Nov. 5, 1929. H. A. DOUGLAS 1,734,565

CIRCUIT CONTINUING DEVICE

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Fig. 1.

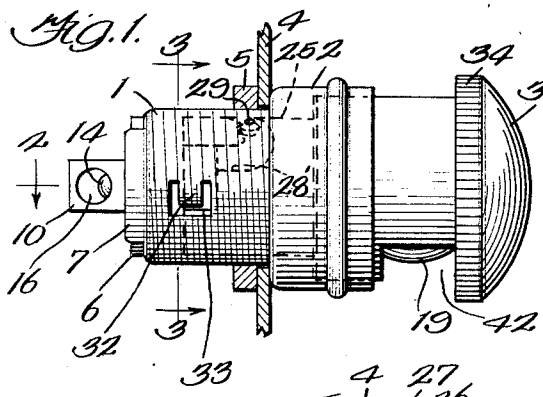


Fig. 3

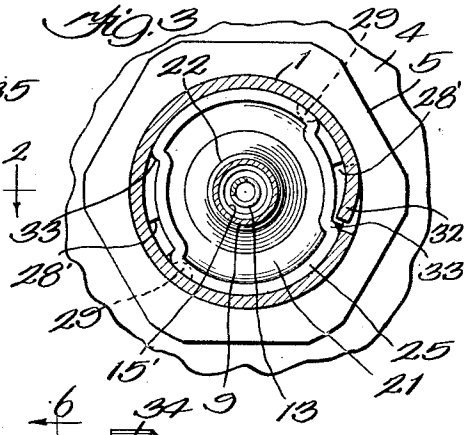


Fig. 2.

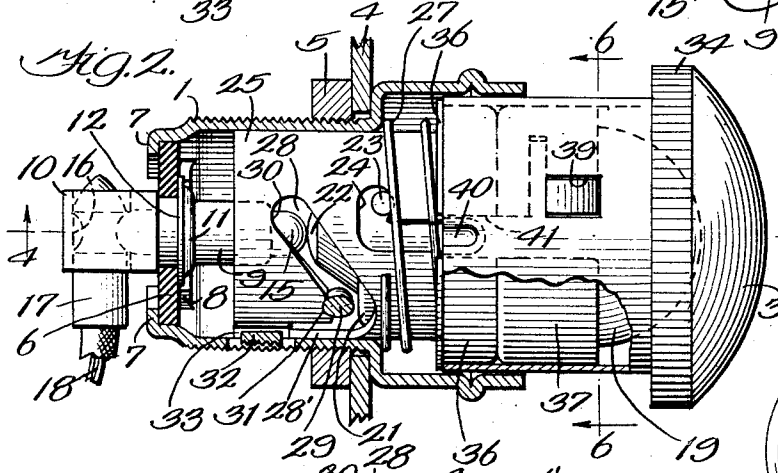


Fig. 5.

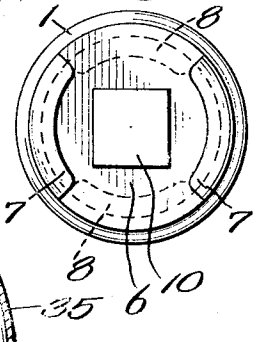


Fig. 4.

