

[54] **EXTRUDED PROFILE MEMBERS, PARTICULARLY OF A THERMOPLASTIC SYNTHETIC MATERIAL, FOR BLIND FRAMES AND SASHERS OF SASH WINDOWS, SLIDING DOORS, OR THE LIKE**

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[51] Int. Cl..... **E05d 13/02**

[58] Field of Search ..... **49/501, 504, 420, 421, 49/425, 471, DIG. 2**

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[57] **ABSTRACT**

An arrangement of blind frame profile members and sash profile members for slidingly supporting sash windows, doors and the like. The profile members are constructed of a thermoplastic synthetic material and are of identical cross-section for all sides of the frame and for all sides of the sashes. The frame profile members include anchoring webs at one side for fixedly attaching to adjacent building structure. The frame profile members include two similarly configured lateral channels extending inwardly toward the sash profile members and including guiding webs for supporting rails upon which rollers mounted in the sash profile members may travel. The sash profile members include mounting webs for holding special additional mounting profiles for clampingly engaging neoprene inserts directly and clampingly abutting the glass window panes. A covering profile member is provided for sealing that portion of the frame profile members otherwise visible. Drainage bores are provided in the sash profile members, covering profile members, and frame profile members for concealingly transporting away drainage water that may collect inside of the outside window pane. A water spout profile member is glued to the upper profile members for routing water outwardly from the sash and window pane assembly.

