Jan. 9, 1923. 1,441,735.

A. MESSER.

ELECTRIC SWITCHING DEVICE.

FILED JULY 1, 1921. 2 SHEETS—SHEET 1.

Fig. 1.

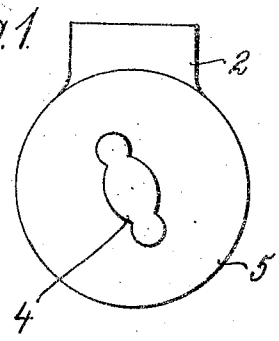


Fig. 2.

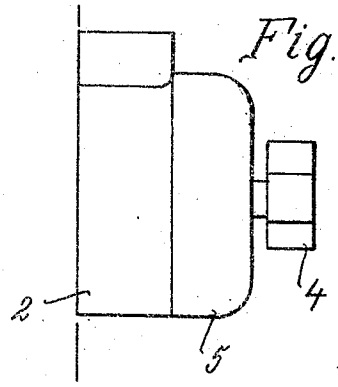


Fig. 3.

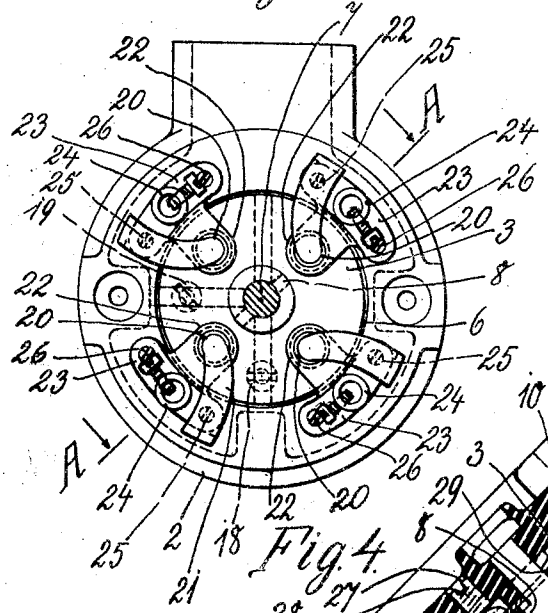


Fig. 4.

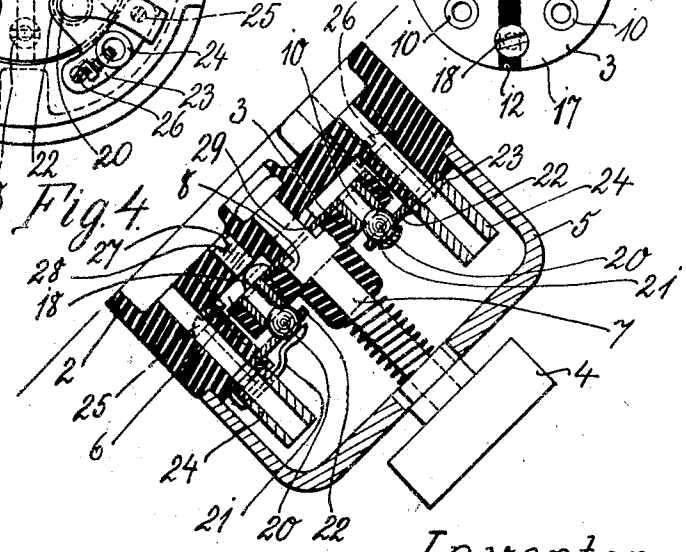
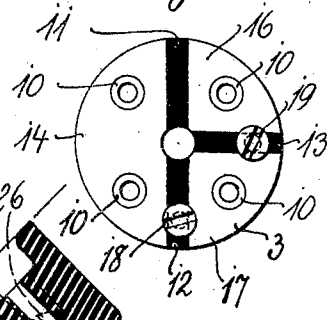


Fig. 5.



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Jan. 9, 1923.

1,441,735.

A. MESSER.

ELECTRIC SWITCHING DEVICE.

FILED JULY 1, 1921.

2 SHEETS—SHEET 2.

Fig. 6.

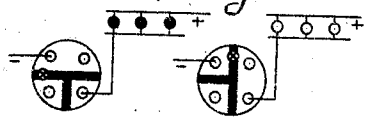


Fig. 7.

