

May 29, 1928.

1,671,827

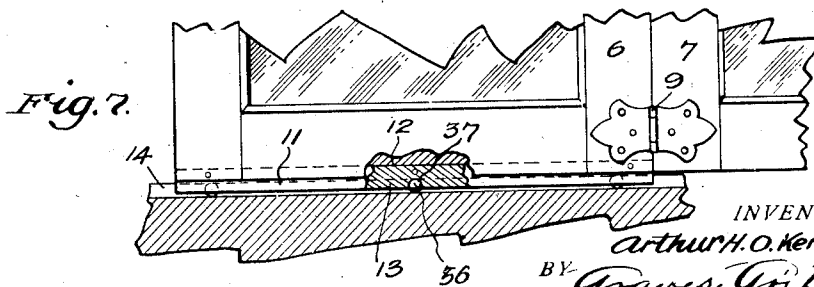
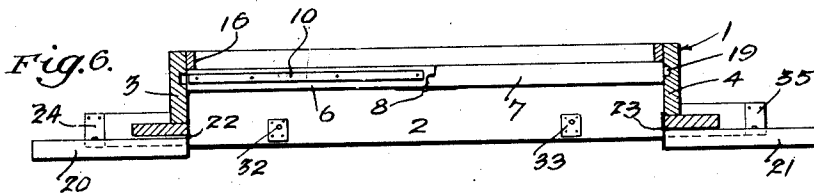
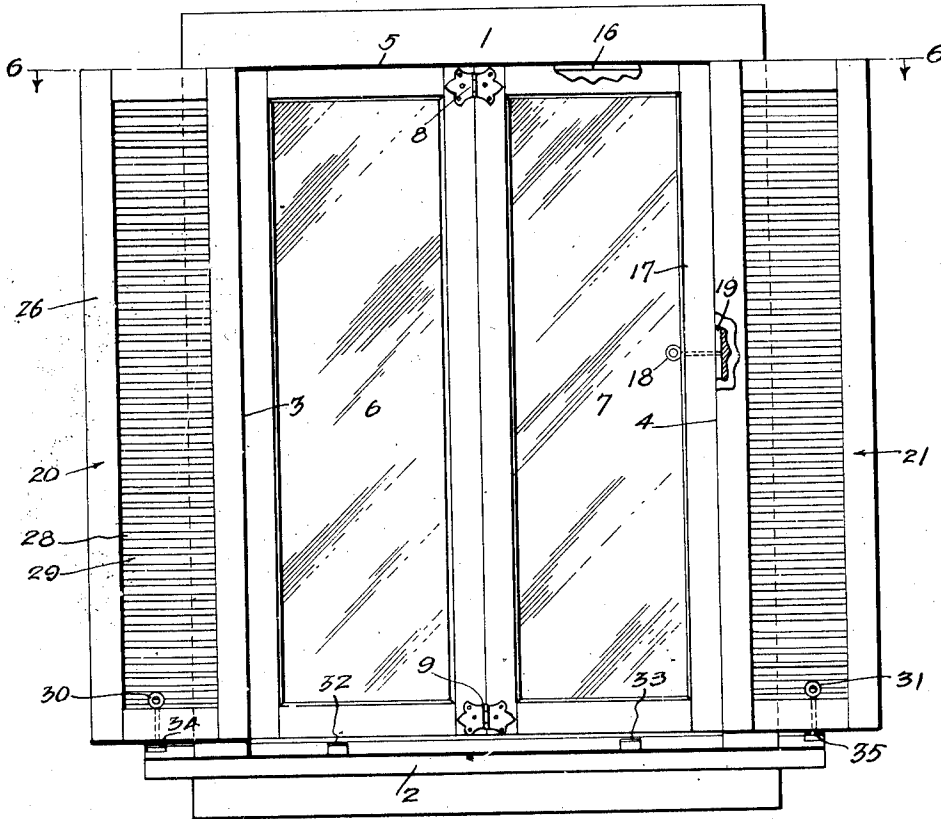
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WINDOW CONSTRUCTION

Filed Aug. 16, 1926

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Fig. 1.



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May 29, 1928.

