Aug. 20, 1935. J. SCHUNK 2,012,141

WINDOW CONSTRUCTION FOR AIR CONDITIONED CARS

Filed May 15, 1934

Fig. 1.

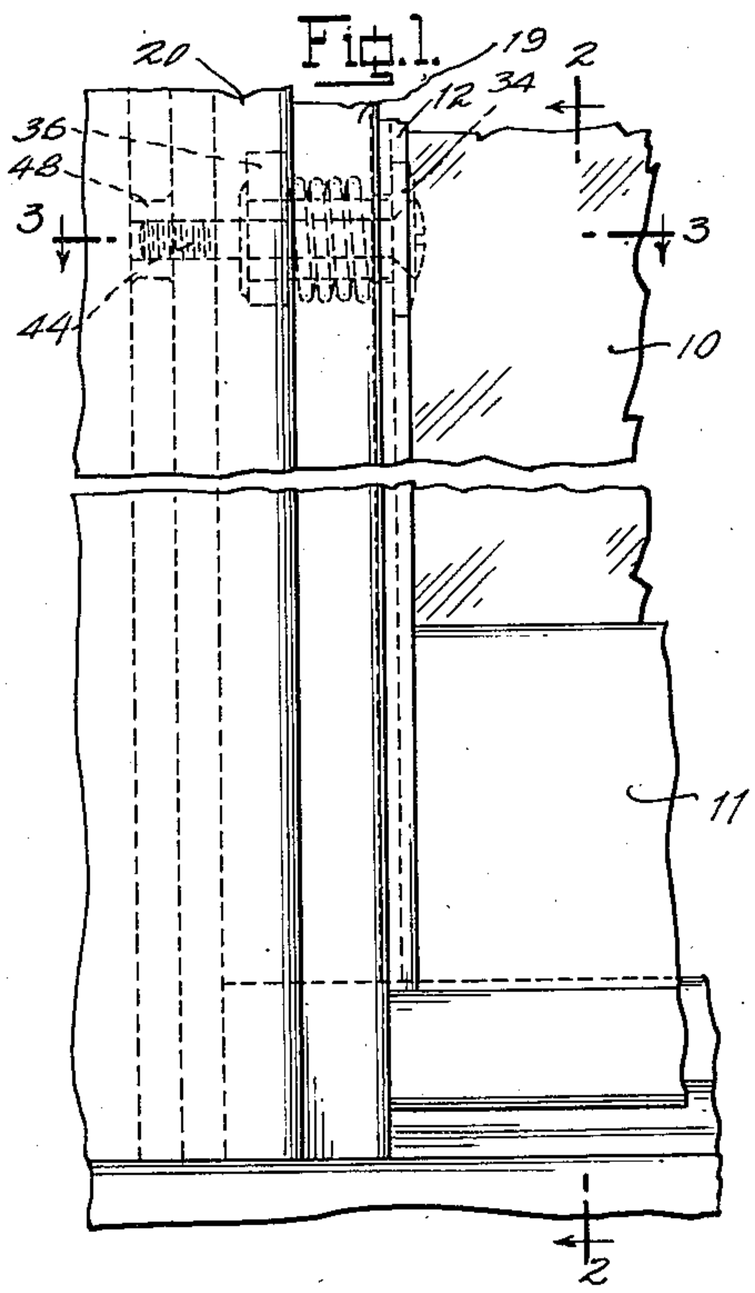


Fig. 2.

