J. MYVALT AND A. S. ELIASON.

AUTOMATIC WINDOW GUARD.

APPLICATION FILED APR. 14, 1920.

1,355,246.

Patented Oct. 12, 1920.

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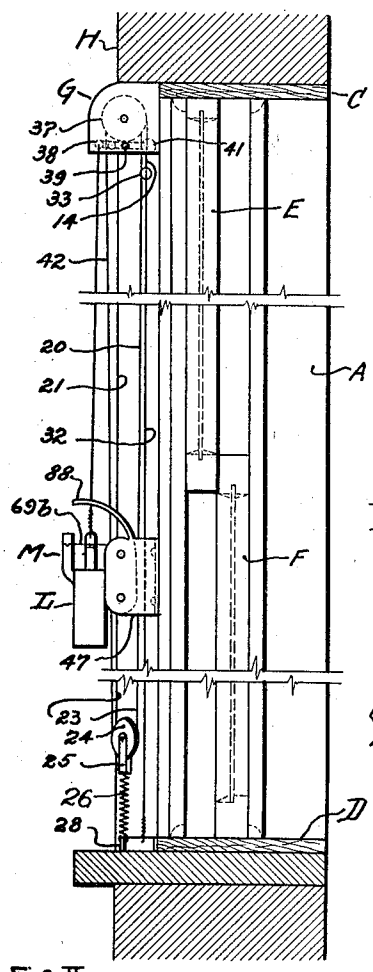


Fig II

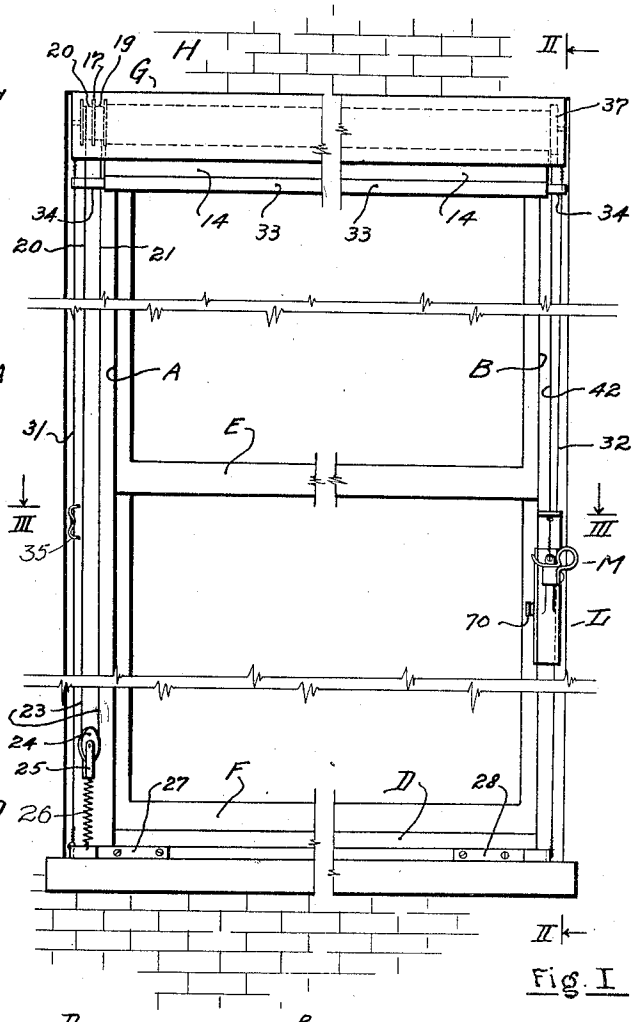


Fig. I

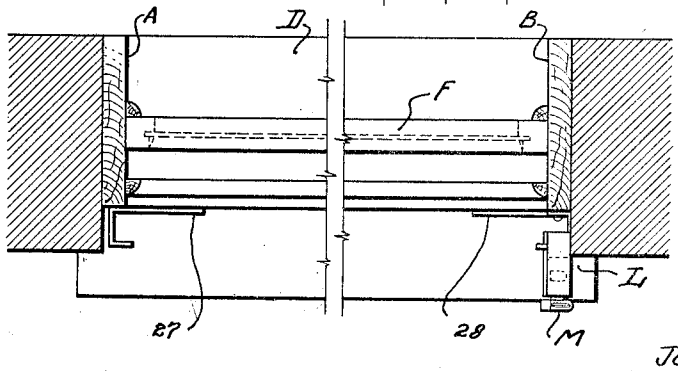


Fig. III

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2 SHEETS—SHEET 2.