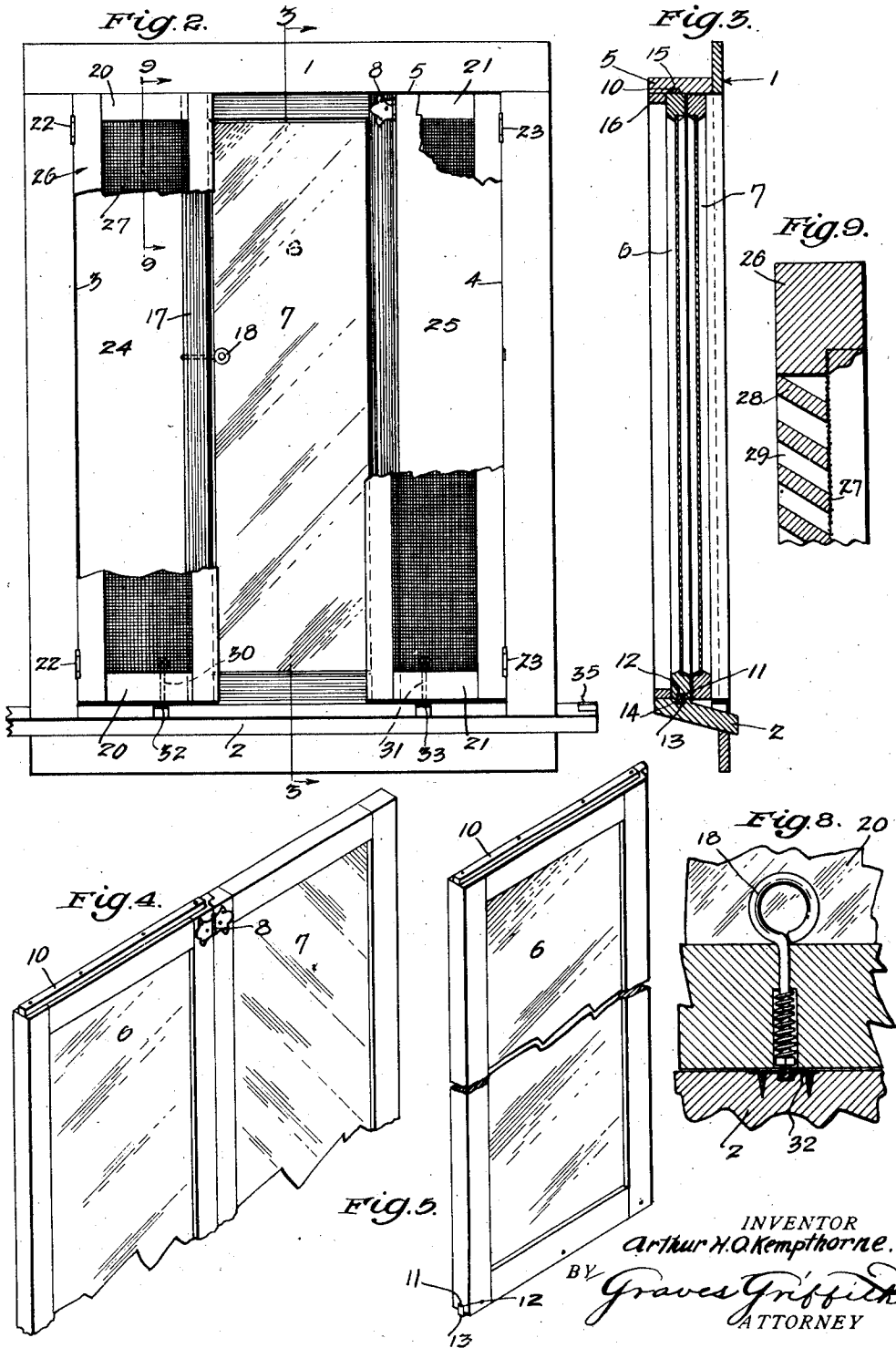
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UNITED STATES PATENT OFFICE.

ARTHUR H. O. KEMPTHORNE, OF REDWOOD CITY, CALIFORNIA.