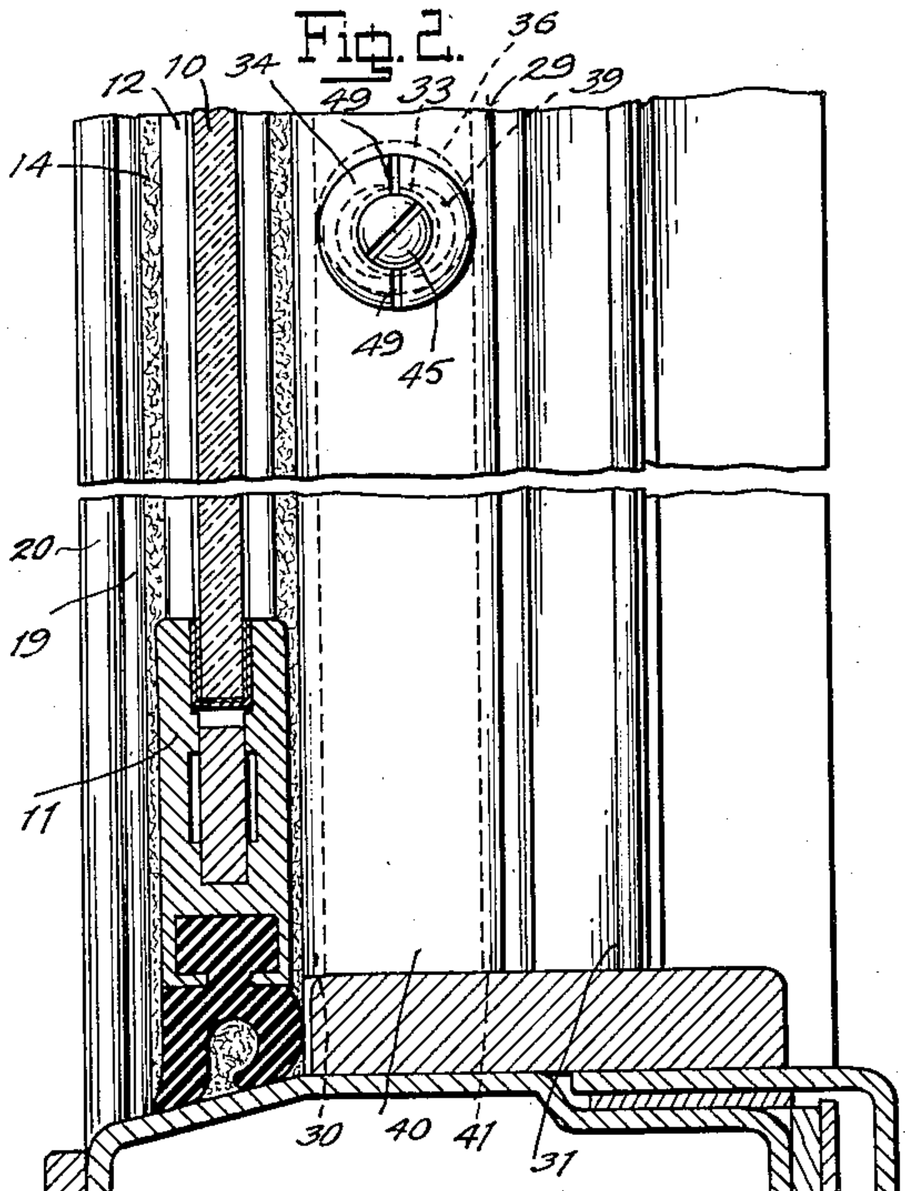


Fig. 10.

Fig. 3.