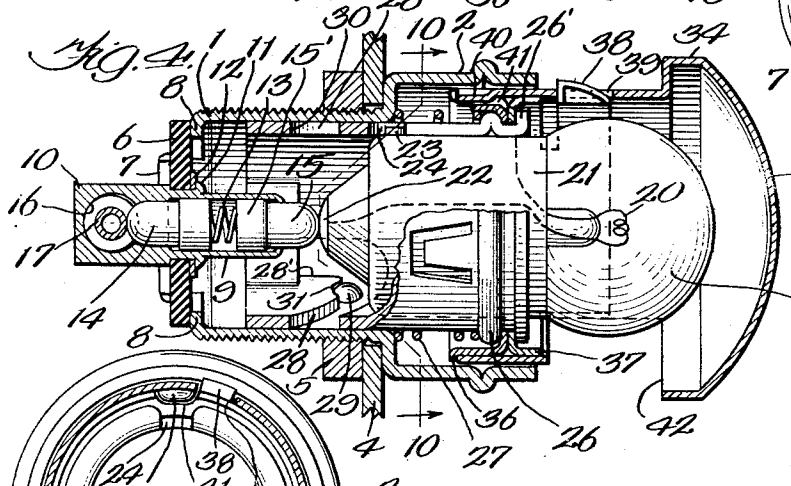
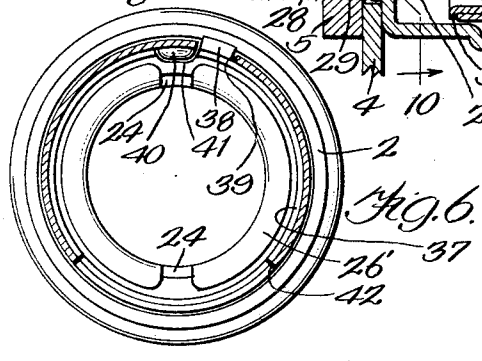


Fig. 6.



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Fig. 7.

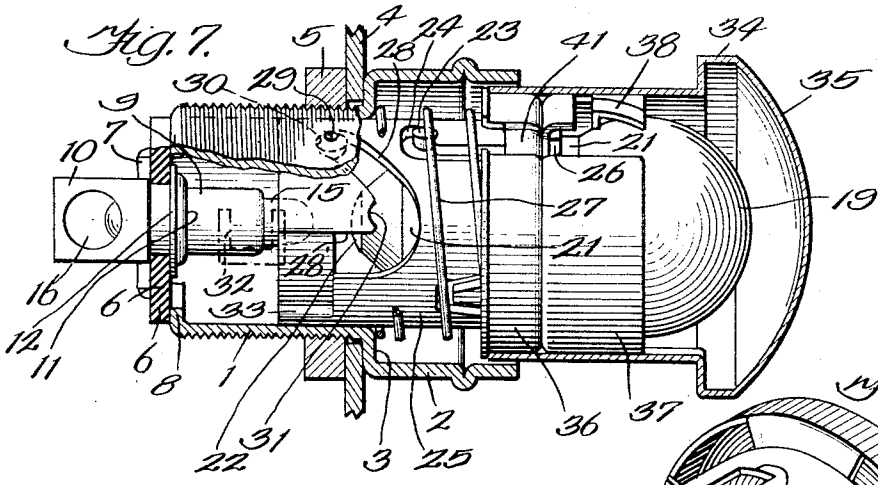


Fig. 9.

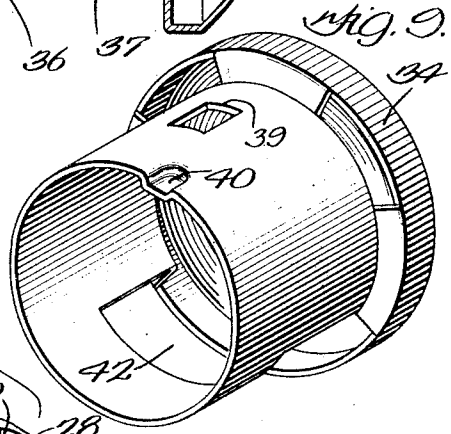
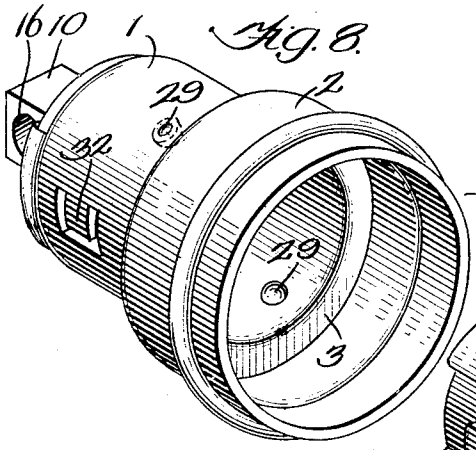


Fig. 8.



