Aug. 19, 1952 F. J. SMITH 2,607,453

WINDOW FRAME

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Fig. 1.

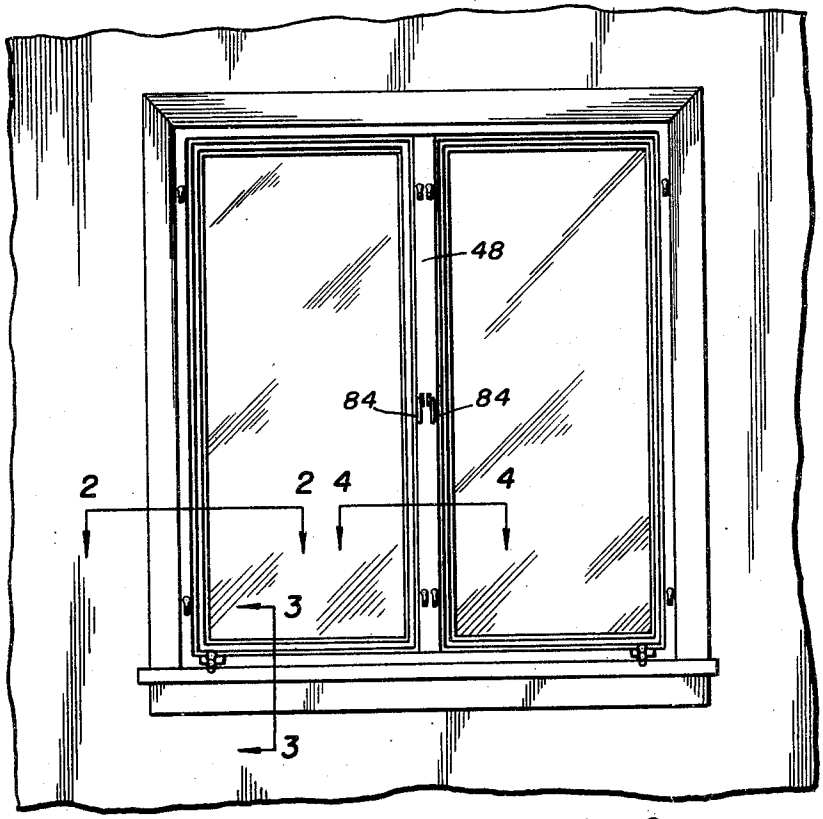
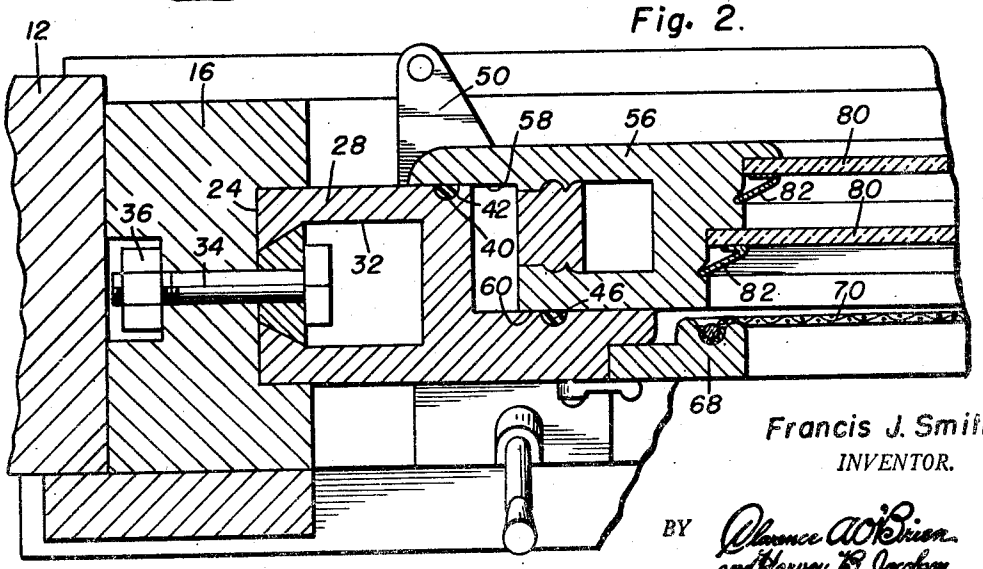



Fig. 2.




