Dec. 5, 1939. N. TROMBETTA 2,182,008

WINDOW FRAME CONSTRUCTION

Filed Oct. 6, 1938 2 Sheets-Sheet 1

Fig. 1.

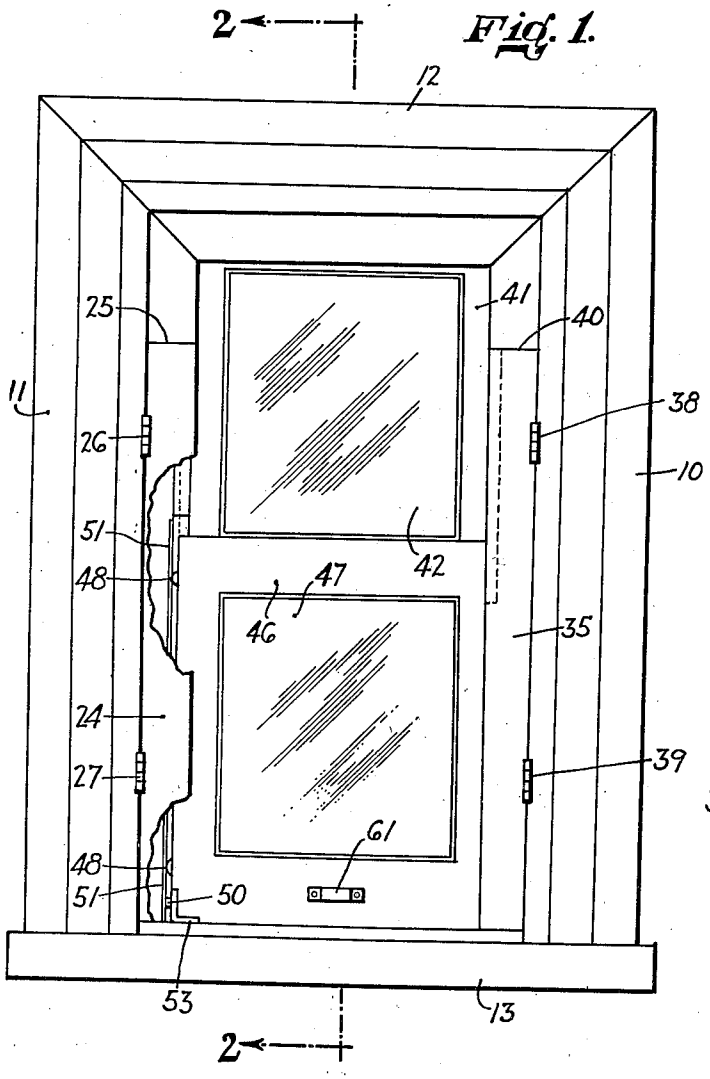


Fig. 2.

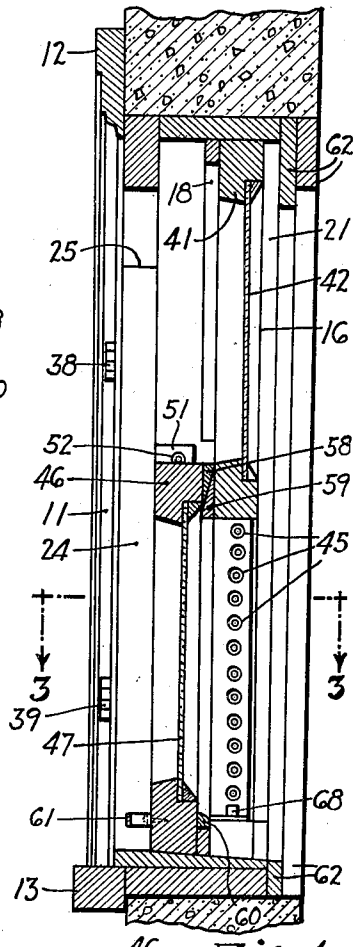


Fig. 3.

