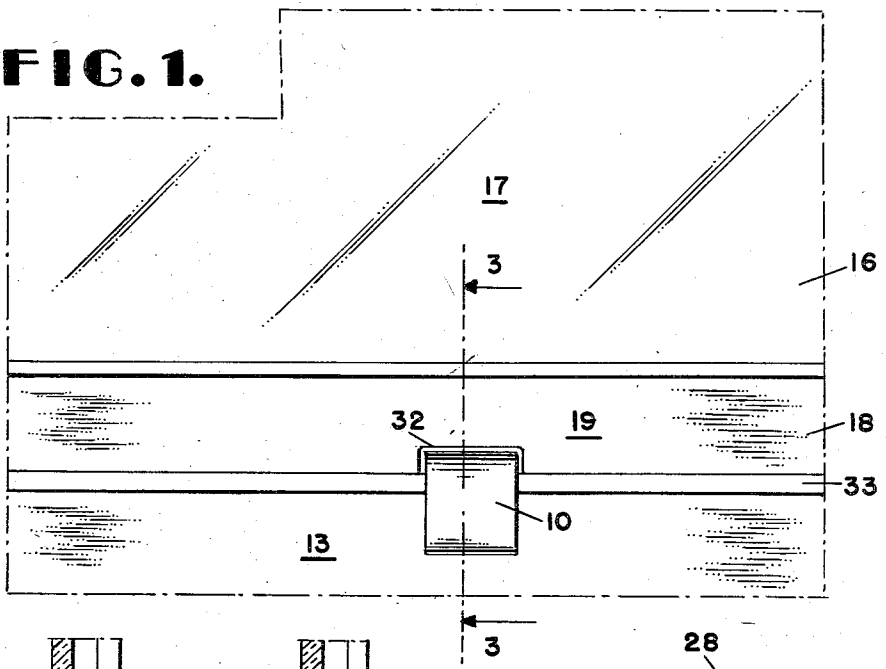
Aug. 20, 1957 M. IVANHOE 2,803,476

LATCH DEVICE

Filed Jan. 6, 1954

FIG. 1.



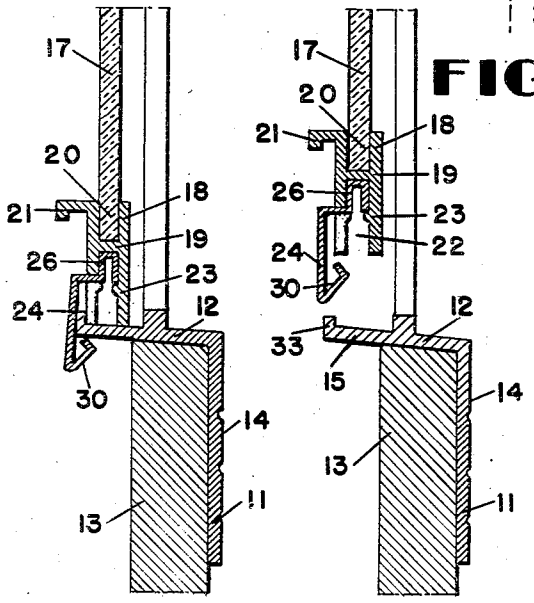


FIG. 2.

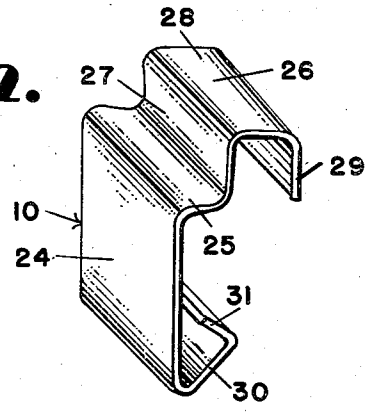


FIG. 4.

FIG. 3.

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LATCH DEVICE

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4 Claims. (Cl. 292—80)

This invention relates to a latching device and more particularly a latching device adapted for use in conjunction with a storm window, screen or similar structure.

It is an object of this invention to provide a latching device which may be simply and efficiently manufactured on a large scale and which is particularly adapted to lock a vertically movable sash-type storm window or screen in a simple and effective manner.

It is a further object of this invention to provide a latching device of one piece construction which is capable of being mounted in a channel shaped member usually employed to frame a storm or screen sash without the use of any additional securing or mounting means, said latch serving to automatically lock the sash in closed position as it is lowered against the sill, and being readily opened and released therefrom by simple manual manipulation.

