Sept. 29, 1931. D. E. WESCOTT 1,824,973

UNITARY TRAFFIC CONTROL

Filed Dec. 20, 1926

Fig. 1.

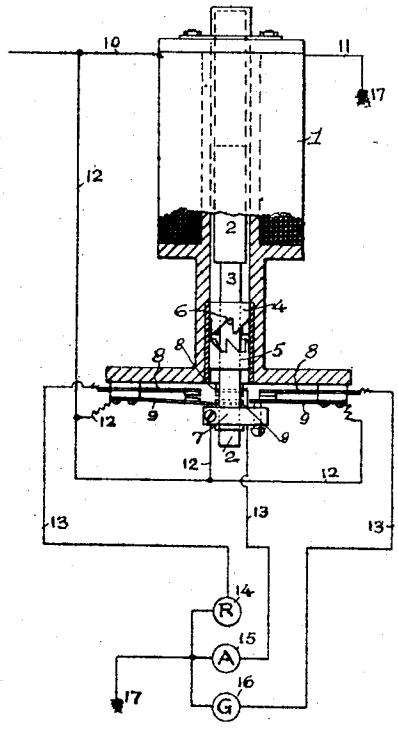
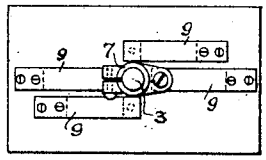


Fig. 2.



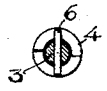


Fig. 2a

Dana E. Wescott Inventor

N. S. Amstutz

Attorney

Patented Sept. 29, 1931 1,824,973

UNITED STATES PATENT OFFICE

DANA E. WESCOTT, OF SOUTH BEND, INDIANA, ASSIGNOR TO SOUTH BEND CURRENT CONTROLLER COMPANY, A FIRM COMPOSED OF DANA E. WESCOTT, SOLE TRADER

UNITARY TRAFFIC CONTROL

Application filed December 20, 1926. Serial No. 155,848.

My invention relates to improvements in unitary traffic controls, and it more especially consists of the features pointed out in the annexed claim.

The purpose of my invention is to provide a unitary control for traffic signals, etc., which is exceedingly simple in construction, in operation and up-keep; that uses only a single control wire in contrast to the usual four and six wire systems; that is reliable under all working conditions; that is positive in action; that may be connected to either one of the leads in a three wire A. C. circuit whose neutral is grounded, or any other source of current; and that because of its dependability avoids traffic jams frequently experienced with inefficient traffic controls as installed heretofore.

With these and other ends in view, I illustrate in the accompanying drawings such an instance of adaptation as will disclose the broad underlying features of my invention without limiting myself to the specific details shown thereon and described herein.

Figure 1 is an elevation in partial section of a control solenoid, showing diagrammatic circuit relations.

Fig. 2 is a detached plan view of the signal lamp contacts and the contacting finger of Fig. 1.

Fig. 2*a* is a detached bottom plan view of the upper notched sleeve showing the cooperating cross pin which intermittently moves the selecting finger in a rotary direction.

In practically carrying out my unitary control system, I may use whatever alternative forms of construction the exigencies of different types of installations may demand without departing from the broad spirit of my invention.

The unitary controls or selectors 1 may be of any desired type of solenoid or any other form of magnetic actuating device which is served by a single wire 10 from a timing contactor 22 located at a central control station so as to simultaneously successively close the circuits of any number of interconnected signal lamps 14, 15 and 16 in orderly and recurring sequence. The solenoid exemplified in Fig. 1 has an armature 2 of permeable material adapted to move to and fro in the solenoid.

The armature has a non-magnetic stem 3 to which, at its lower end, the finger 7 is attached. The to and fro movement of the armature is translated into an intermittent repetitive rotary movement, in a step by step sequence, by means of a pin 6 secured crosswise of the armature stem 3 whenever current is sent to the solenoid 1 from the control station. Oppositely notched sleeves 4 and 5 surround the stem 3 and they are positioned respectively above and below the cross pin 6.

