Jan. 13, 1931. N. MUNTHESEN 1,789,017

WATER TIGHT ELECTRIC SWITCH

Filed Nov. 29, 1926

Fig. 1.

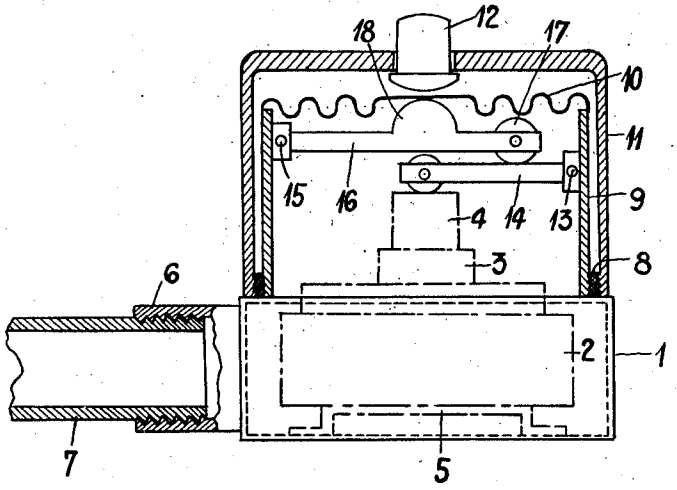
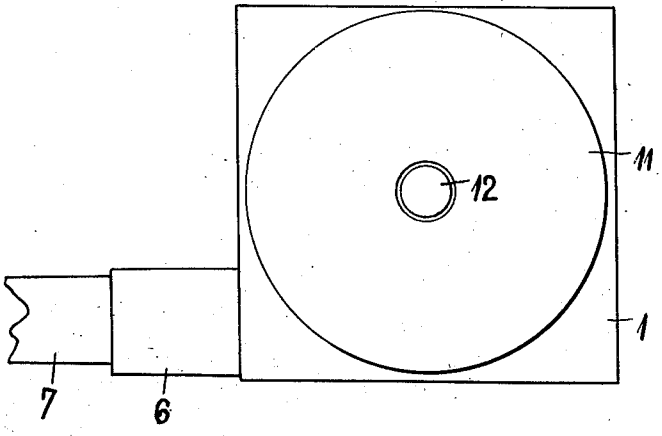


Fig. 2.



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Patented Jan. 13, 1931 1,789,017

UNITED STATES PATENT OFFICE

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WATER-TIGHT ELECTRIC SWITCH

Application filed November 29, 1926, Serial No. 151,451, and in Denmark December 5, 1925.

The present invention relates to an electric switch adapted particularly for use in moist rooms and where there is a risk of explosions. The invention consists in that on the box or the like to which the electric switch is secured, and which switch may be of any type adapted to be operated by a press button, there is mounted a cylindrical casing enclosing the press button projecting from said box, which casing is at its top closed by a plain or corrugated diaphragm. The threaded connection between the said box and casing can be readily rendered watertight, for instance by means of white lead or other suitable tightening material.

A pressure exerted on the diaphragm may be transmitted to the said press button of the switch by means of two levers inserted between said diaphragm and said press button and adapted to multiply the movement of the former as transmitted to the latter.

The invention is shown on the drawing, where

Fig. 1 shows, in side view and partly in section, a switch according to the invention, and

Fig. 2 is a top view thereof.

1 indicates a closed box or casing of iron or the like in which there is mounted a switch 2 of any type, such as of the "Asca" type, which is provided with a press button 4 extending through a tube 3. The switch rests upon a support 5. The box 1 is provided with a projection 6 threaed along a portion of its inner surface for engaging the threads of a conductor tube 7 and this connection is thereupon made watertight.

On the top of box 1 there is provided a ring 8 with threads on both its inner and outer surfaces. A cylindrical casing 9 the upper side of which is in the form of a diaphragm 10, is screwed into the inner threaded surface of said ring, and on the outer threaded surface of the latter there is screwed a cylindrical casing 11 enclosing the casing 9 and in the upper side of which there is an opening with a press button 12 adapted to be directly actuated by the person using the switch.

A lever 14 rotatable around a pin 13 is arranged in said casing 9 and carries a roller engaging the press button 4. Another pin 15 in the casing 9 carries a lever 16 having an insulating roller 17 engaging the lever 14. The lever 16 is provided with a projection 18 extending up to the central portion of the inner surface of the diaphragm 10.

A slight movement, for example 2 m. m., of the central portion of the diaphragm may be augmented by means of said levers and transmitted to the press button so as to impart to the latter a movement sufficiently large for operating the switch. If the configurations, dimensions and materials are suitably chosen, such a slight movement of the diaphragm will not be detrimental to the latter even if repeated a considerable number of times.

As soon as the pressure on the button 12 ceases the various members will be brought back to their normal position (initial position) by means of a spring within the switch.

Holes may be provided in the wall of casing 11 for allowing water accumulating between said casing and casing 9 to run off.

I claim:

An electric switch comprising a casing; a switch mounted in said casing; a second casing mounted on the first-named casing and having an open end; a diaphragm mounted over the open end of said second-named casing to render the casings watertight; a switch actuator mounted in the second-named casing and comprising a pair of pivoted cooperating levers, one of the levers being adapted to actuate the switch and the other lever being adapted to actuate the first-named lever and being in contact with the diaphragm; and means for depressing the diaphragm to actuate the levers and thereby the switch, the lever contacting the other lever adjacent its pivotal end to magnify the depression movement of the diaphragm.

In testimony whereof I affix my signature.

NIELS MUNTHESEN.