July 21, 1936. G. E. PAGE 2,048,463

STORM WINDOW

Filed July 30, 1934 2 Sheets-Sheet 2

FIG. 4.

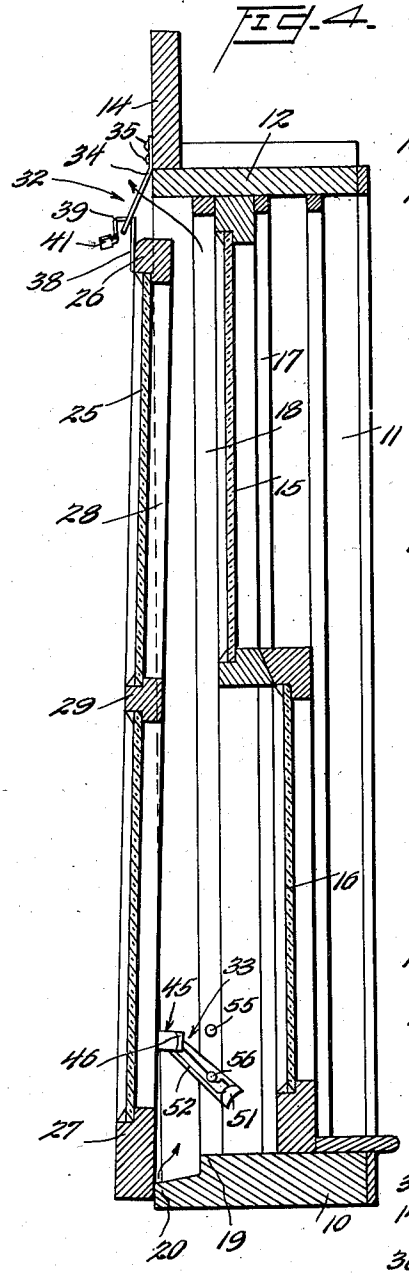


FIG. 6.

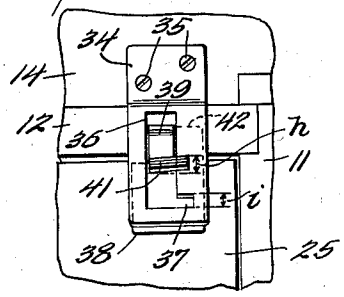


FIG. 7.

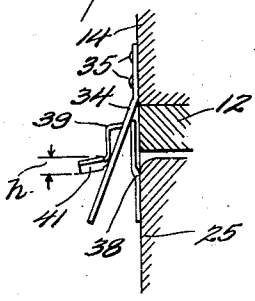


FIG. 8.

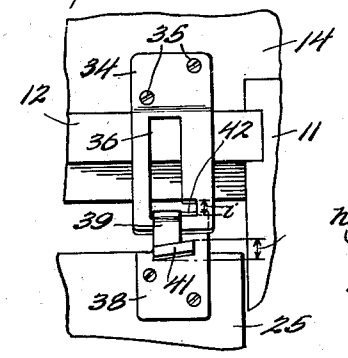


FIG. 9.

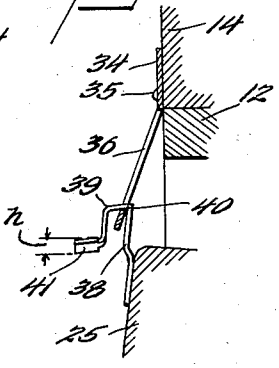


FIG. 10.

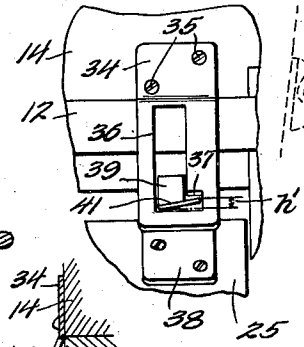


FIG. 11.

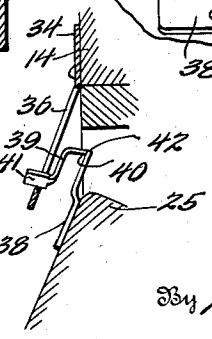
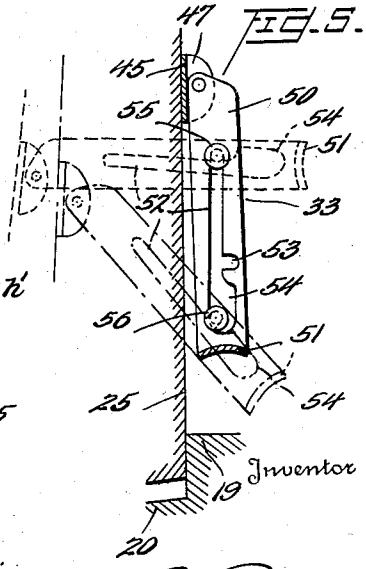


FIG. 5.



