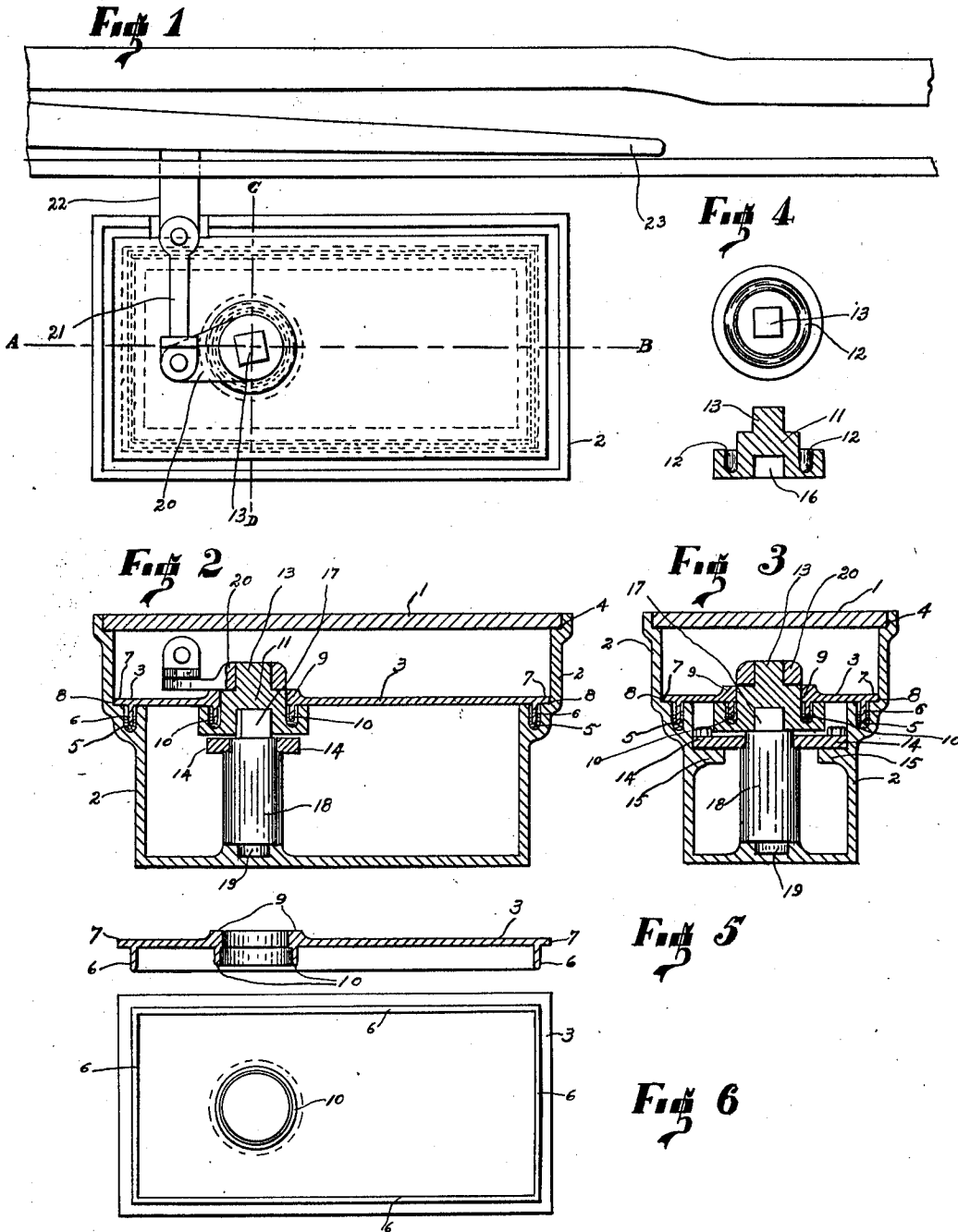


R. R. MILLER.
WATERPROOF SWITCH BOX.
APPLICATION FILED MAY 16, 1910.

1,021,373.

Patented Mar. 26, 1912.



WITNESSES:

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WATERPROOF SWITCH-BOX.

1,021,373.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed May 16, 1910. Serial No. 561,747.

To all whom it may concern:

Be it known that I, ROYAL RUEBEN MILLER, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Waterproof Switch-Boxes, of which the following is a specification.

