June 25, 1957 J. J. SCHUMACHER 2,797,400

TRAFFIC LIGHT CONTROL MECHANISM

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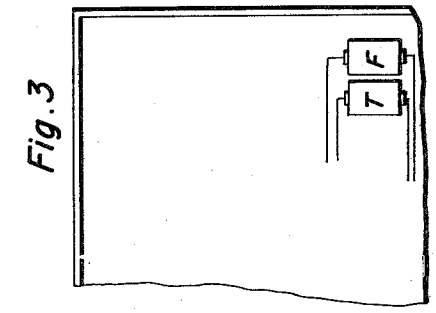


Fig. 3

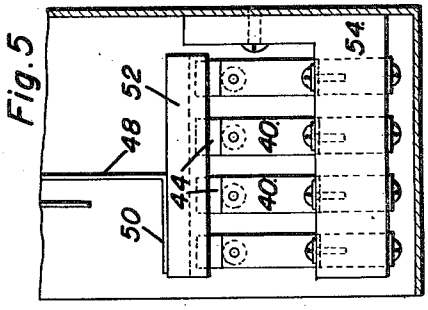


Fig. 5

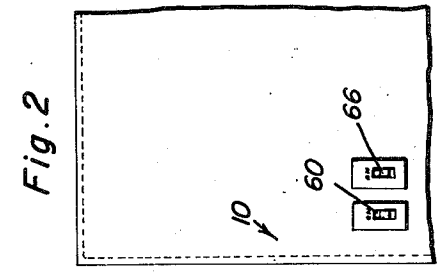


Fig. 2

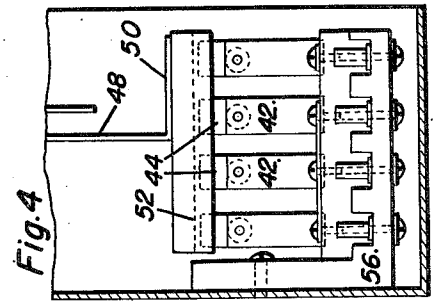


Fig. 4

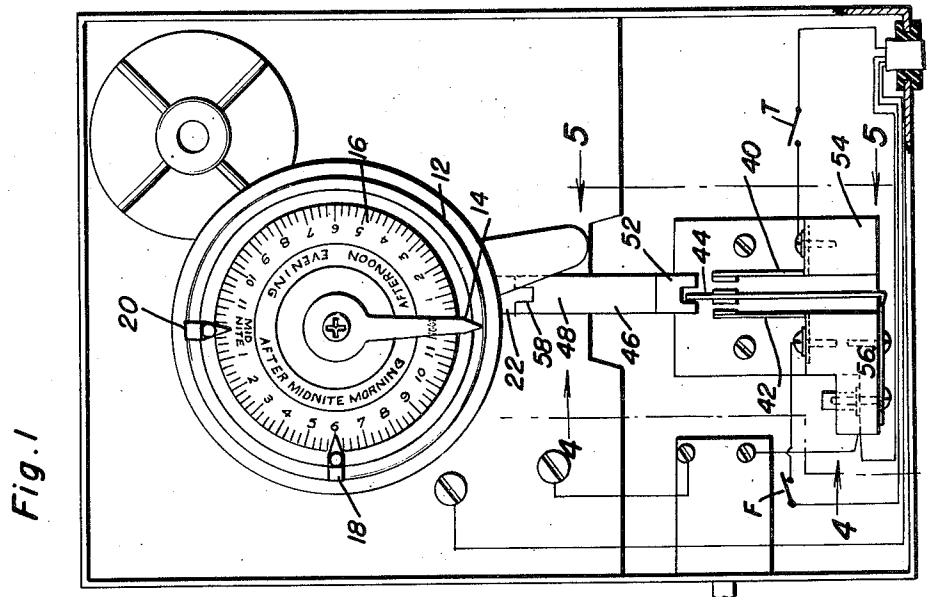


Fig. 1

10

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TRAFFIC LIGHT CONTROL MECHANISM

