June 24, 1930. L. SWAM 1,765,508

TRAFFIC SIGNAL

Filed Oct. 10, 1929

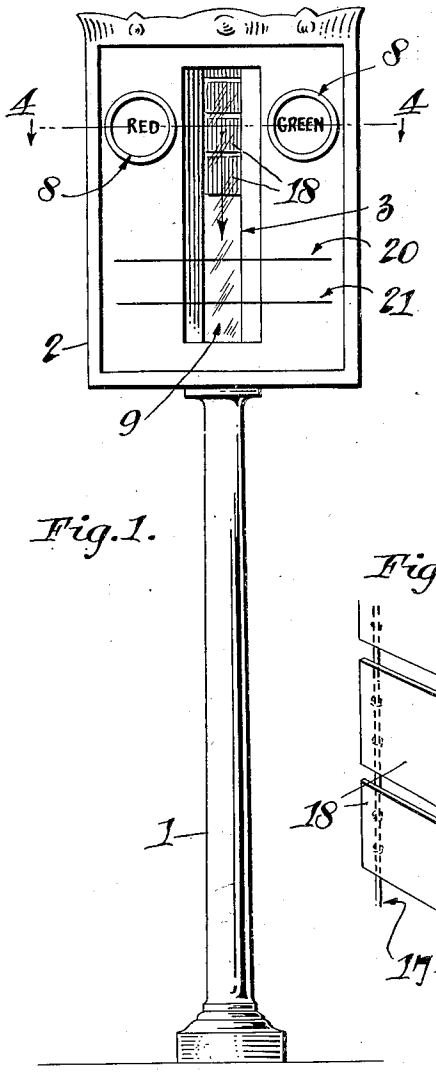


Fig. 1.

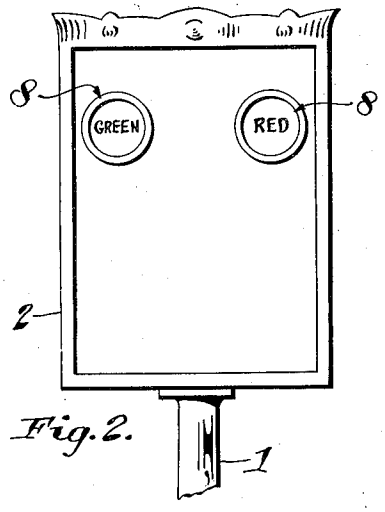


Fig. 2.

Fig. 5.

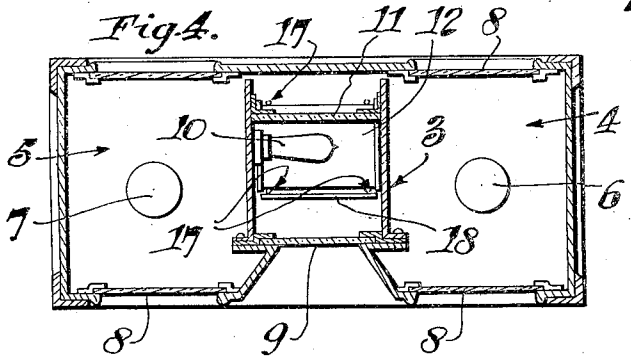


Fig. 4.

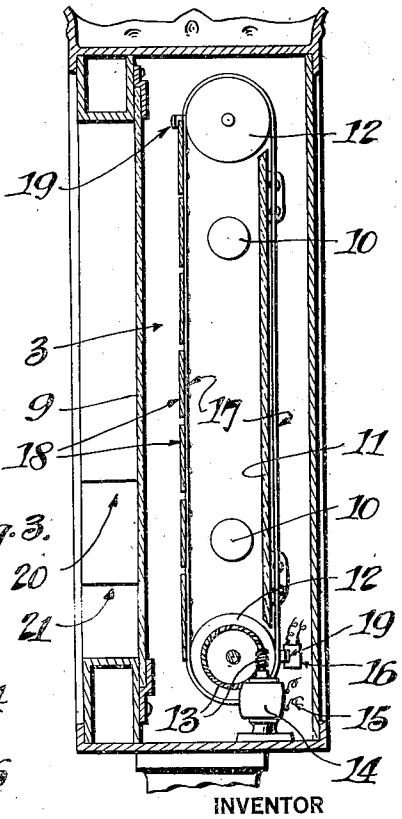


Fig. 3.

