

Nov. 17, 1953

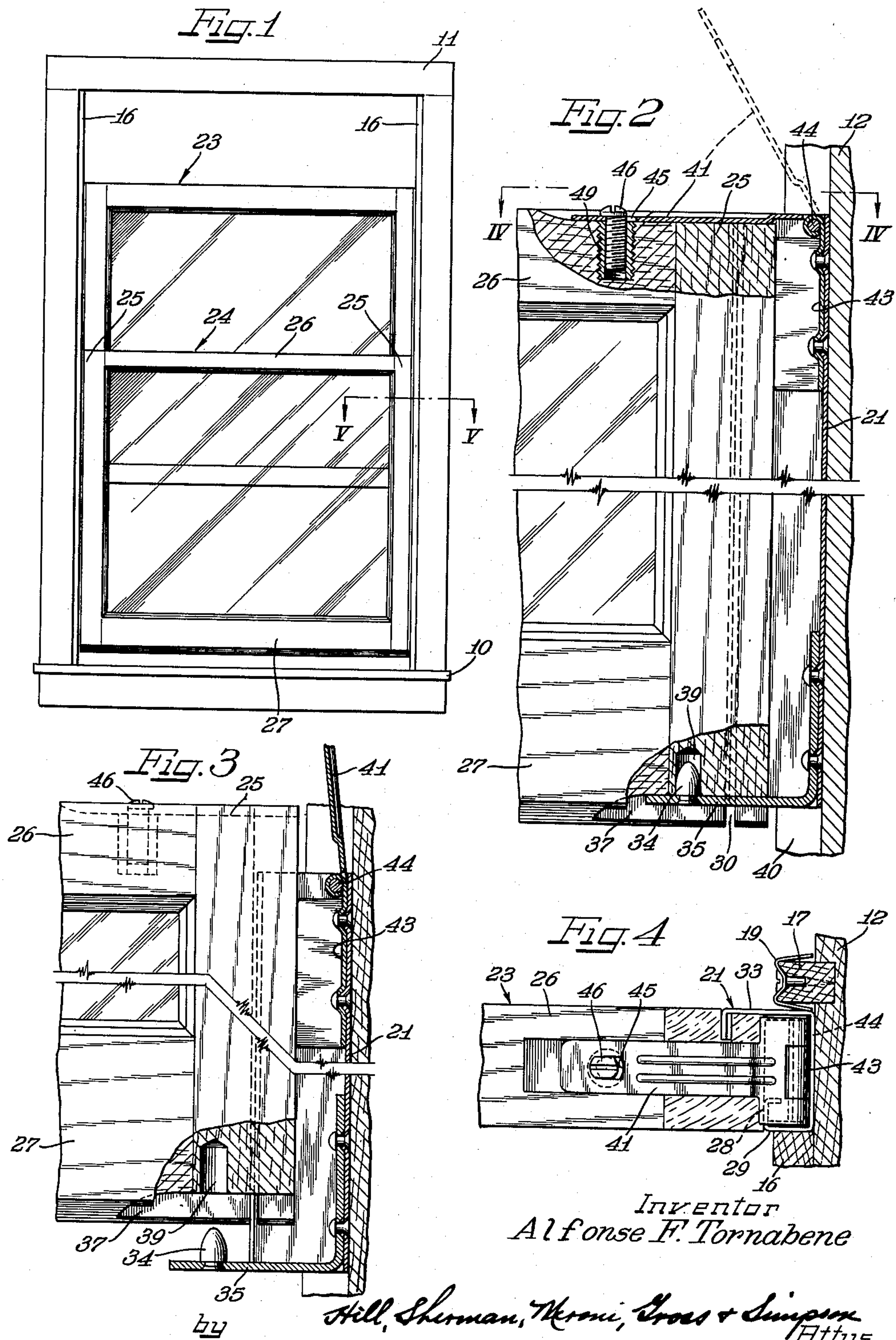
A. F. TORNABENE

2,659,112

DETACHABLE WINDOW STRUCTURE

Filed July 21, 1951

2 Sheets-Sheet 1



Nov. 17, 1953

