

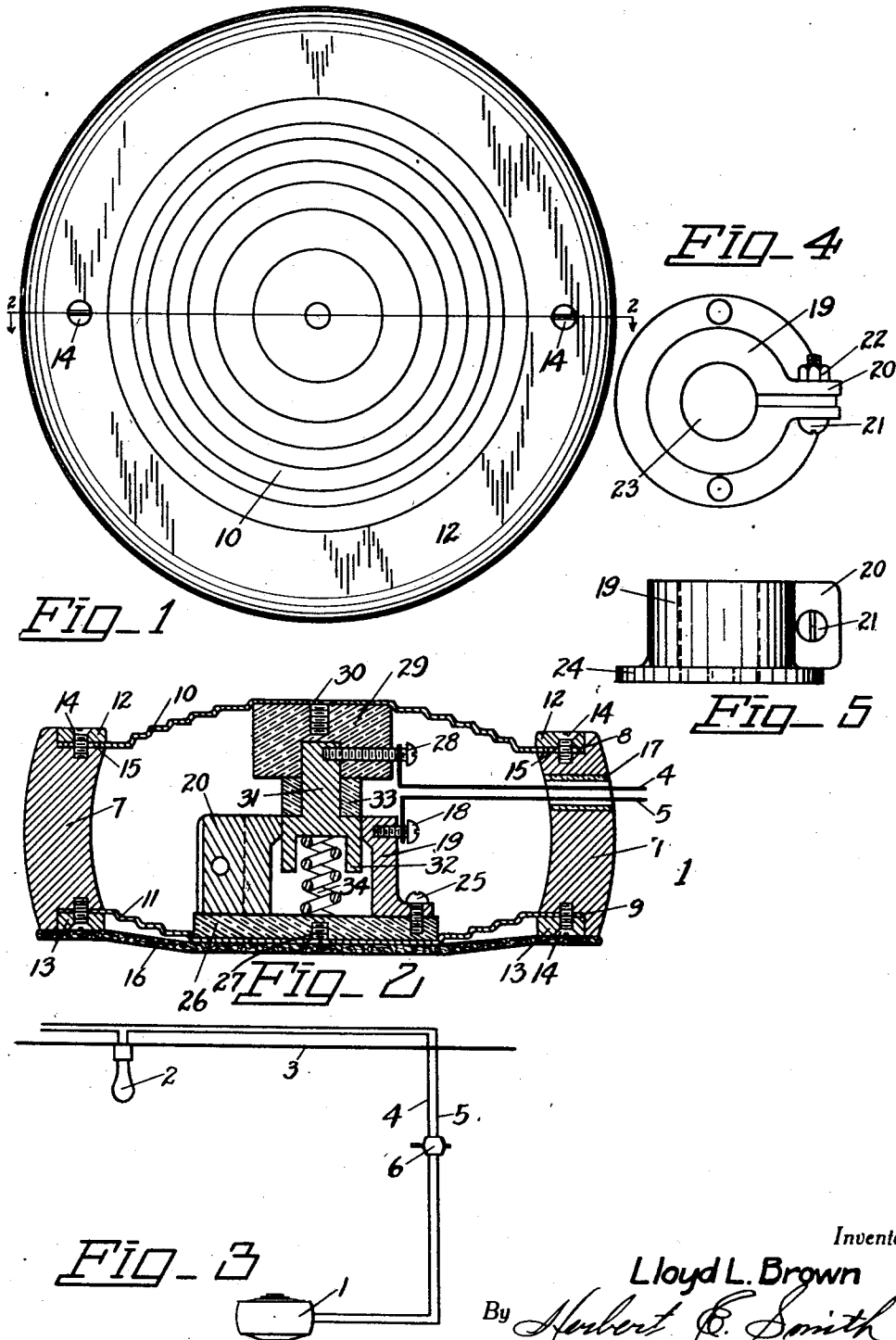
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L. L. BROWN

CIRCUIT BREAKER

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Inventor

Lloyd L. Brown

By *Herbert E. Smith*
Attorney

UNITED STATES PATENT OFFICE.

LLOYD L. BROWN, OF SPOKANE, WASHINGTON.

CIRCUIT BREAKER.

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My present invention relates to an improved circuit breaker of the foot operated type, designed for use as a portable switch mechanism in an electric lamp circuit, and preferably located upon the floor in position to be accessible to the foot of the operator.

The circuit breaker is of the normally closed type, and is particularly adapted for use in temporarily extinguishing an electric lamp in the circuit, as for instance in a room or chamber where an optometrist is making examinations and tests of the eyes, and it is desired that the illuminated room be darkened for short periods during the test or examination. Means are provided whereby the circuit breaker is normally held closed for the purpose of illuminating the lamp, and the circuit breaker is automatically closed after it has been opened and released from the open position.

A cut out switch is also provided in the electric circuit by means of which the lamp may be extinguished or illuminated regardless of the circuit breaker.

The invention consists in certain novel combinations and arrangements of parts involving a depressible contact member of the circuit breaker and the construction of the latter, as will hereinafter be more fully set forth and claimed.

In the drawings I have illustrated one complete example of the physical embodiment of my invention wherein the parts are combined and arranged according to the best mode I have thus far devised for the practical application of the principles of my invention.

Figure 1 is a plan view of the circuit breaker.

Figure 2 is a vertical sectional view at line 2—2 of Figure 1.

Figure 3 is a diagram of the wiring of an electric lamp circuit with the circuit breaker of my invention included therein.