INVENTOR

Lois Swam.

BY S. George Tate

ATTORNEY

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LOIS SWAM, OF ST. LOUIS, MISSOURI

TRAFFIC SIGNAL

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This invention generally relates to traffic control signals of the type customarily provided at the corners of street intersections and which alternately display green and red lights for defining the intervals during which traffic may travel, or must halt to await the next travel signal change. In the use of this type of signal difficulties arise due to the failure to indicate the interval of time that a given light has continued its signalling function, and it is difficult, if not impossible, to determine whether or not it will be safe to enter an intersection while the travel signal light remains lighted if that light has been on display for any considerable interval before the attempt is made. This fault is particularly embarassing to pedestrians, who often enter an intersection on a clear signal only to have that signal change when they have but partially traversed the intersection, with the result that they are left unprotected in the changing traffic stream.

The invention primarily has for its object, therefore, the provision of a novel means for indicating to pedestrians and vehicular traffic the intervals of time during which it may be expected to remain on display, so that a person on foot or driving a vehicle may enter an intersection with reasonable certainty of his ability to completely traverse the intersection before the next traffic change.

In its more detailed nature the invention resides in the provision of a light having a time interval representing the time allotted to pedestrians and vehicular traffic to effect the crossing of an intersection in a given direction, and mechanical means effective during that interval to gradually block out that light, the continually increasing blocked-out part representing the portion of the time interval that has been spent, and the unblocked part representing the portion of the interval remaining and during which a crossing may still be attempted. Means is also provided for indicating that point at which it becomes unsafe to further attempt crossings on foot or in vehicles.

With these and other objects in view which will more fully appear, the nature of the invention will be more clearly understood by following the description, the appended claims, and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a face view illustrating a signal embodying the invention,

Figure 2 is a rear view,

Figure 3 is a central vertical cross section,

Figure 4 is a horizontal section taken on the line 4—4 of Figure 1, and

Figure 5 is a perspective view of a fragment of the shutter.

Like reference numerals designate corresponding parts throughout the several figures of the drawings:

In the drawings, 1 designates a standard upon which the signal head may be supported for suitable display. The head comprises a box-like casing 2 constructed to provide a central hollow column 3 which is flanked by red and green signal compartments 4 and 5 respectively, the latter housing the proper signal lamps 6 and 7. The casing is equipped with windows 8 through which the lights 6 and 7 may be displayed, and these lights may be lighted and time-controlled in the usual manner. The specific means for controlling the green and red signals form no part of my present invention and no further disclosure of these features need be made herein.

The interior of the column 3 may be viewed through a glass covered window 9, and a plurality of lights 10 (two being shown) are positioned in the column and are adapted to be lighted during each interval of green light display for a reason that will soon be explained. The number and color of the lights 10 is immaterial, in fact the now popular neon tube might be employed with facility. A reflector wall 11 is positioned behind the lights 10 so that their effect is augmented by the resulting reflection.

A spool or drum 12 is rotatably mounted in each of the upper and lower ends of the column 3 and said spools serve to mount an

endless shutter or light blocking device. Rotation may be imparted to one of the spools 12 by suitable power transmitting connections 13 from a reversible motor 14. The motor is connected in a suitable power circuit diagrammatically indicated at 15, and a suitable reversing switch may be employed for effecting a reversing of the direction of rotation of the motor at regular intervals. The switch may be of any suitable construction and is diagrammatically indicated at 16.

An endless belt or apron takes over the spools 12 and comprises a pair of spaced flexible wires or cables 17, the front flight passing in front of the reflector 11 and the rear flight passing to the rear thereof so as to be out of view. A plurality of thin opaque plates 18 are secured upon the wires and collectively provide a flexible shutter capable of being presented in front of the lights 10 to shut off the light emitted by them from the column 3.

A pair of contact members 19 may be carried by the wires 17 in suitable spaced relation so that one thereof will act to trip the motor reversing switch each time the shutter reaches an extreme position.

In operation, assuming the red light of the traffic signal to be lighted and its interval of lighted condition just about spent, the green light will be about to be lighted and the shutter will have about reached its fully retracted position with one of the contact members 19 about to actuate the motor reversing switch.

