July 13, 1943. J. M. NELSON 2,324,419

ELECTRIC TRAFFIC SIGNAL

Filed June 20, 1941

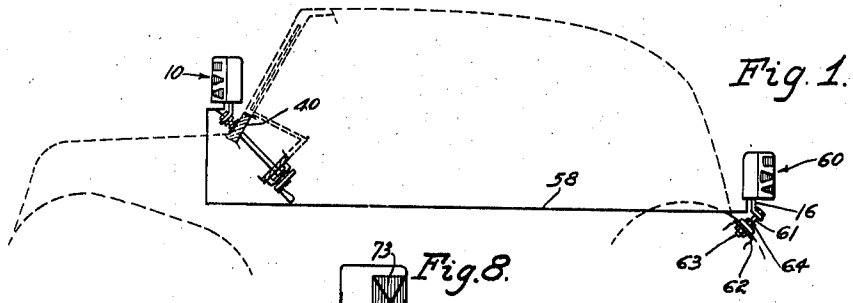


Fig. 1.

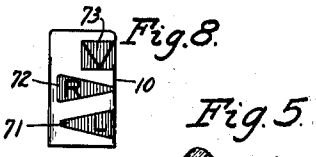


Fig. 8.

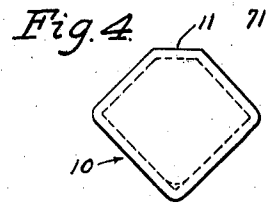


Fig. 4.

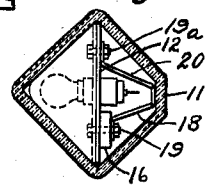


Fig. 5.

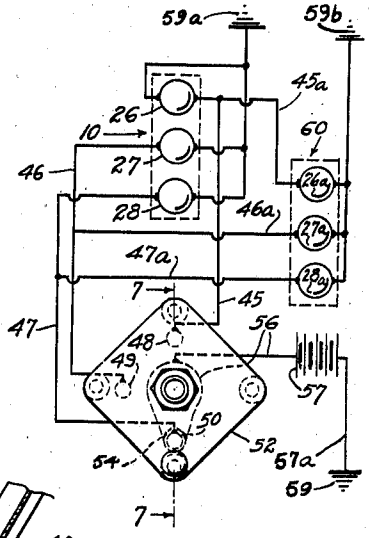


Fig. 6.

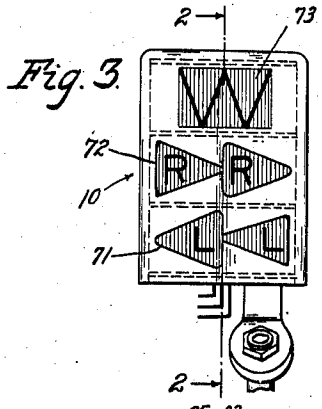
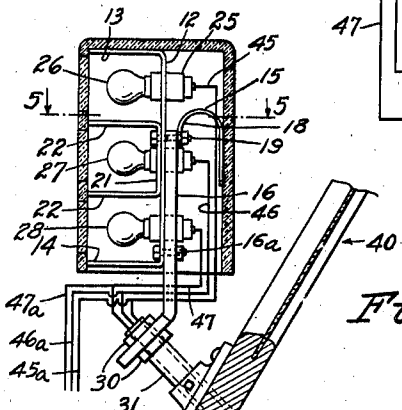


Fig. 3.



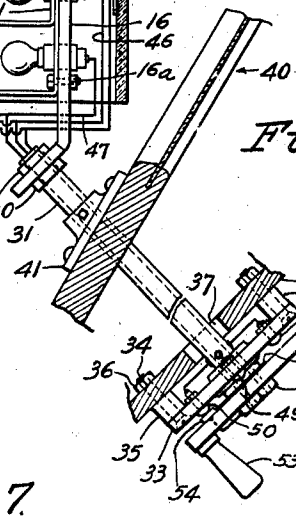


Fig. 2.