**11 Claims, 4 Drawing Figures**

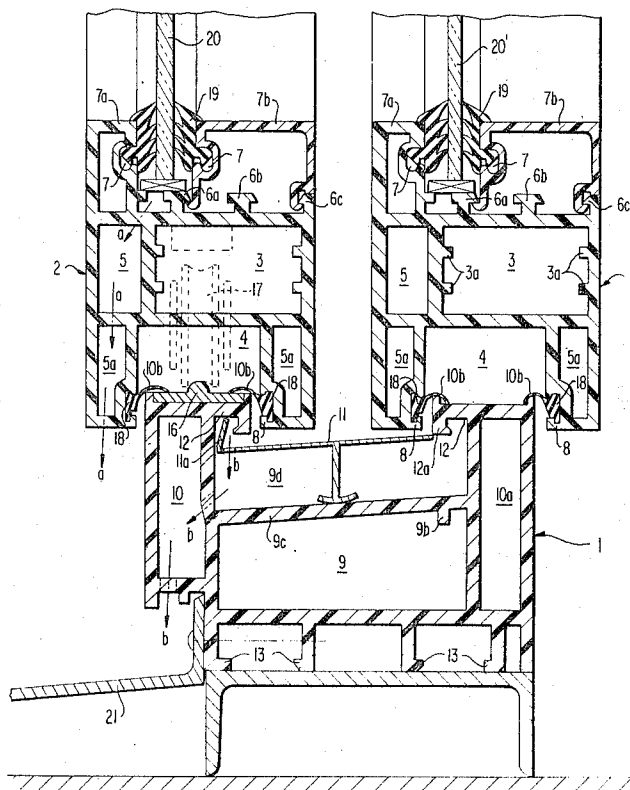


FIG 1

