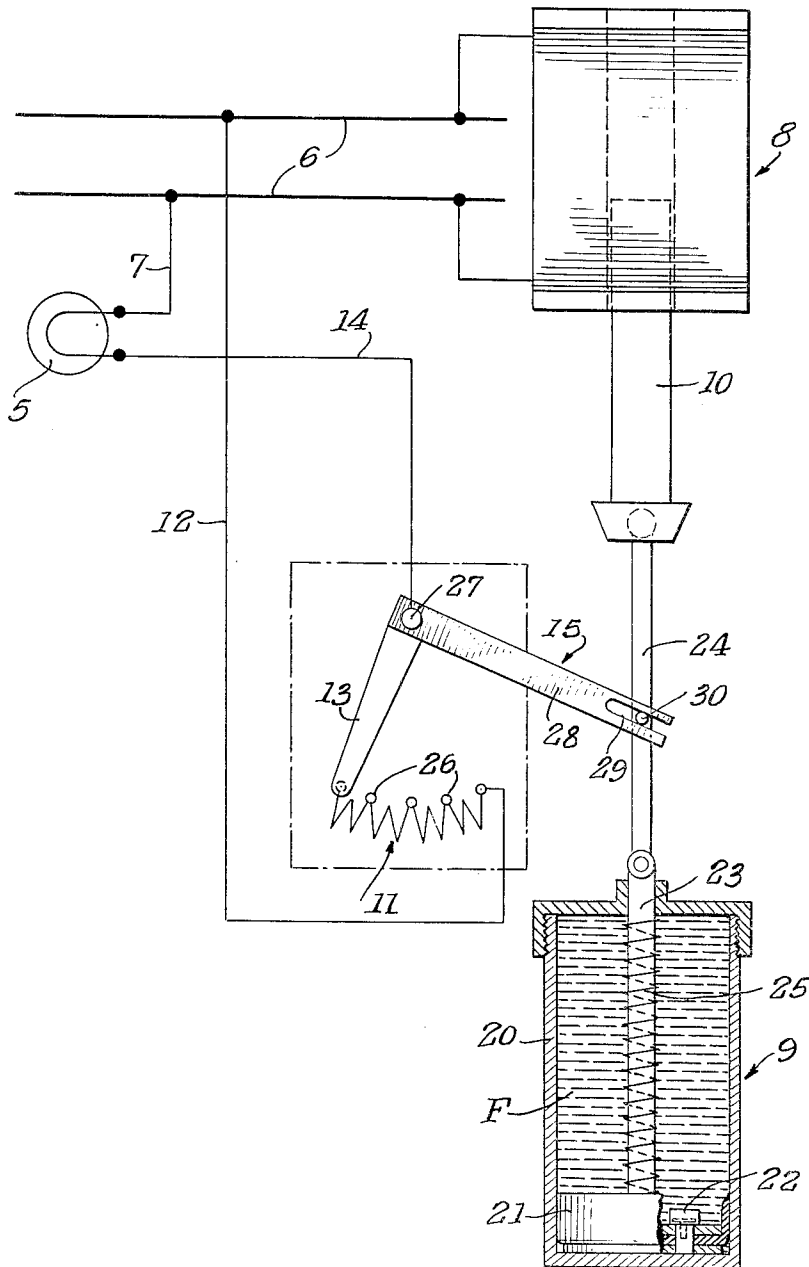


Aug. 29, 1961

L. J. MELLER
LIGHT-CONTROLLING MECHANISM

2,998,549

Filed July 27, 1959



INVENTOR.

LOUIS J. MELLER

BY

C. G. Stratton

ATTORNEY

1

2,998,549
LIGHT-CONTROLLING MECHANISM
 Louis J. Meller, 3462 Live Oak St.,
 Huntington Park, Calif.
 Filed July 27, 1959, Ser. No. 829,898
 4 Claims. (Cl. 315-311)

This invention relates to means for controlling the operation of a traffic signal light, particularly the amber of a traffic signal. The present means may be used also in connection with red or stop lights, as will become apparent.

