Oct. 30, 1956 E. M. HICKS 2,768,852

SASH LATCH

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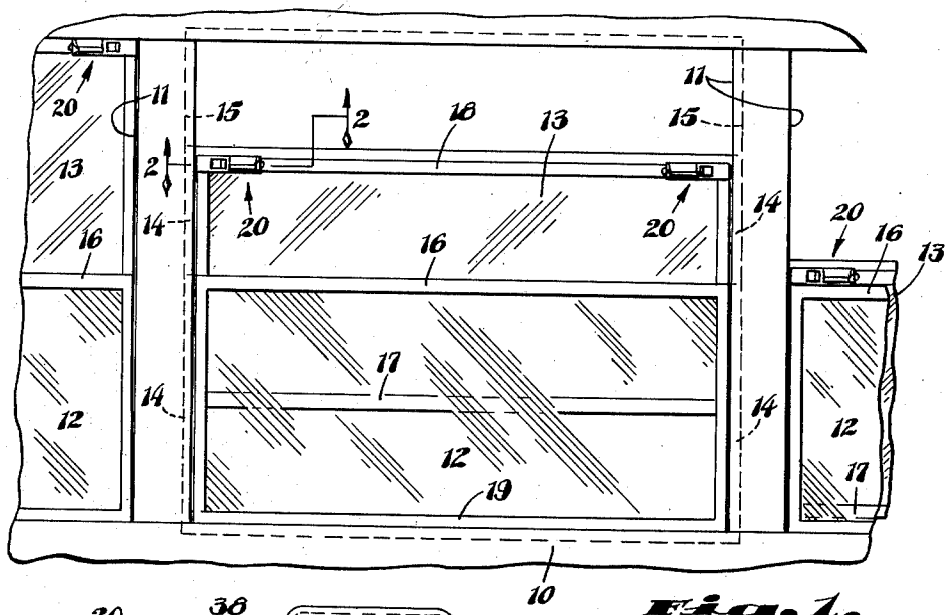


Fig. 1.

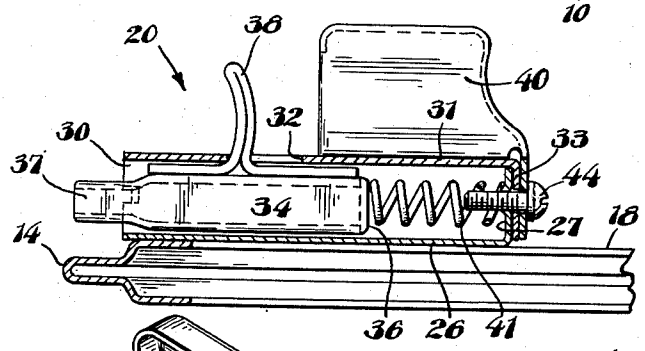


Fig. 2.

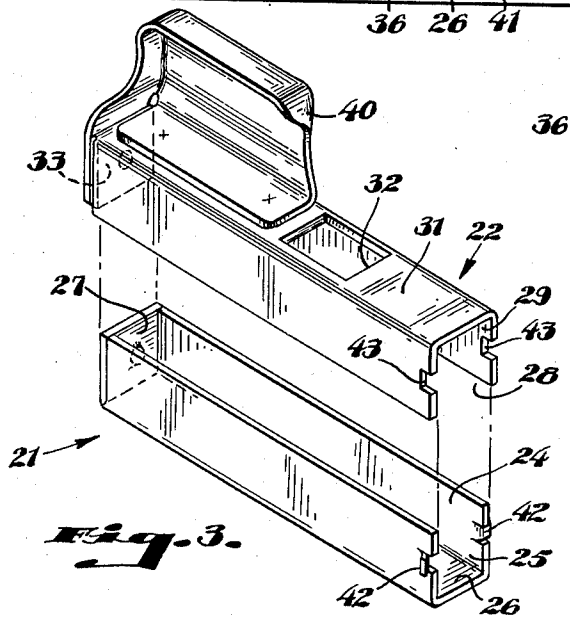


Fig. 3.