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UNITED STATES PATENT OFFICE

2,048,463

STORM WINDOW

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Application July 30, 1934, Serial No. 737,655

3 Claims. (Cl. 20—55)

This invention relates to windows and more particularly to storm windows or the like, which may be employed as supplemental closures for the window openings of buildings.

The general object of the invention is to provide a novel and improved window of this character embodying novel supporting and fastening means enabling it to be secured in various open and closed positions.

Another object of the invention is the provision of a window of this type which may be readily applied to window frames of slightly varying sizes without prefitting.

A further object of the invention is the provision of means whereby the storm window may be conveniently attached to its supporting devices by a person within the building, this feature being of more particular importance in connection with the application of the storm windows to window openings in the upper stories of the building. These attaching and supporting means are also of such a character that they will not become disconnected during the normal operation of the window.

A still further object is the provision of a novel securing or holding device for the storm window which cooperates with the supporting means referred to, to hold the window firmly in its adjusted position and to readily permit its movement from one of them to the other.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawings, in which one embodiment of my invention is illustrated by way of example.

In the drawings:

Figure 1 is a view in elevation of the exterior of a window arrangement embodying the principles of my invention, showing the storm window in closed position;

Figure 2 is a view in vertical section taken on line 2—2 of Figure 1 and showing in dotted lines an open position of the storm window;

Figure 3 is a vertical sectional view taken transversely of the lower portion of the window as indicated by the line 3—3 of Figure 2;

Figure 4 is a vertical sectional view similar to Figure 2 but showing an intermediate locked position of the storm window providing ventilation openings at the top and lower sides;

Figure 5 is a fragmentary vertical sectional view on an enlarged scale taken on line 5—5 of Figure 3 and showing the securing means in more detail in its several adjusted positions;

Figures 6, 8 and 10 are fragmentary views in front elevation on an enlarged scale showing the supporting means for the storm window in closed, opened, and disconnection positions respectively; and

Figures 7, 9 and 11 are sectional views on the same scale showing side elevations of the supporting means in the positions illustrated in Figures 6, 8 and 10 respectively.

As best shown in the larger views of the drawings such as Figures 1, 2 and 4, the window frame comprises the sill 10, the side jambs 11 and the top jamb 12. A head casing 14 is also disposed at the upper end of the window frame and suitable side casings may be arranged upon either side thereof.

Slidable within the proper grooves within the window frame are the upper and lower sashes 15 and 16, the upper and outer sash 15 being guided between the parting strip 17 and the blind stop 18. The sill 10 is, in the embodiment disclosed, formed with an upper sill portion 19 and a sub-sill 20. These portions 19 and 20 are illustrated for simplicity as comprising a unitary or integral sill member, but, of course, may be composed of several assembled parts. The upper sill member or ledge 19 has its outer surface flush with the outer faces of the blind stop members 18.

The storm window sash, indicated generally by the numeral 25, is provided with the top rail 26, the bottom rail 27, and the side rails or stiles 28; and may be glazed in any suitable fashion with appropriate mullions and transoms, such as indicated at 29. When the window is applied to the frame, the stiles 28 and top rail 26 are adapted to abut the outer surface of the top and side members of the blind stop 18 and the bottom rail 27 is adapted to close against the sill portion 19 and to fit with a variable clearance 30 above the sub-sill 20. Since the storm sash is supported in its closed position by other means, the bottom rail 27 does not rest upon any portion of the sill, and in this way a storm sash of the nearest stock size may be applied to a given window opening without prefitting or diminishing the height of the bottom rail.

The storm sash is adapted to be supported and secured in its several positions, by the mutual cooperation of a pair of upper supporting means designated generally by the numeral 32 and a pair of lower supporting and securing means 33. In practical operation, the lower means are adapted to be manually actuated and the upper means referred to are adapted to automatically guide the upper end of the window in its various movements and to retain the same in open and closed

several dimensions of the window opening. If the pins **55** and **56** take the form of separate screws or driven members, their positions may be chosen at the time of installation and these elements applied accordingly. As clearly shown by the arrows in Figure 4, substantially the same top opening is provided as in the fully opened position indicated in Figure 2, and sufficient bottom openings are provided at the side edges of the storm sash as to admit outside air, but to prevent or discourage tampering with the latch members **33**.

