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[54] **AUTOMATIC EMERGENCY SWITCH TO ACTUATE AID SIGNAL FOR MOTOR VEHICLES**
 4 Claims, 4 Drawing Figs.

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 340/262
 [51] **Int. Cl.**..... **H01h 35/14**
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 61.53; 102/70.2; 339/75—79, 170, 154, 45;
 340/263, 262

ABSTRACT: A switch unit for use in connection with a flasher, which switch unit in addition to having a first set of stationary terminals also has a second set of weight loaded movable terminals which in response to the motor vehicle equipped with said switch unit being decelerated beyond the rate of deceleration normally occurring in motor vehicles during ordinary driving conditions will engage the first set of terminals and with the latter will close the circuit for the flasher.

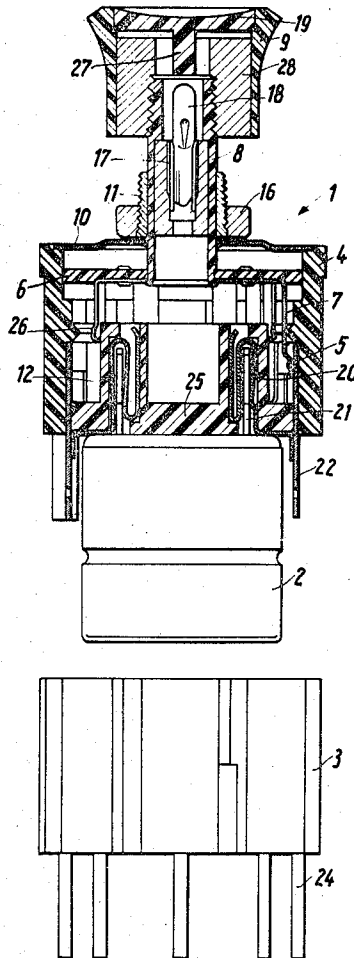
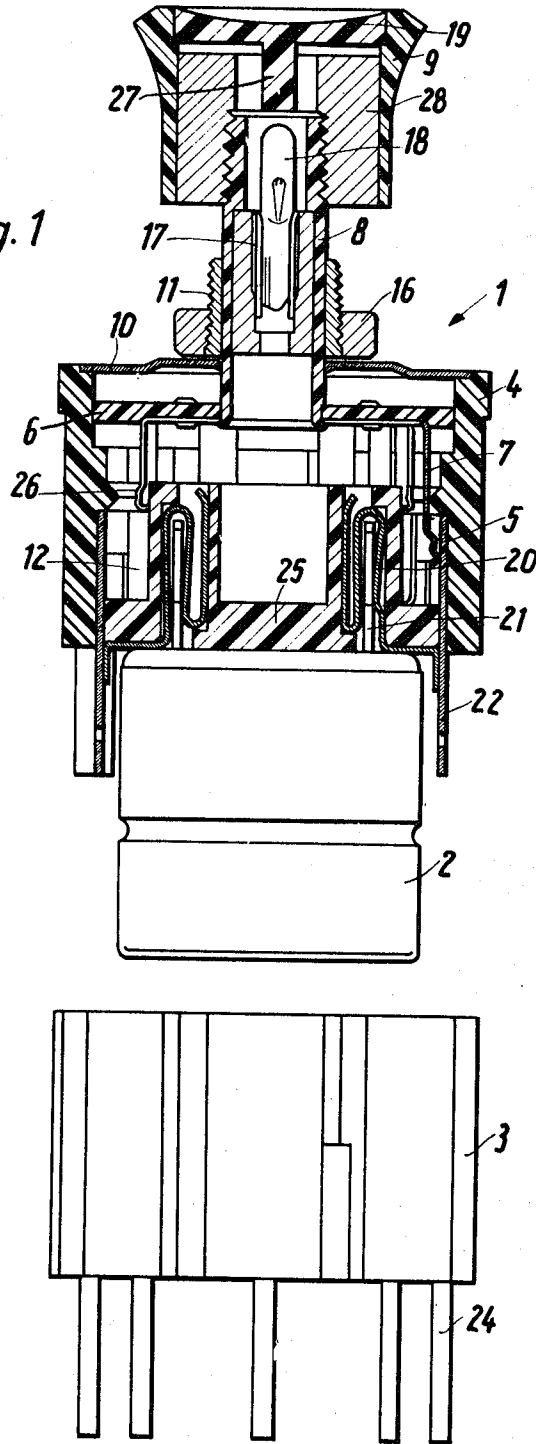


