No. 715,816. Patented Dec. 16, 1902.

W. R. KINNEAR.

FIREPROOF BLIND OR DOOR.

(Application filed Jan. 13, 1902.)

(No Model.) 3 Sheets—Sheet 1.

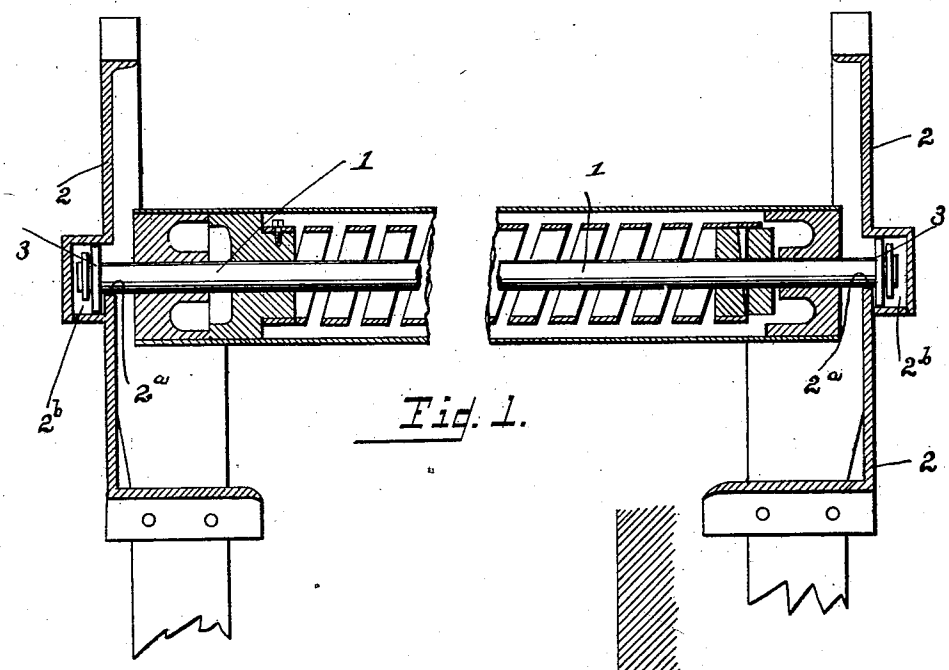


Fig. 1.

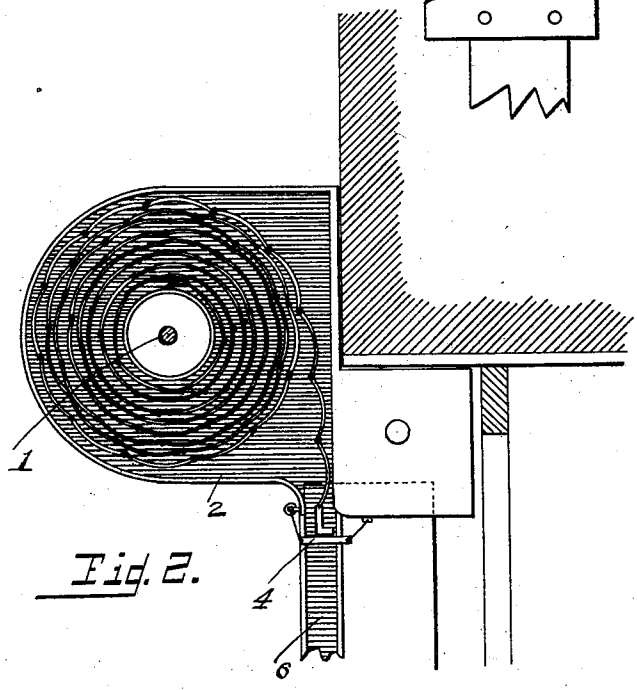


Fig. 2.

