

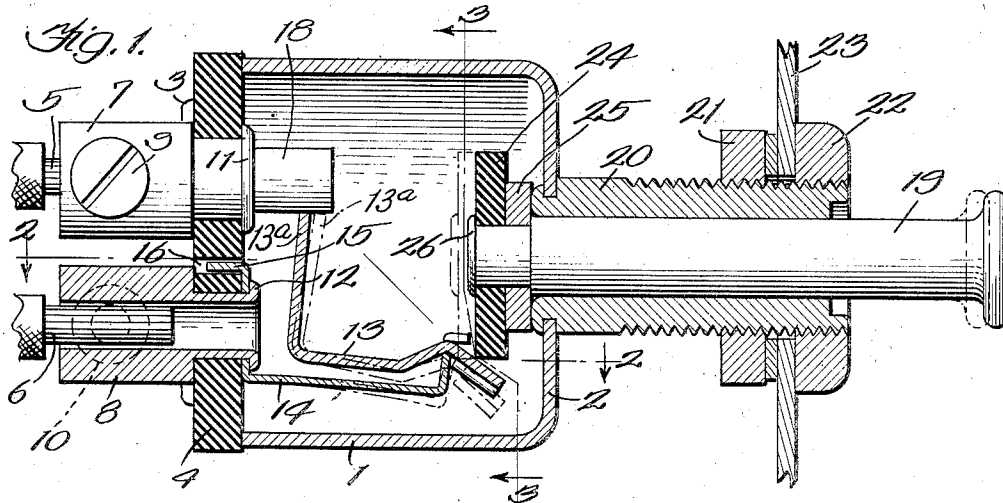
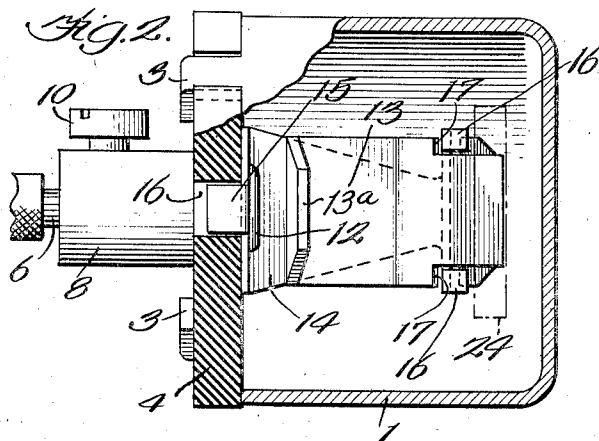
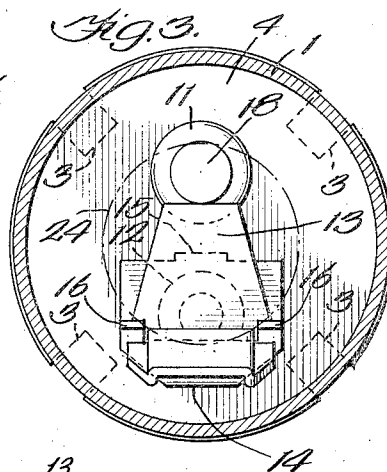
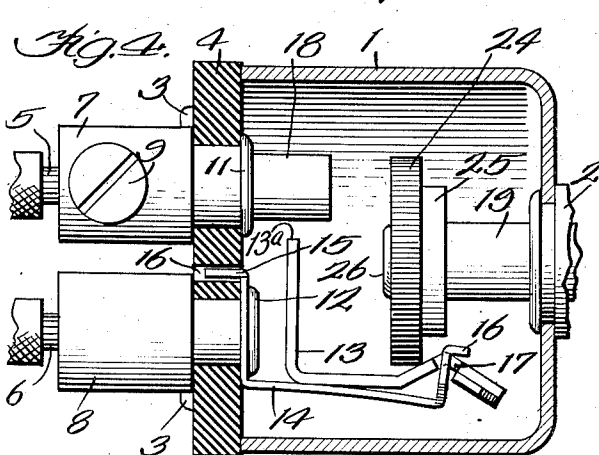
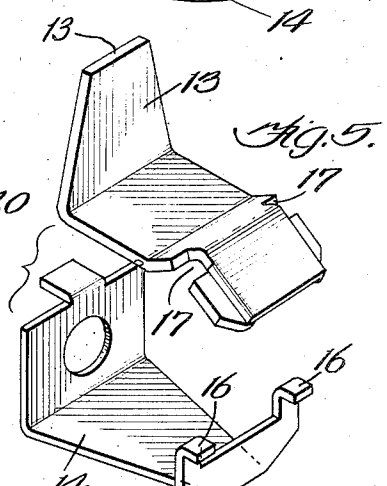
June 6, 1933.

F. J. WATTS

1,912,607

ELECTRIC SWITCH

Filed Aug. 8, 1930



Inventor
Felix J. Watts
By G. L. Craggs

UNITED STATES PATENT OFFICE

FELIX J. WATTS, OF BRONSON, MICHIGAN, ASSIGNOR TO HARRY A. DOUGLAS, OF
BRONSON, MICHIGAN

ELECTRIC SWITCH

Application filed August 8, 1930. Serial No. 473,823.