Fig. IV

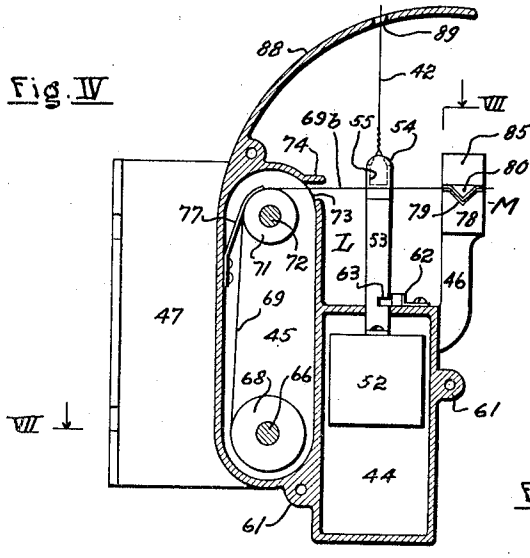


Fig. VI

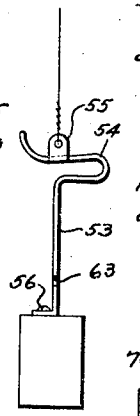


Fig. V

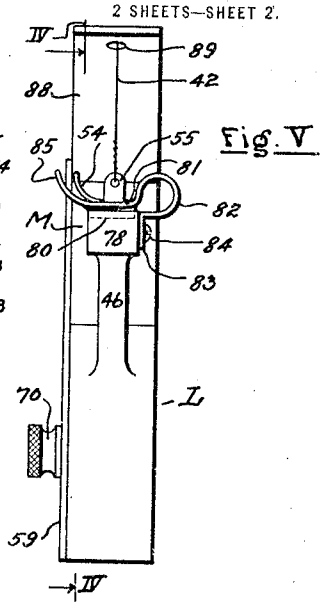
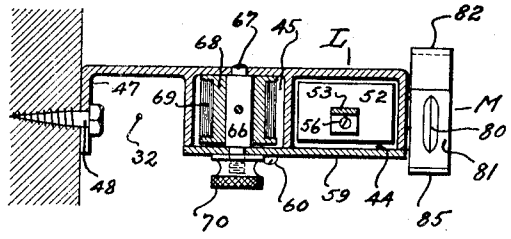


Fig. VII



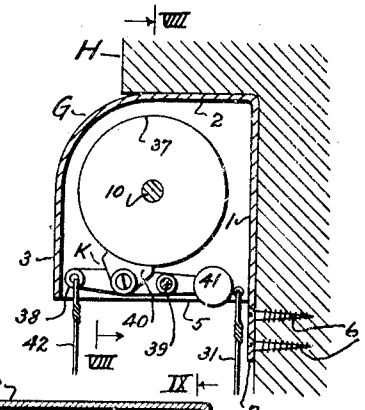


Fig. VIII

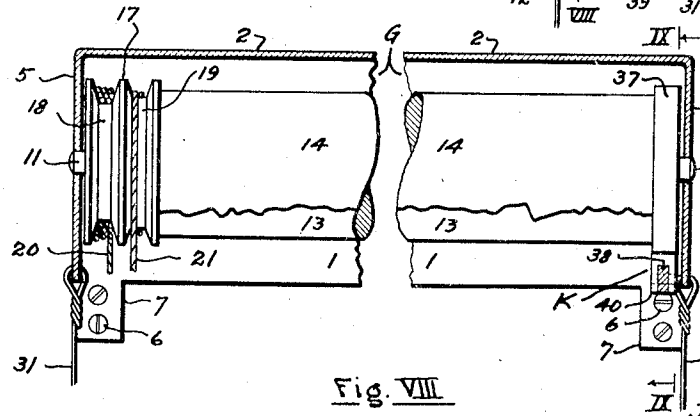


Fig. IX

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UNITED STATES PATENT OFFICE.

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AUTOMATIC WINDOW-GUARD.

1,355,246. Specification of Letters Patent. **Patented Oct. 12, 1920.**

Application filed April 14, 1920. Serial No. 373,941.