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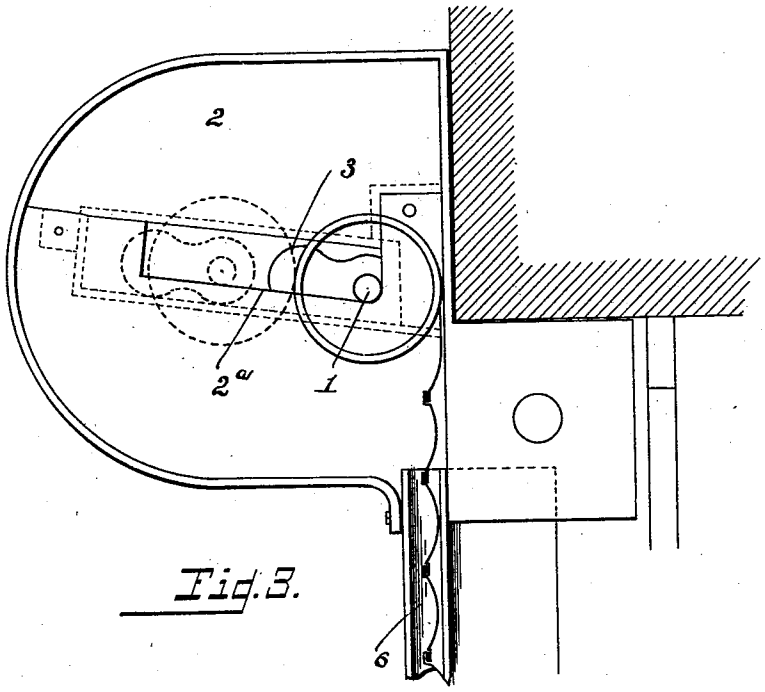


Fig. 3.

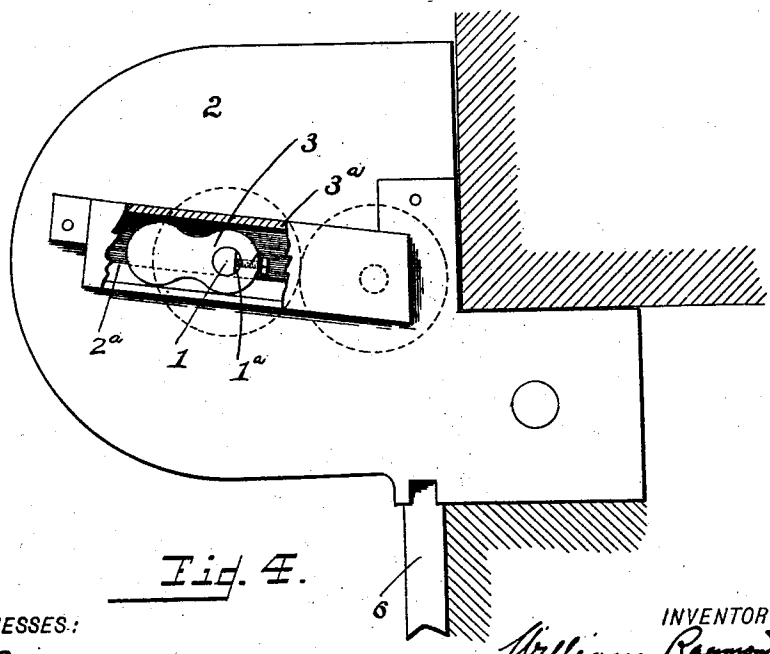


Fig. 4.

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(No Model.) 3 Sheets—Sheet 3.

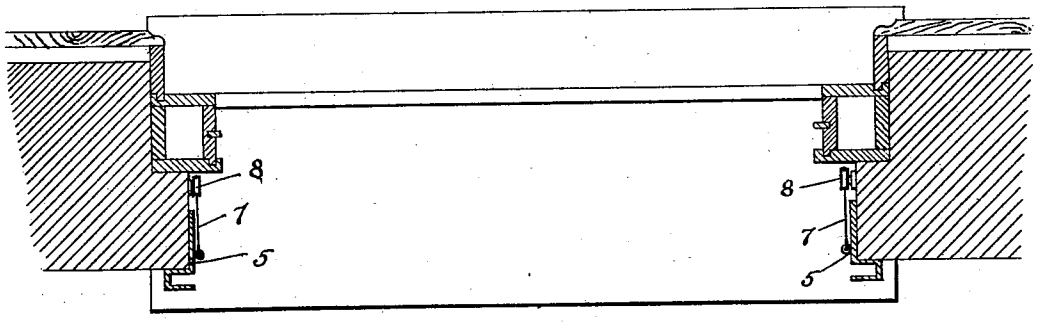


Fig. 5.

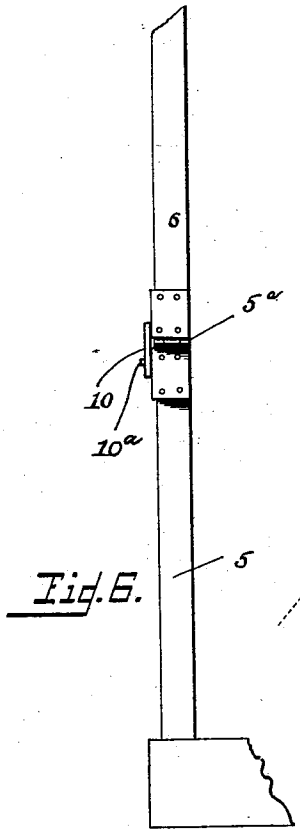


Fig. 6.