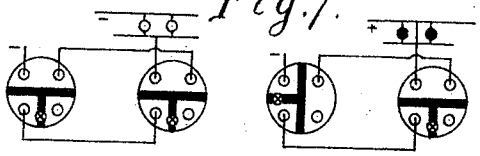


Fig. 8.

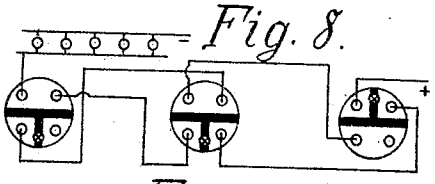


Fig. 9.

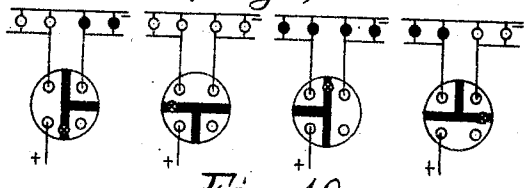


Fig. 10.

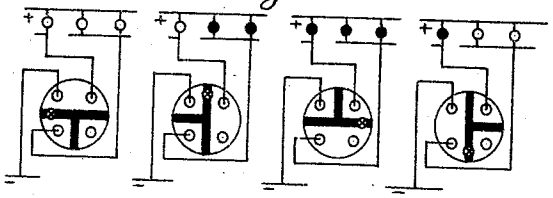


Fig. 11.

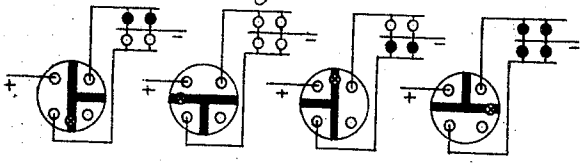
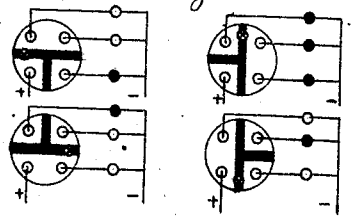


Fig. 12.



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Patented Jan. 9, 1923.

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1,441,735

UNITED STATES PATENT OFFICE.

ADOLF MESSER, OF ERFURT, GERMANY, ASSIGNOR OF ONE-HALF TO MARBURG BROTHERS, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ELECTRIC SWITCHING DEVICE.

Application filed July 1, 1921. Serial No. 482,001.

To all whom it may concern:

Be it known that I, ADOLF MESSER, citizen of Germany, residing at Bischleben, near Erfurt, Germany, have invented certain new and useful Electric Switching Devices (for which I have filed applications in Belgium, Jan. 7, 1921; Spain, Jan. 14, 1921; Germany, Jan. 23, 1920, Patent No. 327,872; England, Jan. 10, 1921; Sweden, Jan. 3, 1921; Italy, Mar. 10, 1921; Australia, Mar. 27, 1921; Norway, Jan. 6, 1921; France, Jan. 19, 1921; Holland, Jan. 4, 1921; Canada, Mar. 3, 1921; Japan, Mar. 28, 1921; South Africa, Feb. 24, 1921; Rumania, Mar. 14, 1921; Denmark, Dec. 29, 1920; Austria, Jan. 3, 1921; Switzerland, Dec. 31, 1921; Slovakia, Jan. 18, 1921; and Hungary, Jan. 4, 1921), of which the following is a specification.

My invention relates to electric switches which are used for closing or opening individual circuits, for selecting one or the other, or several at a time, of a group of circuits and for other similar purposes for which electric switches are used. The improvement secured by my invention, consists more specifically in providing easy means by which the internal connections of the switch and thereby the specific purpose of the switch may be changed without changing the construction of the switch.

In the following a description is given of one method of applying my invention to a switch. However my invention is not restricted to the particular type of switch shown nor to the specific means used for changing the internal connections.

In order that the invention may be clearly understood, I am describing the same with reference to the particular construction shown in the accompanying drawings wherein—

Figures 1 and 2 show the outside of the switch in front elevation and side elevation respectively.

Figure 3 shows on a larger scale the switch in elevation, the cover being removed.

Figure 4 is a section on line A—A of Figure 3.

Figure 5 is a plan view of the switch disc seen from below.

Figures 6 to 12 show some of the connections which can be readily established by means of the particular switch here described, while, of course, the number of variations is not limited to those shown.

