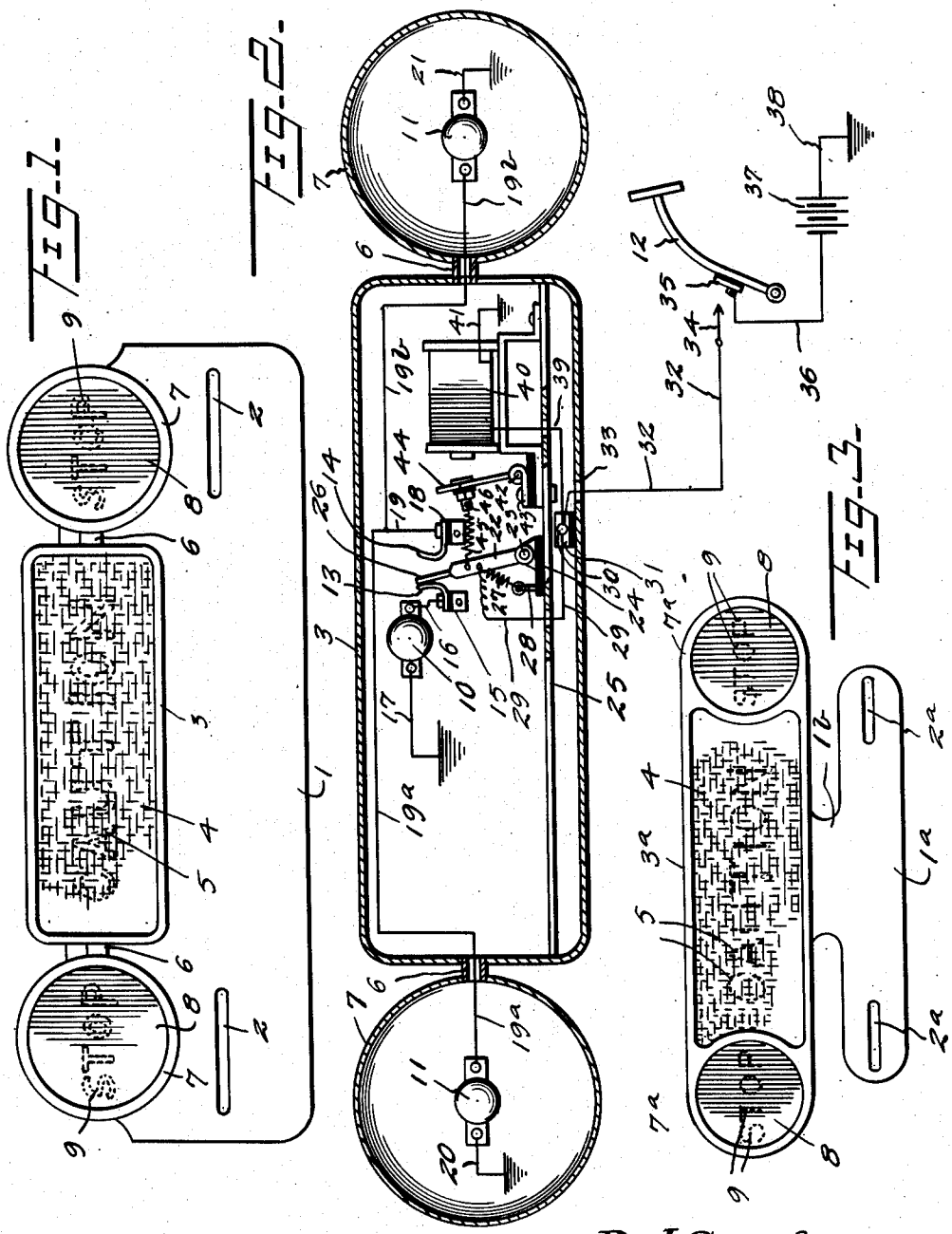
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CAUTION STOP SIGNAL

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WITNESS

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CAUTION STOP SIGNAL

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1 Claim. (Cl. 177—339)

This invention relates to an illuminable combined caution and stop signal for automobiles and other vehicles, the prime object being to provide a simple and compact yet practical and efficient signal device for ready attachment to and removal from the vehicle and having electrical controlling and operating means also readily installed in connection with the signal device and the conventional foot pedal or other element usually provided for controlling the actuation of the brakes on the vehicle, whereby, upon the initial movement of the foot pedal or other element to brake-setting position, the caution signal is first illuminated with a momentary flash and the stop signal illuminated in quick succession and remain illuminated until the foot pedal or other brake-actuating element is restored to its normal position and the brakes accordingly released.

With the foregoing principal object and other particular objects and advantages to be attained, as will hereinafter more fully appear, the invention consists in the general construction and in the particular parts and combinations and arrangements of parts as hereinafter described and claimed, reference being had to the accompanying drawing illustrating a practical adaptation of the invention, in which—

Figure 1 is a view, in front elevation, of the signal unit proper;

Figure 2 is a view on an enlarged scale, partly in longitudinal section of the housing portions of the signal unit, showing details of the contained switch elements and the electrical circuits being illustrated in diagram, together with a conventional illustration of the foot pedal or brake controlling and actuating element; and

Figure 3 is an elevational view of a modified form of signal unit.

