

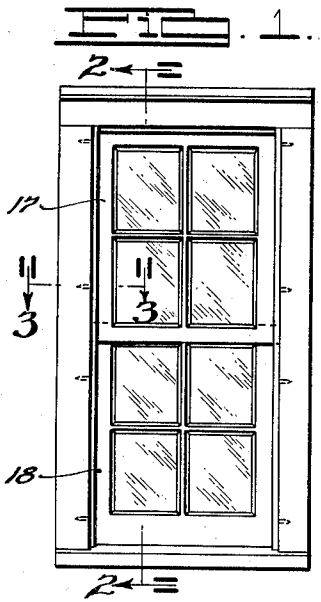
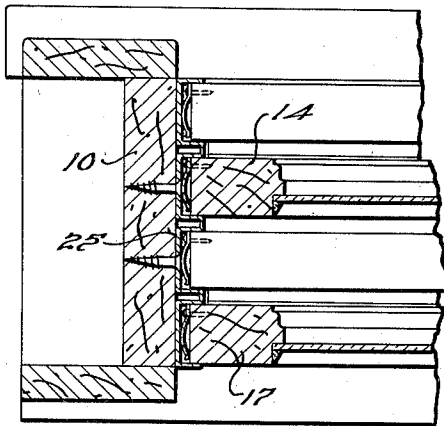
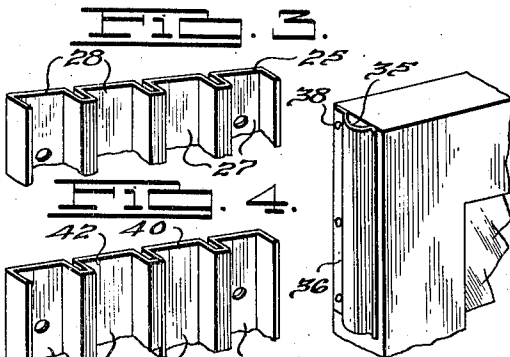
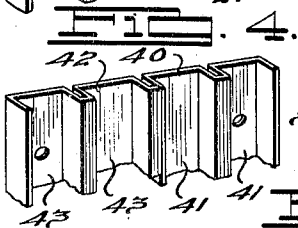
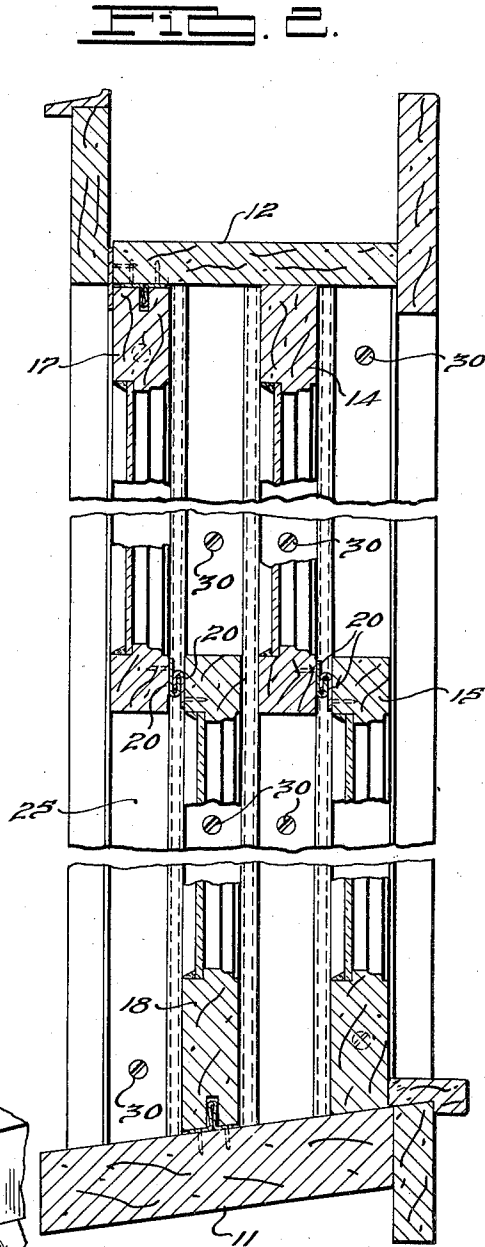
Aug. 9, 1938.