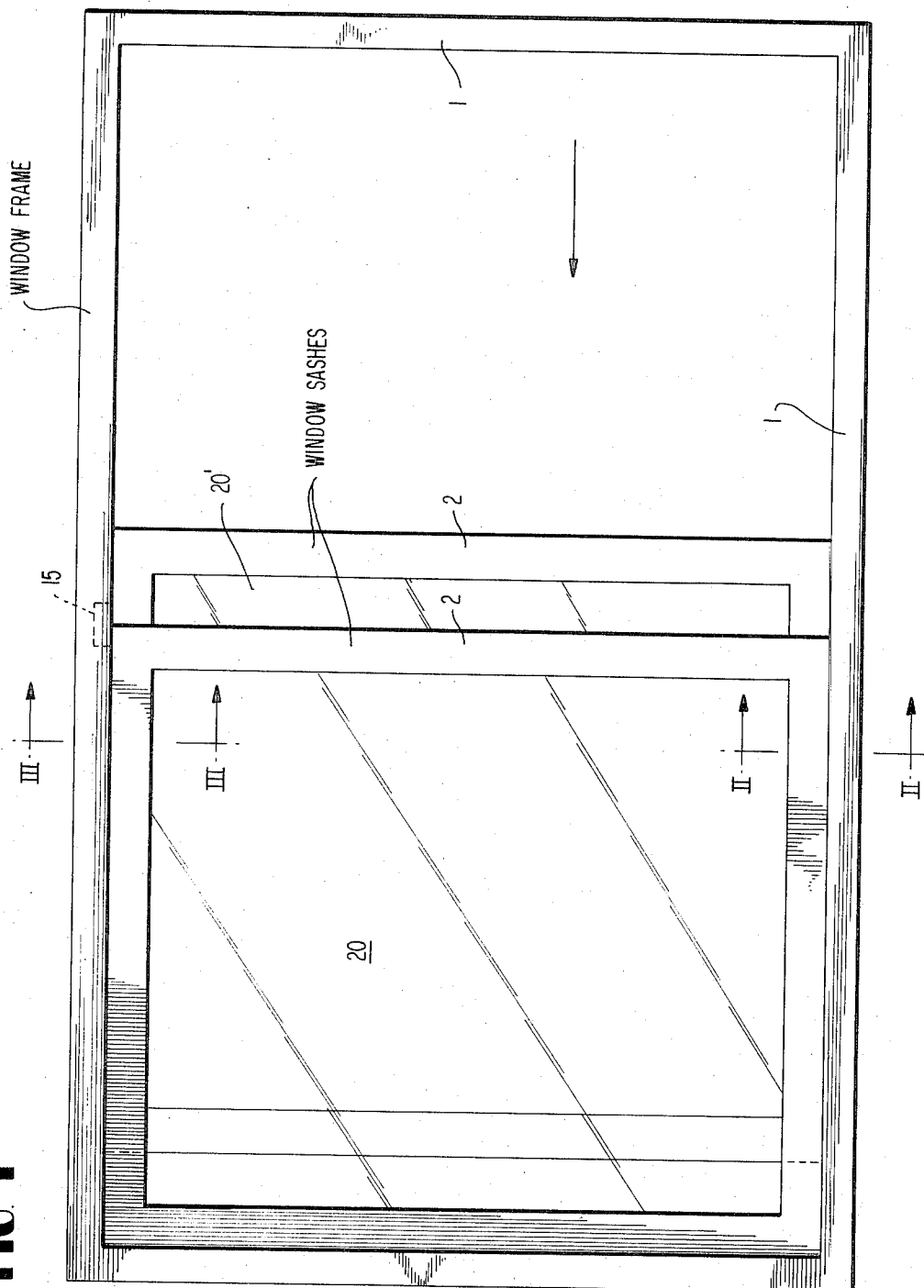


FIG 2

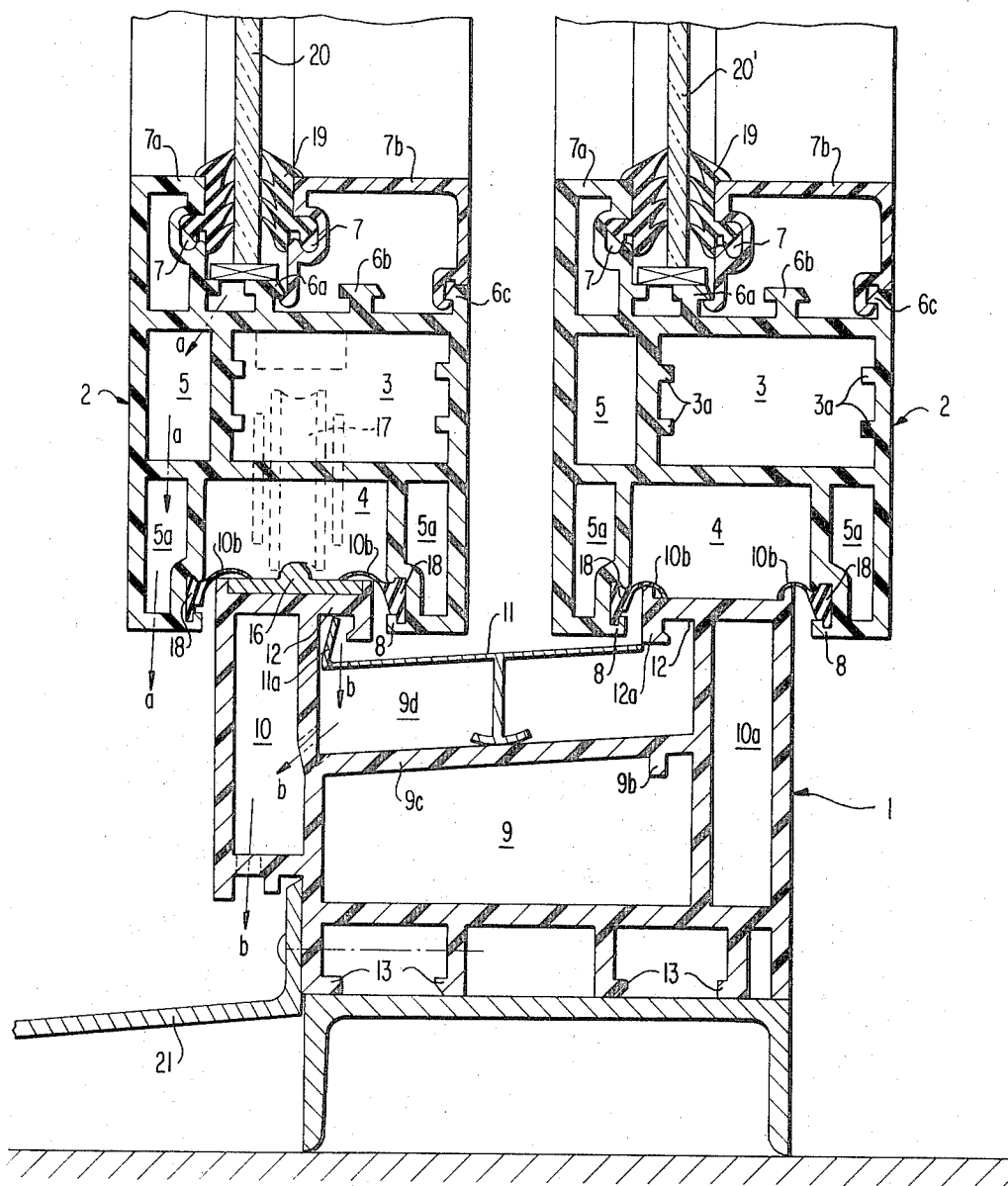


