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PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(54) SEALING STRIP FOR DOORS AND THE LIKE

(71) I, KUNIO ISAMATSU, a subject of Japan, of 11-4, 5-Chome, Sekimae, Musashino-Shi, Tokyo-To, Japan, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a sealing strip to be used for doors and doorframes and for window sashes and frames so that gaps between them are effectively sealed against leakage of draughts, sound, and heat.

Heretofore, a commonly accepted practice for sealing gaps between doors and doorframes and between window sashes and window frames has utilised a fabric strip such as felt and mohair, a rubber strip, or a synthetic resin strip. If, of these materials, felt strips or rubber strips are used for the sliding surfaces of a sliding door or window, excessive friction will be caused between these sliding surfaces, whereby the opening and closing operation of the door or window will be difficult. Synthetic resin strips, on the other hand, cannot afford enough sealing effect although their frictional resistance is small. For this reason, the ordinary practice is to provide a mechanism whereby the door is kept in a state wherein a distance is maintained between the sliding panel and the sealing strip at the time of opening and closing of the sliding panel, and the sealing strip and the sliding panel are pressed together only when the sliding panel is closed.

In apartment houses built by large public housing projects, if they are situated in extremely hot or cold climatic areas, sealing strips should be installed in the doors and door frames and window sashes and frames of each room, and there is an urgent demand for an economical and effective sealing strip adapted to mass production.

Therefore, a principal object of this invention is to provide a sealing strip which is applicable to sliding surfaces such as those between sliding doors and doorframes and which exhibits ample sealing effect but comparatively low frictional resistance.

Another object of the present invention is to provide a sealing strip which is also applicable to the abutting edges of a double wing hinged door in which a sliding contact occurs between the end portions of the two door wings.

According to the present invention there is provided a resilient sealing strip for sealing gaps between relatively sliding parts of sliding doors and windows, said strip having a cross section which comprises, in integral and contiguous relationship, a base portion having outwardly extending edges for securing the strip if a groove on one sliding part and, extending upwardly from the base portion, a head portion of sealing contact with another sliding part, exposed surfaces of said base portion and head portion being covered by a pile.

Various sealing strips in accordance with the invention will now be described, by way of example only, with reference to the accompanying drawing, in which:—

Figure 1 is a plan view, in section, of a sliding window, with the centre portion cut away, in which the is applied a sealing strip constituting an embodiment of the present invention;

Figure 2 is a side elevational view, in section, of the same sliding window as shown in Figure 1, with its centre portion cut away;

Figure 3 is a plan view, in section, of a double-wing hinged door, in which a sealing strip of this invention is applied; and

Figures 4 to 8 are cross-sectional views of various sealing strips in accordance with the present invention.

Referring to Figures 1 and 2, there is shown one embodiment of the present invention, in which sealing strips 4 and 7 are fitted respectively in grooves 3 provided in the upper and lower portions of the sliding window sashes 1, 2 and in grooves 6 provided the inner and outer sides of the window frame sashes 1 and 2. The sealing strips 4, 7 are made of a resilient material such as rubber and all of the outer surface are covered by an electrically or adhesively implanted pile. In Figure 2, the base portions of the strips 4

are inserted into the grooves 3 in the inside and outside surfaces of the upper and lower members of the sliding window sashes 1 and 2, so that the strips 4 contact the upper and lower confronting surfaces of the window frame 5. In Figure 1 similar strips 7 are shown as being accommodated in grooves 6 in the inner and outer sides of the frame 5, these strips 7 contacting the sashes 1 and 2 when they are in the closed positions.

By this arrangement, tight sealing can be ensured around the entire peripheries of the inner and outer sliding sashes through the simple manipulation of a window latch 10 for clamping the engaging portions 8 and 9 at the overlapping portion of the window sashes 1, 2.

Figure 3 illustrates a sealing strip 14 of rubber having a pile covering the exposed surfaces, and mounted in a groove 13 in the centre of the end surface of one door panel 12 of a double-wing hinged pair of doors 11 and 12. When the exposed head portion of the strip 14 slidably contacts the end surface of the opposite door 11, the abutting end surface of the door 11 and the sealing strip 14 effectively seal the gap between the two doors 11 and 12 against draughts, sound, and heat.

Figures 4 to 8 illustrate various sectional configurations of sealing strips in accordance with the present invention. The sealing strip is made in each case of a resilient material such as rubber, and includes a symmetrical head portion 15 and a base portion 17, covered by an electrically or adhesively implanted pile 16 on their exposed surfaces.

The base portion 17 is retained in grooves in doors or doorframes, or in window sashes or frames by its outwardly extending edges.

It is to be understood that resilient materials other than the rubber can be utilised for special applications.

As will be apparent from the above description and the accompanying drawing, the sealing strip according to the invention can effectively reduce frictional resistance in the opening and closing of sliding doors and

windows and swinging doors because of the pile covering and the resilience of the strip. This makes it unnecessary to use a charge-over mechanism by which the sliding panel and frame are separated while the panel is being moved and pressed together when the panel is closed. By virtue of the pile and resilience of the strip, the sealing effect at the time when the panel is closed is superior to that of any other kind of sealing strip.

A further advantageous feature of the sealing strip of this invention is its long life and its aesthetically pleasant appearance. Furthermore, the pile on the outer surface can effectively shield the surface of the strip from direct exposure to sunlight, snow or dust, and deterioration of the material is thereby retarded.

WHAT I CLAIM IS:—

1. A resilient sealing strip for sealing gaps between relatively sliding parts of sliding doors and windows, said strip having a cross section which comprises in integral and contiguous relationship, a base portion having outwardly extending edges for securing the strip in a groove on one sliding part and, extending upwardly from the base portion, a head portion for sealing contact with another sliding part, exposed surfaces of said base portion and head portion being covered by a pile.

2. A strip as claimed in claim 1 in which the head portion is symmetrical.

3. A strip as claimed in claim 1 or 2 in which the upper surface of the head portion is convexly arcuate.

4. A sealing strip substantially as described herein with reference to Fig. 1 and 2, or any one of Figs. 3 to 8.

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