Nov. 11, 1952 H. A. STUKES 2,617,646

RELEASABLE WINDOW SASH LOCKING DEVICE

Filed Feb. 16, 1948 3 Sheets-Sheet 1

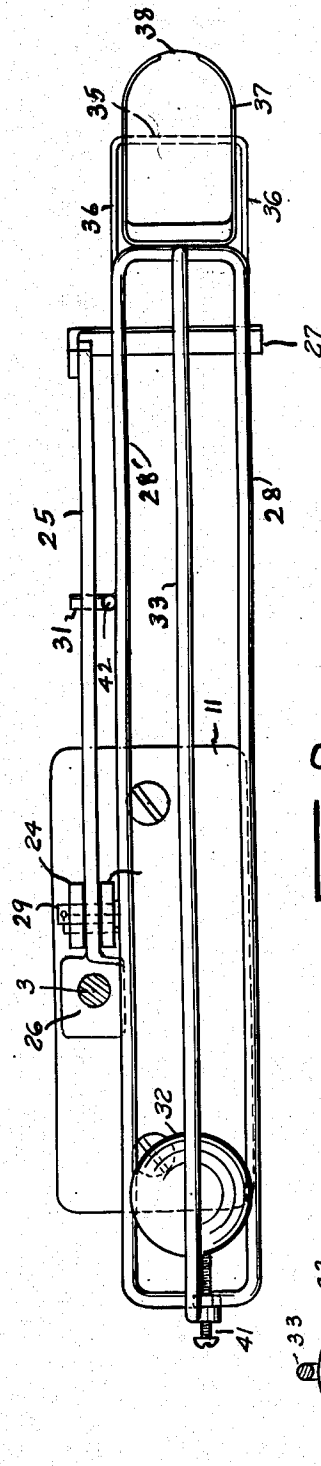


Fig. 2.