FIG 3

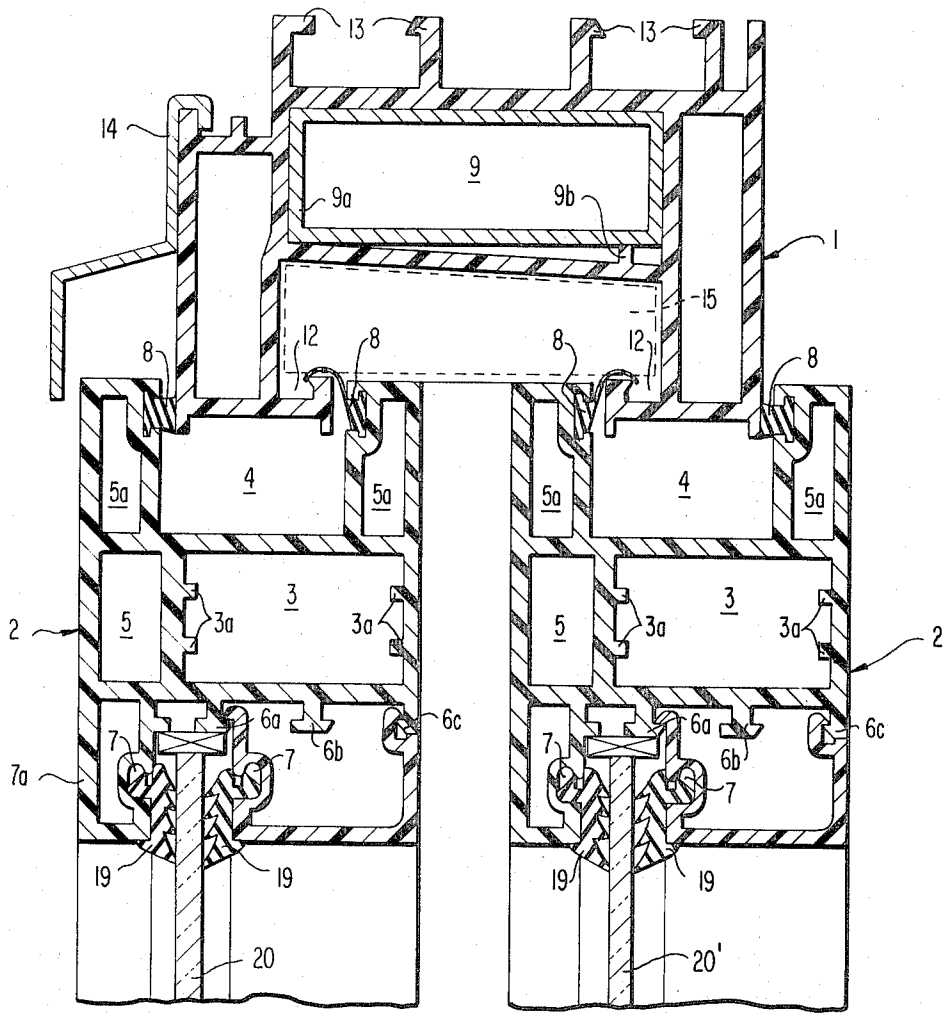
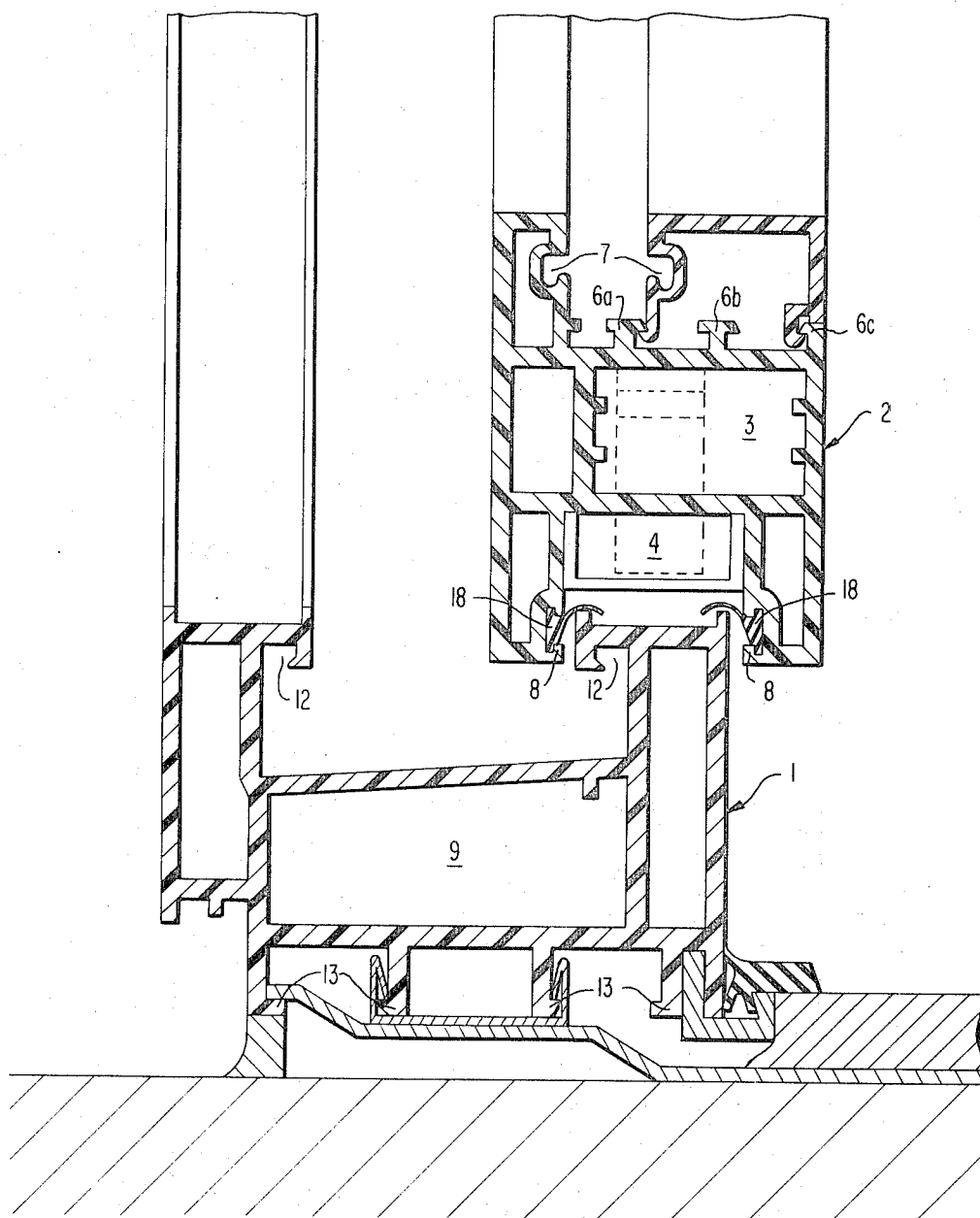


