July 10, 1923. 1,461,207

F. J. BONK ET AL

AUTOMATIC ELECTRIC CIRCUIT CONTROL MECHANISM

Filed Dec. 19, 1921

Fig. 1.

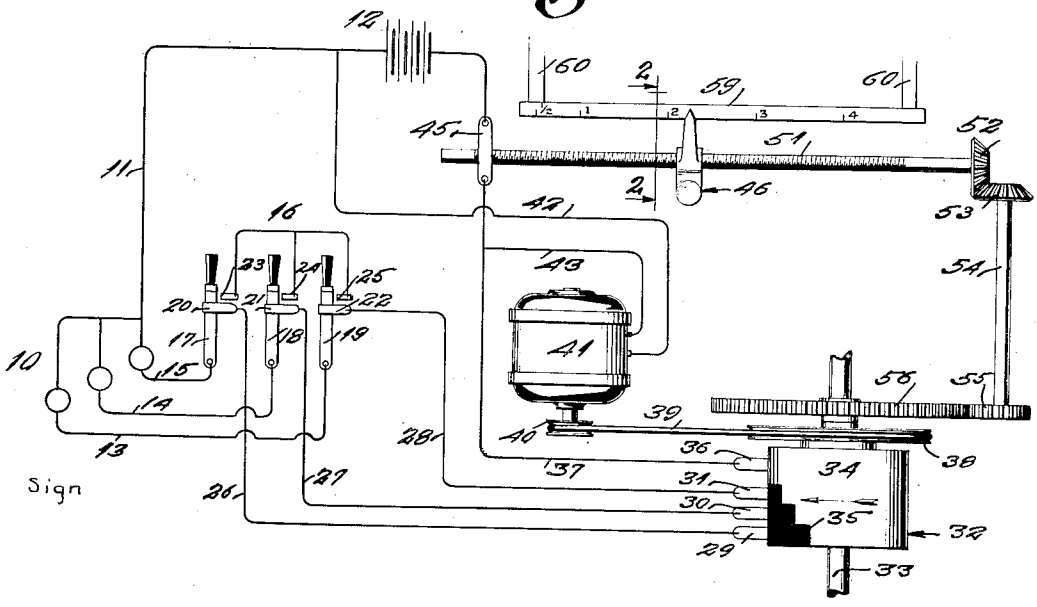
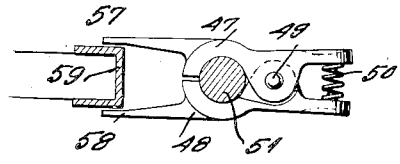


Fig. 2.



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Patented July 10, 1923. 1,461,207

UNITED STATES PATENT OFFICE.

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AUTOMATIC ELECTRIC-CIRCUIT-CONTROL MECHANISM.

Application filed December 19, 1921. Serial No. 523,468.

To all whom it may concern:

Be it known that we, FRANK J. BONK and ARTHUR W. STEWART, both citizens of the United States, and residents of Ripon, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Automatic Electric-Circuit-Control Mechanism; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to an electric sign flasher, and has for its principal object to provide for a type of the same embodying a novel arrangement for automatically stopping the device at the end of a predetermined period of operation.

Another object of our invention is to provide for a device of the class mentioned, and one embodying a novel means for effecting a setting of the same for any desired period of operation, whereby to adapt it for a comparatively wide range of uses, and correspondingly for all seasons of the year.

A further object of the invention is to provide for a flasher device of the class mentioned, and one embodying a switching mechanism of novel form, whereby all of the lights or characters of the sign may be flashed simultaneously, or unit sections of lights thereof, or individual lights of the same may be separately and individually flashed, as may be desired.

With the foregoing and other objects in view, the invention resides in the certain novel and useful construction and arrangement of parts and circuits as will be hereinafter more fully described, set forth in the appended claim, and illustrated in the accompanying drawing, in which:—

Figure 1 is a diagrammatical plan view of the mechanism and the circuits thereof, and

Figure 2 is a transverse section taken on the line 2—2 of Figure 1.

Referring to the drawing in detail, the numeral 10 indicates an electric sign of three light units having common connection to a conductor 11 leading to one terminal of a battery or source 12, and each individually connected, by means of conductors 13, 14 and 15 to a suitable switching device or mechanism 16, which consists of pivoted switch blades 17, 18 and 19 respectively, cooperative with main contacts 20, 21 and 22, and auxiliary contacts 23, 24 and 25. The main contacts 20, 21 and 22 are connected, by means of conductors 26, 27 and 28, respectively, to brushes 29, 30 and 31 arranged in contact with a make and break contact cylinder 32 which is mounted for rotation on a shaft 33, and which is formed to provide a major contacting surface 34 and an insulated surface 35, the latter being stepped complementally with respect to the brushes 29, 30 and 31, substantially as shown, the surface 34 being contacted at all times by a brush 36 connected, by means of a conductor 37, to the other terminal of the battery 12.