M. F. GAGNIER

2,126,381

WINDOW CONSTRUCTION

Filed Jan. 18, 1937



Inventor

M. Francis Gagnier.

334
Harness, Dickey, Pierce & Hann.
Attorneys.

UNITED STATES PATENT OFFICE

2,126,381

WINDOW CONSTRUCTION

Martin Francis Gagnier, Detroit, Mich.

Application January 18, 1937, Serial No. 121,670

2 Claims. (Cl. 20—12)

The present invention relates to improvements in window constructions, and more particularly to a novel form window construction in which two separate pairs of sashes are mounted in the same frame, thus providing insulating sashes in addition to the regular sashes.

The present invention has as its objects the elimination of sash weights and, in general, the simplification and cheapening of window constructions as now commercially employed without dispensing with the ease of operation, tight sealing, and other advantageous features inherently found in conventional window constructions.

It is a primary object of the present invention to provide a window construction which may easily be installed in a conventional window frame by relatively unskilled labor and which is so constructed and arranged that the various changes in size of the sash frames as the result of weather conditions does not materially impair the operation of the window as a whole.

Still another object of the invention is to provide a window construction in which a pair of sashes provide the conventional window structure and, in addition, insulating sashes are also provided to create a dead air space, materially increasing the insulation of the building structure. The invention contemplates the provision of insulating sashes which are vertically adjustable in substantially the same manner as conventional windows in order that adequate ventilation may be obtained without removal of the storm sash and in order that all the panes of both the regular window and the storm sash may be conveniently washed from the interior of the building without modification of the structure.

Still further, the present invention contemplates the provision of a novel structure for guiding the windows during vertical movement which structure is adapted for removable mounting within the window frame thus dispensing with the use of sash cords and counter-weights commonly used in conventional window constructions.

Still further, the present invention contemplates the provision of novel means associated with each of the sash frames for retaining the same in predetermined adjusted position which means serve to frictionally engage the guide ways in which the windows are mounted and maintain a tight seal with respect thereto under all types of weather conditions.

Many other and further objects, advantages, and features of the present invention will become

clearly apparent from the following specification when considered in connection with the accompanying drawing forming a part thereof.

In the drawing:

Figure 1 is an elevational view of a window frame embodying the improvements of the present invention;

Fig. 2 is an enlarged sectional view with parts broken away, taken substantially on the line 2—2 of Fig. 1, illustrating in detail the cross sectional construction of the window frame and the manner in which the various sashes are maintained therein;

Fig. 3 is an enlarged fragmentary cross sectional view taken substantially on the line 3—3 of Fig. 1 illustrating in detail the manner in which the sashes are sealed with respect to their guide ways and the manner in which the guiding channels are secured in position;

Fig. 4 is an enlarged fragmentary perspective view of one form of guide channel element utilized for mounting the sash within the window frame;

Fig. 5 is a fragmentary perspective view of one corner of one of the sashes illustrating the improved sealing strip utilized for sealing the marginal edges of the sash which also serves to support the sash in predetermined elevated position; and

Fig. 6 is an enlarged fragmentary perspective view of a modified form of guide channel assembly permitting removal of the insulating sash independently of the regular sash for closing the window.

With more particular reference to the drawing, it will be readily understood that the specific disclosure thereof merely illustrates one improved embodiment of the invention presented in the present application which embodiment is merely illustrative of the generic inventive concept presented.

In the structure shown in Fig. 1, a window frame of generally rectangular form is disclosed which window frame may conveniently be mounted in a building structure as is conventional. This window frame includes vertically extending side frame member 10, a lower sill 11 which, as is conventional in constructions of this general character, slopes outwardly from the interior of the building to aid in shedding water, and an upper horizontal sill 12, which members together define a generally rectangular window opening. Four sash frames are provided for the improved window construction and include a pair of inner sash frames 14 and 15, respectively, and a pair

of outer or insulating sash frames 17 and 18. Each pair of sash frames may be provided with cooperating metallic sealing strips 20 which, as is illustrated in Fig. 2, may be of the interlocking variety which, when the windows are in closed position, serve to interlock and provide a tight seal between the upper and lower sash frames of each pair.

