This invention relates to window casings of the common type in which two vertically sliding window sashes are held and guided so that the lower sash may be raised or the upper sash lowered, to open the window, and comprises an improved form of removable panel and means for inserting and detachably fastening said panel in the lower portion of the sash holding face or surface at one side of the window frame or casing. The fastening means are of such character that said panel can be quickly and easily removed when the lower sash is raised and then leave the edge of that side of each sash free of restraint when it is lowered opposite the space which was occupied by said panel before it was removed. I am aware that the use of a crude form of such a panel has heretofore been proposed, but the objects of the present invention are to produce a panel for this purpose which can be easily inserted and shall neatly fit into modern window constructions when the latter are only slightly modified for the purpose, can be applied to windows already installed, shall be easily removable and replaceable but firmly held in position when the window is in use, and shall not leave crevices through which cold air may enter. The best form of apparatus embodying my invention as shown in the accompanying sheet of drawings, in which Fig. 1 is a vertical cross section through a window and window frame to which my invention has been applied.

Fig. 2 is a detail horizontal section on line 2—2 of Fig. 1.

Fig. 3 is a detail vertical section on line 3—3 of Fig. 1.

Fig. 4 is an enlarged detail vertical section on line 4—4 of Fig. 1.

Fig. 5 is another detail section like Fig. 2 showing a modification.

Fig. 6 is a horizontal section on line 6—6 of Fig. 7, and Fig. 7 is a vertical section on line 6—6 of Fig. 6, showing another modification.

Throughout the drawing like reference characters indicate like parts. Referring to Figs. 1 to 4, the upper portion of the window casing or adjacent wall section of the building is indicated at 1, the window sill at 2, and one side portion of said casing at 3. The lower sash is shown at 4, while 5 indicates the upper sash. These sashes are counterbalanced by the usual weight (not shown) attached to cords, one of which is shown at 9, and which run over pulleys, journaled in the casing sides, one of which is shown at 10. The lower sash 4 is guided between the front molding 6 and the parting strip 8, and the upper sash 5 is guided between the rear molding 12, and said strip 8, which latter is set in a groove 11 in the side face or surface of the window casing. 7 represents a form of facing molding of the general type often added for ornamentation and finish. The above described apparatus embodies a general type of window construction now in use. The present invention comprises a special form of panel, preferably made mainly of stamped sheet metal, and which fits onto the lower portion of the inner face of one side of the casing, after the corresponding portions of the front molding and parting strip have been removed. The panel is held in such position by suitable fastening means which can be operated without the use of a screw driver, wrench or other tool.

In the embodiment of the invention shown in Figs. 1 to 4 the stamped metal panel is represented generally by the numeral 21. To this is fastened by screws 22 the previously removed section of front molding 6a, or an equivalent strip specially made for forming one wall of the groove in which one edge of the lower sash 4 is guided.

The other edge portion of the metal sheet panel 21 is bent upward, outward and downward as shown at 23 to conform to the cross sectional outline of the parting strip 8 and to take the place of the removed portion of said strip. Preferably this bent flange on panel 21 is also bent backward at its outer edge at right angles far enough to extend across the groove 11 and so fit snugly in said groove and hold the panel firmly against any transverse sliding movement, such as inward pressure on the sash 4 exerted from the outside of the building would tend to produce. Also the lower end of the upper section of the front molding 6 may be undercut, as shown at 2a in Fig. 3, to receive and hold a correspondingly inclined upper end wall of the removable front molding section 6a, and the lower end of such molding section is preferably provided with a vertically moving spring bolt 30, adapted to engage a recess in the window sill 2. Also the panel may be cut transversely, as indicated at 32 in Fig. 1, and the two sections so formed connected by a hinge such as shown at 60 and 61, for a purpose to be hereinafter explained.

The most important means, however, for fastening the panel in position, and the one which serves most efficiently to hold the panel in exact registry with the upper sections of front molding 6 and of parting strip 8, is a two-part friction fastening, one member of which is set in the back...
of panel 21, while the other is countersunk in the side 3 of the window casing and which are arranged to snap together when assembled. A preferred form of such fastening is illustrated in Fig. 4, where 40 indicates the construction generally. This fastening means is composed of the annular female member 41, fastened to panel 21 by the flanged thimble 42, set in a hole in said panel, and a cooperating male member represented generally at 44, which is countersunk in the casing. Member 41 contains a split spring ring 43 normally closed on itself at the transverse slot 45a between its ends, but which can be expanded radially within member 41 far enough to allow the outwardly flaring collar 46 on member 44 to be pushed into and frictionally held therein. 45 is a wood screw shank for 44 which may be screwed into a recess in the side of casing 3.

When this form of the invention is applied to an existing window casing, the screws 22 and flange 11 afford sufficiently secure fastening means for the panels 21, but when the invention is installed on new work, a portion of the outer face of the side portion 3 of the window casing may be cut out as shown at 26 in Fig. 5, and a flange 25 then formed on the outer edge of panel 21, which will be adapted to fit in the groove created when the facing molding 7 has been fastened in position. This produces a neater and still stronger assembly between the panel and the window casing.

