Nov. 13, 1928. 1,691,844

H. A. DOUGLAS

ATTACHING MEANS FOR CASINGS

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Fig. 1.

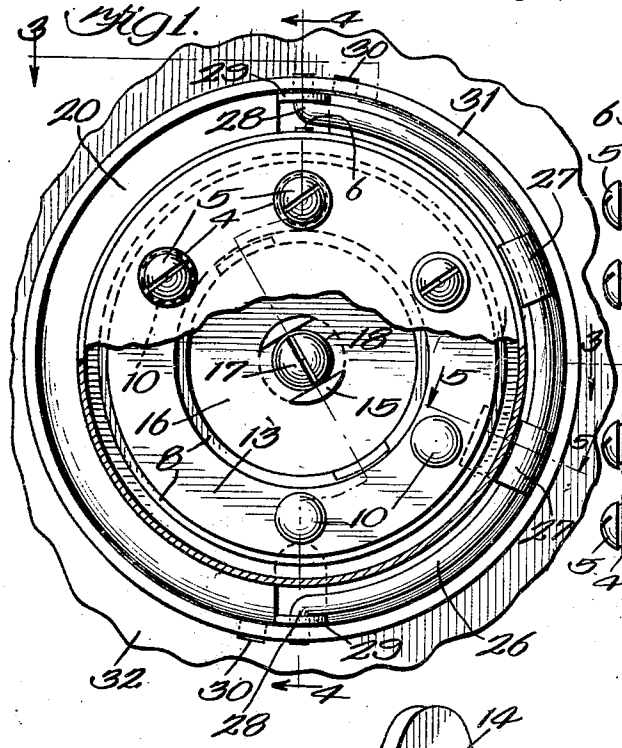


Fig. 2.

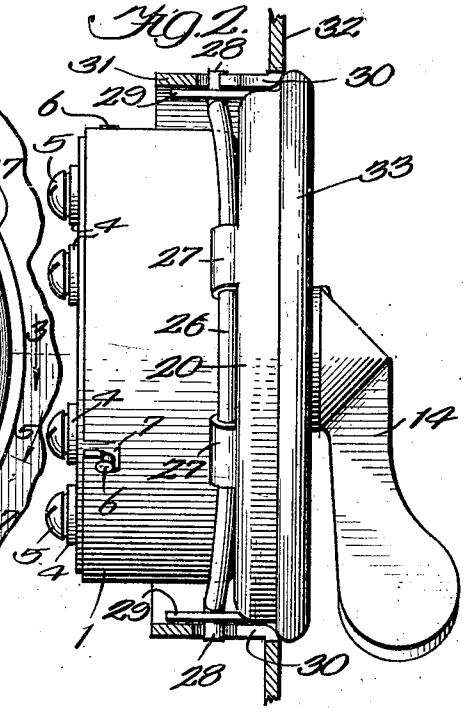


Fig. 3

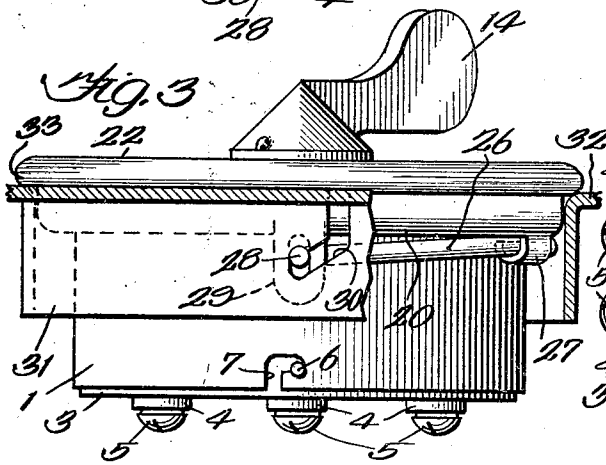


Fig. 4.

