Oct. 24, 1933. W. S. HAMM ET AL 1,931,794

SASH CONSTRUCTION

Filed Dec. 13, 1930

Fig. 1

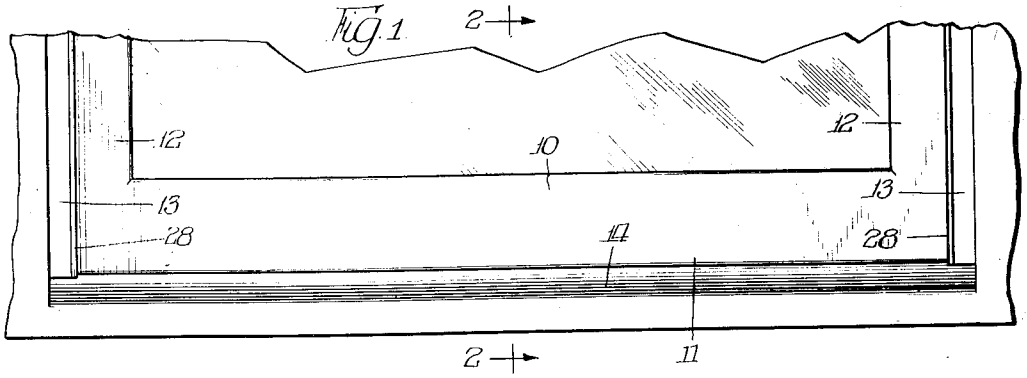


Fig. 2

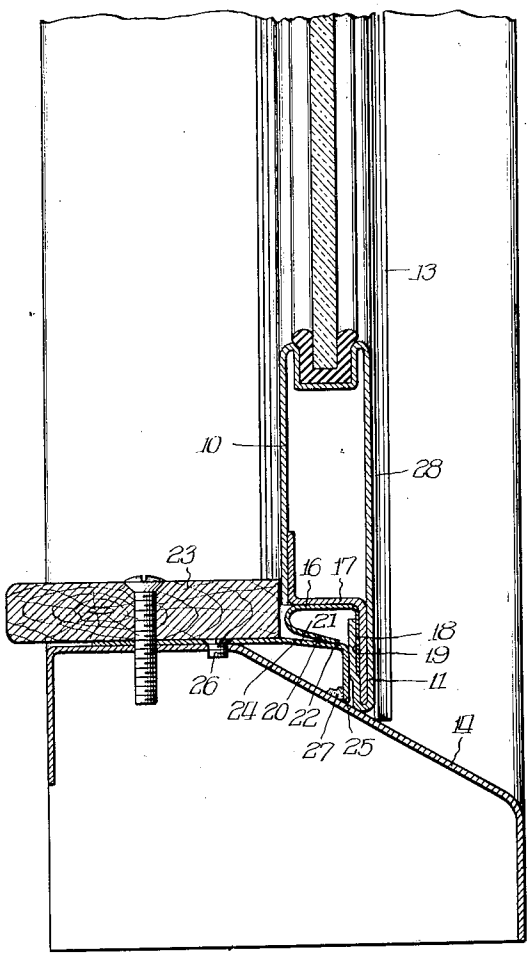


Fig. 3

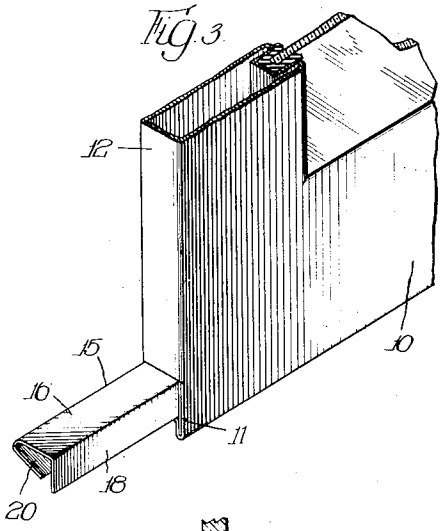
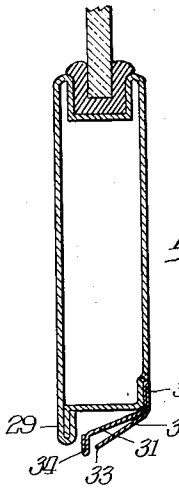