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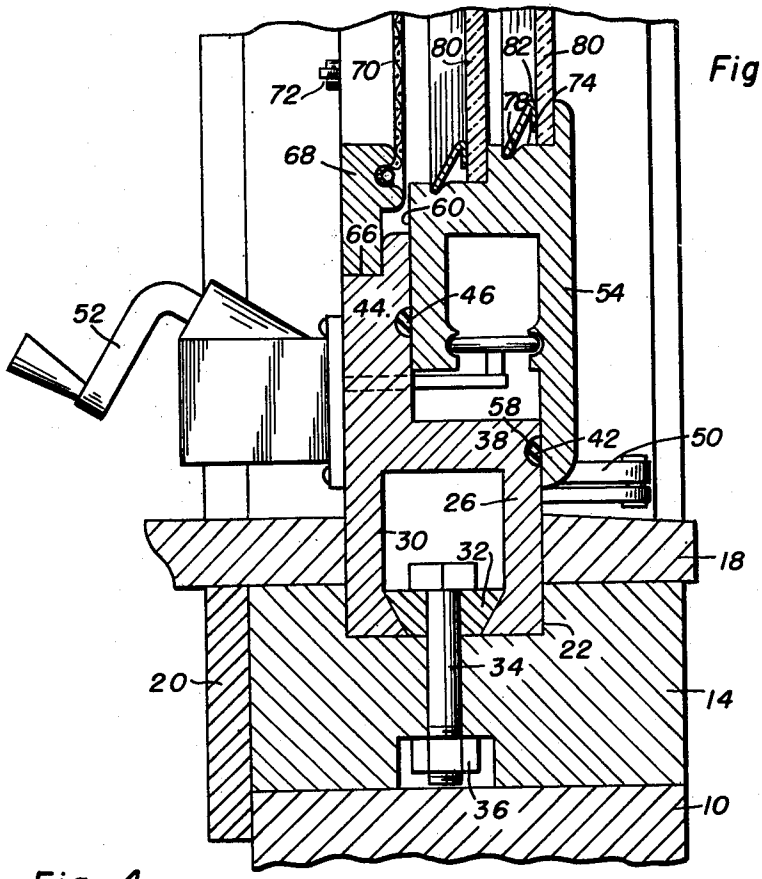
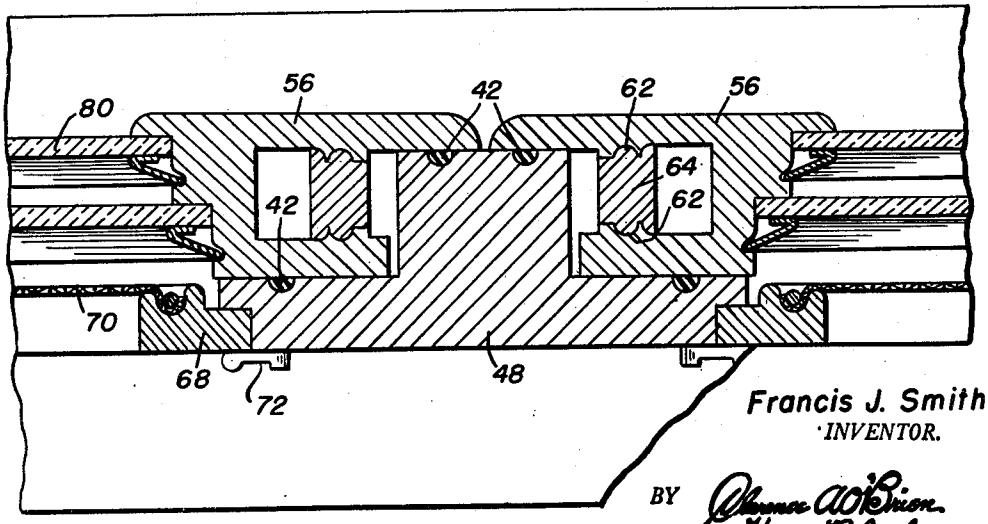



Fig. 3.

