

No. 814,356.

PATENTED MAR. 6, 1906.

C. L. COLBY.

COMBINED DOOR AND AUTOMATIC CLOSING MEANS THEREFOR.

APPLICATION FILED APR. 1, 1905.

2 SHEETS—SHEET 1.

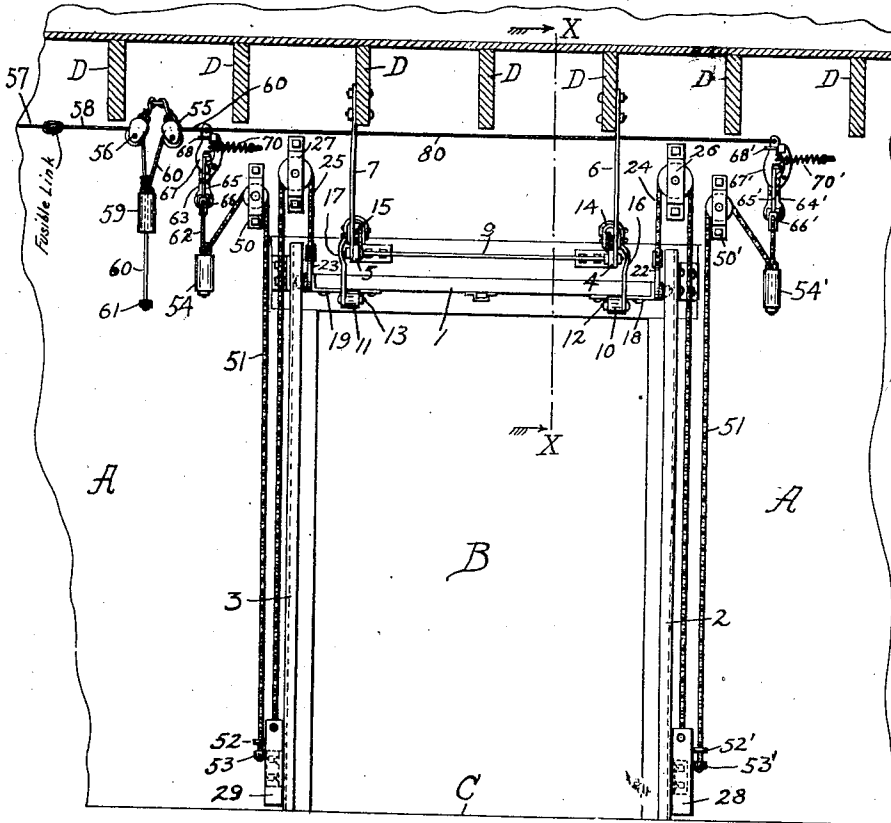


FIG. 1.

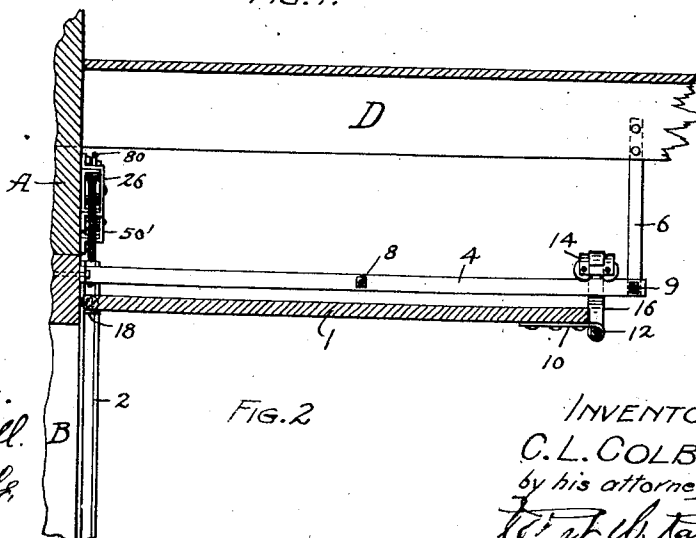


FIG. 2

WITNESSES.
S. C. Duvall.
R. E. Handley

INVENTOR,
C. L. COLBY,
by his attorney,
R. E. Handley.

No. 814,356.

