No. 774,605. PATENTED NOV. 8, 1904.

C. RUPP.

CLOSING DEVICE FOR SASHES.

APPLICATION FILED APR. 19, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

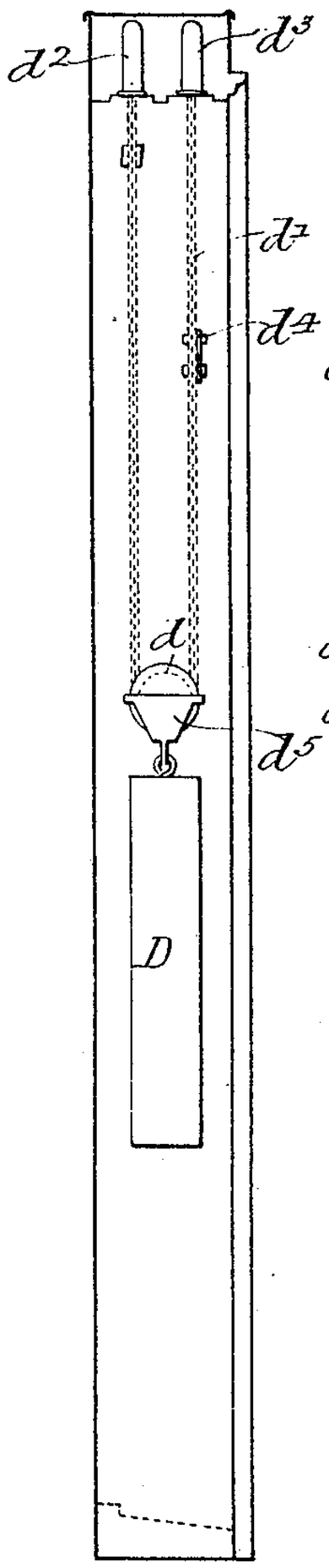


Fig. 1.

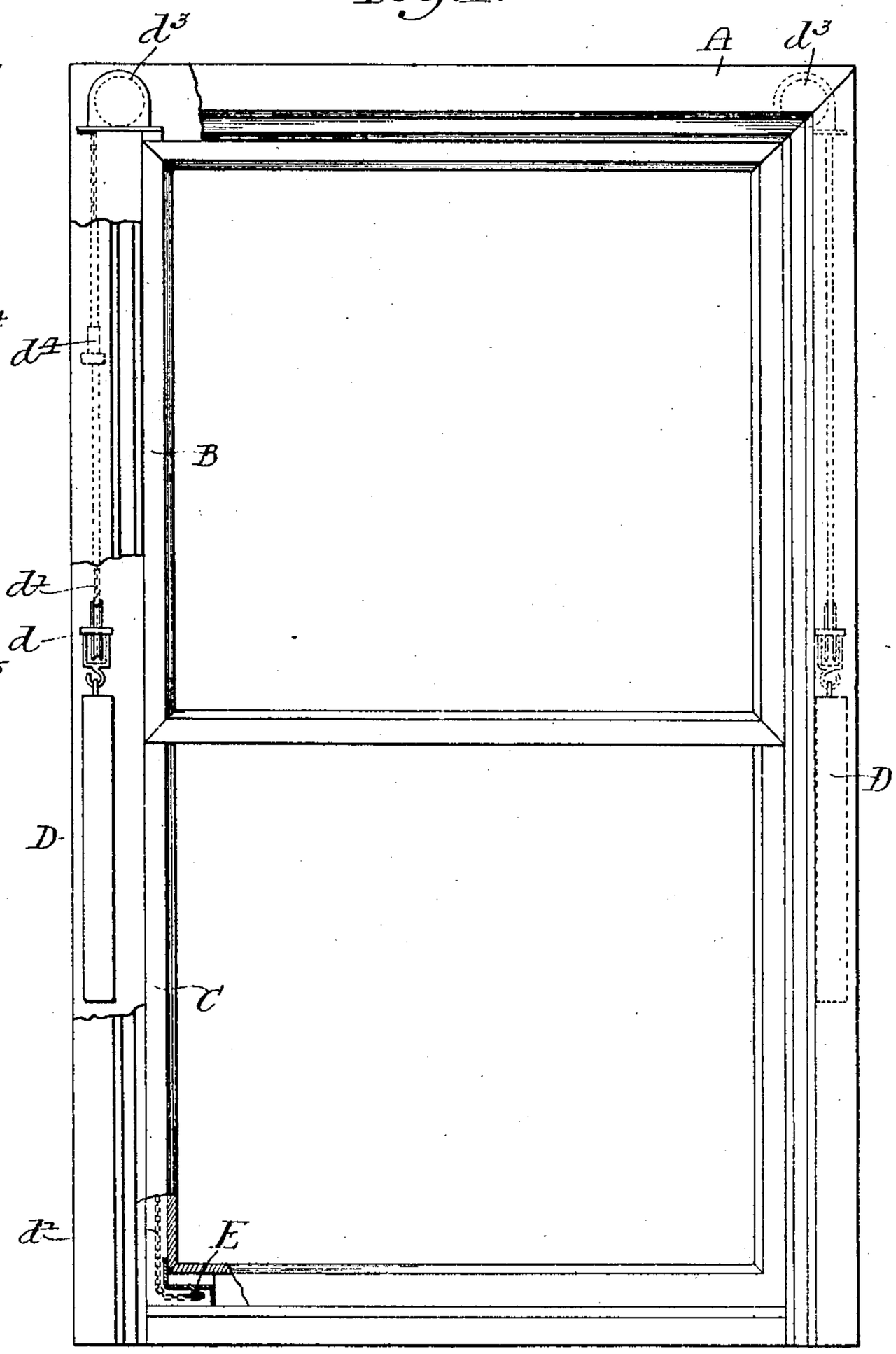
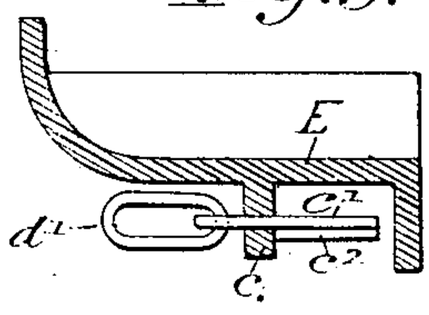