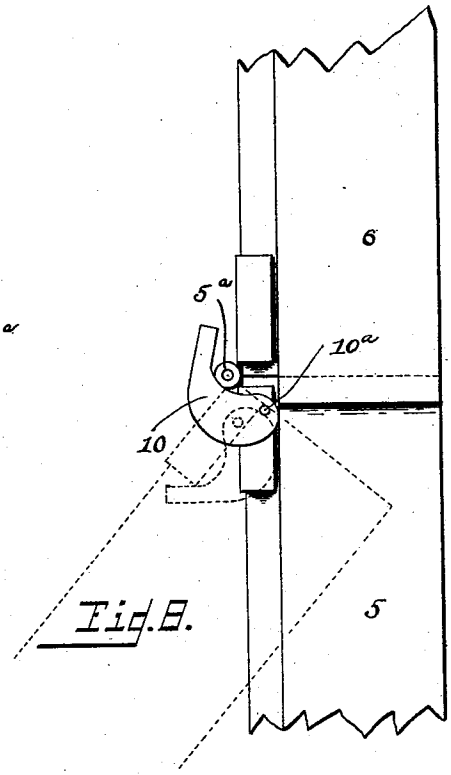


Fig. 8.

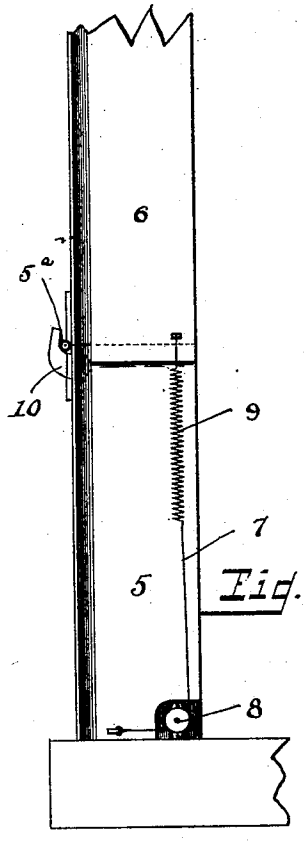


Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM RAYMOND KINNEAR, OF COLUMBUS, OHIO.

FIREPROOF BLIND OR DOOR.

SPECIFICATION forming part of Letters Patent No. 715,816, dated December 16, 1902.

Application filed January 13, 1902. Serial No. 89,460. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RAYMOND KINNEAR, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Fireproof Blinds or Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention, relating generally to fireproof rolling curtains for windows or doors, pertains more particularly to such as are constructed of metallic slats and are kept normally rolled up, but are automatically dropped to close the opening upon the occurrence of imminent fire.

The objects of the invention are twofold: first, to provide a construction of support for the curtain-roller, whereby when the curtain is unwound the window or door opening is completely closed at the top, and, second, to provide a construction of channel or runway that will permit ready ingress or egress of persons to or from the building after the curtain has dropped.

The nature of the invention is disclosed in the following description and claims.

In the accompanying drawings, showing an embodiment of the invention, Figure 1 is a central vertical sectional view of the end casings or supports for the curtain-roller, the latter being broken out at the middle; Fig. 2, an end view of a curtain rolled up on a roller and ready to drop upon the melting of a fusible device that holds the curtain in its rolled-up state. Fig. 3 is a view, on a larger scale, looking toward the inner side of an end casing, showing the position of the roller when the curtain is unrolled. Fig. 4 is a view of the outer side of an end casing, a portion being broken out to show the construction of the shaft-holding device. Fig. 5 is a horizontal sectional view through a window-casing, showing a portion of the device for holding the lower part of the curtain channels or runways. Fig. 6 is a front view of the lower or hinged portion of one of the curtain-channels. Fig. 7 is a view of the inner side of the same. Fig. 8 is a view, on a slightly-larger scale, of the outer side of one of the lower or hinged portions of the channels or runways.