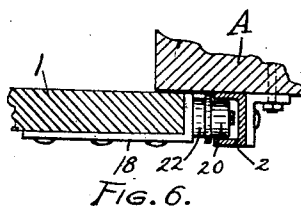
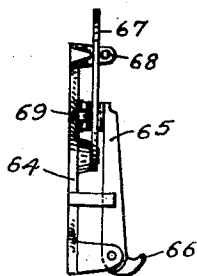
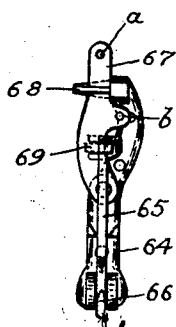
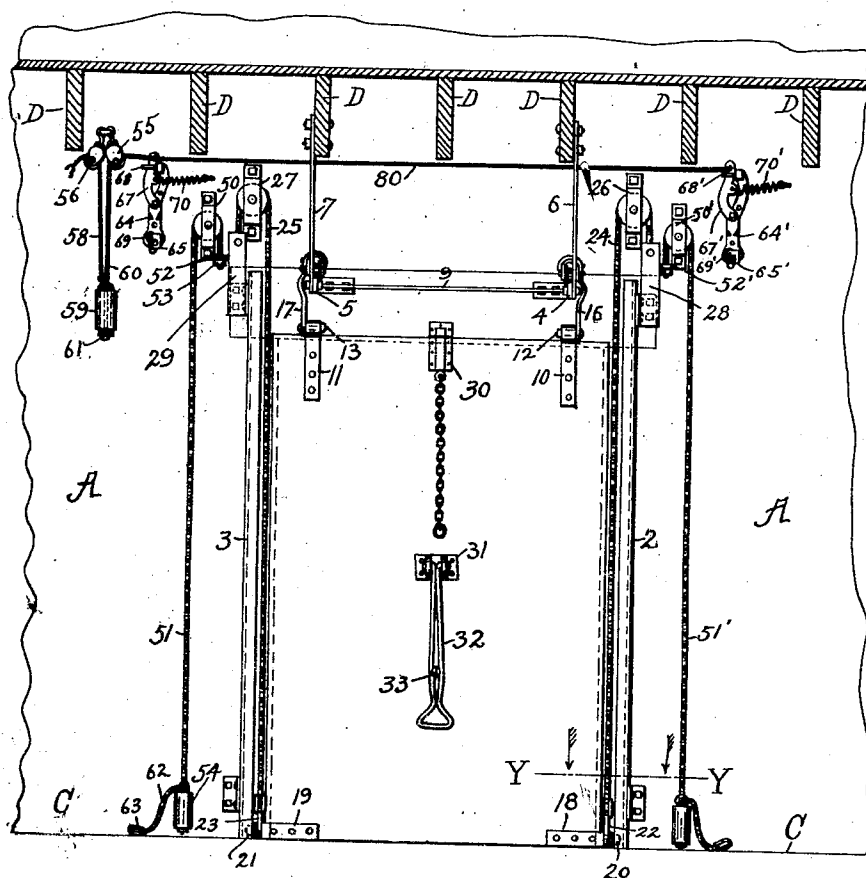
PATENTED MAR. 6, 1906.

C. L. COLBY.

COMBINED DOOR AND AUTOMATIC CLOSING MEANS THEREFOR.

APPLICATION FILED APR. 1, 1905.

2 SHEETS--SHEET 2.



WITNESSES,
J. C. Duvall
R. E. Handley

INVENTOR,
C. L. COLBY,
by his attorney,
Robert W. Tangle.

UNITED STATES PATENT OFFICE.

CLARENCE L. COLBY, OF RICHMOND, INDIANA.

COMBINED DOOR AND AUTOMATIC CLOSING MEANS THEREFOR.

No. 814,356.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed April 1, 1905. Serial No. 253,239.

To all whom it may concern:

Be it known that I, CLARENCE L. COLBY, a citizen of the United States, residing in the city of Richmond, in the county of Wayne and State of Indiana, have invented new and useful Improvements in a Combined Door and Automatic Closing Means Therefor, of which the following is a complete and exact exposition, such as will enable others skilled in the art to which the invention relates to make and use the same, when taken in connection with the accompanying drawings.