To all whom it may concern:

Be it known that we, JOSEPH MYVALT and AXEL S. ELIASON, residing at the borough of Manhattan, in the county, city, and State of New York, have invented a new and useful Automatic Window-Guard, of which the following is a specification.

This invention relates to devices for automatically protecting the interior of a room from damage by the entrance of rain, snow, sleet and hail, etc., through windows and the like, when left open for purposes of ventilation; the mechanism being put into operation almost instantaneously upon the precipitation of a very minute quantity of hydrous matter.

The main objects of the invention are broadly, to provide a combined, light and rain excluding guard adapted to be located adjacent to a window or other wall opening, so that in operative position it will be capable of acting as a screen to prevent the entrance through such opening of rain or other hydrous precipitation, the guard normally occupying a non-protecting position in order to leave the window or other opening free and unobstructed for the admission of air as well as light. The invention further comprises mechanism automatically set into operation by contact with certain portions thereof, by a minute quantity of hydrous matter, which will cause such light and rain guard to assume a closing or shielding position. Means are included in the invention for locking the automatic guard closing mechanism against actuation, and also for moving the guard manually, either partially or entirely, into open or closed position.

Another object is the production of a device of the character described, which will remain unaffected when the rain, snow, sleet or hail, etc., falls substantially perpendicularly, but will become operative if the hydrous precipitation is drifting or falling slantwise.

A further object is the provision of a device of the nature set forth, readily attached to or removed from the exterior of a window opening, and which can be placed in position without disfiguring the window or obstructing the vision therethrough.

Still another object is to procure a device of the kind referred to, which shall be of a simple and durable construction, not liable to get out of order, besides being noiseless and positive in its action.

A still further object is to produce a device of the type specified, the automatic operation whereof depends upon the fracture of a frangible material renewable at low cost.

Other objects and advantages of the invention will become apparent as the specification proceeds.

With the aforesaid objects in view, the invention consists of the novel combinations and arrangements of parts hereinafter described in their preferred embodiments, pointed out in the subjoined claims, and illustrated on the annexed drawings, wherein like parts are designated by the same reference characters throughout the several views.

In the said drawings:—

Figure I is a broken, exterior front view of a window showing the invention with its manual and automatic mechanism applied thereto, the guard being indicated in its rolled up or non-shielding position;

Fig. II is a broken side view of the construction and mechanism represented in the foregoing view, the window proper being in section taken on the line II—II of Fig. I, looking toward the left in the direction pointed out by the arrows pertaining to the said line;

Fig. III is a broken horizontal cross-section taken on the line III—III of the next preceding figure, looking downwardly in the direction of the arrows appertaining to the last named line, parts being omitted;

Fig. IV is an enlarged sectional side view of a hydrously operated automatic tripping mechanism included in the preceding figures, the section running irregularly on the line IV—IV of Fig. V, looking toward the right in the direction pointed out by the arrows pertaining to the last mentioned line;

Fig. V is a side view of the mechanism shown in Fig. IV, looking toward the left thereof;

Fig. VI is a right hand side view of an

element appearing in Fig. IV, detached therefrom;

Fig. VII is a horizontal section extending irregularly along the line VII—VII looking down in direction of the arrows thereto appertaining;

Fig. VIII is a broken, enlarged front view of a guard and its inclosure appearing in the upper portion of Fig. I, parts thereof being in section taken on the line VIII—VIII of Fig. IX looking in the direction pointed out by the arrows pertaining to the line last named; and

Fig. IX is a sectional end view of the last preceding figure, the section being taken on the line IX—IX thereof, in the direction of the arrows thereto appertaining.

Generally described, the invention consists of a roller shade mounted under a hood at the exterior upper portion of a window opening. The free edge of this shade is weighted so as to have an inherent tendency to unwind and descend in front of the window opening, being suitably guided so as to steadily follow the course arranged therefor. A re-setting means disposed at one side of the window is provided for winding up the shade on its roller to raise the same from lowered position. Retaining mechanism located at the other side of the window engages with the roller to keep the shade in wholly or partly raised condition. A releasing device normally held inactive by a frangible member is adapted upon fracture of the latter by action of hydrous precipitation thereon, to automatically disengage the retaining mechanism and thereby liberate the shade which then descends in front of the open window, excluding therefrom rain, snow, sleet and hail, etc. The frangible member is contained within a magazine wherefrom it may be withdrawn to expose a certain portion thereof to the releasing device, as required. The latter may be locked inoperative to permit independent manual actuation of the retaining mechanism in conjunction with the resetting means.