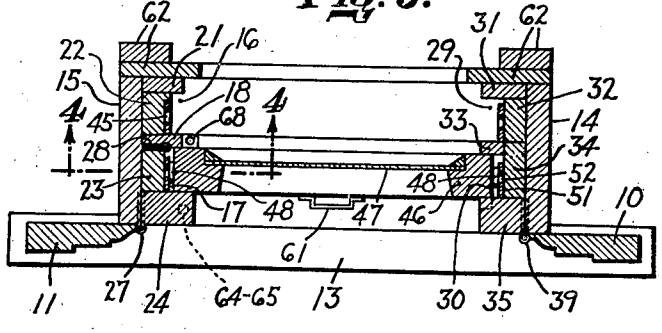
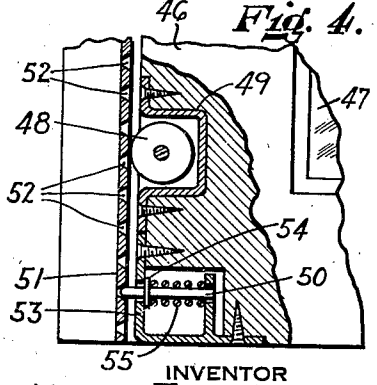


Fig. 4.



INVENTOR
NICOLA TROMBETTA
BY
Richards & Geier
ATTORNEYS

Dec. 5, 1939. N. TROMBETTA 2,182,008

WINDOW FRAME CONSTRUCTION

Filed Oct. 6, 1938 2 Sheets-Sheet 2

Fig. 5.

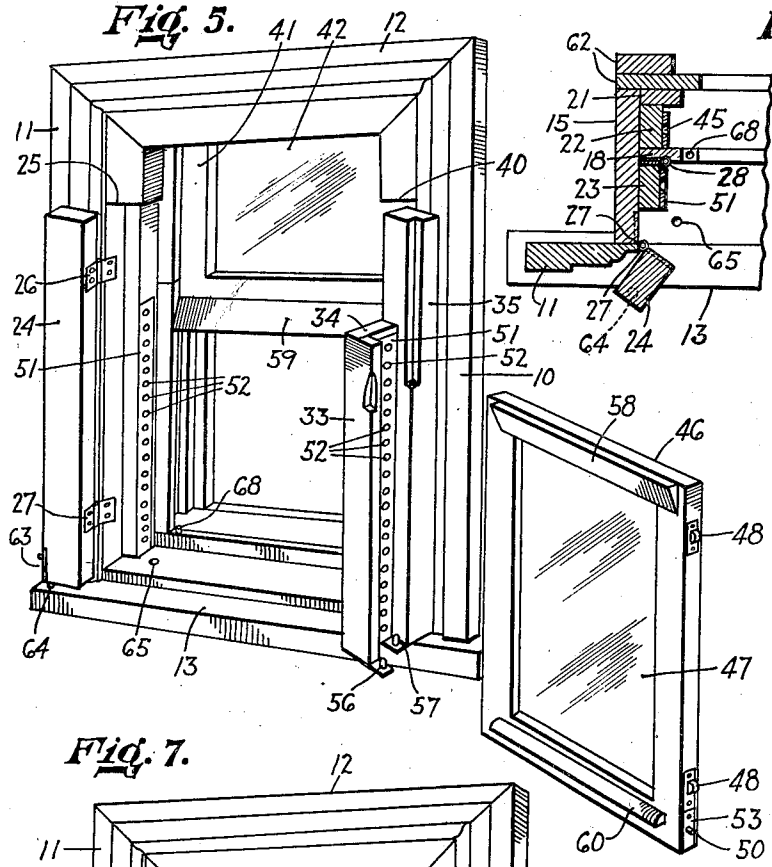


Fig. 6.

