

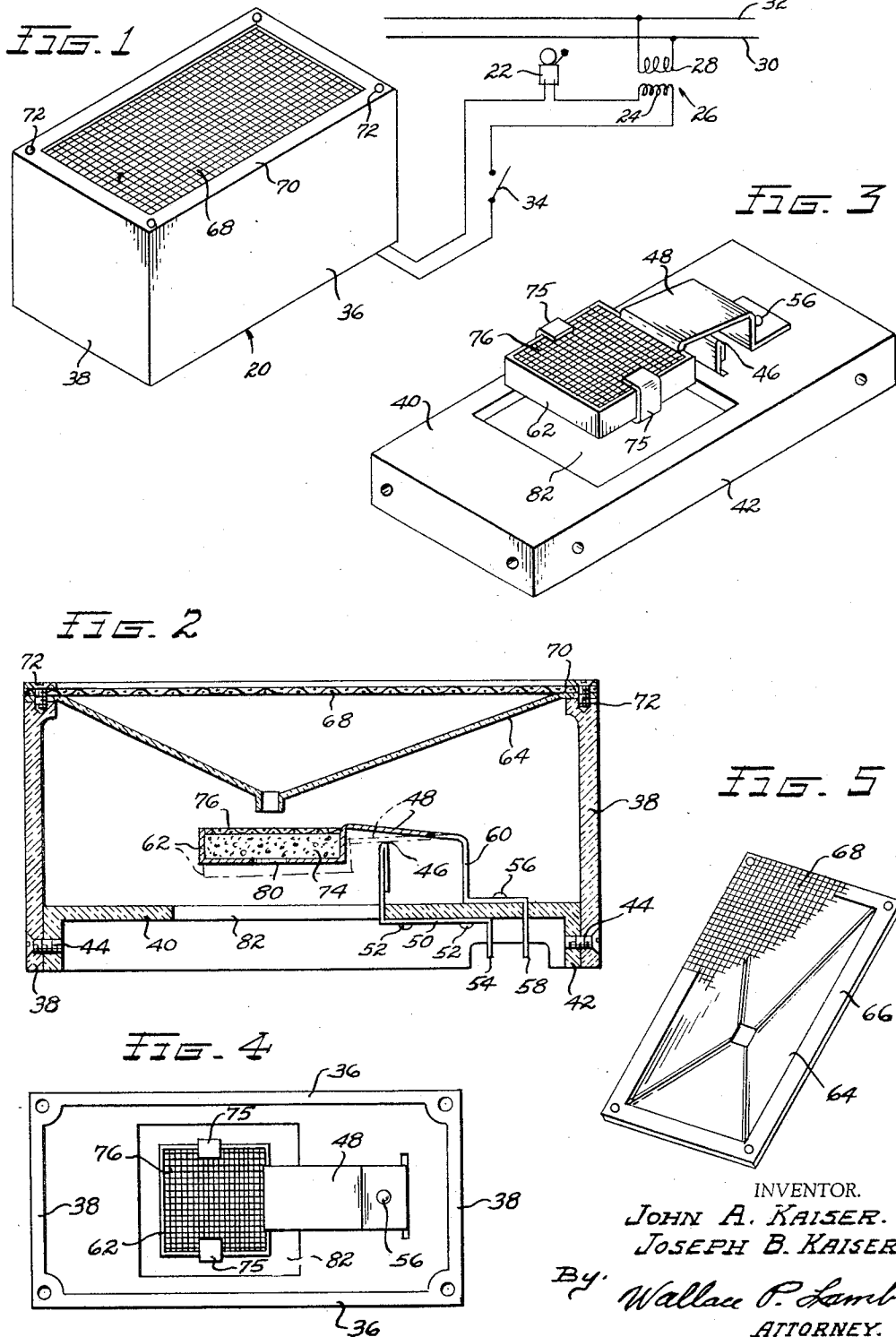
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RAIN ALARM

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1

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RAIN ALARM

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1 Claim. (Cl. 200—61.04)

This invention relates generally to controls and particularly to an outdoor precipitation or rain responsive control for an alarm device.

As is well known to housewives, much damage and extra work results when a sudden rain catches the washing outdoors or when rain enters an open window. Ordinarily, the housewife hears or notices that it has begun to rain and takes in the clothes and closes open windows, but there are times when she is not immediately aware of the rain with the result that clothes are thoroughly wet and the rain entering open windows damages the furnishings and decorations of the home.

Accordingly, it is the principal object of this invention to provide a rain responsive control operable to effect actuation of an alarm to warn the housewife that it has begun to rain so that she may bring in clothes and shut windows to avoid serious damage and added work.

Another object of our invention is to provide a dependable yet inexpensive rain responsive control.

A further object is to provide a rain responsive control which is sufficiently sensitive to respond quickly to outdoor precipitation yet one which will not respond to increased moisture content in outdoor atmosphere.

A still further object of our invention is to provide a control of the above mentioned character which will automatically turn off after cessation of a rain storm.

Other objects of the invention will become apparent from the following detail description, taken in connection with the accompanying drawing in which:

Fig. 1 is a view shown partly in isometric and partly diagrammatic of a rain alarm system embodying features of the invention;

Fig. 2 is a vertical sectional view of the rain responsive control;

Fig. 3 is an isometric view of certain parts of the rain responsive control;

Fig. 4 is a plan view of the device with certain parts removed, and

Fig. 5 is an isometric view of one of the parts of the device.