Fig. 4




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Fig. 5.

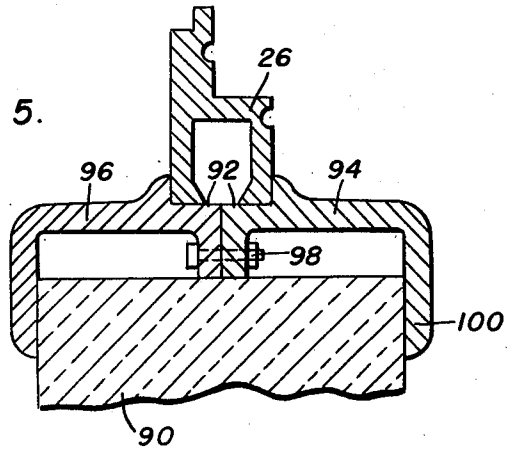



Fig. 6.

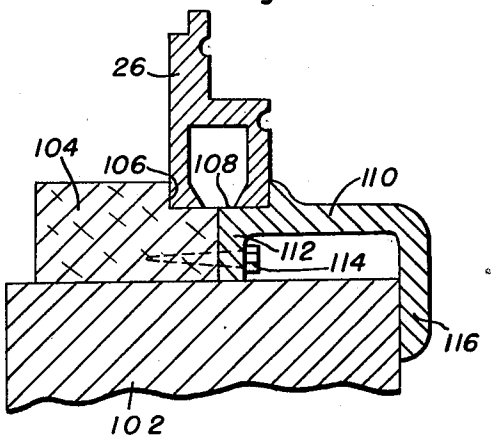
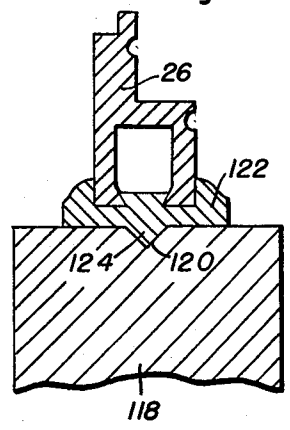



Fig. 7.



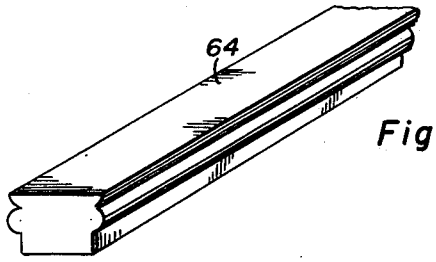




Fig. 8.

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# UNITED STATES PATENT OFFICE

2,607,453

## WINDOW FRAME

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Application August 10, 1948, Serial No. 43,403

1 Claim. (Cl. 189—75)

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This invention comprises novel and useful improvements in a window and more specifically pertains to improvements in the construction, mounting and effecting a weatherproof seal for storm windows and the like.

A primary object of this invention is to provide an improved construction of storm window which may be applied to the window openings in various types of walls and partitions, and which shall have an efficient, simple and easily applied weather sealing means for its window panes.

An important feature of the invention resides in a storm window assembly which may be readily applied to various types of walls such as glass brick, masonry or wood, and which when so applied will function in an improved manner to realize all of the heretofore known desirable features of storm windows.

A further important feature of the invention comprehends the provision of a storm window assembly as set forth in the foregoing feature wherein the important desideratum of ease of opening the storm window may be realized without impairing the efficiency of the sealing action embodied in the invention.

