C. A. MAGAW & D. MacVICAR.

AUTOMATIC WINDOW CLOSING DEVICE.

APPLICATION FILED JULY 22, 1908.

946,244.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 1.

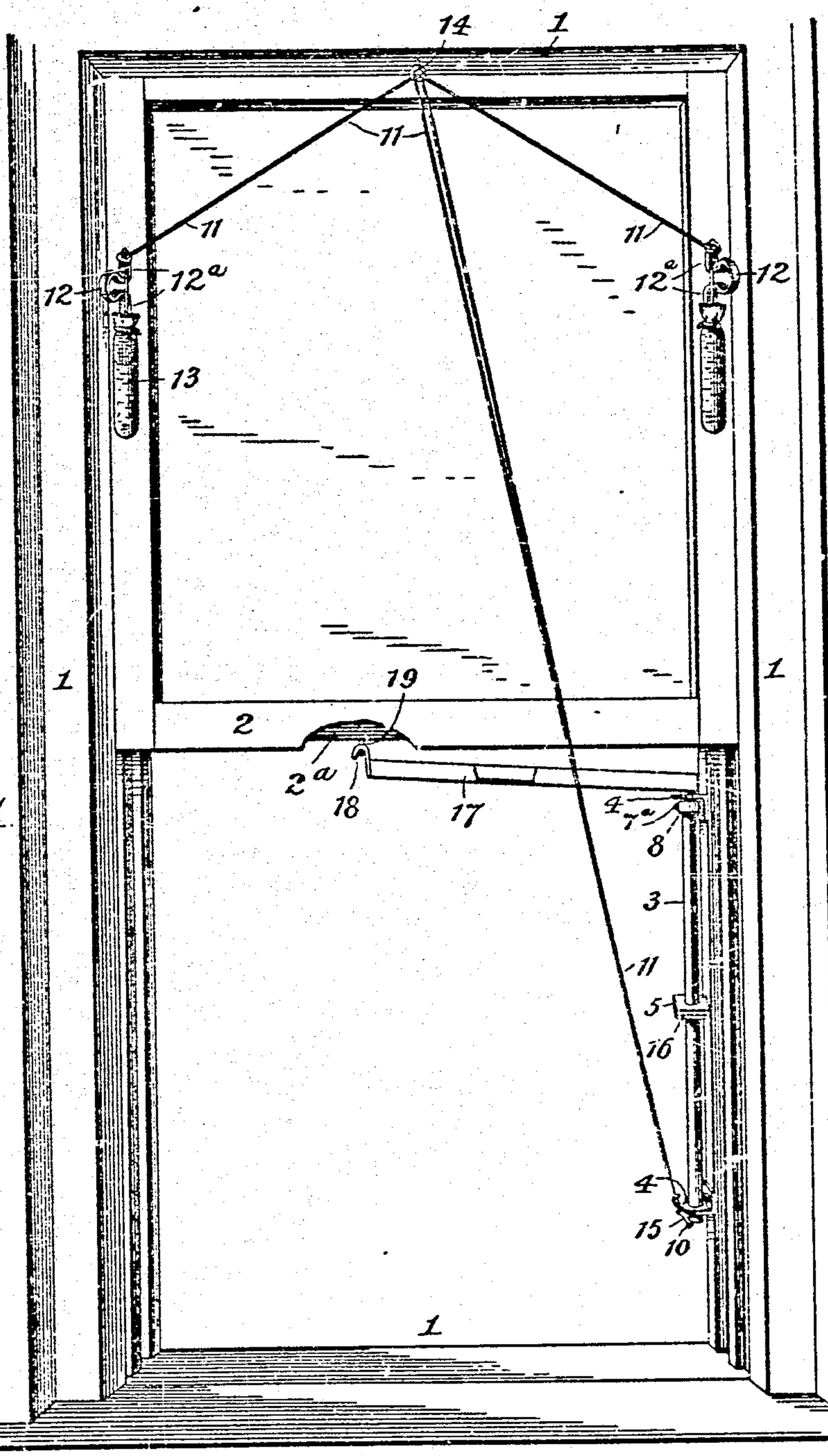

