No. 728,135. PATENTED MAY 12, 1903.

C. RUPP.

AUTOMATICALLY OPERATING WINDOW SASHES.

APPLICATION FILED APR. 30, 1902.

NO MODEL.

Fig. 1.

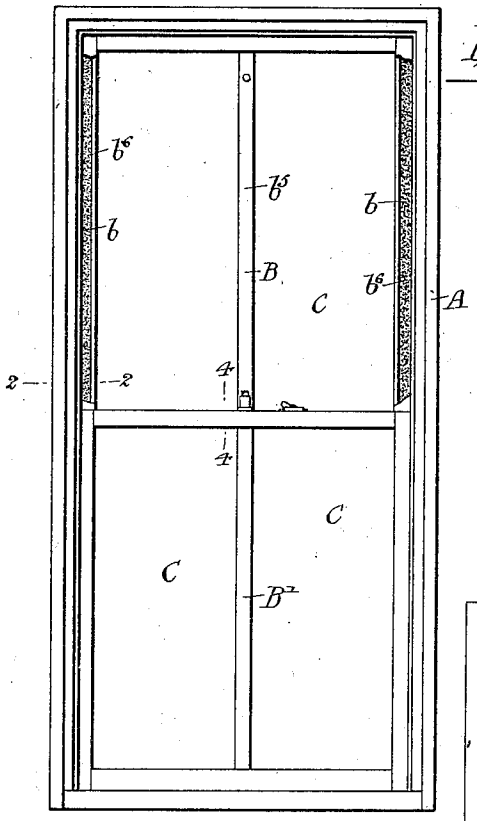


Fig. 2.

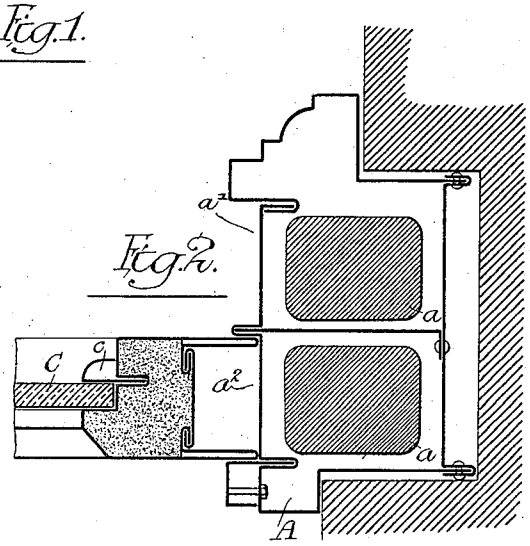


Fig. 3.

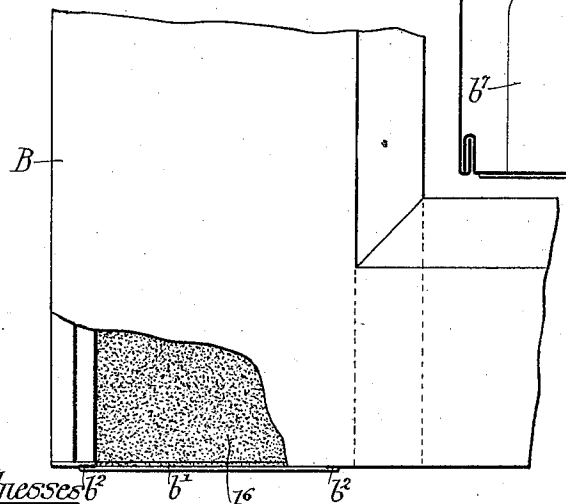
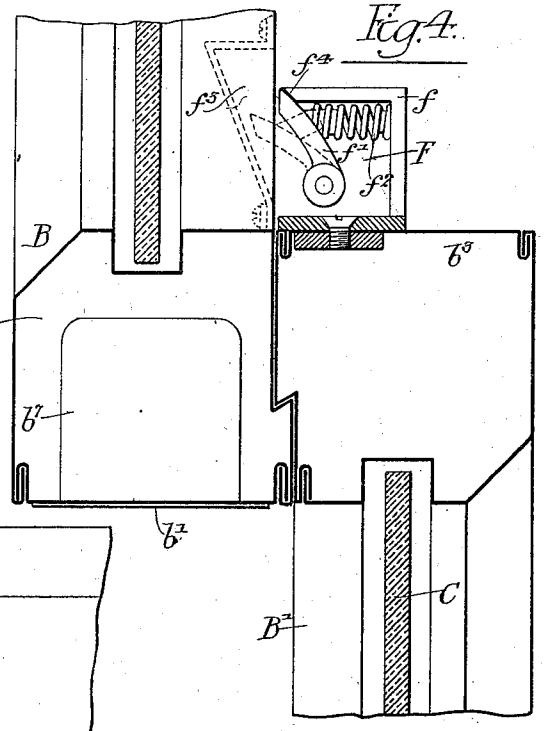


Fig. 4.