My invention relates to electric switches and has for its general object the provision of an improved contacting mechanism simplifying the construction and operation of the switch. The device of my invention is inclusive of a circuit controlling arm swing-
5 ingly mounted between its ends to have a circuit closing position and an alternative circuit opening position, contacts brought
10 into connection by said arm when in one of its alternative positions and which are out of connection when the arm is in the other of its alternative positions, and an arm actuator
15 engageable therewith upon each side of the place of mounting for the arm to swing the arm to its alternative positions. One of the contacts is desirably provided upon the arm on which account the arm is preferably metallic. In the preferred embodiment of the
20 invention the arm of the actuator is reciprocable and the arm serves to hold the actuator in the alternative positions in which the actuator is placed. To this end the portions of the arm engageable by the actuator are de-
25 flected away from the actuator so as to interpose a ridge in the path of movement of the actuator which must be depressed in order that the actuator may be shifted and which, consequently, serves to hold the actuator in its alternative positions.

I will explain my invention more fully by reference to the accompanying drawing in which Fig. 1 is a longitudinal sectional view with parts appearing in elevation, the switch
35 being in circuit closing adjustment; Fig. 2 is a sectional view on line 2—2 of Fig. 1; Fig. 3 is a sectional view on line 3—3 of Fig. 1; Fig. 4 is a view somewhat similar to Fig. 1 with parts removed and additional parts
40 shown in elevation, this figure illustrating the switch in circuit opening adjustment; and Fig. 5 is a perspective view of the circuit controlling switch arm and its mounting, in separated relation.

The casing illustrated preferably includes a generally cylindrical wall 1 and a second wall 2 which is angular to the first and constitutes therewith a switch receptacle of cup
50 formation. The wall 1 is formed with prongs 3 which are passed through notches in the

closure wall 4 and which are clinched into engagement with the outer flat face of said closure wall, whereby this wall and the cup part of the casing are held in assembly. The casing wall 4 desirably constitutes the con-
55 tact carrier of the switch structure. The circuit wires 5 and 6 are illustrated, these wires being clamped within the larger portions of the metallic sleeves 7 and 8 respectively by means of binding screws 9 and 10. The re-
60 duced portions of these sleeves pass snugly through holes that are formed in the wall 4 and are riveted at their inner ends to form flanges 11 and 12 which clamp said wall against the larger portions of the sleeves. 65
Metallic leaf springs 13 and 14 are included in the improved switching mechanism. Spring 14 is clamped between the flange 12 and wall 4 and has an angular tail continuation 15 that enters a recess 16 on the wall 4
70 to keep spring 14 from turning.

The leaf spring 13 constitutes the circuit controlling arm and the leaf spring 14 constitutes a mounting upon which the arm is fulcrumed, these two parts being preferably
75 formed as illustrated in Fig. 5, where the unmounted end of the leaf spring 14 is bifurcated and has angular continuations 16 which are received within notches 17 which are formed in the sides of the arm 13. Said
80 angular continuations lap said arm to hold it upon its mounting. The parts are so related that the arm 13 is adapted to be swung into and out of contacting engagement with the extension 18 of the sleeve 7 to close or
85 open the control circuit and the mounting desirably is disposed beneath the arm so as to support the arm in its position out of engagement with the extension 18, thus displacement of the parts out of operative position is guarded against. 90

The arm actuator illustrated is reciprocable and is inclusive of a handle whose shaft 19 passes through a guiding sleeve 20 which
95 is suitably assembled with the casing wall 2. This guiding sleeve is exteriorly threaded to receive clamping nuts 21 and 22, whereby said sleeve may be assembled with the mounting 23. A disc 24 of insulation is 100

located upon the reduced inner end of the handle shaft 19 upon which continuation I desirably also place a spacing washer 25, these two parts being clamped against the larger part of the handle shaft by the riveting flange 26. The parts of the arm 13 on each side of its mounting are deflected away from the actuator so as to interpose a hump or ridge in the path of movement of the actuator, whereby the actuator disc 24 and the balance of the actuator are held in the alternative positions to which the actuator is adjusted. This construction also forces a scraping engagement between the relatively narrow edge 13a of the contact arm 13 and the sleeve continuation 18 that are engageable, whereby the contacting surfaces are maintained bright and clean, the arm terminating in a relatively narrow edge engageable with the sleeve continuation and said edge moving in a curvilinear path to engage said sleeve continuation, the arm being resiliently mounted as described.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. In an electric switch, the combination with a reciprocable insulating actuator; of an insulating contact carrier; parallel contacts carried by the carrier, one of said contacts having a continuation extending longitudinally beyond the other; a resilient metallic mounting fixedly engaging the other of said contacts; and a metallic circuit controlling arm hingedly carried intermediate its ends by and fulcrumed on said mounting, the end of said arm remote from its mounting being bent to be transverse to the contacts and movable between the mounting and the said continuation, said end terminating in a relatively narrow contact edge engageable with the continuation by a scraping engagement and the other end of the arm having inclined portions on each side of its mounting deflected away from said insulating actuator, said actuator being reciprocable over the hump provided between said deflected portions away from the fixed contacts to bring the contact edge of the arm into engagement with the continuation and toward the fixed contacts to break the engagement.
2. In an electric switch, the combination with an insulating contact carrier; of parallel contacts carried by the carrier; a resilient metallic mounting carried by the carrier; a metallic circuit controlling arm hingedly carried intermediate its ends by and fulcrumed on said mounting, said arm being swingable to engage both contacts to close a circuit therethrough; and an actuator mounted apart from the carrier and reciprocable across the fulcrum of the arm to swing the arm into and out of circuit closing position.

In witness whereof, I hereunto subscribe my name.

FELIX J. WATTS. 70

75

80

85

90

95

100

105

110

115

120

125

130