These, together with various ancillary objects and features of the invention which will later become apparent as the following description proceeds, are realized by this invention, preferred embodiments of which have been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a fragmentary elevational view illustrating a preferred embodiment of the invention incorporated in a building wall;

Figure 2 is a fragmentary horizontal transverse sectional detail view taken substantially upon the plane of section line 2—2 of Figure 1, and upon an enlarged scale relative thereto, and showing features of a frame and storm window assembly;

Figure 3 is a vertical transverse sectional detail view taken substantially upon the plane of section line 3—3 of Figure 1, upon an enlarged scale, and showing further structural features of the invention;

Figure 4 is a horizontal sectional detail view upon an enlarged scale taken substantially upon the plane of section line 4—4 of Figure 1 through the center mullion of the storm window, and showing other features thereof;

Figure 5 is a view similar to Figure 3 but showing a modified fastening means for securing the seal on the storm window to the upper course of a glass brick construction of wall;

Figure 6 is a view similar to Figure 5 but showing a further modified fastening means which may be employed with masonry construction for mounting the storm window frame thereon;

Figure 7 is a view similar to Figure 6 and showing a still further form of fastening means which may be employed for masonry or other construction; and

Figure 8 is a fragmentary perspective view of an element forming a part of the storm window.

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Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, reference is now made first to the embodiment of Figures 1–4 which shows a suitable manner of mounting a storm window construction in a wall opening of any desired character or construction.

Chosen for the purposes of illustrating the principles of the invention is a wing type of window construction, although it will be understood that the features of construction herein set forth are applicable to other types of windows. The numeral 10 designates the horizontal members of what may be termed the frame openings for the window, while the numeral 12 indicates the vertical components thereof. Within the frame members 10 and 12 which define the opening in the wall, with which the window is to be used, is seated and mounted the improved window construction forming the subject matter of this invention. This window construction includes master and secondary frames, which are mounted in the openings defined by the members 10 and 12. The master frame includes horizontal members 14 and vertical members 16, forming a rigid outer frame of any suitable material which is intended to be snugly received and sealed in any desired manner in the opening defined by the members 10 and 12. Of course, suitable window trim 18 and 20 of any suitable construction may be employed for covering up the master frame assembly.

On inward surfaces, the master frame members 14 and 16 are provided with longitudinally extending recesses or channels 22 and 24 respectively in which are seated the end portions of the horizontal and vertical components of the secondary frame assembly 26 and 28 respectively. As will be apparent from Figures 2 and 3, these components are provided with longitudinally extending channels 30 and 32, in which are seated tapering locking keys 32 which by means of fastening bolts 34 and nuts 36 are rigidly attached to the master frame members 14 and 16.

In the outer vertical surfaces of the secondary frame members 26 and 28, with respect to the

interior of the house with which the window is to be employed, are provided longitudinally extending grooves 38 and 40 within which are seated sealing strips 42 which may be of rubber or of any other suitable material, while an upwardly extending integral extension of the secondary frame members 44, is similarly provided with sealing strips 46.

The secondary frame assembly, in the case of a wing type of window, is further provided with a vertical, mullion 48, see Figure 4, which is likewise provided with similar sealing strips 42. The secondary frame members thus provide a pair of openings adapted to receive the hinged sashes of two windows set forth hereinafter.

These sashes, which are identical except that they are mounted upon their outer edges and are capable of being locked to the center mullion upon their adjacent or inner edges, are secured by extension hinges 50 to the horizontal secondary frame members 26.

Further, the secondary frame members 26 are further provided with manual window operators 52 of any suitable construction by means of which a person from the interior of the house may positively open or close the windows about their extension hinges 50. Since the construction of this actuator may be of various known types and in itself forms no part of this invention, it has not been deemed necessary to illustrate the same in the drawings.

The horizontal sash members 54 and the vertical sash members 56 which may be formed of any desired material including metallic extrusions of aluminum or other metals if desired, or of wood if desired, are provided with outer sealing surfaces 58 which are adapted to overlie the outer vertical surfaces of the secondary frame members 26 and 28, and to contact with the sealing strips 42 of the grooves 38 and 40, and with inner vertical surfaces 60 which are adapted to contact the sealing strips 46. Thus, when the window frame members are in their closed positions, a double seal is established with the secondary frame members, to insure against the entrance of moisture, air or the like between the window frame and the window sash. It will be here seen that the secondary frame and the sash frame provide a plurality of insulating dead air spaces therein, this including the channel members 30 and 32 of the secondary frame, and the air space between the inner and outer walls of the sash frames 54 and 56, and the secondary frame members 26 and 28. At their adjacent vertical edges, the window sash may be further provided upon their adjacent front and rear walls with recessed or channels 62, in which are locked or secured the element 64, see Figure 8, which further serves to divide this space into a pair of dead air chambers. This further enhances the insulating effect of the seal.