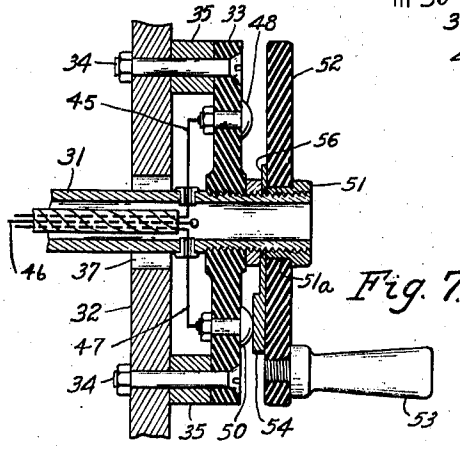


Fig. 7.

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ELECTRIC TRAFFIC SIGNAL

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7 Claims. (Cl. 177—329)

This invention relates to an electric traffic signal.

Among the objects of the invention are: to provide a traffic device which can be more satisfactorily mounted upon the instrument board of a self propelled vehicle, and which when so mounted can be operated very conveniently by the driver without interfering with the use of his hands for controlling the operation of the vehicle; to provide a signal device which is adapted for operation at night in a more dependable and positive manner; to provide a signal device in which certain parts are superimposed upon each other in an improved manner so as to render the device compact and positive in its operation; to provide an improved means for mounting the working parts of the device within a glass casing, or other casing of transparent material for the signal portions thereof, or other casing of combined transparent and opaque materials; and to construct the device in such a manner that it will possess, in combination with the already mentioned advantages, a capacity for easy and positive operation by the driver in such a manner that only the selected signal can be displayed at one time, which signal will be made conspicuous to other drivers who may be in the vicinity of his vehicle.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing which illustrates what is at present deemed to be a preferred embodiment of the invention,

Fig. 1 is a side elevation of the upper portion of an automobile showing the invention applied thereto, conventional parts of the vehicle being outlined in broken lines.

Fig. 2 is a partly sectional and partly elevational view of the assembly of parts which make up the invention, a portion of the windshield and instrument board upon which the device is mounted being included in the view.

Fig. 3 is an elevation of the upper portion of the structure shown in Fig. 2, looking from left to right in relation to the latter view.

Fig. 4 is a top plan view of the structure shown in Fig. 3.

Fig. 5 is a transverse section taken on line 5—5 of Fig. 2.

Fig. 6 is a wiring diagram.

Fig. 7 is a sectional detail on an enlarged scale on the plane of line 7—7 on Fig. 6.

Fig. 8 is an elevational detail looking squarely toward one of the front faces of the lamp housing.

Referring in detail to the drawing, the housing 10 within which the signal elements are mounted may be described as an inverted cup made of glass or other transparent material, said cup, however, not being round but being of a generally square shape as viewed in plan, one of the corner portions of the cup being chamfered or flattened to form the narrow flat wall 11. Parallel to said flat wall there extends a combined conductor plate and mounting plate 12, opposite side edges of said plate fitting closely within diagonally opposite corners of the cup. At its top said plate has a laterally directed triangular flange 13 and at its bottom a like flange 14, said flanges both being directed toward the front side of the mounted housing, that is to say, away from its already mentioned back wall 11.

In order to maintain the mounting plate 12 in place within the housing 10, in a friction tight manner, a spring 15, either of wire or of sheet metal shaped as an inverted J is secured thereto. Said spring may be secured directly to the plate or may be held in a fixed relation thereto in some other manner. In Fig. 2 a bar 16 of strap metal is shown secured to the back face of the plate 12 adjacent to one of its long edges and the spring 15 is shown having one inner limb 18 secured to said bar by a bolt 19 and another inner limb 20 secured directly to said plate 12 by bolts 19a. Said bolt 19 also aids in securing the bar 16 to the plate 12, an additional attaching bolt 16a being provided for said bar. The body portion of the spring 15 is of the proper width and shape to fit upon the inner face of the narrow wall 11 in such a manner that the inner faces of the adjacent walls of the cup keep it in the proper position.

In order to provide three lamp containing compartments, there is combined with the plate 12 a central sheet metal plate 21 which is shaped as a rectangular U, each limb 22 of this plate being shaped as a triangular flange so as to fit closely within the casing 10 when the parts are assembled as shown in Figs. 2 and 5. The base portion of the plate 21 is secured to the central part of the bar 16 in any suitable manner, for example by spot welding. Or the pair of bolts 19 (see Figs. 2 and 5) may serve as a securing means to hold in place upon the bar or standard 16, not only a plate 12 and spring 15, but also said plate 21.