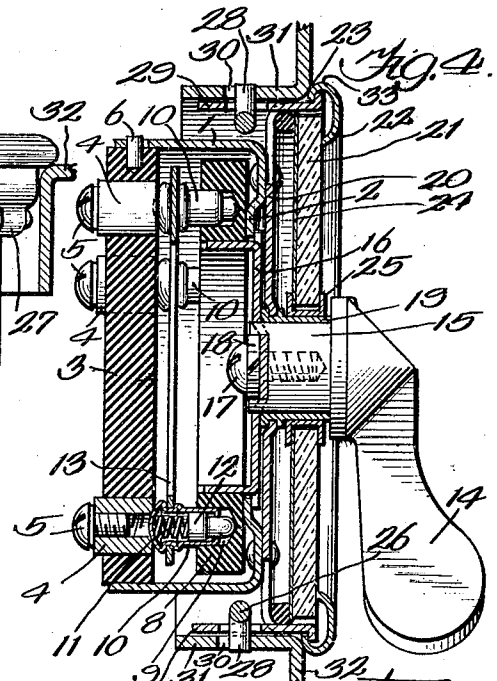
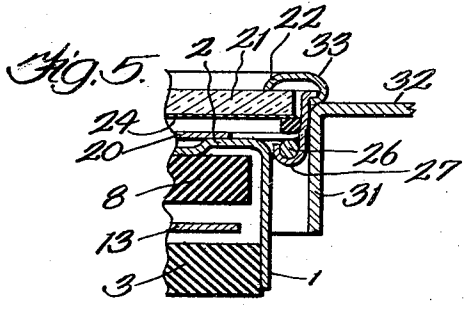


Fig. 5.



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Fig. 6.

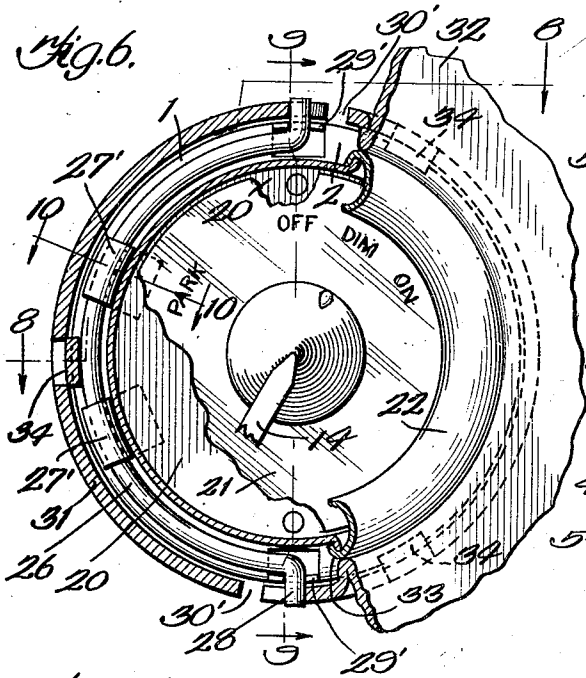


Fig. 7.

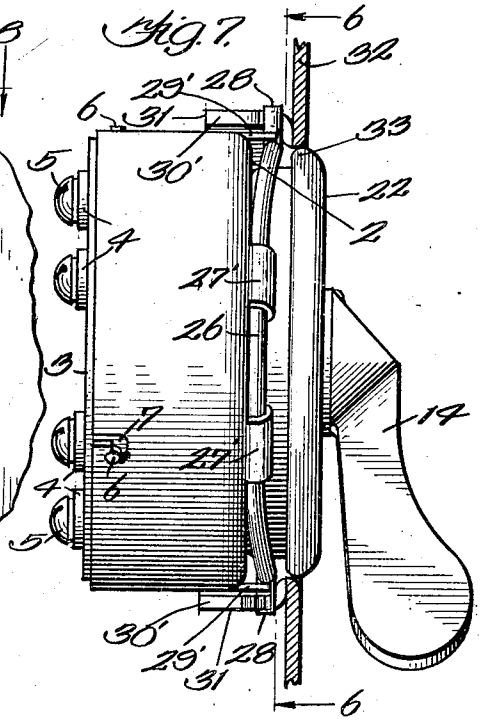


Fig. 8.