Fig. 3.



Witnesses:
Titus N. Fox.
Frank L. A. Graham.

Inventor:
Charles Rupp.
by His Attorneys,
Howson & Howson

No. 774,605. PATENTED NOV. 8, 1904.

C. RUPP.

CLOSING DEVICE FOR SASHES.

APPLICATION FILED APR. 19, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

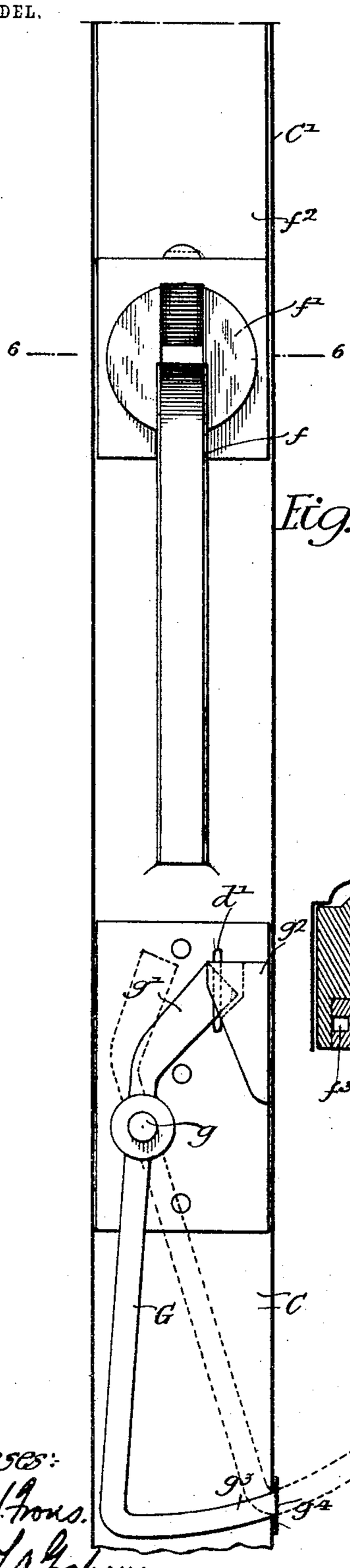


Fig. 5.

