March 20, 1928.

1,663,133

M. P. KIRK

SAFETY SIGNAL

Filed Nov. 24. 1923

3 Sheets-Sheet 1

Fig. 1.

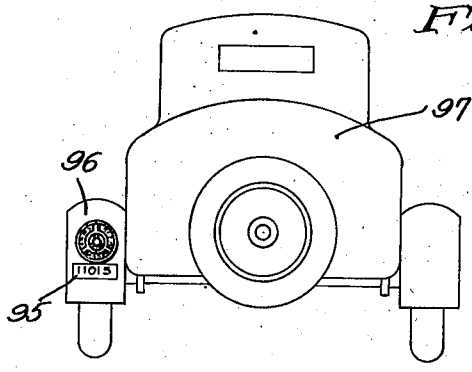
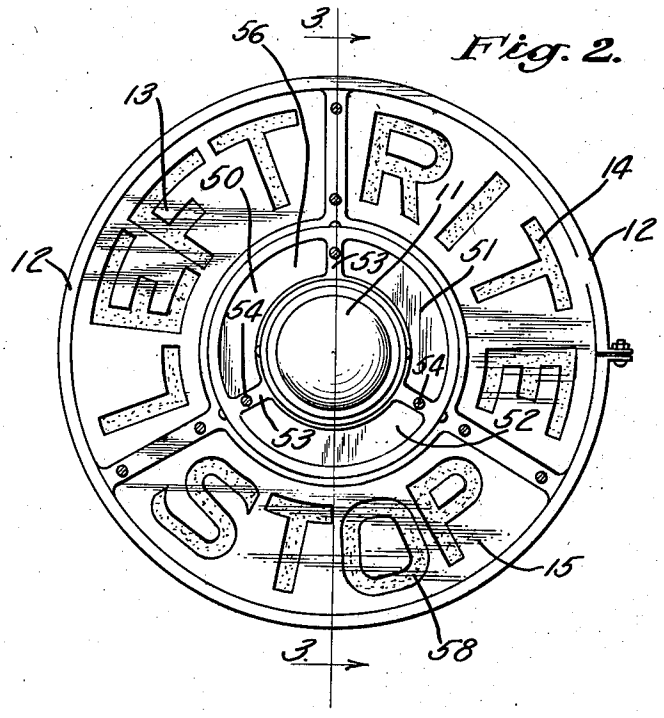


Fig. 2.



INVENTOR:
MORRIS P. KIRK
BY
Graham & Davis
ATTORNEYS.

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M. P. KIRK

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Fig. 4.

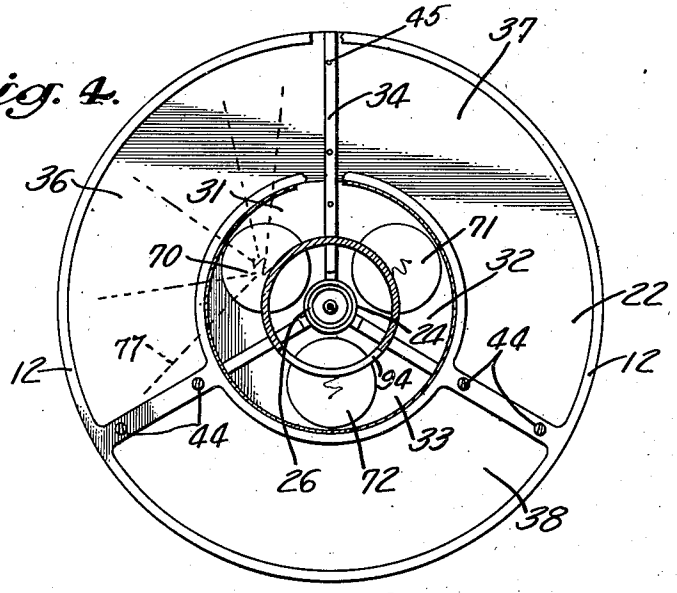
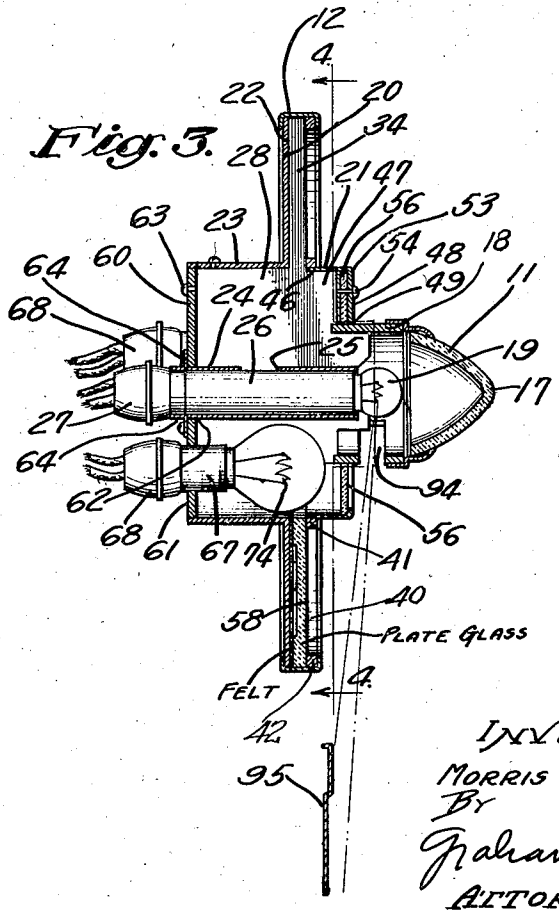