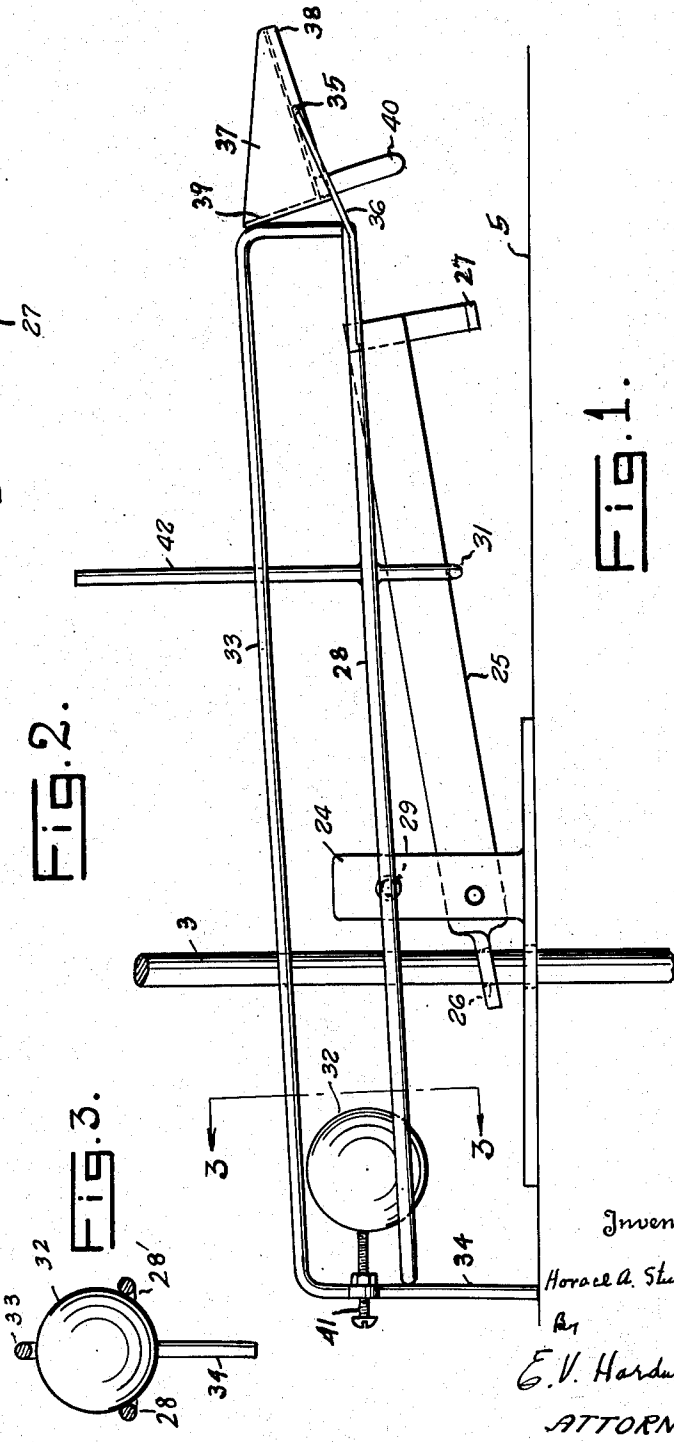


Fig. 1.

Fig. 3.

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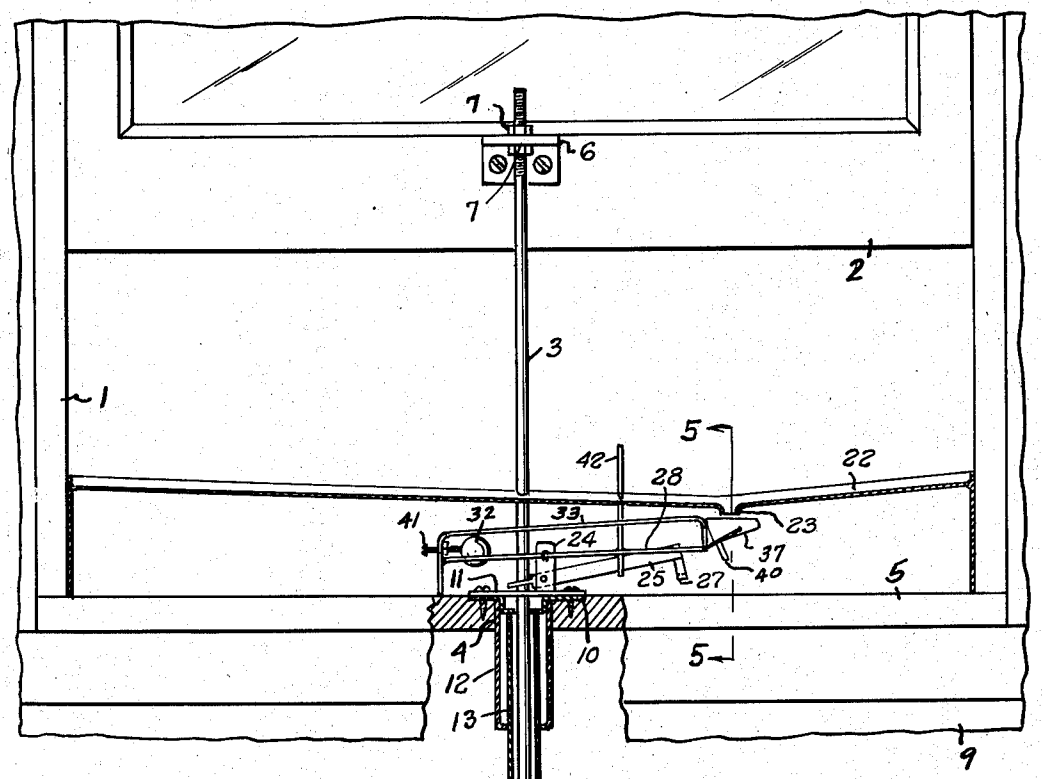


Fig. 4.