A pair of guide channel members, designated generally as 25, serve to guide the sash frames for vertical movement. These guide channel members may be formed in any suitable and convenient manner and preferably are composed from a continuous length of metallic rolled section formed to a cross sectional configuration substantially as shown in the drawing. It will be noted by reference to Fig. 4 of the drawing that the guide channel strips are bent to provide a pair of channels 27 for receiving the inner sash frames and a pair of channels 28 for receiving the outer or insulating sash frames. The channel members are cut to a length sufficiently long to extend substantially completely from the top of the window to the bottom thereof and may conveniently be secured to the side frame members 10 by means of screws 30 located in the bases of the various channel members. Each of the sash frames has a sealing and supporting strip 35 permanently secured to the lateral sides thereof which strip preferably extends from top to bottom of the sash frame and is preferably formed of a strip of extremely resilient tempered sheet metal such, for example, as bronze. This strip, as is clearly seen in Fig. 5 of the drawing, is bent to have a marginal edge portion 36 thereof adapted to lie against the lateral face of the sash frame with which it is associated and through which each portion 36 a plurality of nails 38 may be driven to secure the strip in position. The body portion of the strip 35 is tempered to provide a generally semi-cylindrical surface which will normally lie in substantially spaced relation from the marginal edge of the sash with which it is associated and which may be compressed to some substantial extent when the sash frames are installed within the guide channels.

In order to assemble the improved window construction in the window frame with which it is adapted to be used, the sash frames are each mounted within their respective run-ways in the guide channels and the whole assembly is then inserted within the window opening. The sash frames may be slid to various positions in order that access may be had to the bases of the guide channels in order to secure the screws 30 in position. After the guide channel strips have been secured in position by means of the screws 30 it will be seen that the various sashes making up the improved window construction will each be permanently mounted within their respective channels in which they may be conveniently vertically adjusted. Each sash is formed of such a size that the sealing strip 35 at the lateral side edges thereof will be slightly compressed when the window section as a whole is installed. Consequently, the strips will serve to frictionally engage the bases of the channels in which the sashes are mounted. It has been found that this frictional engagement is sufficient to retain each sash in predetermined elevated position. The sealing strips are of such a construction that

considerable latitude for the expansion of the sash as a result of moisture absorption and changes in climatic conditions is inherently obtained without substantially varying the frictional engagement of the sealing strips with the channels in which they are seated. It will, of course, be understood that the sealing strips must of necessity have sufficient resilience so that they will grip the bases of the channels in which they are disposed with sufficient pressure to support the sashes with which they are associated in predetermined elevated position. These sealing strips also serve the purpose of preventing the passage of air around the marginal edges of the sash.

In Fig. 6 is illustrated a modified form of the invention in which the channel strip members serving to guide the sash for vertical movement are made of composite construction thus permitting the removal of the insulating sash independently of the regular window sash. In this form of the invention the guide channel members comprise a strip 40 having a pair of channels 41 therein and a complementary strip 42 of similar construction having channels 43 therein, and it will, therefore, be apparent that these channel strips may be installed independently of each other permitting the installation of or removal of one pair of sashes at a time.

In both constructions it will be noted that the guide channel members are of a cross sectional configuration such that relatively narrow ridges are provided between the adjacent channels in order that the sashes may be moved vertically in closely spaced relation with respect to each other.

It will be appreciated from the foregoing that while but one specific embodiment of the invention has been illustrated and described, many other and further embodiments thereof falling within the scope of the invention as defined in the subjoined claims will become clearly apparent to those skilled in the art.

I claim:

1. A window construction comprising a frame, said frame having a pair of sheet metal strips removably secured on each side of said frame interiorly thereof, each strip being preformed to provide a pair of sash receiving channels therein, whereby each pair of said strips at one side of the window may serve to provide four substantially parallel glass receiving channels at the side of the window, sashes mounted for vertical movement in said channels and means carried by said sashes adapted to engage the bases of said channels.

2. A window construction comprising a frame, said frame having a pair of sheet metal strips removably secured on each side of said frame extending continuously from top to bottom thereof, each of said strips being preformed to provide a pair of sash receiving channels, whereby said strips together serve to provide four glass receiving channels at each of the opposite sides of said frame, an inner pair of sashes and an outer pair of sashes, each pair being adapted to completely close the window opening, and means associated with each of said sashes adapted to engage the base of said channels to retain the sashes in predetermined vertical position.

M. FRANCIS GAGNIER.