

No. 754,002.

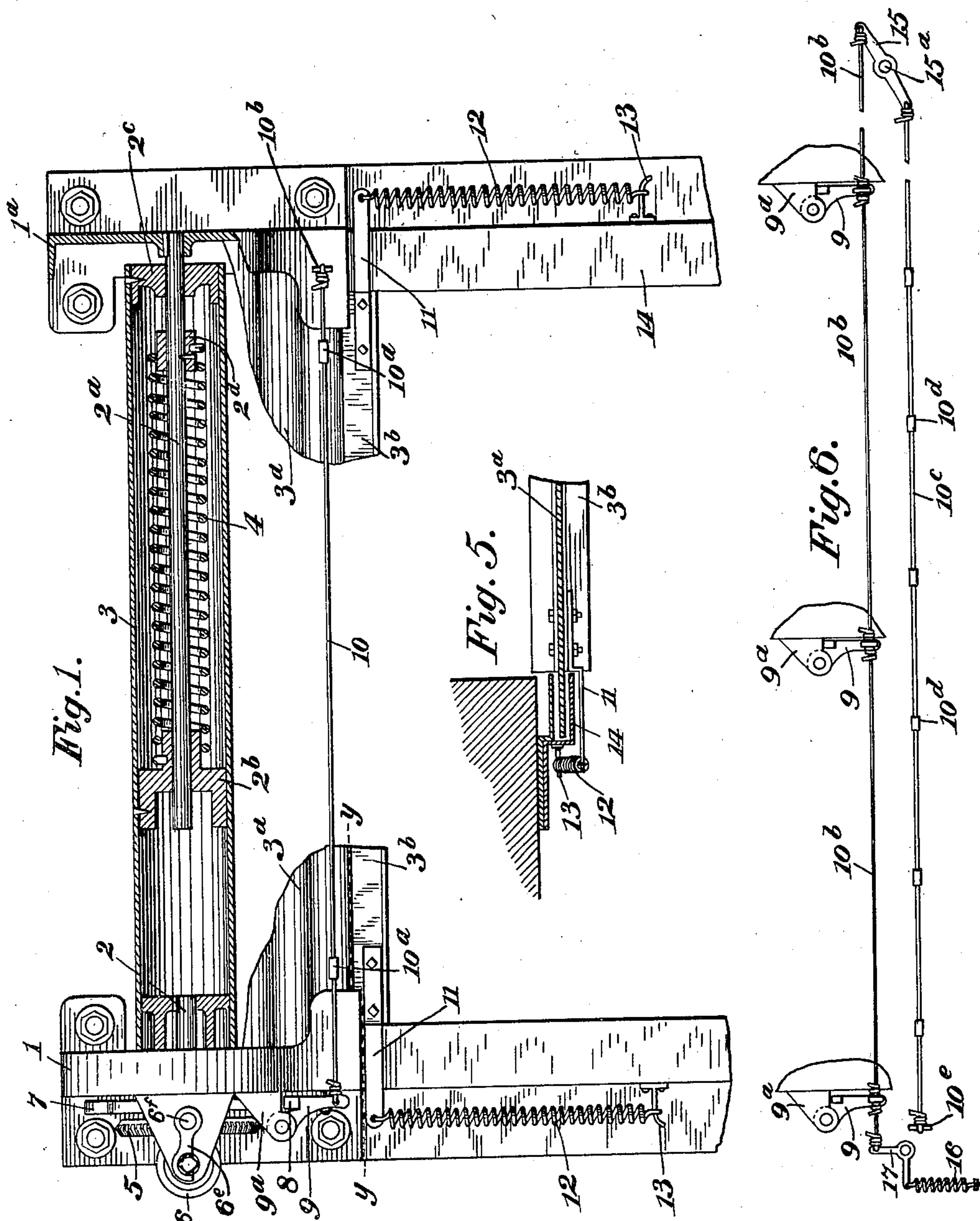
PATENTED MAR. 8, 1904.