WINDOW CONSTRUCTION.

Application filed August 16, 1926. Serial No. 129,472.

This invention relates generally to improvements in casement windows of metal or wood construction and particularly to windows having vertically hinged sash-members adapted for horizontal sliding movement in the frame, one sash of which is adapted for horizontal swinging movement relative to the other in such manner that they may be folded together and centrally positioned in the frame to provide air inlet spaces upon opposite sides thereof.

The invention contemplates the use of a pair of hinged shutters having screens, the said shutters being arranged at opposite sides of the frame in such manner that when the sash-members are centrally positioned relative to the frame and folded together as above described the shutters may be swung inwardly against opposite sides of the folded sash-members to form screened ventilation openings, the shutters being additionally provided with deflecting means adapted to break up the air currents entering the room therethrough.

The primary object of the invention is the provision of a window of the class designated that is of extremely simple construction and that may be readily fitted into the frame without the use of any hardware other than a locking means therefor.

Another object of the invention is the provision of a window having slidable sash-members of the class described that may be readily positioned centrally of the frame to provide easy access to the glass surfaces of both sash-members from the inside of the room for cleaning purposes.

Another and most important object of the invention is the provision of a casement window having hinged sash-members so arranged that they may be moved to a central position in the frame and folded together, thus providing screened openings at both sides thereof for the ingress of fresh air to the room.

Other objects and advantages of the invention will appear with reference to the subjoined specification and accompanying two sheets of drawings in which:

Figure 1 is an elevation of my improved window as it appears looking from the outside of the building, the sash-members thereof being shown in closed position and the shutters fastened back against the frame;

Figure 2 is a view showing the full open position of the window with the sash-mem-

bers moved to a central position in the frame and one sash folded against the other and the shutters swung into place with their inner edges resting against opposite sides of the folded sash-members;

Figure 3 is a vertical mid-section taken through the frame and sash-members, the section being indicated by the line 3—3 of Figure 2;

Figure 4 is a perspective view showing the upper ends of the hinged sash-members and the upper guide strip of the left hand sash-member;

Figure 5 is a perspective view of the left hand sash member showing its upper and lower guide strips in place;

Figure 6 is a horizontal sectional view taken through the frame at the upper edges of the hinged sash-members and indicated by the line 6—6 of Figure 1;

Figure 7 is an enlarged sectional detail of a slightly modified form showing a portion of the sill and hinged sash-members with the lower guide strip of one sash resting in the sill groove and having spaced anti-friction ball members adapted for the support of said members;

Figure 8 is an enlarged sectional detail of one of the fasteners used for holding the sash-members and shutters in locked position; and

Figure 9 is an enlarged sectional detail of the upper end of one of the shutters showing the method of applying the screen and deflector strips thereto.

Referring with greater particularity to the drawings in which a preferred embodiment of my invention has been shown, (1) in a general way designates the window frame consisting of the sill (2), stiles (3) and (4), and stile header (5), all of ordinary construction.

A pair of centrally hinged panels or sash-members (6) and (7) having vertically disposed hinges (8) and (9) are set in the frame (1) and normally extend between the stiles (3) and (4) thereof, said sash members and frame being preferably constructed of wood as shown, but it is to be understood that metal construction may be used if desired. The left hand sash in this instance being provided at its upper edge with a guide strip (10) and at its lower edge with a hardwood guide strip (11) mortised into the lower edge as indicated at (12) and having a projecting tongue (13) adapted

to form a slidable fit in the sill groove (14) of the sill (2), the upper strip (10) thereof being adapted to slidably fit in a groove (15), Figure 3, formed in the under face of the stile header (5) of the frame.

The sash (7) forms a swinging fit between the sill (2), stile (4), and stile header (5), and is hinged to the sash (6) in such manner that it may be swung outwardly in a horizontal plane and folded back against said sash (6) so that both will lie flat together as shown in Figure 2.

The strip (16) extends all around the inside surfaces of the frame and provides a stop against which the free edges of the hinged sash (7) abut and forms a weather strip for both sash-members (6) and (7) when the said members are in closed position.

