

Jan. 12, 1937.

E. T. CONDON

2,067,232

PILOT LAMP FOR MULTISIGNAL SWITCHES

Filed July 11, 1933

2 Sheets-Sheet 1

Fig. 1.

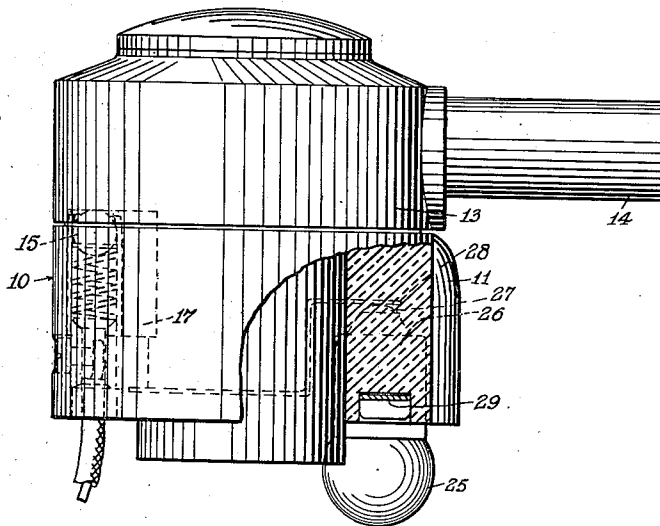


Fig. 2.

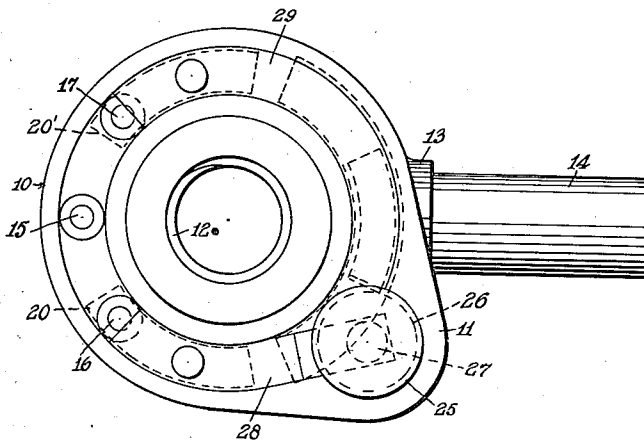
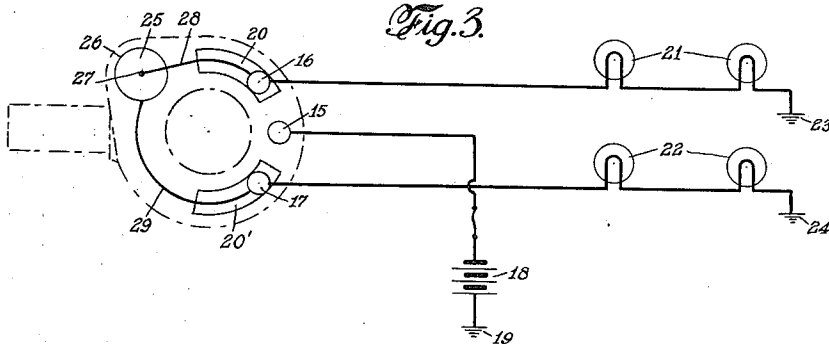


Fig. 3.



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Fig. 4.