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No. 728,135. Patented May 12, 1903.

UNITED STATES PATENT OFFICE.

CHARLES RUPP, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO J. S. THORN COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

AUTOMATICALLY-OPERATING WINDOW-SASHES.

SPECIFICATION forming part of Letters Patent No. 728,135, dated May 12, 1903.

Application filed April 30, 1902. Serial No. 105,346. (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 Automatically-Operating Window-Sashes, of which the following is a specification.

My invention consists in certain improvements in means for automatically operating window-sashes, and more particularly to an improved device for automatically releasing and causing to close a window-sash of special structure when this is subjected to a relatively high degree of heat.

A further object of the invention is to provide means whereby a window sash or sashes may be automatically locked in a closed position, also operated by a rise in the temperature in or adjacent to their structure.

These objects I attain as hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a window frame and sash, the latter being made in accordance with my invention. Fig. 2 is an enlarged plan view of a portion of a window-sash and its frame, taken on the line 2 2, Fig. 1. Fig. 3 is an elevation, partly in section, of one corner of the upper sash illustrated in the previous figures, showing the device for automatically releasing the material within the sash upon a predetermined rise of temperature; and Fig. 4 is an enlarged sectional elevation taken on the line 4 4, Fig. 1, showing my improved locking device as employed in connection with the form of sash illustrated in the foregoing figures.

In the above drawings, A is a hollow metallic window-frame, having within it vertical channels for sash-weights a and constructed so as to form two elongated vertical grooves a' and a^2 for the accommodation of the upper and lower window-sashes B and B'. These sashes are also made of metal and have their members hollow, as shown, these latter being formed with an angular groove for the reception of the glass panes C and having retaining-strips c, by which said panes are kept in place. As shown in Fig. 3, the bottom edge of the upper sash is provided with an opening into its interior immediately under or at the lower end of the vertical side members b in said sash, and this opening is normally closed by a plate b', held in position by solder having a relatively low melting-point, the said solder being applied around the edges of the plate, as indicated at b^2. The hollow interior of the sash is filled with some freely-flowing material having fluid properties, preferably sand, as indicated at b^6, although it will be understood that any desired form of liquid or granular solid may be employed for this purpose. Should it be found advisable, a single weight b^7 of the necessary mass could be retained within or held to the hollow sash-frame by means of a body of solder having a low fusing-point.

A chain of the ordinary form connects the upper and lower sashes with their respective sash-weights, these latter being, as is customary, of such a mass that the sashes remain at any position in which they are placed in the window-frame. One or more of the links of the chain connecting the lower sash B' with its weight a are made of metal having a relatively low fusing-point, so that in case of an abnormal rise of the temperature of the parts or of the atmosphere around the two sashes, such as would be caused by fire, the lower sash, if in a raised position, would be disconnected from the sash-weights and allowed to close under the action of gravity. The sashes may be automatically locked together and the upper sash prevented from falling in the event of the suspending-chains of the latter being melted by means of a device similar to that shown in Fig. 4, in which b^3 and b^4 represent the upper horizontal member of the lower sash and the lower horizontal member of the upper sash, respectively, there being upon the former of these an automatic catch, (indicated at F.) This consists of a frame or casing f, within which is pivoted a pawl f', having a spring f^2, normally tending to turn the pawl on its pivot and cause it to project beyond the line of the edge of the lower sash. The said pawl, however, is normally retained in the position shown in full lines in the figure by means of a small quantity of fusible solder f^4, which holds it to the upper edge of

the casing or frame f, so that under normal conditions it does not interfere with the free movement of the upper sash B. The lower portion of the metal vertical member b^5 of the upper sash is recessed and has preferably set in it a metallic triangular piece f^3.

There is a stud or pin b^8 projecting from the top portion of the upper sash B, whose object is to prevent the said sash from being lowered to such an extent that its lower member will strike the window-sill. While the said member is still several inches above the sill the stud strikes the top of the lower sash, so that it is effectually kept from remaining in contact with said sill.

