Dec. 8, 1931. H. D. DAWSON 1,835,019

SWITCH

Filed Nov. 28, 1930

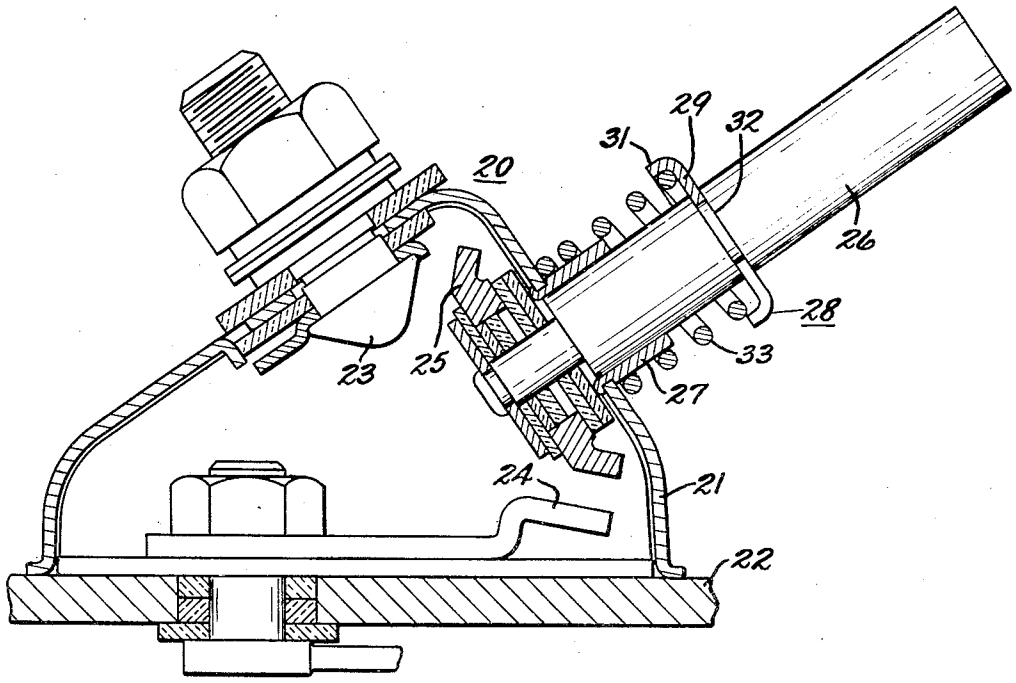


Fig. 1

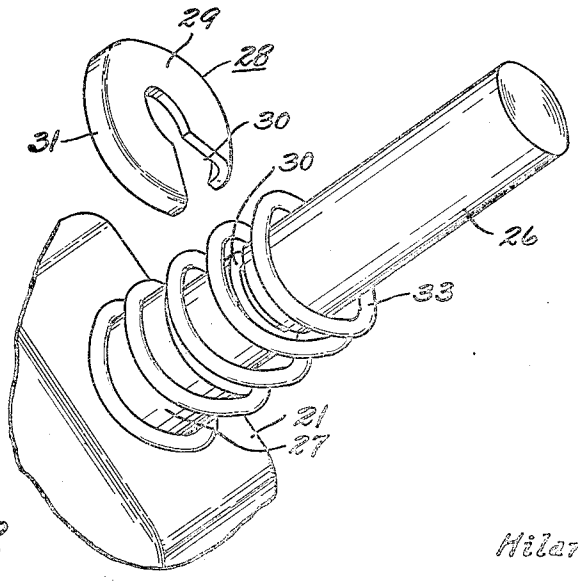


Fig. 2

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UNITED STATES PATENT OFFICE

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SWITCH

Application filed November 28, 1930. Serial No. 498,681.

This invention relates to improvements in switches.

An object of the present invention is to produce a switch at a lower cost than heretofore.

Another object of the invention is to provide a retainer cup member adapted to be held against accidental removal by the means it holds.

The invention as disclosed herein is applied more particularly to a switch adapted for use with starting apparatus including an electric motor for cranking an internal combustion engine.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred embodiment of one form of the present invention is clearly shown.

In the drawings:

Fig. 1 is an enlarged sectional view of the switch.

Fig. 2 is a disassembled view of the elements constituting the present invention.

Referring to the drawings, 20 designates a switch that includes a casing 21 attached to a field frame 22 of a starting motor in any suitable manner. The frame 22 and the casing 21 comprise a switch housing for enclosing stationary contacts 23 and 24, which are engaged by a movable contact 25 insulatingly supported by a plunger or carrier 26. The casing 21 carries a sleeve 27 for slidably supporting the plunger 26.

A retainer 28 is provided with a bottom wall 29 and said wall is furnished with a slot 30 and has an annular flange 31 forming a cylindrical wall. A portion of the cylindrical wall is cut away by the slot 30 for a purpose to be described later. The plunger 26 has an annular groove 32 located between the ends thereof. This groove is adapted to receive the bottom wall 29 of the retainer cup through the slot 30 which terminates into a central opening in the bottom wall of the retainer cup. The opening is dimensioned to fit snugly about the bottom of the groove 32 so that a portion of the bottom wall will engage the shoulders formed by the groove 32. When the retainer cup is in position on the plunger, the flange 31 will be substantially concentric of the plunger 26.

A spring 33 is interposed between the casing 21 and the retainer cup 28, one end of the spring being seated on the housing and the other end being designed to seat against the retainer cup, so that accidental removal of the retainer cup is substantially prevented by the spring 33. Since the spring 33 is under compression when assembled, as shown in Fig. 1, the plunger is urged into one direction which normally separates the contact 25 from the contacts 23 and 24. To remove the container 28, it is only necessary to compress the spring so that the end convolutions will clear the flange 31 which permits the removal of the retainer cup and consequently the removal of the plunger 26.

The contacts 23 and 24 are insulatingly supported upon the switch housing 21 and the field frame 22, respectively, as disclosed in detail in the patent to F. C. Kroeger, No. 1,598,827, and by these means are electrically connected in a starting motor or other circuit that is to be controlled.

The switch comprising the present invention includes the pressed metal housing 21 substantially pyramidal in form and is designed to be mounted on the starting motor frame over the fixed contact 24. The housing 21 insulatingly supports the contact 23, and also slidably supports the spring pressed plunger 26 carrying the bridging contact 25. When the contact 25 is actuated to close a circuit, the contact 25 will be capable of electrically connecting the contacts 23 and 24.

From the foregoing description it will be clearly seen that I have provided a simple C-shaped retainer cup which provides a seating abutment for a spring; and which in turn is securely locked against accidental removal by the spring which it supports due to the cooperable seating engagement of the associated parts.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming

within the scope of the claim which follows.

What is claimed is as follows:

A switch comprising in combination; a case; stationary contacts inclosed by said case; an operating rod extending into said case; a movable contact within said case insulatingly supported by said rod; a guide bushing carried by said case for receiving said rod; a spring surrounding said bushing and rod and bearing at one end against said case; means for retaining said spring in a state of compression, said means comprising a C-washer having a notch extending from its periphery to a central opening adapted to receive a grooved portion of said rod, said washer receiving the other end of said spring and having a flange surrounding said spring, the guide bushing operating to locate the spring substantially coaxially with said rod, and the spring operating to retain the washer within the groove of said rod.

In testimony whereof I hereto affix my signature.

HILARION D. DAWSON.