Figure 4 is a top plan view of the split sleeve forming the stationary contact member of the circuit breaker.

Figure 5 is a side view of the split sleeve of Figure 4.

In Figure 3 the circuit breaker as a whole is designated by the numeral 1 and is located on the floor, or on other suitable support, where it is accessible to the foot of the optometrist or other person, for controlling the light 2 which is shown as located near

the ceiling of a room as indicated at 3. The wires of the lamp circuit, as 4 and 5 are connected with the circuit breaker, and a cut out switch 6 is located at a suitable place in the circuit for illuminating the lamp or extinguishing the lamp regardless of the circuit breaker.

It will be understood that the lamp is normally illuminated and the circuit breaker is normally closed to complete the circuit, but by a light pressure of the foot on the circuit breaker, the latter may be opened and the lamp extinguished during the period of time the foot pressure is applied to the circuit breaker. After the foot pressure is removed, the circuit breaker is automatically restored to normal position and the lamp is illuminated.

The circuit breaker, as best seen in Figure 2, includes an annular body portion or cast metal ring 7, in the top and bottom edges of which are provided countersinks or grooves 8 and 9 respectively.

The top and bottom portions for the annular body member are designated as 10 and 11, and these portions, in the form of circular disks have their annular edges seated in the grooves of the body and secured therein by retaining rings 12 and 13 and screws 14.

The top and bottom parts of the annular body are preferably of concavo-convex shape and fluted or formed with a series of concentric rings, with the convex face of part on the exterior side of the device. The top part 10 is flexible so that it may be depressed, and may be resilient in nature so that it will readily return to normal position when the depressing pressure is released therefrom. To compensate for the flattening movement of the top part or pressure-plate 10 it is fashioned with radially extending slots 15 through which the screws 14 pass, and these slots permit movement of the edge of the pressure plate relative to the screws, when the pressure plate, in the nature of a diaphragm, is depressed by foot pressure to open the circuit breaker.

The bottom of the circuit breaker is provided with a felt cushion or pad 16 to prevent scratching the floor and to render the movement noiseless as the device is moved on the floor.

The two retaining rings 12 and 13 have their outer faces flush with the top and bottom edges of the annular body and the

center parts of both the top and bottom portions of the body project beyond the planes or outer faces of the retaining rings in order that the device may more readily be moved across the floor and to facilitate the foot pressure when applied at the center of the pressure plate for opening the circuit breaker.

The circuit breaker includes a depressible or movable contact member and a fixed or stationary contact member, the latter being connected to the wire 5 and the former to wire 4, both of which wires enter the hollow body of the circuit breaker through the bushing 17 in the side of the body. The wire 5 is connected to a terminal screw 18 that is threaded in the wall, of a split sleeve 19 forming the stationary or fixed contact member. This member is fashioned as a split sleeve for the purpose of compensating for wear and is provided with perforated ears or lugs 20, screw 21 and nut 22 in order that it may be clamped to reduce the diameter of its small bearing bore 23. The sleeve is provided with an annular, bottom flange 24, and screws 25 are used to secure the flanged sleeve to the bottom plate 11 of the circuit breaker, or to an insulated pad 26 between the bottom plate and the flange sleeve.

The insulating pad is preferably circular in shape, located at the center of the bottom plate, and secured on the inner side of the plate by a screw or screws 27.

The other wire 4 of the lamp circuit is connected to a terminal screw 28 which passes through a circular pressure-block 29, of insulating material, that is secured at the central, inner side of the pressure plate 10 by screw 30. The under side of the block has a socket to receive the plunger 31 which is fashioned with a socket head 32, and a neck bushing 33, of insulating material encases the plunger. The bushing is located between the block and the socket head, and the bushing and socket head are of proper exterior diameter to reciprocate through the bore 23 of the split sleeve. A spring 34 is interposed between the socket head and the insulating plate 26 to normally hold the movable contact member elevated and with the socket head in frictional and electrical contact with the wall of the bore

of the split sleeve, to complete the circuit through the wire 5 at one side and through wire 4, screw 28 and plunger 31 at the other side of the circuit.

When the foot pressure is applied to the top or pressure plate 10 of the circuit breaker, the movable contact member is bodily depressed against tension of the spring 34, causing the socket head to pass from engagement with the wall of the bore 23 and thus break the circuit, and bringing the insulated bushing 33 in contact with the wall of the bore. As long as the movable member is held depressed, the lamp is extinguished, but when pressure is released from the pressure plate 10, the spring lifts the movable contact member to elevated position to close the circuit.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a normally closed circuit breaker the combination with a hollow body having concavo-convex top and bottom portions with the top portion forming a movable pressure plate, of a stationary contact member secured to the bottom plate, a depressible member secured to the pressure plate, and a spring for normally holding the depressible member in elevated position.

2. The combination with an annular body having grooves in its edges, of a pair of concavo-convex plates having their free edges in said grooves and retaining rings for said edges, a fixed contact member secured to one of said plates, one of said plates being movable relative to its retaining ring and annular body, and a movable contact member secured to the movable plate.

3. In a circuit breaker the combination with a split sleeve and its clamping means forming a stationary contact member, of a movable member comprising a socket head normally in frictional and electrical contact with said sleeve, a spring between the socket head and a portion of the stationary member, a plunger on the head, an insulated bushing on the plunger, and a pressure member secured on the plunger.

In testimony whereof I affix my signature.

LLOYD L. BROWN.