My invention relates to improvements in switch boxes to contain mechanisms of automatic switching devices, and the objects of my improvement are; to provide a switch box construction that will prevent water from entering the portions of the switch box containing the mechanisms by means of which switching tongues may be thrown automatically and which box is placed in the ground; to provide such box with joints and construction so that water will not enter the part containing the mechanism and magnets and a means of constructing a joint so that the mechanical action may be transmitted from the mechanism inclosed within the waterproof portion to the connection with the switching tongue and maintain waterproof joints; and to provide a means of attaining such waterproof connections so that the box may be placed level with the surface of the ground and be easy of access. I attain these objects by means of the mechanisms illustrated in the accompanying drawings in which,

Figure 1 is a plan view of my device shown in relative position to a switching tongue; Fig. 2 is a longitudinal cross sectional view of my device on the line A—B of Fig. 1; Fig. 3 is a lateral cross sectional view on the line C—D of Fig. 1; Fig. 4 is a top plan view and cross sectional view of the cap fitting on the operating shaft; Fig. 5 is a longitudinal cross sectional view of the waterproof inside cover; and Fig. 6 is a plan view looking at the bottom of said waterproof inside cover.

Similar numerals refer to similar parts throughout the several views.

A metal box 2 adapted to be placed in the ground is constructed with a cover 1 flush with the surface of the ground resting on the shoulder means 4. This cover, preferably made of metal, may be set into the shoulders 4 that extend around the top of the box 2 and may be if desired attached by screw means to such shoulders. Below the shoulders 4 in the box is the shoulder 8 ex-

tending around on the interior of the box 2, in which shoulder is formed the groove or well 5 of sufficient depth and size for the uses desired. This groove extends around the whole of the shoulder 8. An inner waterproof cover 3 constructed with the extended flanges 8 and provided with the downwardly extending lips 6 adapted to fit loosely into the groove or well 5 is also provided with a circular space on the upper side of which are the shoulders 9 and on the underneath side of it is extended the lip 10. In the bed of the box suitable bearings are provided for the bearing 19 of the shaft 18. On each side of the box opposite the shaft 18 the shoulders 15 are provided in the box to which is attached the bracket 14 adapted to carry operatively the shaft 18. The shaft 18 has a square head 17. The shaft cap 11 is constructed with an interior space in the bottom 16 adapted to engage the head 17 of the shaft. Preferably the cap 11 rests on the shaft head 17 so that it will not bear upon the bracket 14. The groove or well 12 extending around near the circumference of the cap 11 is constructed suitably to engage loosely the lip 10. The top 13 of said cap 11 is preferably made square to engage the operating lever 20 which may be connected by any lever and toggle means, 21—22, to the switching tongue 23.

The cap 11 being in place as described and as shown in the drawings, in the grooves or wells 5 and 12 is to be placed mercury or any other waterproof fluid. The inside cover 3 then is put into position and the lips 6 and 10 extend into the waterproof fluid in said grooves 5 and 12 and thereby prevent water from entering into the interior of the box. In the interior of this box and below the waterproof cover 3 may be placed any mechanisms, magnets and appliances for operating the shaft to communicate movement through the intermediate means of levers and toggle work to the switching tongue 23. If desired screw means may be used to attach the cover 3 extending into the shoulder 8 through the flange 7, in order to hold the cover 3 in position. However it is not necessary to the novelty of my invention that the screws should be so used.

This device is especially applicable to use in inclosing electrical switching mechanisms and electro-magnetic switching mechanisms in a metal box beneath the ground to prevent

water from accumulating about the magnet or mechanisms and magnets used in automatic switching devices where such mechanisms are placed in the ground. It also affords a quick and ready means of gaining access to the mechanisms for inspection or repairs.

While I am aware that mercury joints have heretofore been made and I do not claim broadly the construction of a mercury joint, in my device I have provided for a complete insulation of the interior of the switch box from moisture without the necessary use of bolts or packing, and without requiring close and machined work in making the waterproof joints. It will be noted that the bearing of the shaft 18 is not against any mercury joint but is carried by the bracket 14.

I claim:—

In a waterproof switch box of the character described, the combination of a box

provided with a surface lid and an interior lid provided with lips on the underside; an offset in the interior of said box provided with channels adapted to receive the lips of said interior lid and adapted to contain waterproof fluid; a cap with a groove extending around near the circumference thereof adapted to hold waterproof fluid, resting on bracket means underneath said interior lid; said interior lid provided with circular lips extending downwardly adapted to engage said circular groove in said cap, said cap being turnable in said position, and also provided with means for attaching an operating shaft and lever; all substantially as set forth.

Witness my signature.

ROYAL RUEBEN MILLER.

Witnesses:

C. M. WALKER,
T. M. MAXWELL.

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