Fig. 3.



INVENTOR
MORRIS P. KIRK
BY
Graham + Lamie
ATTORNEYS

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M. P. KIRK

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Filed Nov. 24. 1923 3 Sheets-Sheet 3

Fig. 5.

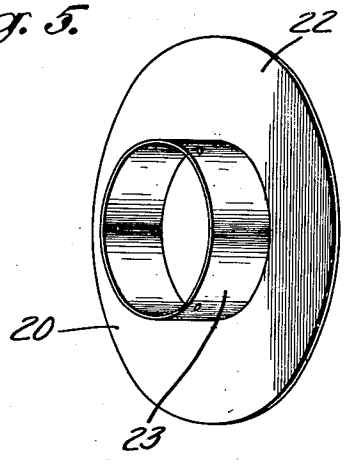


Fig. 6.

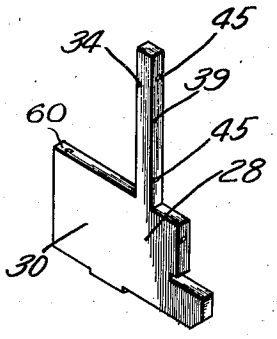


Fig. 7.

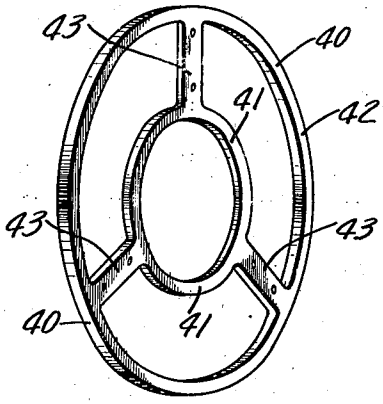
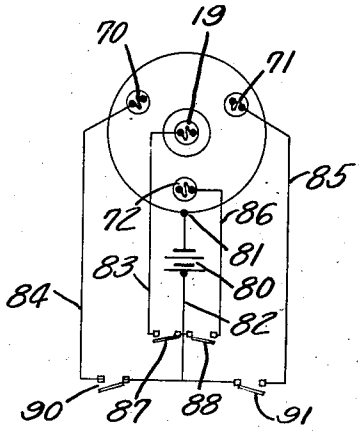


Fig. 8.



INVENTOR:
MORRIS P. KIRK,
BY
Graham + Davis
ATTORNEYS.

Patented Mar. 20, 1928. 1,663,133

UNITED STATES PATENT OFFICE.

MORRIS P. KIRK, OF LOS ANGELES, CALIFORNIA.

SAFETY SIGNAL.

Application filed November 24, 1923. Serial No. 676,834.

This invention relates to safety signals of the character employed on automobiles for the purpose of indicating to following traffic and pedestrians an intended change in movement, such as either an intended slowing down, stop, or right or left turn of the automobile.

It is an object of the invention to provide a safety signal employing right, left and stop indications and incorporating therewith a red bull's-eye serving as a tail light and having means for casting a beam of light upon the face of the license plate.

A feature of the invention is to provide a centrally disposed bull's-eye which serves as a tail light and has the signal members grouped therearound in circular arrangement. The signal members are illuminable and are equipped with characters indicating the intended change in movement. The characters indicating right and left turns show up in brilliant white when illuminated. At a distance of fifty feet, these characters may be easily discerned, but at a distance of 200 or 300 feet are not clearly discernible, but the import thereof is recognized from the position of the illuminated portion relative to the centrally disposed bull's-eye, thus plainly indicating to a following driver that a turn is intended in the direction pointing from the red light to the white light. The red light serving as the tail light is continuously visible to a following machine, therefore the appearance of another light on either side thereof makes an intended turn immediately evident.

