

1,003,338.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

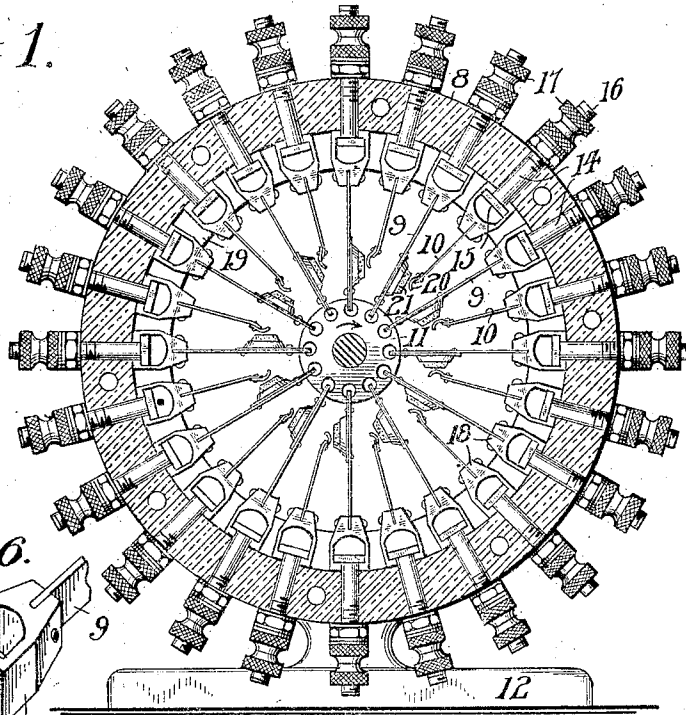


Fig. 6.

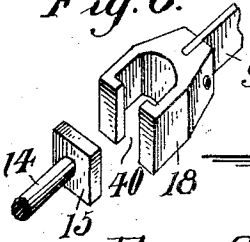


Fig. 2.

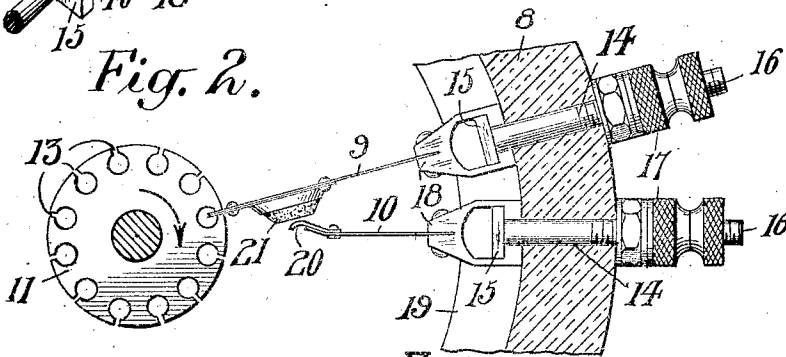


Fig. 3.

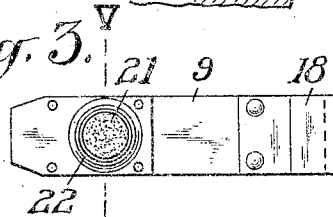
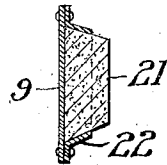


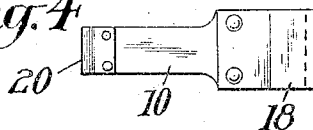
Fig. 5.



WITNESSES:

J. A. Hoffman,
A. L. Hencill.

Fig. 4.



INVENTOR

John P. Coleman

BY

W. E. Brown,
ATTORNEY

J. P. COLEMAN.
CIRCUIT CONTROLLER.
APPLICATION FILED DEC. 20, 1910.

1,003,338.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 2.

