Oct. 5, 1937. P. CORRADO 2,095,057

SLIDING AND SWINGING WINDOW

Filed March 27, 1936 2 Sheets-Sheet 1

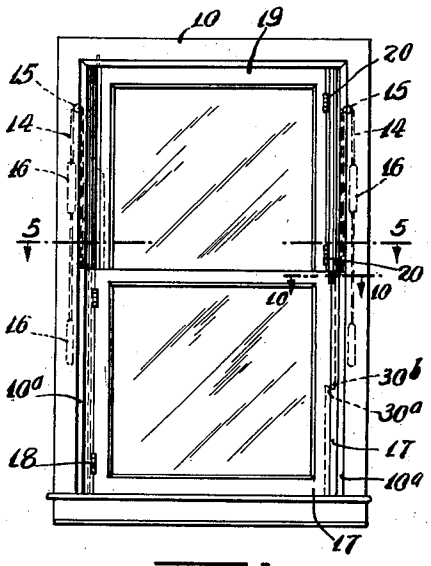


Fig. 1.

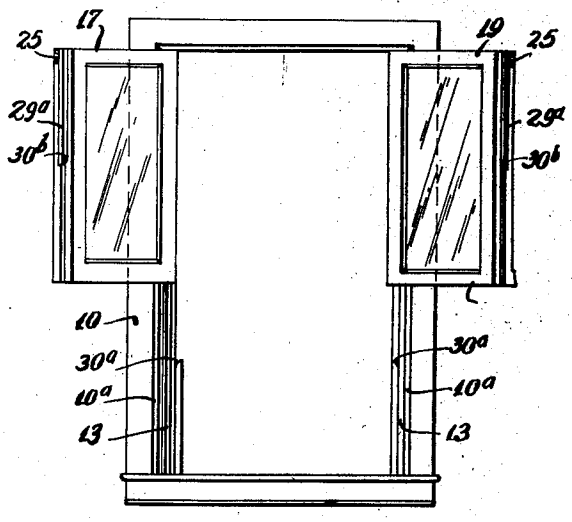


Fig. 4.

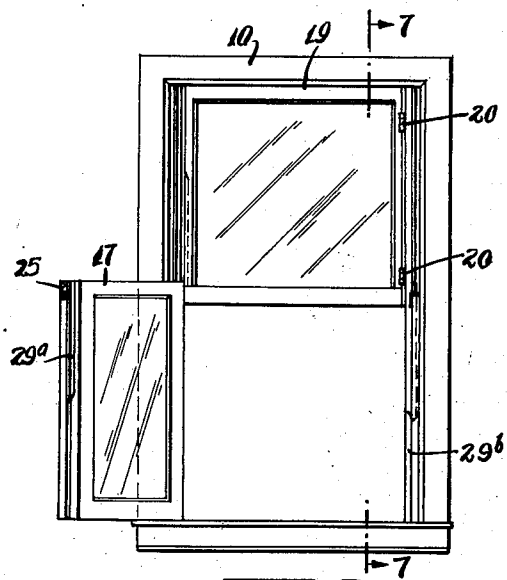


Fig. 2.

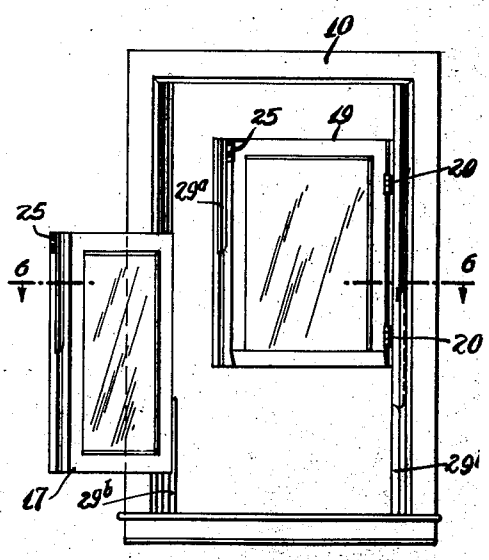


Fig. 3.

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SLIDING AND SWINGING WINDOW

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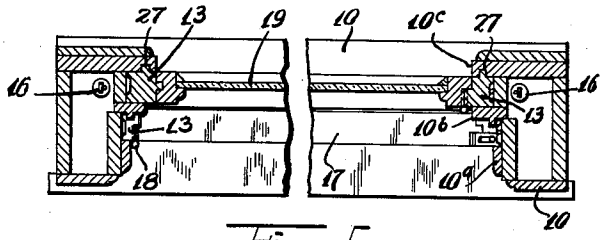


Fig. 5.