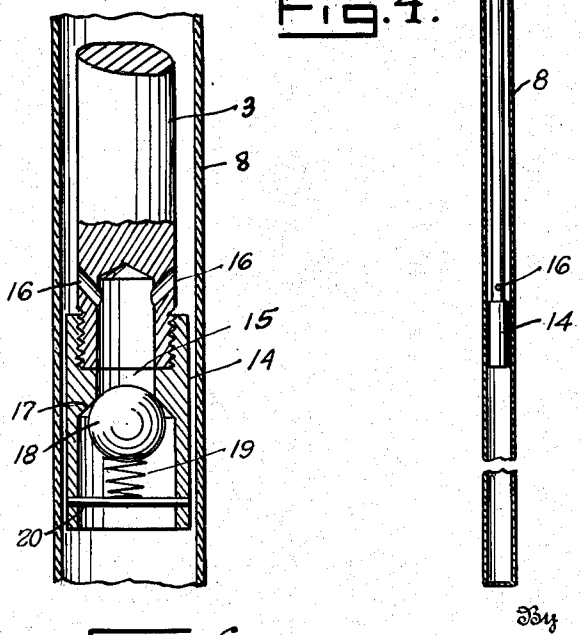


Fig. 6

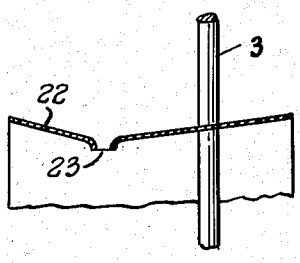


Fig. 5.

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RELEASABLE WINDOW SASH LOCKING DEVICE

Filed Feb. 16, 1948 3 Sheets-Sheet 3

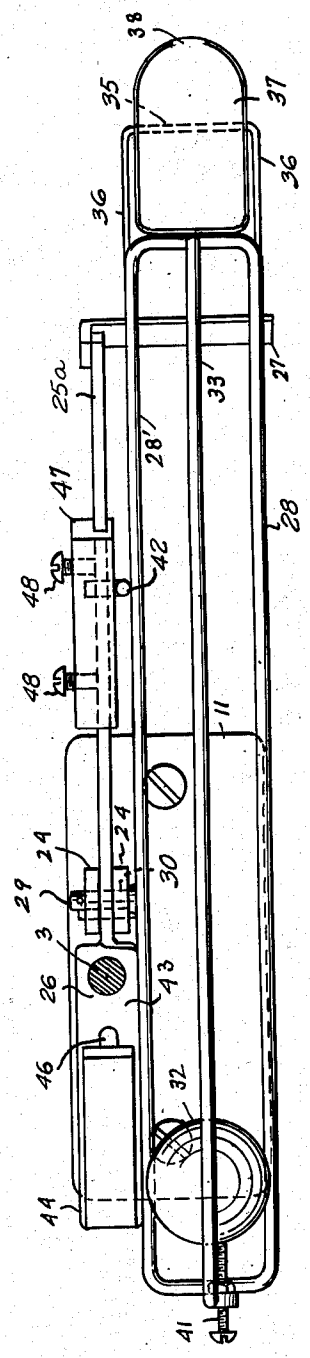


Fig. 8.