In order to accomplish these and other purposes, a suitably formed strip of resilient metal is provided having a portion adapted to be inserted in a channel shape forming one of the rails of a sash frame and a catch portion adapted to spring into engagement with the sill of a window framing member within which said sash is slideably mounted.

Other and further objects of this invention will become apparent from the description thereof contained in the annexed specifications, or will otherwise become obvious. It will be understood that the invention here disclosed may be employed for other purposes to which the structure and arrangement are adapted.

Figure 1 is an elevational view of a fragment of a storm window sash and sill framing member showing the latch in locked position as viewed from the inside of the window;

Figure 2 is a cross-section of Figure 1 showing the sash in raised position;

Figure 3 is a cross-section of Figure 1 taken along line 3—3 thereof and showing the sash in lowered position and the latch in locked position;

Figure 4 is a perspective view of a latch in accordance with the present invention.

In storm window construction it is customary to form an auxiliary frame which is mounted upon and extends over the existing window frame of a building. Such auxiliary frame is formed with vertical side members or stiles which are connected along their top and bottom portions by means of horizontal members comprised of a header and sill respectively, not completely shown. The storm sash which may carry a window pane or screen is usually comprised of a frame formed of extruded metal within which a window pane or screen is mounted. The vertical stiles of the auxiliary frame are provided with suitable channels within which the sash frame is mounted for vertical sliding movement.

Figure 1 illustrates a fragmentary portion of a storm sash and sill of an auxiliary frame as hereinabove described showing so much thereof as is pertinent to the instant invention and whereon is mounted a latch in accordance with the present invention. The latch is designated generally by the numeral **10**. As may be seen from said figure and Figure 3, the sill portion **11** of the auxiliary frame is comprised of an angle shaped member having a lateral portion **12** which is adapted to rest upon the upper surface of the usual building window sill **13**. The laterally extending portion **12** of auxiliary sill **11** is provided with a depending portion **14** which overlies the face of the existing window frame. The lateral portion **12** of the auxiliary sill extends inwardly beyond the main sill **13** and provides extension **15** against which the latch my conveniently operate.

As heretofore indicated, the sliding sash **16** is comprised of a frame which may conveniently be formed of an extruded metal channel providing a suitable channel-shaped recess within which window pane **17** may be advantageously mounted. Only a portion of the lower rail **18** of the sash frame is shown. It is formed of a substantially H-shaped channel member **19** which is formed of a pair of substantially parallel walls connected by a transverse web. The window pane **17** is mounted in the upper channel portion **20** of the rail. A laterally extending projection **21** is provided along the upper edge of the channel and forms a suitable hand grip for raising or lowering the sash. It should be noted that the lower channel **22** is provided with a longitudinally extending rib **23** on the interior surface of the walls thereof.

As shown in Figure 4 the latch **10** is formed of a single strip of resilient sheet material such as spring steel, although it will be understood that other similarly suitable materials may be used for this purpose. The metal strip is bent to form the shape indicated in said figure and is comprised of a body portion **24**, the upper end of which is bent to form a laterally extending shoulder **25** which serves to offset cap portion **26** from the body **24** of the latch. Cap portion **26** of the latch is formed in substantially the shape of an inverted U and thus comprises a channel having vertical side wall **27**, horizontal top wall **28** from which side wall or tongue **29** depends. Side wall **27** and tongue **29** are advantageously divergent downwardly so that they may be slightly compressed toward each other when the latch is mounted between parallel channel walls. The lower end of the body portion of the latch is wedge shaped and thus forms the catch portion of the latch. Said catch is formed by bending the lower end of the strip upon itself to thus form cam portion **30**, the free end of which is again bent to form inwardly extending lip **31**.

As may be seen from Figures 1 and 2 the latch is mounted within the lower portion of rail **18** by forming a recess or slot **32** in one of the walls thereof. Said slot **32** may be conveniently formed by cutting away a portion of the channel wall. The latch is then mounted in the channel by simply inserting the cap portion thereof into the interior of the channel until the lower or free edge of tongue **29** springs into position over the longitudinally extending rib **23** formed on the interior wall of the channel. The cap portion of the latch being complementary in configuration to the interior of the channel fits snugly therein and is locked firmly in position as the tongue snaps into position over the rib by reason of the resiliency of the material from which the latch is formed. The side wall and tongue of the cap are compressed toward each other and resiliently press against the interior walls of the channel. It should be noted that the free longitudinal edge of tongue **29** abuts with longitudinal rib **23** in the interior wall of the channel and thus locks the latch in position preventing the withdrawal thereof by reason of any pull applied to the catch portion and further prevents any lateral swinging movement of the latch. The latch is thus firmly retained and locked in position.