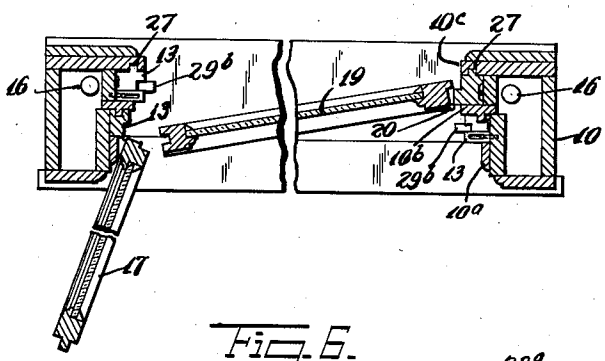


Fig. 6.

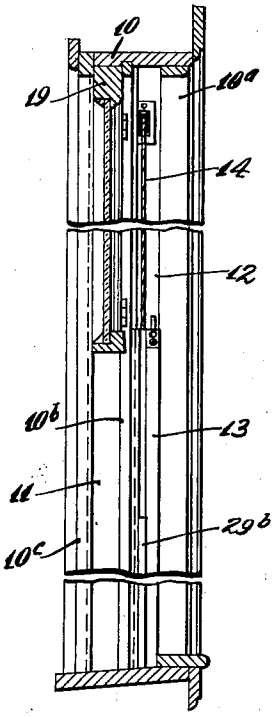


Fig. 7.

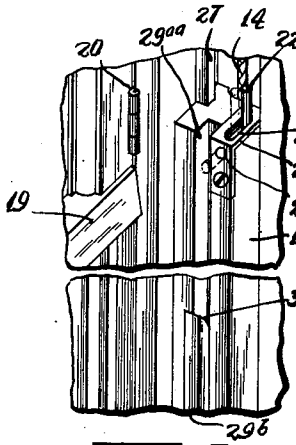


Fig. 8.

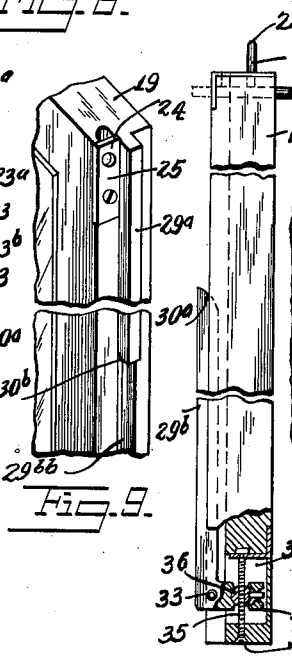


Fig. 9.

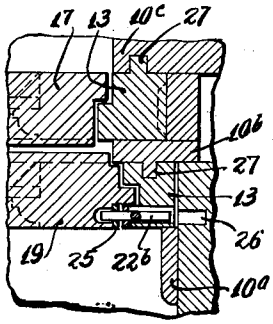


Fig. 10.

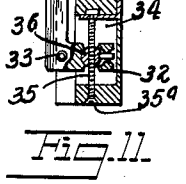


Fig. 11.

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Patented Oct. 5, 1937

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UNITED STATES PATENT OFFICE

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SLIDING AND SWINGING WINDOW

Pasquale Corrado, New York, N. Y.

Application March 27, 1936, Serial No. 71,155

5 Claims. (Cl. 20—50)

This invention relates to new and useful improvements in a sliding and swinging window.

The invention has for an object the construction of a window as mentioned which is characterized by the provision of sash support strips upon which and with which the sashes are mounted and cooperate. Specifically, an arrangement is proposed for cooperating between the sash support strips, the window frame, and the sashes whereby these parts may be drawn together to weatherproof the window.

A further object of the invention is the provision of window strip tongues and grooves on the support strips and the window frame, and interengaging strips on the cooperative sash strips and sashes for drawing the sash support strips and sashes together and drawing the said tongues against the sides of said grooves.

A still further object of the invention is the provision of means for adjusting certain of said inter-engaging strips so that the degree to which the sash strips and sashes and the weather strips are drawn together may be adjusted.

Another object of the invention is the construction of a device as mentioned which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:—

Fig. 1 is a front elevational view of a window construction according to this invention.

Fig. 2 is a view similar to Fig. 1 but illustrating the inner sash swung open.

Fig. 3 is another view similar to Fig. 1 but illustrating both sashes swung open and moved to different elevations.

Fig. 4 is a view similar to Fig. 3 but showing both of the sashes at the top positions.

Fig. 5 is a fragmentary horizontal sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary horizontal sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is a fragmentary vertical sectional view taken on the line 7—7 of Fig. 2.