One important advantage of the present invention is the feature which enables the hanging or application of the storm sash to the window frame from within the building, thus obviating the necessity for the use of ladders or scaffolding, especially in the case of windows located at a great distance from the ground. This advantage concerns itself more particularly with the upper supporting or securing arrangement **33**. As heretofore indicated, the outer end of the lower hook member **38** is provided with a plate-like termination **41** which is inclined outwardly and downwardly and also in a transverse direction. The over-all width of the portion **41** is sufficient to enable it to pass between the vertical walls of the slot portion **37** of the upper hanger element **34**. The angularity of this portion **41** is such that the total over-all projected height thereof, indicated at *h* in Figures 8 and 9 of the drawings, in any operative position of the window, is greater than the width or height of the slot **37** indicated at *i* in Figure 6 of the drawings. This effectively precludes the unhooking or disconnection of the window during its movement from the open position shown in Figure 8 to the closed position illustrated in Figure 6 of the drawings, and vice versa. However, during application of the window to the opening, the links **50** being disconnected from both of the pins **55** and **56**, the window is held outwardly at a greater angle than any of the operative positions as indicated in Figure 11 of the drawings. This decreases the angularity or slope of the portion **41** so that its projected height indicated at *h'* in Figure 10 is less than the width *i* of the slot portion **37** shown in Figure 6. Thus the hook portion **41** may be inserted through the slot **37** from the rear, the narrowed portion **39** of the hook entering the vertical slot portion **36**. Then the window is brought into a nearer vertical position and is ready for operation as already illustrated and described.

It is obvious that numerous changes may be made in the embodiment illustrated and described herein without departing from the scope of the invention as defined in the following claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In combination with a window frame including jambs and a sill, a swinging sash of the type adapted to be employed as a storm window, means for pivotally and slidably attaching said sash to said frame at the top thereof, means for moving said sash from its closed position inwardly of the projecting edge of said sill, to an open position in which its lower end is dropped below said sill, and means for locking said sash in said open position with the inner surface thereof firmly abutting the outer edge of said sill, whereby ventilating openings are provided at the top of the window and along lower portions of the sides thereof.

2. In combination with a window frame, a swinging sash of the type adapted to be employed as a storm window, means for pivotally and slidably attaching said sash to said frame at the top thereof, a pair of levers each pivoted to the lower portion of said sash and slidably fulcrumed on an inner face of one of the side jambs of the window frame for raising and swinging said sash inwardly to closed position, and a limiting fixed fulcrum point on each of said levers, said fulcrums being the sole points of vertical support of said sash in closed position.

3. In combination with a window frame, a swinging sash of the type adapted to be employed as a storm window, means for pivotally and slidably attaching said sash to said frame at the top thereof, a pair of levers pivoted upon each side of a lower portion of said sash, pairs of pins disposed in the side jambs of the frame, one pair adjacent each of said levers, means for securing said levers to one of the pins of adjacent pairs in an open and dropped position of the window, and to the other pins of said pairs in another open and dropped position, and means for securing said levers to both pins of said pairs and at the same time raising and closing said window, one pin in each of said pairs being the sole means for vertically supporting the sash through said levers when in closed position.

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HIGH VOLTAGE SWITCHING DEVICE

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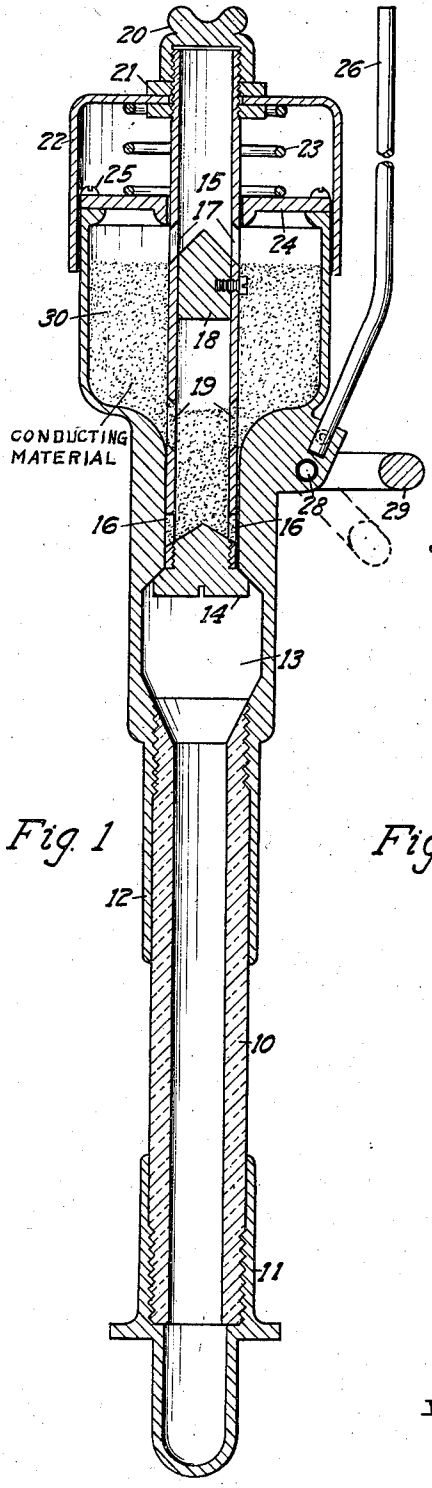