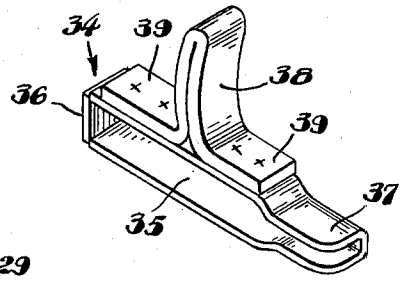


Fig. 4.

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SASH LATCH

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1 Claim. (Cl. 292—175)

The present invention relates to latches and particularly to a latch for use with a sliding window sash.

My invention is intended primarly for use with the windows of bus bodies and the like. Therein, the trend is toward a double hung sash, in which the upper sash is movable, and in which the lower sash may or may not be movable. For economy of manufacture, it is desirable that the upper and lower sash be of the same size and shape, being fabricated from a common pattern. At the same time, it is desirable that the upper sash can be lowered to the lowest possible position, not only to provide the greatest flow of air into the bus, but to provide the largest possible escape port from the bus, through the window, in case of accident. The movement of the upper sash to its lowermost position is limited by the vertical extent of the sash latch which, being carried on the side of the upper sash adjacent the lower sash, is intercepted by the upper rail of the lower sash, as the upper sash is moved downward.

Sash latches heretofore used in this particular environment have been of such design as necessarily to extend an appreciable distance below the upper rail of the upper sash. This, of course, limits the downward movement of the sash and therefore limits the size of the opening obtained by lowering the upper sash. No latch heretofore known to me, and intended for use in the environment here under consideration, is of such a design as to conform to the boundaries of the upper rail of the upper sash.

The primary object of my invention is, therefore, to provide a sash latch, for use with a sash of the type here under consideration, which is of such dimensions as not to project below the lower boundary of the upper rail of such sash, while still possessing all the desired and essential characteristics of such a latch.

A further object is to provide a latch having the above characteristics but which will be, at the same time, considerably less expensive to manufacture than any similar latch heretofore known.

Further objects will become apparent as the description proceeds.

To the accomplishment of the above and related objects, my invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific construction illustrated and described, so long as the scope of the appended claim is not violated.

Fig. 1 is an elevation of a typical installation of sashes with which my latch is intended primarily for use, and showing a pair of latches of the present invention installed therein;

Fig. 2 is a longitudinal sectional view through my improved latch, taken substantially on line 2—2 of Fig. 1;

Fig. 3 is an exploded, perspective view of the casing of my latch showing the details of construction thereof; and

Fig. 4 is a perspective view of the bolt used in my latch.

Referring more particularly to the drawings, I have illustrated, more or less diagrammatically, a typical sash installation in which my latch is primarily intended for use. Therein, the bus body 10, or the like, has a plurality of window openings 11. Each window opening is closed by a pair of sash elements 12 and 13, the lower sash 12 thereof being stationarily fixed in the opening, especially in school bus windows.

As illustrated, the side rails of each sash are provided with tongues 14 taking into suitable guide grooves in the window frame. As said before, to keep the cost of manufacture at a minimum, it is desirable that the upper and lower sashes be fabricated from the same pattern. When this is done, it is only necessary that the sashes be inverted relative to each other. In that position, the adjacent center rails 16 and 17 of the lower and upper sash, are formed without tongues similar to those on the sides of the sash. However, the upper rail 18 of sash 13 and the lower rail 19 of sash 12, each has a tongue similar to tongues 14, taking into suitable grooves in the upper and lower members of the window frame.

Under these features of design, it is essential for maximum opening of the window 11, that no part of the latch 20 extend below the upper rail 18 since, in the lowermost position of sash 13, latch 20 rests on the rail 16 of sash 12, and any distance which the latch does extend below the rail 18 subtracts from the size of the maximum opening obtainable through window 11. Therefore, my latch is confined entirely within the boundaries of the rail 18.

As illustrated, latch 20 comprises a base member 21 and an upper or guide member 22. Member 21 comprises an elongated sheet metal box open along one side 24 thereof, and at one end 25. The box comprises a floor plate 26, opposite the open side 24, and an end plate 27, opposite the open end 25.