In operation, as the window is lowered, cam portion **30** of the latch bears upon the edge of extension **15** of the sill member and flexes the body and shoulder portion of the latch outwardly until lip **31** clears the lower surface of extension **15** sufficiently to spring thereunder. As the cap portion springs below extension **15**, the sash is firmly locked against the sill as may be more clearly seen in Figure 3. In order to release the catch from its locking engagement with the sill it is merely necessary to manually pull back upon the catch portion of the latch thereby flexing the latch outwardly and away from the extension until it clears the edge of the extension **15** whereupon the sash may be raised.

It will be noted that the extension **15** on the sill portion of the storm window frame is provided with an upwardly extending rim **33** which acts as a weather seal between the sill and lower sash rail **18**. It has therefore been found advantageous to form shoulder **25** on the latch so that the offset formed thereby is slightly less than the thickness of the channel wall and rim wall combined. As a result of this arrangement, when the latch is in closed position as illustrated in Figure 3, the body portion thereof is flexed and bears resiliently against the surface of the rim edge thereby effectively drawing the channel forming the lower rail of the sash against the upstanding rim to thus provide a tighter and a more efficient weather seal between the sill and sash rail. Additionally, lip **31** is bent inwardly and at substantially right angles with respect to cam portion of the latch. Thus the body of the lip extends at an angle with respect to the lower surface of the sill. This arrangement permits the lip to flex resiliently and thus draw and hold the sash rail toward the sill more tightly. It also permits the catch portion of the latch to compensate for some variation in thickness and position of the parts.

Although the instant invention is particularly adapted for use in conjunction with storm window and screen arrangements wherein many of the benefits of the arrangement may be realized, it will be understood that the latch may be utilized in conjunction with other arrangements wherein it is desired to provide a latching arrangement for relatively movable parts. The simple economical and effective features of the instant device may be readily realized in other types of structures and arrangements to which it may be suitably applied.

I have here shown and described a preferred embodiment of my invention. It will be apparent, however, that this invention is not limited to this embodiment and that many changes, additions and modifications can be made in connection therewith without departing from the spirit and scope of the invention as herein disclosed and hereinafter claimed.

I claim:

1. In combination with a vertically slidable storm sash mounted within an auxiliary window frame, said auxiliary frame having an inwardly extending sill and said sash having a channel-shaped lower rail provided with a lon-

gitudinally extending rib along the interior surface of one of the walls thereof, a latch adapted to releasably secure said sash in abutting relation with said sill, comprising a strip of resilient material formed to provide a body portion, a channel-shaped cap of substantially complementary configuration to the interior wall of said channel-shaped rail, said cap being offset from said body portion by means of a laterally extending shoulder, one of the walls of said cap being formed to provide a depending tongue whereby the latch may be secured within said rail by inserting the cap into the interior of said channel so that said tongue springs resiliently over the rib and bears against the interior wall of the channel, a catch formed on the other extremity of said body portion adapted to spring into engagement with said sill.

2. In combination with a vertically slidable storm sash mounted within an auxiliary window frame, said auxiliary frame having an inwardly extending sill, said sash having a channel-shaped lower rail provided with a longitudinally extending rib along the interior surface of one of the walls thereof, a latch adapted to releasably secure said sash in abutting relation with said sill, comprising a strip of resilient material formed to provide a body portion, a channel-shaped cap of substantially complementary configuration to the interior wall of said channel-shaped rail, said cap being offset from said body portion by means of a laterally extending shoulder, one of the walls of said cap being formed to provide a depending tongue whereby the latch may be secured within said rail by inserting the cap into the interior of said channel so that said tongue springs resiliently over the rib and bears against the interior wall of the channel and a catch formed on the other extremity of said body portion extending at an acute angle with respect thereto, thereby forming a cam-surface adapted to bear against the edge of said sill as said sash is lowered into abutment therewith thus flexing said body portion so that the catch may pass said sill and spring into engagement thereunder.

3. The device according to claim 2 wherein the free extremity of said catch is provided with an inwardly extending lip, so that said lip extends at an angle with respect to the lower surface of the sill whereby said lip is flexed resiliently against said sill surface in latched position.

4. The device according to claim 2 wherein said body portion is offset to a lesser degree than is required to clear said sill whereby the body portion bears resiliently against the edge of said sill after said catch has sprung into engagement therewith.

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