March 14, 1933. G. M. MORTENSON 1,901,320

ELECTRIC SWITCH

Filed April 8, 1929 2 Sheets-Sheet 1

Fig. 1.

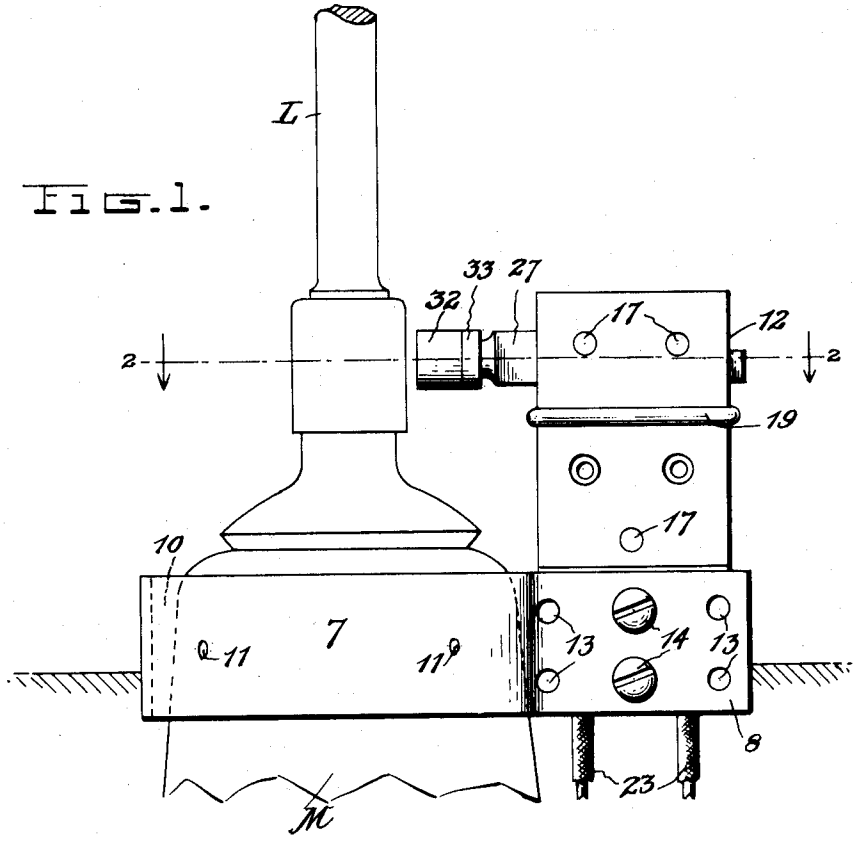
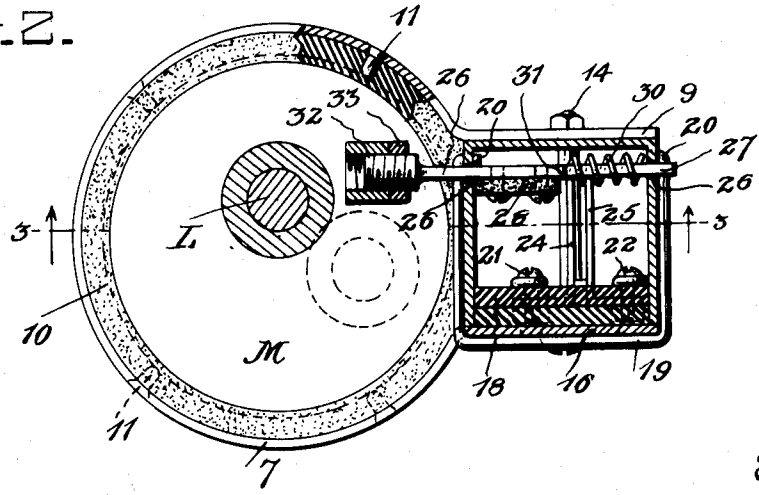


Fig. 2.



Inventor

Gustar M. Mortenson.

Witness

C. C. Hunt.

By H. B. Williamson & Co

Attorneys

March 14, 1933. G. M. MORTENSON 1,901,320

ELECTRIC SWITCH

Filed April 8, 1929 2 Sheets-Sheet 2

Fig. 3.

