D. W. GRAZIER.

CONTROLLER OR FLASHER FOR ELECTRIC SIGNS.

APPLICATION FILED MAY 11, 1918.

1,402,927.

Patented Jan. 10, 1922.

3 SHEETS—SHEET 1.

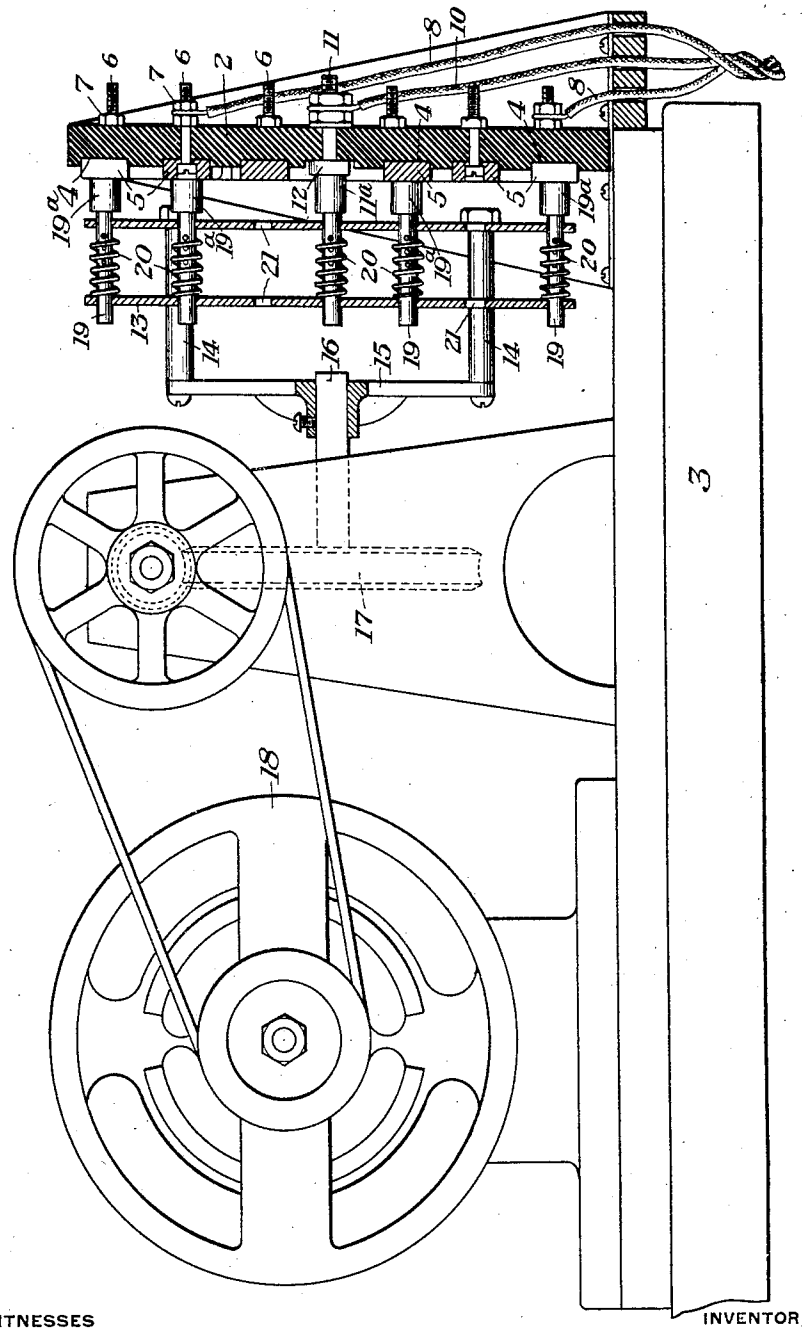


Fig. 1.

WITNESSES

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3 SHEETS—SHEET 2.

Fig. 3.