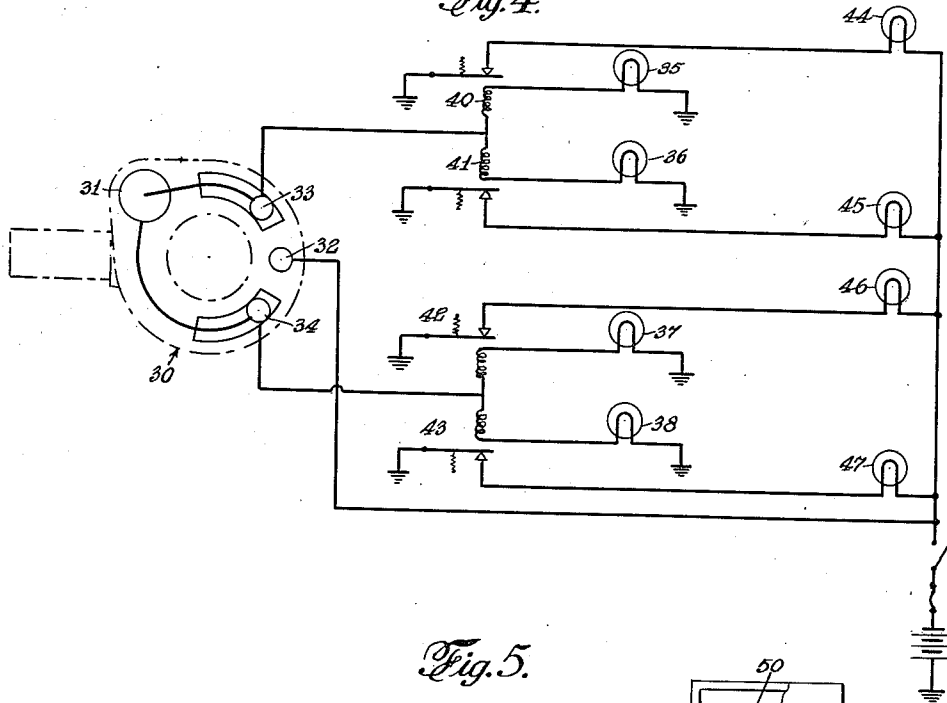


Fig. 5.

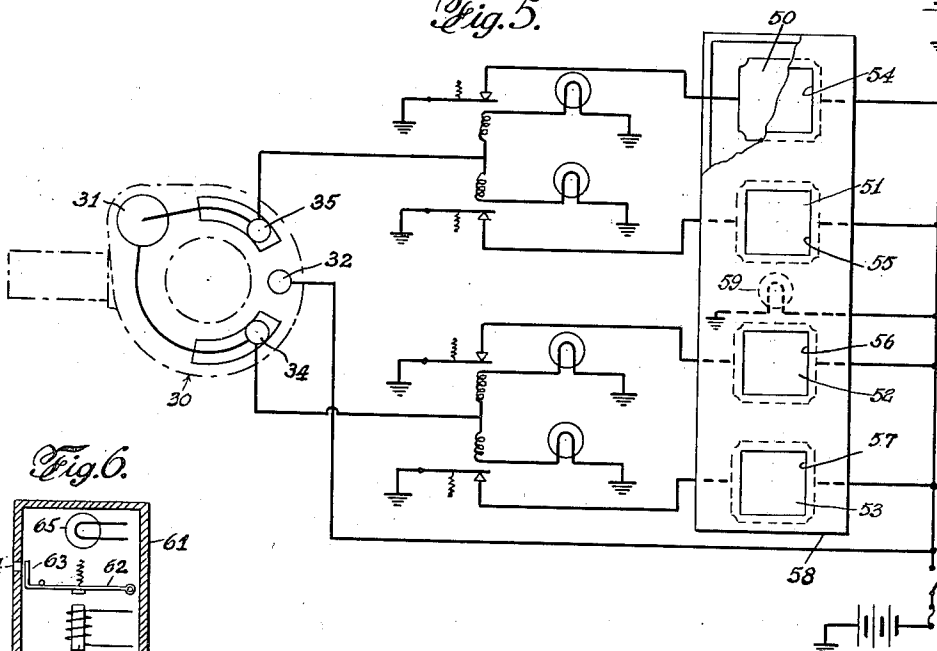
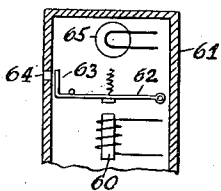


Fig. 6.



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PILOT LAMP FOR MULTISIGNAL SWITCHES

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Application July 11, 1933, Serial No. 679,857

1 Claim. (Cl. 177—311)

The invention relates to signal means, for example, as adapted for use with self-propelled vehicle to give notice of intention to make a turn either to the right or to the left. A system of this nature embodies usually a pair of lamps located at opposite sides of the vehicle and a switching device conveniently accessible to the operator of the vehicle and having a contact-making element designed to be manually shifted upon opposite sides of a neutral point to energize circuits to the corresponding lamps.