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

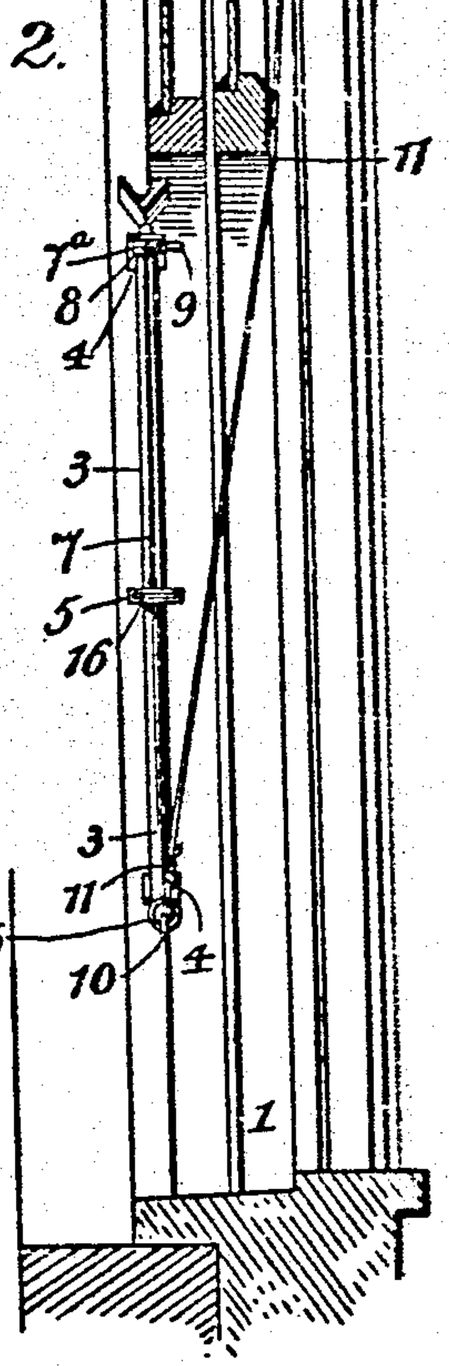


Fig. 3.

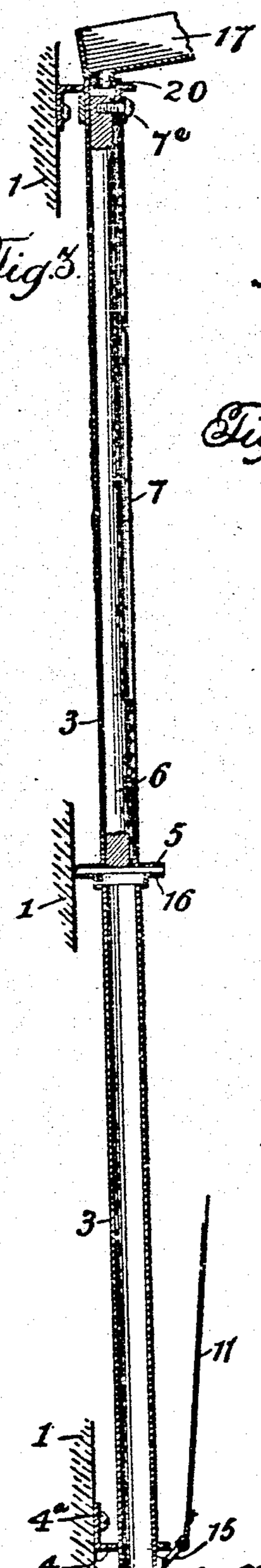


Fig. 4.

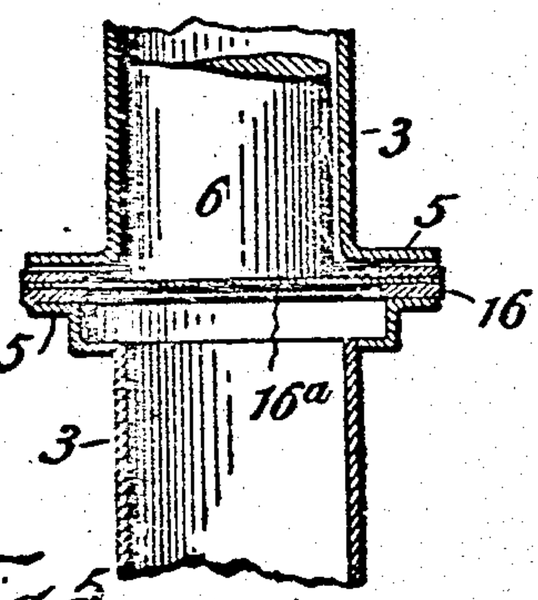


Fig. 5.

