

2,443,687

2 Sheets-Sheet 1

图 1.

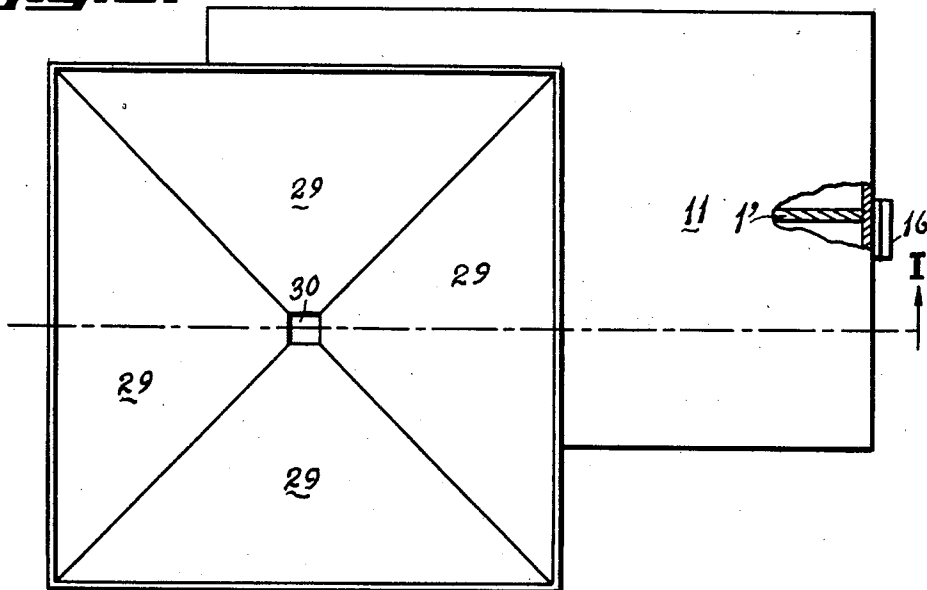
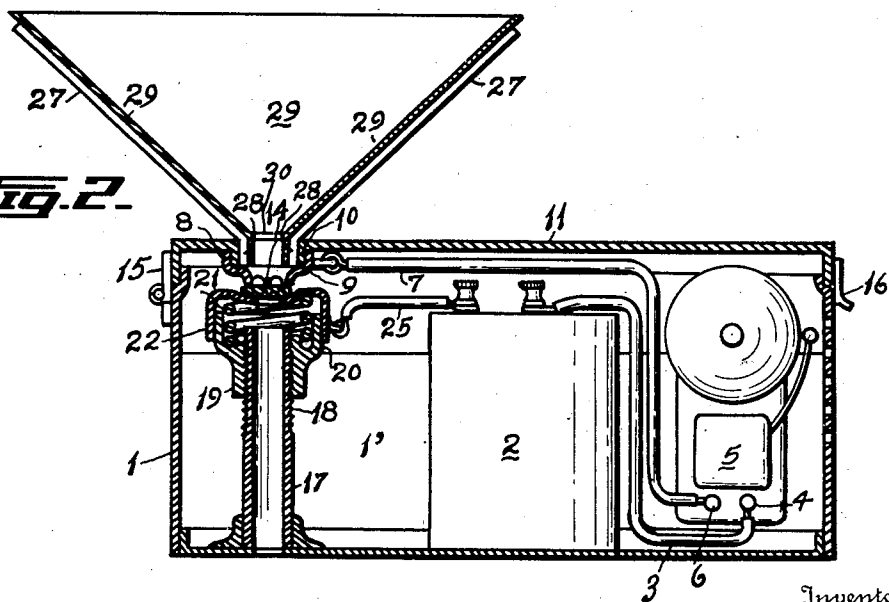


Fig. 2.



Attorney

June 22, 1948.

J. L. MARQUARD

2,443,687

RAIN ALARM DEVICE

Filed June 21, 1946

2 Sheets-Sheet 2

Fig. 3.