FIG. 4



**EXTRUDED PROFILE MEMBERS,  
PARTICULARLY OF A THERMOPLASTIC  
SYNTHETIC MATERIAL, FOR BLIND FRAMES  
AND SASHES OF SASH WINDOWS, SLIDING  
DOORS, OR THE LIKE**

**BACKGROUND AND SUMMARY OF THE  
INVENTION**

The present invention relates to an arrangement of extruded profile members, preferably of a thermoplastic synthetic material, for blind frames and sashes of sliding windows, sliding doors, or the like. The present invention especially relates to blind frames and sashes for use in buildings.

Heretofore, several, respectively different profile members were ordinarily required for manufacturing the blind frames and sashes of sash windows, sliding doors, or the like. In particular, differing profile members were utilized for the blind frames of horizontally extending windows than were used for vertically extending windows or the like. These prior arrangements necessarily involved complex manufacturing and assembly techniques for the various cross-section profile members used, with consequent high manufacturing costs.

The present invention is directed to overcoming the above-described disadvantages of the prior art arrangements. This invention contemplates the provision of extruded profile members, preferably of a thermoplastic synthetic resin, for blind frames and sashes of sash windows, sliding doors, or the like, which profile members are characterized in that they are all constructed respectively of the same cross-section for all frame sides of the blind frames and sashes. Since the cross-section of the profile members is the same for all frame sides, both horizontally displaceably as well as vertically displaceable windows or doors can be constructed with a single set of profile members.

The profile members contemplated by the present invention may be manufactured in lengths of, for example, approximately 5 meters and can later be cut to size for the particular door or window being constructed. Preferred material employed for the profile members of the present invention include thermoplastic synthetic resins, such as hard PVC, glass-fiber-reinforced polyesters, or the like. Aluminum alloys can also optionally be utilized for the profile members of the present invention.

The present invention contemplates profile members constructed so that the blind frame profile members exhibit anchoring webs or projections, a main closed channel with a slanted or beveled top or side, side channels, and an undercut section for mounting a facing or covering profile to the frame profile member without additional adhesive material.

It is also contemplated by the present invention that the blind frame profile members carry guide strips along the edge over the side channels and over the undercut or overlapping sections, so that a rail for rollers can be inserted in the thus-formed flat groove between the guide strips. In the main channel, a guide web is advantageously arranged at the beveled or slanted top for holding a hollow rectangular cross-section profile element of metal which may be inserted in the main channel for reinforcing purposes.

The sash profile members contemplated by the present invention extend beyond the blind frame profile

members and exhibit a main channel, a channel disposed adjacent said main channel, two lateral channels forming a sash groove therebetween, and mounting guides for gaskets or sealing means arranged on the lateral channels. In a preferred embodiment, internal side webs extend inwardly from the walls of the main channel.

The sash profile members contemplated by the present invention also advantageously carry several mounting webs, in addition to hollow mounting profiles, for special holding profiles for the glass panes to be clamped therein. These mounting webs and hollow mounting profiles are disposed at the side of the main channel opposite of the side adjacent said lateral channels.

The arrangement of the blind frame and sash profile members contemplated by the present invention provides the advantage that all frame and sash constructions, including both vertically and horizontally slidable constructions, can be constructed in a simple and economical manner with a single set of similar cross-section profile members.