The advantages of the invention as here outlined are best realized when all of its features and instrumentalities are combined in the one and same structure, but, useful devices may be produced embodying less than the whole.

It will be obvious to those skilled in the art to which the invention appertains, upon becoming conversant with the details thereof, that the same may be incorporated in several different constructions. The accompanying drawings, therefore, are submitted merely as showing the preferred exemplification of the invention.

Referring to the several views aforesaid, the reference letters A, B designate the sides of the window frame, and C, D the top and bottom pieces thereof, which are secured together and positioned in the house wall as shown. Slidingly mounted in a well-known manner in this window frame, are the upper and lower sashes E and F. All of these parts may be of any suitable construction as well as operation, and form no part of the present invention.

Secured preferably to the exterior top portion of the window frame, is a hood-like structure G, comprising a straight rear piece 1, a top 2 extending at right angles to the latter and ending in a downwardly curved front or apron 3, these parts being joined by end walls 4, 5. Screws 6 passing through ears 7 constituting prolongations of the rear-piece 1, serve to fasten the hood in place directly beneath an overhanging ledge H of the building wall, whereby it is firmly retained in its assigned position.

Trunnions 10, 11 pertaining to a shade roller 13, are journaled in the end walls 4 and 5 respectively. To the roller 13 is attached a water-proof guard-curtain 14, wound up thereon as indicated in Figs. I and II. This curtain may be made of opaque, translucent or transparent material, so as to either exclude, partially let pass, or admit the light through the same.

Rigidly secured to one extremity of the said shade roller is a sheave 17 having double grooves 18, 19. Winding one to the left, the other right hand, and securely fixed endwise, one in each of said grooves, are two branches 20, 21 of an operating cord 23. The continuous lower end of this cord is looped around a tension pulley 24 that carries a yoke 25 (Figs. I and II). A spring 26 attached at one end to the latter has its other extremity anchored to one of a pair of brackets 27, 28, secured for example to the bottom piece C of the window frame, which spring serves to keep the said cord 23 taut irrespective of atmospheric conditions.

By the before recited construction and arrangement it will be understood, that when mostly all of the cord branch 20 is wound up in the groove 18, the guard curtain 14 will be rolled up on its roller within the hood G and the entire window is then uncovered. Vice versa, when the cord branch 21 reversely, is wound up in the grooves 19, practically all of the guard curtain will be unrolled from the roller 13 so as to cover or shield the window front, in its entirety. Thus, it will be seen that no rain or other hydrous precipitation can find entrance through the window, even though it may be partially open at both top and bottom. The cord 23 constitutes the resetting means for the curtain 14, and by manipulation of its branches 20, 21, the same can be operated

to either window guarding or uncovering position.

Extending between the lower edges of the hood's end walls 4, 5, and the before mentioned brackets 27, 28 along the opposite sides of the window frame, are curtain guides 31, 32 composed of wires or other suitable means. To the outer or free edge of the guard curtain is secured in any preferred manner, a gravity bar 33, usually of heavy metal, made weather proof. The projecting extremities 34 of this bar are each provided with a suitable aperture adapted to receive therein the said guide wires 31, 32 and thereby lead the guard curtain along its assigned path without interfering with the adjacent parts of the window, during the raising and lowering process. But, in any event the said bar 33 is sufficiently heavy to instantaneously gravitate the free lower edge of the said guard curtain 14 down in front of the window, whereby the former may unroll for its full length and descend into window shielding and guarding position. At 35 is shown a stop for limiting the descent of the guard curtain. This stop may be made of resilient material so as to clampingly engage one of the guide wires 31, 32, and also admit of adjustment thereon in order to predetermine the point at which it is desired to arrest the downward travel of the said curtain.

