

PATENT SPECIFICATION

(11) 1 462 900

1 462 900

- (21) Application No. 55985/74 (22) Filed 30 Dec. 1974
 (31) Convention Application No. 5002/74
 (32) Filed 28 Dec. 1973 in
 (33) Japan (JA)
 (44) Complete Specification published 26 Jan. 1977
 (51) INT CL³ E06B 7/14
 (52) Index at acceptance EIJ 213 2810 302 393



(54) A FRAME OF A WINDOW HAVING HORIZONTALLY SLIDING WINGS

(71) We, YOSHIDA KOGYO K.K., a corporation duly organized under the laws of Japan and existing at No. 1, Kanda Izumicho, Chiyoda-ku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a frame of a window having horizontally sliding wings.

There is already known a water drain assembly that can be slidably mounted between rails on a sill of a frame of a window having horizontally sliding wings. The known water drain assembly is movable along the rails away from the prescribed normal position, as when the wings are to be removed from or installed within the frame. However, since the known water drain assembly is merely slidably mounted between the sill rails and is not provided with any suitable means against its undue movement, it has been impossible to fix the same in the prescribed position when subjected to stresses applied as by the opening and closing movement of the window.

According to the invention, there is provided a frame of a window having horizontally sliding wings, wherein said frame includes a sill having front and rear rails arranged in parallel spaced relationship thereon, said front rail having a first groove extending longitudinally along its lower portion and an aperture formed in a prescribed position of said groove therethrough, said rear rail having a second groove extending longitudinally along its lower portion, said first and second grooves being open toward each other, and a water drain assembly comprising, in combination, an open-bottom box-like member mounted between said front and rear rails, said boxlike member having a pair of opposed side walls through which there are formed a pair of water inlet openings, respectively, and a front wall through which there are

formed a pair of water outlet openings in side-by-side arrangement, a transverse partition within said boxlike member dividing the interior thereof into a pair of opposed chambers, each of said chambers being open through one of said water inlet openings and one of said water outlet openings, rim means projecting forwardly of said front wall of said boxlike member to at least partly surround said water outlet openings, said rim means being slidably along said first groove and being capable of projecting into said aperture to hold said water outlet openings in registered relationship thereto, a pair of ears projecting rearwardly of said boxlike member and slidably along said second groove, and spring means biasing said boxlike member toward said front rail.

The invention will be described by way of example with reference to the accompanying drawings in which like reference characters denote like parts throughout the several views, and wherein:
 Figure 1 is a perspective view of a water drain assembly constructed in accordance with the concepts of this invention;

Figure 2 is a partly broken away, top plan view showing the water drain assembly of Figure 1 as mounted in a prescribed position between a pair of rails on the sill of a supporting frame for a window or the like;

Figure 3 is a vertical sectional view of the arrangement shown in Figure 2;

Figure 4 is a view similar to Figure 2 but showing the water drain assembly displaced from its prescribed position on the sill; and

Figure 5 is a vertical sectional view of the arrangement shown in Figure 4.

With reference to Figure 1, the water drain assembly illustrated therein by way of a preferred embodiment of this invention includes an open-bottom boxlike member 10. The interior of this boxlike member 10 is bisected into a pair of opposed chambers 11 by a transverse partition 12 located centrally with respect to the longitudinal dimension of the boxlike member.

A pair of water inlet openings 13 are formed through the respective opposed side walls 14 of the boxlike member 10, one of the side walls 14 with its water inlet opening 13 being hidden in Figure 1. The water inlet openings 13, of course, are open to the respective chambers 11. A pair of water outlet openings 15 are formed through the front wall 16 of the boxlike member 10. The water outlet openings 15 are arranged in side-by-side relationship, on both sides of the partition 12, and are open to the respective chambers 11. It will be noted that both water outlet openings 15 are bounded or surrounded by rims 17 of rectangular form or arrangement projecting slightly forwardly of the front wall 16 of the boxlike member 10. Of the four rims bounding the water outlet openings 15, the pair of side rims 17a are inclined toward each other.

A pair of ears 18 project rearwardly from both ends of the rear wall 19 of the boxlike member 10, and a leaf spring 20 of plastics or like material is installed between the ears 18. The leaf spring 20 has a raised mid-portion 20a which projects slightly more rearwardly than the ears 18.

As illustrated in Figures 2 and 3, the water drain assembly of the above described configuration is mounted in position between a pair of horizontal, parallel spaced rails 21 and 22 on a sill 23. Although not fully illustrated, it is understood that the sill 23 constitutes a part of the generally rectangular supporting frame for a pair of sashes or similar panel assemblies adapted to move horizontally along the respective rails 21 and 22. The rail 21 is hereinafter referred to as the front rail, and the rail 22 as the rear rail.