Although, in the illustrated embodiment of the invention opposite corner portions of the casing perform the function of grooves or elongated seats to aid in holding the mounting plate 12 in place, yet it is to be understood that the claimed invention is not limited in its scope to the particular

kind of grooves or seats illustrated whereby said plate is kept in its operative position. Suitable apertures are provided in a row along the plate 12 midway between its side edges to receive the sockets 25 of the three lamps 26, 27 and 28, the basal portion of the plate 21 being apertured with an aperture which aligns with the central aperture of the plate 12.

The lower end portion of the bar 16 is shown deflected to about forty-five degrees in order to properly position it for being supported by clamping nuts 30 upon a tubular standard 31 carried by the instrument board 32. Said standard is shown secured to a mounting plate 33 which is attached to the instrument board by means of screws 34, said screws extending through spacers 35, so that when the nuts 36 are applied to the screws the mounting plate is held slightly spaced from that face of the instrument board which is nearer to the driver. The tubular standard 31 extends through the central portion of said mounting plate 33, and is welded, clamped or otherwise rigidly secured thereto. Said standard passes, in a spaced manner through an opening 37 provided for it in the instrument board, and it passes with a close fit through a hole provided for it in the windshield frame 40, a stabilizing plate or bracket 41 being secured to the front face of the windshield frame and the tubular standard extending through and being fixed to the latter plate in a suitable manner. By this means the device is mounted in a stable manner both for being operated by the driver and for withstanding vibration produced by travel of the vehicle.

Although, in the illustrated embodiment of the invention opposite corner portions of the casing perform the function of grooves or elongated seats to aid in holding the mounting plate 12 in place, yet it is to be understood that the claimed invention is not limited in its scope to the particular kind of grooves or seats illustrated whereby said plate is kept in its operative position.

The lamps 26, 27 and 28 are mounted upon and insulated from the plate 12 in a conventional manner and are respectively supplied with wires 45, 46 and 47, these wires all passing through the tubular conduit 31 and they are respectively furnished with terminals 48, 49 and 50 carried by the plate 33 which serves as a switchboard. From the center of said plate 33 projects a pivot screw 51 upon which turns a plate-like switch arm 52 having an operating handle 53. Said switch arm carries a contact 54 through which the current is supplied to the individual lamp to be energized at any given time. The lamps 26, 27 and 28 are all in electrical connection with the grounded bar 16. In Fig. 6 a battery 57 is shown which supplies current for the lamps through wire 56 which is connected in any desired conventional manner with the terminal 54. The ground circuit diagrammed in Fig. 6 is completed by grounds 59, 59*a* and 59*b*. The screw 51 has a smooth shank portion 51*a* upon which the plate 52 turns.

The switch arm 52 has been described as plate-like, and it is shown as a square plate which corresponds in size to the mounting plate 33, with respect to which it occupies an adjacent, parallel position, the operating handle 53 being attached to one corner of this plate-like arm. This construction enables the operator to determine more easily by the sense of touch when the switch arm plate is positioned to make the proper electrical connection; and is of considerable importance in night time operation.

In Fig. 1 there is shown a rear signal device 60 which is constructed in the same manner, so far as the casing and the parts contained therein are concerned, as the front device 10. It is also provided with a strap iron support 16, but this support is fastened to a short standard or bolt 61. This part 61 projects through the mud guard 62 of one of the rear wheels and is secured in place by means of the nuts 63 and 64. As shown in Fig. 6 the current wires 45, 46 and 47 of the lamps of the front device, respectively have rearward extensions 45*a*, 46*a* and 47*a* to supply current simultaneously to the rear device, these three wires forming the cable 53. The rear lamps are numbered 26*a*, 27*a* and 28*a* in agreement with the numbering 26, 27 and 28 of the front lamps.