A. F. TORNABENE

2,659,112

DETACHABLE WINDOW STRUCTURE

Filed July 21, 1951

2 Sheets-Sheet 2

Fig. 5

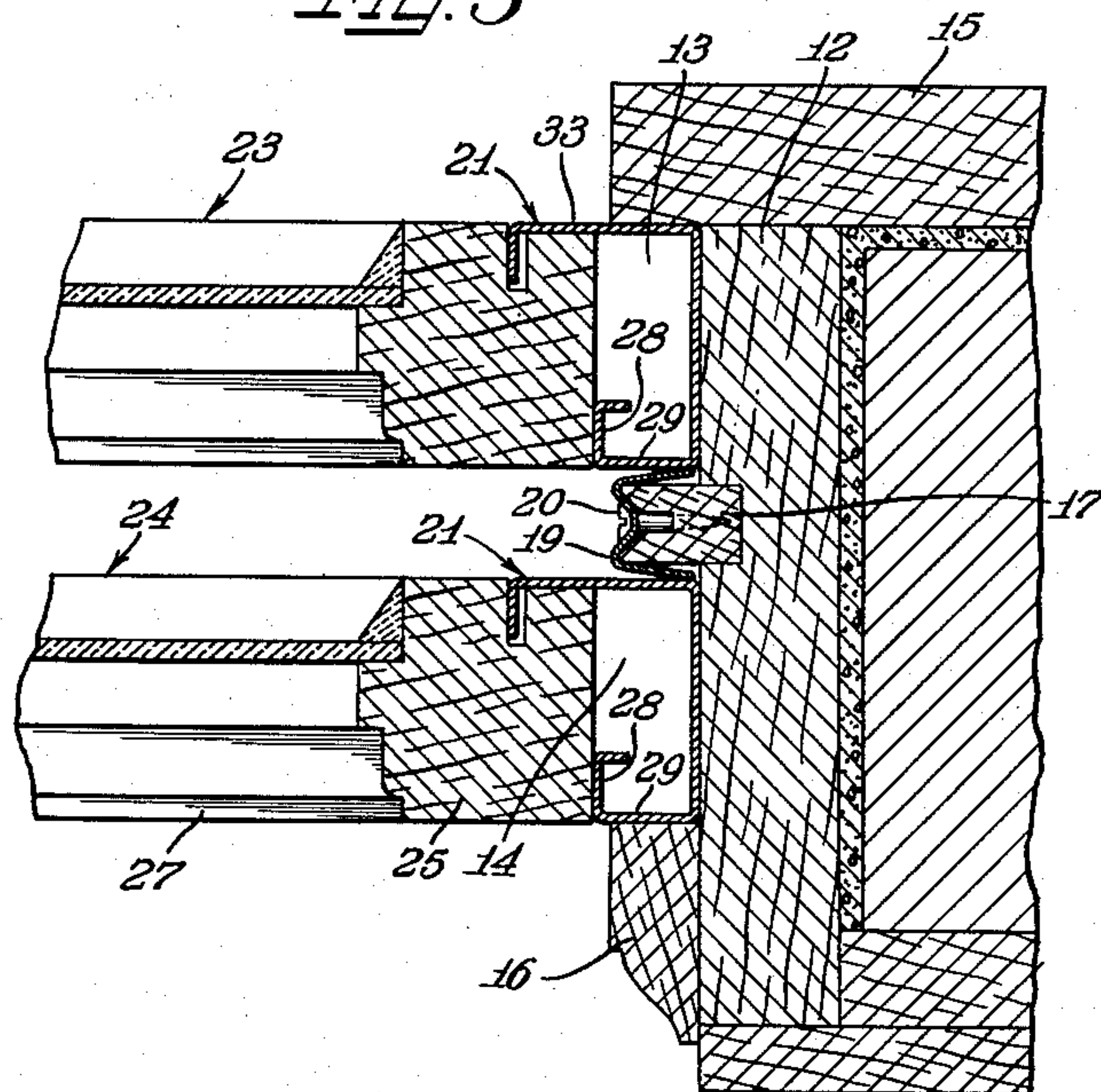
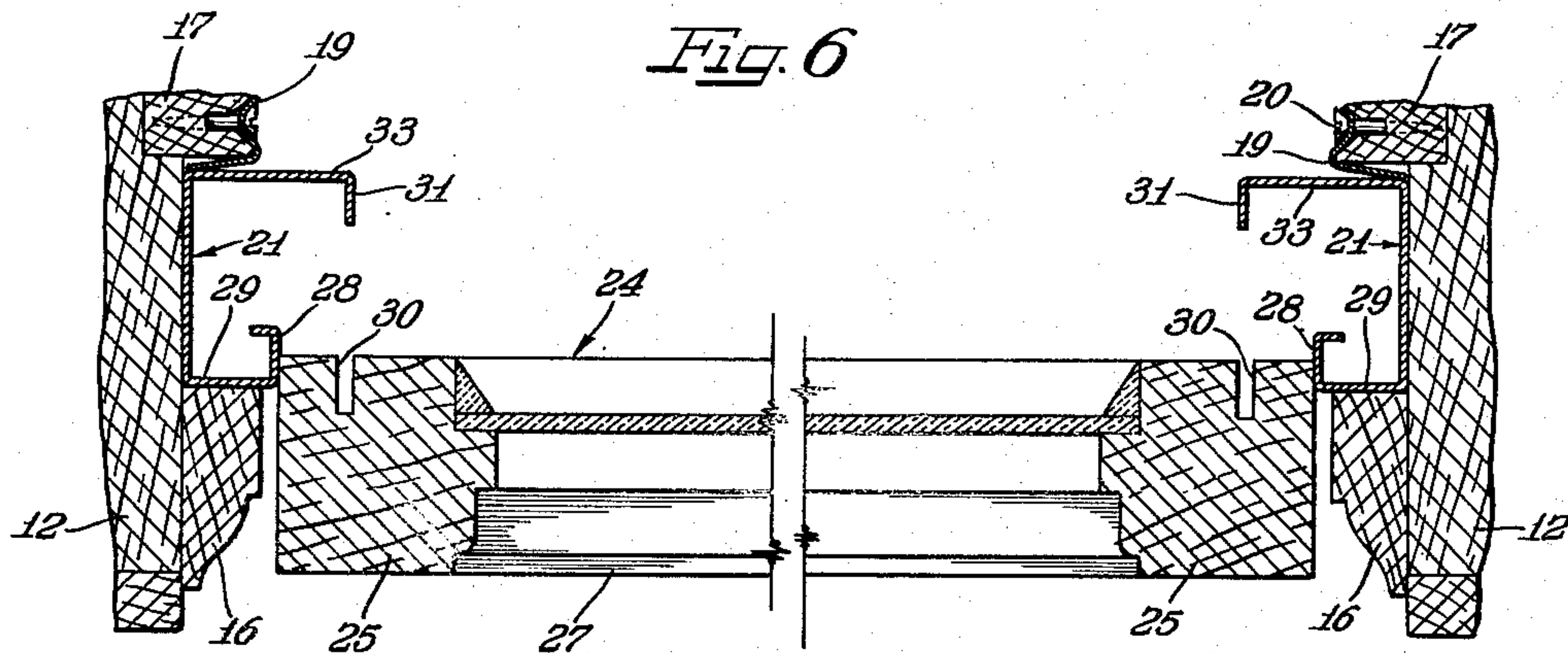