The lights that control movement of vehicles through intersections usually are either fully lit up or completely dark. Especially with respect to amber and red lights, their sudden illumination frequently does not give a vehicle operator time to apply the vehicle brakes to prevent illegal entry into an intersection. Accordingly, an object of the present invention is to provide means for so controlling a traffic light that the same will illuminate gradually to full brightness. Thus, whether said means controls an amber light or a red light (if amber is not used), such light, by brightening slowly, serves notice on a driver to set his brakes and affords him opportunity to do so and come to a full stop when the light comes to full brightness.

More broadly stated, the invention has for an object to serve notice on the driver of a vehicle, in advance of full light brightness, that braking action should be immediately instituted to avoid traffic law infraction which may ensue from too late braking action.

A further object of the invention is to provide means including time delay for gradually increasing the brightness of illumination of a traffic light.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes, one embodiment of the present invention, which is given by way of illustration or example only.

The figure is a semi-diagrammatic view of light-controlling means according to the present invention.

The present control means is operatively associated with a light 5 that is illuminated by current from a line 6 (usually 120 volts) and which, in conventional ways, is energized and deenergized by time controlled means. A conductor 7 connects one pole of the light 5 with one side of the line 6. Said control means comprises, generally, a solenoid 8 in electrical circuit with said line 6 and energized only when said line is carrying current, a dash pot 9 constituting time delay means for controlling movement of the solenoid core or armature 10 during energization of the solenoid, an electrical resistance 11 connected by a conductor 12 to the opposite side of the line 6, a contact arm 13 connected by a conductor 14 to the other pole of the lamp 5 and engaged with the resistance, thereby placing said resistance in circuit with the lamp, and means 15 controlled by the solenoid and dash pot to move the arm 13 to vary the resistance in the lamp circuit.

The solenoid 8 may be generally conventional as may be the armature 10 thereof, it being clear that said armature, either by gravity or by biasing means, is projected when the solenoid is de-energized.

The dash pot also may be conventional of time delay

2

devices. As shown, the same comprises a cylinder 20 in which operates a piston 21 in a manner to displace fluid—either air or hydraulic liquid—from one end of the cylinder to the other. For this purpose, the piston may be provided with bypassing means 22 which may comprise a valve, a bleed orifice or a combination thereof. It will be clear that said means 22 allows the fluid F to move past the piston at a rate permitted by said means 22 as the piston is moved upwardly in cylinder 20. Other time delay bleed means may be employed. For instance, if air is the fluid used, a bleed valve may be provided in the lower portion of the cylinder 20, the same allowing slow ingress of air as the piston is being raised.

Regardless of the type of dash pot used, the piston rod or stem 23 is moved, as though the medium of a connecting rod 24, by the armature 10 when the latter is drawn upwardly into the solenoid. Thus, the piston 21, being retarded in such movement, causes a slow rise of rod 24. A spring 25 may be used to bias downwardly on the piston 21, as a substitute for the mentioned biasing forces on the armature.

The resistance is shown as an ordinary rheostat resistance with a series of terminals 26 that may be successively engaged by the contact arm 13. The latter is mounted to move on a pivot 27.

The means 15 comprises a dielectric arm 28 that has a slotted connection 29 with a pin 30 on the connecting rod 24. The arms 13 and 28 rock together on the pivot 27.

The light 5 is dark when there is no current flowing in line 6, the solenoid armature 10 is extended, and the piston 21 is in its low position in the dash pot. The parts of the mechanism are, therefore, in the positions shown in the drawing.