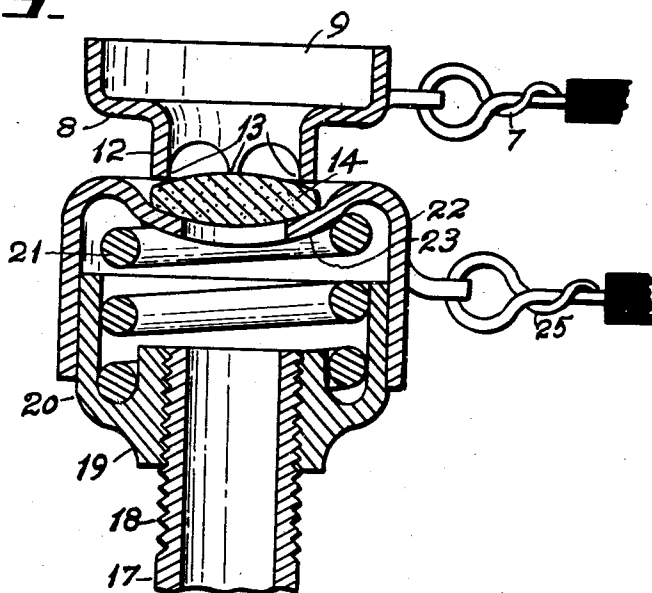
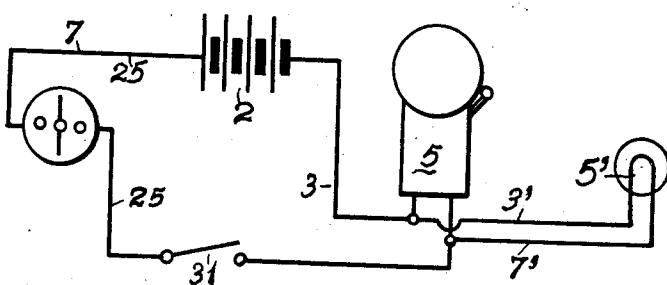


图 4.



Fig. 5.



Inventor

Julius L. MARQUARD

By

Charles W. Dake
Attorney

UNITED STATES PATENT OFFICE

2,443,687

RAIN ALARM DEVICE

Julius L. Marquard, Muskegon, Mich.

Application June 21, 1946, Serial No. 678,211

3 Claims. (Cl. 200—52)

1 My present invention relates to improvements in alarms and particularly to rain alarm devices whereby rain drops cause an alarm to be given either by a sound producing device such as an electric operated bell or by light from an electric lamp; and the objects of improvement are: First, to provide a rain operated device that will cause an alarm to be given either by an electric bell or buzzer within the device; second, to provide a rain alarm device that will cause an alarm to be given either at the device or at a distance from the device; third, to provide a rain alarm that will cause an alarm to be given at the first drops of rain; fourth, to provide a rain alarm device that will be sensitive to the first drops of rain; fifth, to provide a rain alarm device that will be reliable; sixth, to provide a rain alarm device that will be readily understood; and seventh, to provide a rain alarm device as a new article or product of manufacture.

These named objects and such other objects as appear are attained by the structure illustrated and herein described, and in which:

Figure 1 is a top plan view of the rain alarm device.

Figure 2, a cross-sectional view taken on a vertical plane along line I of Figure 1 and viewed in the direction the arrow crossing said line indicates.

Figure 3, a cross-sectional view taken on line I as of Figure 1 but including only the rain operable switch.

Figure 4, a plan view of the water soluble tablet which when softened by rain permits the switch to close and electricity to flow from the electric battery for giving an alarm that it is starting to rain.

Figure 5, a diagrammatic view of the electric circuit by which the electricity is conducted from a source such as an electric battery or condenser.

Throughout the several views of the accompanying drawing illustrating my rain alarm device, similar numerals refer to similar parts and portions of the device and members connected therewith, and referring to the drawing:

N numeral 1 refers to the box like portion of the cabinet in which is mounted an electric battery 2 having an electric circuit wire 3 connected thereto and connected to a connection post 4 of an electricity operated bell 5. From the connection post 6 thereof extends an electric circuit wire 7 connected to a hollow electric switch member 8 having a larger diameter portion 9 fastened to a hollow boss 10 of the cabinet cover 11. The electric circuit wires 3 and 7 have extending there-

2 from circuit wires 3' and 7' connected to electric light lamp 6' by which visual alarm is given at a distance from the alarm device. The hollow electric switch has a smaller diameter hollow bosslike portion 12 which has at its free end in spaced apart relation to the hollow boss 10, on which it is mounted, a plurality of sharp end projections 13 adapted to engage the water soluble wafer 14 while in wafer form and to break or destroy the wafer when softened by rain water dropping onto it through the smaller portion 12 of the hollow electric switch.