In the particular embodiment of the invention illustrated in the drawing the casing compartment in which the lower lamp 28 is contained is provided upon each of its two front faces with a red glass arrowhead-shaped area 71 upon which at least one of which is printed in black the letter "L" to indicate left-hand turns, and the lamp 27 is furnished with similarly shaped red glass areas 72, but the heads of the arrows in the latter case are directed toward the right instead of toward the left. Upon at least one of these latter surfaces is inscribed the letter "R" to indicate right-hand turns. The glass face 73 of the upper compartment, which contains the lamp 26, has inscribed upon it the letter "W" or "S" to indicate a stop about to be made.

In operation of the device, whenever a signal is turned on the driver will, either by observation or by the sense of touch, see to it that the switch arm or plate 52 is turned to a position wherein its corners aline with the corners of the mounting plate 33. He will thus assure himself that the movable contact 54 is in proper engagement with the terminal to the lamp which requires current.

I claim:

1. As an article of manufacture, a transparent housing shaped as an elongated cup having an open end and rectangular in cross section with diagonally opposite corner portions, a mounting plate fitted into said housing, opposite edges of said plate fitting into two of said opposite corner portions of said housing, spring means carried by said plate and compressible against the inner face of one of the walls of said housing upon the insertion of said plate therein, thereby to maintain said plate in its mounted position within the housing, said plate having an extension projecting from the open end of the cup to support the latter in an inverted mounted position, and a plurality of electric lamps carried by said plate and positioned to be visible through said wall of said housing, and partitions separating the lamps of said plurality of lamps from each other.

2. As an article of manufacture, a translucent housing shaped as an elongated cup having an open end and angular in cross section and having opposite corner portions, a mounting plate fitted into said housing, opposite edges of said plate fitting into two of said opposite corner portions of said housing, and spring means carried by said plate and compressible against the inner face of one of the walls of said housing upon the insertion of said plate within said housing, thereby to maintain said plate in its mounted position within the housing, said spring means being located at one side of the inserted plate, said plate carrying laterally directed partitions extending from the side thereof opposite to said spring means to form compartments for lamps, there being a lamp in each compartment.

3. In a signal device of the kind described, a housing shaped and positioned as an inverted cup, and supporting means for said housing comprising a member projecting upwardly thereinto and including a spring which acts between said member and the interior of said housing to maintain the latter in a friction tight mounted position, said housing having opposed interior grooves into which said member fits, there being a plurality of transverse partition plates carried by said supporting means and positioned to divide the space within said housing into a vertically extending series of compartments and a lamp in each of said compartments, said housing having translucent signal portion corresponding to each compartment.

4. In a signal device of the kind described, a housing shaped and positioned as an inverted cup, there being a vertical wall portion of said housing having translucent signal portions and being provided with vertically extending oppositely disposed seats, a mounting plate within said housing with opposite edge portions in said seats, illuminating means mounted upon said plate to illuminate said signal portions, and a spring mounted between a face portion of said plate and a vertical wall portion of said housing to maintain the plate in a friction tight mounted position.

5. The subject matter of claim 4 and, there being a transverse partition plate carried by said mounting plate and projecting from the face thereof opposite to said spring, said partition plate fitting within the cross sectional portion of the part of the housing which it occupies, said partition plate separating compartments opposite to each of which the housing wall is provided with translucent signal portions, a portion of said illuminating means being located within each of said compartments.

6. In a signal device of the kind described, a housing shaped and positioned as an inverted cup, said housing having opposite internal corner portions which extend vertically, a mounting plate having opposite edge portions fitted into said corner portions, spring means attached to said mounting plate within the housing at one side of said plate, said spring means bearing against the inner face of one of the walls of the housing to press the plate toward the opposite side of the housing, said plate having at each end a deflected portion which projects toward and fits within the portion of the housing at the side of the plate opposite to said spring, one of said projecting portions of said plate abutting against the inner side of the top of the housing, a support for said plate and cup, said support being attached to the plate and projecting downwardly from the inside of the cup, said housing having translucent wall portions, and illuminating means supported by said mounting plate within said housing opposite to said translucent wall portions thereof.

7. The subject matter of claim 6 and, a U-shaped plate having a central portion which joins each of its sides at a right angle, means whereby the central portion of said U-shaped plate is secured to the side of said mounting plate opposite to said spring, the sides of said U-shaped plate constituting vertically spaced apart horizontal partitions between which a portion of said illuminating means is mounted.

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