These and further objects, features and advantages of the present invention will become more obvious from the following description when taken in connection with the accompanying drawing, which shows, for purposes of illustration only, one embodiment of the present invention.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a schematic side view of a horizontally sliding window arrangement showing the relative positioning of the profile members according to the present invention;

FIG. 2 is a partial schematic cross-sectional view taken along line II—II of FIG. 1 and showing the profile members according to the present invention in operative position to support the glass window panes;

FIG. 3 is a partial schematic cross-sectional view similar to FIG. 2, except taken along line III—III of FIG. 1; and

FIG. 4 is a partial schematic cross-sectional view of the righthand lateral portion of a horizontal sash window according to FIG. 1 closed in opposition to the direction of the arrow.

**DETAILED DESCRIPTION OF THE DRAWINGS**

Referring to the drawings, wherein like reference numerals are used throughout the various views to designate like structure, a horizontally slidable window construction is shown in FIG. 1. The relatively fixed window frame is made up on all sides by blind frame profile members having a continuous cross-section as shown at reference numeral 1 in FIGS. 2 to 4. The outermost glass window pane 20 and the inner glass window pane 20' are supported by similar sashes constructed with sash profile members having a cross-section as indicated by reference numeral 2 in FIGS. 2 to 4.

The sash profile members 2 are each constructed with a main channel 3 having internal lateral webs 3a, a longitudinal groove 4, lateral channels 5 and 5a, and mounting webs 6a, 6b and 6c. The mounting webs are arranged for connecting the sash profile members to the special mounting profiles 7b. Bulges 7 are provided on portion 7a of the sash profile members and on special mounting profiles 7b. Mounting guides 8 are also

provided on the sash profile members for mounting lip or brush gaskets 18.

The frame profile members 1 include a main channel 9 and lateral parallelly extending channels 10 and 10a for supporting and guiding the sash profile members. A preferred embodiment includes metallic reinforcing profiles 9a inserted into the main channel 9 and guided by web 9b. Guide strips 10b are provided on the lateral channels for positioning a rail 16 which guides wheels or casters 17 mounted in the sash profile members 2 (see dash-line representation at lefthand sash profile member in FIG. 2). A facing or covering profile member 11 is held in place in channel 9d on the frame profile member 1 by engagement of projection 11a with an undercut section 12 at one side of the frame profile member. At its other side the facing element 11 contacts the front face of projection 12a. With this arrangement, the facing or covering profile member 11 need not be glued in position on the frame profile member 1. An important and essential function of this facing element 11 is the covering of the open channel 9d to form an optically pleasing smooth surface while simultaneously preventing a contamination of the channel 9d. The facing element is positioned with a slight incline to assure the run-off of any rain water at its lowest point through the aperture at the left side of element 11, as viewed in FIG. 2. Mounting or anchoring webs 13 are provided on the frame profile member 1 for attaching to fixed building structure (see FIG. 4 and see window sill 21 in FIG. 2).

Water spout profile elements 14 (FIG. 3) may be glued to the frame profile members at the top side of the upper window frame section for directing rain water away from the window pane supporting assembly. A U-shaped sealing profile 15 (FIG. 1 and 3) of, for example, chloroprene is at a single position of the frame as indicated in dash lines in FIG. 1. This profile 15 is sufficiently elastic to make it possible to hang and detach the sash. Lip or brush gaskets 18 slidably seal the connection between sash profile members and the frame profile member. Neoprene profile members 19 are held in place by bulges 7 and directly clampingly engage the glass panes 20 and 20'.

As discussed above, the window frame is manufactured from frame profile members 1, wherein all four sides exhibit the same cross-sectional profile. Also, the sashes are formed by sash profile members 2 having a similar cross-section at all sides of each of the sashes. In the sash profile members, channel 3 serves for receiving fitting pieces and optionally for receiving additional reinforcing profiles. The groove 4 formed between channels 5a on the respective sash profile member ensures a secure unhinging and inserting of the sashes into position on the frame profile members. This groove 4 also facilitates the lowering of the sash at a lifting mounting means in the case of vertical sash windows. In the event a vertically sliding sash window is being utilized, this groove 4 receives a tension spring arrangement (not shown in the drawing).