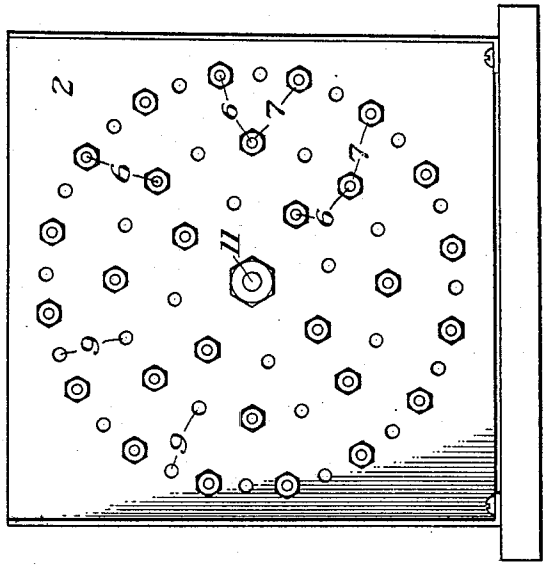


Fig. 4.

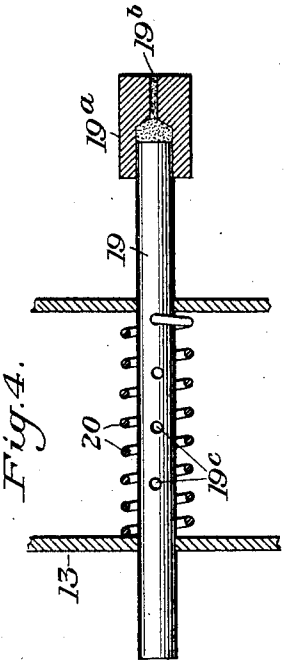
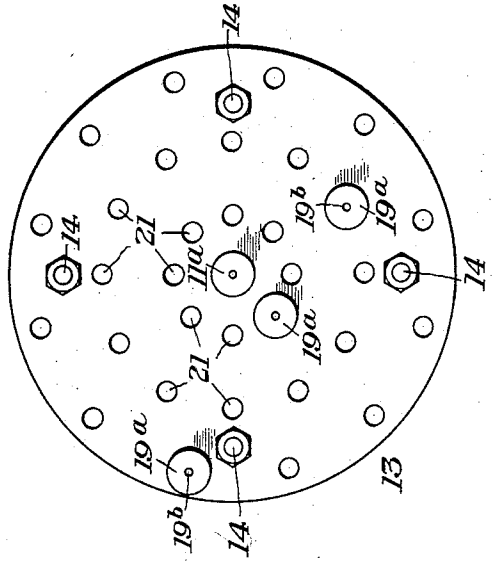


Fig. 2.



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3 SHEETS—SHEET 3.

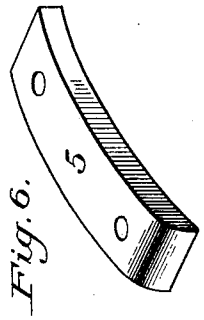


Fig. 6.

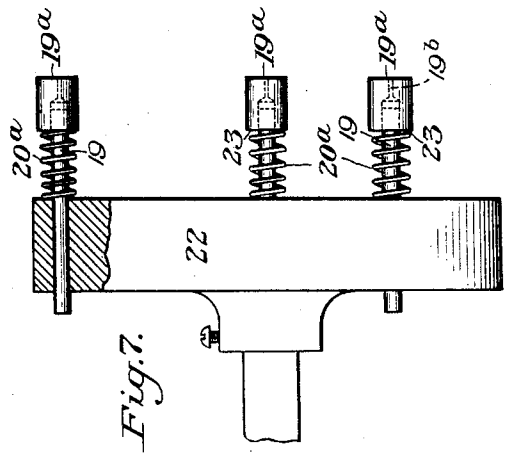


Fig. 7.

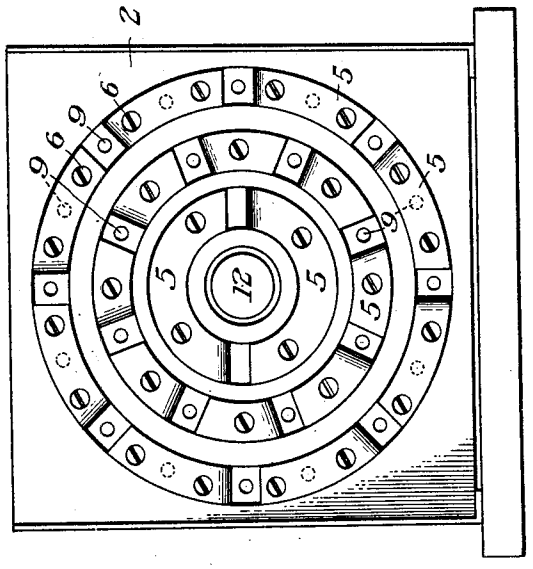


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

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CONTROLLER OR FLASHER FOR ELECTRIC SIGNS.