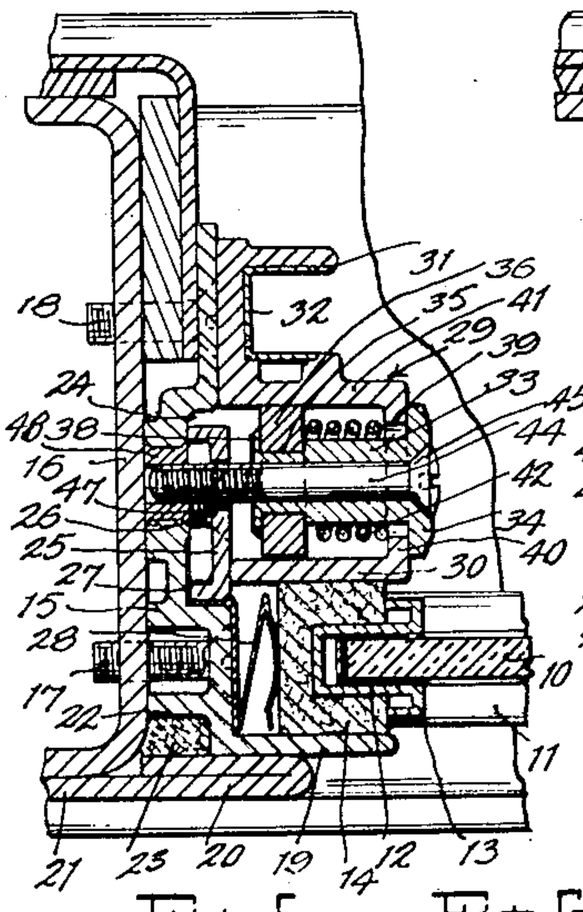
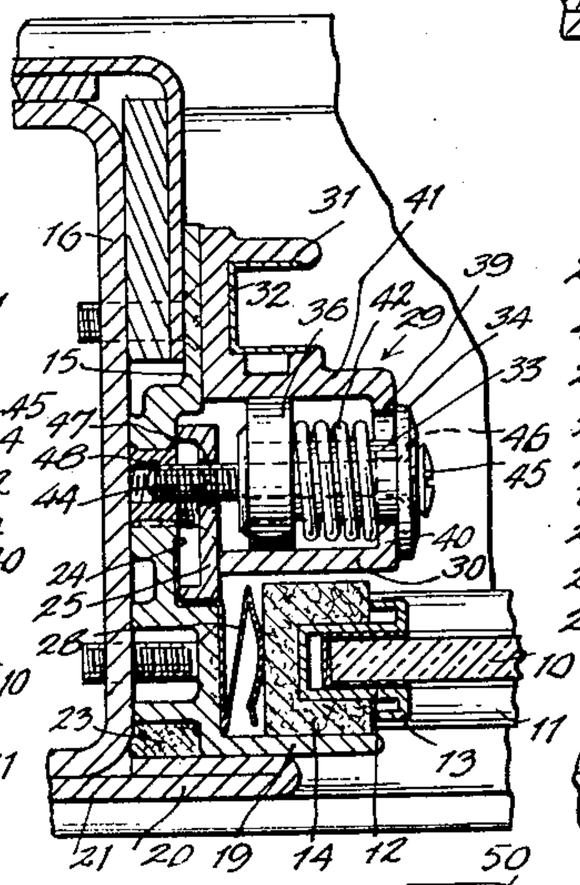


Fig. 4.



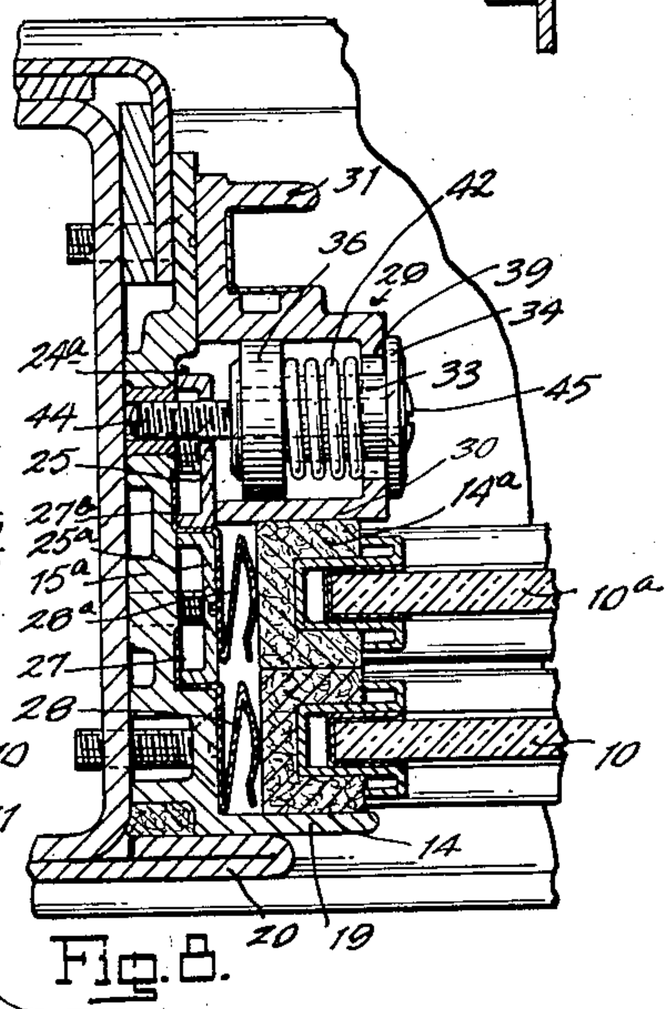


Fig. 8.

Fig. 5.

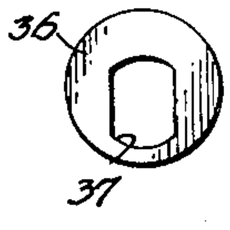


Fig. 6.