The channels 5 and 5a are provided with slots making it possible for the water to run off in a covered or hidden manner as shown by arrows "a" in FIG. 2. The webs 6a serve for holding the glass strips and, together with the webs 6b and 6c, for mounting the holding profile elements 7b for the glass panes 20, 21, which latter can also be double-glass panes when the profile elements 7b are correspondingly fashioned. Neoprene

profiles 19 are shown pressed into the bulges 7 for the glazing procedure. These profiles 19 have multiple V-mountings for preventing the glass panes 20 and 20' from falling out.

The guides 9 serve alternatively for the holding of lip gaskets in use with vertical sash windows or for holding brush gaskets in use with horizontal sash windows.

The channel 9 in the profile member 1 can receive metallic reinforcing profiles 9a in case of larger windows, or, in case of vertical sash windows, weight (not shown) for the compensation of the weight of the window sash. The roof 9c of the channel 9 extends obliquely with regard to the base side to better wedge and guide enclosed structure and to conduct rain water to the left end as shown in FIG. 3. Any penetrating water is conducted away at the channels 10 by corresponding slots as shown by arrows "b" (FIG. 2) to the window sill 21 in a concealed fashion. As described above, the covering profile member 11 is clamped into position to cover channel 9d and serves for covering and concealing the lower and lateral portion of the profile members 1. Provisions are also made with respect to the slope of the profile members 11 to assure drainage through the run-off slots as shown by arrows "b" in FIG. 2. Also, with this arrangement of the profile member 11, the blind frame formed of the profile members 1 can be easily cleaned.

While we have shown and described only one embodiment in accordance with the present invention, it is understood that the same is not limited thereto but is susceptible of numerous changes and modifications as shown to those skilled in the art, and we therefore do not wish to be limited to the details shown and described herein but intend to cover all such changes and modifications as are encompassed by the scope of the appended claims.

We claim:

1. An arrangement of blind frame profile members and sash profile members for slidingly supporting sash windows, doors, and the like; said arrangement comprising: a relatively fixed frame formed of identical cross-section frame profile members for all sides of the frame, at least one sash formed of sash profile members, said sash profile members including means for supporting a glass pane or the like, and guiding means for slidably guiding said sash in said frame,

wherein said at least one sash profile members are of identical cross-section for all sides of the sash, and wherein said sash profile members project beyond the immediately adjacent frame profile member in a direction perpendicular to the plane of the glass pane or the like supported by the sash, said sash profile members including: a main sash channel, a side sash channel adjacent said main sash channel, two lateral sash channels forming a sash groove therebetween, and mounting guides for gaskets arranged on said lateral sash channels, wherein said frame profile members include a main channel and at least one side channel adjacent said main channel, said two lateral sash channels being in straddling engagement with said side channel, wherein said frame profile members include two side channels positioned in parallel relationship at opposite ends of said main channel, and wherein two sashes are provided, the sash profile members of the respective sashes each having their respective two lateral sash channels in straddling engagement with

said side channels, wherein said profile members further include an undercut section for holding a facing profile member in position to conceal that portion of the profile members between the two sashes and facing toward the glass pane, and wherein said main channel includes four sidewalls enclosing a main channel space, one of said sidewalls being slanted with respect to an oppositely facing sidewall.

2. An arrangement according to claim 1, wherein a guide web protrudes from said slanted wall into said main channel space for guidably holding reinforcing means in said main channel space.

3. An arrangement according to claim 2, further comprising reinforcing means in the form of a hollow metallic profile member of rectangular cross-section inserted into said main channel space in engagement with said guide web.

4. An arrangement according to claim 3, wherein said slanted wall is sloped inwardly toward the sashes in the inward direction with respect to the outside of the building containing the frame.

