A. T. SODERQUIST.

RAIN ALARM.

APPLICATION FILED JULY 7, 1917.

1,295,227. Patented Feb. 25, 1919.

Fig. 1.

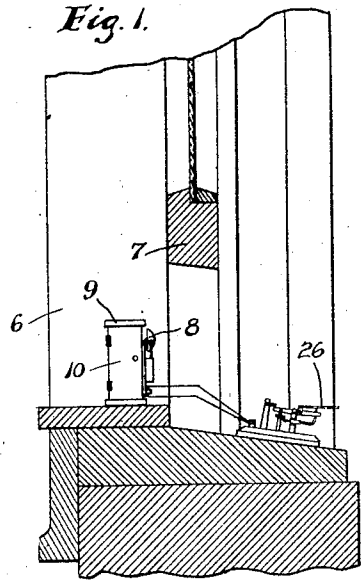


Fig. 2.

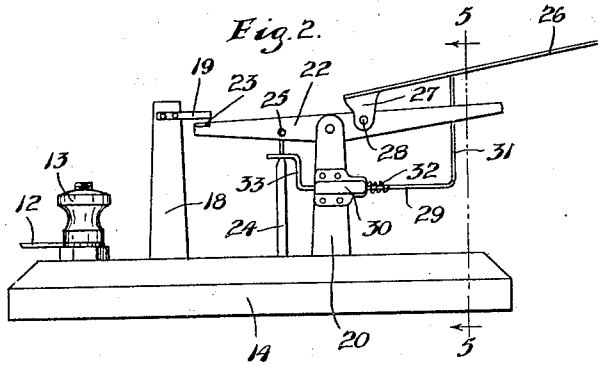
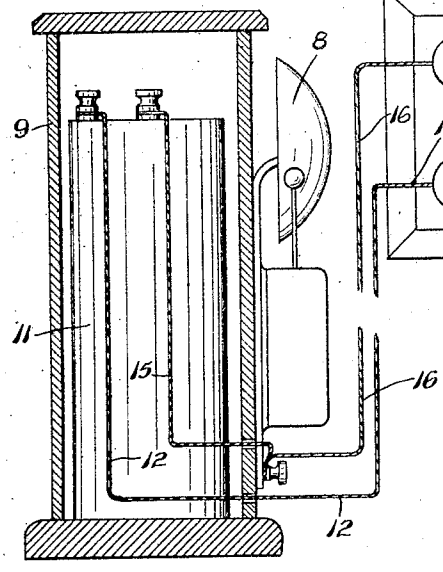


Fig. 3.

Fig. 4.



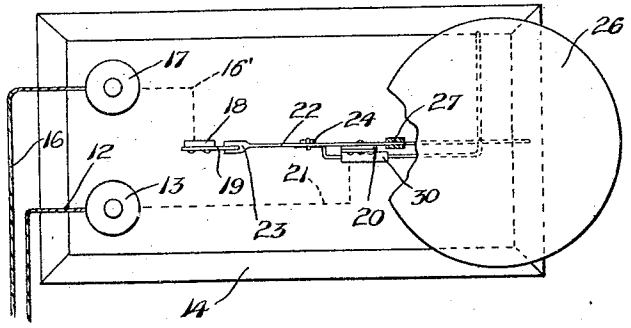
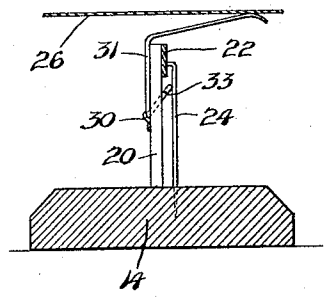


Fig. 5.



WITNESSES.

H. L. Opsahl.

E. C. Wells

INVENTOR,

A. T. SODERQUIST

BY HIS ATTORNEYS.

Williamson Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARNOLD T. SODERQUIST, OF DALBO, MINNESOTA.

RAIN-ALARM.

1,295,227. Specification of Letters Patent. Patented Feb. 25, 1919.

Application filed July 7, 1917. Serial No. 179,161.

To all whom it may concern:

Be it known that I, ARNOLD T. SODERQUIST, a citizen of the United States, residing at Dalbo, in the county of Isanti and State of Minnesota, have invented certain new and useful Improvements in Rain-Alarms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to automatic alarms or signals and has for its primary object to construct such a device to sound an alarm at the beginning of a rain storm. The device is especially adapted for use in private homes, for the purpose of warning the occupants of the beginning of a rain storm, and particularly at night when the occupants are asleep, so that they may close the windows and doors to prevent damage by rain.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings,

Figure 1 is a side elevation of the rain alarm supported on the window sill of a window frame having mounted therein a vertically movable sash that is partly open, said window frame and sash being shown in central vertical section;

Fig. 2 is a side view of the rain-actuated mechanism detached from the alarm mechanism, on an enlarged scale;

Fig. 3 is a plan view of the parts shown in Fig. 2, certain of said parts being broken away to expose underlying parts shown in section;

Fig. 4 is a view, partly in side elevation and partly in central vertical section of the alarm mechanism detached from the rain-actuated mechanism; and

Fig. 5 is a view in transverse vertical section taken on the line 5—5 of Fig. 2.