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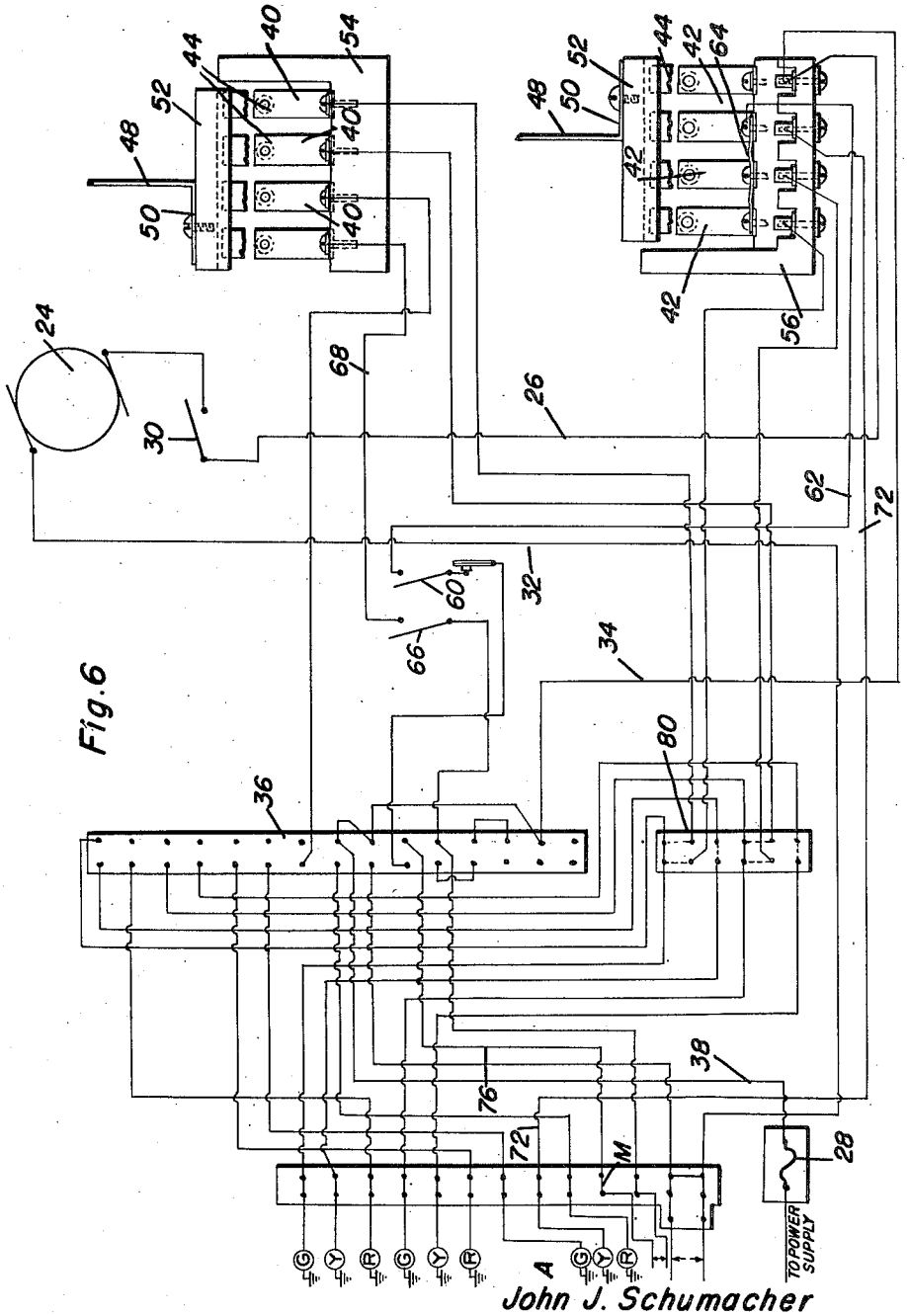


Fig. 6

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United States Patent Office 2,797,400 Patented June 25, 1957

2,797,400

TRAFFIC LIGHT CONTROL MECHANISM

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Application June 1, 1954, Serial No. 433,523

1 Claim. (Cl. 340—40)

This invention relates to a traffic light control mechanism for use in converting traffic light control systems for manual operation previously utilized in transferring the system from that of a sequential arrangement of "stop," "caution" and "go" lamps to that of a flashing "caution" or "stop" lamps during periods, especially at night, when traffic is at a minimum.