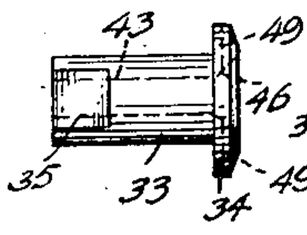
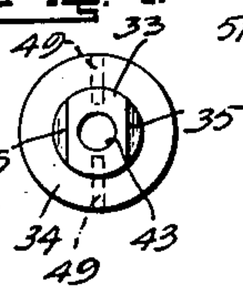


Fig. 7.



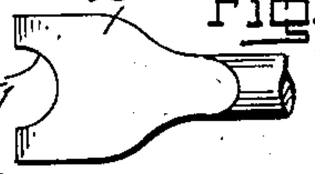
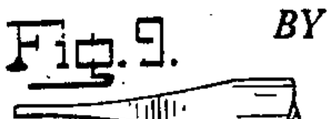


Fig. 9.



INVENTOR.
JOSEPH SCHUNK.
BY Smith & Hattern
ATTORNEYS.

Patented Aug. 20, 1935 2,012,141

UNITED STATES PATENT OFFICE

2,012,141

WINDOW CONSTRUCTION FOR AIR-CONDITIONED CARS

Joseph Schunk, Newark, N. J., assignor to The National Lock Washer Company, Newark, N. J., a corporation of New Jersey

Application May 15, 1934, Serial No. 725,804

6 Claims. (Cl. 189—73)

The present invention relates to bus or car window construction, and more particularly to an improved arrangement for moving the inside window stop toward and away from the window sash, and for tightly retaining it in its position against the window sash, to the end that an effective weather-seal may be maintained in the normal closed position of the sash, and at the same time it will be possible through adjustment of the window stop to permit the sash to be easily raised and lowered.

The invention is especially intended for railroad cars equipped with air condition units where the window sashes are normally closed and where it is essential that the car be kept weather-sealed. In such cases the passengers have no occasion to raise or lower the sashes, but in the case of an emergency necessitating the raising of the sash it is desirable that this can be easily done by a member of the train crew. The invention is intended to accomplish this purpose.

With the above and other objects in view, embodiments of the invention are shown in the accompanying drawing and these embodiments will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claims.

In the drawing:—

Fig. 1 is a fragmentary outside elevation of one corner of a window construction according to my invention.

Fig. 2 is a vertical sectional view, taken along the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view, taken along the line 3—3 of Fig. 1, the inside stop being shown in its normal sash-engaging weather-seal position.

Fig. 4 is a similar view to Fig. 3, but showing the inside stop in its disengaged or loosened position with respect to the sash.

Fig. 5 is a detail plan view of the cam member employed.

Fig. 6 is a side view of the cam shaft to which the cam is adapted to be secured.

Fig. 7 is an end view of the cam shaft.

Fig. 8 is a plan view of a tool for actuating the cam.

Fig. 9 is an edge view thereof.

Fig. 10 is a horizontal sectional view of a modification in which double sashes are provided.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

As the construction, according to the invention, is the same at each side of the window opening, only one side or post of said opening will be shown in the illustrated adaptation of the invention.

Referring to Figs. 1 to 7 of the drawing, the window sash, with which the cam actuated inside stop according to my invention is incorporated, comprises a glass 10, having a top rail (not shown), a bottom rail 11, and a pair of vertical side straps 12, connecting the top and bottom rails, only one of these side straps being shown.

The side strap is of U-shape channel form in cross-section to receive the vertical edge of the glass, its vertical edges being bent outwardly and rearwardly, as at 13—13, to engage the edge of the U-shape piece of facing material 14, which is cemented, riveted, or otherwise suitably secured about the side strap, this material being of suitable composition, similar to felt or leather, as regards its wearing qualtities, and adapted to have sliding engagement in the side post channel during raising or lowering of the sash, and to be compressed therein to constitute a weather-seal in the normal closed position.

The side channel comprises a fixed stop member comprising a base portion 15 secured to the window post 16 by screws 17 and 18, and a flange 19 extending at right angles to the base and constituting the fixed outside stop of the sash channel against which the outer side of the facing material 14 of the sash engages, this flange being disposed in abutting relation to the projecting over-turned edge portion 20 of the outer plate 21 of the car body. A vertically extending recess 22 is formed at the outer corner of the base 15 within which suitable weather-sealing packing material 23 is disposed.