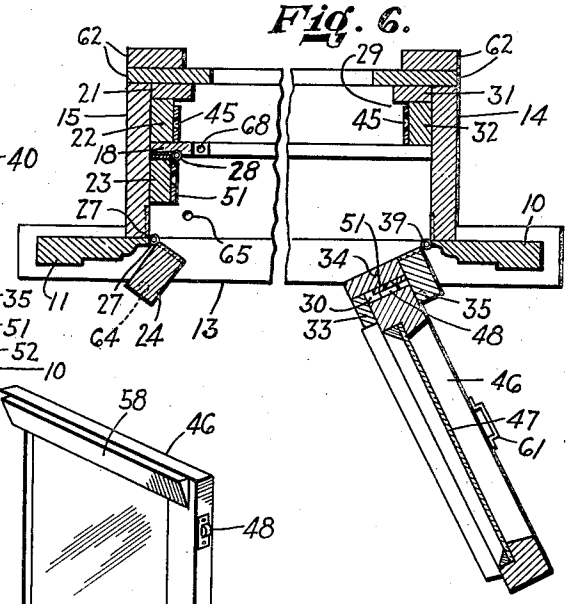
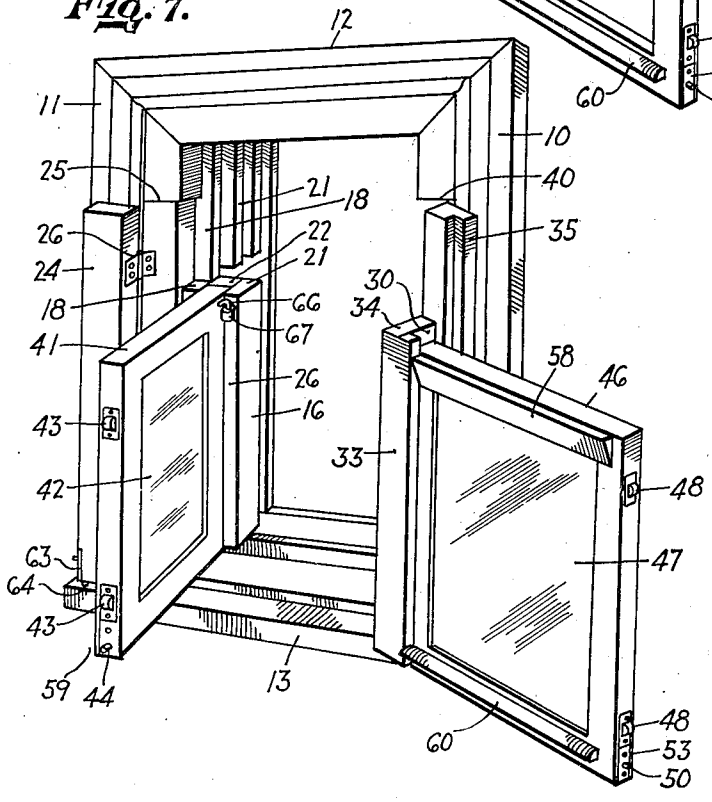


Fig. 7.



INVENTOR
NICOLA TROMBETTA
BY Richards & Geier
ATTORNEYS

Patented Dec. 5, 1939 2,182,008

UNITED STATES PATENT OFFICE

2,182,008

WINDOW FRAME CONSTRUCTION

Nicola Trombetta, Hoboken, N. J.

Application October 6, 1938, Serial No. 233,572

2 Claims. (Cl. 20—52.2)

This invention relates to window frame constructions and, more particularly, to a window frame construction in which sash weights or cords are not used and in which the window sashes are easily removable from the frame structure without removing portions of the frame.

In the usual window frame construction, when it is desired to remove the window sashes from the frame, part of the jamb must be removed by pulling nails or removing screws therefrom and then removing the sash cords from the window sashes. In such window frame constructions when it is desired to wash the outside surface of the window glass or paint the outside surface of the frame it is necessary for the person doing the same to either lean outside the window or to approach the window from the outside which is usually inconvenient and dangerous.

In the applicant's construction, the window sashes are easily removable from the remainder of the frame without the necessity of removing nails or screws from positions of the frame. No sash cords or weights are used and the windows are easily removable by merely sliding them from the frame.

When it is desired to wash the outside surface of the window glass, the windows may be swung inwardly, independently of one another.

One object of my invention is to provide a window frame construction whereby both the upper and lower sashes of a window frame construction may be removed from the window frame independently of another without taking the frame apart.

Another object of my invention is to provide a window frame construction in which sash weights and cords are not used.

A further object of my invention is to provide a window frame construction whereby the upper and lower sections of a window may be swung inwardly and the outside surface of a window glass cleaned or the outside of the sash painted from the inside of the building.

A still further object of my invention is to provide a window frame construction in which the movable sections are sealed in order that drafts may be prevented.

Other objects will appear or will be obvious from a consideration of the detailed description which follows when taken in conjunction with the accompanying drawings.

The device of the present invention consists of a window frame construction having jambs on either side of the window opening, the jamb on one side of said window opening consisting of two adjacent longitudinal channel portions having a common side the lower section of the channel portion on the outward side of said jamb being hingedly mounted to swing inwardly, the other side of the lower portion of the innermost channel being hingedly mounted and adapted to swing inwardly, the jamb on the opposite side of said window opening consisting of two adjacent longitudinal channel portions having a common side and opposite the channel portions in the first-mentioned jamb, the channel portion on the inner side of said window frame being hingedly mounted and adapted to swing inwardly, the common side of said channels swinging inwardly therewith, an upper window sash slidably mounted in the channels in said jambs on the outer side of said window frame, a lower window sash slidably mounted in the channels on the inner side of said jambs, rollers mounted on the sides of said window sashes to cooperate with said channels, a plurality of apertures in the bottom of said channels, and a spring tensioned pin mounted on the side of said window sashes and adapted to normally engage said apertures.