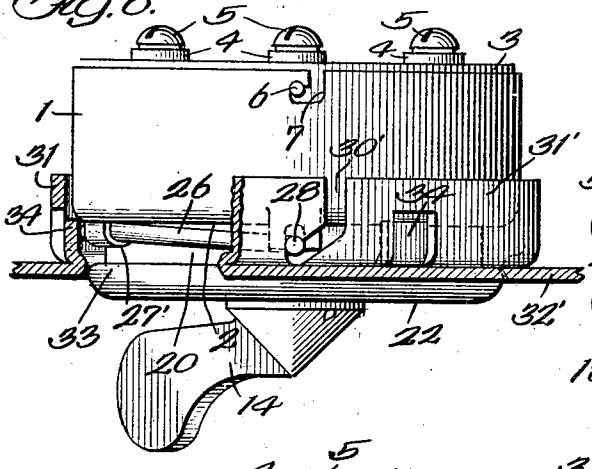


Fig. 9.

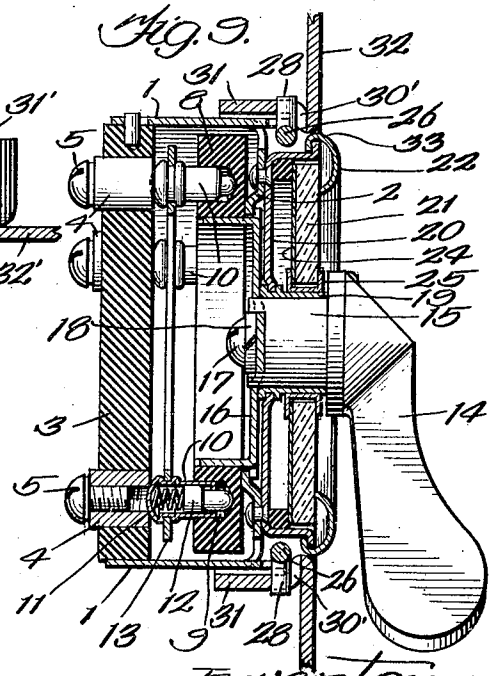
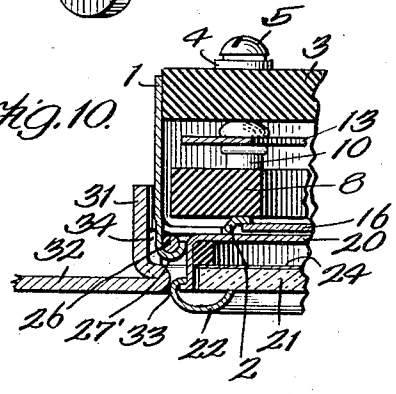


Fig. 10.



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Patented Nov. 13, 1928. 1,691,844

UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN.

ATTACHING MEANS FOR CASINGS.

Application filed August 2, 1926. Serial No. 126,730.

My invention relates to casings which enclose mechanism that is operable by handles upon the exteriors of the casings and resides in the provision of improved means for assembling the casings with panel boards that are to carry the same.

My invention is of particular utility in connection with lighting or ignition switching mechanism employed in automotive vehicles and located upon the dash boards thereof.