Fig. 1



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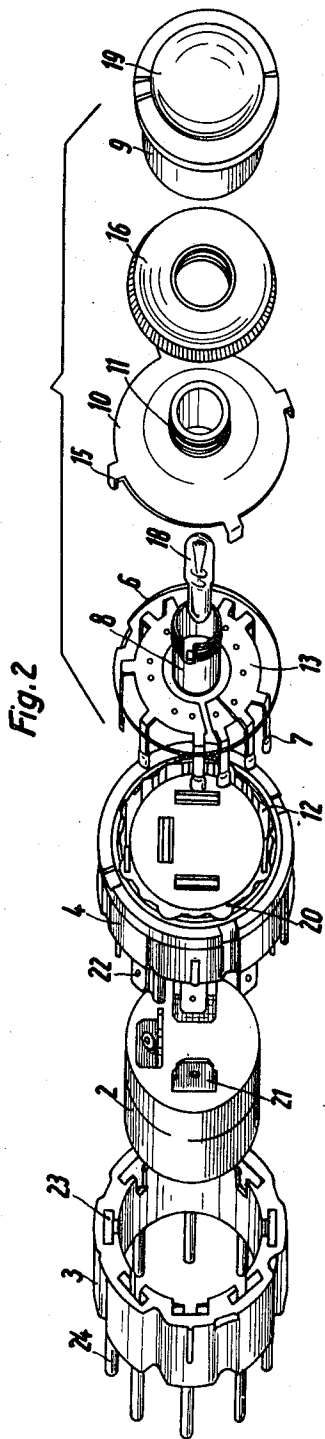


Fig. 2

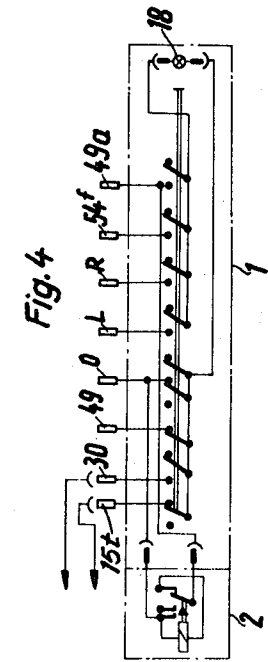


Fig. 4

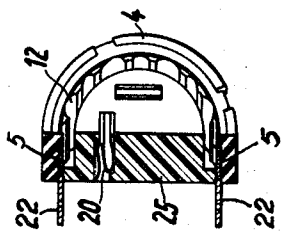


Fig. 3

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AUTOMATIC EMERGENCY SWITCH TO ACTUATE AID SIGNAL FOR MOTOR VEHICLES

The present invention concerns an emergency switch for turning on an emergency flasher or blinker signal in motor vehicles. The switch is provided with a plug connection for receiving an emitter for the blinker signal. An emergency switch of the above general type is characterized in that stationary switch contacts are arranged in an annular housing slot which is open toward the operating side. A central portion of the housing within the annular slot is provided with sockets for the blinker signal emitter. The sockets are accessible from the rear side and are connected to stationary contacts. The said emergency switch has movable switch contacts which are connected to a supporting disc which is axially displaceable by means of the switch control. The said movable switch contacts have contact fingers on a cylindrical mantle surface which engage the annular housing slot.

