Feb. 24, 1942. W. A. WEED 2,274,018

TRAFFIC SIGNAL

Filed May 23, 1941

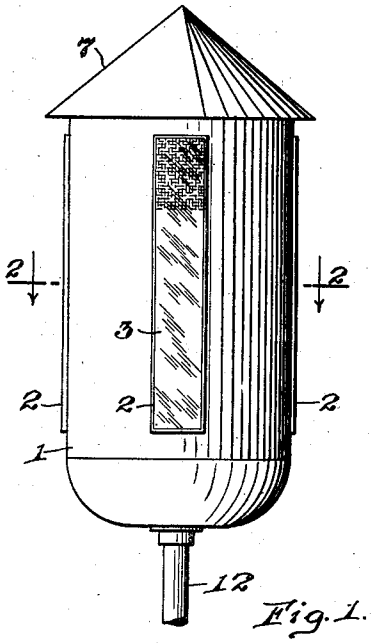


Fig. 1.

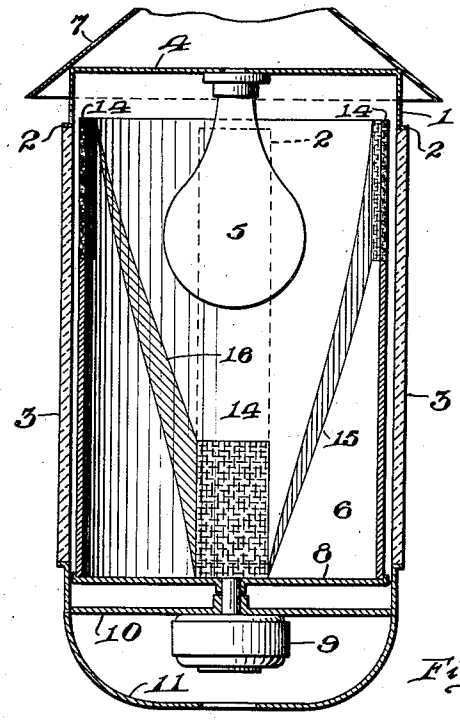


Fig. 3.

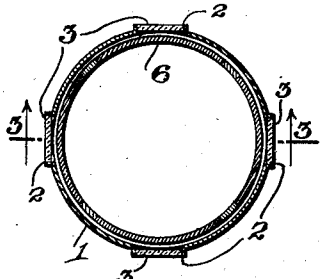
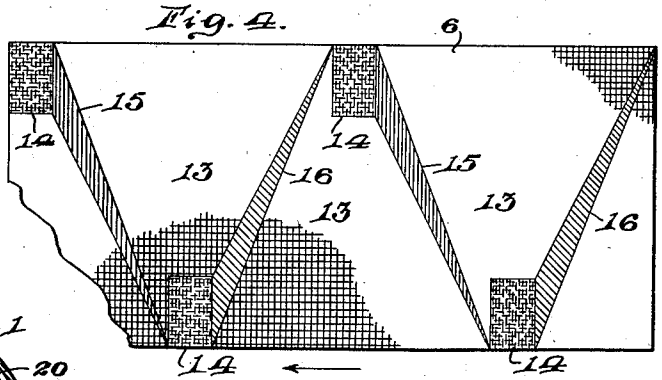


Fig. 2.

Fig. 4.



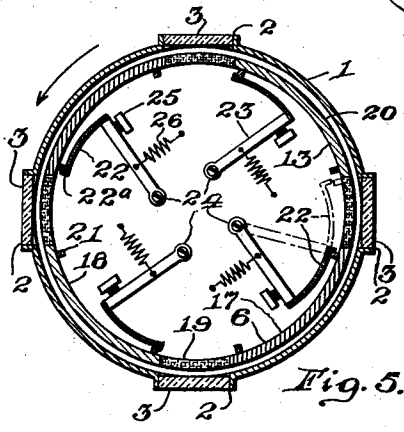


Fig. 5.