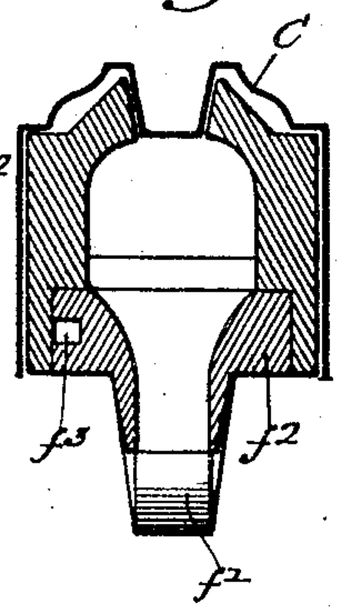


Fig. 6.

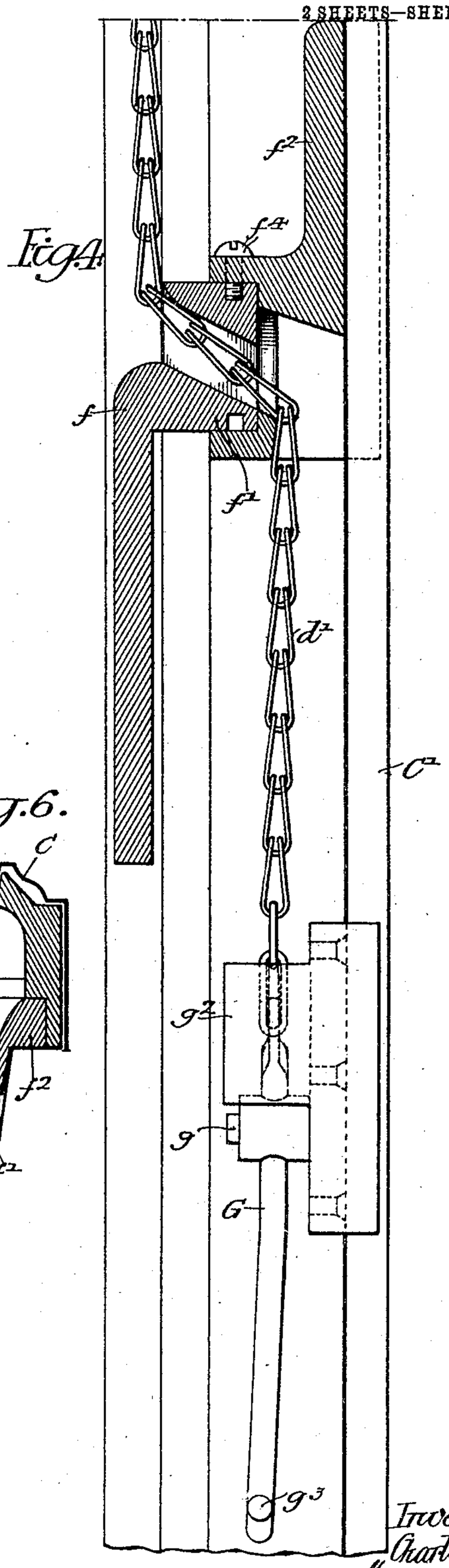


Fig. 4.

Witnesses:
Titus H. Irons.
Frank L. A. Graham.

Inventor:
Charles Rupp
by his Attorneys; Howson & Howson

No. 774,605. Patented November 8, 1904.

UNITED STATES PATENT OFFICE.

CHARLES RUPP, OF PHILADELPHIA, PENNSYLVANIA.

CLOSING DEVICE FOR SASHES.

SPECIFICATION forming part of Letters Patent No. 774,605, dated November 8, 1904.

Application filed April 19, 1904. Serial No. 203,882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RUPP, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Closing Devices for Sashes, of which the following is a specification.

The object of my invention is to provide a device which in the event of an abnormal rise in temperature in its vicinity shall operate to close or permit the closing of both sashes of a window.

A further object of the invention is to provide a fireproof window-frame and sashes with a single device, set in operation by an abnormal rise of temperature in the vicinity of said frame, which shall permit automatic closing of the lower sash and act to positively close the upper sash.

An additional object of my invention is to provide a construction by which a single weight is made to serve as a counterbalance for both the lower and the upper sashes of a window, and I may, if desired, employ in addition means whereby said single weight is made to cause the closing of both sashes in the event of fire or any abnormal rise of temperature in their vicinity.