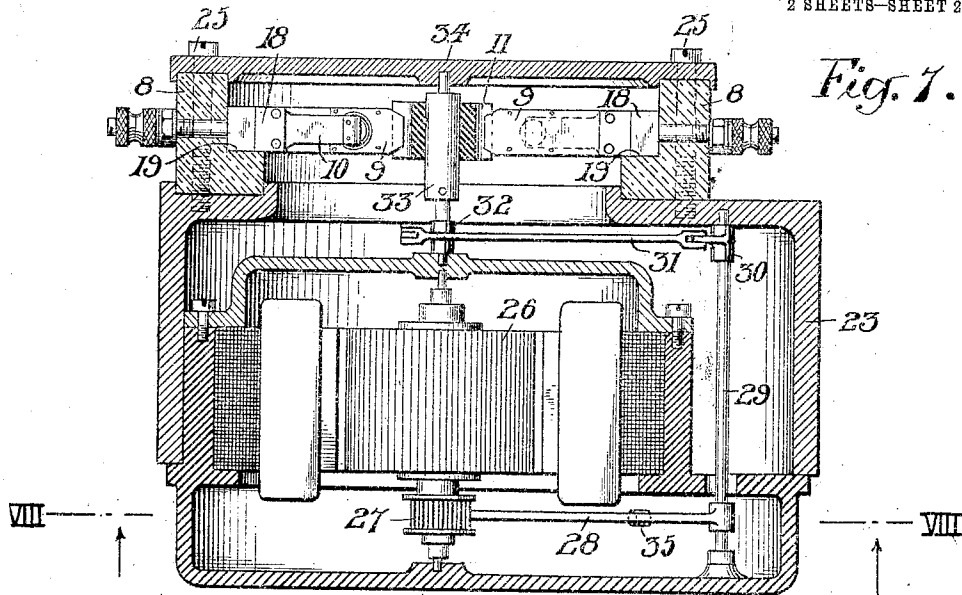
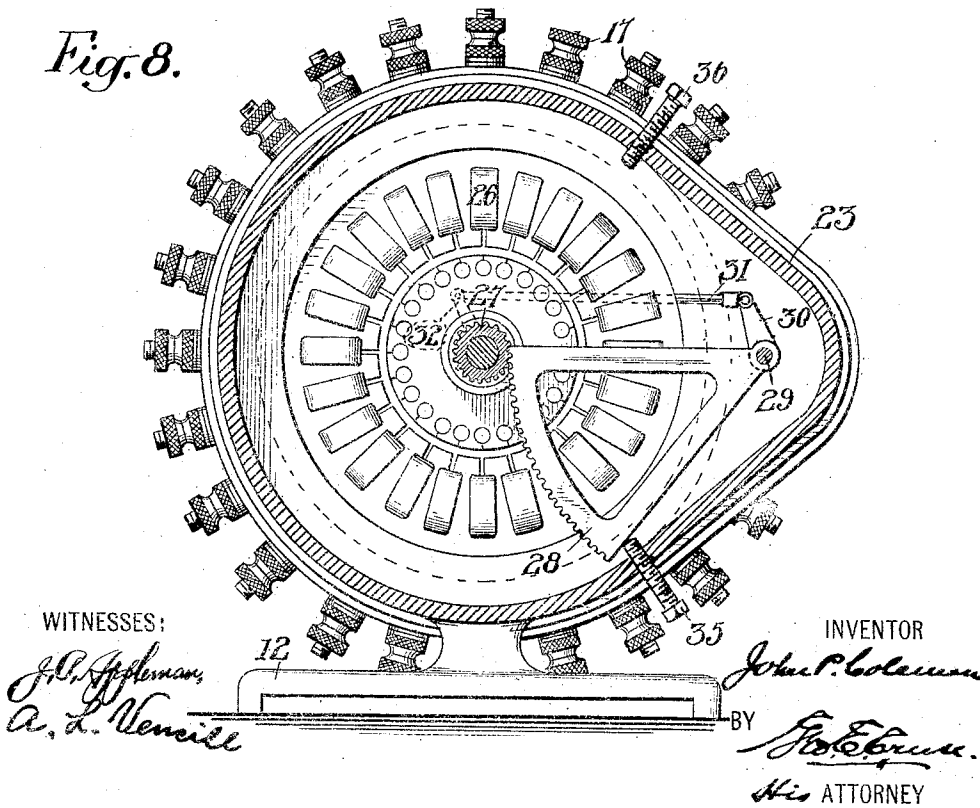


Fig. 8.



UNITED STATES PATENT OFFICE.