The descending movement just described, can only occur when a mechanism K, which normally retains the guard curtain against rotation, is released. Such mechanism is preferably in the form of a roller braking device and comprises a brake drum 37 fixed to the end of the curtain roller 13 opposite to the double grooved sheave 17. Adjacent to the said drum and usually below the same is oscillatably mounted a brake-lever 38 upon the shank of a screw or stud 39 supported in any suitable manner from the proximate end wall 4 of the hood G. Pivotally carried by the lever 38 is a brake-shoe 40, the upper curved working face whereof is maintained in operative contact with the periphery of the drum 37 by a weight 41 or its equivalent, which exerts a downward pull on the inner end of the said lever, sufficient to keep the drum and the therewith connected roller from being rotated by the gravity bar 33 acting tangentially thereon through the medium of the guard curtain 14. In order to release the said brake shoe 40 from engagement with the drum, a cord or wire 42 depending from the outer free end of the lever 38 is given a pull in a downward direction.

As indicated in assembled form, Figs. I to III, and in detail, Figs. IV to VII inclusive, an automatic hydro-actuated guard curtain releasing device L, is generally secured in position exteriorly to the window on the right hand side looking in, a short distance below the middle thereof. The said device L comprises a housing including chambers 44, 45, and an arm 46, all preferably formed integral with a bracket 47, and adapted for attachment, as for instance by lag screws 48, to the side B of the window frame externally thereon, being rendered non-corroding in any approved manner.

Located within the chamber 44 is a trip element 52 which may be in the nature of a weight that has rising therefrom a standard 53 provided at top with a supporting hook 54 having ears 55 through which is passed the lower end of the cord 42, previously described as being connected up with the brake carrying lever 38. The arrangement is such that when released, the said element 52 overbalances the counterweight 41 at the inner end of the lever 38, thereby pulling down the outer end of the latter and withdrawing the shoe 40 from contact with the brake-drum 37, so that the guard curtain is free to descend, as before pointed out. The said standard 53 may be held at the foot thereof, to the weight 52 as by means of a screw 56 and have its straight middle portion slidable through an opening provided therefor in the top of the inclosing housing wall. A plate 59 covering the open faces of the chambers 44, 45 may be removably secured in place as by screws 60 entered into suitably tapped openings provided therefor in ears 61 projecting from the walls of the housing. Pivotally mounted upon the latter is a latch 62 capable of having its free swinging end engage with a notch 63 formed in the standard 53 and thereby lock the same and the thereto attached element 52 from gravitational movement in the chamber 44. The said locking latch 62 constitutes the means for rendering the releasing device inoperative when it is desired to manually operate the resetting and retaining mechanisms.

Revolubly carried by the cover plate 59 is a spindle 66 having its overhanging end 67 which is shouldered, journaled in an opening provided therefor in the rear wall of the housing pertaining to the chamber 45. A spool 68 upon which is wound one end of a frangible member 69 that may be in the nature of a bibulous or water absorbing tape of paper or other material, is secured as by pinning it to the spindle 66 within the chamber 45, the latter serving as a magazine wherein the said tape may be stored. The instrumentality for operating the said spindle incidentally to advancing or retracting this tape, is here shown as consisting of a knurled knob 70 fastened to the near end of the spindle 66 adjacent to the cover 59 on the outside thereof.

Mounted also in a rotatable manner in the upper portion of the said chamber 45 is a

guide roll 71 which in this case may be revoluble upon a stud 72 fixed to the cover 59. The tape member 69 passes from the said spool 68 over the roll 71 and thence out through an opening 73 in the side wall of the housing appertaining to the chamber 45, which opening is protected by a lip 74, against the entrance of rain or other hydrous precipitation therethrough.

As shown, a friction spring 77 attached by one end to the housing wall of the chamber or magazine 45, bears with its opposite free extremity upon the portion of the frangible tape running over the guide roll 71 and serves to keep the tape taut between the latter and a securing device M in which its outer terminal is held. The said tape end securing device includes a head 78 which may be formed with the upper part of the hereinbefore described arm 46 and provided in its top face with a V-shaped groove 79 into which the free end of the tape is forced by a coacting, similarly configurated projection 80 incorporated with the bottom face of a resilient finger 81. This finger which preferably embodies a spring loop 82 is fastened with its tail part 83 to the head 78 by means of a screw 84, while an upwardly turned nose portion 85 serves as a grip when raising the finger incidental to the insertion of the tape 69 between the interengaging jaws 79 and 80. The horizontal stretch 69^b of the frangible tape extending intermediate the contact point of the friction spring 77 with the roll 71 and the last named jaws, is so firmly held therebetween that it will sustain the before mentioned supporting hook 54 pertaining to the weight or trip element 52, without slipping. But, at such time when the exposed portion of the tape has absorbed sufficient moisture from rain, snow, sleet or hail, etc. lodging thereon, it is disabled or becomes so weakened that it fractures whereby the weight is allowed to drop by gravity to the bottom of the chamber 44, at which moment the retaining mechanism K, hereinbefore described, is released.