5. An arrangement of blind frame profile members and sash profile members for slidably supporting sash windows, doors, and the like; said arrangement comprising: a relatively fixed frame formed of identical cross-section frame profile members for all sides of the frame, at least one sash formed of sash profile members, said sash profile members including means for supporting a glass pane or the like, and guiding means for slidably guiding said sash in said frame,

wherein said at least one sash profile members are of identical cross-section for all sides of the sash, and wherein said sash profile members project beyond the immediately adjacent frame profile member in a direction perpendicular to the plane of the glass pane or the like supported by the sash, said profile members including: a main sash channel, a side sash channel adjacent said main sash channel, two lateral sash channels forming a sash groove therebetween, and mounting guides for gaskets arranged on said lateral sash channels, wherein said frame profile members include a main channel and at least one side channel adjacent said main channel, said two lateral sash channels being in straddling engagement with said side channel, wherein said frame profile members include two side channels positioned in parallel relationship at opposite ends of said main channel, and wherein two sashes are provided, the sash profile members of the respective sashes each having their respective two lateral sash channels in straddling engagement with said side channels, wherein a facing profile member is provided for concealing that portion of the frame profile member between the two sashes and facing toward the glass panes, said facing profile member being held in position by abutment with undercut sections of each of said side channels and by abutment with a wall of said main channel, and wherein said main channel includes four side walls enclosing a main channel space, one of said side walls being slanted with respect to an oppositely facing side wall, and wherein said facing profile member abuttingly engages the one of said side walls which is slanted.

6. An arrangement of blind frame profile members and sash profile members for slidably supporting sash

windows, doors and the like; said arrangement comprising:

a pair of sashes formed of sash profile members, said sash profile members including means for supporting a glass pane or the like,

a relatively fixed frame formed of identical cross-section frame profile members for all sides of the frame, said frame profile members being of multiple closed channel construction and including a main channel and two side channels positioned immediately adjacent to and at respective opposite sides of said main channel, each of said channels extending along the length of the frame profile members, each of said side channels including means for slidably guiding respective ones of said sashes therealong, said side channels extending in the direction of said sashes by a greater amount than said main channel such that a groove is formed which is bounded at the sides thereof by said side channels and at the bottom thereof by a wall of said main channel,

and facing profile members inserted in said groove for concealing that portion of the frame profile members which is between the side channels and which faces in the direction of said sashes, said facing profile members being held in position by abutment with sections of each of said side channels and by abutment with said wall of said main chamber which forms the bottom of said groove, wherein one of said side channels is an inner side channel which directly guides an inner sash and the other of said side channels is an outer side channel which directly guides an outer sash, and wherein said wall which forms the bottom of said groove is a slanted wall which is inclined away from said sashes in the direction from said inner to said outer side channel.

7. An arrangement according to claim 6, wherein said main channel includes four side walls, including said slanted wall, enclosing a main channel space, and wherein a guide web protrudes from said slanted wall into said main channel space for guidably holding reinforcing means in said main channel space.

8. An arrangement according to claim 7, further comprising reinforcing means in the form of a hollow metallic profile member of rectangular cross-section inserted into said main channel space in engagement with said guide web and in engagement with each of the other three side walls of said main channel.

9. An arrangement of blind frame profile members and sash profile members for slidably supporting sash windows, doors and the like; said arrangement comprising:

a pair of sashes formed of sash profile members, said sash profile members including means for supporting a glass pane or the like,

a relatively fixed frame formed of identical cross-section frame profile members for all sides of the frame, said frame profile members being of multiple closed channel construction and including a main channel and two side channels positioned immediately adjacent to and at respective opposite sides of said main channel, each of said channels extending along the length of the frame profile members, each of said side channels including means for slidably guiding respective ones of said sashes therealong, said side channels extending in



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the direction of said sashes by a greater amount than said main channel such that a groove is formed which is bounded at the sides thereof by said side channels and at the bottom thereof by a wall of said main channel, and facing profile members inserted in said groove for concealing that portion of the frame profile members which is between the side channels and which faces in the direction of said sashes, said facing profile members being held in position by abutment with sections of each of said side channels and by abutment with said side wall of said main chamber which forms the bottom of said groove, wherein said means for slidably guiding respective ones of said sashes includes guide strips extending along said side channels and forming a shallow groove for the insertions of a rail for engagement

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with rollers attached to said sashes, said guide strips extending across the width of the side channels and a portion of the width of said main channel.

5 **10.** An arrangement according to claim 8, wherein said means for slidably guiding respective ones of said sashes includes guide strips extending along said side channels and forming a shallow groove for the insertion of a rail for engagement with rollers attached to said sashes, said guide strips extending across the width of the side channels and a portion of the width of said main channel.

15 **11.** An arrangement according to claim 8, wherein said frame profile members and said sash profile members are extruded members formed of a thermoplastic synthetic resin.

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