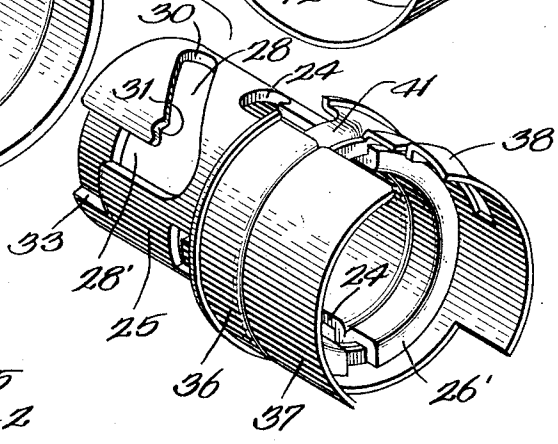
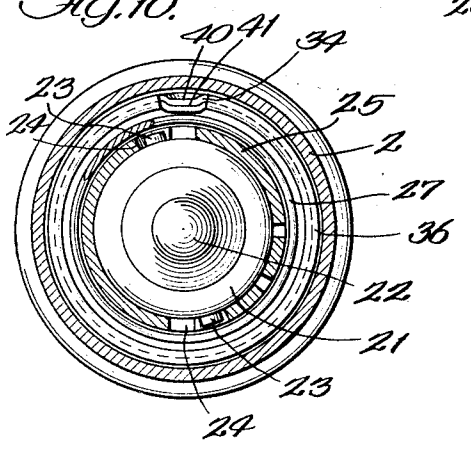


Fig. 10.



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Patented Nov. 5, 1929 1,734,565

UNITED STATES PATENT OFFICE

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN

CIRCUIT-CONTINUING DEVICE

Application filed May 5, 1928. Serial No. 275,337.

My invention relates to circuit continuing devices and has a number of objects and advantages in view.

In accordance with one feature of the invention, a contact carrying shell is surrounded by a guiding sleeve, said shell and sleeve having a cooperating cam or guiding slot or slots and a projection or projections whereby the sleeve is held in a foremost or a rearmost position and is thereby adapted to have a contact carried thereby brought into and out of engagement with a complemental contact carried by the sleeve. Seats are provided in the cam slots for holding the shell in its alternative positions with respect to the sleeve. In order that the sleeve and shell may readily be assembled, said cam slots are provided with entrance continuations or branches which constitute, with the cam slots, bayonet slots, the projections passing through said entrance branches into the cam portions of the slots in the process of assembling the shell and sleeve. After the assembly, a tongue upon one of the latter two elements is pressed into position to be engageable with a shoulder upon the other of these two members whereby the aforesaid projections are prevented from leaving the cam slots.

In accordance with another feature of the invention, the contact structure which is carried by the shell is provided upon the base of an incandescent lamp and this incandescent lamp is provided with a cowl or hood having a light transmitting opening for limiting the direction in which the light is to pass from the lamp. This cowl may be separately formed from the shell but in any event, it is connected therewith so that it may be employed to adjust the shell into alternative positions in which the lamp circuit is respectively opened and closed, the parts being so related that the light transmitting opening in the cowl is brought to proper position when the cowl is turned to establish the lamp circuit and is shifted from this position, but for no particular purpose, when the cowl is turned to open the lamp circuit.