The sash (7) is provided at its free side edge (17) with a spring catch (18) adapted to engage in the groove (19) formed in the stile (4) of the frame (1) to hold the sash-members in locked position relative to said frame.

The shutters (20) and (21) are hinged to the inner edges of the face plates of the frame (1) by pairs of hinges (22) and (23) and normally lie flat there against when in their open positions, said shutters being of sufficient width to close the open spaces (24) and (25) formed at opposite sides of the folded sash-members when said members are centrally positioned in the frame, and adapted to overlap opposite side edges of the sash (7) when swung to the position shown in Figures 2 and 3. The shutters (20) and (21) are of the same size and construction and each consist of a frame (26) having an outer screen covering (27), Figure 9, and inner spaced slats (28) having air inlet openings (29) there between, said slats forming draught deflectors adapted to deflect the incoming air currents upwardly toward the ceiling of the room.

The shutters (20) and (21) are provided with spring catches (30) and (31) similar to the catch (18) and adapted to engage openings formed in plates mounted upon the sill (2) to hold the shutters in their closed positions. Additional plates 34 and 35 being mounted upon the outer edges of the sill in position for engagement by said catches 30 and 31 when the shutters are swung open, as shown in Figure 2.

In Figure 7 the guide strip (11) of the sash (6) is provided with a plurality of balls (36) mounted in openings (37) formed in its under face and providing anti-friction means to facilitate the lateral movement of the sash in its groove (14), but ordinarily the strip (11) is constructed of hardwood and the balls are dispensed with.

It is obvious that a window as thus constructed may be readily opened by first re-

leasing the catch (18) and then swinging the sash (7) outwardly upon its hinges (8) and (9) until it lies flat against the sash (6) in which position both sash-members may be moved laterally and centrally positioned within the frame (1) and the shutters then swung inwardly thereagainst and locked as shown in Figures 2 and 3.

Hinged sash-members constructed in accordance with this invention may be placed in the frame with the break extending horizontally and with the slidably secured sash at the top and the swinging member at the bottom with the one counterbalancing the other, as in a double hung window.

I claim and desire to secure by Letters Patent of the United States the following:

1. In a casement window, the combination with a frame, of a pair of centrally hinged sash-members one of which is adapted for sliding lateral movement in said frame, guideways in said frame forming supporting means for one of said members, the other of said members being free to swing relative thereto and to fold flat thereagainst, and shutters hinged at opposite sides of the frame and adapted to be marginally secured to said sash-members when said sash-members are in folded relation and central position.

2. In a casement window, the combination with a frame, of a pair of vertically hinged sash-members one of which is adapted for lateral sliding movement in said frame, guideways formed in said frame, guide strips carried by one of said sash-members and adapted to engage said guideways, the other of said members being free from the frame and adapted to swing horizontally relative to the other sash-member and to fold thereagainst, hinged shutters carried by opposite side edges of said frame and adapted to swing inwardly against said folded sash-members, and fastening means for securing said shutters against said members.

3. In a casement window, the combination with a frame, of a pair of vertically hinged sash-members one of which is adapted for sliding movement in said frame, guideways formed in the stile header and sill thereof, guide strips carried by one of said sash-members and adapted to engage said guideways, the other of said sash-members being free for horizontal swinging movement relative to said first member and adapted to fold flat thereagainst and to be carried thereby and therewith along said guideway, said thus folded members being adapted for positioning centrally of the frame to form a central closed panel with laterally disposed air spaces.

4. In a casement window, the combination with a frame, of a pair of vertically hinged sash-members one of which is adapted for

sliding movement in said frame, guideways formed in the stile header and sill thereof, guide strips carried by one of said sash-members adapted to engage said guideways and to be retained therein in slidable relation thereto, the other of said sash-members being free for horizontal swinging movement relative to said first member and adapted to fold flat thereagainst, said folded members being adapted for positioning centrally of the frame to form a central panel and adjacently disposed air spaces, and hinged shutters carried by said frame and adapted to fold inwardly against said positioned sash-members to screen said air spaces. 15

In testimony whereof I hereunto affix my signature.

ARTHUR H. O. KEMPTHORNE.