E. H. McCLOUD.  
FIREPROOF BLIND.

APPLICATION FILED NOV. 15, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

Benj. Finckel  
Silas Martin

INVENTOR

Edward H. McCloud

BY

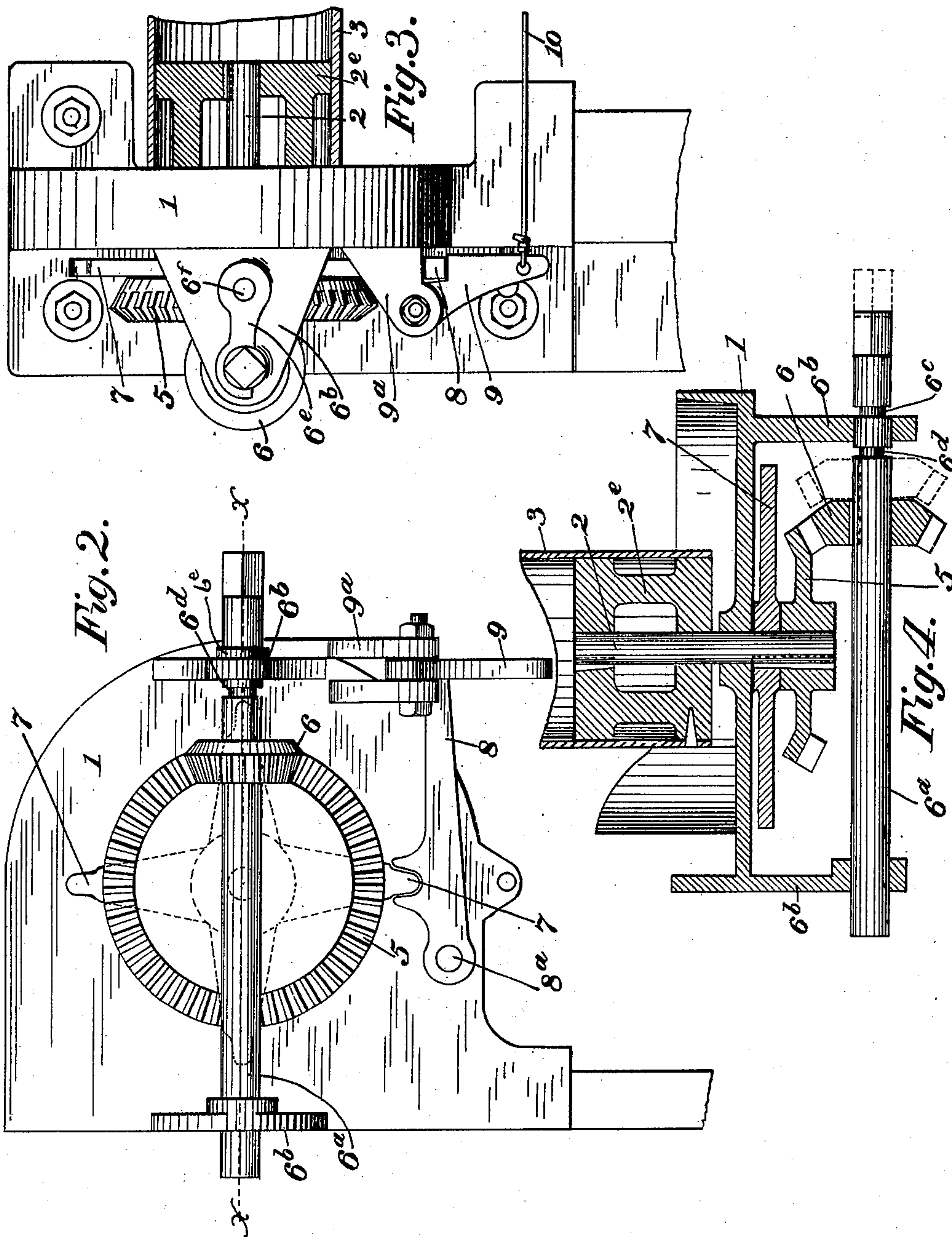
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# UNITED STATES PATENT OFFICE.

EDWARD H. McCLOUD, OF COLUMBUS, OHIO, ASSIGNOR TO THE KINNEAR MANUFACTURING COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF WEST VIRGINIA.

## FIREPROOF BLIND.

SPECIFICATION forming part of Letters Patent No. 754,002, dated March 8, 1904.

Application filed November 15, 1902. Serial No. 131,556. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD H. McCLOUD, 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; 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.

The invention relates more particularly to fireproof shutters of the kind that are automatically released and lowered upon the occurrence of a fire in the vicinity of the building in which they are installed.

My invention consists in the details of construction hereinafter described and claimed.

