W. S. SHIELDS.

WINDOW.

APPLICATION FILED NOV. 14, 1919.

1,370,848. Patented Mar. 8, 1921.

Fig. 1.

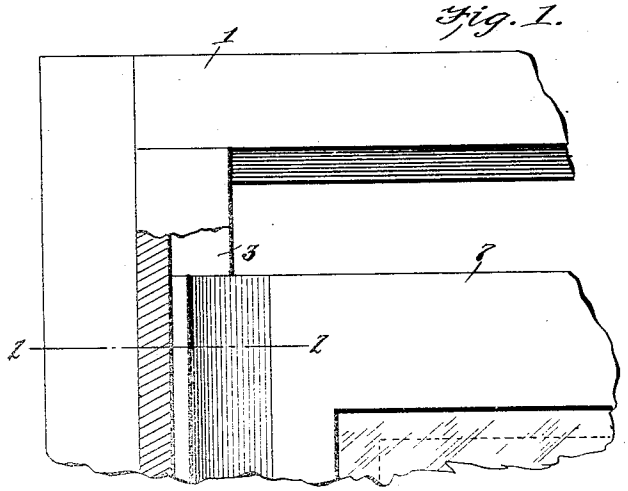


Fig. 4.

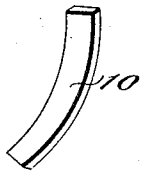


Fig. 2.

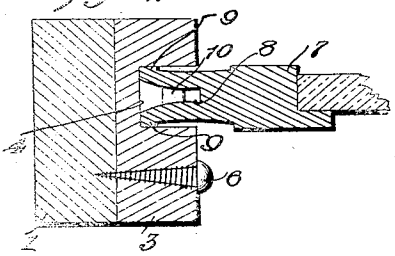


Fig. 3.

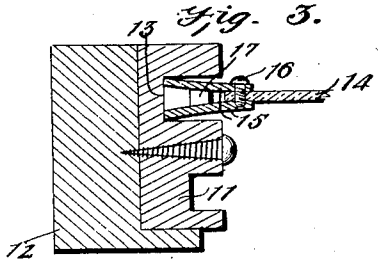


Fig. 5.

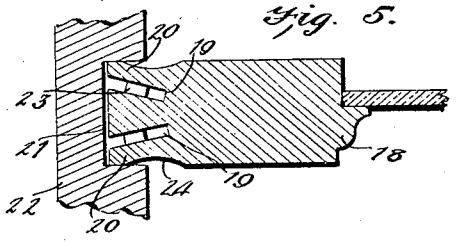
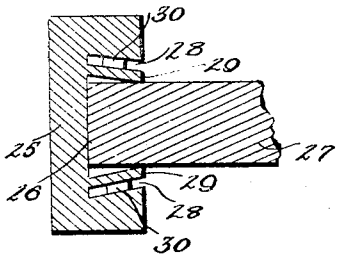


Fig. 6.



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WINDOW.

1,370,848. Specification of Letters Patent. Patented Mar. 8, 1921.

Application filed November 14, 1919. Serial No. 338,053.

To all whom it may concern:

Be it known that I, WILLIAM SCOTT SHIELDS, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Windows, of which the following is a specification.

My invention is an improvement in windows, and has for its object to provide mechanism in connection with sliding window sashes, especially adapted for use with automobile buses, trolley cars, railroad coaches and the like, for making a close fitting joint between the sash and the window frame without the possibility of sticking, and which will compensate for wear.

In the drawings:

Figure 1 is a front view of a portion of a window frame and sash constructed in accordance with the invention;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a similar view showing a modified construction;

Fig. 4 is a perspective view of one of the springs;

Fig. 5 is a view similar to Fig. 2 showing a modified construction.

Fig. 6 is a view similar to Fig. 5 showing another embodiment of the invention.

In the embodiment of the invention shown in Figs. 1 and 2, a facing strip 3 is arranged on the inner face of the side of the window frame 1, and this strip has a groove 4 on its inner face, and the strip is secured to the side member of the window or frame by screws 6 or the like.

The sash 7 has its side members longitudinally grooved, as indicated at 8, to form two tongues 9 which extend the full length of the window sash. Referring to Fig. 2, it will be noticed that each side member of the sash is reduced slightly on each side, the reduced portions extending near to the free edge of the side member and having a width greater than the depth of the groove 4, and the groove 8 is so formed that the tongues 9 are farther apart at the mouth of the groove than at the bottom.