Fig. 4



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Patented Oct. 24, 1933

1,931,794

UNITED STATES PATENT OFFICE

1,931,794

SASH CONSTRUCTION

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Application December 13, 1930
Serial No. 502,047

5 Claims. (Cl. 189—65)

In windows of the vertically sliding sash type, and particularly in the sheet metal windows of that type used extensively in railway cars and buses, considerable difficulty is experienced in endeavoring to obtain a sufficiently weather-tight closure between the bottom rail of the sash and the sill. The use of a rubber strip is ordinarily resorted to, but such a strip, even though properly shaped and correctly applied, will function satisfactorily only for a comparatively short time. A rubber strip will deteriorate rapidly, and will after a time cause the sash to stick when in its closed position.

The object of the present invention is to provide novel weatherproofing means for the bottom rail of a vertically sliding sash, which means will effectively prevent the entry of dust, cinders, rain and air when the sash is closed, will not lose its efficiency by long continued service, will not interfere in any way with the operation of the sash, and is inexpensive and easy to apply.

Other more specific objects and advantages of the invention will be apparaent upon a full understanding of the construction, arrangement and operation of the improved sealing means.

In order that the invention may be readily understood, two slightly different structural embodiments of the same are presented herein, but it will of course be appreciated that the invention is capable of being embodied in other forms coming equally within the scope of the appended claims.

In the accompanying drawing:

Fig. 1 is a fragmentary outside view of the lower portion of a window equipped with the improvement forming the subject matter of the invention;

Fig. 2 is a vertical transverse section through the window, taken on the line 2—2 of Fig. 1;

Fig. 3 is a perspective view of one end of the bottom rail of the sash, showing the sealing strip partially withdrawn from the end of the rail; and

Fig. 4 is a vertical transverse section through the bottom rail of another sash, showing a different embodiment of the invention.

The form of the invention shown in Figs. 1 to 3 inclusive will first be described. In those views it will be observed that the bottom rail 10 of the sash is provided with a downwardly extending flange 11 which is disposed flush with the outer face of the rail. The side stiles 12 of the sash are slidably mounted in grooved guides 13 at the sides of the frame. When the sash is lowered in the guides, the flange 11 is adapted to seat against the sloping sill 14 of the frame, all as clearly shown in Fig. 2.

The flange 11 forms the front wall of an inwardly and downwardly opening recess in which a thin spring metal strip 15 is positioned. The strip 15 is preferably bent into the somewhat triangular cross-sectional shape shown, whereby to provide a horizontally extending central portion or web 16 for contiguous abutment with the lower face 17 of the rail, a downwardly extending outer portion or flange 18 for insertion within a narrow upwardly opening slit 19 on the inner face of the flange 11, and a downwardly and outwardly inclined inner portion or flange 20 for resilient engagement with a ledge 21 on the sill.

The ledge 21 on the sill is formed from a metal strip 22 which extends outwardly from beneath the usual inside sill board 23 in a slightly sloping portion 24 and is provided outwardly of such portion with a downwardly extending flange 25 which engages with the sill 14. The strip 22 is attached to the high inner portion of the sill at 26, and the flange 25 of the strip is soldered, welded, cemented or otherwise sealed with the low outer portion of the sill at 27. The ledge 21 is positioned directly beneath the bottom rail 10 of the sash, with the outer vertical face of the ledge directly behind the inner vertical face of the flange 11 on the sash.