Referring now to Figures 1 to 5, the switch consists mainly of the insulating base (2), the switch disc (3), the stem (7), the key (4), and the cover (5). The base (2) has a recess (6) in which the switch disc (3) is located. The stem (7) carries the key (4), and in addition is provided with extensions (8) which engage the switch disc (3), so that the latter will turn with the stem (7).

The switch disc (3), is made of insulating material and fitted with four contact sleeves (10), also with a metal plate (29) covering the lower surface of the switch disc (3). This metal plate (29) is divided into separate parts in this particular instance into three parts, (14), (16), and (17), clearly shown in Figure 5, which also shows insulating ribs, (11), (12), and (13), projecting from the lower surface of the switch disc (3). Screws (18) and (19) are provided, which can be inserted into the insulating ribs (12) and (13) in such a manner, that the heads of these screws establish metallic connection between the several parts (14), (16), and (17), of the metal plate (29). While screws are here shown for the purpose of establishing connections between different parts of the metal plate (29), other means like removable clamps, removable wire connections, etc., can be used.

The contact sleeves (10) are funnelshaped at their upper ends, so as to engage steel balls (20) which are arranged to slide on the switch disc (3) when the same is turned and which are pressed against the switch disc (3) by blade springs (21). Guiding pieces (22) serve to hold the balls (20) in place and are held, together with blade springs (21), terminal supports (23), and terminals (24) to the base (2) by screws (25) and (26). While in this instance four terminals are shown, my invention is not limited to any particular number of terminals, contact balls, plate springs, etc.

Screws (18) and (19) can be inserted or removed through the opening (27) provided in base (2). Screw (28) is shown to close this opening (27) after the desired change in internal connection has been made.

In regular use the switch disc (3) is

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turned by means of the key (4) whereupon the balls (20) rise out of the contact sleeves (10) and roll on switch disc (3) until each one engages the next following contact sleeve thus establishing contact again.

Referring now to Figures 6 to 12, Figure 6 shows a bottom view of metal plate (29) with one screw inserted between the half-sector of the plate and one of the quarter-sectors, with switch connections for opening or closing one individual circuit. This connection is used when it is intended to use the switch for opening or closing one particular circuit.

Figure 7 shows metal plate (29) with one screw inserted between the two quarter-sectors, two switches being used in conjunction so that one individual circuit may be opened or closed from two different points independently.

Figure 8 shows a similar interconnection of the sectors of the metal plate (29), but a system of connections embodying three switches for opening and closing an individual circuit independently from three points such as is sometimes used in lighting staircases.

Figures 9, 10, and 11 show metal plate (29) with screw inserted between the half-sector and one of the quarter-sectors and with connections to two independent circuits, the arrangement being such that either one of the two circuits may be closed independently or that both circuits may be opened, or that both circuits may be closed.

Figure 12 shows metal plate (29) again with connection established between the half-sector and one of the quarter-sectors, but with connections in such a manner that out of three independent circuits any two may be closed at a time, while the third one is open or all three circuits may be opened at the same time.

I claim—

1. In an electric switch the combination of an insulating base, stationary terminals, a movable insulating switch disc, contacts fastened to said insulating switch disc, extensions of said terminals establishing varying electrical connections with said contacts, and means for changing the electrical interconnection of said contacts without removing said insulating switch disc from said insulating base.

2. In an electric switch the combination of an insulating base, a cover, stationary terminals, a movable insulating switch disc, contacts fastened to said insulating switch disc, extensions of said terminals establishing varying electrical connections with said contacts, and means for changing the electrical interconnection of said contacts without removing said cover.

3. In an electric switch the combination of an insulating base, stationary terminals, a movable insulating switch disc, contacts fastened to said insulating switch disc, removable connections between said contacts, extensions of said terminals establishing varying electrical connections with said contacts and means for changing said removable connections without removing said insulating switch disc from said insulating base.

4. In an electric switch the combination of an insulating base, a cover, stationary terminals, a movable insulating switch disc, contacts fastened to said insulating switch disc, removable connections between said contacts, extensions of said terminals establishing varying electrical connections with said contacts and means for changing said removable connections without removing said cover so as to change the electrical interconnection of said contacts.

ADOLF MESSER.