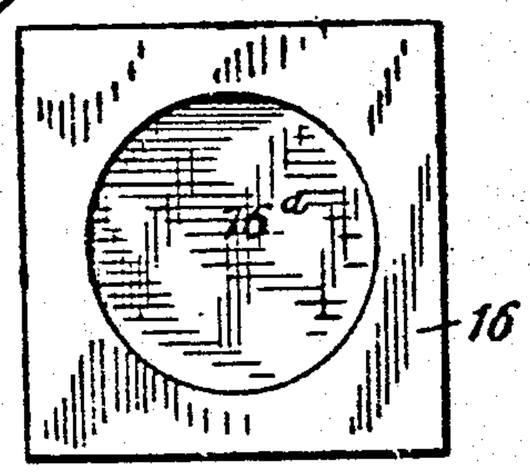
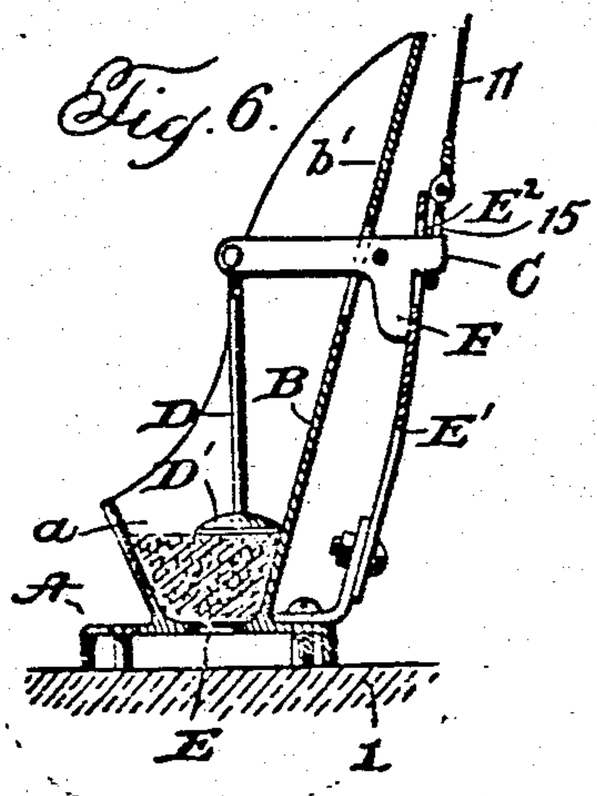


Fig. 6.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC WINDOW-CLOSING DEVICE.

946,244. Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed July 22, 1908. Serial No. 444,859.

To all whom it may concern:

Be it known that we, CHARLES A. MAGAW and DANA MACVICAR, citizens of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Automatic Window-Closing Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention comprises an attachment adapted to be applied to windows, doors and the like, having as its primary object the provision of means for normally holding the window sash or door open, with associated means for automatically controlling said holding means, whereby the window or door is released and allowed to be closed, the controlling means being governed by weather influences.

With the above object in view, the invention includes novel means for releasing the holding device for the window, which means is set into operation by action of moisture and will positively release the holding device.

More particularly the invention contemplates the provision of a cord, chain or other holding device, adapted to be applied to a movable sash or door, the opposite end of the cord being adapted to be applied to a point of support and thereby hold the window or door open, with means acting under the influence of moisture for positively releasing the cord from support.

The invention also comprises means for deflecting the rain or moisture and directing an accumulated mass thereof to a point where it will act by direct contact with said holding and releasing means.

With the above and other objects in view, attention is directed to the following description, from which the novel arrangement of parts and details of construction of the invention will be clear, and which said description should be read in connection with the accompanying drawings. forming a part hereof, and wherein preferable embodiments of the invention are disclosed for the purpose of illustration.

In the drawings, Figure 1 is a front elevation of a window frame, with its sashes in place, and one of the forms of our attachment applied thereto, Fig. 2 is a side elevation of the same device in position relative to the frame and sashes, which latter are shown partly in section. Fig. 3 is a vertical sectional view of the supporting member of the holding member with associated parts applied thereto. Fig. 4 is an enlarged detail view of a section of said support, with the releasing plunger and its support in operative position. Fig. 5 is a detail view of a supporting diaphragm for the releasing plunger, and Fig. 6 is a sectional view of a modified construction.

Like reference characters designate corresponding parts throughout the several views of the drawings, in which—

The window frame 1 is of the ordinary construction and the sashes 2 and 2^a are shown as slidably mounted in the usual runways, though, as will be obvious, the devices to be presently described may, as well, be applied to a sliding door, or even a pivoted or swinging window or door.