In Figs. 6 and 7 I have shown my invention applied to another type of window in which the inner face of the rear molding 52 and of the front molding 56 are undercut so as to combine with the oppositely curved edge portions of the metal panel 50 and thereby form substantially cylindrical wells 51, 51, in which long coiled springs (not shown) may be nested. The upper ends of these springs are anchored at the top of the window casing and their lower ends are fastened one to each of the window sashes, which latter run in the grooves between the parting strip portion 58 of the panel and front molding 56 on the one side, and between said parting strip portion 58 and rear molding 52 on the other. These springs take the place of the usual counterweights in approximately balancing the weights of the sashes so that the latter can be easily raised or lowered. 53, 53, represent grooves stamped in the panel for receiving weather strips, and 57 is the facing molding which may be applied for ornamental purposes. In the forms of this type of window heretofore used the exterior configuration of parts shown in Fig. 6 has been usually completed by grooving the surface of the window casing, but in applying my invention I cut out that portion of the casing surface lying between moldings 52 and 56 to form a shallow space in which the stamped sheet metal panel 50, having the same outline, is set, all as shown in Fig. 6. Said panel is removeably held in the position there shown by any or all of the fastening means 27, 30 and 40 previously described, but not here again illustrated, and also may be made in two transversely separated sections hinged together as above explained with reference to the form of the invention shown in Figs. 1 to 5.

In all forms of the invention front molding section 6a, and the underlying portion of the panel 21 which supports it, are preferably extended upward as shown at 27 in Fig. 1 beyond the level of the lower edge of the lower sash 4 when the latter is completely raised. The same feature is shown at 54 in Fig. 7. Also the parting strip forming section of the panel may be similarly extended upward to a lesser extent, as shown at 29 in Fig. 1, and at 55 in Fig. 7. Also the joint between the parting strip sections (as 8 and 23) may be undercut, as indicated in dotted lines in Fig. 1 in the same way as the front molding sections are correspondingly cut, as shown at 28 in Fig. 5, and when the hinged sections of panel 21 are employed the whole upper section may be thus extended. To prevent rattling of window sashes against the metal panel 21, a leaf spring 31 may be set in a slot in one or both of the vertical walls of the bent flange 23 which serves as a parting strip, so that said springs will bear lightly on the sash opposite them, all as shown in Figs. 1, 2 and 5. Similar springs could be installed in the side walls of portion 58 of panel 50, in the construction illustrated in Figs. 6 and 7.

In use the invention in the form shown in Figs. 1 to 4 is installed in existing window casings by cutting out the sections of the front molding and parting strips and making the borings required and installing the panel by slipping the upper, extended end or portions of the panel into the position shown in Figs. 1 and 3. The window sashes can then be slid up and down in the usual way, the panel extensions 27 and 29 serving to break joints against the admission of air and also facilitating the proper insertion of the panel by engaging the lower portion of the lower sash 4 when the latter is raised to permit this operation. Thereafter when it is desired to clean the windows the lower sash is raised, the spring bolt 30 lifted and the lower end of the panel, pulled out along the sill 3, thereby automatically disengaging the spring fastener mechanism shown in detail in Fig. 4 and permitting the upper end of the panel to be drawn downward far enough to clear the sash 4 and be removed. Thereafter each of the sashes 4 and 5 can be lowered and swung out of the window frame for cleaning on both sides. The same method of operation in cleaning the windows can be followed when the other forms shown in Fig. 5 and in Figs. 6 and 7 are employed.

The above described operations are further facilitated when the hinged form of panel is used, since after the locking bolt 30 has been disengaged the lower panel section may be freely swung outwardly, thus permitting the upper panel section to be pulled down and freed from contact with the raised sashes without springing it outward to a distance more than is just necessary to free the friction fastening 40.

Certain of the features above described can be omitted, and various changes can be made in the details of construction shown without departing from the principle of the invention so long as the general relation of the parts and the mode of operation described are substantially retained in whole or in part within the limits defined in the appended claims.

Having described my invention, I claim:

1. In a window casing having means for holding and guiding therein two vertically sliding window sashes, the combination, with said above described structure, of a removable panel adapted to be inserted in the lower portion of the sash, holding surface at one side of said casing shaped to conform to the parting strip and front molding portions of said means and having its upper end cut away substantially along the lower line of the lower sash when fully raised, except that the upper
portions of said panel conforming to said front molding and to said parting strip extend short distances above said line, said panel being provided with, easily detachable means for holding it in operative position, but permitting it to be removed when the lower sash is raised.

2. A combination such as defined in claim 1 in which said casing has been grooved to receive a parting strip and said panel has a flange adapted to fit in said groove.

3. A removable panel for insertion in a window casing comprising a parting strip section and a front molding section, combined with a flange extending along its back opposite the parting strip section and adapted to fit into the parting strip groove in a window casing.

4. In a window casing having means for holding and guiding therein vertically sliding window sashes the combination, with said above described structure, of a removable panel adapted to be inserted in the lower portion of the sash-holding surface at one side of said casing, said casing having a vertically extending groove in said surface and said panel having a flange adapted to fit into said groove; together with means adapted to be operated without the use of tools for detachably holding said panel in position with said flange engaging said groove.

5. As a new article of manufacture a removable sheet metal panel for insertion in one side of a window casing bent to form a hollow parting strip section which has an opening of limited area from its interior in one of its walls and a plate spring anchored in its interior but projecting outwardly through said opening far enough to bear lightly on a side face of a window sash, one edge of which is in contact with said panel.

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