Another object of my invention is to provide in a safety signal having a constantly illuminated central bull's-eye and indicia bearing signal segments disposed about the bull's-eye which are separately illuminable to indicate a written signal, transparent panes contrasting in color with that of the bull's-eye and the signal segments, and each of which is interposed between the bull's-eye and a signal segment so as to be illuminated with that signal segment. This arrangement causes a contrasting series of color impressions to be produced in the direction from the bull's-eye intended to be indicated by the written signal and in case the latter cannot be read due to too great an intervening distance, the series of contrasting color impressions gives a strong retinal impulse which indicates the direction of the signal to the observer at a great distance therefrom.

It is a further object of the invention to provide a sub-divided light chamber from which the signal members of transparent material radiate, and from which the signal members are illuminated by light rays directed radially and edgewise therethrough.

The especial advantages of the invention and further objects thereof will be made evident hereinafter.

Referring to the drawings which are for illustrative purposes only:

Fig. 1 is a view showing a safety signal embodying the features of my invention in use upon an automobile.

Fig. 2 is a face view of the safety signal.

Fig. 3 is a section taken on a plane indicated by the line 3—3 of Fig. 2.

Fig. 4 is a view taken as indicated by the line 4—4 of Fig. 3, with the glass signal segments removed.

Fig. 5 is a perspective view showing the rearward plate of the casing.

Fig. 6 is a perspective view showing a dividing member.

Fig. 7 is a perspective view of a spider.

Fig. 8 is a wiring diagram.

In the form of the invention shown in the drawings, a central bull's-eye 11 is employed, this bull's-eye having disposed concentrically therearound a circular casing 12 in which are held signal members 13, 14 and 15. The bull's-eye is essentially a red conoidal lens 17, Fig. 3, supported upon the forward end of a cylindrical housing 18 in which a light globe 19 is situated. The cylindrical housing 18 projects forwardly from a secondary cylindrical housing member 21 which in turn projects forwardly from a disc structure 20 comprising part of the casing 12.

The disc structure 20 consists of an annular plate 22 having a cylindrical hub 23, Fig. 5, projecting rearwardly therefrom. Concentrically within the cylindrical hub 23, there extends a tubular barrel 24 having three slots 25 therein. This barrel serves the purpose of retaining the light socket 26 and attachment fixture 27 through which the bull's-eye light globe 19 is supplied with electricity, and is supported concentrically within the housing 23 by separator members 28, Fig. 6. Three of these separator members are employed, each of them having a plate portion 30 which extends radially between the tubular member 24 and the cylindrical housing 23, thus dividing the interior of the housing into three light cham-

bers 31, 32, and 33. Outwardly extending from the plate portion 30 of each separator member 28 is a radial arm 34 arranged to extend outwardly over the face of the annular plate 22. The three outwardly extending arms 34 divide the plate into three separate signal member receiving areas 36, 37 and 38. On the outward edges 39 of the arm, a spider 40, comprised of an inner ring 41 and an outer ring 42 interconnected by radial arms 43, is secured by screws 44 which thread into tapped holes 45.

As shown at 47 in Fig. 3, the plate portion 30 of each separator member extends forwardly beyond the plane of the spider 40 and the cylindrical member 21 extends between the inner ring 41 of the spider 40 and the edges 46 of the plane portions 30. The member 21 has an inwardly extending flange 48 which extends into engagement with the outer face of the cylindrical housing 18 as indicated at 49 and has segmental openings 50, 51 and 52 punched therein as shown in Fig. 2, these openings being separated by webs 53 through which screws 54 may be extended for the purpose of holding the member 21 in place. Between the flange 48 and the outwardly disposed edges of the plate portion 30, green glass segments 56 are held, thus providing three colored windows in alignment with the signal member receptive spaces 36, 37 and 38.

Into each of the spaces 37, segmental glass signal members 13, 14 and 15 are placed. The member 15 is of red plate glass and has the word Stop etched therein with acid or sand blast, as indicated at 58 in Figs. 2. The signal members 13 and 14 respectively are etched on the under face thereof with the words Left and Rite, these members being preferably of plate glass. Across the rearward edges 60 of the plate portions 30, a circular plate 31 having a central opening 62 is secured by screws 63. The central opening 62 aligns with the tubular member 24 and a small flange member 64 is mounted thereon for holding the attachment fixture 27. Disposed in the plate in annular arrangement, coinciding with the centers of the light chambers 31, 32 and 33, are sub-central sockets 67 which extend rearwardly through the plate 61 so that connector members 68 may be attached thereto. In each of the sockets 67, light globes are placed, these sub-central light globes being separately designated as 70, 71 and 72. The sockets 67 are so situated that the filaments 74 of the globes 70, 71 and 72 are substantially opposite to the inner edges of the plate glass signal members 13, 14 and 15, the light rays therefrom being directed radially outwardly through the edges of the plates as indicated by the dotted lines 77 in Fig. 4, these light rays being received by the etched lettering as indicated at 58 and illuminating the lettering so that it will be plainly visible for a considerable distance. Light from each sub-central globe 70, 71 or 72 will also pass directly forwardly through the green glass in the respective openings 50, 51 or 52.