It is an object of the present invention to improve an emergency switch of the above-mentioned type so that the switch will automatically turn on in case of a collision so that also if the driver due to the accident should be unable to actuate the switch by hand, a flasher or blinker signal will nevertheless be emitted.

This object and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIG. 1 is a longitudinal vertical section through an emergency switch according to the invention with plugged-on emitter for a blinker signal and with cable connection.

FIG. 2 shows the switch of FIG. 1 in exploded view.

FIG. 3 is a perspective section of the switch housing.

FIG. 4 is a circuit diagram of the switch connected with a control lamp and with an emitter for blinker signals.

The emergency switch according to the present invention is characterized primarily in that the switch control and/or the supporting disc for the contact fingers are under the load of a weight and with regard to the driving direction are so arranged that when the driving speed is suddenly reduced beyond an ordinary deceleration of the vehicle, the inertia forces of the weight-loaded movable switch parts will turn on the emergency switch. Preferably, the movable switch parts are by means of a spring lock held in switched-off position. The spring lock may consist of an inwardly protruding annular bead of the switch housing. The resilient contact fingers extend beyond said annular bead. The weight and the spring lock may be so dimensioned that the turning on of the emergency switch will be effected at a deceleration of 2g.

Referring now to the drawings in detail, the emergency switch illustrated therein represents a complete blinker device and comprises a switch 1, an emitter 2 for the blinker signal, and the cable connection 3.

The switch 1 comprises a substantially cylindrical switch housing 4 with stationary contacts 5, an axially movable supporting disc 6 with movable switch contacts 7, a shank 8 connected to the supporting disc 6 and carrying at its free end the control 9 in the form of a push or pull knob, and finally comprises a housing cover 10 in the form of a relatively annular disc, which housing cover carries a threaded extension 11 extending around the shank 8.

In the switch housing 4 therein is provided an annular slot 12 which on the outside contains the stationary switch contacts 5 and in which the fingers of the movable contacts 7 are axially displaceable.

As will be seen from FIG. 2, the interconnected movable contacts 7 individually consists of one piece of contact sheet metal and by means of segment-shaped connecting members 13 are connected to the supporting disc 6 of insulating material. The segment-shaped connecting members 13 thus engage the supporting disc along a flat surface, whereas the contact fingers 7 are bent at a right angle and rest on a cylinder mantle surface. The contact material is resilient so that between the

contacts 5 and 7 a well-conducting connection can be established.

The contacts 5 and 7 are in conformity with their switch functions as opening and closing means of different length and are cranked or are provided with nonconducting covers. The contacts 5 are positively inserted into the wall of the housing 4 and are secured therein by the bottom member 25 to be inserted afterwards.

A rotation of the movable switch parts in housing 4 is prevented by the engagement of the contacts 7 in corresponding longitudinal grooves of the housing. An inwardly extending housing bead 26 together with the resilient contacts 7 serves as a resilient lock which either holds the switch in the pulled-out, turned-off position or holds the switch in the pressed-in engaging position.

The switch housing 4 has its upper side closed by an annular cover plate 10 which by means of radial extensions 15 is anchored to the housing. The cover plate is preferably blank so that it can serve as mass connection. During the assembly, after unscrewing the knob 9, the threaded extension 11 is passed through a bore of the control panel to subsequently arrest the switch by the nut 16.

The hollow shank 8 onto which the knob 9 has been screwed has within its interior a socket 17 for a control lamp 18 the light of which may be observed through the window 19 of the knob. The extension 27 of the window prevents the lamp 18 from disengaging itself from the socket. The two terminals of the lamp socket 17 are connected on one hand with the shank 8 and on the other hand with one of the connecting members 13 of the movable contacts 7 so that no additional cables are necessary.