My present invention contemplates more particularly the combining of a door of the character shown with independent and automatic means for closing the door under extraordinary conditions, as in the event of fire, at the same time leaving the door free to be operated at all times without interference of the parts.

Another object is to provide a fire-door applicable to openings leading into brick or other fireproof elevator-shafts and also being applicable as a freight-house or factory door.

Another object is to provide a door involving simplicity of construction, ease of operation, requiring small space for its installation and operation, occupying only a space equal to the thickness of the door plus the track above the opening, and providing a door and automatic operating means therefor which can be made at a comparatively low price.

One manner of carrying out the objects of my invention is shown in the accompanying two sheets of drawings, in which—

Figure 1 shows an elevation of my invention with the door open and the automatic mechanism set ready for operation. Fig. 2 is a detail sectional view taken on the line X X of Fig. 1. Fig. 3 shows an elevation of my invention with the door closed and the automatic mechanism released and in the position in which it would be after having performed its work. Fig. 4 is a detail front view of the releasing device. Fig. 5 is a detail side view of the releasing device, and Fig. 6 is a detail sectional view taken on line Y Y of Fig. 3.

Similar characters refer to and denote like parts throughout the several views of the drawings.

In the drawings the letter A denotes the vertical side wall; B, the door-opening; C, the floor-line, and D the upper joists of the building.

The numeral 1 denotes my fire-door adapt-

ed to close the opening B. Extending up vertically from the floor C to the top of and on the right and left hand of the opening B and permanently secured to the face of the wall A are the channel-tracks 2 and 3, respectively. Extending out horizontally parallel with the joist D and extending from the level of the tops of the channel-tracks 2 and 3 and of a less distance apart are the tracks 4 and 5, which are substantially of same length as is the door 1.

The inner ends of the tracks 4 and 5 are secured to the wall A, and their outer ends are supported by one or more hangers 6 and 7, which are suspended from the joists D. The said tracks 4 and 5 are spaced apart and held in proper relationship with each other by the rods 8 and 9.

Mounted on the respective right and left upper corner portions of the face of the door 1 are the vertical straps 10 and 11, which extend slightly above the upper edge of the door and are provided with horizontal pivot-openings in their upper extension, as shown, to receive the pivotal bolts 12 and 13, respectively.

Mounted on the tracks 4 and 5 are the respective pairs of trucks 14 and 15, each having its dependent hanger-bar 16 and 17, respectively, and the lower ends of said bars 16 and 17 are pivoted on the respective bolts 12 and 13, whereby the door 1 is suspended substantially as shown. Secured horizontally to the lower right and left corners of the door 1 are the straps 18 and 19, respectively, which straps extend around the door the thickness thereof, which latter portions carry each an axle, on which axles are the respective rollers 20 and 21, said rollers being formed to neatly fit the respective channel-tracks 2 and 3 in which they are adapted to travel, each roller being provided with a flange extending out around from the inner edge of their peripheries, as shown most clearly in Fig. 6, whereby the ends of the axles are prevented from contacting with their tracks.

Mounted on the same axles with the rollers 20 and 21 between the roller and the strap are the respective right and left links 22 and 23. Secured in the upper ends of the respective links 22 and 23 are the ends of the respective cables or the like 24 and 25.

Upon the wall A are permanently located the sheaves 26 and 27, over which extend the respective cables 24 and 25, as shown, and said cables then extend to and are secured in

their respective counterbalance-weights 28 and 29 for the doors.

It is now apparent that the door being closed, as in Fig. 3, by pulling forward on the door its upper end will be carried out on the tracks 4 and 5, while its lower end will be carried up in the tracks 2 and 3 until it shall have assumed the position shown in Figs. 1 and 2, where it will be retained by the said weights and will be entirely out of the way.

For securing the door when closed a spring-catch 30 may be used, as shown, which is attached to the upper central portion of the door. Secured in the center of the face of the door is the ear 31, in which is pivoted one end of the spring-arm 32. When the arm 32 is not in use, it may be folded flat against the door and retained by the keeper 33, over the head of which the arm passes, as shown. By means of said arm the door may be easily opened and closed manually and when closed is automatically secured by the catch 30.

I now come to the description of the mechanism for automatically operating the door for fire purposes.