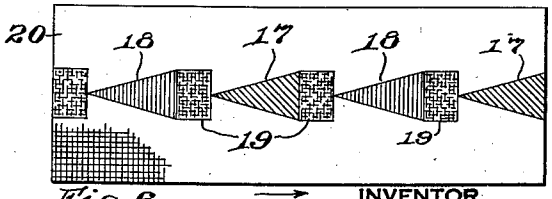


Fig. 6.

INVENTOR
Walter A. Weed,
BY
J. Stuart Freeman,
ATTORNEY

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TRAFFIC SIGNAL

Walter A. Weed, Philadelphia, Pa.

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2 Claims. (Cl. 116—63)

The object of the invention is to provide improvements in traffic signals, but more especially in that type which is intended for illumination at the intersection of two or more streets or roadways.

Another object is to provide an opaque, constantly rotatable, cylindrical element, provided with tapering, colored, transparent areas, as compared with the remaining opaque portions, said transparent areas being tinted red and green, or other desired colors, such as will serve to direct traffic to "stop" and "go," respectively, together with interposed amber or equivalent "caution" indicating color, it being understood that the specific colors referred to are but illustrative of the colors that may be employed for the purposes indicated.

A further object is to provide a device of this type, comprising the cylinder just referred to in combination with a suitable casing having windows, through which definite portions of said colored areas are visible, when illuminated by a single lamp if preferred, or by a plurality of lamps instead, said rotatable element being positioned to revolve about a vertical axis and driven by an electric motor, which is housed within either the upper or the lower end portion of said casing.

Still another object is to provide a modified form of such a signal, in which a simple shutter mechanism is installed for the purpose of shutting off all light rays during the change from one color to the next adjacent thereto, so that the succeeding color will appear suddenly and thereby diminish the tendency of vehicle drivers to anticipate the next color, especially when the next color directs them to "go" or "proceed," before the preceding amber or equivalent "caution" indicating color has passed completely from before a particular window.

With the objects thus briefly stated, the invention comprises further details of construction and operation, which are fully brought out in the following description, when read in conjunction with the accompanying drawing, in which Fig. 1 is a vertical, elevational view of a signal comprising one embodiment of the invention; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1; Fig. 3 is a vertical section of the device upon the line 3—3 of Fig. 2; Fig. 4 is a developed plan view of the rotatable element, showing the arrangement and relation of the several colored and opaque areas; Fig. 5 is an enlarged section similar to that of Fig. 2, but showing a modified form of the device, including the oscillatable shutters hereinbefore referred to; and Fig. 6 is a development of the rotatable element of Fig. 5.

Referring to Figs. 1 to 4, a casing is shown as comprising a preferably cylindrical portion 1, provided in this instance with four windows or light-emitting apertures 2, covered by transparent glass or similar panels 3, directed towards the street or other ways through which traffic approaches. The upper portion of said casing is partially or entirely closed by a wall 4, from which is suspended one or more lamps 5, extending downwardly into a rotatable cylinder 6, while any suitable ornamental protective top 7 may also be present. Said cylinder rests upon a suitable bottom closure wall or spider 8, which is in turn driven by a motor 9, carried by a transversely extending wall 10 in the hollow base portion 11 of said casing. The whole signal unit may be carried by a shaft 12, or other suitable supporting means.

The rotatable cylinder 6 is opaque to a large degree throughout areas 13, which are separated by alternately upper and lower positioned amber or similar "caution" indicating areas 14 and connecting strips of red and green, or equivalent "stop" and "go" indicating areas 15 and 16, respectively. It will be noted that said cylinder rotates in the direction indicated by the arrow directly beneath it, and accordingly the width of the red and green strips decreases in the reverse direction, so that as they pass the respective windows 2 they appear, in effect, to decrease in thickness, while the intensity of the light which they pass decreases proportionately in intensity.

