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STORM WINDOW FASTENER

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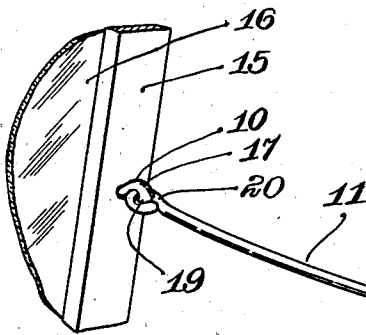


Fig. 1

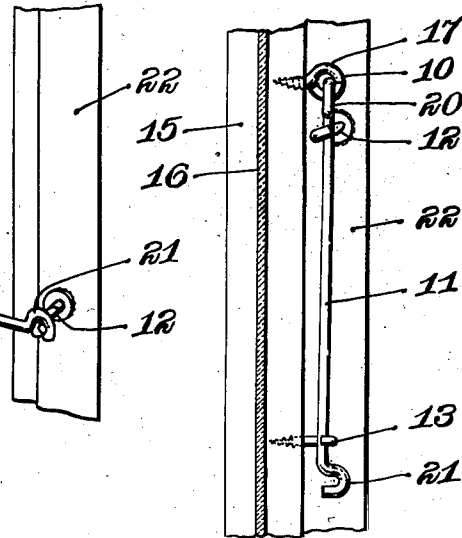


Fig. 2

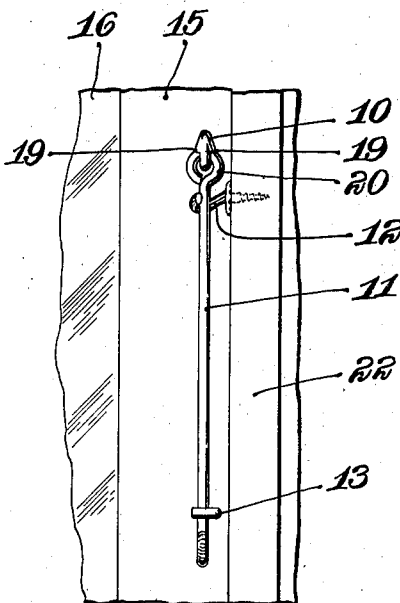


Fig. 3

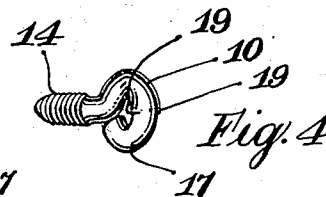


Fig. 4

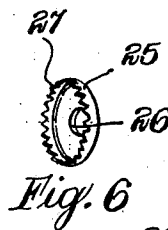


Fig. 5

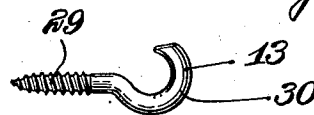


Fig. 6

Fig. 7

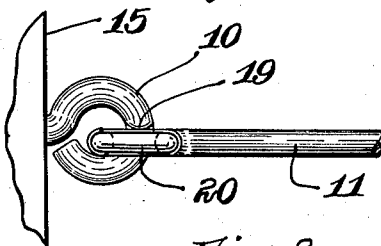


Fig. 8

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STORM WINDOW FASTENER

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10 Claims. (Cl. 292—262)

My invention relates to an improvement in storm window fastener of a type capable of supporting a storm window or the like pivoted outwardly from its frame.

A great number of storm window fasteners have been constructed for the purpose of holding a storm window in a partially open position. Some of these fasteners are pivoted to storm windows and to the frame and are provided with a pivotal knee joint. Other fasteners comprise a bar pivoted to the window and engageable with a bracket on the frame. This latter type of bracket is usually considered disadvantageous because of its tendency to rattle when wind acts upon the window supported. It is the purpose of the present invention to provide a fastener construction of the rigid type which is free of the objectionable disadvantages previously encountered.

It is the object of the present invention to provide a window fastener including a relatively rigid member pivotally connected to a storm window or the like, and to provide a means of limiting the pivotal movement of this member. Accordingly by properly positioning a hook on the window frame, the swinging movement of the window acts to tighten the relatively rigid member against the hook, creating a firm engagement between the relatively rigid member and the hook.

A feature of the present invention lies in providing a resilient relatively rigid member which is pivoted to the window so as to pivot on a plane substantially perpendicular to the inner surface of the window and parallel to a side edge of the window. This pivotal movement is limited so that the swinging movement of the resilient relatively rigid member is stopped when the relatively rigid member is at substantially right angles to the inner surface of the window. A bracket is provided on the window, so arranged that outward swinging of the window tends to flex the relatively rigid member slightly as it reaches its outermost position, thereby holding the relatively rigid member against the bracket under spring tension. As a result the fastener will not rattle when the window is subjected to varying forces of the wind striking the same.