Fig. 1

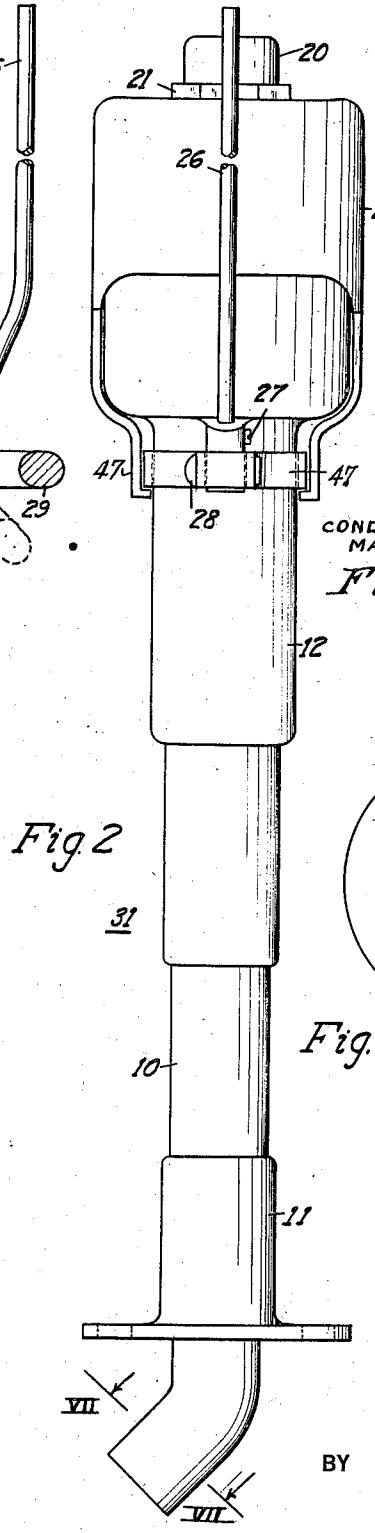


Fig. 2

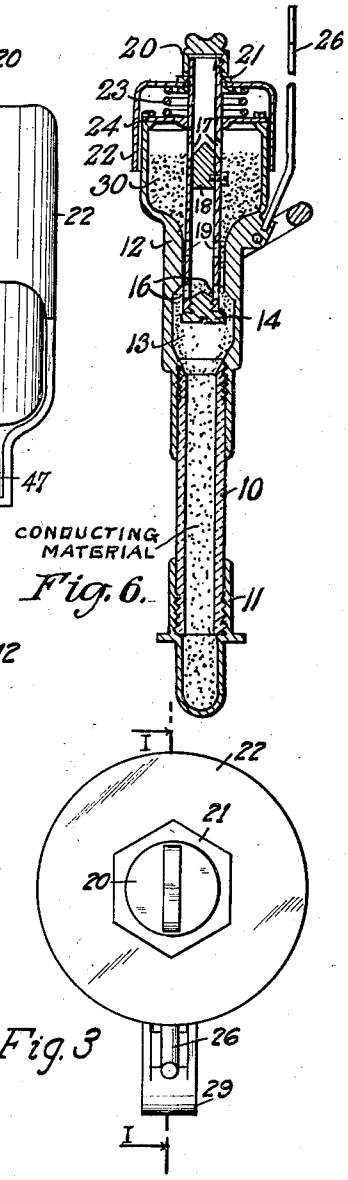


Fig. 6.

Fig. 3



Fig. 7.

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