The tongues are resilient to a certain extent and they are normally forced away from each other by plate springs 10 which are arranged within the grooves at spaced intervals, and they are curved longitudinally, as shown, to exert a spreading action on the tongues. Thus the tongues are forced firmly into contact with the side walls of the groove 4 and any wear will be compensated for to prevent rattling of the sash in the window frame. A portion of the outer face of each tongue is plane, and in the plane of the face of the sash, and these plane portions fit smoothly against the inner faces of the groove 4 at the bottom thereof.

There can be no sticking of the sash in its grooves, because of the resilient yielding construction of that portion of the sash which engages the groove. Referring to Fig. 2, it will be seen that the depth of the groove 8 is slightly greater than the depth of the groove 4.

In Fig. 3 there is shown an arrangement especially adapted for use with plate glass, wherein no supporting frame is used. In this construction the strip 11 which corresponds to the strip 3 of Fig. 2 is arranged within a rabbet in the side member 12 of the window frame. This strip has the groove 13 corresponding to the groove 4, and at each side of the sash 14, which is merely a plate of glass, a pair of strips 15 is secured by means of screws 16 or the like.

These strips are of a width to extend to the bottom of the grooves 13 and they are normally pressed away from each other by springs 17 corresponding in construction and arrangement to the springs 10 of Fig. 4. The strips 15 may be shaped to diverge slightly toward their free edges, that is, they may be curved slightly transversely and arranged with their convex faces adjacent. In either construction there is a tight yet yielding engagement between the sash and its grooves, which will prevent rattling, compensate for wear and absolutely prevent sticking due to dampness or the like.

In Fig. 5 is shown an arrangement wherein the frame 18 of the sash has grooves 19 in its side members, and near the faces of the side member, and it will be noticed that these grooves incline outwardly and away from each other and toward the faces of the side members. Thus a tongue 20 is formed at each face of the side member, and these tongues engage the side walls of the groove 21 of the frame 22. Springs 23 are arranged in the grooves 19 and act normally to press the tongues outward. The side members of the sash are grooved longitu-

dinally, as indicated at 24, on their outer faces at the tongues, to provide additional resiliency and to reduce the surface of the sash frame which engages the side walls of the groove 21.

In Fig. 6 the frame or casing 25 has the groove 26 for receiving the edge of the sash frame 27. It will be noticed that this groove has undercut side walls, so that the sash contacts with the groove only at the outer edges of the groove walls. Grooves 28 are provided in the casing or frame at each side of the groove 26, and the said grooves form between themselves resilient tongues 29 which engage the opposite faces of the sash. As shown springs 30 are arranged in the grooves 28, these springs corresponding to the springs 10, but it is obvious that in any of the constructions these springs might be omitted, the material of the casing or sash being relied upon to provide resiliency.

In any of the above mentioned constructions, the engaging portion of the sash, namely that portion which fits within the groove or casing, is of a width equal to or greater than the width of the groove. The width of the engaging portions is such that the tongue portion, namely the edge of the sash frame, could not normally enter the groove, and the walls of the groove or engaging portion or tongue is made resilient to permit such engagement. Thus a tight engagement is provided for at all times, regardless of wear, and weather strips may be dispensed with. It is obvious that the sash frame might have the grooves, and the casing the tongues for engaging the grooves, or that the sash might have reduced tongues for engaging grooves in the casing.

The invention in its broadest form consists in providing one of the elements, either the casing or the sash, with grooves for engagement by tongues on the other element, said tongues being either reduced or not as may be desired, and with such a distance between the outer faces of the tongues that the tongues will not normally enter the grooves, and in making of the tongues or the grooves resilient, to permit such entrance.

I claim:

1. In windows, the combination with a frame member having sash receiving grooves, of a sash member having stiles normally too wide to enter the grooves of the frame, one of said members being cut to provide resilient tongues separated by grooves to permit the tongues to yield so that the distance between them can be varied to permit the sash to enter the grooves.

2. In windows, a frame and a sash, said frame having grooves for the sash, the stiles of the sash being normally too wide to enter the grooves, and one of the said members having resilient tongues at the opposite sides thereof mounted to yield with respect to the member to permit the sash to enter the grooves.

3. In combination, a window frame having sash-receiving grooves, and a sash mounted to slide in the grooves, said sash having at each side integral resilient tongues for engaging within the adjacent sash-receiving grooves, said tongues extending the full length of the sash.

4. In windows, a window frame and a sash, one of said elements having grooves and the other portions fitting and sliding therein, said portions being normally of a width such that they will not enter the grooves and being resilient or compressible to permit such entrance.

5. In combination, a window frame and a sash, one of said elements having grooves and the other tongues for engaging within the grooves, said tongues and grooves being normally of such relative width that the tongues will not enter the grooves, and one of said elements being resilient at the point of engagement with the other element to permit the engagement of the tongues with the grooves.

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