The invention has other characteristics and will be more fully explained in connection with the accompanying drawings in which Fig. 1 is a side elevation of the preferred embodiment of the invention with the mounting therefor shown in section; Fig. 2 is a sectional view on line 2—2 of Fig. 1, on a larger scale, showing complemental contacts in engagement; Fig. 3 is a sectional view on line 3—3 of Fig. 1, on a larger scale; Fig. 4 is a sectional view on line 4—4 of Fig. 2; Fig. 5 is a rear view of a part of the structure; Fig. 6 is a sectional view on line 6—6 of Fig. 2; Fig. 7 is a longitudinal sectional view with parts shown in elevation and with the complemental contacts in separated relation; Fig. 8 is a perspective view of some of the parts and with the threading omitted from one of the parts for the sake of clearness; Fig. 9 is a perspective view of the hood or cowl; and Fig. 10 is a sectional view on line 10—10 of Fig. 4.

The structure includes a metallic sleeve having a threaded cylindrical body portion 1 and an enlargement in the form of a cylindrical skirt 2 which is connected with the body portion 1 by means of an annular shoulder 3. The body portion 1 is passed through a circular opening in the dash board or other mounting plate 4 to the rear side of such plate. This mounting plate is clamped against the shoulder 3 by an assembling nut 5 which is screwed upon the body portion 1 and against the rear face of the plate 4.

The rear end of the sleeve is closed by a disc of insulation 6 which is secured in place between the external ears 7 and the internal ears 8 that are struck from the sleeve. The device illustrated is a single pole structure, though the invention is not to be thus limited. This device is inclusive of a spring barrel 9 which is surrounded by projections within the sleeve with which it is coaxial. The spring barrel is integrally formed with a block 10. The disc 6 is clamped between the forward face of said block and the shoulder 11 which surrounds the spring barrel, there desirably being a washer 12 between said shoulder and disc. A spring 13 is housed within the barrel 9 and is interposed between two contacts 14 and 15. Said spring presses upon the contact 14 rearwardly and upon the contact 15 forwardly. The rear end of the contact 14

enters a passage 16 which is formed in the block 10 transversely to the axis of the spring barrel so as to be readily engageable with the circuit continuing plug 17 inserted in the passage 16 and constituting a terminal of the conductor 18. The front end of the forward contact 15 projects through the opening in the front end of the spring barrel 9, the extent to which this contact may be projected forwardly being limited by the shoulder 15′ upon the rear end of this contact and the front end of said spring barrel.

A circuit continuing device is suitably assembled with the sleeve and is provided with a circuit continuing contact complemental to the contact 15. The circuit continuing device illustrated is an incandescent lamp whose bulb 19 contains a filament 20 and whose base is surrounded by a metallic sheath 21 with which one terminal of the filament 20 is connected, the other terminal of said filament being connected with a contact 22 which is provided upon the rear face of the lamp base. The lamp base is furnished with two bayonet pins or projections 23 which are receivable within bayonet slots or channels 24 that are formed within a shell 25 which is adjustable forwardly and rearwardly by means of the construction hereinafter described. When said shell is adjusted to its foremost position, the contacts 15 and 22 are separated, Fig. 7. When said shell is adjusted to its rearmost position, the contacts 15 and 22 are engaged to close the circuit gap at these contacts, this adjustment being illustrated in Figs. 2 and 3 and being present in the structure as it is illustrated in Fig. 1.

Said shell is formed with a circumscribing bead 26 which is located near the front end of the shell and which serves as an abutment for the forward end of a coiled spring 27 which surrounds the shell and whose rear end abuts against the shoulder 3. This spring, when free to function, urges said shell to its foremost position in which a circuit gap is established between the contacts 15 and 22. In the preferred embodiment of the invention, the shell is provided with two cam slots 28 which are oblique to its axis and in which pins or projections 29 that are provided upon the sleeve 1 extend. Said cam slots are shaped to provide rear seats 30 which are pressed against the pins or projections 29 by the spring 27 when said shell is turned for the purpose of opening the circuit at the contacts 15 and 22. Said cam slots are also shaped to provide front seats 31 which are pressed against said projections 29 by the spring 27 when said shell is reversely turned for the purpose of closing the circuit gap at the contacts 15, 22. The preferred means for turning said shell will be hereinafter described. In the preferred embodiment of the invention, the cam slots 28 are the holding branches of bayonet slots or channels whose entrance branches 28′ are continued through the rear ends of the shell. In assembling the parts, the shell is moved into the sleeve with the entrance slot branches 28′ in line with the projections 29, the shell being moved and ultimately adjusted to bring said projections into the cam slots 28. After said projections have been received in said cam slots, a terminating adjustment is effected to confine said projections 29 to movement between the seats 30 and 31. To this end, the sleeve 1 is formed with a tongue 32 which is pressed into circular alignment with the shoulder 33 formed in the depressed portion of the shell 25. This shoulder and said tongue cooperate to prevent the pins from being moved any closer to the slot branches 28′ than the seats 31. Whenever the aforesaid shell is turned upon its axis, its movement along the axis of the sleeve is restricted due to the interaction of the projections 29 and the rear sides of the cam slots 28.

