May 25, 1926. 1,586,073

T. E. DAVIS

AUTOMATIC WINDOW CLOSER

Filed Sept. 6, 1921

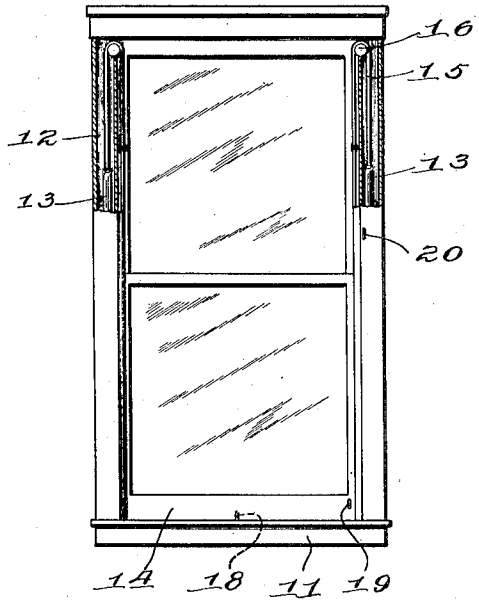


Fig. 1.

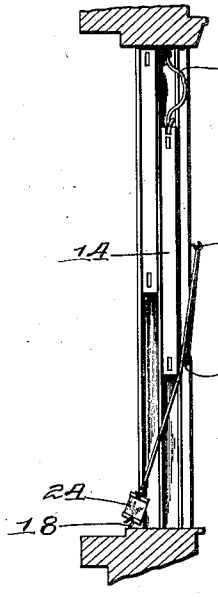


Fig. 3.

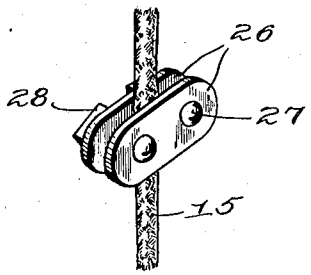


Fig. 4.

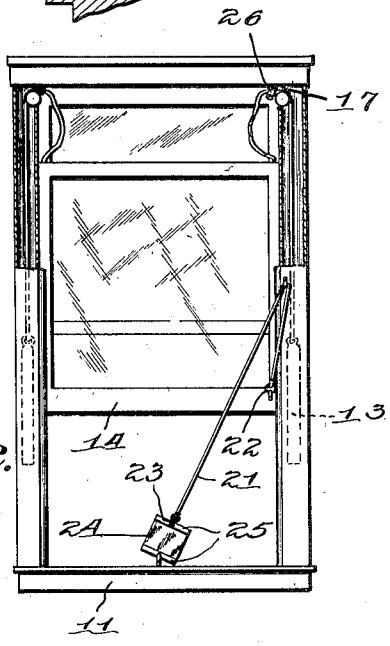


Fig. 2.

Inventor
Thomas F. Davis.

By Robert M. Zachanias.
Attorney.

Patented May 25, 1926. 1,586,073

UNITED STATES PATENT OFFICE.

THOMAS E. DAVIS, OF CHAMBERSBURG, PENNSYLVANIA.

AUTOMATIC WINDOW CLOSER.

Application filed September 6, 1921. Serial No. 498,735.

This invention relates to an automatic window sash closer, and more particularly to a device for holding a window sash in open position but of such structure as to permit the sash to close by gravity in case of a rain storm or fire.

One of the objects of the invention is to provide a simple device of this kind which comprises a minimum number of parts, and which may be readily installed on windows of the construction commonly in use.

Another object of the invention is to provide a device of this kind which will prevent the window from closing with too much force.

Still further objects of the invention and the features of novelty will be apparent from the following specification when taken in connection with the accompanying drawings, which show one embodiment of the invention, and in which:

Figure 1 is a view in elevation of a window as seen from the inside of the room, part of the side frames being broken away.

Figure 2 is a view in elevation similar to Fig. 1 showing the sash held in raised position.

Figure 3 is a vertical section of the structure shown in Figure 2, and

Figure 4 is an enlarged view in detail showing a clamp used on the sash cord, as shown in the other figures.