Referring now to the drawing the numeral 1 designates a bracket plate which is elongated and generally rectangular in form and provided near its opposite ends with longitudinal slots 2 for the reception of bolts or other fastening elements for the attachment of the plate to the vehicle frame or body in the usual manner, and said slots 2 being also usable for the attachment of the conventional license plate to the plate 1.

Attached to the upper middle portion of the plate 1, in any approved manner, is a rectangular casing 3 provided with an illuminable front panel 4 having the word "caution" or equivalent indicia thereon, as at 5.

Connected to the opposite ends of the casing 3, by tubular neck members 6 are circular casings 7, each provided with an illuminable front panel 8 having the word "stop" or equivalent indicia thereon, as at 9.

It is here noted that in addition to the different distinctive indicia on the illuminable panels 4 and 8 as just above described, the caution panel 4 is preferably colored in yellow and the stop panel in red to further distinguish them one from the other.

Within the casing 3 is a conventional electric lamp bulb 10, or, obviously, a plurality thereof if desired or necessary, and in each of the circular housings 7 is a similar lamp 11, the respective lamps 10 and 11 being normally unlighted but being sequentially lighted when the foot pedal or brake-actuating element, designated by the numeral 12, is moved to brake-setting position, as will be later more fully described.

Mounted in the caution signal casing 3 is a spaced pair of electric circuit terminal contact members 13 and 14, respectively.

The contact member 13 is mounted on an insulated support 15 and electrically connected to one side of the lamp 10 by a wire 16, a ground wire 17 being connected to the opposite side of the lamp.

The opposed contact member 14 is mounted on an insulated support 18 and has a circuit wire 19 attached at one end thereto, said circuit wire 19 being branched, one branch 19^a thereof being passed through one of the neck members 6 into the adjoining circular housing 7 and connected to one side of the contained lamp 11 and a ground wire 20 being connected to the opposite side of said lamp 11. The other branch 19^b of said circuit wire 19 is carried into the opposite circular housing 7 and connected to one side of the contained lamp 11 and a ground wire 21 is connected to the opposite side of the lamp.

A snap switch element 22 is pivotally mounted, as at 23, on an insulated support 24 carried by a longitudinal supporting plate or false bottom 25 located in the casing 3 just above the bottom proper thereof. The upper contacting end portion 26 of said switch element 22 extends between the two terminal contact members 13 and 14 and is normally held in contact with the one member 13 by a spring 27 extending diagonally between an intermediate body portion of said switch element 22 and an anchoring stud 28 which projects upwardly from the insulated support 24.

A circuit branch wire 29 is electrically connected at one end to the snap switch element 22 and at its opposite end to an electrical connecting post 30 provided on an insulated supporting bracket 31 mounted within the casing 3, prefer-

ably on the bottom thereof, as shown. From said connecting post 30 a circuit wire 32 leads out through an opening 33 provided in the bottom of the casing 3 and is connected to a terminal contact member 34, which latter is engageable by a normally disengaged contact member 35 carried by, but insulated from, the foot pedal 12 or other brake-actuating element, as the case may be. The contact member 35 on the foot pedal or brake-actuating element 12 is connected by a wire 36 to a conventional battery or other source of electrical energy 37 which is grounded through a wire 38.

From the connecting post 30 a branch circuit wire 39 leads to a relay magnet 40 which is grounded through a wire 41, the magnet 40 being thus in the same circuit with the snap switch element 22 and is controlled by the foot pedal or brake-actuating element 12 carrying the contact member 35 in cooperative relation to the terminal contact member 34 for closing the circuit when the brakes are applied and breaking the circuit when the brakes are released.

Pivotally mounted, as at 42, on an insulated supporting base 43, is an armature 44 which is drawn toward the magnet 40 when the latter is energized, said armature 44 being held normally away from the magnet 40 by a spring 45 which is connected at one end to an insulated stud 46 on the armature and at its opposite end directly to the snap switch element 22. The spring 45 is somewhat stronger than the spring 27, which latter, through its connection to the switch element 22 and the anchoring stud 28, together with the connection between said switch element 22 and armature 44 afforded by the stronger spring 45, holds the switch element normally in yieldable contact with the terminal member 13 and the armature 44 away from the magnet 40, which, as hereinabove described, is the normal position of the armature. However, when the magnet 40 is energized, the armature 44 is thereby attracted and as it moves toward the magnet the spring 45 pulls the snap switch element 22 away from the terminal contact member 13 and into engagement with the opposite terminal contact member 14, the weaker spring 27 yielding to this movement of the switch element 22 and the normal length of the stronger spring 45 and the respective distances between the contact members 13 and 14 and between the armature 44 and magnet 40 being proportioned so that the upper contact portion 26 of the switch element 22 engages the terminal contact member 14 before the armature 44 has reached the limit of its movement toward the magnet 40. The spring 45 is thereby slightly stretched and thus placed under tension sufficient to hold the switch element 22 steadily in engagement with the terminal contact member 14 until the magnet 40 is de-energized and thus assuring the continuous lighting of the lamps 11 in the stop signal casings 7 while the switch element 22 is in engagement with the terminal contact 14 and during which time the brakes on the vehicle are applied.