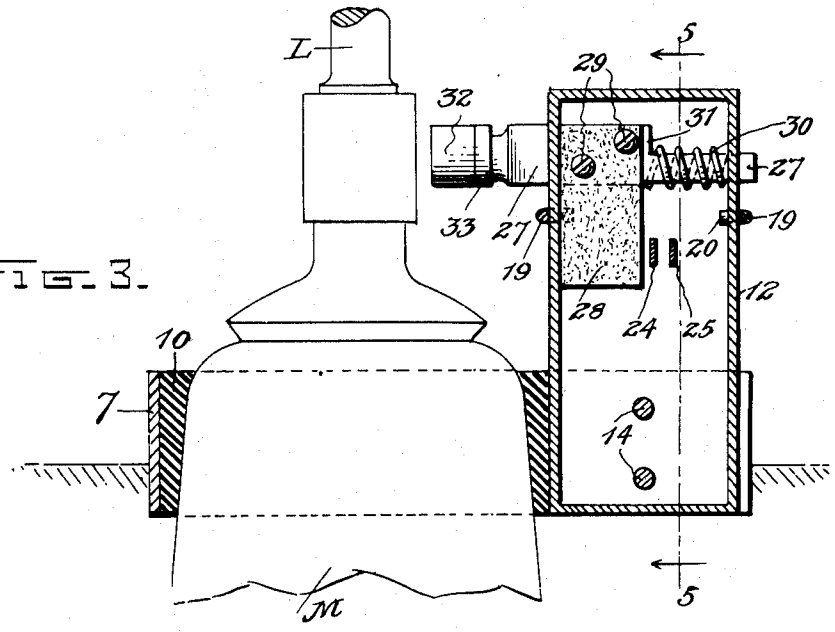


Fig. 4.

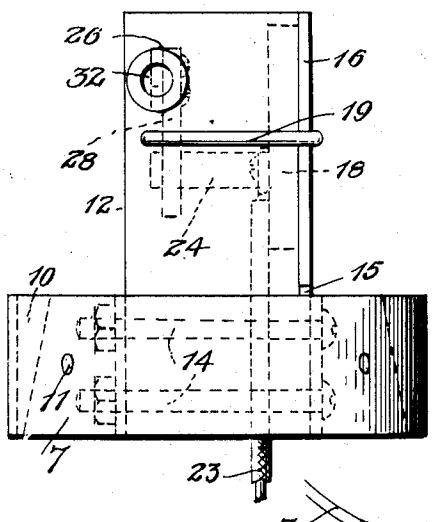


Fig. 5.

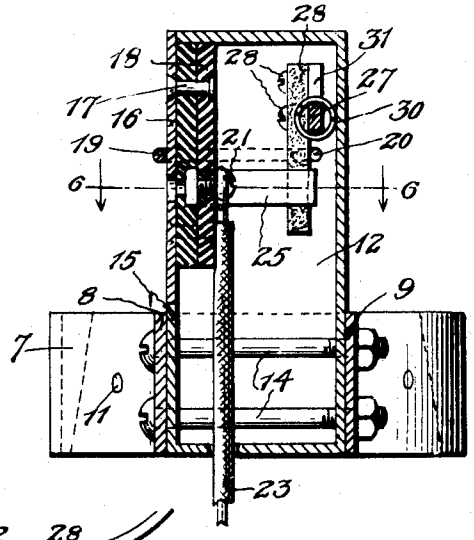
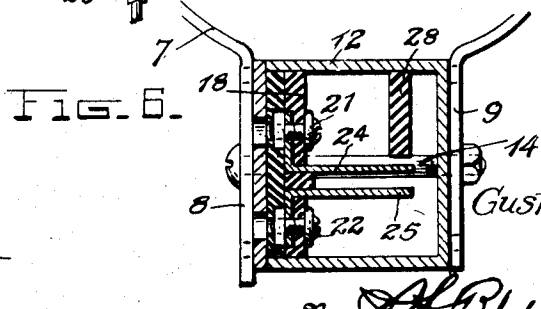


Fig. 6.



Witnesses

E. E. Hunt

Inventor

Gustav M. Mortenson

By A. B. Williamson & Co

Attorneys

Patented Mar. 14, 1933 1,901,320

UNITED STATES PATENT OFFICE

GUSTAV M. MORTENSON, OF WARREN, PENNSYLVANIA

ELECTRIC SWITCH

Application filed April 8, 1929. Serial No. 353,537.

The invention aims primarily to provide an exceptionally simple and inexpensive yet an efficient switch which may be easily attached to the usual upstanding mount of an automobile gear shift lever in position to be controlled by said lever, to the extent of being closed when the lever is moved for reversing. Hence, the switch may be advantageously connected with a backing light and whenever the gear shift lever is thrown to reversing position, the backing light will be automatically illuminated.

In carrying out the above end, further objects are to provide unique features of switch construction and unique attaching means for the switch casing.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Fig. 1 is a side elevation showing the invention applied.

Fig. 2 is a horizontal sectional view on line 2—2 of Fig. 1.

Fig. 3 is a vertical longitudinal section substantially on line 3—3 of Fig. 2.

Fig. 4 is a rear elevation.

Fig. 5 is a vertical sectional view on line 5—5 of Fig. 3.

Fig. 6 is a horizontal sectional view on the correspondingly numbered line of Fig. 5.

The drawings above briefly described illustrate the preferred form of construction and while such construction will be herein specifically explained, it is to be understood that within the scope of the invention as claimed, variations may be made.

The numeral 7 on the drawings denotes a metal strap bent to provide a band which is adapted to surround the usual upstanding mount M for an automobile gear shift lever L, the ends 8—9 of said strap being extended outwardly in spaced parallel relation. The inner side of the band 7 is provided with a rather thick lining 10 of rubber or other resilient material which is adapted, upon tight contraction of the strap or band, to conform to any taper which the mount M may possess. To connect the band or strap 7 with the lining 10, the former is provided with a plurality of studs 11 which project inwardly into recesses in said lining.