Fig. 6



Inventor
Alfonse F. Tornabene

by *Hill, Sherman, Meroni, Gross & Simpson* Attys

UNITED STATES PATENT OFFICE

2,659,112

DETACHABLE WINDOW STRUCTURE

Alfonse F. Tornabene, Chicago, Ill.

Application July 21, 1951, Serial No. 237,931

6 Claims. (Cl. 20—49)

1

This invention relates to detachable window structures of the type wherein the window sashes are readily detachable from the window frame and the sashes are frictionally held in any desired position of adjustment without the use of counter-balancing sash weights.

An object of my invention is to provide a novel and improved guide structure supporting and guiding a window sash for adjustable movement along a window frame, and so arranged that the sash may readily be removed from the frame in a simple operation.

A further object of my invention is to provide an improved structure and arrangement for guiding a window sash for movement along a window frame wherein the window sash may be positively and detachably locked for sliding movement along the window frame, or may readily be removed from the frame for cleaning or repair in a simple operation.

A further object of my invention is to provide a weightless window sash and frame wherein the parting strip dividing the jamb of the frame into the guideways for the upper and lower sashes is yieldable and expansible, to hold the sash in any desired position along the frame.

Still another object of my invention is to provide a detachable sash and window frame structure wherein the sash is detachably mounted on metallic slides slidably guided for movement along the jambs of the window frame and wherein yieldable parting strips are provided between the sashes, yieldably engaging the metal slides to hold the sashes in any desired position along the frame, and act as weather stripping, to seal the window against the weather.