The numeral 6 indicates a window frame having mounted therein a vertically sliding window sash 7 partly open. The alarm mechanism, as shown, is in the form of an electric bell 8, of standard construction, secured by screws or otherwise to the outer face of a casing 9, having in one side a door 10, and within said casing is a dry cell battery 11. A wire 12 electrically connects one of the binding posts on the battery 11 to a binding post 13 on the base member 14 of suitable insulating material, a second wire 15 electrically connects the other binding post of the battery 11 to one of the binding posts of the bell 8, and a third wire 16 electrically connects the other binding post of said bell to a binding post 17 on the base member 14.

Secured to the base member 14, is a metal post 18, having on its upper end a fixed horizontally projecting contact 19. A short wire 16′, indicated by broken lines in Fig. 3, electrically connects the binding post 17 with the post 18, and hence, the fixed contact 19. Also projecting upward from the base 14, is a metal post 20 electrically connected to the binding post 13 by a wire 21, indicated by broken lines in Fig. 3. A horizontal lever 22 is intermediately fulcrumed on the upper end of the post 20 and has secured to one of its ends a laterally projecting movable contact 23.

The movable contact 23 is normally held out of engagement with the fixed contact 19 by a trigger 24, in the form of an upright flat spring anchored to the base 14 and having its upper end bent laterally and inserted into an aperture 25 in the end of the lever 22 to which the movable contact 23 is secured. A rain-collecting plate 26 in the form of a disk is provided near its periphery with a pair of depending lugs 27, which straddle the outer end of the lever 22 and are secured thereto by a horizontal pivot pin 28 located close to the post 20 and with the collecting plate 26 projecting outward over the respective end portion of the lever 22.

A horizontal rock shaft 29, which extends substantially parallel to the lever 22, is journaled in a bearing 30 on the post 20. The outward end of the rock shaft 29 is bent laterally to provide an arm 31, which engages the collecting plate 26. Encircling the rock shaft 29, is a coiled spring 32 anchored at one of its ends to said shaft and at its other end to the bearing 30 and is under strain to rock the shaft 29, in a direction to cause the arm 31 to lift the collecting plate 26 above the lever 22, as shown in Fig. 2. The inner end of the rock shaft 29 is bent to form a crank 33 positioned to engage the trigger 24 and trip the same out of engagement with the lever 22, when the arm 31 is depressed by the collecting plate 26 by the falling of rain thereon.

The collecting plate 26 is only lightly held by the spring 32 and a few drops of water thereon will overcome said spring and allow the collecting plate to swing downward onto the outer end of the lever 22. This downward movement of the collecting plate 26 will depress the arm 31 and thereby rock the shaft 29 which, in turn, will operate the crank 33 to trip the trigger 24 and release the lever 22. With the lever 22 released, the weight of the catch pan 26 will overbalance said lever and lift the inner end thereof to carry the movable contact 23 into engagement with the fixed contact 19 and thereby complete the circuit between the bell 8 and battery 11. With the circuit complete, the bell 8 will continue to ring until the apparatus is again reset, which will break the circuit.

As shown in the drawings, the base 14 is placed on the window sill, outward of the window sash 7, and the casing 10 is placed on the window sill just inside of said window sash, so that the bell and battery will not get wet. The inclination of the window sill will support the base 14, so that the rain-collecting plate 26 is substantially horizontal. It is, of course, understood that the apparatus may be placed in any other convenient place where the rain will fall onto the collecting plate.

What I claim is:—

1. A circuit closer comprising a base member, a fixed contact on the base member, a lever intermediately fulcrumed on the base member and having on its inner end a movable contact arranged to engage the fixed contact, a trigger set to normally hold the lever with its contact out of engagement with the fixed contact, a rain-collecting plate pivoted on the outer end of the lever, and a connection between the trigger and collecting plate normally holding said collecting plate in a raised position, and said collecting plate, when depressed by rain falling thereon, arranged to trip said trigger through said connection and release the lever.

2. A circuit closer comprising a fixed contact and a movable contact, a trigger set to normally hold the movable contact out of engagement with the fixed contact, a movable rain-collecting plate under strain to carry the movable contact into engagement with the fixed contact, and yielding connections under strain to hold the collecting plate against action with respect to the movable contact and arranged when said collecting plate is moved by rain falling thereon to trip said trigger.

3. A circuit closer comprising a base member, a fixed contact on the base member, a lever intermediately fulcrumed on the base member and having on its inner end a movable contact arranged to engage the fixed contact, a trigger set to normally hold the lever with its contact out of engagement with the fixed contact, a rain-collecting plate pivoted on the outer end of the lever, a rock shaft journaled on the base member and having an arm and a crank, and a spring acting on the rock shaft to hold its arm in position to support the collecting plate out of engagement with the lever and the crank in position to engage the trigger, said collecting plate when depressed by rain falling thereon arranged to move said arm, rock shaft and crank to trip the trigger and release the lever.

In testimony whereof I affix my signature in presence of two witnesses.

ARNOLD T. SODERQUIST.

Witnesses:

ERNEST WESTBERG,

PAUL LINDSTEDT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."