JOHN P. COLEMAN, OF NEW YORK, N. Y., ASSIGNOR TO THE UNION SWITCH & SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CIRCUIT-CONTROLLER.

1,003,338.

Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed December 20, 1910. Serial No. 598,307.

To all whom it may concern:

Be it known that I, JOHN P. COLEMAN, a citizen of the United States, residing in the borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Circuit-Controllers, of which the following is a specification.

My invention relates to circuit controllers, and has for an object the provision of a plurality of contact fingers arranged in a compact form. I preferably mount the contact fingers radially in a circular contact carrier, and provide means at the center for operating the said fingers.

I will first describe one form of circuit controller embodying my invention, with a means for operating the contact fingers thereof, and then point out the novel features thereof in claims.

In the accompanying drawings, Figure 1 is a view showing in elevation, partly sectioned, a circuit controller in the form of a relay and embodying my invention. Fig. 2 is a view showing one set of the contact fingers of the relay shown in Fig. 1, and showing more clearly the means for mounting and operating these fingers. Figs. 3, 4 and 5 are views showing in detail the construction of the contact fingers shown in the preceding views, Fig. 5 being a sectional view on the line V—V of Fig. 3. Fig. 6 is a view showing in perspective a means for mounting the contact fingers shown in the preceding views. Figs. 7 and 8 are views showing a means for applying an electromagnetic motor device to a circuit controller embodying my invention for operating the contact fingers thereof. Fig. 8 being a sectional view on the line VIII—VIII of Fig. 7.

Similar reference characters refer to similar parts throughout the several views.

One feature of my invention is the concentration of all the contacts within the smallest possible area, thereby facilitating the simultaneous observation of their operation.

Another feature of my invention is a high degree of uniformity of operation of all contacts by a common means, which uniformity I obtain by bringing the point of action of all contacts as near as possible to a common point.

Still another feature of my invention is

an arrangement of contacting devices to occupy a minimum amount of space, with a maximum of electrical separation between them.

A further feature is a construction which permits of changes in the functional operation of the contacting devices by mere transposition of parts.

Referring now to Figs. 1 and 2, 8 designates a circular contact carrier, preferably of insulating material such as porcelain, suitably mounted upon a base 12. Mounted in the contact carrier 8 to project radially toward the center are a plurality of contact fingers, here shown as being arranged in pairs, each pair consisting of a stationary finger 10 and a movable finger 9. At the center of the contact carrier is a rotatable drum 11 preferably of insulating material having means, here shown as slots 13, (see Fig. 2), for engaging with the movable contact finger 9 of each pair, to move this finger into and out of engagement with its corresponding stationary finger 10. The drum 11 may be rotated through a small arc of a circle by any suitable means, as will be explained hereinafter. The contact fingers 9 and 10 are preferably mounted in the circular carrier 8 in such manner that any one of these fingers may be readily removed therefrom without disturbing the rest of the device. To accomplish this purpose, I may secure each finger to a jaw or stirrup 18 which is held in position against the circular carrier 8 by means of a square head 15 of a bolt 14. Each stirrup 18 is provided with a slot 40 to accommodate the body of the bolt 14. The stirrup is prevented from turning by resting against an inwardly projecting shoulder 19 of the carrier 18. The bolts 14 are held securely in place by means of nuts 17, which nuts also serve to retain wires for electrical connections to the contact fingers. It will be evident from the foregoing description that a contact finger may be removed from the carrier 8 by loosening the nuts 17 and sliding the stirrup 18 out from under the head 15 of the bolt 14. As illustrated in Figs. 2, 3, 4 and 5, one contact finger of each pair, here shown as being the stationary finger 10, is preferably provided with a contacting tip 20 of non-corrosive material such as German silver. The other contact finger 9 is preferably provided with a carbon contacting block 21.

This block 21 may be secured to the finger in any suitable manner, as for example, by means of a cup-shaped piece of copper 22 riveted to the finger as shown in Fig. 5.

5 It will be evident from Figs. 1 and 2 and the foregoing description that by rotating the drum 11 through a small arc of a circle in the direction indicated by the arrow, the contact fingers 10 will be moved into engagement with contact fingers 9; and that 10 these fingers will be disengaged by a similar rotation of the drum 11 in the opposite direction.