A further feature of the present invention lies in the provision of a hook or recess in the relatively rigid member which may engage the bracket on the window frame to limit outward pivotal movement of the window. This notch or hook faces downwardly so that as the window is swung toward open position the notch will engage the window bracket over which the rigid member

slides during outward pivotal movement of the storm window.

A further feature of the present invention lies in the provision of a window fastener which may be detached in an extremely short period of time to permit the storm window to be swung outwardly beyond its normal limit when it is so desired. When the storm window is close to its frame, or in almost closed position, the relatively rigid member may be easily detached from its supporting bracket on the window frame, permitting the window to be opened any desirable distance. Thus in case of emergency little difficulty would be experienced in swinging the storm window outwardly beyond its usual extent.

A further feature of the present invention lies in the fact that as the relatively rigid member is formed of resilient material, this property of the material can be depended upon to hold the fastener tight when the storm window is in closed position. The relatively rigid arm or link may be flexed freely in locking the window closed, thereby not only preventing rattling of the fastener in closed position of the window, but providing a leverage which will close the window tightly in its frame.

A further feature of the present invention lies in the fact that in closed position of the window the resilient link or arm extends between two hook elements which extend into the window and extend over a hook or bracket mounted on the window frame intermediate the ends of the link or arm. Therefore, in order to adjust the spring tension tending to pull the window into closed position, it is only necessary to thread one of the hook elements into the window a greater or lesser distance, thereby increasing or decreasing the spring tension tending to draw the window closed.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawing forming a part of my specification:

Figure 1 is a perspective view of the fastener in position connecting a storm window to its frame.

Figure 2 is a side elevational view, partly in section showing the position of the fastener when the storm window is in closed position against its frame.

Figure 3 is a front elevational view taken from a position at right angles to Figure 2, showing the storm window in closed position.

Figure 4 is a perspective view of the pivot ele-

ment pivotally attaching the link or arm to the storm window.

Figure 5 illustrates in perspective a hook extending into the window frame and designed to act as a fulcrum in pulling the storm window into closed position.

Figure 6 is a perspective view of a type of washer used in conjunction with the hook shown in Figure 5.

Figure 7 is a side elevational view of a hook which may be used to hold the link or arm in closed position.

Figure 8 is an enlarged detail view showing the manner in which the link or arm engages the pivot member when this pivot member restricts the pivotal movement of the arm.

The window fastener comprises but few separate parts and for this reason may be economically made and sold at an extremely low cost. The essential elements of the combination comprise an eye bolt pivoting member 10 of special construction, or its equivalent, a relatively rigid resilient arm or link 11, a hook 12 arranged to act as a fulcrum for the arm in closing the window, and a second hook element 13 designed to lock the window in closed position. When these elements are properly placed, an extremely simple and effective window fastener is provided.

The eye bolt 10 preferably includes a threaded shank 14 which may be threaded into the sash 15 of the storm window, indicated in general by the numeral 16. This shank 14 terminates in a loop-shaped end 17 which is provided with a pair of laterally extending shoulder bulges 19. These shoulder bulges 19 are arranged to limit relative pivotal movement of the link or arm 11 as will be later pointed out in detail.

The link or arm 11 is provided with a loop-shaped head 20 which encircles the lower portion of the loop end 17 of the eye bolt 10. This loop 20 is of such a size that it may pivot readily about the lower portion of the loop-shaped end 17, but is limited in its pivotal movement by the shoulders 19. Thus in actual practice the arm 11 may pivot until it is substantially normal to the inner surface of the storm window 16, but can not pivot upwardly to a greater extent.

The opposite end of the arm or link 11 from that supporting the loop end 20 is provided with a hook-shaped portion 21. This hook-shaped portion faces downwardly when the arm 11 is pivoted upwardly so as to engage the bracket 12 on the window frame 22. The construction of this hook-shaped end 21 is best illustrated in Figures 1 and 2 of the drawing.

The bracket 12 may be formed as best illustrated in Figure 5 of the drawing. This bracket comprises a shank 23 which is externally threaded to thread into the window frame 22 and is provided with a hook end 24 capable of acting as a fulcrum for the arm or rod 11. The hook shape of the bracket 12 acts to assist in retaining the arm 11 in its proper relationship during the pivotal movement of the storm window and also serves to retain the arm in proper position when the window is closed. This bracket 12 may be used with a suitable washer if it is so desired, such as the cup-shaped washer 25, illustrated in Figure 6 of the drawing. The washer 25 is shown having a central opening 26 and a series of peripheral teeth 27 which may extend into the window frame 22 to hold the washer in its proper place.

In order to lock the window in closed position

a simple threaded hook 13 having a threaded shank 29 and a hook end 30 is engaged into the window frame 15. This hook 13 is designed to engage the arm or link 11 in closed position of the window so as to hold the window tightly closed. The spring tension tending to pull the window closed may be adjusted by the position of the hook 13, and if this hook is threaded farther into the window sash 15, the arm or link 11 is bent to a greater extent, thereby increasing the spring tension tending to pull the window closed.