For rotating the contact drum or cylinder 32, the shaft 33 has keyed on the same a pulley 38 which is driven by means of an endless belt or the like 39 from a pulley 40 mounted on the free end of an electric motor shaft 41, the motor being connected, by means of a conductor 42, to the same terminal of the battery 12 as that to which the conductor 11 has been attached, and by means of conductor 43 to the conductor 37 leading to the other terminal of the battery.

With the devices connected in the foregoing manner, and the circuits closed to the motor 41, the drum or cylinder 32 will be rotated, and the light units of the sign 10 flashed intermittently and in sequence one with respect to the other. However, if it is desired to flash the three light units simultaneously, the switch blades 17, 18 and 19, which may be arranged for separate operation as shown, or simultaneously operated together as by being suitably connected together for the purpose, will be moved to the auxiliary contacts 23, 24 and 25 for such purpose, the latter being connected in parallel one with the other, whereby current will flow to all of the light units at one time.

For setting the flashing device or mechanism thus provided, for operation for a predetermined length of time, and for automatically opening the circuit to both the motor 41, the contact drum or cylinder 32, and the sign 10 at the end of such period of time, a switch device 45 is interposed in the conductor 37, and the same is to be automatically opened for such purpose by means of a movable member 46, which is in the nature of a clip formed to provide a pair of jaw members 47 and 48 pivoted together,

as at 49, and tensioned, by means of a coiled spring 50 at one side of the pivot 49 to have the jaws proper thereof engaged on a screw threaded shaft 51, the inner surfaces of the jaws being complementally threaded so as to move along the shaft 51 when the same is rotated.

The shaft 51 is driven through the medium of a bevel gear 52, keyed at one end thereof, and arranged in mesh with a bevel gear 53 carried on a counter shaft 54, which in turn, is driven through the medium of a gear 55 arranged in mesh with a larger gear 56 keyed on the contact drum or cylinder shaft 23.

The jaws 47 and 48 are formed to provide forwardly extended portions 57 and 58 arranged in straddling relation with respect to a bar 59 which is disposed in parallel relation with respect to the screw shaft 51, and held in proper position by suitable supports 60. The upper face of the bar 59 is graduated into a time period scale in hours, and fractions thereof, and the jaw 57 has its outer end pointed to facilitate the accurate setting of the same in registry with any one of the several scale graduations, as may be determined upon for the desired period of operation of the motor 41 and the sign 10.

In the operation of the flasher device thus provided the pointed end of the jaw 57 is set in registry with a desired graduation on the bar 59, by spreading the jaws apart and moving the same along the screw shaft 51, when upon the closing of the switch 45, the motor 41 will act to drive the shaft 33 for the rotation of the contact drum or cylinder 32 and the screw shaft 51. With the switch blades 17, 18 and 19 closed onto the main contacts 20, 21 and 22, respectively, the light units of the sign 10 will be separately flashed one after the other in the sequence of the brushes 29, 30 and 31 alternately wiping over the contacting and insulated surfaces 34 and 35 of the contact drum or cylinder 32. By moving the switches 17, 18 and 19 onto the auxiliary contacts 23, 24 and 25, all of the light units will be flashed at the one time, and not separately as in the first instance.

Upon the rotation of the screw shaft 51, the member 46 will move along the same and will, at the end of the set period of time, strike the switch 45 and, will open the circuit to the motor 41, and to the drum and sign circuits, when the device or mechanism as a whole will cease to operate.

From the foregoing, it will be readily apparent that the invention provides for a comparatively simple and inexpensive flasher mechanism, automatic in operation, such as renders it unnecessary to provide an attendant or watchman for stopping the same, or for cutting off of the electric current to the sign, as has heretofore been the practice, especially when it has been desired to have a sign continue in operation until late at night and after the closing hours of business.

It is well understood that while a preferred embodiment of our invention has been described and illustrated herein in specific terms and details of construction and arrangement of parts, electrical devices and circuits, various changes in and modifications of the same may be resorted to without departing from the spirit of the invention, or scope of the claim appended hereto.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is:—

In a sign flashing mechanism, a contact drum, a motor for actuating said drum, a source of current supply connected in circuit with the sign, said drum and said motor, a switching device connected in the circuit, a screw shaft driven from said motor and simultaneously with said drum, a threaded member predeterminately mounted on and movable by said shaft for actuating said switching device for effecting the opening of the circuit after a predetermined time period of operation of said flashing mechanism, and a bar extending parallel to said shaft and having scale graduations thereon in hours and fractions thereof for the setting of said detent for predetermined periods of operation of said flashing mechanism.

In testimony that we claim the foregoing we have hereunto set our hands at Ripon, in the county of Fond du Lac and State of Wisconsin.

ARTHUR W. STEWART.
FRANK J. DONK.