Guide member 22 likewise comprises an elongated sheet metal box, having dimensions substantially proportional with those of member 21. Said box is open along the side 28 thereof, facing the open side of member 21, and at one end 29 adjacent the open end 25 of the member 21. The box comprises a guide plate 31, opposite open side 24, having formed therein an aperture 32; and an end plate 33 opposite open end 29.

Box element 21 is so proportioned as to be telescopically receivable in box element 22, with the open ends 25 and 29 thereof cooperating to define an aperture 30 through the thus formed latch housing. The floor plate 26 is adapted to be welded or otherwise fixed to the sash rail 18 adjacent a lateral edge thereof with housing aperture 30 facing the adjacent side of the window frame.

Axially slidably confined within the housing or guideway formed by elements 21 and 22 is a bolt element 34, formed, in the illustrated embodiment, of sheet metal and having a body portion 35, an end wall 36, and a dog piece 37. The dog 37 is adapted to be projected from a position within the housing to a position outside the housing where it interengages selectively with suitable sockets in the lateral edge of the window frame.

A finger piece 38 is formed of sheet metal and has oppositely-extending feet 39 whereby it may be fixed to bolt 34. This finger piece projects through aperture 32 in element 22 and provides actuating means for the bolt 24. In order to facilitate the retraction of the bolt, I provide a second finger piece, or sash lift, 40 fixed to element 22 on the end thereof adjacent end 33. This finger piece performs a dual function: the operator may grip both the finger piece 38 and the finger piece 40 and squeeze, thereby retracting bolt 34, and, while so holding the bolt in its retracted position, lift or lower sash 13 by means of finger piece 40.

A coiled compression spring **41** urges bolt **34** toward its projected position and is confined between end **36** of bolt 24 and end wall **27** of element **21**. Of course, the limit of movement of bolt **34** is controlled by the length of aperture **32**.

Some means must be provided to fix element **22** to element **21**. From a manufacturing standpoint, it is desirable that this means be as simple as possible so that the cost of assembly will be held to a minimum. The optimum means would, therefore, require the use of but a single screw. To this end, I deform the rim of the open end of element **21** at oppositely positioned points to provide a pair of oppositely projecting tabs **42**. I further form, at oppositely positioned points in the rim of the open end of element **22**, a pair of notches **43** opening through such rim. These notches are so positioned that the tabs **43** are respectively received therein by first placing element **21** telescopically on element **22** and then sliding element **22** toward the open end **25** of element **21**. To prevent relative sliding movement of the said elements at the ends including end walls **27** and **33**, I provide aligned holes through these end walls and a screw **44** adapted to be threadedly received therein. By the use of such construction, it will be observed that assembly of the latch becomes a relatively simple and quick operation. Preferably, the screw **44** also provides an anchorage for the adjacent end of spring **41**, as clearly shown in Fig. 2.

While my invention is relatively simple in its concept, this very simplicity is a factor of decided improvement over latches now in use, both from the standpoint of operation and from that of manufacture.

I claim as my invention:

A sash latch comprising a box-like base member open at one side and at one end, a box-like guide member open at one side and at one end and telescopically associated with said base member to form a guideway closed except at one end, said guide member having a longitudinally-extending aperture formed therein, a finger piece supported on said guide member near the opposite end thereof and projecting therefrom away from said base member, bolt means longitudinally shiftably confined within said guideway and movable between a projected position opposite said last-named end and a retracted position, said bolt having guiding bearing on the internal walls of said guideway substantially throughout its own length, a second finger piece fixed to said bolt means and projecting therefrom through the aperture in said guide member into cooperative juxtaposition with the first said finger piece, the open ends of said box-like members defining an aperture, when said boxes are so telescopically associated, through which said bolt means is projected, opposite side walls of one of said box-like members being provided, along the rim of the open end of said member, with tabs turned oppositely out of the planes of said walls, the other of said box-like members being formed, at oppositely disposed points along the rim of the open end thereof, to provide a pair of notches opening through said rim, said tabs being respectively enterable in said notches upon assembly of said box-like members, said guide member and said base member further being formed, in their closed ends, with registering holes, a screw threadedly received in said holes, and a compression spring confined between the closed end of said one box and the adjacent end of said bolt means, said screw engaging said spring to hold the latter against lateral displacement.

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