From the upper part of the housing inclosing the releasing mechanism L rises a shield 88, preferably of curved form as depicted in Figs. II and IV, and reaching substantially to the outer surface of the tape-end securing device M, so as to protect the horizontal working portion 69^b of the frangible tape from being wetted by vertically falling water such as rain or other hydrous precipitation. Usually it is desired to have the releasing device actuated, and the guard curtain lowered to window shielding position, only when the rain or the like, is driven inward so as to threaten to wet the interior of a room. At 89 is indicated an aperture where the brake lever operating cord 42 passes through the said shield 88. Any water finding its way by this aperture will follow the said cord 42 down to the top of the supporting hook 55, where it flows off the same without reaching the tripping portion 69^b of the frangible member.

The operation of this improved automatic hydrously actuated window guard is as follows:—

The guard curtain 14 being fully wound up on the roller 13 into non-shielding or raised position shown in Figs. I and II; and the trip element 52 with its supporting hook 54 resting upon the horizontal working portion 69^b of the frangible member, no strain will be exerted on the latter if the locking latch 62 is in engagement with the notch in the standard 53; even though the said tape be fractured, the trip weight will not drop if locked in this position; the guard curtain may then be raised or lowered by proper manipulation of the cord branches 20, 21, without attention being paid to the engagement of the shoe 40 with the brake drum 37, which suffices to resist the gravitational action of the bar 33 on the said guard curtain.

When it is desired to set the device for automatic actuation, the locking latch is disengaged from the supporting standard 53; the trip weight will then be sustained wholly upon the working stretch of the frangible tape; and if rain or other hydrous precipitation is driven by wind or otherwise in under the rain shield 88 upon the said tape portion 69^b, the same will almost instantaneously become so weakened by the absorption of water therefrom that the trip weight will break or tear the tape in two; thus drawing downward the cord 42 which is connected up with the brake carrying lever 38, and releasing the roller 13; whereupon the gravity bar 33 will at once descend along its guides, pulling the guard curtain 14 down with it; until the said bar encounters the stop 35, which may be set at any point compatible with the complete covering and shielding of that portion of the window which has been left open.

To reset the device after an automatic actuation, it is only necessary to roll up the guard curtain by manipulation of the cord branch 20; throw the latch 62 into the notch in the supporting standard 52 so as to lock the same and the trip weight in the raised position shown in Fig. IV; rotate the knob 70 so that the spool 68 may be easily revolved by drawing on the tape and catching hold of the same at its upper broken end; pull the tape end through the weight supporting hook 54; raise the weight securing spring finger 81 from the head 78; remove the other broken tape end from the latter; insert the new end of the tape between said head and finger; and allow said finger to snap back into position; when the locking

latch is next withdrawn from the supporting standard, the trip weight with its hook will again be sustained by the working portion 69^b of the tape, ready for another hydrous actuation, as hereinbefore described.

While a certain preferred embodiment of this device has been shown and described, it will be understood that changes in the form, arrangements, proportions, sizes and details thereof may be made, without departing from the scope of the invention as defined by the appended claims.

Having described our invention what we desire to secure by Letters Patent and claim, is:—

1. A device of the class described, comprising in combination, a guard adapted to be moved into shielding position, means for normally retaining said guard in non-shielding condition, and a member mutable by contact of hydrous matter therewith for releasing said means to enable the guard to move into said position.

2. A device of the class described, comprising in combination, a guard adapted to be moved into shielding position, means normally retaining said guard in non-shielding condition, and a tripping member disabled upon contact of hydrous matter therewith, for releasing said means so as to permit the guard to gravitate into said position.

3. A device of the class described, comprising in combination, a guard adapted to be moved into shielding position, means normally retaining said guard in non-shielding condition, and positively acting mechanical means automatically operating upon contact of hydrous matter therewith, to trip said means so as to release the guard and permit the same to move by gravity into shielding position.