In the accompanying drawings, illustrating one embodiment of the improvements, Figure 1 is a front elevation of the construction, the curtain-roller and a portion of one of the end casings being in section. Fig. 2 is a view, on a larger scale, in side elevation of that end of the casing or roller-supporting bracket which bears the curtain winding and locking devices. Fig. 3 is a front view of what is shown in Fig. 2. Fig. 4 is a horizontal sectional view taken on a plane indicated by the line *x x*, Fig. 2. Fig. 5 is a horizontal sectional view of the curtain-channel and a portion of the curtain, taken on a plane indicated by the line *y y*, Fig. 1, looking down. Fig. 6 shows a series of curtain-roller latches for as many separate windows and means whereby all said latches may be released simultaneously upon an undue rise of temperature opposite any of the several windows.

In the several views like characters of reference designate corresponding parts, and 1 and 1<sup>a</sup> designate the left and right hand end casings, respectively, as viewed in Fig. 1. These end casings are secured in any appropriate manner to the top of the window-opening.

Fixed in the right-hand end casing, as shown in Fig. 1, is a stationary shaft 2<sup>a</sup>, upon which turns two heads or collars 2<sup>b</sup> and 2<sup>c</sup>, to which

is fixed one end of a roller or drum 3. Within the drum is a coil-spring 4, secured at one of its ends to the collar 2<sup>b</sup> and at the other to an appropriate collar 2<sup>d</sup>, fixed to the shaft, so that when the drum is turned on the fixed shaft the spring is placed under tension. In the left-hand end casing 1 is a short shaft 2, journaled to turn freely in said casing, and on this shaft is keyed a head 2<sup>e</sup>, to which is secured the other end of the drum 3.

The shaft 2 projects beyond the end casing 1 and has keyed to it a beveled gear 5, that is engaged by a pinion 6, keyed to a shaft 6<sup>a</sup>, journaled in brackets 6<sup>b</sup>, cast on the outer side of the end casing, so that by turning said shaft 6<sup>a</sup> the drum may be rotated on the fixed shaft 2<sup>a</sup> and a curtain 3<sup>a</sup> (fractions only of which are shown) attached thereto wound up. In order to relieve the gear 5 of the work of turning the pinion 6 when the curtain is descending, the shaft 6<sup>a</sup>, upon which said pinion is mounted, can be made longitudinally movable and means provided for locking said shaft in the engaging and disengaging position of said pinion. For this purpose this shaft 6<sup>a</sup> is made with two circumferential grooves 6<sup>c</sup> and 6<sup>d</sup>, either of which can be engaged by a hook 6<sup>e</sup>, pivoted at 6<sup>f</sup> on the outer side of the outer bracket 6<sup>b</sup>, said hook when engaged with either of said grooves 6<sup>c</sup> and 6<sup>d</sup> preventing longitudinal displacement of the shaft. The hook 6<sup>e</sup> is omitted from Fig. 4 to permit illustration of the grooves; but said hook is clearly shown in Figs. 1, 2, and 3. Keyed on the shaft 2 between the end casing and the bevel-gear 5 is shown a four-armed device 7, the extremity of one of which arms is adapted to be engaged by a notched lever 8, pivoted at 8<sup>a</sup> on the outer side of the end casing, and pivoted to a bracket 9<sup>a</sup>, cast on the outer side of the end casing 1, is a gravity or spring actuated latch 9, having a shoulder adapted to support the free end of the lever 8 after the latter is raised to engage one of the arms 7. This latch 9 is held in position to latch the lever 8 by means of a sectional wire 10, secured to-



gether at one or more points  $10^a$  by a solder fusible on a dangerous rise of temperature and fastened to an opposite fixed point  $10^b$ . (See Fig. 1.)

5 Several of the arms 7 are provided, so that the tension of the spring may be adapted to the work to be done. In other words, the tension of the spring when the roller is attached should be such as to permit the cur-  
10 tain to descend when released and at the same time so far counterbalance the curtain as to permit it to be easily raised. The tension of the spring therefore will be varied to accord with the weight of the curtain.