With this arrangement, the constant and gradual decrease, first, in the width of the green strip is diminishing, and thereby the same rate of decrease in the remaining time that such green strip will remain visible, before the next amber area will be visible as an indication that approaching drivers are to slow and stop, or be prepared to stop immediately upon the larger end of the next strip, which is red, appearing. In the same manner, the red strip in turn decreases in width and similarly the amount of red rays that it passes, until it merges into the next amber or other intermediate colored area, thus indicating to approaching drivers that they are free to start, upon the larger end of the next adjacent green strip appearing.

Referring to Figs. 5 and 6, the alternately arranged green and red tapering areas 17 and 18, with interposed amber areas 19, are shown as being in substantially horizontal alignment upon

the rotatable cylinder **20**, although they may be arranged in zig-zag order, as shown in Fig. 4, if desired. In Fig. 5 the casing, windows and window panels are numbered as in Figs. 1 to 3. The said cylinder, rotating in the direction of the lower arrow, however, is provided upon its inner surface with spaced lugs **21**. Within said cylinder and carried by the upper wall **4** of said casing, are a series of arcuate shutters **22** having lugs **22***a*, which engage said first-mentioned lugs **21**, and are mounted upon arms **23** which are pivotally supported at **24**, and are yieldingly maintained in normal retracted position against bumpers **25** by means of springs **26**. As the axes of said shutters are eccentric with respect to the axis of said cylinder, it will be apparent that the shutter lugs **22***a* are gradually released by and from the cylinder lugs **21**, as the cylinder continues to rotate, as indicated by the dot-and-dash position of one shutter shown in Fig. 5, after which each shutter thus engaged by a cylinder lug is permitted to return abruptly to its normal retracted position, thereupon with equal suddenness exposing the colored transparent area, which has been passing across the adjacent window aperture in front of and in alignment with said shutter. Consequently, after the next colored area has reached a position in full registry with said window, said shutter snaps back and reveals said area through which light rays are then adapted to pass, and continue to pass until the next lug **21** at the beginning of the next colored area engages the said shutter lug, when the colored area then illuminated gradually decreases in area until said shutter reaches its extreme position and is again released by and from said cylinder lug.

From this description, which has been maintained in relatively broad terms, it is quite apparent that the invention is not limited to the exact arrangement of the colored areas, or to the selection of specific colors, or in fact to the other details exactly as shown, wherefore the invention is to be gauged by the appended claims rather than the drawing and related description. For instance, in numerous instances it may be found desirable if not actually essential to provide the lower edge or other suitable portion of the cylinder with words or other indicia to directly indicate, other than by means of colors such directions as "stop," "go," "slow," and/or similar commands or admonitions. These may be made visible through possibly smaller auxiliary windows beneath the main windows hereinbefore referred to, if desired.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:

1. A traffic signal, comprising a casing having a window, a rotatable cylinder therein having a pair of alternately located colored transparent areas which taper in one direction and are adapted to pass said window, means to rotate said cylinder, a segmental shutter oscillatable about an axes eccentric to said cylinder and intermittently engageable by said cylinder to obscure the leading end portion of a given area until such portion is in registry with said window, and means to automatically return said shutter angularly to normal retracted position upon such leading portion reaching a predetermined position with respect to said window and said shutter being released by said cylinder.

2. A traffic signal, comprising a casing having a plurality of windows, a rotatable cylinder therein having a plurality of alternately located transparent areas which taper in one direction and are adapted to simultaneously pass a plurality of windows, said colored areas being obliquely arranged upon said cylinder, a plurality of segmental, angularly oscillatable shutters also within said cylinder mounted upon circumferentially spaced axes eccentric with respect to the axis of rotation of said cylinder, resilient means to normally maintain said shutters in retracted positions laterally of said windows, lugs carried by said cylinder adjacent to the leading end portion of each colored area, and lugs carried by said shutters and engageable with said first lugs as given colored areas approach said windows, to intermittently move said shutters angularly so as to obscure said colored areas until they have reached a predetermined position, whereupon said cylinder lugs automatically release said shutter lugs and permit said shutters to return to their normal retracted positions.

WALTER A. WEED.