An inward movement of an armature 2 under a current impulse from the control station causes the attached cross pin to engage a pair of "saw tooth" notches formed on the under side of the sleeve 4. This produces a half-step rotation which at the end of the inward movement shifts the finger 7 toward one of the under springs 9 so as to press it against an upper contact spring 8 and thus close the circuit leading to the corresponding signal lamp. The finger 7 is clamped onto the stem 3 so that it may be adjusted to properly register with the notches of the sleeves 4 and 5 and the contact strips 9. It carries an adjustable screw for moving the lower contact strips 9 against the upper strip 8.

The springs 8 and 9 are insulated from each other. There are four under springs 9 and four upper springs 8. These, grouped in pairs, in cooperation with the finger 7, respectively serve a red traffic signal lamp 14, an amber lamp 15 and a green lamp 16 through separate wires 13 leading from springs 8 to the different lamps. One pair of springs is connected to a red lamp; the next pair, in a rotative sense, serves an amber lamp; the next pair a green lamp; and the next pair an amber lamp again, while a fourth movement of the finger 7 completes the entire revolution of the selector, thus again connecting a red lamp ready to intermittently repeat the cycle.

Each outward movement of the armature causes the cross pin 6 to engage a pair of

"saw tooth" notches formed on the upper edge of the sleeve 5 which shifts the pin 6 and the finger 7 forward another half-step, thus making a ninety degree change in position of these parts for each completed to and fro movement of the armature.

The details of this step and repeat action may of course be varied as desired. Any other order or sequence of signals may be used, as my invention in its broadest sense is not limited to traffic signal controls. The simplicity of its single wire hook-up adapts it to any other purpose in which selective signalling or the intermittent remote control, from a central point, of any desired mechanisms or devices are used.

My unitary control device may be used to singly control any one device, or a plurality of the controls or selectors may be operated simultaneously to successively supply current to traffic signal lamps over any desired area. It is not always necessary to connect the controls 1 in parallel to a source of current as they may also be connected in series if found desirable.

The contact springs 9 of each control may be supplied with current in common by a wire 12 connected to the single line 10. The wires 12 lead to the respective springs 9, so that whenever a finger 7 successively moves springs 9 into contact with springs 8, current will flow over wires 13 to the respective signal lamps 14, 15 and 16 or other utilities, and from thence to any form of ground connection 17. Should a group of controls for any reason get out of step, any kind of a resetting switch may be used to restore the orderly progression of the signals.

In contrast to the extreme simplicity of my system, the inevitable increase of wires with a four wire system is obvious. A further complexity and increased cost through the use of a six wire system inevitably follows. Both of these ordinary systems are entirely replaced by my single wire operation of separate controls.

The operation of my system is as follows: At the control station any desired form of timer of a well known type may be used. These devices permit of an adjustment of the signal lamp contacts so as to change the lighting duration of the red, amber and green lamps in respect to each other, according to the traffic regulations of different cities. When the "red" contact of the timer is in circuit, the single line 10 connected to all the selectors or controls 1 supplies current to all of them simultaneously without the use of extra accessories of any kind whatever. The next or "amber" contact of the timer similarly supplies current to all the connected amber lamps. The next contact of the timer places all the green lamps in circuit. Another shift of the timer again brings the amber lights into action as has already been described, and the next change of position of the timer contacts again lights the red signal lamps. Each of these successive connections of the timer are successively directed to the proper colored signal lamps through the step by step action of a single unitary selector 1 for each group of signals. Should for any reason more or less than three separate signals or devices be used, the notches in the sleeves 4 and 5 would be varied in number accordingly.

As this invention is of commanding importance through the elimination of complicated and expensive circuit relations used heretofore, which through inherent weakness frequently cause annoying and expensive traffic jams, its features are claimed in the broadest interpretative sense.

What I claim is:

A control switch comprising a solenoid magnet, a tubular extension therefrom, a pair of oppositely notched sleeves entirely enclosed within the extension and positioned in spaced-apart relation from each other, a permeable core within the magnet, an extension of the core projecting through the notched tubes, a cross pin on the core extension operative between the notched tubes, a base through which the core extension projects, a plurality of narrow contact strips beneath the base arranged in pairs and side by side, an adjustable arm secured to the core extension at its lower end, coordinated with the notches and contact strips.

In testimony whereof I affix my signature.

DANA E. WESCOTT.