

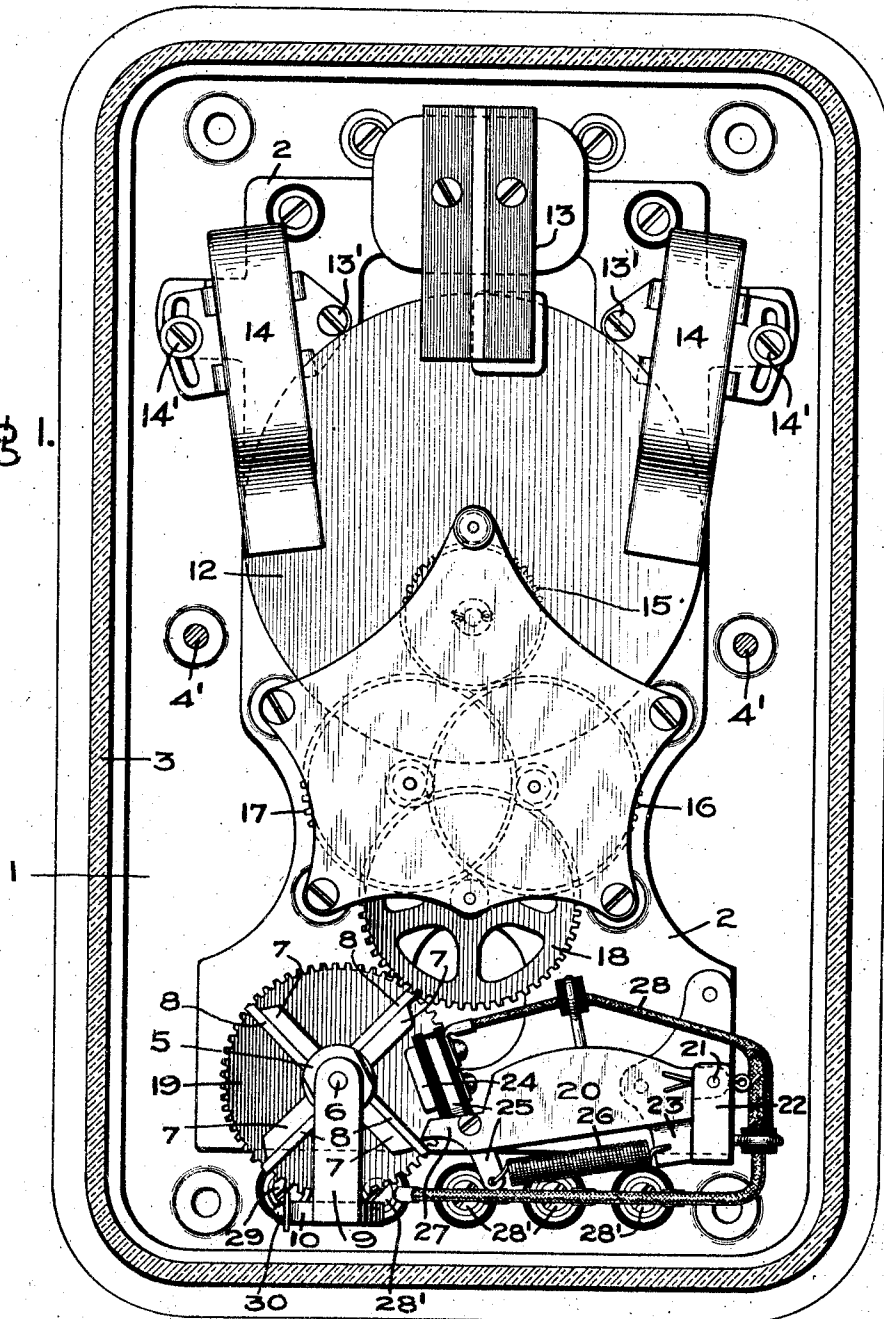
E. J. GUAY.
REVOLVING CONTACT SWITCH.
APPLICATION FILED JULY 20, 1910.

1,044,378.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

Fig 1.



Witnesses:

Marcus L. Byng.
J. Ellis Elen

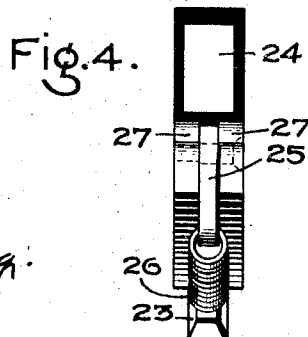
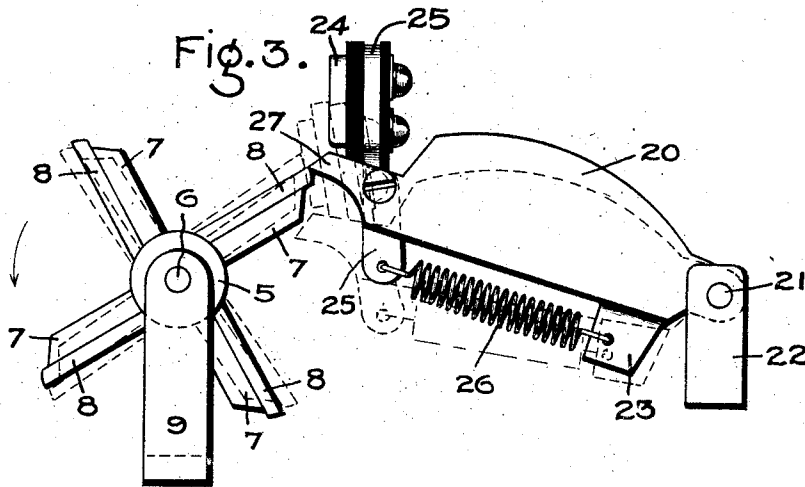
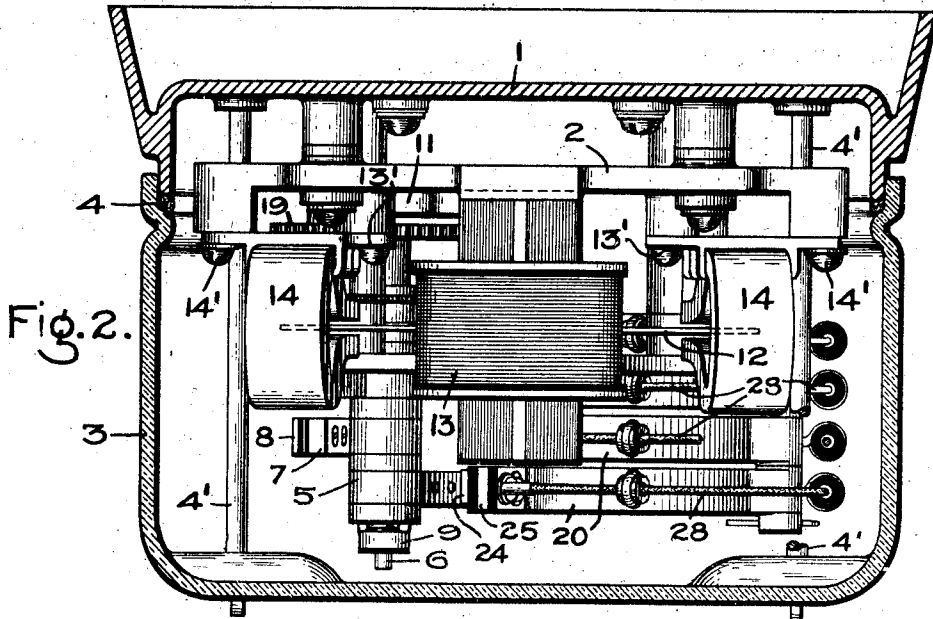
Inventor,
Emile J. Guay,
by *Albert S. Davis*
Att'y.

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2 SHEETS-SHEET 2.



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Marcel L. Byng.
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UNITED STATES PATENT OFFICE.

EMILE J. GUAY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

REVOLVING CONTACT-SWITCH.

1,044,378.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed July 20, 1910. Serial No. 572,829.

To all whom it may concern:

Be it known that I, EMILE J. GUAY, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Revolving Contact-Switches, of which the following is a specification.

My invention relates to relays adapted for controlling the operation of electromagnetically operated switches, such as the main switches in an alternating current series luminous arc lamp system, the circuits of which are to be periodically and momentarily opened to accomplish the simultaneous feed of all lamps in a circuit and thereby eliminate undue flickering of the lights and avoid the use of shunt coils in the lamps.

The purpose of my invention is to construct a relay in the form of a switch in which the tendency of the slowly moving contacts to draw arcs is eliminated and the duration of closure of the circuits to be controlled is entirely independent of the angular velocity of the driving parts, and which is further characterized by its simplicity and ruggedness of construction and ability to take care of currents of the densities required in electromagnets for operating large oil switches than is the ordinary time switch as usually constructed with its delicate moving parts. To these ends I have made a switch which periodically closes the controlling circuits momentarily with both a quick-make and a quick-break, the periods of operation being dependent upon the speed of the driving means.

In the accompanying drawings, Figure 1 is a side elevation of a switch embodying my invention together with a driving motor; Fig. 2 is a top plan view of the switch and driving motor; Fig. 3 is a side elevation of the contacting members in the operating position; and Fig. 4 is a front view of one of the contacts.

