

FRAMES FOR WINDOWS AND DOORS

The present invention relates to frames for windows or doors.

According to this invention there is provided a
5 frame for a window or door constructed from frame members
connected together end-to-end, each frame member
comprising two profiles extending along the full length
of the frame member, each profile being formed by roll
forming and being generally channel-shaped, each of the
10 two free edge portions of each of the profiles
comprising, viewed in cross-section, contiguous portions
which extend at an angle to each other and which are
either secured directly to the corresponding portions of
the other profile or are anchored in a thermally-
15 insulating connecting element which extends along the
length of the frame member and which is disposed between
the two profiles, at least one of the side walls of one
of the profiles being shaped to form a groove facing in
the general plane of the frame, and a channel-section
20 fairing element formed by roll forming and extending
along the length of the member, the free edge portions of
the fairing element engaging in said groove.

The invention will now be described in more detail
with reference by way of example to the accompanying
25 drawings, in which:

Figure 1 is a perspective view illustrating a
slightly open window incorporating the invention, the
fixed and opening frames being shown in section;

Figure 2 is a section along line II-II of Figure
1, and
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Figures 3 to 6 are cross-sectional views of four
further embodiments of the invention.

The frame assembly shown in Figures 1 and 2
comprise a fixed frame 1 and an inwardly moving frame 2
35 which is shown slightly open. The frame 2 has three
window panes 3, 4 and 5 in order to provide a triple-

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glazed window.

The frame 1 comprises a front profile 6 and a rear profile 7 which are connected to an intermediate connecting member 8 of a thermal insulating material to provide a thermal barrier between the rear and front profiles. The frame 2 is mounted on the fixed frame 1 by means of hinges 9 (see Figure 2) such that it is pivotable relative to the fixed frame. The frame 2 comprises a front profile 10 and a rear profile 11 which are connected to intermediate connecting member 12 made from a thermal insulating material to provide a thermal barrier between the rear and front profiles. The window panes 3, 4 and 5 are mounted in the frame 2 in a manner known per se by means of spacing means 13.

The profiles 6, 7, 10 and 11 are of generally channel-section and are made by roll forming planar and preferably surface treated metal strips in preferably unheated condition, so as in each case to provide two side walls 14 and 15 which are connected to each other through a base or transition portion 16. The parts of the side walls 14, 15 closest to said transition portion 16 form a double-walled support portion 17 and the side walls merge into free edge or coupling portions 18 and 19 which comprise, when viewed in cross-section, contiguous portions which extend at right angles to each other and through which the profiles 6, 7, 10 and 11 are connected to said connecting members 8, 12. The double-walled support portions 17 of the profiles have different shapes depending on what they are intended to support. The support portion 17 of the front fixed frame profile 6 supports a sealing means 20 (see Figure 1) which engages the outer side of the front frame profile 10. The support portion 17 of the front frame profile 10 provides a support for a sealing means 21 (see Figure 1) which engages the pane 3. The support portion 17 of the rear frame profile 11 supports a channel section fairing

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element 22 the free edge portions of which engage a groove formed in one side wall 14, 15 and which in turn holds a sealing means 23 (see Figure 1) clamped against the pane 5. The support portions 17 of all of the
5 profiles 6, 7, 10 and 11 also contribute to the stiffening of the profile, and the support portion 17 of the rear fixed frame profile 7 provides support to the hinge 9.

In order to stiffen the profiles 6, 7, 10, 11 and
10 at the same time obtain the highest number of support sections, the double-walled support portion 17 extends transversely of the part 24 formed by the side walls 14, 15 adjoining the coupling portions 18, 19. The support portion 17 of the front profiles 6, 10 extends more at
15 one side than the other, whereby the support portion 17 and the part 24 form a substantially L-shaped profile which extends inward to overlap the front frame profile 10 and its window pane 3.

The support portion 17 and the part 24 of the rear
20 profiles 7, 11 form a substantially T-shaped profile, which is suitable for various support and retention purposes.

The support portion 17 and the coupling portions 18, 19 and intermediate portions of the side walls 14, 15
25 of all of the profiles 6, 7, 10 and 11 define slots or channels 25 for receiving of various components such as the fairings 22 or hinges.

The side wall 14 of the front portions 6 and 10 between their support portion 17 and coupling portion 18
30 is inclined so as to provide a water channel 26 having drainage apertures 27. The water flowing through the apertures 27 into the profile can discharge through drainage apertures 28 in the other side wall 15.