The operation of my window fastener is extremely simple. When the storm window is pivotally hung upon its pivotal supports, each side of the sash 15 is usually equipped with an eye bolt 10 from which depends a link or arm 11. This arm or link 11 is pivoted upwardly and swung laterally so as to clear the hook 12 and to be engaged thereby. The lower end of the arm 11 may then be engaged in the hook 13 in the manner best illustrated in Figures 2 and 3 of the drawing.

When it is desired to open the window the arms 11 are urged toward the window 16 and laterally a sufficient distance to disengage the arms from the hooks 13. The storm window 16 may then be urged outwardly either by forcing the arms 11 outwardly or by engaging the window itself and pushing the same outwardly, the links 11 riding in the brackets 12. As the window pivots outwardly, however, the free ends of the arms 11 which are riding over the brackets 12 prevent downward movement of the ends of the arms, causing these arms 11 to flex. Thus if the window 16 is pivoted into its outer extreme position the hooks 21 snap into engagement with the hook brackets 12 under spring tension holding the window 16 locked in partially open position.

When it is desired to close the window it is necessary to exert sufficient upward force on the inner ends of the arms 11 to disengage the hooks 21 from the hook brackets 12, whereupon the window may pivot inwardly. When the window approaches closed position the arms 11 are swung over the hook brackets 12 which act as a fulcrum to pull the window tight against its frame. The arms 11 are ordinarily flexed in engaging the same with the hooks 13 to hold the window locked closed.

In describing the fastener, I have described a specific type of eye bolt, arm and hook construction to be used in combination. While the specific combination illustrated has advantages over any other construction with which I am familiar, it is possible that equivalent constructions may be used without departing from the spirit of my invention.

In accordance with the patent statutes, I have described the principles of construction and operation of my window bracket, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A window fastener for connecting a frame and a window pivotally connected thereto, the fastener including a resilient arm, an eye bolt for pivotally attaching said arm to the window, a bracket on the frame, and opposed shoulders on said eye bolt for limiting pivotal movement of said arm relative to said window so as to

resiliently urge said arm against said bracket as the window is pivoted outwardly.

2. A window fastener for attaching a pivotally mounted window and its frame, the fastener including a resilient link, an eye member for pivotally connecting said link to said window, opposed shoulders on said eye member for limiting the pivotal movement of said link with respect to said window, and means on said frame engageable with said link as said window is pivoted outwardly to flex said link resiliently when said link is prevented from pivotal movement by said limiting means.

3. A window fastener comprising a resilient arm having a loop end, a loop member pivotally connecting said arm to said window, means on said loop member limiting the pivotal movement of said arm relative to said window, bracket means on said frame engageable with said arm as said window is swung outwardly, said bracket engaging said arm under tension when said pivot limiting means prevents further pivotal movement between said arm and said window, and means for locking said arm to hold said window closed when said window is in closed position.

4. A window bracket comprising an arm, a means for pivotally connecting said arm to the window, a hook engaging said arm intermediate the ends thereof, a peripherally separated cup shaped washer supporting said hook, said bracket being attached to the frame of said window, and means on said window engaging the other end of said arm in closed position of the window to lock said window closed.

5. A fastener for a window pivotally mounted in a frame comprising an arm, means pivotally connecting one end of said arm to the window, bracket means removably engaging said arm intermediate the ends thereof in closed position of said window, said bracket means comprising a hook wider than said arm, said arm extending inwardly of said hook, and means on said window engaging said arm near the other end thereof to lock said window in closed position.

6. A window fastener comprising an arm, a loop end thereupon, an eye bolt in which said looped end of said arm is engaged, and shoulder means on said eye bolt engageable with said looped end of said arm to limit the pivotal movement of said arm.

7. A window fastener for a window pivotally mounted in a frame, comprising an arm having a looped end, an eye bolt in which said looped end is engaged, shoulder means on said eye bolt for limiting pivotal movement of said arm relative thereto, and hook means on the frame engageable with the other end of said arm.

8. A window fastener for connecting a pivotally mounted window to its frame, the fastener including an arm having a looped end, an eye bolt attached to the window in which said looped end is pivotally engaged, means on said eye bolt for limiting pivotal movement of said arm, and bracket means on said frame engageable with the other end of said arm.

9. A window fastener for connecting a window pivotally connected to its frame, the fastener comprising an eye bolt fastened to the window, a resilient arm having a looped end engaged in said eye bolt, means on said eye bolt limiting pivotal movement of said arm relative to said eye bolt, a bracket on the window frame engageable with said arm under spring tension when pivotal movement of said arm is limited by said means on said eye bolt, and means on said arm engageable with said bracket to lock said window in open position.

10. A window fastener for a window pivotally mounted in its frame, comprising an eye bolt mounted in a window frame, a link having a loop end engaged in said eye bolt, shoulder means on said eye bolt to limit relative pivotal movement between said eye bolt and said link, bracket means on said window frame engaging exteriorly of said link in closed position of said window, and hook means on said window engageable with the other end of said link.

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