Referring to the drawings by characters of reference, in Fig. 1, the rain responsive control is designated generally by the numeral 20 and is electrically connected to an alarm 22 which may be a bell, a buzzer, or any other suitable signal. The alarm 22 is in series circuit with the secondary coil 24 of a transformer 26 which has the primary coil 28 thereof connected across main power lines 30 and 32. A manual switch 34 may be provided in the circuit of the secondary coil 24 so that the alarm 22 may be turned off whenever desired.

The control 20 includes a support or casing having upright walls including side walls 36, end walls 38, and a removable bottom wall 40. As the casing will be subjected to inclement weather, it is preferable to make the casing of a suitable plastic material to avoid deterioration from rotting, rusting, corroding, etc. As shown, the removable bottom wall 40 may fit within the casing side and end walls and have a peripheral flange 42 for secur-

2

ing the bottom wall to the side and end walls, such as, by screws 44 or other suitable fasteners.

Mounted on the bottom wall 40 is an electric switch comprising, in general, a fixed contact 46 and a movable contact 48. The contacts 46 and 48 may be made of a strip of good electric conducting material, such as copper. Fixed contact 46 extends vertically into the casing through bottom wall 40 from a base portion 50 that may be secured flat against the underside of bottom wall 40 by suitable fasteners 52. A downturned end portion 54 of the base 50 serves as a terminal for wire connection to the transformer secondary 26. Similarly, the movable contact 48 in strip or blade form is attached by a suitable fastener 56 to the upper surface of bottom wall 40, an end portion 58 of the strip extending through the bottom wall 40 to provide a second terminal for the switch.

As shown more clearly in Fig. 2, the switch blade 48 extends upwardly as at 60, from bottom wall 40 in spaced relationship to contact 46 and then extends over and beyond contact 46. The blade contact 48 is resilient and is biased upwardly to open switch position. Carried by the free end of blade 48 is a rain catcher or cup 62. Disposed within the casing is a funnel 64 which is arranged to catch and discharge rain water into the cup 62 to flex switch blade 48 downwardly into engagement with fixed contact 46 thereby to close the circuit of alarm 22. The upper edges of the casing side walls 36 and end walls 38 provide a seat for a marginal seating flange 66 of funnel 64. Overlying the funnel 64 is a protective screen 68 to prevent leaves and other foreign material from clogging the funnel 64. A retainer ring 70 seats on a peripheral margin of the screen 68 and screws 72 secure the ring 70, screen 68 and funnel 64 to the casing.

In order to provide for relatively sensitive operation of the switch so that it will cause energization of the alarm soon after the beginning of outdoor precipitation, a water absorber 74 is provided in the cup 62. The size of the cup 62, absorbing capacity of the absorber 74 and the flexibility of switch blade 48 are made such that the added weight of the water in the absorber 74 will cause the blade 48 to flex downward and engage contact 46 as illustrated in dot and dash lines in Fig. 2. The absorber 74 may be a sponge, or other suitable absorbent fabric. A protective screen 76 may be provided over the top of the cup 62 to prevent entrance into the cup of any foreign material that might pass the funnel screen 64. Suitable clips 75 may be used to hold the screen 76 in place on the cup 62.

To provide a desirably sensitive water operated switch and yet one which will automatically return to open position after a period following cessation of the rain, a drain 80 is provided in the bottom of cup 62 to drain off rain water in excess of that needed to close the switch. An opening 82 in the casing bottom wall 40 directly below the cup 62 is provided so that the excess rain water from drain 80 will discharge externally of the casing.

The device may be mounted on and externally of a dwelling by a suitable bracket (not shown) or may be mounted in any suitable location in the open where the device is certain to catch rain water. The upper end of the funnel is relatively large so as to quickly collect sufficient rain water to weigh down the flexible contact 48 into engagement with fixed contact 56. After it stops raining, the absorber 74 will soon dry out due to vaporization and the resilient contact blade 48 will flex upwardly to break with contact 46 and shut off the alarm 22. However, if desired, the alarm may be shut off by opening switch 34.

From the foregoing description it will now be appreciated that we have provided a novel control that is responsive to the weight of a collected small amount of rain water to control an alarm signal. It will be seen

3

that the cup and rain water absorber on the free end of a flexible switch blade provide a desirably sensitive switch yet one which will automatically return to open position so as to be ready for the next time that it rains. Furthermore, it will be seen that we have provided a rain water weight sensitive switch of a character that is inexpensive to manufacture.

While we have shown and described our invention in considerable detail, it will be understood that the invention is capable of many variations without deviating from the spirit and scope of the invention.

We claim:

A control device for use in controlling an alarm device in response to outdoor precipitation comprising, a casing having upright walls, a removable bottom wall, a switch mounted on said removable bottom wall including a fixed contact and a resilient blade contact, said blade contact overlying said fixed contact having a free end

4

and biased to open switch position, a cup carried by the free end of said blade having a drain, a water absorbing element in said cup to absorb sufficient rain water by weight to move said blade down into engagement with the fixed contact, a screen carried by and overlying the top of said cup, a funnel supported on the upper edges of said upright walls to collect and direct rain water into said cup, a screen overlying said funnel, and means attaching said funnel and said second screen to said upright walls.

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