The device comprising the present invention comprises an adapter interconnecting the operating arm of a time clock such as the model TS 60 S. P. Inter-matic as manufactured by the International Register Co., of Chicago, Illinois. The invention is installed inside a time clock case of which the time clock is of conventional construction the adapter is installed in association with the time clock actuating arm normally used for switching. The invention provides mechanical means for automatically selecting either a sequential arrangement of "go," "caution," and "stop" lamps or flashing circuits.

Still further objects and features of this invention reside in the provision of an adapter for use in conjunction with substantially conventional traffic control systems which adapter is simple in construction and manufacture, can be readily utilized in conjunction with various types of timer clocks which is easy to install, and which will, because of its automatic operation reduce the time necessary for a police force of a municipality to properly maintain its traffic system.

These, together with the various ancillary objects and features of the invention which will become apparent as the following description proceeds, are attained by this traffic light control mechanism, a preferred embodiment of which has been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is an elevational view of the time clock case with the cover thereof removed illustrating the manner in which the adapter comprising the most important element of the present invention is interconnected with the timer clock and the sets of contacts;

Figure 2 is a partial front elevational view of the cover of the timer clock illustrating the traffic control switch and the flasher switch;

Figure 3 is an elevational view illustrating the traffic and flasher switches with the cover open;

Figure 4 is a sectional detail view as taken along the plane of line 4—4 of Figure 1 illustrating the sets of contacts associated with the flasher switch;

Figure 5 is a sectional detail view as taken along the plane of line 5—5 of Figure 1 illustrating the construction of the contacts associated with the traffic switch; and

Figure 6 is a circuit diagram of the traffic control system, but not showing the conventional cam unit consisting of a group of contacts for selecting the sequential operation of the traffic lights.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral **10** generally designates the timer clock casing which can

be mounted in any convenient position. Within the timer clock casing there is a timer clock mechanism **12** adapted to actuate a time indicator pointer **14** which is stationary. The clockwork mechanism of the clock timer **12** includes an indicator dial **16** which revolves clockwise. Cooperating with the indicator dial **16** is a pair of setting members **18** and **20** held in position by setscrews which when they contact the indicator pointer **14** the operating arm **22** of the clock timer **12** will become actuated. Attached to the operating arm **22** is an adapter **46** forming an important element of the invention.

As can be readily recognized the timer clock **12** actuates adapter **46** which disconnects cam unit, now shown, of a type GS 4 synchronous timer manufactured by the Crouse-Hinds Co., Syracuse, New York, which controls a plurality of contacts controlling operative electrical supply circuits to the individual lamps of the traffic light being controlled by this device. These auxiliary circuits which combine with the circuitry shown in Figure 6 are not shown inasmuch as they are a part of the type GS 4 synchronous timer.

The timer clock **12** is driven by a suitable synchronous type motor **24** receiving current through hot feed line **38** to suitable terminals on the controller plug in strip **36**, thence through line **34** to the contact **44**, and then through line **34** to the single pole toggle switch **30**. Line **32** is a common or ground line which is connected at the main terminal connection bar and is connected to motor **24**.

It is to be noted that there are mounted in association with the timer clock **12** opposed sets of contacts **40** and **42**. The arrangement of the contacts **40** and **42** is conventional and a third set of contacts previously designated **44** which is normally manually operated is automatically directed into engagement with either set of contacts **40** or the set of contacts **42** by operation of the operating arm **22**. This is because there is provided an adapter **46** which consists of a downwardly extending shank portion **48** adapted to be attached to the operating arm by means of recess **58**. The shank portion terminates in a substantially horizontally extending portion **50** carrying an inverted channel-shaped member **52** of insulating material which is adapted to engage over the upwardly extending ends of the sets of contacts **44**. The member **52** is fastened to the adapter **46** by means of a small machine screw on the bottom side of the portion **50**.

It is to be recognized that the contacts **40** and **42** are mounted and insulated by a suitable insulating mounting block having portions designated **54** and **56** respectively. The contacts **44** extend outwardly from the mounting block **56** but are insulated from the set of contacts **42**. It is noted that the upper end of the shank **48** may be provided with a recess **58** therein for reception of the lower end of the operation arm **22** or may be otherwise attached to the operating arm **22**.

