts removed.

Fig. 3 is a sectional view thereof on the line 3–3 of Fig. 2, and

Fig. 4 is a detail perspective view of the latch per se.

Referring to the construction in further detail and wherein like reference characters indicate corresponding parts in the different views shown, 5 designates a fire-door of any suitable type and adapted to close the passage-way through the wall 6 of the building. Said door is mounted to slide horizontally, to open or close said passage-way, by the pair of hangers 7 having the usual groove rollers 8 riding on the track 9 as shown. A suitable stop 10 is provided to limit the closing movement, and a door steadying device 11 engages with a stop 12 having a wedge portion 13 adjacent the lower edge of the door as shown. The door is mounted to slide perfectly horizontally as distinguished from being mounted on an inclined track to aid the closing movement, and by this arrangement the door may be moved in either direction 60 with equal ease.

The automatic door closing apparatus consists of a weight 14 attached to one end of a wire cable or chain 15 that rides on a pulley 16, and carries a link 17 on its free end 65 adapted to engage with a latch 18 of an automatic releasing device to be further explained.

A stop 19 is secured to the cable 15 adjacent the free end thereof, and is adapted to engage with the apertured arm 20 secured to the door 5 adjacent the upper left hand corner thereof. The aperture of said arm freely receives the cable 15 and allows the door to be closed or opened in ordinary use 75 without hindrance.

The automatic releasing device consists of a weight 21 supported by a hooked bar 22 which is dependingly mounted in and projects through the bottom of the metallic casing or box 23 secured to the wall by any suitable means. The bar 22 has a head 24 on its upper end (see Fig. 2) normally engaging with the lower end 25 of the latch 18 that is pivotally supported by the pin 26, and in this position holds said latch and prevents the latch 17 from disengagement therefrom. A spring 27 mounted on the hook bar 22 engages with a pin 28 in the bar and keeps the head 24 in contact with the latch 25. Said pin 28 abuts against the aperture lug 29 providing a bearing element for the bar 22 as shown.

The function of the weight 21 is to counteract or overcome the tension of the spring 27 95 and to allow the latch 18 to swing when the door-closing weight 14 is thereby released. The release of said weight 14 brings the stop 19 to engage the arm 20 of the door and the continued movement or the fall of the weight 100 will close the door.

The latch releasing weight 21 is normally held in inoperative position by means of a flexible member 30, e.g. rope or wire that is rigged up throughout the building by means 105 of suitably located pulleys 31 and the fastening device as shown. The flexible member 30 passes through a pulley 33 that is connected to the hooked end of the bar 22 and through a second pulley 34 mounted on the casing 23 as shown in Fig. 1.

A plurality of readily fusible members 35
are incorporated in the flexible member 30, and provide means for connecting the section of said flexible member in such a manner that the fusion of any one of said members will cause the line or cable 30 to break, thereby releasing the weight 21 and thus causing the latch 18 to release the door-closing weight 14, when the door will be closed as above pointed out.

It is to be noted that with this arrangement of apparatus the door will be closed if a fire be started in the immediate vicinity of the door, or at a point distantly remote therefrom, inasmuch as the line 30 supporting the controlling weight 21 leads to all parts of the building.

It is obvious that those skilled in the art may vary the details of construction without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claim.

Having thus described my said invention what I claim as new and desire to secure by Letters Patent is:

An apparatus for operating a fire door comprising a tension mechanism, a swinging latch, means connected with the latch adapted to hold the tension mechanism inoperative, a spring-pressed detent adapted to lock the latch, a weight connected with the detent capable when released of moving the detent against the tension of the spring to unlock the latch, and means holding the weight normally inoperative adapted when affected by heat to release said weight.

In witness whereof, I have hereunto set my hand and seal at Memphis, Tennessee, this 17th day of April, A. D. nineteen hundred and eighteen.

LAWRENCE S. AKERS. [L. S.]

Witnesses:

JNO. C. BURCH,

JOHN W. FARLEY.