These and other objects of my invention will appear from time to time as the following specification proceeds and with reference to the accompanying drawings wherein:

Figure 1 is a view in front elevation of a window having sliding upper and lower sashes slidably guided in and held in position in the window frame in accordance with my invention;

Figure 2 is an enlarged fragmentary view in front elevation of a window sash and frame, with certain parts of the sash and frame broken away and shown in section in order to more clearly illustrate certain detailed features of my invention;

Figure 3 is a view in front elevation of the sash and frame somewhat similar to Figure 2, but showing the sash in position to be removed from the frame;

Figure 4 is a horizontal sectional view taken substantially along line IV—IV of Figure 2;

2

Figure 5 is an enlarged fragmentary sectional view taken substantially along line V—V of Figure 1; and

Figure 6 is a horizontal sectional view taken through the window sash showing the sash in position to be removed or inserted within its supporting slides.

In Figures 1 and 5 of the drawings, a window frame is shown, which may comprise a lower sill 10, a top head rail 11 and parallel spaced jambs 12, 12 having guideways 13 and 14 extending vertically therealong.

The guideways 13 and 14 may be formed by the usual blind stops 15, 15 extending along the outer side of the window frame inwardly from the jambs thereof, and inner beadings or moldings 16, 16 extending along the inner sides of the jambs as in Figures 5 and 6. The space between the guide strips 15 and 16 is divided by a central parting strip 17 extending vertically along the window jamb and herein shown as being recessed therein.

The parting strip 17 has an outer face recessed in the general form of a V, within which may extend the web of a resilient channel member 19, the legs of which extend along opposite sides of said parting strip.

The channel member 19 may be made from a yieldable metal such as steel, aluminum, bronze or brass stripping, and may extend for the entire length of the window jamb, and be drilled along its length to receive screws 20, 20. The screws 20, 20 may be wood screws, which when threaded within the strip 17 and tightened, will recess the web of said channel within the V-shaped recess of said parting strip. This will flex the legs of said channel, outwardly and yieldably engage said legs with the adjacent legs of generally channel shaped slide members 21, 21. The channel shaped slide members 21, 21 may be made from metal, such as steel or aluminum, or any other suitable metal and are slidably guided within the slides 13 and 14 to retain the window sashes therein. As the screws 20, 20 are tightened, the legs of the channels 19, 19 flexing against the legs of the channel slide members 21, 21 will hold said channel slide members in position along the window frame, and will also act as weather stripping and prevent the leakage of air past the sashes. The channel slide members 21, 21 form detachable slides for upper and lower sashes 23 and 24 respectively, slidably guiding said sashes in the guideways 13 and 14 of the window frame, as will hereinafter more clearly appear as this specification proceeds. Each window sash is of

3

a similar construction and the detachable mounting of each sash in the channel slide members 21, 21 is the same so a description of one will suffice for both.

The sash 24 has side rails 25, 25 connected together by top and bottom rails 26 and 27 respectively. The outer side edges of the side rails 25, 25 are spaced inwardly of the inner edges of the jambs 12, 12 when the sash is in position in the frame and engage inturned ends 28, 28 of legs 29, 29 of the channel slide members 21, 21, when in position in the window frame, and slidably move along the inturned ends of said legs when being placed in position in the window frame, as shown in Figure 6.

Each side rail 25 also has a groove 30 extending longitudinally therealong and opening to the outer side thereof. The groove 30 is adapted to register with an inturned end 31 of a leg 33 of the channel slide member 21, said leg 33 abutting the outer side of the window frame at its inside and the flexible leg of the parting channel 19 at its outer side.

The sash is located at its bottom on the channel slide members 21, 21 for movement therewith on upwardly projecting locating pins 34, 34 said pins extend upwardly from the inwardly extending horizontal legs of angles 35, 35, the vertical legs of which are suitably secured to the insides of the webs of the channel slide members 21, 21 as by riveting. The bottom of each side rail 25 and the adjacent end portions of each bottom rail 27 are recessed as indicated by reference character 37, to receive the horizontal leg of the angle 35 and recess said angle above the bottom of the window sash. A recess or locating hole 39, which may be lined with metal, opens into the recess 37 and conforms generally to the diameter of the pin 34 and is provided in each side rail 25 for engagement with the pin 34, to locate and detachably secure the bottom of the rail 25 to its associated channel slide member 21. A stop 40 at the bottom of the slide 14 engages the bottom of the horizontal leg of the angle 35, to limit downward movement thereof.