It will be understood, however, that the invention is not restricted to the exact disclosures but is susceptible to such changes and modifications which are within the scope or purview of the appended claims.

Referring to the accompanying drawings—

Figure 1 is an elevational view of the window frame construction of my invention, part of the jamb being broken away.

Figure 2 is a longitudinal section on line 2—2 of Figure 1.

Figure 3 is a horizontal section on the line 3—3 of Figure 2.

Figure 4 is a detailed view taken on the line 4—4 showing the mountings of the rollers on the window sash and also the mechanism for holding the window sections in an open position.

Figure 5 is a perspective view of the window frame construction showing the position of the parts of the same when the lower window sash is swung inwardly and removed from the channel portion.

Figure 6 is a horizontal sectional view, similar to Figure 3 showing the lower window sash swung inwardly.

Figure 7 is a perspective view showing both the lower window sash and upper window sash swung inwardly.

Like numerals refer to like parts throughout the several views.

The window frame construction of the present

invention consists of the usual trim having portions 10 and 11 along the side of the window opening, the portion 12 along the top of the same, and window sill 13 across the bottom of the window opening. Jambs 14 and 15 extend longitudinally from the top to bottom of said opening.

The jamb 15 consists of two longitudinal channels 16 and 17 extending from the top to the bottom of the window opening. The channel 16 being formed by an outer side piece 21, a bottom 22 and a side piece 18. The channel 17 is formed by the side piece 18 which is common to both channels 16 and 17, the bottom 23 and side piece 24. The side piece 24 is separate from the bottom piece 23 from the window sill 13 to a point 25 adjacent the top of the window opening and is hingedly mounted at 26 and 27 to the trim 11 so that it may swing inwardly. The bottom piece 23 of the channel 20 is fixedly mounted on the jamb 15.

The lower portion of the channel 16, which portion is of the same length as the window sash to be mounted therein, as later described, may be formed of one piece of material consisting of a bottom and two sides forming a channel portion or may be formed as shown in the drawings of a separate side piece 21 attached to the bottom 22 and side piece 18. This lower portion of the channel 16 is hinged at 28 to the bottom 23 of the channel 17, so that the bottom portion of said channel 16 may be swung inwardly.

The jamb 14 on the opposite side of the window opening consists of two channels 29 and 30, the channel 29 being laterally opposite the channel 16 and the channel 30 laterally opposite the channel 17.

The channel 29 is formed of side piece 31, a bottom 32, and a side piece 33. The channel 30 is formed by the side piece 33, which is common to both channels 29 and 30, the bottom piece 34 and the side piece 35.

The bottom portion of the channel 30, which is the same length as the window sash to be mounted therein, consists of the side piece 33 which is fastened to the bottom 34 and the side piece 35 which is also fastened to the bottom 34. The bottom section of the channel portion 30 is hingedly mounted to the trim 10 at 38 and 39, so that the same may swing inwardly. The side portion 35 may extend to a greater distance toward the top than the length of the window sash, for instance, to a point as shown at 40 in Figure 1 in the drawings.

The bottom portion of the channel 29 is stationary as is the top portion of the channels 29 and 30.

A window sash 41 having a pane of glass 42 and forming a closure for the top section of the window opening is slidably mounted in the laterally opposite channels 16 and 29. Rollers 43 are mounted, preferably one at the bottom and another at the top of both sides of the window sash 41 so that they cooperate with the channels 16 and 29 in order that the window sash may be opened and lowered with ease.

Spring tensioned pins 44 are mounted on the sides of the window sash 41 and are adapted to cooperate with a plurality of apertures 45 in the bottoms 22 and 32 of the channels 16 and 29 respectively. The pins 44 engaging the apertures 45 hold the window section 41 at a desired position when the same is raised or lowered. The apertures may be drilled in the bottom of the channels 16 and 29 or may be drilled in a separate plate and the plate fastened on the bottoms of the respective channels.

Slidably mounted in the laterally opposite channels 17 and 30 is a lower window sash 46 having a pane of glass 47 mounted therein which acts as a closure for the bottom section of the window opening.

Mounted on both sides of said window sash 46 are rollers 48 adapted to cooperate with channels 17 and 30 in order that the window sash 46 may be raised and lowered with ease.