3 is a relatively rigid tubular supporting member, preferably of cylindrical metallic construction, and having offset bracket members 4 conveniently arranged adjacent its respective ends, whereby the support may be attached, as by means of screws 4^a to the frame 1. The support is usually applied to the frame at a point without the sash runway and below the lower edge of the upper sash. The support 3 has a transverse enlargement 5 intermediate its ends affording a seat for the reception of a disk or diaphragm which latter forms a temporary partition in the tubular support.

6 is a rod or plunger, whose greatest diameter is slightly less than that of the inner wall of the tubular support 3, whereby it is free to slide longitudinally of said support, the latter having a slotted guideway 7 through which passes a pin 7^a secured to the plunger 6 and carrying an annular collar 8 on which is mounted a knob or handle 9 whereby the plunger may be elevated. The rod 6 is of a length to rest upon the temporary partition when elevated, and to extend below the lower terminal of the tube when lowered. Projecting from the lower end of the supporting tube is a retaining finger or lug 10.

11 designates a cord, chain or other holding device adapted to be secured to the movable sash 2 in any desired manner.

In the construction shown, 12 is a strap secured at one end to the side of the sash 2 as at 12^a and at its opposite end to a weight 13 to which latter the cord 11 is secured.

The opposite end of the cord 11 passes through a suitable guide ring 14 on the frame or sash and has a ring or engaging portion 15 arranged to engage over the retaining lug 10 whereby the sash is normally held in raised or open position. The ring 15 may be a loop formed of the cord or chain itself, or other engaging device as is obvious.

16 is a disk or partition constructed and arranged to be inserted in the seat 5, the disk preferably comprising a rectangular member having a recess adapted to be covered by a relatively thin diaphragm 16ª of any suitable substance adapted to break away or be dissolved under the action of moisture. In practice we have found a thin paper formation of diaphragm to answer the purpose, though it is within the contemplation of the invention to utilize any material which will be released or dissolved by the action of moisture.

In operation, the bar or plunger 6 is elevated in the supporting tube 3 and the disk 16 inserted in the recess of the tube, whereby the diaphragm 16ª will, under normal conditions, constitute a support for the plunger and retain the latter in elevated position. Now, should the diaphragm be subjected to the action of moisture, the same will give way thereby allowing the plunger which is preferably weighted to drop with some force through the tube, the projecting lower end thereof engaging the engaging device 15 and forcibly releasing the same from engagement with the lug or finger 10, whereupon the weight 13 will instantly drop for a distance governed by the length of the strap 12, thus causing an initial jar to the sash to overcome any friction, when the sash, acting under the influence of said weight, will close. The enlargement of the tube 3 will constitute a stop or abutment to be engaged by the collar 8 and limit downward movement of the plunger 6.

It is very desirable that the window be closed when the rain starts, and to this end, a suitable deflector or trough 17 is provided, the same having an engaging means 18 adapted to detachably engage an eye or the like 19 on the upper sash 2ª, the opposite end of the trough having an apertured lug 20 adapted to rest in the hollow terminal of the supporting tube 3. The arrangement is such that the trough will receive the drippings from the upper sash, and the accumulated water will run along the trough, which may be inclined, finding an exit at the apertured lug 20 and dropping into the tube 3, readily acting upon the diaphragm therein.

In the modified construction illustrated in Fig. 6, A is an annular disk or base support adapted to be connected to the sill of the frame 1, and having a funnel shaped deflector or trough B the enlarged surface *b'* of which will deflect a quantity of rain and feed it in an accumulated quantity to a relatively small area or space *a* formed by the lower end of the funnel and base support A. In this form of our invention C is the retaining finger or lug for the engaging end 15 of the holding device 11. The lug C, in this instance, is pivoted intermediate its ends to the deflector B, through which it passes and to the opposite end thereof is pivoted a rod or plunger D adapted to extend longitudinally of the deflector and having a disk shaped end D' arranged to rest upon a body of moisture reducing or soluble mass E, which normally holds the rod D in elevated position. E' is a spring arm extending upwardly from the base A, and having at its upper end an apertured or slotted portion E² arranged to engage over the lug C, which latter has a downward projection F engaging the inner surface of the spring arm.