Fig. 8 is a fragmentary perspective view showing the details of one of the support strips.

Fig. 9 is a fragmentary perspective view of a portion of one of the sashes.

Fig. 10 is a fragmentary enlarged horizontal sectional view taken on the line 10—10 of Fig. 1.

Fig. 11 is a fragmentary side elevational view of one of the support strips per se showing the details of construction of one of the inter-engaging strips previously mentioned.

The sliding and swinging window, according to this invention, comprises a window frame 10 having guide strips 10a, 10b and 10c forming track grooves 11 and 12 for the outer and inner sashes respectively. Sash support strips 13 are slidably mounted in said track grooves. These sash support strips are supported by cords 14 which extend over pulleys 15 in the frame 10 and are connected with the counterweights 16.

There is an inner sash 17 which is hingedly mounted at one side upon one of the said support strips 13 by several hinges 18. This inner sash strip is mounted upon the sash support strip working in the inner sash groove 12. The free edge of the sash 17 is adapted to cooperate with the other support strip 13 which is in the opposite side of the window frame in the sash groove 12. An outer sash 19 is hingedly mounted by the hinges 20 to one of the sash support strips 13 which is operated in the outer sash groove 11. The outer edge of this sash 19 is adapted to cooperate with another sash support strip 13 which is on the opposite side of the window frame and within the outer sash groove 11.

Each free sash support strip 13 is provided with a latch 22 consisting of an inverted T-shaped member having a stem portion 22a projecting upwards and acting as a handle, and a cross bar 22b acting as the bolt of the latch. A metallic angle member 23 is mounted on the top edge of each of the said support strips 13 for reinforcing said strips and assisting in holding the latches. These angle members have elongated slots 23a in their top arms through which the handles 22a project. In the side arms they are formed with openings 23b through which the bolt portions 22b of the latches may extend and engage into openings 24 in keeper strips 25 which are attached on the edges of the window sashes. With this arrangement it is possible to latch the sash support strips to the sashes or to free the strips as desired.

The bolt 22b of each of the latches is adapted to extend from the inner or from the outer face of the support strip. When it extends from the outer face of the support strip, as indicated by the dot and dash lines in Figs. 8 and 11, it connects with the sash. In the lowered positions of the support strips it is possible to extend the bolts 22b from the inner faces thereof and then

they engage into receiving openings **26** in the window frame for latching the strips in the lowered positions.

There are cooperating tongues and grooves **27** upon adjacent faces of the window frame and the support strips. More particularly, these tongues and grooves are arranged upon the portions **10b** and **10c** of the window frame and are disposed on the faces (not the edges) of the sashes. Thus, when the sashes and the support strips are drawn together it is possible to place pressure against the cooperating tongues and grooves.

In order to facilitate the engagement of pressure, as mentioned in the previous paragraph, there are cooperating inter-engaging strips **29a** and **29b** upon the sashes and support strips respectively. The inter-engaging strips **29a** are arranged upon the top halves of the sashes and project from the edges thereof and are adapted to slidably engage into receiving grooves **29aa** formed in the edges of the support strips **13**. The inter-engaging strips **29b** are disposed upon the lower halves of the support strips **13** and are adapted to engage into receiving grooves **29bb** formed in the edges of the sashes. The adjacent, and thus contacting ends, of the inter-engaging strips **29a** and **29b** are formed with cam portions **30a** and **30b**, relative to each other. It is these cam portions which serve to draw the support strips and sashes together when they engage each other.

Each of the strips **29b** has tail portions **32** and is pivotally mounted between the tail and main portions by pintles **33**. These tail portions **32** engage into cavities **34** formed in the support strips **13**. Screws **35** are rotatively mounted through the cavities **34** and threadedly engage the balls **36** of ball and socket arrangements mounted upon the tails **32**. These screws **35** have heads **35a** which are flush with the lower ends of the support strips **13**. When the support strips are moved to their raised positions, it is possible to engage the heads of the screws **35a** with a screw driver for turning them in one or the other direction to cause the inter-engaging strips **29b** to pivot. It is thus possible to adjust the top ends, that is, the cam ends **30a** of these strips. This will control the tension of portions of the tongues against the sides of the grooves when the cam faces **30a** and **30b** are engaged with each other.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention what I claim as new and desire to secure by United States Letters Patent is:—