The rollers 48 may be mounted in a bracket 49, as shown in Figure 4, and countersunk in the side of the window sash 46, the circumference of the roller bearing against the bottom of the channel. The rollers 43 mounted on the upper window sash 41 are of similar construction.

A spring tensioned pin 50 is mounted at the bottom of both sides of the window sash 46 and cooperates with a plate 51 having a plurality of apertures 52, as shown in Figure 4, mounted on the bottom of the channels 17 and 30 as shown. The pin 50 is mounted in a bracket 53 which, in turn, is mounted in the sash, as stated above, and has a shoulder 54 fastened thereto which is adapted to press against a spring 55. When any pressure is exerted against the window sash to raise or lower the same, the pin 50 is released from an aperture 52 by said pressure against the tension of the spring 55 allowing the window to be raised or lowered. When the window is raised or lowered to the desired position, the tension of the spring 55 presses the pin 50 into an aperture 52, the tension of the spring being such as to hold the pin in the aperture against the weight of the window sash.

The operation of the pins 44 on the upper window sash 41 is similar to the operation of the pins 50.

The window sash 46 when in its lowermost position rests upon pins 56 and 57 which cooperate with apertures in the bottom of the window sash.

A triangular shaped weather strip 58 is fastened to the outer side of the top piece of the window sash 46 the hypotenuse of the same engaging the hypotenuse of a similar triangular strip 59 fastened to the inside of the bottom piece of window sash 41. As weather strip 60 is fastened to the bottom of the sash 46 to effectively seal the sash against the window sill 13 when the window is closed.

A handle 61 is fastened to the lower window sash 46.

The window opening has the usual trim 62 around the outer side thereof.

In operating the windows of the present device, when it is desired to open the bottom section of the window comprising the sash 46 in which the pane 47 is mounted, upward pressure is applied to the handle 61. The pins 50, which are bevelled on the end which engages the apertures 52 and are in their normal position in engagement with said apertures, which are also bevelled to conform to the end of the pins 50, are disengaged from the apertures against the tension of the spring 50, permitting the window sash 46 to be raised, the channels 17 and 30 guiding the same and the rollers 48 bearing against the bottoms 23 and 34 of the channels allowing ease in such raising. When the window is raised to the desired height, the pin 50 engages one of the apertures 52 through the tension of the spring 55, the tension of said spring such as to hold the

pin in the aperture under the normal weight of the window sash.

When it is desired to close the lower window section, downward pressure is exerted on the window sash 46 which disengages the pins 50 from the apertures 52, the action of the pin being the same as when the window is opened.

If it is desired to lower the upper window section comprising the upper sash 41, a downward pressure is exerted on the same, the pins 44, which are similar in construction to the pins 50 mounted on the lower window sash 46 are disengaged from the apertures 45, which are similar to the apertures 52 in the channel 30, permitting the upper window sash 41 to be lowered. The window sash 41 is guided by the laterally opposite channels 16 and 29 the rollers 43 permitting the sash to slide freely in said channels.

When the upper window sash 41 is lowered to the desired level, the downward pressure is released and the pins 44, through engagement with the apertures 45 hold the sash in this position, the spring tension on the pins 44, like the spring tension on the pins 50 on the lower window sash, being sufficient to hold the window sash in such a position under the normal weight of the sash.

If it is desired to raise the upper window sash 41 an upward pressure is exerted on the window sash which disengages the pins 44 from the apertures 45 permitting the window to be raised to the desired height, the pins then engaging the aperture and holding the window in this position.

With this construction no window sash weights or cords are required and a construction permitting ease in lowering and closing windows is provided.

Should it be desired to swing the window sash 46 inwardly the window sash is placed in its fully closed position. A lock 63 having a pin 64 cooperating with an aperture 65 in the sill 13 is operated to disengage the pin 64 from the aperture 65 permitting the side piece 24 to be swung inwardly on the hinges 26 and 27. When the side 24 of the channel 17 in which the sash 46 slides is in this manner removed, the window may then be swung inwardly, the lower portion of the laterally opposite channel 30, in which the window sash 46 is slidably mounted, swinging inwardly on the hinges 38 and 39 as shown in Figure 6 of the drawings. In this manner the outside surface of the pane of glass 47 may be cleaned from the inside of a room without danger or inconvenience to the person cleaning the same or the outside surface of the window sash may be easily painted from inside of a room.