In operation, the engaging end of the holding device 11, which as before described relative to Fig. 1 of the drawings may consist of a loop formed of the cord itself or a separate retaining member 15 fits over the lug C to the outside of the spring arm, and the window will be held open. When moisture or rain accumulates on the deflector and is fed downwardly upon the reducible or soluble substance E, the latter will reduce in size, the weight on the sash will exert upward pressure on the lug C which elevates at one end according to the downward movement permitted by the plunger D at its opposite end, when the projection F of the lug will engage the spring arm E' and force the same outwardly thereby positively ejecting the engaging end of the holding device 11 from the lug, when the window is allowed to close as herein before described.

In the claims wherein such terms as "water reducing" or "moisture reducing" means appear, these terms are intended to include such an element or substance as will, when subjected to contact with moisture or water be reduced in degree of strength, size or bulk; a satisfactory illustration of which is shown at 16ª Fig. 5 of the drawings, wherein is employed a disk, the fibers of which readily disassociate when they become wet; also as shown on Fig. 6, this moisture reducing element may take the form of any evaporating or reducing substance or gas generating substance such as effervescent salt, as E.

What we claim is:

1. An attachment for windows and the like comprising a frame and an upper and lower sash, a member adapted to be attached to the lower sash, a member adapted to be attached to the frame, a releasable connection between said members for normally holding the lower sash open, means whereby

said connection will be automatically released under the influence of water, and a water feed secured to the lower edge of the upper sash.

2. In combination, a movable sash, a rigid support, a member secured to the sash and adapted to engage directly with said rigid support, and means whereby said engagement will be automatically released under the influence of water, and a water feed.

3. In combination, a pair of movable sashes, a rigid support, a member carried by one of the sashes and adapted to engage directly with said rigid support, and means whereby said engagement will be automatically released under the influence of water, and a water feed comprising an elongated trough mounted on the other sash.

4. In an attachment for windows and the like, means for normally holding the window open comprising a member carried by the window, an engaging member mounted on a suitable support, the said first mentioned member adapted to engage the last mentioned member, and independent means including a water reducing element governed by the action of moisture for detaching one of said members from the other.

5. An attachment for window sashes and the like comprising an engaging member mounted on a suitable support, a holding device adapted to be applied directly to the window and arranged to connect with said engaging member to hold the window open, and means governed by the action of moisture for positively removing said holding device from the engaging member.

6. An attachment for window sashes and the like comprising an engaging lug or finger mounted on a suitable support, a holding ring adapted to be applied to the window and arranged to engage over said lug or finger to hold the window open, independent means adapted to engage said ring to positively eject the same from the lug or finger, and water releasing holding instrumentalities for said means.

7. A window closing device comprising a member adapted to be secured to a window frame, and a member adapted to be secured to a window, the said members having interlocking connection, an ejector for releasing said connection, and a water reducing holding element for the ejector.

8. A window closing device comprising a ring adapted to be secured to the window, a lug adapted to be secured to the frame and to be engaged by the ring when the window is open, and means acting under the influence of weather changes for engaging said ring and releasing the same from connection whereby the window is allowed to close.

9. A window closing device comprising a support adapted to be secured to a window frame, a plunger slidably mounted on the support, a holding member adapted to be secured to the window and engage said support to hold the window open, means for normally holding the plunger inactive including a disk constituting a rest for the plunger, said means being controlled by the action of moisture to release the plunger and allow the same to move and disengage the holding member from the support.

10. A window closing device comprising a support adapted to be secured to a window frame, a holding member adapted to be secured to the window and engage said support to hold the window open, and releasing means for the holding member governed by the action of moisture, including a rod slidably mounted on said support.

11. A window closing device comprising a support adapted to be secured to a window frame, a holding member adapted to be secured to the window and engage such support to hold the window open, and releasing means for the holding member including a rod slidably mounted on the support, and a moisture releasable holding means for the rod.

12. A window closing device comprising a support adapted to be secured to a window frame, a holding member adapted to be secured to the window and engage such support to hold the window open, and releasing means for the holding member including a rod slidably mounted on the support, a moisture releasable holding means for the rod, and means for feeding water to said last mentioned means.

13. A window closing device comprising a tubular support, holding means for the window engaging said support a plunger slidably mounted in the tube, a disk in the tube for holding the plunger elevated, said disk being adapted upon the action of moisture to release the plunger, which latter will release the holding means.

14. A window closing device comprising a tubular support, holding means for the window engaging said support a plunger slidably mounted in the tube, a disk in the tube for holding the plunger elevated, said disk being adapted upon the action of moisture to release the plunger and the plunger being adapted to release the holding means, and a feed for the water having an outlet into said tube.