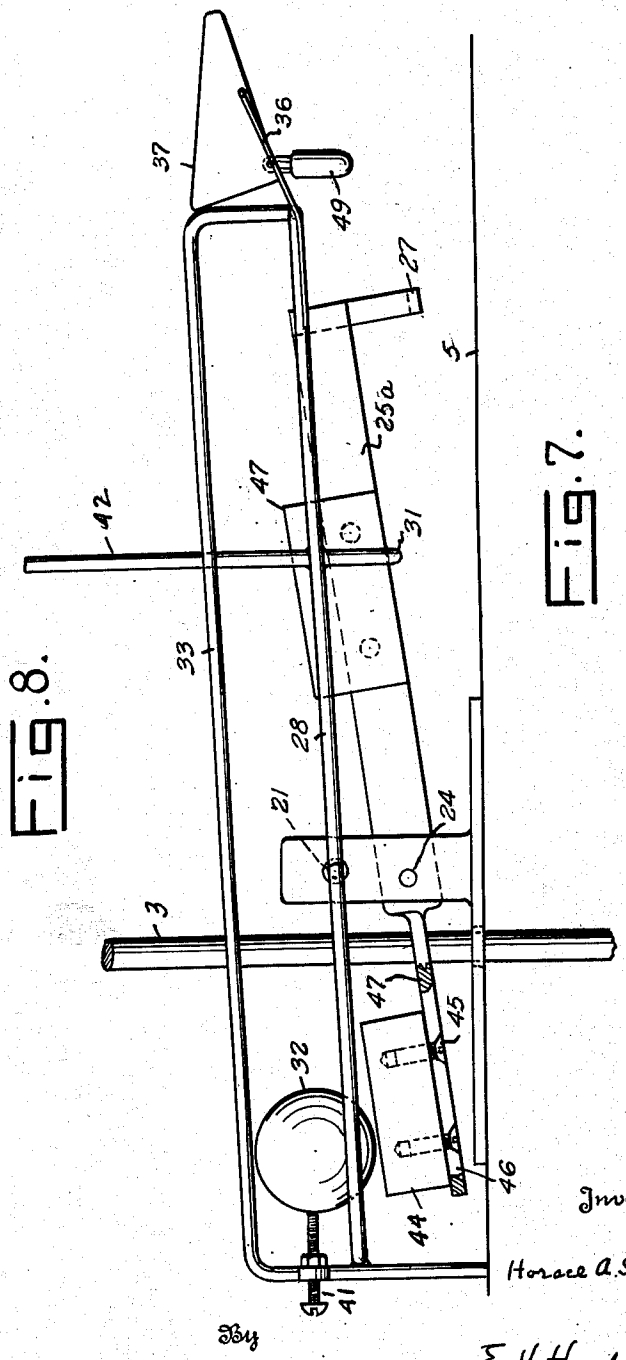


Fig. 7.

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UNITED STATES PATENT OFFICE

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RELEASABLE WINDOW SASH LOCKING DEVICE

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Application February 16, 1948, Serial No. 8,538

2 Claims. (Cl. 268—123)

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This invention relates to a releasable window sash locking device.

An object of the invention is to provide a device of the character described which has been designed to hold a window sash elevated or in open position, but which will be automatically released in case of rain to allow the sash to close by gravity.

The invention includes certain improvements over that type of window attachment disclosed in my pending United States patent application Serial No. 558,094, filed on the 10th day of October, A. D. 1944, now Patent No. 2,441,230, dated May 11, 1948.

Another object of the invention is to provide a rod gripping member mounted on the window casing and adapted to grip, and lock, a sash-supporting rod attached to the window sash, with means for maintaining said gripping member in gripping relation with the rod when the sash is elevated, said maintaining means being releasable from the rod-gripping member by the weight of accumulated water, in case of rain, to allow the gripping member to release the rod to permit the sash to close.

A further feature resides in the provision of a pivotally mounted track, and a liquid container on the track arranged to move the track, when filled with water, to in turn cause the gripping member to be released, whereupon the sash will close by gravity.

A still further object of the invention is to provide a spherical weight, movable along the track to normally maintain the locking device in active, or sash supporting, position.

The invention also may include weights on the gripping member which may be adjusted to vary the quantity of liquid in the container which is required to release the gripping member from the rod.

The invention also includes means for restoring the liquid container to original, or liquid containing, position upon return of the parts to sash supporting position.

The invention also includes a dash-pot associated with the supporting rod for controlling the downward movement of the sash to prevent its sudden dropping upon release.

Other objects and advantages will be apparent from the following specification which is illustrated by the accompanying drawings, wherein:

Figure 1 is a side elevation of the device shown in sash locking position.

Figure 2 is a plan view thereof.

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 1.

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Figure 4 is a fragmentary, elevational view of a window casing and sash mounted therein shown partly in section showing the locking device in sash-supporting or locking position.

Figure 5 is a fragmentary, sectional view thereof taken on the line 5—5 of Figure 4.

Figure 6 is a fragmentary, vertical, sectional view of the dash-pot.

Figure 7 is an elevational view of the attachment shown, partly in section, with adjustable weights on the rod gripping member, and

Figure 8 is a plan view thereof.

Referring now more specifically to the drawings, the numeral 1 designates the window casing as a whole wherein there is mounted a vertically slidable sash 2. There is a sash supporting rod 3 which is extended through an opening 4 in the bottom ledge 5 of the window casing. The upper end of this rod may be attached to the sash in any preferred manner. As shown there is a lug 6 secured to the lower end of the sash frame through which the upper end of the rod extends and said upper end is threaded to receive the clamp nuts 7, 7 threaded thereon above and beneath said lug whereby the rod is attached to the sash.