The present invention has for its object the provision of a pilot or tell-tale lamp to be associated with the switching mechanism of such systems for affording a convenient means to ascertain whether or not a signal lamp and its circuit is operative. A further object of the invention resides in the provision of simple and effective circuit and contact mechanism for accomplishing the desired result.

Still another object of the invention, particularly where pairs of lamps are installed at opposite sides of the vehicle as front and rear signal lamps, is to afford a ready means of indicating to the operator of the vehicle which of the lamps are in service, as well as enabling immediate detection of failure of any particular lamp upon operation of the switching mechanism.

In carrying out the invention, there is arranged to be mounted in the stationary portion of a switch device a socket for receiving a pilot lamp of lesser candle-power than either of the two, or more, signal lamps controlled by the switch. The arrangement is such, furthermore, that when the switch arm or movable element of the switch unit is manually shifted to cause one or the other of the signal lamps to become illuminated, one side of the lamp socket of the tell-tale lamp also becomes energized and the other side is grounded through a signal lamp which, however, is not thereby illuminated, being of substantially greater candle-power. Relay means may be included in the lamp circuits for affording desired indications.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings, in which:

Fig. 1 is an elevation of a two-light switch equipped with the tell-tale lamp, a portion thereof being broken away and a further portion indicated in vertical section.

Fig. 2 is an underneath plan view of the switch thus equipped.

Fig. 3 is a diagrammatic view illustrating the electrical connections involved.

Fig. 4 is a diagrammatic view of an arrangement for associating with the signal lamps means for indicating individually their condition; and Fig. 5 is a similar view illustrating a modification in the indicating means.

Fig. 6 is a fragmentary diagrammatic view of a modified form of indicator.

Referring to the drawings, Figs. 1 and 2, the switch device 10 may be of any well known or special design, for example of the nature set forth in my copending application Serial No. 524,990, and embodies a stationary portion 11 provided with internal threads 12 for securing the switch to some fixed member (not shown) and where it may be conveniently accessible to the operator of the vehicle. A rotatable portion 13 is mounted thereover and is provided, for example, with an operating finger or handle 14 projecting radially therefrom for manual operation of the switch.

In the stationary portion of the switch are provided a neutral-position live contact 15 and two normally dead contacts 16 and 17 which are located upon opposite sides of the live contact 15, the latter being energized from a source of electricity as the battery 18 whose one side is grounded as at 19, Fig. 3 of the drawings.

When the finger 14 is shifted to one side or the other of its neutral position on contact 15, bridging elements 20 and 20' carried by the movable finger portion are designed to supply energy alternatively to one or the other of the contacts 16, 17 and thereby to the corresponding signal lamps, or pair of signal lamps, 21 and 22 which are connected to the respective contacts and grounded as at 23 and 24, respectively. This arrangement is the usual and well-known one for effecting signalling of the nature set forth and forms no particular part of the present invention.

According to the present invention, however, provision is made for including alternatively in one or the other of the circuits to the lamps 21 and 22, and in series therewith, a further lamp or electrical tell-tale member 25, this lamp being of a considerably lesser candle-power than either of the lamps 21 and 22 utilizing, for example, one-quarter ampere as against two to three amperes required by a signal lamp. To this end, the lamp 25 is mounted in a suitable metallic socket 26, having the axial end tip contact 27, said socket being fixedly held within the stationary body of the portion 11.

As hereinbefore noted, this lamp is to be included in series, alternatively, with one or the

other of the pair of lamps 21 and 22 and the energizing contact 15. For this purpose, electrical connection is made, as through a conductor or strip 28, between the contact 16 and the tip 27; also, by means of a conductor 29, between the socket 26 and the contact 17, Fig. 3 of the drawings. This places the two pairs of lamps 21 and 22 permanently in series with each other through the lamp 25 so that when a bridging element engages with one or the other of the contacts 16, 17 and the live contact 15, not only will the one pair of signal lamps be illuminated, but also the tell-tale lamp 25.