The base 15 is provided at its intermediate portion wih a vertically extending groove 24, within which a platform strip member 25, of channel form in cross-section, is engaged and secured by screws 26. The strip member constitutes a slide surface upon which one end of the movable inside stop is adapted to engage, as will presently more fully appear, and also retains in place the angularly bent end 27 of a pressure leaf spring 28 disposed in the channel behind the facing material 14 and yieldingly retaining the edge of the window sash against looseness and rattling, while at the same time permitting it to be easily raised and lowered.

The inside stop 29 is of generally S-shape in cross-section, the portion of the S adjacent the sash forming a channel strip having its open side disposed toward the base 15 of the fixed stop, one end portion 30 of the S engaging the facing material 14 in opposed relation to the

flange 19 of the outside stop, and the other end portion 31 forming an exposed channel guide for the edge of the window curtain (not shown). A channel facing strip 32 of U-shape in cross section is set into the channel guide 31.

The end of the portion 30 and the base of the portion 31 are adapted to engage and have inward and outward sliding movement respectively upon the platform strip member 25 and upon the inwardly extended portion of the base 15, this sliding movement being accomplished by the means now to be described.

The adjustment cam device, according to my invention, comprises a shaft member 33 having a flange head 34 at its outer end, and provided at its inner end with opposed flats 35—35 upon which the eccentric cam 36 is secured, an aperture 37 being provided therein through which the flattened end of the shaft is slipped and swaged over, as at 38. The shaft is engaged in a slot 39 in the forward portion 40 of the inside stop, and the periphery of the cam engages the opposed sash engaging portion 30 and intermediate portion 41, a helical spring 42 being disposed upon the shaft between the cam and the portion 40 to prevent looseness before assembly and during adjustment.

A passage 43 is provided in the shaft 33 in which is engaged a screw 44 having its head 45 at one end disposed in a countersink 46 at the outer end of said passage, and having its other end extended through an aperture 47 in the platform strip 25 and screwed into a threaded bushing 48 swaged into the base 15 of the fixed stop. The screw head 45 is slotted in the usual manner, and the flanged head 34 of the cam shaft is provided with slots 49—49 at each side of the counter-sink 46.

It will be observed that when the screw 44 is tightened the head 34 of the cam shaft is pressed tightly against the inside stop and the latter is pressed against the base of the fixed stop so that movement of the inside stop is prevented. In order to tightly compress the facing material 14 to form an effective weather-seal, the screw 44 is first loosened, and thereupon the cam is turned to bring its enlarged portion toward the sash, causing the inside stop to be moved toward the sash, the position being then fixed by tightening the screw. When it is desired to raise the window sash the screw is loosened and by turning the cam to move its enlarged portion away from the sash the inside stop is shifted inwardly away from the facing material 14, as shown in Fig. 4, whereupon the sash may be easily raised and lowered.

Upon removal of the inside stop the spring 42 will frictionally retain the cam in its adjusted position so that this position will not be disturbed unless the same is intentionally manually changed. Upon replacing the stop the pressure against the side of the sash will therefore be the same as the pressure had prior to the removal of the stop, without having to make a readjustment of the cam.

A convenient tool 50 for operating the device is shown in Figs. 8 and 9, the edge being cut away, as at 51, to span the screw head 45, and the edge portions at each side being adapted to engage the slots 49 of the cam head.

In Fig. 10 I have shown a modification in which double sashes 10 and 10a are provided, the facing material 14 of the outer sash 10 engaging the fixed outside stop flange 19 and the facing material 14a of the inner sash 10a being engaged by the portion 30 of the movable inside stop. In this case the base 15a of the fixed stop is made wider than in the case of the single sash construction, and is provided with a relatively wide recess 24 in which is secured, in addition to the platform strip 25, a second platform strip 25a. The end 27 of the pressure spring 28 of the sash 10 is secured beneath the platform strip 25a, while the end 27a of the pressure leaf spring 28a of the inner sash 10a is secured beneath the platform strip 25. The operation of securing and releasing the sashes is the same as in the first embodiment.

While I have shown only one cam device in relation to the inside stop it will be understood that in practice a plurality of them will be provided at suitable intervals, say of approximately eight inches. In this way the pressure will be distributed along the edge of the sash.

The invention has been illustrated as applied to the vertical sides or posts of the window frame, but it is obvious that it is not limited to such use but may also be incorporated in the top and bottom sides by providing a movable header piece and a movable sill, so that tightness at all four sides may be brought about in the same manner, the movable header piece and the movable sill being substantially the same in construction and operation as the movable inside stop illustrated.

