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(54) DECORATIVE WINDOW SASH FRAME ASSEMBLY

(71) We, YOSHIDA KOGYO K.K., a corporation duly organised 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 generally to a window assembly and particularly to the decorating of a window sash frame.

It is a common practice to employ four frame members each having a decorative pattern, for example, of ridges and recesses on its interior and/or exterior surface to give a pleasing appearance to a window sash, the frame members being joined together at their ends to provide a rigid sash frame. To vary aesthetic appearance of these window sashes, it is necessary to exchange these conventional decorative frame members, which procedure is expensive.

Therefore, the present invention seeks to provide a decorative window sash frame having a decorative means whereby the sash frame can retain a pleasing overall appearance.

The invention also seeks to provide a decorative means for use in combination with window sash frames to provide pattern variations in window sashes at low manufacturing costs.

The invention further seeks to provide such a decorative means which can be readily detached for replacement, and is simple and sturdy in construction, and is inexpensive to manufacture.

According to the invention, there is provided a window assembly comprising a rectangular frame having a pair of continuous inwardly directed channels therearound, the first channel receiving a pane assembly and the second channel receiving a decorative means extending along the second chan-

nel, the second channel having retaining surfaces co-operating with corresponding complementarily shaped engaging surfaces on the decorative means to detachably retain the decorative means relative to the frame.

The invention will now be described in greater detail, by way of example, with reference to the drawings, in which like reference characters are used to denote like or corresponding parts throughout the several views in the drawings and, in which:-

Figure 1 is a schematic, front elevational view of a window sash having a frame provided in accordance with the present invention;

Figure 2 is a vertical cross-sectional view taken along line II-II of Figure 1;

Figure 3 is a fragmentary cross-sectional view of the window sash on an enlarged scale, best showing a decorative attachment member mounted in its operative position; and

Figures 4 and 5 are cross-sectional views of modified decorative attachment members.

Figure 1 shows a window sash 10 which comprises a frame 11 constructed of a pair of spaced upright stiles 12, 13 and a pair of spaced top and bottom rails 14, 15 the stiles 12, 13 and the top and bottom rails 14, 15 being made of extruded aluminium and joined together at their one ends to define a rectangular opening in which a glass pane 16 is mounted.

The stile 12 has a hollow body 12a of generally square cross section having a pair of inner and outer side sections 17, 18 and a pair of slightly shorter interior and exterior sections 19, 20 interconnecting the side sections 17, 18 adjacent to their respective opposite ends, the interior and exterior sections 19, 20 having a pair of identical decorative patterns 21, 22 of ridges and recesses formed respectively on their surfaces facing away from each other. The stile 12 has a pair of opposed flanges 23, 24 formed integrally

with and extending from the outer side section 18 at its opposite ends, respectively, in a direction away from the inner side section 17. The stile 12 includes a mounting portion 25 having a first channel section 26 for receiving the peripheral edge of the glass pane 16, the channel section 26 extending along the length of the inner side section 17. The channel section 26 has a pair of parallel spaced apart arms 27, 28 extending from the inner side section 17 in a direction away from the outer side section 18 and a base 29 constituting part of the inner side section 17 and interconnecting the arms 27, 28 at their proximal ends. The arm 27 is disposed intermediate the opposite ends of the inner side section 17, and the arm 28 extends from the exterior end of the inner side section 17 remote from the interior section 19. The arms 27, 28 have their distal ends 27a, 28a directed toward each other for gripping engagement with a seal element 30 peripherally embracing the glass pane 16 to hold the same in position within the window sash frame. The mounting portion 25 also has a retaining section 31 which is defined by a retaining web 32 projecting inwardly from the inner side section 17 at its interior end in parallel relationship to the arm 27, the arm 27, and that portion 33 of the inner side section 17 lying between the web 32 and the arm 27, the web 32 extending along the entire length of the inner side section 17. The retaining web 32 has its distal end portion 34 directed toward the arm 27 in parallel relationship to the inner side section 17. The arm 27 has an integral longitudinal ridge 35 directed toward and disposed in registry with the web end portion 34 and extending along the entire length of the arm 27 to define a second channel section 36 of a smaller configuration together with the retaining web 32, that portion 33 of the inner side section 17 and that portion of the arm 27 lying between the inner side section 17 and the longitudinal ridge 35.

As shown in Figure 2, the stile 13 has generally the same configuration as the stile 12 and only differs in that it does not have a portion corresponding to the outer side section 18 of the stile 12 and that it has a connecting web 36a interconnecting a pair of flanges 23a, 24a.

Each of the top and bottom rails 14, 15 has a mounting portion (not shown) identical to that of each of the stiles 12, 13 and when these four frame members 12, 13, 14, 15 are joined together at their one ends to provide the frame 11, the first and second channel sections 26, 36 of these four frame members jointly provide a pair of continuous peripheral channels.

