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ACCELERATOR OPERATED STOP SIGNAL

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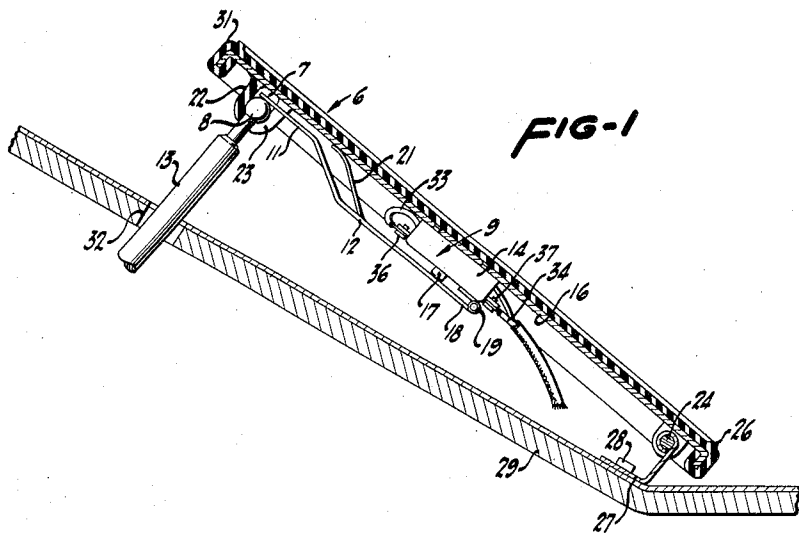
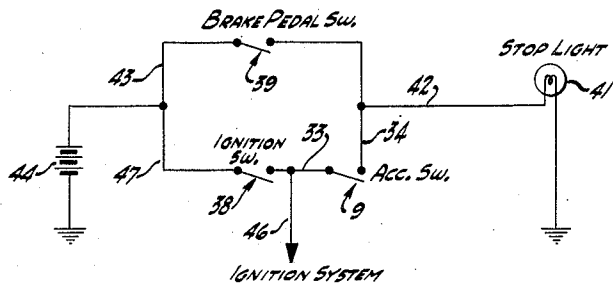
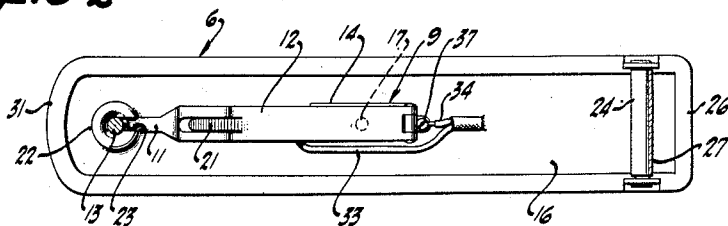


FIG-2



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ACCELERATOR OPERATED STOP SIGNAL

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4 Claims. (Cl. 200—61.89)

The invention relates to safety signal devices for automotive vehicles such as stop lights, and more particularly to switch means operatively associated with the accelerator pedal of the vehicle and operated automatically upon letting up of the foot pressure on the pedal to energize such a signal or light located at the rear of the vehicle so as to warn oncoming drivers that the vehicle is slowing down.

Devices of the character described have many advantages, among which are the extreme speed with which the safety signal is energized well ahead of the normal time taken in the application of the brakes; the indicating of slowing down of the vehicle where the brakes are not used; and the quality of remaining energized after the vehicle is brought to a stop and while remaining a potential road hazard. So far as applicant is aware, however, no simple, inexpensive and completely effective construction for accomplishing the foregoing has been proposed or is available, and it is accordingly a principal object of the present invention to provide a construction clearly having these attributes of simplicity, low cost, and effectiveness.

Another object of the present invention is to provide an accelerator operated signal of the character above which is composed of a minimum number of sturdily formed parts utilizing a small, lightweight snap acting switch which is commercially available in large quantities and at relatively low cost, and which is highly developed and perfected to withstand the repetitious action over a long life required for the present service.

A further object of the present invention is to provide an accelerator operated stop signal in which the energizing and de-energizing of the signal is accompanied by an audible snap action, thereby informing and reassuring the driver of the vehicle of the perfect and automatic operation of the signal.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawing:

Figure 1 is a cross sectional view of an accelerator operated stop signal constructed in accordance with the present invention.

Figure 2 is a bottom view of the apparatus illustrated in Figure 1.

Figure 3 is an electrical wiring diagram which may be used for energizing the signal.

The accelerator operated signal of the present invention and as illustrated in the accompanying drawing consists, briefly, of an accelerator pedal 6 having a socket 7 formed to receive and journal a part 8 of the accelerator linkage and an electric switch 9 having an operating movable part 11 mounted in the socket 7 for engagement and

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displacement by the linkage part 8. Preferably and as here shown, the socket 7 is elongated in a direct perpendicular to the plane of the pedal so as to provide limited displacement of the ball end between terminal positions near to and away from the under side of the pedal, and the switch part 11, here consisting of the outer end of a switch arm 12, is arranged to effect the opening and closing of the switch 9 upon relative movement of the part 8 within the socket 7 between its terminal positions. The part 8 here consists of the ball end of the conventional rod 13 forming part of the accelerator pedal linkage to the butterfly valve of the carburetor.