In order to attain these ends, I provide the construction hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation, partly in section, of a window-frame with its accompanying sashes, showing my invention as applied thereto. Fig. 2 is a side elevation of the frame shown in Fig. 1. Fig. 3 is an enlarged sectional view illustrating the detail construction of a portion of the device shown in Fig. 1. Fig. 4 is a sectional elevation of my preferred construction of the device for retaining the sash-weight chain in connection with one of the sashes, said figure also showing the device by which a window-sash is supported so as to be free to turn on a horizontal axis. Fig. 5 is an end elevation of the construction shown in Fig. 4; and Fig. 6 is a sectional plan view on the line 6 6, Fig. 5.

In the above drawings, A is a metallic window-frame of any desired construction suitable for the purpose, having the customary vertical guideways for an upper sash B and a lower sash C. D represents counterweights for said sashes, and it will be noted that said weights are each suspended from a pulley d, around which passes a chain d', one end of which passes over a pulley d^2 and is permanently attached to the upper portion of the upper sash B. The opposite end of said chain passes around a pulley d^3 and is attached to the lower portion of the lower sash C by means of some device including a fusible link, which in the event of a predetermined rise of temperature above the normal will release said chain from said sash. One form of this device is shown in Figs. 1 and 3 and consists of a casting E, fastened to the inside of the hollow sash-frame and provided with a lug e, in which is an opening for the passage of an **I**-bar e'. This bar is connected to the chain d', as is also a piece e^2, which is held to that portion of said **I**-bar which projects through the lugs e by means of fusible solder. There is a stop d^4 fixed to the chain d' at some point between the pulley d^3 and the pulley d, upon which is carried the counterweight D, and it will be seen that under normal conditions this weight is effective to counterbalance either the upper or lower sash in any position in which these may be placed in the window-frame. Should the lower sash be raised and the upper sash be lowered at a time when the window was exposed to the abnormal heat resulting from a fire, the melting of the piece e^2 from the **I**-bar e' would at once permit the chain d' to release the lower sash C, which would fall to its closed position under the action of gravity. By this release of the chain the counterweight D is left unsupported, and the stop d^4 is so placed upon said chain that it engages the pulley d before this latter, with its attached counterweight, has fallen any considerable distance in the frame. Owing to the construction of the part d^5, in which the pulley d is rotatably supported, the rendering of the chain d' through said pulley is prevented by this stop d^4, with the result that the upper sash B is greatly overbalanced and quickly brought to its closed position by the continued fall of said weight D.

From the fact that wire-glass is customarily

employed in sashes such as are used with my device and, further, that all of the other materials from which the above-described window is constructed are fireproof to the highest degree it will be understood that in many cases the prompt operation of my invention may serve to prevent the spread of otherwise serious fires.

While the automatic releasing device shown in Figs. 1 and 3 may be used to normally connect the chain d' with the lower portion of the lower sash, my preferred device for accomplishing this end is shown in Figs. 4, 5, and 6. In such a construction the chain passes through what is substantially the center of a casting f, having a portion f', which serves as a trunnion or bearing for a second casting f^2, permanently fixed to the metallic body of the sash C. Such construction is for the purpose of permitting the sash to be swung on a horizontal axis without interference with the chain d', for while the casting f is free to slide up or down in the guides at the sides of the frame it is held from revolution in said guides while the casting f^2 revolves upon it in order to permit the sash to swing. The bearing or trunnion portion f' is provided with an annular groove f^3 for the reception of a screw f^4, by which said parts are held together in operative position.

With the above construction the attachment of the chains d' to the bottom part of the lower sash in no way interferes with the swinging of the sash, and at the same time the arrangement of parts is such that there is no liability of said chains being held to the lower sash after their fusible connection therewith has once been fused.