1. In a sliding and swinging window, a window frame having guide strips forming track grooves for an inner and an outer window sash, sash support strips slidably mounted in said track grooves, sash counterweights connected with said support strips, an inner sash hingedly mounted at one end on one end of said support strips in the track grooves for the inner sash and having its free edge cooperative with another of said support strips, an outer sash hingedly mounted at a side opposed to the mounted side of said inner sash upon one of said support strips in the track grooves of the outer sash and having its free edge cooperative with another of said support strips, latches for attaching the cooperative sash strips together with said sashes, weather strips in the form of tongues and grooves on said support strips and frame, and inter-engaging strips on said cooperative sash strips and sashes for drawing said cooperative sash strips and sashes together and drawing the said tongues against the sides of said grooves, said tongues and grooves being arranged upon the faces of the sashes and opposed portions of the frame; said inter-engaging strips extending half the lengths of the support strips and the sashes, certain of said inter-engaging strips being pivotally supported and having projecting tails, and means for holding said tails in various adjusted positions to change the positions of said strips.

2. In a sliding and swinging window, a window frame having guide strips forming track grooves for an inner and an outer window sash, sash support strips slidably mounted in said track grooves, sash counterweights connected with said support strips, an inner sash hingedly mounted at one end on one end of said support strips in the track grooves for the inner sash and having its free edge cooperative with another of said support strips, an outer sash hingedly mounted at a side opposed to the mounted side of said inner sash upon one of said support strips in the track grooves of the outer sash and having its free edge cooperative with another of said support strips, latches for attaching the cooperative sash strips together with said sashes, weather strips in the form of tongues and grooves on said support strips and frame, and inter-engaging strips on said cooperative sash strips and sashes for drawing said cooperative sash strips and sashes together and drawing the said tongues against the sides of said grooves, said tongues and grooves being arranged upon the faces of the sashes and opposed portions of the frame, said inter-engaging strips extending half the lengths of the support strips and the sashes, certain of said interengaging strips being pivotally supported and having projecting tails, and means for holding said tails in various adjusted positions to change the positions of said strips, comprising rotatively mounted screws threadedly engaging ball sockets mounted on said tails.

3. In a sliding and swinging window, a window frame having guide strips forming track grooves for an inner and an outer window sash, sash support strips slidably mounted in said track grooves, sash counterweights connected with said support strips, an inner sash hingedly mounted at one end on one end of said support strips in the track grooves for the inner sash and having its free edge cooperative with another of said support strips, and outer sash hingedly mounted at a side opposed to the mounted side of said inner sash upon one of said support strips in the track grooves of the outer sash and having its free edge cooperative with another of said support strips, latches for attaching the cooperative sash strips together with said sashes, weather strips in the form of tongues and grooves on said support strips and frame, and inter-engaging strips on said cooperative sash strips and sashes for drawing said cooperative sash strips and sashes together and drawing the said tongues against the sides of said grooves, said tongues and grooves being arranged upon the faces of the sashes and opposed portions of the frame, said inter-engaging strips extending half the lengths of the support strips and the sashes, certain of said inter-engaging strips being pivotally supported and having projecting tails, and means

for holding said tails in various adjusted positions to change the positions of said strips, comprising rotatively mounted screws threadedly engaging ball sockets mounted on said tails, the heads of said screws being exposed at the lower ends of said support strips.

4. In a sliding and swinging window, a window frame having guide strips forming track grooves for an inner and an outer window sash, sash support strips slidably mounted in said track grooves, sash counterweights connected with said support strips, an inner sash hingedly mounted at one end on one end of said support strips in the track grooves for the inner sash and having its free edge cooperative with another of said support strips, an outer sash hingedly mounted at a side opposed to the mounted side of said inner sash upon one of said support strips in the track grooves of the outer sash and having its free edge cooperative with another of said support strips, latches for attaching the cooperative sash strips together with said sashes, weather strips in the form of tongues and grooves on said support strips and frame, and inter-engaging strips on said cooperative support strips and sashes for drawing said cooperative support strips and sashes together and drawing the said tongues against the sides of said grooves, said tongues and grooves being arranged upon the faces of the sashes and opposed portions of the frame, said inter-engaging strips extending half the lengths of the support strips and the sashes, and means for pivotally holding certain of said inter-engaging strips to control the tension of the tongues against the sides of the grooves when said inter-engaging strips are engaged.

5. In a sliding and swinging window, a window frame having guide strips forming track grooves, sash support strips slidably mounted in said track grooves, a sash hingedly mounted at one edge on one of said support strips and having its free edge engageable cooperatively with the other of said support strips, tongues and grooves on said support strips and frame forming a weather strip structure, super-imposed strip structures having end portions engageable with each other and formed integral with the free end of said sash and said cooperative support strip and engageable in openings in said cooperative support strip and said sash, respectively, to form a weather strip structure, and opposed bevel portions on said engageable end portions to draw said sash and said support strips together to increase the pressure between said tongues and grooves.

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