Referring now to Figs. 7 and 8, I have 15 shown a means for rotating the drum 11 by an electro-magnetic motor device. This device as here shown is an alternating current induction motor, but I do not wish to be limited to this specific means. 23 designates a housing secured to one side of the 20 circular carrier 8 by means of screws 25. These screws also serve to hold in position on the opposite side of the carrier 8 a plate 34 in which is pivoted one end of a shaft 25 33 carrying the drum 11. The other end of this shaft is pivoted in the motor frame as shown. 26 designates an induction motor, to the rotor of which is secured a pinion 27. This pinion drives a segmental gear 28 30 which is rigidly secured to a shaft 29. This shaft 29 carries a crank 30 which is operatively connected by means of a link 31 with a similar crank 32 secured to the drum shaft 33. It will be seen therefore that the rotation of the motor pinion 27 may be transmitted to the drum 11 to cause the latter to move contact fingers 9 into engagement with contact fingers 10. The weight of the segmental gear 28 is such that when the electric 40 motor device is deenergized the rotor, connecting links and drum 11 will be moved backward to disengage contact fingers 9 and 10. The rotation of the drum 11 may be limited by means of suitable stops, such for 45 example as screws 35 and 36 in the motor housing.

Although in the arrangement illustrated in the drawings all of the pairs of contact fingers 9 and 10 are disengaged when the 50 electric motor device 26 is deenergized, and are moved into engagement when the motor device is energized, I do not wish to limit myself to this specific arrangement, for the arrangement may equally well be such that 55 certain pairs of contact fingers are normally in engagement, and are moved out of engagement when the motor device is energized.

Various other changes may be made in the arrangement and structure of the parts of 60 the relay within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

65 1. A circuit controller comprising a plu-

70 rality of radially disposed contact fingers, an oscillating drum located at the center and having means for permanently engaging the said contact fingers, and an electric motor device operatively connected with the said drum.

2. A circuit controller comprising a circular contact carrier, a plurality of contact fingers mounted in said carrier to project 75 radially toward the center thereof, and an oscillating drum located at said center and having means for permanently engaging said contact fingers to move the fingers into and out of contact.

3. A circuit controller comprising a circular contact carrier, a plurality of stationary contact fingers and a plurality of movable contact fingers mounted in said carrier to project radially toward the center, an 80 oscillating drum mounted at the said center; and means carried by said drum for permanently engaging the movable fingers to shift said movable fingers into and out of contact with the said stationary fingers. 85

4. A circuit controller comprising a circular contact carrier, a plurality of stationary contact fingers and a plurality of movable contact fingers mounted in said carrier to project radially toward the center, an 90 oscillating drum mounted at the said center, and means carried by said drum for grasping the ends of the movable contact fingers for shifting said movable fingers into and out of contact with the said stationary 95 fingers. 100

5. A circuit controller comprising a circular contact carrier, a plurality of stationary contact fingers and a plurality of movable contact fingers mounted in said carrier to project radially toward the center, an 105 oscillating drum mounted at the said center, and slots in said drum adapted to engage the ends of the movable contact fingers for shifting said movable fingers into and out of contact with the stationary finger. 110

6. A circuit controller comprising a circular contact carrier, a contact finger, a stirrup secured to the contact finger, and a bolt in the contact carrier having a head adapted 115 to engage the stirrup.

7. A circuit controller comprising a circular contact carrier, a contact finger, a stirrup secured to the contact finger and having 120 an overhanging edge, and a bolt in the contact carrier having a head adapted to engage the overhanging edge of the stirrup.

8. A circuit controller comprising a circular contact carrier, a plurality of contact fingers mounted therein to project radially toward the center, each of which fingers is 125 adapted to engage with an adjacent finger, and an oscillating drum at the center adapted to permanently engage certain of the fingers to move such fingers into and out of contact with the other fingers. 130

9. A circuit controller comprising a circular contact carrier, a plurality of contact fingers mounted therein to project radially toward the center, and an oscillating drum
5 at the center adapted to permanently engage alternate fingers to move such fingers into and out of contact with the other fingers.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN P. COLEMAN.

Witnesses:

J. S. NORSON,
M. D. HANLON.