15. A window closing device comprising a tubular support, holding means for the window engaging said support, a plunger slidably mounted in the tube, a disk in the tube for holding the plunger elevated, said disk being adapted upon the action of moisture to release the plunger and the plunger being adapted to release the holding means, and a feed for the water comprising an elon-

gated trough adapted to be secured to the lower edge of the upper window sash and having an outlet into said tube.

16. A window closing device comprising means for closing the window, means for controlling said device, the said means being constructed and arranged to hold the closing device inactive and being sensible to the action of water for releasing the closing device. means for feeding water to said first mentioned means comprising an elongated trough adapted to be secured to a suitable support, and having an outlet at one end adjacent the said first mentioned means.

17. A window closing device comprising a member adapted to be secured to a window frame, and a member adapted to be secured to a window, the said members having a detachable connection, independent means governed by hygroscopic changes for releasing said connection, and means for imparting a jar to the window when released.

18. A window closing device comprising a member adapted to be secured to a window frame and a member adapted to be secured to a window, the said members having an interlocking connection one with the other and automatic means for releasing said connection, and a water reducible holding element for said means.

19. A window closing device comprising a member adapted to be secured to a window frame and a member adapted to be secured to a window, the said members having an interlocking connection one with the other and automatic means for releasing said connection comprising a slidable member arranged to engage one of said members, and a water reducing element for normally holding said means inactive.

20. An attachment of the character described adapted to be applied to a movable sash or the like, a weight, a strap secured to the weight and adapted to be applied at its opposite end to the sash, a cord secured to the weight, a suitably supported guide for the cord, and a holding device for the opposite end of the cord arranged to hold the sash open and said weight elevated, said holding device comprising a retaining member and independent means for positively moving said cord from engagement with the retaining member.

21. In an attachment for windows, means for normally holding the window open comprising two members adapted to be connected respectively to the window and frame means for connecting the members together, and automatically operable independent means for engaging said last mentioned means to release the connection, including a water reducing element.

22. In an attachment for windows, means for normally holding the window open comprising a member adapted to be secured to a frame, a member adapted to be secured to a window, a connection between said members comprising a lug carried by one and a ring carried by the other, means for ejecting the ring from the lug, and means for rendering the last mentioned means normally inactive including a moisture reducing element.

23. In combination with a frame and a sliding sash, a part connected to and carried by the sash, a rigid support on the frame, a direct connection between said part and support, and water releasing means for said connection.

24. In combination with a movable sash, a flexible member secured to and carried by the sash, a retaining lug mounted on a suitable support, means for connecting the member to the lug, means for moving the flexible member from engagement with the lug, and a moisture governed release for said means.

25. An attachment of the character described comprising a frame, a movable sash, a member carried by and secured to the sash, a retaining member secured to the frame and engaged directly by said first mentioned member to hold the sash open, a movable device for moving one of said members relative to the other to release the same from engagement, and moisture reducing means for holding said device in one of its adjusted positions.

26. An attachment for window sashes comprising a member adapted to be applied to a sash, a support to which said member is secured to hold the same open, and a member mounted on and movable relative to said support for releasing the member therefrom, and means governed by the action of moisture whereby the last mentioned means is rendered operative.

27. In an apparatus of the character stated the combination of a movable sash, a frame therefor, a member adapted to be applied to the sash, a support on the frame to which said member is secured to hold the sash open and a member mounted on and slidably connected to said support for releasing the member therefrom, and means governed by the action of moisture whereby the last mentioned means is rendered operative.

28. An apparatus of the character described, comprising a sliding sash, a suitably mounted retaining lug, a member adapted to be connected to and carried by the sash, said member having an engaging part to connect with said retaining lug to hold the sash open, and an ejecting means movable over the lug and engaging directly said engaging part, said ejecting means being controlled by moisture.

29. An apparatus of the character described adapted to be applied to a movable

sash, comprising a suitably mounted retaining lug, a flexible member connected to and adapted to be connected directly to the sash and having an engaging loop to engage said lug, and an ejecting device mounted for movement over the surface of the lug into engagement with said loop to release the same from the lug.

In testimony whereof we affix our signatures in presence of witnesses.

CHARLES A. MAGAW.
DANA MacVICAR.

Witnesses:
OTIS E. HUNGATE,
ETHEL MCFARLAND,
GALEN NICHOLS.