The window may be fully removed from the channel 30, as shown in Figure 5 of the drawings, by raising the same so that the pins 56 and 57 are disengaged from holes in the bottom of the window sash 46. The window sash may then be easily removed from the channel by moving the same away from the channel as shown in Figure 5.

When it is desired to swing the upper window sash 41 inwardly, a downward pressure is exerted on this section and the window sash lowered until the bottom of said sash engages the window sill. Since the common side 33 of the channels 29 and 30 has been disengaged from the channel 29 when the lower sash 46 was swung inwardly, the upper sash may be swung inwardly away from the channel 29. The bottom portion of the channel 16, which is laterally opposite the channel 29, is then swung inwardly on the hinges 28 which are mounted on the bottom 23 of the channel 17 as shown in Figure 7.

A hook 66 mounted on the top of the window sash 41 engages an eye 67 mounted on the side piece 21 of the channel 16 when the sash is lowered and prevents the top portion of the window sash from coming disengaged from the channel.

A pin 68 mounted on an extension at the bottom of the side piece 18 of the channel 6 engages a hole in the bottom of the window sash 41 when the same is lowered which will prevent the bottom of this window sash from becoming disengaged from the channel.

When it is desired to remove the window sash 41 from the window opening, it is merely necessary to lift the sash until the hook 61 no longer engages 67 and the pin 68 is disengaged from the hole on the bottom of the window sash. The window sash may then be removed from the channel 16.

The present construction, therefore, permits the removing of both the window sashes independently of one another without removing any of the window frame or trim and without the necessity of removing any sash weights and cords from the window sashes.

It is, of course, understood that the construction of my present invention is capable of being varied in different ways to accomplish the purposes set forth, and it is not my intention to limit the invention to the exact details of construction shown and described, but rather to cover all equivalent structures as defined by the scope of the appending claims.

I claim:

1. A window structure comprising a pair of jamb elements consisting of an upper outward channel and a lower outward channel, an upper inward channel and a lower inward channel each upper channel constituting a continuation of the corresponding lower channel, the outward and inward channels extending vertically side by side, one side of said channels being common to both, an upper window sash vertically slidable in said outward channel and a lower window sash vertically slidable in said inner channel, sash holding means on the bottom of the inner and outward channels of each jamb element to engage with the window sashes and hold the same in relation to said channels, the sashes being movable therewith, means hingedly supporting the inward side of the lower inward channel of one of said jambs to cause said side to swing inwardly, means hingedly supporting the means forming the lower inward channel of the opposite of said jambs, said side common to both outward and inward channels being formed integrally therewith, said hingedly supporting means causing said lower inward channel and the lower window sash, when in its closed position, to swing inwardly, means hingedly supporting the means forming the lower outward channel of the other one of said jambs, said side common to both outward and inward channels being formed integrally with said outward channel, said hingedly supporting means permitting said lower outward channel and the upper window sash when in its lowermost position to swing inwardly, and means on said lower channel portion to engage said window sashes when the same are in their lowermost position, for detachably holding said upper and lower window sashes in the outer and inner channels respectively when said window sashes are swung inwardly.

2. A window structure comprising a pair of

jamb elements consisting of an upper outward channel and a lower outward channel, an upper inward channel and a lower inward channel each upper channel constituting a continuation of the corresponding lower channel, the outward and inward channels extending vertically side by side, one side of said channels being common to both, an upper window sash vertically slidable in said outward channel and a lower window sash vertically slidable in said inner channel, sash holding means on the bottom of the inner and outward channels of each jamb element to engage with the window sashes and hold the same in relation to said channels, the sashes being movable therewith, means hingedly supporting the inward side of the lower inward channel of one of said jambs to cause said side to swing inwardly, means hingedly supporting the means forming the lower inward channel of the opposite of said jambs, said side common to both outward and inward channels being formed integrally therewith, said hingedly supporting means causing said lower inward channel and the lower window sash, when in its closed position, to swing inwardly, means hingedly supporting the means forming the lower outward channel of the other one of said jambs, said side common to both outward and inward channels being formed integrally with said outward channel, said hingedly supporting means permitting said lower outward channel and the upper window sash, when in its lowermost position, to swing inwardly, sash supporting means on said lower inner and outer channel portions, and means on said lower and upper windows to engage said sash supporting means on said lower inner and outer channel portions respectively when the window sashes are in their lowermost position whereby said window sashes may be slided upwardly from said sash supporting means and said lower channel portions when said window sashes are swung inwardly and detached from said channel portions.

NICOLA TROMBETTA.