In use should the lower sash be partially raised and the upper sash be partially lowered it will be understood that it is extremely desirable to have these two sashes returned to their closed positions automatically in case of the breaking out of a fire, and under such circumstances the rise in temperature of the atmosphere immediately surrounding the two sashes or the heated condition of the metallic frame from the same cause would melt the fusible links in the chain suspending the lower window-sash B′ in the way previously known to the art, thus allowing the sash to close under the action of its own weight. The same rise of temperature would melt the fusible metal holding the cover-plate b' in position and would allow the sand or other material within the hollow upper sash to escape. Since after such escape of material this upper sash would be greatly decreased in weight, its sash-weights would so much overbalance it that it would be automatically returned to its raised position, thereby completely closing the window. As soon as the two sashes have returned to their normal positions, or even before such action has taken place, the heat fuses the solder at f^4, thus releasing the pawl f' and permitting it under the action of the spring f^2 to project outwardly, as indicated in dotted lines in Fig. 4, it being immaterial for all practical purposes whether this action happens before or after the sashes have moved to their closed positions. Should now the chain connecting the upper sash with its weights become damaged by intense heat, so as to release the said upper sash, this will be prevented from falling and opening the window by means of the pawl, which will catch on the piece f^3, and thereby hold the sash in its elevated position.

It will be understood that for all practical purposes it is immaterial as to whether the locking device F is placed upon the frame or sash, since, if desired, it may be supported upon the window-frame proper and act upon the upper sash in a manner precisely similar to that indicated above upon an abnormal rise in temperature.

I claim as my invention—

1. The combination of a frame, a window-sash therein, means for counterbalancing the sash and a weight detachably secured to the sash, with means for normally holding the weight in position, the same being operated upon by a predetermined rise of temperature to free said weight from the sash, substantially as described.

2. The combination of a frame, a window-sash therein, means tending to move the sash in the frame and a freely-flowing material weighting said sash whereby motion thereof is normally prevented, substantially as described.

3. The combination of a frame, a window-sash therein, means tending to move the sash from one position in the frame to another, freely-flowing material carried by the sash and normally balancing the means tending to move the same with a device operated by changes of temperature controlling the flow of said material, substantially as described.

4. The combination of a frame, a window sash or sashes therein, having a member or members made hollow, and having an opening or openings into the interior thereof, means closing the openings as long as the temperature remains below a certain predetermined point, a freely-flowing material within the hollow members, and means for automatically moving the sash or sashes from their open to their closed positions upon the escape of the said material from the sash, substantially as described.

5. The combination of a frame, a window sash or sashes therein having a member or members made hollow, and having an opening or openings into the interior thereof, means for closing said openings held in place by a compound having a predetermined fusing-point, a body of sand within the hollow member sufficient to move the sash or sashes from an open to a closed position upon the escape of the sand therefrom, substantially as described.

6. The combination with a sash of a device for positively locking the same against sliding movement in the plane of the window-frame, said device including a member having a body of fusible material for holding it in position whereby it is normally prevented from acting to engage the sash, substantially as described.

7. The combination with a sash, of a device for preventing sliding movement thereof in the plane of its frame, said device being operated by changes of temperature to prevent such movement, substantially as described.

8. The combination of a sash, a relatively fixed member coöperating with the same, a device for locking the sash in a definite position said device including a pivoted pawl on one of said members, having a body of fusible material normally retaining it out of engagement with the other member, substantially as described.

9. The combination of a sash, a body adjacent to the same, one of said members having a pivoted pawl, a spring acting to project the same and a body of fusible solder

normally retaining the pawl in a retracted position against the action of the spring, substantially as described.

10. The combination with a sash of a device for positively locking the same against sliding movement in the plane of its frame, said device including a member having a body of fusible material for holding it in position whereby it is normally prevented from acting to lock the sash, a portion of said sash being designed to be engaged by said member, substantially as described.

11. The combination with a sash of means for normally retaining the same in a given position, with a device including a body of material held to the sash, said device being of a nature to be acted upon by a rise in temperature above the normal so as to release said body from the sash and permit motion of said sash, substantially as described.

12. The combination in an ordinary two-sash window, of the upper sash, the weight-cord attached at one end to either side thereof, the pulley above said sash, adapted for the passage over it of said cord; the overbalance-weight at the other end of said cord, the counterbalance attached to any part of the frame of said sash and a heat-soluble fastening adapted to detachably attach the said counterbalance to said sash, the whole substantially as described, for the purpose of automatically closing up said sash by the fusing of said fastening upon the exposure of the window to abnormal heat.

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

CHARLES RUPP.

Witnesses:
WILLIAM E. BRADLEY,
JOS. H. KLEIN.