Secured to the wall A slightly to the left of the sheave 27 is a sheave 50, over which passes the cable or the like 51. The numeral 52 denotes a screw-eye located in the side of the weight 29, through which screw-eye extends one end of the cable 51, and secured to the cable 51 below the screw-eye 52 is the small weight 53. The opposite end of the cable 51 is secured to the intermediate weight 54. Secured to the left of the sheave 50 on the wall A is one of the releasing devices shown in detail in Figs. 4 and 5 and which will be presently described in detail. To the left of said releasing device is a pair of loose pulleys 55 and 56, which are suspended from some stationary point, as the wall A.

The numeral 57 denotes a wire or the like, and numeral 58 denotes a wire or the like, said wires being united by a fusible link, as is indicated.

The wire 58 extends through the pulley 56 and is then secured to the weight 59. A central longitudinal aperture is formed through the weight 59, and through said aperture loosely extends the wire or cord 60, which also extends through the pulley 55 and has one end secured to the upper end of the lever 67 of the releasing device, and on the other end of the cord 60 is a small weight 61. Extending up from the weight 54 is a short cord 62, in the upper end of which is the ring 63, which ring is adapted to be placed over the hook 66 of the releasing device. Said releasing device consists of the body 64, having the arm 65 pivoted vertically thereon, as shown, and on the lower end of the arm 65 near its pivotal point is the hook 66. Pivoted vertically near the center of the body 64 and then extending upward is the lever 67, in the upper end and near the center of which are lo-

cated the eyes *a* and *b*, respectively. In the upper end of the body 64 is a horizontal bar 68, behind which the lever 67 passes. On the upper end of the arm 65 is a catch 69 for engagement behind the lever 67, as shown.

The numeral 70 denotes a helical spring secured at one end in the eye *b*, with the other end secured to some stationary point. The tension of the spring 70 is such as to allow the lever 67 to be turned to the left to release the weight 54 and after said weight is released to return said lever to the position shown in the drawings.

This arrangement of sheaves, cable, and releasing device is duplicated on the right of the door, as indicated by the primed numerals.

It will now be seen that the door being up, or open, as in Fig. 1, the wire 57 being extended to the desired point with fusible links located at desired intervals, and the other parts being located substantially as shown in Fig. 1 in case of the fusible links being damaged by fire or otherwise, the wire 58 being freed, the weight 59 will be dropped on the small weight 61, the wire 60 will pull the lever 67, and it in turn by the wire 80 will pull the lever 67' to the left, causing the arms 65 and 65' to drop forward, releasing the weights 54 and 54'. The weight of the weights 54 and 54' will then be exerted to overbalance the weight of the weights 28 and 29, whereby their weight will be added to the weight of the door, resulting in the closing of the door automatically.

My invention is positive in its operations and accomplishes the objects above stated, and it is evident that changes therein may be made whereby to accommodate the invention to varying conditions without departing from the principles of the invention, and it is understood that various changes therein may be made as would suggest themselves to the ordinary mechanic.

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

1. A counterbalanced door operative on a vertical and a horizontal track, in combination with suspended auxiliary weights, and devices whereby the auxiliary weights may be released and add their weight to that of the door to close it automatically, substantially as set forth.

2. The combination with a counterbalanced door operating on a vertical and a horizontal track, auxiliary weights for raising the counterbalancing-weights to close the door, means for releasing the auxiliary weights automatically by the action of heat, and means for operating the door manually without displacing the automatic mechanism, substantially as shown and described.

3. A counterbalanced door operative on vertical and horizontal tracks, in combina-

tion with suspended auxiliary weights, and devices whereby the auxiliary weights may be released by heat and add their weight to that of the door to close it automatically, all substantially as shown and described.

5 4. The combination with a counterbalanced door operating on vertical and horizontal tracks, auxiliary weights for raising the counterbalancing-weights to close the door,
10 means for releasing the auxiliary weights automatically, and means for operating the door

manually without displacing the automatic mechanism, all substantially as shown and described.

In testimony whereof I have hereunto 15 signed my name to this specification in the presence of two subscribing witnesses.

CLARENCE L. COLBY.

Witnesses:

R. E. RANDLE,
R. W. RANDLE.