A locking plate 41 is transversely pivoted on the upper end of the web of the channel slide member 21, to lock the channel to its associated slide member. As herein shown, the locking plate 41 is pivotally movable into engagement with the top of the window sash and is shown as being one strap of a hinge member 43, the other strap of which extends along and is suitably secured to the inside of the web of the channel slide member 21 as by riveting (see Figures 2 and 3). The locking plate 41 is shown as having an elongated slot 45 adjacent its outer end through which may extend a head 46 of a locking screw. The locking screw is herein shown as being threaded in a metallic insert 49 threaded within the top rail 26 of the sash. The head 46 of said locking screw is shown as being eccentric of the center of said screw, to fit within the slot 45 when the locking plate is moved into engagement with the top of the side rail 25 and the top rail 26. The head 46 may then be turned, as by a screwdriver, to engage the top of the locking plate 41 and positively lock the sash in position on its associated channel slide member 21. It should here be noted that the top of the side rail 25 and the top rail 26 is recessed to recess the locking plate 41 beneath the top of the window sash, to accommodate the window to open or close all the way. It should also be noted that while a screw having an eccentric head is shown,

4

any other suitable locking means may be used instead.

When it is desired to place the sash in position in the window frame, assuming the channel slides 21, 21 are in place in the window frame as in Figure 6, the locking plates 41, 41 may be pivoted upwardly. The sash may then be slidably moved inwardly along the inturned ends 28, 28 of the legs 29, 29 of the channel slide members 21, 21 at a sufficient elevation to clear the tops of the locating pins 34, 34 until the inturned ends 31, 31 of the outer legs 33, 33 come into engagement with the slots 30, 30 and the outsides of the rails 25, 25 engage the insides of said legs. The sash may then be moved downwardly along the slide members 21, 21 to engage the locating pins 34, 34 with the recesses 39, 39 and engage the bottoms of the slots 37, 37 with the horizontal legs of the angles 35, 35. The locking plates 25, 25 may then be pivoted downwardly into the recessed portions of the top of the sash over the eccentric heads 46, 46 of the locking screws. Said screws may then be turned to engage the undersides of the heads thereof with the tops of the locking plates 41, 41 and positively lock the sash in position in the window frame. The sash may then be freely moved along the window frame on the channel sliding members 21, 21 movable along their respective guideways.

It is understood that the legs of the flexible channels 19, 19 engaging the legs of the channel slide members 21, 21 may yieldably hold the sash in position in the frame at any desired position and that the screws 20, 20 may be tightened to engage the legs of the flexible channels 19, 19 with the adjacent legs of the slide members 21, 21 with sufficient force to positively lock the sash from movement along the frame, if desired.

When it is desired to remove the sash from the window frame for cleaning or repairing, it is only necessary to turn one locking screw so its head 46 will pass through the slot 45. The locking plate may then be pivoted upwardly and the entire sash may be slidably moved upwardly along the associated channel sliding member 21 until the pin 34 is disengaged from the aperture 39. The sash may then be swung outwardly about the opposite channel slide and removed from the window with one slide secured thereto. It is, of course, obvious that if desired, both locking plates may be unlocked from the sash, and the sash may then be moved upwardly along both channel slides and then bodily removed therefrom.

It may be seen from the foregoing that a simplified form of detachable window sash has been provided, which freely slides along the slides in the window jambs and yet may be held in any desired position with respect to the jamb, and be removed from or replaced in the jamb by a simple unlocking, sliding and pushing or pulling operation, rendering it extremely simple to take out the window sash for cleaning both sides thereof, or for painting or repairing.

It will be understood that modifications and variations may be effected without departing from the spirit and scope of the novel concepts of the present invention.

I claim as my invention:

1. A detachable window frame structure comprising facing jambs having a plurality of adjacent parallel guideways extending therealong, window sashes guided in said guideways, means guiding said sashes for movement along said guideways for ready detachment therefrom.

5

comprising a channel member for each sash, having its web slidable along the jamb and having two legs of unequal length, each having an inturned end, the inturned end of the longer leg having interengagement with the window sash and the inturned end of the shorter leg having abutting engagement with the outer side of a rail of the sash, and means locking the sash to said channel member comprising an angle secured to the web of said channel and extending inwardly therefrom and locating said sash on said channel and having interengagement with the bottom of said sash on its horizontal leg, a locking plate pivoted to the top of said channel and movable into engagement with the top of the sash, and means detachably locking said plate to the top of the sash.

2. In a window frame having two spaced facing jambs, parallel spaced guideways extending along said jambs, upper and lower window sashes guided for vertical movement along said guideways, means supporting and guiding said sashes for vertical movement along the jambs and for ready detachment therefrom including a channel member for each sash having its web slidable along the jamb and having two legs of unequal length, the inside of the longer leg engaging the outside of the sash and having an inturned end having interengagement with the sash and the shorter leg having an inturned end having abutting engagement with the outer side of the sash, and means for locating and locking the sashes to said channel members comprising a member extending inwardly from the bottom of the web of each channel and having interengagement with the bottom of the sash, an apertured locking plate pivoted to the top of said channel and pivotally movable into engagement with the top of the sash, and an eccentric locking member on the top of the sash extending through the apertured portion of said locking plate, and turnable to lock said plate into engagement with the top of the sash.