Extending through the opening 4 there is a tube 8, which may be enclosed within the walls of the building 9 and whose lower end is closed and fixed to the upper end of the tube 8 there is a surrounding flange 10 which rests on and is secured to the top of the ledge 5. A cover plate 11 is fitted over the opening 4 and is secured to the top of said ledge and the rod 3 works through a suitable bearing in said plate. Also fitted through the opening 4 and depending from ledge 5 and surrounding the upper end of tube 8 there is a container 12. This container and the tube 8 contain liquid, preferably a light oil and the upper end of said tube is provided with perforations 13 to permit passage of the liquid back and forth.

The lower end of the rod extends down into the tube 8 and fixed on the lower end of the rod there is tubular plunger 14. The plunger 14 has an axial liquid passageway 15 therethrough which continues on up into the lower end of rod 3 and has the side outlets 16 into tube 8. Around the passageway 15 within the plunger there is an annular, downwardly facing valve seat 17 which is controlled by the downwardly opening ball valve 18. This valve is normally held closed by a suitable spring 19 which may be seated on a cross rod 20 in the plunger beneath the valve. A dash-pot is thus, in effect, formed.

Upon downward movement of the sash 1 the

valve 18 will close and the liquid in tube 8 beneath will gradually leak by the plunger, thus checking the downward movement of the sash to prevent it from closing too suddenly. Upon upward movement of the sash valve 18 will freely open to allow free flow of liquid through the plunger so that the sash may be easily elevated to open position.

Securely fastened on the ledge 5 there is an enclosing housing 21 which is located outside of the sash. Its upper side is formed into a shallow hopper 22 provided to catch a quantity of water, in case of rain, and this hopper has a discharge opening 23.

Upstanding from the plate 11, at one side, there are the lugs 24, 24 and pivotally mounted between them there is the locking lever 25. The rod 3 slides loosely through a hole 26 in one end of this lever. The other end of lever 25 is extended and provided with a laterally extended trip bar 27.

There is a frame, preferably rectangular in plan and having the side bars 28, 28' forming a track. Extending out laterally from the bar 28' there is a pintle 29 which extends through aligned bearings 30 in the upper ends of lugs 24, 24. This last mentioned side bar 28' also carries a depending hook 31 which engages under the extended end of the lever 25.

There is a spherical weight 32 on, and movable along, the tracks 28, 28' and this weight is retained in place on the track by the inverted U-shaped retainer rod 33 which is fastened to the ends of said frame and one end of the retainer rod is extended downwardly forming a stop 34 to limit the range of movement of the track.

At the other end of the track there is a transverse axle 35 which is secured in place by the side arms 36, 36 which are outwardly and upwardly inclined and which are fastened to the corresponding ends of the tracks 28, 28'.

Mounted to rotate on the axle 35 there is a container 37 whose outer end is formed into an outlet spout 38 and whose inner end 39 is widened upwardly, the sides of the container being substantially triangular, as shown in Figure 1. The pivotal support of the container on its axle is out slightly beyond center so that the container will normally be in its upright position, as shown in Figure 1 and the inner end of the container has a depending leg 40 so that when the corresponding end of the track moves downwardly the leg 40 will contact with the ledge 5 and tip the container outwardly so as to lower its spout and allow discharge of the liquid contents of said container.

In case of rain the container 37 will fill with water and over balance the pivotally mounted track so as to move the corresponding end of the track downwardly and the hook 31 will release the locking lever 25 and as said end of the track goes down and strikes the trip bar 27, it lowers the corresponding end of said lever thus bringing the lever into substantially horizontal position so that the hole 26 will be concentric with the rod 3 and the gripping action on said rod will thereby be released so that the window sash will move downwardly to closed position by gravity. This downward movement of the sash will be relatively slow, as hereinabove explained, to prevent the sash from violently striking the ledge 5. The water collected in the container 37 will be discharged as previously explained.

When the track has moved to discharging position the spherical weight 32 will move along

said track to the opposite end thereof. This weight assures the quick operation of the releasing device since just as soon as there is sufficient water in the container 37 to over balance the track the weight will move along and accelerate the movement of the track to unlock the lever 25 from the rod 3. However, said spherical weight 32 is primarily provided to maintain the device in active, or locking, position as shown in the drawings with the sash elevated until it is overbalanced by water collecting in the container 37.

The position of the weight 32 on the track may be adjusted by means of an adjusting screw 41 which is threaded through the corresponding end of the retainer rod 33 and whose inner end forms a stop for said weight.