When the line 6 is energized, the light 5 will remain dark or, at best, will glow dimly because the full resistance 11 is in the lamp circuit. Since the solenoid will become energized, the armature will be magnetically drawn upwardly but, since the same is resisted by the dash pot 9, this movement is slow. As a consequence, the means 15 will cause commensurately slow movement of the arm 13 across the resistance terminals 26. Hence, the resistance will gradually cut out and the light 5 will become brighter accordingly. As this movement terminates, the full brightness of the light is achieved since all of the resistance has been cut out of the light circuit. The light will glow with full brightness until the line 6 is de-energized. The means 22 can be designed to permit a substantially instant return of the parts to the position of the figure or a slow return operation may be had. It is immaterial which is used because the light 5 darkens instantly the moment that the line 6 is de-energized.

While the foregoing specification illustrates and describes what I now contemplate to be the best mode of carrying out my invention, the construction is, of course, subject to modification without departing from the spirit and scope of my invention. Therefore, I do not desire to restrict the invention to the particular form of construction illustrated and described, but desire to cover all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what is claimed and desired to be secured by Letters Patent is:

1. In a signal light system having an electric current line and a signal light having one terminal thereof connected to one side of said line, the improvement that comprises a solenoid connected across said line and having a normally projected armature that is retracted only when the line carries current to the solenoid, a rod extension on the armature to move therewith, a dash pot connected to the rod having means providing rapid project-

ing movement of the armature and rod and slow retracting movement of said armature and rod, an electrical resistance connected to the other side of said current line, a pivoted contact engaged with the resistance and electrically connected to the other side of the signal light, and means interconnecting the rod and said pivoted contact to move said contact across the resistance to vary the same according to projection or retraction of the solenoid armature, said pivoted contact engaging said resistance to apply the full value of the resistance in said other side of said current line when the armature is in fully projected position from said solenoid and said pivoted contact being connected directly to said one side of said line when the armature is retracted into the solenoid whereby said lamp is caused to illuminate slowly during the slow retraction of said armature and the contact is caused to rapidly return to said position of full value of the resistance upon projection of said armature from said solenoid upon deenergization of the current line.

2. In a signal light system according to claim 1, the mentioned means comprising a dielectric arm on the pivot of the contact and fixedly connected to the contact, said arm having a slot in the end thereof, and a pin on the rod engaged in the slot.

3. In a control signal light system having an electric current line adapted to be energized by time controlled switching means and a signal light having one terminal thereof connected to one side of said line, the improvement that comprises a solenoid connected across said line and having a normally projected armature that is retracted only when the line is energized, a rod extension on the armature to move therewith, first means connected to said rod to retard movement of said armature through said rod during retraction thereof and causing rapid projection of said armature through said rod upon deener-

gization of said current line, an electrical resistance having a first connection with the other side of said current line, a contact engaging said resistance and electrically connected to the other side of the signal light, and means interconnecting the rod and said pivoted contact to move the contact from its normal position corresponding to full projection of said armature, wherein the contact engages the opposite end of said resistance whereby full resistance is inserted in series with said signal light when said contact is in said normal position and said interconnecting means causing said contact to slowly move to said first end of said resistance upon the slow retraction of said rod and armature to cause said signal light to slowly illuminate to full brilliance as resistance is reduced in circuit with said signal light.

4. In a signal light system according to claim 3 wherein said first means comprises a dash pot and said interconnecting means comprises a dielectric arm on the pivot of the contact and fixedly connected to the contact, said arm having a slot in the end thereof and a pin on the rod engaged in the slot.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 21,235	Eitzen	Oct. 17, 1939
686,974	Karr	Nov. 19, 1901
716,406	Gibbins	Dec. 23, 1902
1,231,964	Suchanek	July 3, 1917
1,702,997	Ewing	Feb. 19, 1929
1,942,268	Zeno	Jan. 2, 1934
2,764,648	Gascoine	Sept. 25, 1956
2,820,925	Schmidt	Jan. 21, 1958

FOREIGN PATENTS

615,013	France	Oct. 1, 1926
---------	--------	--------------