15 When the curtain is nearly counterbalanced, it may be necessary in some instances to provide means for giving the curtain an initial movement downward upon the release of the roller-holding latches 9. For this purpose I  
20 have shown fingers 11, attached to the lower edge or bar  $3^b$  of the curtain, provided with coil-springs 12, the lower ends of which are hooked over hooks 13, secured to the curtain-channels 14. These springs 12 when the cur-  
25 tains are raised are under stress, so that the moment the curtain-roller is released they start the curtain down, and in the descent of the curtain the springs will slip off the hooks 13 and therefore not interfere with the free  
30 and complete downward movement of the same.

Where a number of fireproof curtains are employed on the side of a building, it is im-  
35 portant that all the curtains be released upon a rise of temperature at any point of that side, and, as before indicated, I have shown in Fig. 6 means for effecting this result. In this view there are to be as many curtains as latches  
40 shown. These latches are connected by a practically continuous non-fusible wire  $10^b$ . The right-hand end of this wire is shown to be attached to one arm of a lever 15, ful-  
45 crumed at  $15^a$ . The other arm of said lever 15 has attached to it a wire  $10^c$ , composed of several sections and connected by readily-fusible links or joints  $10^d$ . This wire is run  
50 parallel to the wire  $10^b$  or across all the window-openings and attached to a fixed point  $10^e$ , so that if any one of said fusible joints  $10^d$  is melted all the latches 9 will be released. If  
55 gravity is insufficient to operate said latches 9 to release the curtain-rollers, I can attach to the left-hand latch 9 a spring 16, a bell-crank lever 17 being interposed between said latch and said spring, if desired.

It will be observed that with the present construction the curtain cannot descend with great violence when released, because it must  
60 pull against the tension of the spring 4, and it will be further observed that because the curtain is counterbalanced by this spring the curtain may be easily raised by the occupants

of the building who may desire to escape through the window.

What I claim, and desire to secure by Let- 65 ters Patent, is—

1. In a fireproof blind, the combination of end casings, a shaft fixed in one of said casings, a curtain-winding drum to turn on said shaft, a coil-spring encircling said fixed shaft fixed 70 at one end and connected to the drum at the other, a rotary shaft connected with and supporting the roller at the opposite end casing, means for engaging and holding said rotary shaft temporarily from rotation, and means 75 for releasing said rotary shaft by a dangerous rise of temperature.

2. In a fireproof blind, the combination of end casings, a shaft fixed in one of said casings, a rotary shaft connected with and supporting 80 the roller in the opposite end casing, means connected with said shaft for holding the same temporarily from rotation, means for releasing said holding means by a dangerous rise of temperature, and means connected with said 85 shaft for operating it to wind up the curtain.

3. In a fireproof blind, the combination of end casings, a shaft fixed in one of said casings, a curtain-winding drum to turn on said shaft, a coil-spring encircling said fixed shaft fixed 90 at one end and connected to the drum at the other, a rotary shaft connected with the roller and supporting it in the opposite end casing, means for temporarily holding fixed said ro-  
95 tary shaft comprising an arm fixed thereto and projecting laterally therefrom, a lever engaged by said arm and a latch to hold said lever in engagement with said arm and means fusible by a dangerous rise of temperature to release said latch. 100

4. In a fireproof blind, the combination of means for holding the same in raised posi-  
105 tion, means for automatically releasing the same on a dangerous rise of temperature, and means supplemental to the weight of the cur-  
tain for giving an initial movement only to said blind upon the release thereof.

5. In a fireproof blind, the combination of end casings, a shaft fixed in one of said casings, a curtain-winding drum to turn on said shaft, 110 a spring between said drum and fixed shaft, a rotary shaft supporting the roller in the opposite end casing, means for engaging and holding said rotary shaft, and means for re-  
115 leasing said shaft on a dangerous rise of temperature, a gear on said rotary shaft, and a pinion to engage said gear.

6. In a fireproof blind, the combination with a curtain-winding drum, a shaft fixed to said drum for winding the same, a gear on said 120 shaft, a pinion for engaging said gear having a longitudinally-movable shaft whereby said pinion may be released from engagement with said gear.

7. In combination with a series of fireproof  
blinds, latches for holding said blinds in raised  
position, a non-fusible wire connecting said  
latches, a lever to which said wire is attached,  
5 a wire severable on a dangerous rise of tem-  
perature also connected to said lever and fas-  
tened to hold said latches in latching position.

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

EDWARD H. McCLOUD.

Witnesses:

SAMUEL W. LATHAM,  
GEORGE M. FINCKEL.