I have illustrated and described preferred and satisfactory embodiments of the invention but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claims.

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

1. In a window construction, a window frame part, a fixed stop carried thereby, a sash having an edge in relation to said frame part, and vertically movable relatively thereto, compressible weather-sealing means disposed about the edge of said sash and engaged at one side by said fixed stop, a movable stop carried by said frame part mounted for movement transversely toward and away from the said sash and engaging said weather-sealing means at the opposed side from said fixed stop, adjustment means carried by said frame part cooperating with said movable stop adapted to be operated to move it toward said sash to engage and compress said weather-sealing means between said fixed and movable stops, and to move it away from said sash to permit said sash to be vertically moved, and means for fixing said adjustment means in any position of adjustment.

2. In a window construction, a window frame part, a fixed stop carried thereby, a sash having an edge in relation to said frame part and engaged at one side by said fixed stop, a movable stop removably carried by said frame part mounted for movement transversely toward and away from the said sash and engaging it at the opposed side from said fixed stop, rotatable cam means removably secured to said frame part engaged with said movable stop adapted to be operated to move it toward and away from said sash, and spring means cooperating between said cam means and said movable stop adapted to frictionally retain said cam means in any position of adjustment with relation to said removable stop upon removal of the latter from said frame part.

3. In a window construction, a window frame part, a fixed stop carried thereby, a sash having

an edge in relation to said frame part and engaged at one side by said fixed stop, a movable stop carried by said frame part mounted for movement transversely toward and away from the said sash and engaging it at the opposed side from said fixed stop, said movable stop having a pair of transversely spaced vertically extending parallel walls forming a channel between them, a rotatable circular cam carried by said frame part having an eccentric axis and disposed in said channel between said spaced walls adapted to be rotated to move said movable stop toward and away from said sash in a direction at right angles to said channel walls, and means for fixing said cam in any position for adjustment.

4. In a window construction, a window frame part, a fixed stop carried thereby, a sash having an edge in relation to said frame part and engaged at one side by said fixed stop, a movable stop carried by said frame part mounted for movement transversely toward and away from the said sash and engaging it at the opposed side from said fixed stop, said movable stop having a channel including a pair of transverse spaced side walls and a transversely extending connecting wall having a transverse slot therein, a rotatable cam carried by said frame part disposed between said side walls having a shaft extended through said slot and adapted to be rotated to move said movable stop toward and away from said sash, and means for fixing said rotatable cam in any position of adjustment.

5. In a window construction, a window frame part, a fixed stop carried thereby, a sash having an edge in relation to said frame part and engaged at one side by said fixed stop, a movable stop carried by said frame part mounted for movement transversely toward and away from the said sash and engaging it at the opposed side from said fixed stop, said movable stop having a channel including a pair of transversely spaced side walls and a transversely extending connecting wall having a transverse slot therein, a tubular shaft engaged in said slot having a flange head engaging the outer side of said connecting wall, an eccentric cam carried by said shaft disposed between said side walls, and a mounting screw extended through said tubular shaft screwed into said frame part and having a head engaging the outer end of said tubular shaft, said shaft and cam adapted upon loosening of said mounting screw to be rotated to move said movable stop toward and away from said sash, tightening of said mounting screw adapted to fix said shaft and cam and said movable stop in any position of adjustment.

6. In a window construction, a window frame part, a fixed stop carried thereby, a sash having an edge in relation to said frame part and engaged at one side by said fixed stop, a movable stop carried by said frame part mounted for movement transversely toward and away from the said sash and engaging it at the opposed side from said fixed stop, said movable stop having a channel including a pair of transversely spaced side walls and a transversely extending connecting wall having a transverse slot therein, a tubular shaft engaged in said slot having a flange head engaging the outer side of said connecting wall, an eccentric cam carried by said shaft disposed between said side walls, a mounting screw extended through said tubular shaft screwed into said frame part and having a head engaging the outer end of said tubular shaft, and a spring disposed about said shaft between said cam and the inner side of said connecting wall, said shaft and cam adapted upon loosening of said mounting screw to be rotated to move said movable stop toward and away from said sash, tightening of said mounting screw adapted to fix said shaft and cam and said movable stop in any position of adjustment.

JOSEPH SCHUNK.