For example, if element 20 closes the circuit between contacts 15 and 16, lamps 21 will be energized, and through conductor 28 energy will also be transmitted to the tip 27 of the lamp 25 and pass through conductor 29 from the metallic socket 26 of said lamp 25 to the contact 17 and its connected lamps 22 to the ground 24. This completes the circuit through lamp 25 to illuminate the same; but the current which also passes through lamps 22 will be insufficient to illuminate the latter because of the potential drop across lamp 25 and the relatively greater candle-power of the lamps 22.

By this expedient, a convenient means of affording knowledge of the electrical condition of the signal circuits and their respective lamps is provided, it being necessary merely to shift the finger 14 to one side or the other of its neutral position to determine whether a lamp circuit is in operative condition, failure of the lamp 25 to glow under these conditions indicating an interruption in a lamp circuit or failure of the lamp itself.

Furthermore, in the case of installations which embody both front and rear signal lamps at each side of the vehicle, the arrangement may be modified to admit of the provision of additional means whereby determination of the particular lamp of a pair of lamps which may have failed may be made. Thus, referring to Figs. 4 and 5 of the drawings, the switching device 30 with its pilot lamp 31, live contact 32 and oppositely disposed signal contacts 33 and 34 is provided, as in the previously described embodiments, but the two pairs of lamps 35, 36 and 37, 38 representing, for example, respectively the front signal lamps and the rear signal lamps at opposite sides of a vehicle, are no longer connected in series.

A separate circuit to each of these lamps from the corresponding switch contacts is provided; and these are caused to pass through the coils of corresponding relay devices, one for each lamp. For example, the circuit for lamp 35 is provided with the relay 40, and the circuit for lamp 36 with the relay 41, while the circuit for lamp 37 is provided with the relay 42, and the circuit for lamp 38 with the relay 43.

As indicated, these relays control further signal means, preferably on a closed-circuit system, although by correspondingly arranging the re-

lay contact, as is well understood, an open-circuit system may be provided. As indicated in Fig. 4, the relays 40, 41, 42 and 43 control the operation of indicating lamps 44, 45, 46 and 47, respectively, and corresponding to the signal lamps 35, 36, 37 and 38. In Fig. 5 a different form of indicating means is set forth, the indicating lamps being replaced by annunciators 50, 51, 52 and 53, whose drops or shutters are designed normally to close corresponding apertures 54, 55, 56 and 57 of a housing 58. This is to be interiorly illuminated by means of a lamp 59 so that when an annunciator is not energized, its shutter will drop to clear the corresponding aperture and expose the light from the interior of the housing. In the embodiment illustrated in Fig. 4, opening of the relay control circuit will cut off the light of the corresponding lamp.

Deenergization of a relay control circuit will be effected normally when a contact 33 or 34 is energized, and the corresponding signal lamps connected to such contact are effective. In the event of failure of any of such signal lamps, the corresponding relay coil will fail to function and the indicating lamp of its circuit will remain energized; or, in the case of the annunciator, no light will be displayed through the housing aperture.

Instead of a separate annunciator mechanism being included in a relay circuit, as indicated in Fig. 5 of the drawings, a relay itself may bear a shutter element. For example, referring to Fig. 6 of the drawings, the relay or electromagnet 60 may be located within a housing 61 and its armature 62 is provided with an upturned shutter element 63. The latter is juxtaposed with respect to a slit or aperture 64 in the housing wall and through which slit light may be transmitted, from a lamp 65 located within the housing, when the said armature is attracted to, for example, or withdrawn from, the electromagnet sufficiently to clear the slit.

I claim:

The combination with a switching member for a multi-signal system and comprising a stationary housing and an oscillatable operating element mounted thereon, the housing being provided with contact elements energized by said oscillatable operating element in accordance with its movement to one side or the other of a neutral position, and a lamp socket provided in the stationary portion adjacent the periphery of the housing and opening downwardly with its longitudinal axis located substantially parallel to the axis of oscillation of the movable operating element; of a tell-tale lamp removable fitting the said socket to extend downwardly beyond the lower edge of the housing and connected to said contact elements, whereby when said lamp is illuminated the light therefrom is screened upwardly by the said stationary portion.

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