From the foregoing described construction and controlled circuit arrangements, it is readily apparent that, upon actuation of a foot pedal or brake-controlling element 12 to set the brakes, the contact member 35 on said element 12 moves into engagement with the circuit terminal contact member 34, thereby closing the circuit through the lamp 10 in the caution signal casing 3 and illuminating the panel 4 of said casing. When the circuit is thus closed through the lamp 10 the magnet 40 is energized, and the armature 44 being thereby attracted, the switch element 22 is pulled into engagement with the terminal contact member 14, thereby breaking the circuit through the lamp 10 and closing the branched circuits 19ª and 19ᵇ through the lamps 11 in the stop signal casings 7, whereby the panels 8 of both stop signal casings 7 are illuminated and so continue until the driver of the vehicle releases the foot pedal or brake-controlling element 12 and the contact member 35 on said element 12 has moved out of engagement with the circuit terminal contact member 34, upon the accurrence of which the spring 27 snaps the switch element 22 back into engagement with the terminal contact 13 and simultaneously restores the armature 44 to its normal position away from the magnet 40.

Obviously, due to the normal cooperative setting of the snap switch element 22 and the armature 44 and the arrangement of the springs 27 and 45, there is a slight delayed action in the movement of the switch element 22 from engagement with the terminal contact 13 into engagement with the opposite terminal contact member 14, and, even though the energization of the magnet 40 is substantially instantaneous with the closing of the circuit through the lamp 10 in the caution signal casing 3, the spacing of the terminal contact members 13 and 14 is such that there is a decided though only momentary flash of the caution signal just prior to the illumination of the stop signal while the switch element 22 is moving from the contact member 13 to the opposite member 14. However, in some cases, if desired, a special retarded though rather quick acting relay may be substituted for the conventional relay herein illustrated and described so as to attain the same effect, that of displaying the caution signal momentarily before the illumination of the stop signal. There is a material advantage in this, in that the initial flashing of the caution signal brings to the attention of a following driver more swiftly and directly the movements of the vehicle in front of him. So, too, there is an added measure of safety in the elongation of the safety signal casing and consequent enlargement of the display area of the illuminable panel in proportion to the diameter and display area of the stop signal panel.

A modification of the signal unit is illustrated in Figure 3 wherein, instead of having the two stop signal casings 7 separate from the intermediate caution signal casing 3 and connected by the tubular neck members 6, the stop signal casings 7ª are made integral with the caution signal casing 3ª, and in lieu of the relatively wide bracket plate 1 a narrower and also shorter bracket plate 1ª is provided in the modified structure and said plate 1ª is connected to the caution signal casing 3ª by a reduced neck portion 1ᵇ. As shown, the plate portion 1ª is provided with longitudinal slots 2ª in its opposite end portions similar to and for the same purposes as the slots 2 in the bracket plate 1 of the first herein described structure. Other than as shown and described, the arrangement and operation of parts is the same in both structures.

It is here pointed out that provision is obviously made in the mounting of the terminal contact member 34 whereby said member is resiliently supported so as to be yieldable and permit ample continued movement of the foot pedal or brake-

controlling element 12 after the contact member 35 carried by the latter has engaged said contact member 34 during the actuation of the foot pedal or brake-controlling element to apply the brakes, which provision may be obviously conventional and it is therefore deemed unnecessary to illustrate the same in detail in the drawing.

While the herein illustrated and described signal unit structures and arrangement of correlated controlling and operating parts embody practical adaptations of the invention, it is obvious that considerable modification may be made therein without departing from the spirit and scope of the invention as defined in the appended claim. The invention, therefore, is not limited to the specific construction and arrangement shown.

What is claimed is:

A combination signal light for vehicles, comprising a housing having a caution signal light and a stop signal light therein, two considerably spaced contacts, one for the caution light and the other for the stop light, a pivoted switch element between said contacts, a spring for normally holding the switch element in contact with the light contact, an electric circuit connected to the switch element, a relay magnet in said circuit, a pivoted armature operated by the magnet, a spring connecting the armature and the switch element, said spring being of a greater strength than the spring connected to the switch element, and means for closing said circuit upon the depression of a brake lever of a vehicle provided with the device, whereby the caution light is lighted and the relay magnet is magnetized and the switch element drawn over by the armature breaking the circuit to the caution light and closing the circuit to the stop light to allow the same to continue to burn until the brake lever is released.

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