That inner part of the switch housing 4, which is not necessary for the switch function, is provided with sockets 20 accessible from the rear side of the switch. Plugs 21 of an emitter for blinker signals can be inserted into said sockets 20. These sockets 20 are connected to the stationary switch contacts within the switch housing 4.

The emitter for a blinker signal as shown in the drawing, represents a blinker relay means of a type described in German Pat. No. 1, 112,579. This blinker relay works with pneumatic delay and periodically short-circuits two of its connecting terminals.

The housing of the signal emitter 2 is likewise cylindrical and in an installed condition, i.e. in plugged-in condition, is located within prongs 22 coming out from the rear side of the housing 4 along a circular line. These prongs 22 are fixedly connected to the stationary switch contacts 5 or are produced so as to form a single piece therewith.

In order to bring about that switch 1 will be automatically turned on, which means also without the driver having a hand therein, when during a collision or other accident the driving speed suddenly drops to zero, there is provided in the knob 9 a weight 28 the mass of which by forces of emergency during a retardation of a certain magnitude, for instance, more than 2g., moves the axially movable control parts against the locking mechanism of the spring from the switch-off to the switch-on position. The switch shank is directed toward the longitudinal vehicle axis. Instead of the weight 28 in the knob 9, also the supporting disc 6 may be designed as weight.

For purposes of providing The particularly simple connection of the emergency switch, and for improving the accessibility to the emitter 2 for the blinker signal without increasing the structural length of the arrangement, there is provided an annular cable connection 3. This cable connection 3 likewise comprises sockets 23 distributed along a circular line and adapted to be engaged by plugs or prongs 22. The sockets 23 are at the opposite end face of the cable connection designed as soldering or terminal connections 24.

FIG. 4 by way of a diagram illustrated the switch function of switch 1 and its connection with the control lamp 18 and the emitter 2 for the blinker signal. The switch is in turned-off condition. In turned-on condition, the contacts are shifted toward the left. The two terminals 15 and lead 30 through

fuses to the ignition switch and to the battery. The terminals L and R lead to the blinker lamps arranged on the left and right-hand side of the vehicle. The terminal 54f will with blinker-brake light circuits lead to the brake light switch, and the terminal 49a leads to the directional blinker switch. The terminal 49 may when employing an additional directional blinker, be connected with the corresponding terminal of said blinker signal emitter.

It is, of course, to be understood that the present invention is, by no means, limited to the particular construction shown in the drawings but also comprises any modifications within the scope of the appended claims.

What I claim is:

1. A switch unit for use in connection with an emergency signal emitter having terminal prong means, which includes: housing means, first terminal means fixed within said housing means, second terminal means movable within said housing means and movable selectively from a first position out of electrically conductive engagement with said first terminal means to a second position in which said second terminal means is in electrically conductive engagement with said first terminal means, socket means in said housing means detachably receiving the terminal prong means of said signal emitter, and weight means connected to said second terminal means and operable when said unit is being moved in the axial direction of said housing means to move said first and second terminal means into electrically conductive engagement with

each other in response to the rate of deceleration of said first terminal means relative to said second terminal means exceeding the rate of deceleration during ordinary driving conditions of a motor vehicle.

2. A switch unit according to claim 1, which includes spring urged locking means normally preventing said first and second terminal means from moving into electrically conductive engagement with each other, said locking means being overcome in response to the rate of deceleration of said first terminal means relative to said second terminal means exceeding the rate of deceleration occurring during ordinary driving conditions of said motor vehicle

3. A switch unit according to claim 2, in which said second terminal means are formed by resilient tongues, and in which said housing means has bead means adjacent to said tongues, said tongues normally being prevented by said bead means from moving toward said first terminal means but being operable in response to excessive rate of deceleration to slip over said bead means and thereafter move toward said first terminal means.

4. A switch unit according to claim 1, in which said weight means is of such a magnitude as to cause said second terminal means to be moved and electrically conductively to engage said first terminal means in response to the rate of deceleration exceeding 2g.

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