The side guides 13 of the window are preferably provided along their outer edges with spring metal strips 28, which may be similar to the spring strips shown in Hamm Patent No. 1,754,513, which strips tend to press the sash inwardly, thereby maintaining the flange 11 on the bottom rail in resiliently sealed engagement with the outer face of the ledge 21 when the sash is closed.

When the sash, in being lowered, approaches its lowermost position, the lower edge of the inclined flange 20 on the spring strip 15 comes into contact with the flat upper surface of the ledge 21 and progressively yields until the lower edge of the flange 11 on the bottom rail has fully seated against the sill 14, thereby establishing a weather-tight closure between the spring strip 15 and the ledge. At the same time, a supplementary seal is established between the inner face of the flange 11 and the outer face of the ledge by the action of the spring strips 28.

The downwardly extending flange 11 on the

bottom rail projects considerably below the closely arranged thin sharp sealing edge of the inclined spring flange 20, thereby forming in effect a guard for the latter which will preclude any danger of cutting or other injury should the person opening or closing the window grasp the bottom of the lower rail. While the spring strip 15 will last a long time, it may be easily replaced if and when desired by merely being slid endwise out of the slit 19 in the flange 11.

In Fig. 4 a modification of the invention is shown. The bottom rail is provided with a small downwardly projecting flange 29 behind which two spring strips 30 and 31 are positioned. Both strips are attached to the inner face of the bottom rail at 32, and both extend downwardly and outwardly at slightly different inclinations. The strip 30 terminates in a thin sharp edge 33, while the strip 31 terminates in a downwardly bent beaded edge 34 which is disposed closely adjacent the edge 33 in a position slightly below the level of the same. The strip 33 acts as a protective guard for the strip 30 when the sash is raised. When the sash is lowered, the spring strips 30 and 31 are both brought into resiliently yieldable line contact with the sill, resulting in a double seal.

We claim:

1. In window construction, a frame, a vertically sliding sash in the frame, a downwardly projecting reversely bent sheet metal flange on the bottom rail of the sash at the lower outer edge thereof, and a spring strip secured to the sash between the folded portions of the flange for resilient yieldable engagement with the sill of the frame.

2. In window construction, a frame having a ledge on the sill thereof, a vertically sliding sash positioned in the frame in vertical alignment with the ledge, a downwardly projecting flange on the bottom rail of the sash at the lower outer edge thereof for lapped association with the outer face of the ledge, and an angularly disposed spring strip secured to the sash behind the flange in downwardly converging relation to the latter with the lower free edge of the strip in close proximity to the flange a substantial distance above the lower edge of the latter for resilient yieldable engagement with the upper face of the ledge.

3. In window construction, a frame, a vertically sliding sash in the frame, a downwardly projecting flange on the bottom rail of the sash at the lower outer edge thereof, and a spring strip secured to the sash behind the flange for resilient yieldable engagement with a ledge on the sill of the frame, said spring strip being coextensive with the bottom rail of the sash and said bottom rail being provided with a closely confining horizontal guideway in which the spring strip is slidably mounted, whereby to permit the spring strip to be removed in the direction of its length.

4. In window construction, a frame, a vertically sliding sash in the frame, an angularly disposed spring sealing strip secured to the bottom rail of the sash beneath the latter and provided with a thin sharp lower edge for resilient yieldable engagement with the sill of the frame, and means for protecting the lower free edge of the spring strip when the same is not in engagement with the sill.

5. In window construction, a frame provided with guides at the sides thereof, a vertically sliding sash mounted in the guides, spring strips carried by the guides in engagement with the sash for pressing the latter inwardly, a downwardly projecting flange on the bottom rail of the sash at the lower outer edge thereof, a spring strip secured to the bottom rail of the sash behind the flange, and a ledge on the sill of the frame directly beneath the sash, the spring strip on the bottom rail pressing resiliently against the top surface of the ledge when the sash is closed, and the spring strips on the side guides pressing the flange on the bottom rail resiliently against the outer surface of the ledge when the sash is closed.

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