The front rail 21 has a longitudinal groove 24, Figure 5, that is formed along the lower portion of its surface opposed to the rear rail 22, the groove 24 being adapted to slidably receive at least the rims 17 of the boxlike member 10. Further, in a prescribed position in the groove 24, the front rail 21 has an aperture 25 formed therethrough which is so shaped and sized as to neatly receive the rims 17 of the box-like member 10. Another longitudinal groove 26, adapted to slidably receive the ears 18 and the leaf spring 20 of the boxlike member 10, is formed along the lower portion of the rear rail 22 so as to be open toward the front rail 21.

In Figures 2 and 3, the boxlike member 10 is shown in its prescribed normal position on the sill 23, in which the rims 17 are caused by the leaf spring 20 to project into the aperture 25 in the front rail 21. It will be seen that any water tending to collect between the front and rear rails 21 and 22 can be drained without moving the boxlike member 10, as such water will flow into its

inlet openings 13 and out of its outlet openings 15.

When the sill 23 is to be cleaned, or when the panel assemblies are to be removed from, or mounted within, the supporting frame, the water drain assembly may be pressed in either direction along the sill. Since the side rims 17a are inclined toward each other, as previously mentioned with reference to Figure 1, the complete rims 17 are relatively easily withdrawable from within the aperture 25 against the force of the leaf spring 20. Alternatively the boxlike member 10 may first be forced away from the front rail 21 to cause retraction of the rims 17 out of the aperture 25 against the effect of the leaf spring 20 and then be moved longitudinally of the sill 23 in either direction. The water drain assembly is now free to slide along the rails 21 and 22, as illustrated in Figures 4 and 5.

It is understood that the transverse dimension of the water drain assembly, inclusive of the rims 17 and the ears 18, is set slightly narrower than the spacing between the opposed walls of the longitudinal grooves 24 and 26 in the respective rails 21 and 22. For re-installation of the water drain assembly in the prescribed normal position, the same may be slid back along the rails 21 and 22 until the rims 17 are urged into the aperture 25 by the leaf spring 20, as illustrated in Figures 2 and 3. The boxlike member 10 is then securely held in position against easy displacement.

While the invention has been shown and described hereinbefore in very specific aspects thereof, it is to be understood that the invention itself is not to be restricted by the exact showing of the drawings or the description thereof. For example, the leaf spring 20 may not necessarily be of the illustrated shape but can be of any other suitable configuration if it functions to urge the rims 17 into the aperture 25 in the front rail 21 when the water drain assembly is to be mounted in position between the rails 21 and 22, and to yield when the sealing means is to be moved away from its normal position. It is also noteworthy that the pair of water outlet openings 15 may not be completely surrounded by the four rims 17 of rectangular arrangement as shown in Figure 1. Instead, there may be provided only one rim along the aligned top edges of the outlet openings.

WHAT WE CLAIM IS:—

1. A frame of a window having horizontally sliding wings, wherein said frame includes a sill having front and rear rails arranged in parallel spaced relationship thereon, said front rail having a first groove extending longitudinally along its lower portion and an aperture formed in a pre-



(12)

scribed position of said groove there-
through, said rear rail having a second
groove extending longitudinally along its
lower portion, said first and second grooves
5 being open toward each other, and a water
drain assembly comprising, in combination,
an open-bottom boxlike member mounted
between said front and rear rails, said
boxlike member having a pair of opposed
10 side walls through which there are formed a
pair of water inlet openings, respectively,
and a front wall through which there are
formed a pair of water outlet openings in
side-by-side arrangement, a transverse
15 partition within said boxlike member
dividing the interior thereof into a pair of
opposed chambers, each of said chambers
being open through one of said water inlet
openings and one of said water outlet
20 openings, rim means projecting forwardly of
said front wall of said boxlike member to at
least partly surround said water outlet
openings, said rim means being slidable
along said first groove and being capable of
25 projecting into said aperture to hold said
water outlet openings in registered
relationship thereto, a pair of ears

projecting rearwardly of said boxlike
member and slidable along said second
groove, and spring means biasing said 30
boxlike member toward said front rail.

2. A frame as claimed in claim 1, wherein
said rim means comprises four rims
arranged rectangularly to completely
surround said water outlet openings in said 35
boxlike member, said four rims including a
pair of side rims which are inclined toward
each other.

3. A frame as claimed in claim 1 or 2,
wherein said spring means is a leaf spring 40
arranged between said ears of said boxlike
member, said leaf spring including a portion
projecting further rearwardly of said ears
and being also slidably received in said
second groove. 45

4. A frame of a window substantially as
herein described with reference to and as
illustrated in the accompanying drawings.

MARKS & CLERK,
Chartered Patent Agents,
57—60 Lincolns Inn Fields,
London, WC2A 3LS.
Agents for the Applicants.