The cabinet box 1 has a cover 11 hingeably connected thereto by one or more hinges 15 at one of its ends and a spring latch 16 at its opposite end which when withdrawn permits the cover to be swung upward at the latch end while the hinges 15 act as the pivot for the cover and when swung upward at the latch end, raises the sharp projections 13 of the electric switch member 8 upward from the position of the soluble wafer 14.

The cabinet box 1 has partition 1' extending longitudinally of the box and approximately midway between its sides forming a receptacle at one side of the partition 1', having mounted at its opposite side, the electric battery, the electric bell or alarm and a hollow pedestal 17 having a screw threaded upper portion 18 onto which is screwed an electric switch sleeve 19 having a portion 20 having slidable axially thereon by helical spring 21, an inverted cup 22 having a concave roof 23 with an opening 24 at its axis which is closed by the soluble wafer 14 when dry. The electric circuit wire 25 is connected and extending therefrom and connected to connecting post 26 of the battery 2 or other source of electric supply. Mounted above the cover 11 is rain water catch hopper consisting of a plurality of metal rods 27 having bent ends 28 extending into holes in the cover 11 and boss 10 and has secured to the said rods 27 fabric plastic or the like panels 29 whereby the rain water caught thereby is trained to the opening 30 through which the water drops onto the wafer 14 through the electric switch member portion 12.

The soluble wafer 14 becoming wet, softens and is crushed by the sharp projections 13. The wafer is softened by the rain water that is trained to the opening 30 and dropped therethrough onto the wafer permits the inverted cup 22 to be slid upward by the helical spring 21 and cause contact of the sharp projections 13 with the inverted cup 22 thereby closing the electric circuit extending to the battery 2 from the inverted cup; from

3

the battery to the electric bell or other signaling device and therefrom to the electric switch member 8 when the line switch 31 is closed and which may be open when no rain is assured.

By reason of the rain hopper being formed of suitable fabric or thin sheet plastic material, it is foldable and when folded is designed to be stored in the compartment within the cabinet compartment at the opposite side of the partition 1' from the electric battery and bell, the compartment also serving storage room for a supply of the wafers 14 which are purchasable at drug and notion stores.

In use, the rain alarm device is placed in a position where should it rain, the hopper will catch the first drops of the rain and by the inclined panels 29 train the said rain drops to the opening 30 through which the rain drops will fall through the hollow boss 12 onto the wafer 14 which being of a water soluble material such as salt, will immediately soften and by the helical spring 21 the electric switch member 22 will be slid upward on the periphery 20 of the member 19 and thereby pinch the wafer between the concave roof 23 of the member 22 and the sharp projections 13 of the switch member 8. The wafer, being softened by the water falling thereon, will be crushed and fall into the pedestal 17 and permit contact between the sharp projections 13 and the concave roof 23 and thereby closing the electric circuit extending from the electric battery and through the electric bell and lamp to the electric switch member 8 and 22 when line switch 31 is closed and cause alarm to be sounded by the electric bell or visually by the electric light both of which may be at a distance from the cabinet and wired to the alarm device.

Having illustrated and described my invention, the rights thereto I desire to obtain by Letters Patent, are:

1. A water actuated electric switch comprising a hollow member having at one of its ends a plurality of projections and to a second hollow member having a concave roof with an opening therethrough and spring pressed toward the first said member and a water soluble wafer inter-

4

posed between the projections of the first named switch member and the roof of the second named member and adapted to be crushed when softened by water.

2. A water actuated circuit closing device comprising a hollow member having at one of its ends a plurality of projections, a second hollow member having a concave roof with an opening therethrough and spring pressed toward the first said member and a water soluble wafer interposed between the projections of the first named switch member and the roof of the second named member and adapted to be crushed when softened by water.

3. A water actuated circuit closing device comprising, a hollow pedestal having a hollow cup shaped head attached to its upper end, an inverted cup shaped member telescoped slidably on the head, a compression spring compressed between the head and the member, the roof of the member recessed with an opening downwardly therethrough, a stationary hollow member having downwardly extending teeth located above the head with the head normally against the teeth, a water soluble wafer adapted to be inserted in the recess between the cup shaped member and the teeth in the hollow member.

JULIUS L. MARQUARD.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,123,012	Roby	Dec. 29, 1914
1,135,798	Hirschmann	April 13, 1915
1,271,865	Dodds	July 9, 1918
1,648,197	Roadhouse	Nov. 8, 1927
2,049,321	Sampson	July 28, 1936
2,050,623	Metting	Aug. 11, 1936

FOREIGN PATENTS

Number	Country	Date
6,545	Great Britain	1914