In accordance with the present invention, the switch 9 is selected from one of the several small, lightweight, snap acting switches which are commercially available and known generally as micro switches. These require but a light pressure for actuation and operate with an audible snap action, which in the present instance is highly desirable for informing and reassuring the driver of the vehicle of the automatic operation of the signal. These switches have been developed and perfected for extremely long life and repetitious operation, making them ideal for use in the present application.

The switch 9 includes a switch body 14 fastened to the under side 16 of the accelerator pedal and an exposed, movable switch operating part 17 normally biased to an open position of the switch. The switch arm 12 is here pivotally secured at one end 18 by a hinge 19 to the body 14 and extends across the body for movement into engagement with and actuation of the part 17. Normally the arm is resiliently mounted and biased to a position, as illustrated in Figure 1, spaced outwardly from the switch body 14, thereby permitting the switch part 17 to assume its normally biased outwardly extended open switch position. The arm in this normal position of rest bears on the ball end 8 and elevates the pedal 6 so as to cause the relative displacement of the ball to its terminal position away from the pedal. Accordingly, when the driver of the vehicle bears down on the pedal 6, the arm 12 will be resiliently displaced by the ball end as the latter moves to its terminal position near the pedal, so as to thereby cause the arm to bear against and displace switch part 17 to close the switch. The resilient mounting and biasing of arm 12 may be accomplished as here shown by the provision of a spring tongue 21 which may be pressed out of the arm and formed to bear against the side 16 of the pedal.

In order to obtain an operating connection between the end 11 of the arm 12 and the ball 8, the wall 22 forming the socket 7 is provided with an opening or elongated slot 23 on the side facing the arm 12 so as to admit the end 11 into the socket and into position for engagement with the ball 8. The accelerator pedal 6 is preferably provided with a hinge 24 adjacent the heel end 26 of the pedal, having a section 27 arranged for fastening as by bolt 28 to the floor board 29 of the vehicle body. The socket 7 is preferably placed in its customary position adjacent the toe 31 of the pedal. The rod 13 is usually extended through an opening 32 provided in the floor board 29.

Electrical connection to the switch 9 is effected by conductors 33 and 34 connected to terminals 36 and 37 located at the ends of the body 14. Preferably the switch 9 is connected in series with the ignition switch 38 in parallel across the conventional brake pedal operated switch 39 so that the letting up of the accelerator pedal will be automatically accompanied by the energizing of the conventional stop light 41 located at the rear of the vehicle. A wiring diagram accomplishing the foregoing is shown in Figure 3. As there shown, the stop light 41 of the vehicle is connected by conductor 42 to the brake pedal operated switch 39 and then by conductor 43 to

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the battery 44 of the vehicle. The ignition system is connected by conductor 46 to the ignition switch 38 and then by conductor 47 to the battery 44. The switch 9 of the present invention is connected by conductor 33 to the ignition system side of the ignition switch 38 so as to be energized only on closing of the ignition switch, and is connected by conductor 34 to the conductor 42 leading to the stop light 41. It will, however, be clear that the switch of the present invention may be connected in other circuit arrangements for operating signals other than the conventional stop light 41.

I claim:

1. In an accelerator operated signal, an accelerator pedal having a ball socket on its under side formed to receive the ball end of a connecting linkage part and being elongated in a direction perpendicular to the plane of said pedal to provide limited relative displacement of said ball end, said socket being formed with an opening in a side wall thereof, and an electric switch carried by said pedal and having a switch operating arm extending through said opening and into said socket into position for engagement with said ball end, said arm being normally biased to an open position of said switch and being displaceable by said ball end to actuate said switch to closed position.

2. In an accelerator operated signal, an accelerator pedal having a ball socket on its under side formed to receive the ball end of a connecting linkage part and being elongated in a direction perpendicular to the plane of said pedal to provide limited relative displacement of said ball end between terminal positions near and away from said pedal, said socket being formed with an opening in a side wall thereof, a snap acting electric switch carried by said pedal and normally biased to open position, and a switch operating arm extending through said opening and into said socket into position for engagement with said ball end and being resiliently mounted so as to resiliently urge said ball end to its terminal position away from said pedal and being yieldably displaceable by said ball end upon depressing of said pedal to move said ball end to its terminal position near said pedal, said arm being connected to said switch to effect closing thereof in said last mentioned yieldable displacement of said arm.

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3. In an accelerator operated signal, an accelerator pedal having a ball socket on its under side formed to receive the ball end of a connecting linkage part and being elongated in a direction perpendicular to the plane of said pedal to provide limited relative displacement of said ball end between terminal positions near and away from said pedal, said socket being formed with an opening in a side wall thereof, a snap acting electric switch including a switch body fastened to the under side of said pedal and an exposed movable switch operating part normally biased to open position of said switch, and a switch arm carried by said body for movement into engagement with and actuation of said part and extending through said opening and into said socket into position for engagement with said ball end, said arm having a spring tongue engaging the under side of said pedal and resiliently urging said ball end to its terminal position away from said pedal and being yieldably displaceable by said ball end upon depressing of said pedal to move said ball end to its terminal position near said pedal, said arm functioning to engage and displace said switch part to effect closing of said switch in said last mentioned yieldable displacement of said arm.

4. In an accelerator operated signal, an accelerator pedal having a ball socket on its under side formed to receive the ball end of a connecting linkage part and to provide limited relative displacement of said ball end, said socket being formed with an opening in a side wall thereof, and an electric switch carried by said pedal and having a switch operating arm extending through said opening and into said socket for engagement with and displacement by said ball end, said switch having an audible snap on-off action operable by said switch operating arm.

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