A lever G is pivoted to the lower portion of the inside of the framework of the lower sash, being movably supported upon a pin g and having one of its arms g' entering a recess in a lug g^2, held in any desired manner to the sash. This arm g' passes through the last link of the chain d', as shown, so that said chain is held connected to the sash as long as the lever G remains in the position shown in Fig. 5. In order to normally keep the lever in this position, its second arm, which preferably has a portion g^3 bent at an angle, is held from moving by engagement with a plate g^4, covering an opening in the face of the sash. Said plate is held in position by relatively fusible solder, which, however, quickly releases the arm of the lever G bearing against it as soon as any abnormal temperature causes said solder to melt. This construction is particularly designed to permit of but a relatively small part of the strain on the chain being transmitted to the fusible solder, it being noted that such strain is supported almost entirely by the pivot-pin g. When, however, the plate g^4 is released from its position by the melting of its solder, there is sufficient strain upon the arm g' to cause motion of the lever G upon its pivot-pin g, and thereby permit the link of the chain g' to be pulled off of said arm under the action of the weight D, so as to allow the lower sash to fall, as above described.

From the foregoing description it will be understood that I have provided an exceedingly simple and inexpensive device by which two sashes are counterbalanced by a single weight on each side, and I have also provided means whereby both sashes, if open, are caused to automatically close in the event of a fire occurring in the vicinity of the window or in case of an abnormal rise of temperature from any other source. It will be further seen that I provide a single device for accomplishing the closing of both sashes of a window, thereby not only lessening the cost of the structure, but increasing the certainty of action owing to the simplicity of the apparatus employed.

I claim as my invention—

1. The combination of two sashes, a counterweight and means for operatively connecting said weight to both sashes, with means including a relatively fusible member for releasing the weight from one of the sashes and causing it to become active to move the other sash, substantially as described.

2. The combination of two sashes, a counterweight, means for operatively connecting said weight to both sashes, said means including an automatic heat-responsive device whereby it may be released from one of the sashes and means for causing the entire counterweight to become available to move the other sash, substantially as described.

3. The combination of two sashes, a counterweight, a flexible connection between said weight and both sashes, heat-responsive means for releasing one of the sashes from the weight and means for making said weight capable of automatically moving the other sash, substantially as described.

4. The combination of two sashes, a counterweight having a pulley, a flexible connection attached to both sashes and passing around said pulley, an automatic device for releasing said connection from one of the sashes and means for preventing the rendering of the flexible connection through the pulley after said releasing means has acted, substantially as described.

5. The combination of two sashes, a counterweight, a flexible connection attached to both sashes and suspending said weight, a stop on said flexible connection for causing the weight to act on one sash only and a device for automatically releasing the connection from the other sash, substantially as described.

6. The combination of a frame having an upper and a lower sash, pulleys on the frame, a flexible connection passing over said pulleys and attached to both sashes, a third pulley operative in a loop of said connection and a weight attached to said third pulley with a

stop on the connection between the third pulley and one of the other pulleys and a device for automatically releasing the connection from one of the sashes, substantially as described.

7. The combination of a frame having a sash, counterweights, flexible connections between the sash and said weights, and sliding bearings for the sash constructed to permit rotation thereof on a horizontal axis, said flexible connections passing through the said bearings and having heat-responsive means whereby they may be automatically detached from the sash, substantially as described.

8. The combination of a frame, bearing-pieces slidable in said frame, a sash rotatably carried by said bearing-pieces, counterweights, and flexible connections between said weights and the sash, said connections passing through said bearing-pieces and having heat-responsive means whereby they may be automatically detached from the sash, substantially as described.

9. The combination of a frame, bearing-pieces slidable thereon, a sash having trunnions engaging said bearing-pieces, with counterweights, and flexible connections between the sash and said weights, said connections passing through said trunnions, and having heat-responsive means whereby they may be automatically detached from the sash, substantially as described.

10. The combination of a frame, a sash movable therein, a counterweight and a flexible connection between the sash and the weight, a lever for normally attaching said connection to the sash and a device including relatively fusible material for holding said lever from releasing said connection, substantially as described.

11. The combination of a frame, a sash movable therein, a counterweight and a flexible connection between the sash and the weight, a lever having a relatively short arm engaging said connection and a long arm, with a body of relatively fusible material active upon said long lever-arm to prevent motion of the same, substantially as described.

12. The combination of a frame, a sash movable therein, a counterweight, a flexible connection extending between the sash and the weight, a cap having relatively fusible metal holding it in place over an opening in said sash and a lever carried by the sash having one arm acted on by the flexible connection and the other kept from motion by said cap, substantially as described.

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

CHARLES RUPP.

Witnesses:
WILLIAM F. BEATON,
WILLIAM E. BRADLEY.