Forming the profiles by roll forming enables all of
35 the profiles 6, 7, 10 and 11 and the fairing element 22 to be

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produced without changing the position and/or number of roll bodies in the roll forming machine. Also, adjustments can be made quickly and economically if identical profiles are used. Thus, in the arrangement shown in Figures 1 and 2, the front profiles 6, 10 are identical and so are the rear profiles 7, 11. This means that the entire fixed frame 1 and movable frame 2 can be manufactured by adjusting the roll forming machine once and then once again for making the fairing element 22. The rear edges of the rear profiles 7, 11 extend in the same plane but the front sides of the front profiles 6, 10 in different planes, while the width of the connecting member 8 is greater than the width of the connecting member 12.

In the embodiment of Figure 3, the front profiles 6, 10 are identical, while the rear profiles have different length but are otherwise identical. Here, the connecting members 8, 12 are identical which facilitates the manufacture thereof.

In the embodiment shown in Figure 4, both the front profiles 6, 10 and the rear frame profile 11 are identical, while the rear fixed frame profile 7 has a different shape. In the embodiment shown in Figure 5, the front fixed frame profile 6 and the rear moving frame profile 11 are identical, while the rear fixed frame profile 7 and the front moving frame profile 10 have different lengths but are otherwise the same shape.

The embodiment shown in Figure 6 is an alternative construction with a double-glazed window. In this case the rear profile 11 and front profile 10 of the frame 2 are connected to each other through connecting member 12 comprising a hinge, such that the front moving profile 10 and its window pane 3 can pivot relative to the rear frame profile 11 and its panes 4, 5.

Additional profiles 29, 30 are mounted on the coupling portions 18, 19 of the frame profiles 10, 11 and provide support for sealing means (indicated diagrammatically) engaging the inner side of the pane 3 and the outer side of the pane 4.

The profiles 29, 30 are made in a roll forming process and they have several identical portions for facilitating adjustment procedures during manufacture.

As is evident from the illustrated embodiments, the various profiles have similar if not identical portions.

Thus, all front and rear profiles in the two frames may have similar or identical coupling portions 18, 19. Adjustment procedures during roll forming are thus facilitated, while the same roll units for forming the coupling portions 18, 19 may be used for all these profiles, and also the mutual positions thereof can be maintained.

The illustrated frame construction also comprises cover profiles 31 and 32, reinforcing profiles 33 and 34 and sealing strips 35 along with other details of well-known type and function, e.g. components for mounting the fixed frame in a surrounding wall.

The frames 1, 2 may also be used for doors. The frame 2 may have one, two, three or more window panes. The connecting means 8, 12 may comprise a long profile or several profile members, the support portions 17 may be used as supports for other means than those described above. The slots 25 may be designed to receive parts of the hinge 9 or other units and the coupling portions 18, 19 may be S-shaped or of other shape and fit into slots in the connecting members 8, 12 or be retained thereto by special brackets 36 (Figures 3 and 4).

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CLAIMS

1. A frame for a window or door constructed from frame members connected together end-to-end, each frame member comprising two profiles extending along the full length of the frame member, each profile being formed by roll forming and being generally channel-shaped, each of the two free edge portions of each of the profiles comprising, viewed in cross-section, contiguous portions which extend at an angle to each other and which are either secured directly to the corresponding portions of the other profile or are anchored in a thermally-insulating connecting element which extends along the length of the frame member and which is disposed between the two profiles, at least one of the side walls of one of the profiles being shaped to form a groove facing in the general plane of the frame, and a channel-section fairing element formed by roll forming and extending along the length of the member, the free edge portions of the fairing element engaging in said groove.
2. A frame as claimed in Claim 1, wherein the other profile incorporates a double-walled portion projecting in the same direction as that in which said groove faces so as with the fairing element to be capable of retaining a panel within the frame.
3. A frame as claimed in Claim 1 or Claim 2, wherein the fairing element provides means for a sealing strip disposed at the side of the fairing element nearest the other profile.
4. A frame as claimed in Claim 1, wherein both of said side walls of at least one of the profiles is shaped to form a groove as aforesaid, such profile being symmetrical.
5. A frame for a window or door substantially as hereinbefore described with reference to and as illustrated in Figures 1 and 2, or any of Figures 3 to 6 of the accompanying drawings.



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