3. In a window frame structure having two spaced facing jambs with parallel guideways extending along said jambs and having upper and lower window sashes guided for movement therealong, the improvements comprising means guiding said sash for vertical movement along the jambs and for ready detachment therefrom and including a channel slide member for each sash, each channel slide member having its web slidable along and abutting the jamb and having two legs of unequal length, the longer of said legs extending inwardly along the outside of the sash and having an inturned end having interengagement therewith, the shorter of said legs having an inturned end in abutting engagement with the edge of said sash, and means locating and detachably locking the sash to said channel slide member comprising a member extending horizontally inwardly from the bottom of said channel slide member and having an upwardly projecting locating pin thereon, a recess in the bottom of the sash for receiving said member and having a downwardly opening hole therein for engagement with said locating pin, a locking plate pivoted to the top of said channel slide member, and movable into engagement with the top of said sash, and an eccentric locking member engageable with said locking plate and locking said plate in engagement with the top of the sash.

4. In a window frame structure having two

6

parallel jambs, a pair of parallel guideways extending vertically along each jamb, upper and lower window sashes guided for vertical movement along said guideways, the improvements comprising means supporting and guiding said sashes for vertical movement along said guideways and for ready detachment therefrom comprising channel slide members slidably movable along said guideways and having their webs adjacent and slidable along the jambs, and having two inwardly extending legs of unequal length, the longer of said legs extending inwardly along the outer side of the sash and having inturned ends having interengagement with the sash and the shorter of said legs having inturned ends having abutting engagement with the outer side edges of the sash, each of said channels also having a member extending horizontally inwardly from the bottom thereof having an upwardly projecting locating pin adjacent its outer end, for interengagement with the bottom of the sash, locking plates pivotally mounted to the upper ends of said slide members and movable into engagement with the top of the sash, and eccentric means on the top of the sash, engaging said locking plates and locking said plates into engagement with the top of the sash.

5. In a window frame structure having a pair of spaced facing jambs having window guideways extending therealong, a window sash having parallel spaced rails, means guiding said sash for movement along said guideways, and for ready detachment therefrom comprising a channel member extending along a rail of said sash and slidable along said guideways on the web thereof, said channel member having webs of unequal length each having an inturned end, the inturned end of the longer leg having interengagement with the rail of the window sash inwardly of the edge thereof and the inturned end of the shorter leg having abutting engagement with the edge of the rail of the sash, and means locking the sash to said channel member comprising a member secured to and extending horizontally inwardly from said channel member adjacent one end thereof and having interengagement with one end of the sash for locking said sash with respect to said channel member, a locking plate pivoted to the opposite end of said channel member and movable into engagement with the opposite end of the sash from said locating member, and a locking member engageable with said locking plate and turnable to lock said plate into engagement with the sash.

6. In a window frame having two spaced facing jambs, parallel spaced guideways extending along said jambs, upper and lower window sashes guided for vertical movement along said guideways, means supporting and guiding said sashes for vertical movement along said guideways for ready detachment therefrom including detachable channel members extending along each side of each sash, said channel members having the webs thereof slidable along said guideways and each having two legs of unequal length, the inside of the longer leg engaging the outside of the sash and having an inturned end having interengagement with the sash at a point spaced inwardly from the outside edge thereof and the shorter leg having an inturned end having abutting engagement with the outside edge of the sash, and means for locating and locking

the sashes to said channel members comprising a member extending horizontally inwardly from one end of each channel member and having interengagement with one end of the sash, an apertured locking plate pivoted to the opposite end of said channel member and pivotally movable into engagement with the opposite end of the sash, and a locking member engageable with the apertured portion of said locking plate and turnable to lock said plate into engagement with the sash.

ALFONSE F. TORNABENE.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
505,315	Kirby	Sept. 19, 1893
744,733	Essig	Nov. 24, 1903
868,698	Rich	Oct. 22, 1907
883,130	Emenaker	Mar. 24, 1908
1,562,011	Sylvan	Nov. 17, 1925
2,073,745	Kalla, Sr.	Mar. 16, 1937
2,581,503	Walker	Jan. 8, 1952