A decorative means is provided for improving the internal appearance of the window sash 10, the decorative means comprising a

pair of decorative members 37, 37 adapted to be attached to the stiles 12, 13 respectively, and another pair of shorter decorative members of identical cross section (not shown) adapted to be secured to the top and bottom rails 14, 15 respectively.

As best shown in Figure 3, the decorative member 37 made of extruded aluminum includes a hollow body 37a of a generally outwardly opening channel-like shaped cross section having a base 38 and a pair of arms 39, 40 having their distal end portions 41, 42 directed toward and aligned with each other, the base 38 extending at a right angle to the arm 40, and the distal end portions 41, 42 extending in parallel relationship to the base 38. The arm 39 has a straight portion 43 extending right-angularly from the end portion 41 and a concave arcuate portion 44 lying between the straight portion 43 and the base 38. The decorative member 37 has a pair of parallel spaced legs 45, 46 extending right-angularly from the end portions 41, 42, respectively, in a direction away from the base 38, the legs 45, 46 having their end portions 47, 48 directed away from each other to define together with the end portions 41, 42 a pair of oppositely opening longitudinal recesses 49, 50.

The decorative member 37 is secured to and retained in place by the retaining section 31, with the oppositely directed end portions 47, 48 of the legs 45, 46 respectively received in a pair of opposed grooves 51, 52 of the second channel section 36 and with the end portion 34 of the retaining web 32 and the longitudinal ridge 35 in turn received respectively in the pair of oppositely opening recesses 49, 50. The distance between the web end portion 34 and the ridge 35 is slightly greater than that between the pair of spaced legs 45, 46. The interior surface of the straight portion 43 lies substantially flush with that of the retaining web 32, and the arm 40 is disposed in parallel contiguous relationship to the arm 27. The inner surface of the base 38 lies substantially flush with that of the end portion 27a of the arm 27. That portion of the decorative member 37 exposed to view, that is, the base 38 and the arm 39 gives the window sash 10 a slightly internal appearance in combination with the decorative pattern 21 of ridges and recesses formed on the interior section 19.

For assembling the window sash 10, the decorative attachment member 37 is first attached to the retaining section 31 in such a manner that the pair of legs 45, 46 are inserted into the second channel section 36 from one end thereof and moved slidingly along the length thereof to its operative position, with the end portions 47, 48 received respectively in the grooves 51, 52 and with the web end portion 34 and the ridge 35 received respectively in the recesses 49, 50.

Similarly, the respective decorative members are attached to the stile 13 and the top and bottom rails 14, 15. Then, the stiles 12, 13 and the top and bottom rails 14, 15 are joined together at their one ends to provide the frame 10 for peripherally holding the glass pane 16 in place through the sealing element 30, and finally, the joined ends of these four frame members 12, 13, 14, 15 are fixedly secured to one another by a suitable fastening means such as screws to provide the window sash 10.

According to a modified form of decorative member 37b shown in Figure 4, an arm 39a has a straight portion 43a and a convex arcuate portion 44a.

Figure 5 shows a further modified form of decorative member 37c in which an arm has a straight portion 43b and an angle portion 44b. The decorative member can be modified to provide any suitable internal design.

With the construction, the window sash can retain a variety of pleasing internal appearances simply by exchanging the various decorative members in an inexpensive manner.

The terms "inner and outer" used above are used with reference to the geometric center of the window sash. The words "interior and exterior" used above are used with reference to the geometric center of a building.

WHAT WE CLAIM IS:-

1. A window assembly comprising a rectangular frame having a pair of continuous inwardly directed channels therearound, the first channel receiving a pane assembly and the second channel receiving a decorative means extending along the second channel, the second channel having retaining surfaces co-operating with corresponding complementarily shaped engaging surfaces on the decorative means to detachably retain the decorative means relative to the frame.

2. A window assembly according to claim 1, wherein the frame includes a body of generally square cross section having a pair of inner and outer sections and a pair of interior and exterior sections interconnecting the inner and outer sections at their respective opposite ends, the inner section having a pair of parallel spaced apart interior and exterior arms extending inwardly to define the exterior channel section, the interior arm being disposed intermediate the opposite ends of the inner section, the exterior arm being disposed at an exterior end of the inner section, the inner section also having a longitudinal web extending inwardly from the interior end of the inner section to define, together with the interior arm the interior channel section, the web having its distal end directed exteriorly arm having a longitudinal ridge directed toward and disposed aligned with the web distal end,

and the web distal end and the longitudinal ridge defining the retaining means.

3. A window assembly according to Claim 2, wherein the decorative means includes a body of generally outwardly opening channel-shaped cross section having a pair of spaced apart arms and a base extending there-between, the decorative means having a pair of oppositely opening recess portions extending outwardly from the arms, respectively, the recesses defining the engaging means, and the web distal end and the longitudinal ridge engaging the recesses, respectively.

4. A window assembly substantially as herein described with reference to the drawings.

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