Connected to the contacts **42** is a flasher switch F operated through a toggle **60** mounted on the casing **10**. As can be readily seen the flasher switch is connected through the conductor **62** to the set of contacts **42** which are interconnected by a conductive plate **64** and is then connected to the traffic controller plug in strip **36** and from there to the GS 4 type traffic controller.

A traffic switch T controlled by means of a single pole toggle switch **66** is interconnected through conductor **68** to contacts **40** from the plug in strip **36**.

The switches **60** and **66** are interconnected through the respective conductors for the reason to turn off the current to either the flashing or the traffic sequence circuits whenever it is needed and still not interrupt the synchronous timing of the other traffic lights at the next intersections, whether it be for service or otherwise.

Hence utilizing the present invention, with for example the setting member **20** set at midnight and the setting member **18** set at 6:00 A. M. as is shown on dial **16**, when the clock motor **24** is energized dial **16** will start to revolve, this moving member **20**, the first one to line up with the time indicator pointer **14**, this will actuate arm **22** which will urge the adapter **46** to cause the **44** contacts to engage with **42** contacts, his will cause an operative electrical circuit to be completed to the flashing unit in the GS4 traffic controller, and open the circuits that control the cam unit, thus selecting the flashing lamps, now when the time has elapsed so as to bring member **18** in line with the time indicator pointer **14**, this will again actuate arm **22** which urges adapter **46** back to the opposite side moving the contacts **44** so as to make contact with the contacts **40**, this then opens the flashing circuit, and completes the circuits to the cam unit in the GS4 flashing circuit, and completes the circuits to the cam unit in the GS4 traffic controller for the traffic sequence, "go" "caution" "stop" lamps.

As can be readily seen in the wiring diagram shown in Figure 6, an operative electrical circuit is completed from the amber main street light indicated at A through conductor **72**, to the second from the front connection terminal of contact **44**, when contacts **44** are engaged with contacts **42** and as can be readily seen that contacts **42** are interconnected by a conductive plate **64**, this then completes the circuits through conductor **62** to the flasher control switch, thence to the position at the controller plug in strip **36** (plug in strip is the female receptacle, and the GS4 traffic controller has a male receptacle on the wiring harness that has to be plugged into plug in strip **36**), in order to complete all circuits to the different flashing lamps to be selected.

It is noted that the toggle switches **60** and **66** will be in the "on" position unless the traffic requires it to be any other way or the serviceman has to turn them off for some reason.

The manual connecting terminal M has two terminals, the line connected to the bottom terminal thence goes to the controller plug in strip **36**, where it interconnects with conductor **68**, and the **66** traffic control switch.

Now conductor **76** starts at the top M connection terminal and thence goes to the position on the controller plug in strip **36**, now again in order to complete any circuits the GS4 traffic controller has to be plugged into position into controller plug in strip **36**, the manual switch is left in an operative position and is not shown because this is conventional to the GS4 traffic controller, which the purchaser can have or do without also.

There is provided with all traffic control systems a jumper block **80** which has selective terminals with jumpers so that in lieu of the flashing amber light the flashing red light can be selected also.

Further it is to be recognized that this device may be utilized for more complicated systems having two cross street lamps instead of just one cross street lamp, which is the standard cross street intersection.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

In combination with a traffic light system having a master timer clock for controlling a sequential arrangement of actuation of "stop," "caution," and "go" signal lamps mounted on a series of traffic lights, said systems including a normal traffic control switch for connecting a first set of contacts with said traffic lights, said system further including a flasher control switch for connecting a second set of contacts with a flasher and said traffic lights, a third set of contacts being adapted to selectively contact said first set of contacts and said second set of contacts, said timer clock having an operating arm, and an adapter interconnecting said operating arm of said timer clock with said third set of contacts, said adapter including an upwardly extending shank, said shank being secured to said arm, a recess in the upper end of said shank for engagement with said operating arm, and a substantially inverted channel-shaped portion overlying said third set of contacts for simultaneous movement of said third set of contacts into selective engagement with said first set of contacts and said second set of contacts.

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