The means for turning the shell is desirably inclusive of a hood or cowl 34 for the lamp bulb 19. This hood or cowl has its front end enlarged into a knurled knob 35 and is secured, at its rear end, to the front end of the shell. The rear end of the cowl surrounds the two adjacent rings 36 and 37 which are formed with abutting internal shoulders that are gripped between the bead 26 and the flange 26′ provided upon the front end of the shell. The ring 37 is formed with a spring tongue 38 which extends through the opening 39 in the cowl and is so shaped as to prevent the cowl from being pulled away from the shell by forward movement. The cowl is formed, at its rear end, with a lug 40 which is pressed inwardly from the cowl body, this lug entering the correspondingly shaped recess 41 in ring 36 whereby the cowl is prevented from turning with respect to said ring and, consequently, with respect to the shell. The spring tongue and the ring 37 also cooperate to prevent the cowl from turning with respect to the shell.

When the device is mounted upon the dash or instrument board of an automobile, the light transmitting opening 42 in the cowl is faced downwardly, when the lamp circuit is closed, in order that the light may be limited in its passage toward the instruments and will be prevented from striking upwardly into the eyes of the occupants. When the cowl is thus turned, the projections 29 occupy the seats 31 in the shell whereby the lamp circuit is closed, it being understood that the contact 15 is connected with the ungrounded pole of a grounded battery and that the lamp sheath 21 is grounded through the metallic shell 25, the metallic sleeve 1, 2, 3 and the metallic mounting board 4. It is understood, however, that the invention is not to be limited to a single pole grounded circuit arrangement. When the lamp cir-

cuit is to be opened, the cowl is turned to place its light transmitting opening 42 in a lateral position, the projections 29 then occupying the seats 30 in the shell whereby the lamp circuit is opened.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. In a circuit continuing device, the combination with a shell; of a sleeve surrounding the shell, said sleeve and shell having cooperating cam slot and projection formations, said cam slot being oblique to the axis of the shell and sleeve and having an entrance branch continuation which constitutes, with the cam slot, a bayonet slot which permits the projection to be entered within the cam slot, said shell and sleeve having cooperating formations which serve to limit the relative turning movement of the shell and sleeve to confine the projection to movement within the cam slot; and complemental circuit contacts carried by said sleeve and shell and brought into and out of engagement consequent upon corresponding relative movement of the projection and cam slot.

2. In a circuit continuing device, the combination with a shell; of a sleeve surrounding the shell, said sleeve and shell having cooperating cam slot and projection formations, said cam slot being oblique to the axis of the shell and sleeve and having an entrance branch continuation which constitutes, with the cam slot, a bayonet slot which permits the projection to be entered within the cam slot, one of the first two aforesaid elements having a tongue and the other of the first two aforesaid elements having a shoulder, said tongue and shoulder being positioned and cooperating to limit the turning movement of the shell with respect to the sleeve to confine the movement of the projection within the cam slot; and complemental circuit contacts carried by said sleeve and shell and brought into and out of engagement consequent upon corresponding relative movement of the projection and cam slot.