1,402,927. Specification of Letters Patent. Patented Jan. 10, 1922.

Application filed May 11, 1918. Serial No. 233,934.

To all whom it may concern:

Be it known that I, DORÉ W. GRAZIER, a citizen of the United States, and a resident of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Controllers or Flashers for Electric Signs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which:—

Figure 1 is a view partly in elevation and partly in vertical section of one form of apparatus embodying my invention.

Figure 2 is a plan view of the rotary contact carrier.

Figure 3 is a plan view, or elevation, of the rear side of the fixed contact carrier.

Figure 4 is a detail sectional view of one of the contact plungers or pins.

Figure 5 is a similar plan view, or elevation, of the contact carrying side of the fixed carrier.

Figure 6 is a detail perspective view of one of the relatively fixed contacts; and

Figure 7 is a side view partly in section of a modified form of rotary contact carrier.

My invention has relation to controllers or flashers for electric signs; and is designed to provide a simple and inexpensive apparatus of this character which is efficient and durable in its action; and in which the arrangement of contacts can be conveniently and quickly changed to vary the effects produced, or to adapt the apparatus to signs of different characters.

The nature of my invention will be best understood by reference to the accompanying drawings in which I have shown a preferred embodiment thereof and which will now be described, it being understood, however, that various changes may be made in the details of construction and arrangement of the various parts without departing from the spirit and scope of my invention, as defined in the appended claims.

In these drawings, the numeral 2 designates a fixed contact carrier which is supported preferably in an upright position on a suitable base 3 and which is of insulating material. Formed in one face of this carrier are a plurality of concentric circular grooves 4, each of which is adapted to seat therein a plurality of segmental contacts 5 of conducting material. In the particular embodiment of my invention shown in the drawings, I have shown three of these concentric grooves with a plurality of contacts in each groove, the contacts in the three grooves being shown as of different lengths, but of the same length in each particular groove. It will be understood, however, that the number of grooves may be varied in accordance with the requirements and that the length of the contacts may be equal or unequal, according to the requirements of the sign to be flashed. The contacts are shown as being secured in place by means of screws 6 which are extended through the carrier 2 sufficiently to permit any of them to receive an additional nut 7 to thereby form a binding post for an electrical connection 8 forming one side of the particular circuit to be controlled by that contact. Each of the grooves is provided with a plurality of holes 9 to receive these screws, thereby providing for different arrangements of the contacts within the grooves.

10 designates a connection with the opposite side of the circuit and leading to a central binding post 11, carried by a central contact 12. I do not limit myself to this particular method of establishing connection with the opposite side of the circuits.

13 designates a rotary contact carrier which, in the form shown in Figure 1, consists of two plates of conducting material which are spaced apart and secured by the posts 14. These posts are carried by a spider 15 which is secured to a shaft 16 driven through the medium of any suitable gearing 17 from an electric motor 18. Slidably mounted in the carrier 13 are a plurality of plunger contacts 19, these contacts being arranged in concentric circles corresponding to the arrangement of the fixed contacts with which they are adapted to co-operate with a central plunger 11^a adapted to bear upon the contact 12. Each of the plungers is provided with a spring 20 which tends to maintain it in contacting position. The carrier 13 is provided with a plurality of holes 21 of a character to receive and seat the plungers, whereby the number of plungers used may be varied and also their spacing, thus giving means for varying the time interval between successive contact engagements.

I preferably form the contact portion 19^a of each plunger as a separate piece (see Fig. 4) which can be removed and replaced when worn. I also preferably provide the portion 19^a with one or more small openings

19[b] leading from the inner portion of the cavity which fits the spindle through to the contact face. This opening, together with the inner portion of said cavity, I pack with graphite paste, or other suitable lubricant. The effect of the lubrication thus provided is greatly to reduce the wear on the contact face.