The light globes 19, 70, 71 and 72 are controlled as indicated by the wiring diagram, Fig. 8, in which a battery is indicated at 80. One side of this battery is grounded, as indicated by 81, with the light housing, to which housing one side of each light filament is electrically connected. From a lead 82 extending from the opposite pole of the battery 80, conductors 83, 84, 85 and 86 are respectively directed to the lights 19, 70, 71 and 72. The light 19 is controlled by a switch 87 in the conductor 83, this light being continuously illuminated after sunset and serving as a tail light as well as a beacon for the signal lights. The light 72 which serves for illuminating the stop signal is preferably controlled by a switch 88 in the conductor 86 which is preferably actuated by the brake pedal in such a manner that the stop signal will be illuminated each time the brake pedal is advanced. The lights 70 and 71 constituting the illuminating means for the Left and Rite signals are preferably controlled by switches 90 and 91 mounted on the steering wheel so as to be conveniently operated.

In the lower edge of the cylindrical housing 18, a slot 94 is formed, this slot allowing a fan shaped beam of light to be cast downwardly from the globe 19 in a manner to illuminate the face of the license plate 95 which is preferably to be mounted below the safety signal, and which may be conveniently mounted upon the leftward fender 96 of an automobile 97, Fig. 1.

The bull's-eye serving as a tail light is at all times visible and is continuously illuminated at night. A driver in a car following the machine equipped with the signal device will view the bull's-eye continuously. When an intended turn to the right is indicated by closing the switch 91, Fig. 8, the signal member 14 and the green window 51 are illuminated thereby. The appearance of a light to the right of the bull's-eye will immediately signify to the following driver that a movement to the rightward direction is intended, even though he should be at such a distance behind the signal that the characters therein are not clearly discernible. The operation of the switch 90 will cause illumination of a signal member 13 and the green window 50, which is leftward with respect to the bull's-eye 17 and will therefore indicate an intended leftward movement even though the characters thereof cannot be made out.

The stop signal being of red color and disposed beneath the tail light will present

a sufficiently large red illuminated area to cause the exercise of caution by the following driver, thus it is not entirely necessary that the word stop be noticeable in order to impart the intended signal. The construction employed is particularly valuable in that a central light housing is employed from which the signal elements radiate. The light housing is of small size and therefore compact in form. The utilization of the tail light as a beacon or continuously visible point from which to extend the turn signals is also a feature which contributes to the effectiveness of the device as a means for properly imparting a traffic signal and therefore for reducing frequency of accidents.

I claim as my invention:

1. In a vehicle safety signal, the combination of: a colored bull's-eye adapted to be constantly illuminated; a housing for said bull's-eye; means for illuminating said bull's-eye; signal segments of transparent material radially extended outward from said bull's-eye, said segments having direction indicia carried thereby; sub-central lights whereby said segments may be separately illuminated; means for confining the rays of said sub-central lights to the proper segments; and a transparent pane of a color contrasting with that of the bull's-eye disposed between each of the adjacent segments and said bull's-eye, and adapted to be illuminated with its adjacent signal segment by the same sub-central light illuminating said adjacent signal segment so as to cause a contrasting series of color impressions to be produced in a given direction from the bull's-eye.

2. In the vehicle safety signal, the combination of: a conductor conduit axially disposed in said signal; a central light bulb provided upon the forward end of said conduit; radial walls angularly spaced about said conduit; exterior walls co-operating with said conduit and said radial walls to provide sub-central light chambers; a disc-shaped wall provided upon said exterior walls; a circumferential wall co-operating with said disc shaped wall and with radially extending portions of said radial walls to form shallow signal element pockets, there being openings provided between the inner edges of said pockets and corresponding sub-central light chambers; flat signal elements disposed in said pockets with the inner edges thereof in said openings; light bulbs disposed in said sub-central light chambers; bull's-eye walls connecting with the front wall of said exterior walls and forming a light chamber about said central bulb; a bull's-eye closing the front end of said bull's-eye light chamber; means for constantly illuminating said central bulb; and means for separately lighting said subcentral bulbs.

3. A combination as in claim 2 in which said front wall of said exterior walls is formed of transparent colored material.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 15th day of November, 1923.

MORRIS P. KIRK.