The inner surface or edge of the secondary frame member is provided with a recessed shoulder 66 in which is removably seated a frame 68 of a wire screen 70 or the like. This frame 68 may likewise be formed of extruding metallic shapes of commercially available types, and is removably seated in the shoulder 66 being retained therein as by latches 72, see Figure 3. It will thus be seen that the screens 70 may be retained in the secondary frames when the window sash are opened by the actuators 52, to thereby effectively screen the opening while providing the maximum entry of air and heat.

The sash frames 54 and 56 are further provided with pairs of shouldered recesses 74 and 76, which are provided with locking grooves 78 and which thus receive and seat transparent panes 80 of glass or the like. These panes are retained in the shouldered recesses as by wedging strips 82 which press against the glass panes at their upper ends and at their lower ends seat in the grooves 78. It will thus be seen that the glass panes may be readily removed from the inner sides of the sash frames. If desired, the space between the two glass panes may be evacuated in order to form a more efficient insulating means, in accordance with known practice in forming storm windows.

As shown in Figure 1, suitable locking handles 84 may be carried by each of the vertical sash members 56, for locking the sash to the mullion 48 in their closed positions.

The foregoing construction of the screen and storm window assemblies may be mounted in various ways to different types of building constructions. As shown in Figure 5, the construction may be mounted and secured in an opening in a glass brick construction, one course of such brick being indicated at 88. For this purpose, the secondary frame member 26 above mentioned may be received in a channel formed by the complementary shouldered recesses 92 of a pair of master frame members 94 and 96 which are split longitudinally and detachably secured to each other as by bolts 98, these members having terminal flanges 100 which are adapted to frictionally engage, embrace and clamp upon the course 99 of glass brick. By this construction, the secondary frame and the window sash attached thereto in the manner set forth with regard to the showing of Figures 1–4, may be easily, snugly and removably secured to a glass brick construction by the frictional clamping action of the complementary sections 94 and 96. It will be further noted that the space between the sections 94 and 96 and the glass brick 90 constitutes a further insulating air space.

As shown in Figure 6, the frame members 102 may be provided with a sill or plate 104 to which the secondary frame members 26 may be secured. This plate is provided with a shouldered recess 106 which is adapted to receive an outer edge of the secondary frame member 26, while a complementary shouldered recess 108 carried by a clamping member 110 operates in conjunction therewith to define a channel seating and securing the secondary frame member 26. This clamp 110 is provided with a downwardly turned leg 112 which may be fastened to member 104 as by screws 114, and is provided with a downwardly extending flange 116 which overlaps or overlies the outer edge of the member 102 to establish a weather tight seal therein. This construction will be found desirable in applying the improved window construction to various existing types of window openings in walls of different characteristics.

Figure 7 discloses a construction which in conjunction with Figure 6 is aptly adapted for use in mounting the improved window construction in openings in masonry walls. Here, the topmost course of brick or masonry 118 is preferably provided with a longitudinal extending medially disposed channel 120 recessed in the surface thereof, and a secondary frame member 26 is secured or embedded in a master frame member 122 which in turn is provided with a medially and longitudinally extending and depending key bead 124 received in the channel 120. By means of this construction, the secondary frame is rigidly secured to the master frame 122 in sealed engagement with the masonry course 118.

In the modifications of Figures 5–7 there has been illustrated the horizontal secondary frame member 26, although it is to be understood that the same identical construction will apply to the various vertical frame members of the secondary frame assembly.

From the foregoing, the manner of constructing and realizing the principles of the invention will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not intended to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

Having described the invention, what is claimed as new is:

A frame construction comprising a master frame and a secondary frame, said master frame including a pair of channel shaped members each having a first leg and a second relatively shorter leg, said members each having a protrusion on the web portion adjacent the second legs thereof for receiving said secondary frame, fasteners securing said members to each other to clamp said secondary frame therebetween and clamp said master frame on a wall structure with said first legs engaging opposing faces of a wall structure, said fasteners securing said second legs to each other.



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