3. In a circuit continuing device, the combination with a shell; of a sleeve surrounding the shell, said sleeve and shell having cooperating guiding slot and projection formations, said guiding slot having an entrance branch continuation which constitutes, with the guiding slot, a bayonet slot which permits the projection to be entered within the guiding slot, said shell and sleeve having cooperating formations which serve to limit the relative turning movement of the shell and sleeve to confine the projection to movement within the guiding slot; and complemental circuit contacts carried by said sleeve and shell and brought into and out of engagement consequent upon corresponding relative movement of the projection and guiding slot.

4. In a circuit continuing device, the combination with a shell; of a sleeve surrounding the shell, said sleeve and shell having cooperating guiding slot and projection formations, said guiding slot having an entrance branch continuation which constitutes, with the guiding slot, a bayonet slot which permits the projection to be entered within the guiding slot, one of the first two aforesaid elements having a tongue and the other of the first two aforesaid elements having a shoulder, said tongue and shoulder being positioned and cooperating to limit the turning movement of the shell with respect to the sleeve to confine the movement of the projection within the guiding slot; and complemental circuit contacts carried by said sleeve and shell and brought into and out of engagement consequent upon corresponding relative movement of the projection and guiding slot.

5. In a circuit continuing device, the combination with a shell; of a sleeve surrounding the shell, said sleeve and shell having cooperating cam slot and projection formations, said cam slot being oblique to the axis of the shell and sleeve and having an entrance branch continuation which constitutes, with the cam slot, a bayonet slot which permits the projection to be entered within the cam slot, said shell and sleeve having cooperating formations which serve to limit the relative turning movement of the shell and sleeve to confine the projection to movement within the cam slot; complemental circuit contacts carried by said sleeve and shell and brought into and out of engagement consequent upon corresponding relative movement of the projection and cam slot; and a spring interposed between the shell and sleeve and pressing in a direction tending to move the shell to a circuit opening position.

6. In a circuit continuing device, the combination with a shell; of a sleeve surrounding the shell, said sleeve and shell having cooperating cam slot and projection formations, said cam slot being oblique to the axis of the shell and sleeve and having an entrance branch continuation which constitutes, with the cam slot, a bayonet slot which permits the projection to be entered within the cam slot, one of the first two aforesaid elements having a tongue and the other of the first two aforesaid elements having a shoulder, said tongue and shoulder being positioned and cooperating to limit the turning movement of the shell with respect to the sleeve to confine the movement of the projection within the cam slot; complemental circuit contacts carried by said sleeve and shell and brought into and out of engagement consequent upon corresponding relative movement of the projection and cam slot; and a spring

interposed between the shell and sleeve and pressing in a direction tending to move the shell to a circuit opening position.

7. The structure of claim 1 wherein the circuit continuing device is inclusive of an electric lamp and wherein a cowl is provided for the lamp, this cowl being connected with the shell to effect the movement thereof into circuit opening and closing positions.

8. The structure of claim 2 wherein the circuit continuing device is inclusive of an electric lamp and wherein a cowl is provided for the lamp, this cowl being connected with the shell to effect the movement thereof into circuit opening and closing positions.

9. The structure of claim 3 wherein the circuit continuing device is inclusive of an electric lamp and wherein a cowl is provided for the lamp, this cowl being connected with the shell to effect the movement thereof into circuit opening and closing positions.

10. The structure of claim 4 wherein the circuit continuing device is inclusive of an electric lamp and wherein a cowl is provided for the lamp, this cowl being connected with the shell to effect the movement thereof into circuit opening and closing positions.

11. The structure of claim 5 wherein the circuit continuing device is inclusive of an electric lamp and wherein a cowl is provided for the lamp, this cowl being connected with the shell to effect the movement thereof into circuit opening and closing positions.

12. The structure of claim 6 wherein the circuit continuing device is inclusive of an electric lamp and wherein a cowl is provided for the lamp, this cowl being connected with the shell to effect the movement thereof into circuit opening and closing positions.

In witness whereof, I hereunto subscribe my name.

HARRY A. DOUGLAS.