In order to produce varying effects in a given sign without changing the arrangement of the fixed contacts, one or more of the pins or plungers 19 may at any time be held out of action by drawing it back against its spring 20, and inserting a pin through one of the holes 19[c] back of the plate 13.

In the modification shown in Figure 7 the rotary contact carrier 22 is shown as consisting of a solid piece of conducting material and the plunger springs 20[a], instead of being seated within the carrier, as in the form first described, are seated between the face of the carrier and the shoulders 23 on the plungers.

The operation will be readily understood. The particular sign circuits to be controlled are connected to the proper fixed contacts, the remaining contacts being idle. The plunger contacts are properly spaced to agree with the particular sign and the effects to be produced. It will be readily seen that as the rotary contact carrier turns, the respective plungers will, as they come into engagement with the successive active fixed contacts, close the respective sign circuits during certain time intervals determined by the lengths of the fixed contacts.

The advantages of my invention will be apparent, since it provides a sign flasher which is simple in its construction and mode of operation, which requires but little attention when in operation, which is not affected by wear, and which provides ready changing to suit different patterns or to vary the effects produced.

I claim:

1. A flasher for electric signs, comprising a fixed contact carrier having a plurality of concentric circular grooves therein, relatively adjustable contacts seated in said grooves and having means for their connection with separate electric circuits, and a rotary contact carrier having a plurality of contacts adapted to co-operate with the relatively adjustable contacts and having electrical connection with the opposite side of the circuits to be controlled; substantially as described.

2. A flasher for electric signs, comprising a plurality of fixed contacts arranged in different concentric circles and each having means for connection with one side of an electric circuit, and a co-operating rotary contact carrier having a plurality of co-acting contacts also arranged in concentric circles and in electrical connection with the opposite side of the circuits to be controlled, the rotary carrier having means whereby the number and spacing arrangement of said contacts may be varied; substantially as described.

3. A flasher of the character described, comprising a contact carrier having a plurality of grooves formed therein, relatively adjustable contacts secured in said grooves, a second contact carrier having a plurality of relatively adjustable contacts adapted to co-operate with said adjustable contacts, and means whereby any one of the contacts on said last named carrier may be held out of contact position, substantially as described.

4. A flasher for electric signs, comprising a plurality of relatively adjustable contacts arranged in different concentric circles and each having means for connection with one side of an electric circuit, and a cooperating rotary contact carrier having a plurality of co-acting contacts also arranged in concentric circles, and in electrical connection with the opposite side of the circuits to be controlled, said contact carrier having means thereon for the reception of additional contacts and providing for the adjustment of any of the contacts thereon, substantially as described.

5. A flasher for electric signs, comprising a plurality of relatively adjustable contacts arranged in different concentric circles and each having means for connection with one side of an electric circuit, a cooperating rotary contact carrier having a plurality of openings therein, said carrier having a plurality of contacts removably secured in certain of said openings whereby their number and arrangement can be varied at will, and means for connecting each of said last mentioned contacts with the opposite side of the circuits to be controlled, substantially as described.

6. A flasher for electric signs, comprising a plurality of relatively adjustable contacts arranged in different concentric circles, each contact having a common means for holding the same in adjusted position and for connection with one side of an electric circuit, a cooperating rotary contact carrier having a plurality of yielding co-acting contacts also arranged in concentric circles and in electrical connection with the opposite side of the circuits to be controlled, and means for varying the number and arrangement of said yielding contacts, substantially as described.

7. A flasher for electric signs, comprising a fixed carrier having a plurality of contacts arranged in different concentric circles thereon, and each having means for connection with one side of an electric circuit and a cooperating rotary contact carrier having

a plurality co-acting contacts also arranged in concentric circles and in electrical connection with the opposite side of the circuits to be controlled, the said fixed and rotary contact carriers both having means whereby the arrangement of any one of the contacts may be changed relatively to the others, substantially as described.

8. A flasher of the character described, comprising a contact carrier having a plurality of grooves formed therein, independently relatively adjustable contacts secured in each of said grooves, each of such grooves having means cooperating with the contacts for holding the same in adjusted position and means on each of the contacts cooperating with said means and forming means for connecting the contacts in circuit as required, substantially as described.

In testimony whereof, I have hereunto set my hand.

DORÉ W. GRAZIER.