4. A device of the class described, comprising in combination, a guard capable of being manually moved into and out of shielding position, and also automatically into the latter condition, means for normally retaining said guard in non-shielding position, a trip element adapted to release said means, a member capable while in an anhydrous state of holding said element inactive, but rendering the element active when fractured through weakening by hydrous matter.

5. A device of the class described, comprising in combination, a guard capable of being automatically moved into shielding position, means for retaining said guard in non-shielding position, an element adapted to release said means, a member normally holding said element inactive, but rendering the latter operative when weakened through wetting, and means for protecting said member from vertically falling hydrous matter.

6. A device of the class described, comprising in combination, a guard capable of being automatically moved into shielding position, means for retaining said guard in non-shielding position, an element adapted to release said means, and a member of thin strip form normally holding said element inactive, but rendering the same operative when weakened by hydrous matter.

7. A device of the class described, comprising in combination, a guard curtain mounted at or near the upper part of a window opening and arranged to gravitationally descend in shielding relation thereto, means for re-setting said curtain after descent, mechanism for retaining the latter in non-shielding relation to said opening, an element in actuating connection with said mechanism adapted to release the same, and a normally anhydrous member capable of holding said element inactive, but rendering it operative when affected by wetting.

8. A device of the class described, comprising in combination, a guard curtain mounted at or near the upper part of a window opening and arranged to gravitationally descend in shielding relation thereto, means for re-setting said curtain after descent, mechanism for retaining the latter in non shielding relation to said opening, an element in actuating connection with said mechanism adapted to release the same, an anhydrous member normally holding said element inactive, but rendering it operative when affected by wetting, and means for locking the element against actuation irrespective of the condition of said member.

9. A device of the class described, comprising in combination, a covered guard-curtain mounted for rotation at or near the upper part of a window opening, a guided gravity bar acting to lower the free portion of said curtain in shielding relation to said opening, means for re-setting the curtain after its descent capable also of being used for manual descension thereof, mechanism for retaining the latter in non-shielding position, a stop serving to limit the descent of the curtain, an element connected up with said mechanism adapted to trip the same, and a member capable while in a dry state of normally holding said element inactive, but rendering it operative when affected by wetting, whereby the release of the retaining mechanism permits the curtain to descend.

10. A device of the class described, comprising in combination, a roller mounted guard curtain rotatably supported at or near the upper part of a window opening; a guided gravity bar tending to lower the free portion of said curtain in front of said opening; a double grooved sheave at one end of said roller; a looped cord for raising the curtain after actuation by said bar,

capable also of manually lowering it, and including branches wound in opposite directions in said grooves, the arrangement being such that one branch winds up while the other unwinds; a pulley carried by the looped end of said cord applying tension thereon; mechanism coöperating with the other end of the roller for retaining the curtain in raised condition; and means for controlling said mechanism, consisting of a trip element and a member coacting therewith, the latter being capable while in a dry state of normally holding said element inactive, but effecting release thereof when wetted.

11. A device of the class described, comprising in combination, a roller mounted guard-curtain rotatably supported at or near the upper part of a window opening, the arrangement being such as to cause the free portion of said curtain to descend in shielding relation to said opening; means for resetting the curtain after descent; mechanism for retaining the curtain in non-shielding position, including a brake carrying lever coacting with said roller; an element connected up with said lever; and a member capable while in a dry state of normally holding said element inactive but rendering it operative when wetted, thereby effecting release of the brake lever and descension of the curtain.

12. A device of the class described, comprising in combination, a roller mounted guard curtain rotatably supported above a window opening and arranged to have its free portion descend in front thereof; means for resetting said curtain after descension; an instrumentality for retaining the latter in raised condition; and mechanism for releasing said instrumentality, consisting of a trip weight and a frangible member, said weight remaining normally inactive when supported by said member while in a dry state, but being rendered operative when the same fractures through wetting.

13. A device of the class described, comprising in combination, a roller mounted guard curtain rotatably supported above a window opening and adapted to have its free portion descend in front thereof; means for resetting said curtain after descension; an instrumentality for retaining the latter in raised condition; and mechanism for releasing said instrumentality, including a frangible tape, a support for holding said tape in its assigned position, and a weight connected up with said instrumentality, said weight being inactive while sustained by the tape when in a dry state, but being rendered operative upon fracture of the tape through the action of moisture.

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