A vertically elongated switch casing 12 formed of sheet metal, has its lower end portion received between the strap ends 8—9 and secured to the end 9 by riveting, brazing or in any other desired way. The other strap end 8 is free of connection with the casing 12 and is formed with numerous bolt holes 13, through any of which clamping bolts 14 may be passed, according to the necessary size to which the band or strap 7 is bent. The casing 12 and the strap end 9 are also formed with suitable openings through which the bolts 14 pass and it will be seen that when these bolts are tightened, the casing will be solidly attached to the mount M.

One side wall of the casing 12 consists of a lower stationary section 15 and an upper removable section 16. The lower end of the section 16 abuts the upper end of the section 15 and is held against downward sliding by the latter. Secured by rivets or the like 17 to the inner side of the removable section 16, is an insulating block 18 which abuts the inner sides of the three adjacent walls of the casing 12, thereby holding the section 16 against sliding in other directions. Outward movement of this section 16 away from the casing, is prevented by a spring yoke 19 having hooked ends 20 snapped into openings in the casing. When the yoke 19 is sprung and removed, the section 16 is outwardly movable from the remainder of the casing, at which time two binding posts 21—22 are accessible for connecting current conducting wires 23. These binding posts are in electrical engagement with two spring contacts 24—25 respectively, which contacts are carried by the insulating block 18 and project to a point near the opposite side of the casing 12. When the contacts 24—25 are moved into engagement with each other, an electric circuit is completed as will be readily understood.

The vertical sides of the casing 12 which extend at right angles to the side 15—16, are formed with alined flat-sided slots 26.

A flat bar 27 passes across the interior of the casing and is slidably engaged with these slots, and an insulating block 28 is secured by bolts or the like 29 to said bar. A coiled compression spring 30 surrounds one end portion of the bar 27, acts against a shoulder 31 on this bar and re-acts against a side of the casing, to normally hold said bar in a position at which the insulating block 28 strikes the opposite side of the casing as seen for instance in Fig. 3. When the block 28 is in this position, it is near the contact 24 and the latter is separated from the contact 25, so that upon inward pushing of bar 27, these contacts will be caused to engage each other to complete the circuit. The end of bar 27 remote from spring 30, projects beyond the casing 12 and is provided by a threaded terminal 32 locked in adjusted position by a lock nut 33. When the switch is applied to the machine, it is so set and the terminal 32 so adjusted, that when lever L is in reversing position, the actuator 27—28 will be in its inwardly moved position, holding the contact 24 against contact 25. When in this position however, the actuator is not at its limit of movement and consequently is not solidly engaged with the casing, so that there is no danger of exerting undue pressure upon the latter when forcibly moving lever L to its reversing position.

It will be seen from the foregoing that simple and inexpensive construction has been provided, yet that such construction will be highly efficient and in every way desirable. When initially installing the switch or whenever necessary to have access to the binding posts 21—22, the side section 16 is bodily removed from the casing so that said binding posts may readily be engaged with or disengaged from the wires as occasion may demand. This overcomes a great deal of difficulty which would otherwise be encountered in attempting to connect the wires within the comparatively small casing. When plate 16 is applied, it is held against downward sliding by abutting the side section 15, and is held against forward, rearward or upward sliding by contact of the insulating block 18 with the adjacent casing sides. This insulating block 18 thus performs an important function in addition to acting as carrying means for the switch composed of the contacts 24—25 and the associated binding posts. Then too, the insulating block 28 has a dual function, in that it serves as means for moving the contacts 24—25 into engagement with each other and as means for limiting the movement of the slide bar 27 under the influence of the spring 30. By providing a construction in which such multiple functions are assigned to elements, maximum simplicity is attained and there are practically no parts to get out of order.

While the details disclosed are preferably followed, attention is again invited to the fact that variations may be made within the scope of the invention as claimed.

I claim:—

1. A switch comprising a casing having alined non-circular openings in two opposed sides and a removable side section extending between said sides, a non-circular bar slidably engaged with said openings and having an end projecting from the casing to be inwardly pushed, a spring in the casing acting on said bar in a direction to move its projecting end outwardly, an insulating block in the casing secured to said bar and normally abutting one of said sides of the casing to limit the movement of said bar under the influence of said spring, and a switch mounted on said removable side section of the casing, said switch having an actuating portion in the inward path of said insulating block.

2. A switch comprising a casing having one side wall formed of a fixed section and a removable section, said removable section abutting said fixed section and being held against sliding in one direction thereby, an insulating block secured to the inner side of said removable section and abutting the inner sides of three walls of said casing to hold said removable section against sliding in other directions, means for holding said removable section against outward movement from the casing, a switch carried by said insulating block and projecting into the casing, and actuating means for said switch mounted in said casing and having an actuating portion extending to the exterior of the latter.

3. In combination with a universally movable automobile gear shift lever and the conventional upstanding mount supporting said lever, a casing secured to said mount and containing a switch, and an actuator for said switch extending to the exterior of said casing, the outer end of said actuator being disposed in a path of said gear shift lever.

In testimony whereof I have hereunto affixed my signature.

GUSTAV M. MORTENSON.