Referring to the drawings, 1 indicates a main base or frame having short posts to which is secured by screw-bolts a supporting plate 2. This plate 2 carries the switch and driving means, and over them fits a glass inclosing case 3 onto the frame 1, as indicated, a gasket 4 maintaining a water-tight joint between the rim of the frame and an internal rib on case 3. At 4' are indicated

arms rigidly attached to the frame 1 and suitably equipped at their free ends for holding the case 3 securely against the gasket 4.

A revolving drum 5 mounted upon a shaft 6 carries, preferably integrally therewith, a number of fingers 7, 7, 7, 7, a finger for each circuit to be controlled, these fingers preferably having removable contacts 8, 8, 8, 8, secured thereto by screw-bolts, or in any convenient manner. The shaft 6 is journaled at one end in an upright 9 carried by a bracket 10, and at the other end in the wall plate 11 of this bracket, secured to plate 2. A convenient driving means for drum 5 and its fingers consists of a shaded pole motor whose armature is indicated at 12 and its field at 13. The speed of this motor may be varied within certain limits by adjusting the position of retarding magnets 14 whose poles embrace the armature or disk 12. This adjustment is made by means of screws 14' which extend through circular slots in the magnet supports and screw into lugs on plate 2; the magnet supports being pivoted at 13' to similar lugs on plate 2. A train of reduction gears for reducing the speed of the motor to the required speed of drum 5 consists of a gear wheel 15 meshing with a pinion on the motor shaft, a gear wheel 16 meshing with wheel 15, a gear 17 meshing with a pinion on shaft of wheel 16, a gear 18 meshing with a pinion on shaft of wheel 17, and a gear wheel 19 mounted upon shaft 6 and meshing with gear 18.

Normally stationary levers 20, one for each revolving finger 7, are independently mounted upon a shaft 21 as a bearing, this shaft being carried by a bracket 22 secured to plate 2 and an upright thereon. Each lever 20 has a downwardly projecting lug 23 which normally rests against bracket 22. Upon these levers 20 are yieldingly mounted contacts 24, which respectively form sides of the circuits to be controlled. These contacts 24 are preferably mounted upon and insulated from the free ends of levers 25 which in turn are mounted upon levers 20 and are attached at their lower ends by springs 26 to lugs 23, each lever 25 being fulcrumed between two jaws 27 on the free end of a lever 20 and provided with expanded heads which overlie the upper edges of the jaws 27 so that the forward movement is limited thereby. The springs 26 main-

tain firm but yielding engagements between revolving contacts 8 and their corresponding contacts 24 when the latter slide past the contacts 8, as will hereafter be explained.

1. To the contacts 24 are attached flexible conductors 28, as shown, each conductor forming one side of a circuit to be controlled and being connected to a terminal 28' on the main base 1. The other sides of these circuits are joined respectively to a common terminal 29 connected to the framework at 30 and thereby to drum 5 and contact fingers 7.

- The operation is as follows: When each contact 8 comes around, say every two hours, it engages with jaws 27 of a corresponding lever 20, as is shown in Fig. 1, and lifts the lever 20 to the position shown in Fig. 3. As the contact 8 continues to revolve, it finally allows the jaws 27 to escape, the lever 20 dropping to the dotted position shown in Fig. 3 and the contact 24 making a quick engagement with contact 8. The lever 20 will not remain in this dotted position, however, since by its own weight it pulls contact 24 down past contact 8 against the tension of spring 26, thereby resulting in a momentary closure and a quick break in the circuit.

- I do not desire to restrict myself to the particular form or arrangement of parts shown and described, since it is apparent they may be changed and modified without departing from my invention.

- What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In an electric switch, the combination of normally stationary biased arms, rotary

contact fingers arranged to engage and move said arms against their biasing forces, and contacts yieldingly mounted on said arms and operating to make momentary contact with said fingers upon disengagement of the arms therefrom. 40

2. In an electric switch, the combination of a number of normally stationary arms fulcrumed at one end, a corresponding number of rotary contact fingers arranged to engage and tilt the free ends of said arms, and spring-controlled levers mounted on said arms and provided with contacts operating to wipe across said contact fingers upon disengagement of said arms therefrom. 45 50

3. In an electric switch, the combination of a number of stationary arms fulcrumed at one end, a corresponding number of revoluble contact fingers arranged to engage and tilt the free ends of said arms, contact levers pivoted to the free ends of said arms, and springs connected to the lower ends of said levers and to said arms. 55 60

4. In an electric switch, the combination of a biased arm, a revoluble contact finger arranged to engage and move said arm in opposition to its biasing force, and a spring-pressed contact mounted on said arm and operating to make wiping engagement with said finger as the arm returns to normal position upon escaping therefrom. 65

In witness whereof, I have hereunto set my hand this eighteenth day of July, 1910. 70

EMILE J. GUAY.

Witnesses:

JOHN A. McMANUS, Jr.,
CHARLES A. BARNARD.