The curtain-roller in the instance shown is a spring-roller, because metallic curtains are fairly heavy, and it is important that their violent descent be prevented; otherwise injury might be done to the curtain and its containing structure. Where the roller is of the spring kind, its shaft will be held from rotation with the revolution of the drum. The said shaft 1 of the roller is supported in elongated bearing edges 2^a in end casings 2, said bearing edges being inclined slightly toward the window or door opening, as indicated in Figs. 3 and 4, so that when the curtain has unrolled to the lower ends of the channels the roller itself or the roller and curtain shall slide laterally toward the window or door opening and close the opening at the top, as indicated in Fig. 3. If the shaft of the roller were fixed in fixed bearings in the end casings, as has heretofore been customary, a gap would remain between the roller and the top of the window-casing, affording access of flames of a proximate fire. Where a spring-roller is employed and the outer drum revolves around the shaft under tension of a spring connecting the drum and shaft, the latter should be held from rotary movement, so that the spring can perform its function. To hold the shaft stationary, I place fixedly upon each of its ends an arm 3, extending at right angles therefrom, the arm being shown to be secured by means of a set-screw 3^a, passed through the end of the arm and pinched tightly against a flat portion 1^a, made on the end of the shaft. The arms 3 lie in a sort of guiding-pocket 2^b, preferably hooded, formed in the end casings 2, the walls of which prevent the rotation of the shaft without interfering with its lateral movement back and forth in the end casing. As the curtain is rolled up its unwound portion remains against or in close proximity to the top of the window-frame, the winding shaft or drum gradually moving laterally toward the dotted-line position indicated in Figs. 3 and 4 as the said winding shaft or drum is filled with the curtain.

Curtains of the kind especially shown in the accompanying drawings are, as before indicated, normally held up by a fusible link

4 subtending the lower bar or edge of the curtain, as seen in Fig. 2, so that upon a dangerous rise of temperature the link melts and allows the curtain to drop by gravity, the spring serving to prevent a too violent descent of the curtain. Incidentally the spring also serves to aid in restoring the curtain to its rolled-up state after the fire is extinguished. As such curtains will drop promptly, it is important if the fire happens to occur in the building containing the curtains that persons in such building shall have a way out through the window when the curtains have dropped if the other avenues of escape be impracticable. To provide for this, the lower portions 5 of the channels are made movable or are hinged, as indicated at 5^a, to the fixed parts 6, and I connect the parts 5 with the fixed parts 6 by means of a chain or wire 7, running under a pulley 8, a spring 9 being shown to be included in connection, so that the movable part 5 of the channel shall be held normally in line with the fixed part 6. Pivoted at 10^a, near the hinge 5^a and to the movable part 5 of each channel, is a weighted eccentric latch 10, that drops down when the lower end of the curtain and the channels are pushed or pulled out, as indicated in Fig. 8, the said latch wedging between the wall and the channels to sustain the latter in their outward extended position. The eccentric latch 10 supports the hinged sections 5 in their outward or inclined position, because when the said sections 5 are moved out the pivots 10^a of the eccentrics are also moved outward and permitted to fall on their pivots into a position where a longer radius of the eccentric is interposed between the wall of the building or of the window-frame, and so constitute a brace to hold the sections in such outward posion. Many automatically-operative braces could be devised to accomplish this purpose.

What I claim, and desire to secure by Letters Patent, is—

1. In combination with a metallic fire-resisting curtain and a roller therefor, of laterally-elongated bearings or supports for said roller and on which it is laterally movable.

2. In combination with a metallic fire-resisting curtain and a roller therefor of laterally elongated and inclined bearings for said roller and on which it is laterally movable.

3. In combination with a metallic fire-resisting curtain and a spring-roller therefor having a shaft, laterally-elongated bearings on which the shaft is laterally movable, and means preventing the rotation of said shaft on said bearings.

4. In combination with a metallic fire-resisting curtain and a spring-roller therefor having a shaft, laterally elongated and inclined bearings for said shaft and on which the same is laterally movable, and means for preventing the rotation of said shaft on said bearings.

5. In combination with a metallic fire-resisting curtain and a spring-roller therefor having a shaft, laterally-elongated bearings for said shaft and on which the same is laterally movable, a wall or shoulder adjacent said bearing and an arm secured on said shaft coacting with the wall or shoulder to prevent the rotation thereof when the curtain is unrolled.

6. Channels or runways for metallic fire-resisting curtains having their lower ends movable to permit movement of the curtain therewith to form an outlet through the window or door opening.

7. Channels or runways for fire-resisting curtains having fixed portions and lower portions hinged thereto adapted to be bent out of line with the fixed portions and means normally tending to hold said hinged portions in line with the fixed portions.

8. Channels or runways for metallic fire-resisting curtains having fixed portions and lower hinged portions, and means for automatically securing said hinged portions when moved to stand at an angle to the fixed portion, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM RAYMOND KINNEAR.

Witnesses:

GEORGE M. FINCKEL,

SAMUEL W. LATHAM.