As shown in the drawings, the window frame 11 is of the usual type and comprises boxes 12, in the side members of the frame, which receive counterbalance weights 13, connected to the lower sash 14 by flexible cords or chains 15, which are guided over pulleys 16. The pulleys 16 are supported in the frame adjacent the top thereof, and openings 17 are formed in the side members of the frame, to permit the flexible members 15 to enter the boxes 12.

The hook 18 is provided on the window sill, preferably adjacent the center thereof, and a similar hook 19 is provided on the lower member of the sash 14, preferably adjacent one side edge thereof. Another hook 20 is provided on the side frame member, preferably above the top of the sash when the latter is in closed position. In order to hold the sash in raised position, a flexible member 21 is provided, which carries at its one end a ring 22 which may be readily engaged with the hook 19, and which, at its other end, is provided with a hook 23. A breakable member 24, such as a sheet of paper having metal clamps 25 at its ends, is used to connect the hook 23, on the flexible member 21, to the hook 18 on the window sill, it being understood that the construction is such that the member 24 may be readily replaced. The hook 20 may be of any desired construction and may, if desired, support a pulley over which the flexible member 21 may be guided.

A clamp is provided for each flexible member 15, and may, as shown in Fig. 4, comprise plates 26 adapted to be positioned on opposite sides of the member 15 and be clamped together by bolts 27 having nuts 28 threaded thereon.

In operation the clamps are positioned on the members 15 while the window is in closed position, as indicated in Fig. 1. When the window is partly raised, the clamps will engage the window frame adjacent the opening 17. Further upward movement of the sash 14 will permit portions of the flexible members 15 to be slack as shown in Figures 2 and 3, and the weights 13 will be supported independently of the sash. The flexible member 21 is then attached to the hook 19, led over the hook 20 or the pulley supported thereby, and its other end secured to the breakable member 24 which in turn is secured to the hook 18 on the window sill.

The breakable member 24 is preferably of such construction that it will break when weakened by moisture, in the event of a rain storm, or upon combustion, in the case of a nearby fire.

When the parts are positioned as shown in Fig. 2, the member 21 and the member 24 are under tension, and if the member 24 should break, as described, the sash 14 will fall freely under the action of gravity until those portions of the flexible members 15 between the upper part of the sash and the clamps become taut, and will continue, by reason of the inertia so acquired, to move on to closed position, the force of the fall being broken by reason of the fact that the sash is connected to the weights 13.

It will be apparent that if the flexible members 15 are sash cords, knots may be made therein instead of using clamps, but it is desirable that clamps be used to provide for ready adjustment on the members 15, whereby the force with which the window will close may be easily regulated.

While one embodiment of the invention has been shown and described it will be understood that various changes may be made in the details of the construction without departing from the spirit of the invention which is defined in the following claims.

The invention having been thus described, what is claimed is:—

1. In a device of the class described, the combination of a window frame, a sash arranged for vertical movement therein, a counterbalance weight having a flexible connection with said sash, means for supporting said weight when the sash has been raised to one position, and means for supporting said sash when said sash has been raised to a higher position, comprising a breakable portion.

2. In a device of the class described, the combination of a window frame, a sash arranged for vertical movement therein, a counterbalance weight, a flexible member connecting said weight and said sash, means for supporting said weight independently of said sash when said sash is above a given position, and a flexible member for supporting said sash above said given position comprising a breakable portion and connected to the lower portion of said sash adjacent one edge thereof, whereby said sash, under the influence of the force of gravity, will tend to bind in said frame.

3. In a device of the class described, the combination of a window frame, a sash arranged for upward movement in said frame, a counterbalance weight, a flexible member connecting said weight and said sash, means on said flexible member for supporting said weight independently of said sash to effect a lost motion connection between said sash and said weight when the sash is above a given position, and means comprising a breakable portion for supporting said sash above such position.

4. In a device of the class described, the combination of a window frame, a sash arranged for upward movement therein, means comprising a breakable portion for supporting said sash in a raised position, and a counterweight connected to said sash by a flexible member and operative when said sash has fallen to a lower position to counteract the momentum of the sash and lessen the effect of the force of gravity on the sash during further movement thereof.

In testimony whereof I affix my signature.

THOMAS E. DAVIS.