In accordance with my invention, the casing and the mounting panel are provided with interengaging parts in the form of pins and portions having openings which receive the pins, at least one of the pins being movable with respect to the element carrying it and spring pressed into holding engagement with the corresponding holding formation of the other element. In the preferred embodiment of the invention, the pins are carried upon the casing and the openings are formed in portions upon the panel mounting. At least one opening and preferably each opening is of bayonet formation and the pin which enters it is spring pressed into engagement with the pin seat of this opening. The pins are desirably angular end portions of an arcuate shaped spring steel rod which partially surrounds the preferably cylindrical casing and which is anchored at its intermediate portion to the casing in a manner to constrain it to lie in a plane which is perpendicular to the axis of the casing, when the casing is not assembled with the panel mounting. The bayonet channels are preferably provided in a collar that constitutes an integral portion of the panel and which collar encircles the casing, the pin receiving seats of the bayonet channels being so located that the aforesaid spring rod is deflected from its normal plane and against the resilience of the rod whereby the rod operates upon the pins carried thereby to press upon the seats of the bayonet channels, the casing being consequently thrust into engagement with a portion of the panel. If the casing is inserted from the front side of the panel, it is desirably formed with a surrounding bead that has thrusting engagement with the rim of the opening in the panel through which the casing is passed. The casing may be inserted from the rear side of the panel if some of the parts are reversed, as will later appear.

I will explain my invention more fully by reference to the accompanying drawings in which Fig. 1 is a rear view of one form of the invention with parts broken away; Fig. 2 is a side elevation of the mechanism shown in Fig. 1 with the mounting panel in section; Fig. 3 is a sectional view on line 3—3 of Fig. 1; Fig. 4 is a sectional view on line 4—4 of Fig. 1; Fig. 5 is a detailed sectional view on line 5—5 of Fig. 1; Fig. 6 is a front view of another form of the invention with parts broken away and other parts shown in section; Fig. 7 is a side view of the structure shown in Fig. 6 with the mounting panel shown in section; Fig. 8 is a view taken generally on line 8—8 of Fig. 6; Fig. 9 is a sectional view on line 9—9 of Fig. 6; and Fig. 10 is a detailed sectional view.

The two embodiments of the invention have many features in common and similar parts will be given similar characters of reference. The switch casing in each form of the invention is in the form of a cup having a cylindrical side wall 1 and an end wall 2. A contact carrier 3, formed of insulation, carries a number of metallic sleeves 4 that receive binding screws 5 which pertain to the various lighting or other circuits which are to be controlled. The contact carrier 3 is in the form of a disc which is surrounded by the rear end of the cup wall 1 and is separably engaged with the cup by being provided with bayonet pins 6 which are receivable within corresponding bayonet channels 7 formed in the cylindrical side wall 1 of the cup. The disc 3 thus constitutes the rear end wall of the casing and a closure therefor. A contact actuating ring 8, made of insulation, is disposed within the casing and has a number of cup shaped recesses 9 which receive the front ends of the metallic spring barrels 10. These spring barrels house springs 11 which press forwardly upon the plungers 12. These plungers have reduced ends which engage the bottom of the recesses 9 to force the insulating ring 8 against the front end wall 2 of the casing, said springs also pressing rearwardly upon the spring barrels whose rear

ends are in the form of contacts which are engageable with the front ends of the metallic sleeves 4.

The spring barrels are electrically and mechanically assembled by means of a metallic ring 13 which is coaxial with the casing and with the ring 8 within the casing. A handle 14 has a hub portion 15 against whose inner end the mid portion of the yoke 16 is clamped by a screw 17 which passes through a spring washer 18 into the hub 15, this spring washer being between the head of the screw and the portion of the yoke which is clamped by the screw upon the handle hub. The ends of the yoke are received in slots formed upon the inner side of the ring 8 so that when the yoke is turned by the handle, the ring 8 is turned to effect the desired circuit adjustment. The hub 15 is journaled within a metallic sleeve 19 which is secured to the inner end wall 20 of a second casing, this inner end wall being riveted to the front end wall 2 of the first casing. A light transmitting closure 21 is disposed within the second casing, being pressed against the front rim 22 of this casing by means of a resilient rubber gasket 23. An index element 24 is interposed between the gasket 23 and the closure 21, this index element being in the form of a disc having suitable markings thereon, such as appear in Fig. 6, whereby the adjustment effected by the handle is indicated. The hub portion 15 of the handle thus passes through the second casing into operative connection with the switching mechanism in the first casing, the closure 21 and the index element 24 being provided with openings through which the handle hub passes. A grooved collar 25 desirably surrounds the bearing sleeve 19 and receives the portions of the elements 21 and 24 that margin the holes in these two elements.