Upstanding from the track 28' there is a grip member 42 which extends on up through the hopper 22. By the use of this grip member the free end of the track may be elevated so that the spherical weight 32 will roll back to its original position and the locking lever 25 will be moved into diagonal position relative to the rod 3 and will grip said rod, as shown in Figure 1, and hold the sash, which has been previously elevated, in its elevated position. At the same time the weight of the depending leg 40 will over balance the container 37 and move said container to upright, or receiving position as illustrated in Figure 1.

In the form shown in Figures 7 and 8 the end of the locking lever 25*a*, which is remote from the trip bar 27, is formed with an extension 43 on which there is mounted a weight 44 which may be adjusted along said extension and fixed at any desired point of adjustment by the set screws 45 which work through an oblong slot 46 in said extension. On said lever 25*a* on the opposite side of the pintle 29 there is another weight 47 which may be adjusted along said lever and fixed at any point of adjustment by set screws 48. These weights 44 and 47 may be adjusted so as to vary the balancing of the locking lever 25*a* which, in turn, will vary the amount of water in the container 37 necessary to over balance the track.

Connected to and depending from the inner end of the container 37 there is a depending weight 49 which not only holds the container 37 in receiving position when it is elevated but which also contacts against the ledge 5 and tilts the container to discharging position when the corresponding end of the track is lowered. This weight serves the same purpose as the leg 40 of Figure 1.

In other respects than above pointed out the form shown in Figures 7 and 8 is similar to that form shown in the other figures.

The drawings and description disclose what are now considered to be preferred forms of the invention by way of illustration only while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. The combination with a window structure including a window casing provided with a bottom ledge and a window sash positioned for vertical movement in the casing, of a window sash locking device comprising, a sash supporting rod secured at its upper end to the sash and extending through an opening in said bottom ledge, tubular means secured to said ledge and surrounding the rod below said ledge, a liquid container fitted around said opening and depending from said

ledge and adapted to surround the upper end of said tube, said tube having openings in communication with the container through which the liquid may flow, means secured to the lower end of said rod adapted to move axially in said tube and forming therewith a dash-pot to arrest the downward movement of the window sash connected to said rod, upstanding members on said ledge, rod gripping means pivotally mounted between said members one end of which is fitted around said rod to hold it against downward movement, frame means forming a track pivotally mounted on said members, said track means including a weight freely movable on the track from end to end thereof under the influence of gravity and means on the track adapted to releasably hold said rod gripping means in locking position when the weight is at one end of the track, stop means formed at one end of said frame to limit the range of movement of the track, side arms secured to the frame at the other end of the track, an axle secured between said side arms, a container mounted to rotate on said axle, said container having its outer end formed into an outlet spout and its inner end widened upwardly, an enclosing housing secured on said ledge outside of said sash and having its upper side formed into a hopper to catch rain water to be transmitted by a corresponding opening into said container, means secured to the bottom of said container to contact the ledge when said track moves downwardly to tip said container to allow its contents to be discharged through said spout.

2. The combination with a window structure including a window casing provided with a bottom ledge and a window sash positioned for vertical movement in the casing, of a window sash locking device comprising, a sash supporting rod secured at its upper end to the sash and extending through and below an opening in said bottom ledge, tubular means secured to said ledge and surrounding the rod below said ledge, a liquid container fitted around said opening and depending from said ledge and adapted to surround the

upper end of said tube, said tube having openings in communication with the container through which the liquid may flow, a plunger secured to the lower end of said rod and adapted to move axially in said tube, valve means arranged in said plunger to stop the flow of liquid therethrough upon downward movement of the rod and thereby to cause said liquid to leak slowly around said plunger to arrest the downward movement of the sash, upstanding, spaced, members arranged on said ledge adjacent said rod, an elongated lever pivotally mounted between said members, said lever having a ring-like opening at one end constructed to fit loosely around said rod when in inactive position but to grip and hold the same when said lever is maintained in active position, a frame formng a track pivotally mounted on said members, a weight on said track freely movable thereon from end to end of the track, holding means on the frame adapted to hold said lever in its gripping position when the weight is at one end of the track, a rain water receptacle pivotally mounted on said track at the opposite end thereof, and means cooperating with said receptacle to cause the weight to move toward it and thereby to release the rod gripping means to allow the rod and sash to descend.

HORACE A. STUKES.

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