As the red light is extinguished and the green light brought into function, the contact 19 above mentioned actuates the reversing switch and reverses the motor 14 causing the shutter 17, 18 to start travel in the reverse direction.

It should be understood that the lights 10 are timed with the green light 7 to be lighted and extinguished over the same periods. As the opaque plates 18 pass downwardly, one by one, past the lights 10, they shut off the column of light emitted through the front window bit by bit. The lowermost plate will reach the bottom just as the next light change is about to take place, at which time the whole light column will have been closed off by the shutter plates.

Concurrently with the light change from green to red, the other contact member 19 will actuate the reversing switch to reverse the motor and cause the shutter to return to the starting point above mentioned while the red light is in function, the operation above described being caused to repeat itself as the next succeeding light change takes place.

Thus a person can, by watching the progress of the shutter plates 18 in obliterating the light column, readily observe how much longer the green light may be expected to remain lighted, and whether or not a safe crossing may be made at any given time.

To further facilitate this indication, pointers 20 and 21 may be affixed to the outer casing and placed to indicate the last points in the travel of the shutter at which crossings may be safely attempted by pedestrians and vehicles respectively.

It is of course to be understood that the details of structure and arrangements of parts may be variously changed and modified without departing from the spirit and scope of my invention.

I claim:

1. In a traffic signal, the combination of a clear travel signal operative at intermittent predetermined intervals, a signal light operative during the same intervals, a mechanical shutter, means to actuate the shutter to obliterate the light through gradual stages during each operative interval, and means to indicate the passage of a safety stage in the course of the light obliteration.

2. In a traffic signal, the combination of a clear travel signal operative at intermittent periods of predetermined length, a signal light column operative at intervals coincident with the travel signal intervals, an opaque shutter, and means to move the shutter in front of the light column to gradually block out the light emitted therefrom, said shutter comprising spaced wire bands and opaque plates carried thereby.

3. In a traffic signal wherein is provided a clear travel signal, a columnar casing having a window therein for emitting light, a light source in the casing, said clear travel signal and said light source being active at intermittent coincident intervals, a mechanical shutter, means to move the shutter to gradually close off said window, said moving means being timed to cause the closing off function to begin and end coincidentally with the beginning and ending of said intermittent coincident intervals, and a reflector wall behind said light source, said shutter comprising an endless apron having opaque plates attached thereto and having one flight disposed to travel between the light source and the window while the other flight travels behind the reflector wall.

4. In a traffic signal wherein is provided a clear travel signal, a columnar casing having a window therein for emitting light, a light source in the casing, said clear travel signal and said light source being active at intermittent coincident intervals, a mechanical shutter, means to move the shutter to gradually close off said window, and a reflector wall behind said light source, said shutter comprising an endless apron having opaque plates attached thereto and having one flight disposed to travel between the light source and the window while the other

flight travels behind the reflector wall, said moving means comprising a pair of mounting spools, a reversible motor connected to impart rotation to one of the spools, and means carried by the shutter to effect reversal of the motor at the commencement and conclusion of each coincident intermittent interval.

5. In a traffic signal, a columnar light source, a movable shutter disposed in two flights arranged at opposite sides of the light source, and means to move the shutter flights in reverse directions.

6. In a traffic signal, a columnar light source, an endless flexible movable shutter disposed in two flights arranged at opposite sides of the light source, and means to move the shutter.

7. In a traffic signal, the combination of a clear travel signal operative at intermittent periods of predetermined length, a signal light column operative at intervals coincident with the travel signal intervals, an opaque shutter, and means to move the shutter in front of the light column to gradually block out the light emitted therefrom, said shutter comprising spaced wire bands and opaque plates carried thereby and being disposed in two reversely travelling flights one before and one behind the light column.

8. In a traffic signal wherein is provided a clear travel signal, a columnar casing having a window therein for emitting light, a light source in the casing, said clear travel signal and said light source being active at intermittent coincident intervals, a mechanical shutter, means to move the shutter to gradually close off said window, said moving means being timed to cause the closing off function to begin and end coincidentally with the beginning and ending of said intermittent coincident intervals, and a reflector wall behind said light source, said shutter comprising an endless apron having an opaque portion and arranged in two vertical reversely travelling flights, one of which passes in front of the light source and the other behind the reflector wall.

In testimony whereof I affix my signature.

LOIS SWAM.