Referring now more particularly to the structure shown in Figs. 1 to 5 inclusive, a spring steel rod 26, of arcuate formation, is held, at its intermediate portion, by ears 27 which are struck from the inner end wall 20 of the front casing. These ears hold the intermediate portion of the rod against the rear face of the casing wall 20 and also, when the casing is not assembled with the panel board, constrains the remaining portions of the rod to lie against said casing end wall 20 with the exception of the angular end portions 28 of the rod which constitute bayonet pins. These pins project laterally from the casing and pass through the ears 29 that are struck from the front casing, there being openings in these ears in which the bayonet pins may play. The ears 29 serve to prevent the rod 26 from creeping through the ears 27. The bayonet pins 28 are received within bayonet channels or pin receiving recesses 30 which are formed within a collar or attaching member 31 which is integrally formed with and projects angularly from a panel mounting 32 and projects rearwardly therefrom and surrounds the casings to be in the same zone therewith. The pins 28 are substantially parallel with the panel. In the form of the invention under description, the front casing is of greater diameter than the rear casing and the part 22 thereof has a surrounding bead formation 33 which is adapted for thrusting engagement with the portion of the panel 32 that margins the opening in this panel through which the casings are passed from the front toward the rear of the panel. The inner ends of the bayonet slots are sloped so as to have cam action upon the bayonet pins as these pins are passed through the bayonet channels into engagement with the pin seats formed in the channels. The cam portions of the bayonet channels serve to pull the ends of the spring rod 26 away from their normal plane whereby the rod is placed under a spring tension which will cause the bayonet pins to be spring pressed perpendicularly to the panel and against their seats thereby to press the casings perpendicularly to the panel and thereby effect thrusting engagement of the casing bead 33 with the panel 32.

Some of the features of construction above described with specific reference to Figs. 1 to 5 appear in somewhat different relation in the structure of Figs. 6 to 10 inclusive which will now be further described. The spring rod 26′, in the structure of Figs. 6 to 10, is anchored by means of the ears 27′ which are struck from the front end wall 2 of the rear casing. These ears have the same relationship to and effect upon the rod 26 as do the ears 27 of the other structure with the exception that they cause the outer ends of the rods, excepting the pins thereon, to lie against the front end wall 2 of the rear casing when the casings are not mounted. The bayonet pins 28 pass through the ears 29′ that are struck from the rear casing, there being openings in these ears in which the bayonet pins may play. The ears 29′ serve to prevent the rod 26′ from creeping through the ears 27′. The bayonet pins 28 are received within bayonet channels or pin receiving recesses 30′ which are formed within the attaching member or collar 31′ which is integrally formed with a panel mounting 32′ and projects rearwardly therefrom and surrounds the casing. The bayonet channels 30′ have their receiving ends at the rear side of the collar so that the casings are placed in assembly with the panel 32′ by being moved from the rear side of the panel toward the front side of the panel. The bayonet channels 30′ are also of cam formation near the seats for the bayonet pins so that the ends of the rod 26′ are lifted to

cause the rod to exert spring pressure upon the pins when these pins are received in their seats whereby the front end wall 2 of the rear casing is pressed against lugs 34 which are inwardly struck from the collar 31'.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

In an assembling device, the combination with an arcuate spring rod terminating in assembling pins; of an element to be assembled and with which an intermediate portion of the rod is assembled to constrain the rod into one position; and an element having bayonet channels having pin receiving seats in actuating engagement with the pins and thereby having actuating relation with the end portions of the rods carrying the pins whereby the rod exerts spring pressure upon the pins and the pin seats.

In witness whereof, I hereunto subscribe my name.

HARRY A. DOUGLAS.