Aug. 12, 1924. 1,504,463

H. A. DOUGLAS

CIRCUIT CONTINUING DEVICE

Filed July 21, 1919

Fig. 1.

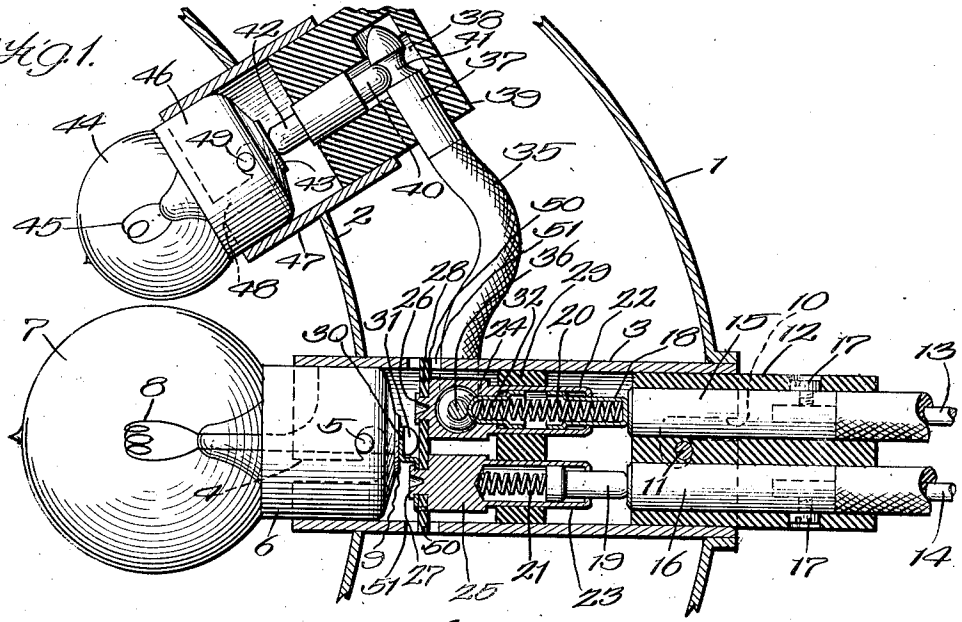


Fig. 2.

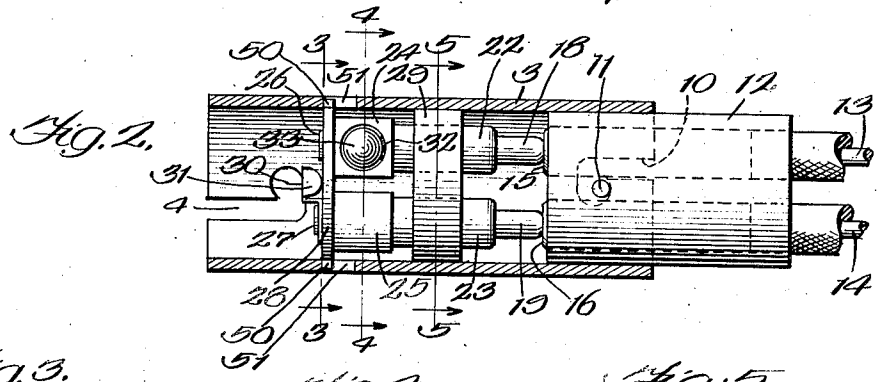


Fig. 3.

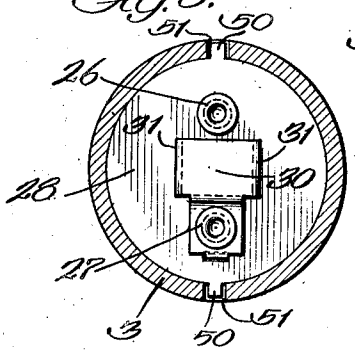


Fig. 4.

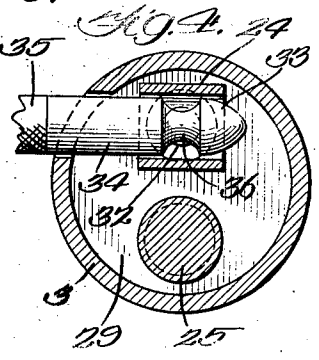
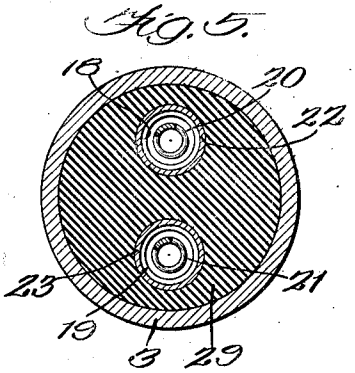


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN.

CIRCUIT-CONTINUING DEVICE.

Application filed July 21, 1919. Serial No. 312,375.

To all whom it may concern:

Be it known that I, HARRY A. DOUGLAS, a citizen of the United States, residing at Bronson, in the county of Branch and State of Michigan, have invented a certain new and useful Improvement in Circuit-Continuing Devices, of which the following is a full, clear, concise, and exact description.

My invention relates to circuit continuing devices and is of particular utility when embodied in a headlight structure for automobiles, though the invention is not to be limited to any particular use to which it may be put.

The invention has for its object the provision of an improved construction, arrangement and relation of floating contacts provided within shells formed at their ends for attachment with contact carriers whose contacts are connected by the floating contacts and which contact carriers may be in the form of plugs and incandescent lamp bases, particularly when the device is embraced in the construction of headlights.

The structure of my invention is also provided with means whereby smaller incandescent lamps may be included in circuit when the illumination furnished by the headlight is to be dimmed. In carrying out this feature of the invention cords which end in plugs are preferably employed to include the smaller lamps in circuit.

I will explain my invention fully by reference to the accompanying drawing showing the preferred embodiment thereof and in which Fig. 1 is a longitudinal sectional view of a portion of a headlight or other reflecting lamp that includes the characteristics of my invention; Fig. 2 is a longitudinal sectional view of a part of the structure appearing in Fig. 1, other parts being shown in elevation and still other parts being removed; Fig. 3 is a sectional view on line 3—3 of Fig. 2; Fig. 4 is a sectional view on line 4—4 of Fig. 2; and Fig. 5 is a sectional view on line 5—5 of Fig. 2.

Like parts are indicated by similar characters of reference throughout the different figures.

The metallic casing 1 of the reflecting lamp encloses a metallic reflector 2, which, in the construction shown, is spaced apart from the casing portion, to which relation of the reflector and casing the invention is not to be limited.

The rear parts of the casing 1 and metallic shell 3 are assembled, this shell projecting forwardly through the reflector 2. The forward end of the shell is provided with bayonet channels 4 for receiving the bayonet pins or projections 5 extending from the forward outer contact carrier 6. This contact carrier happens to be the base of an incandescent lamp 7 having a filament 8 with one terminal in connection with a metallic sheath surrounding the base of the incandescent lamp and its remaining terminal in connection with a central contact 9 upon the inner end of the carrier 6. The lamp may readily be brought into assembly with the shell 3 by means of said bayonet channels and projections and may also be readily removed from the shell.

The rear end of the shell is formed with bayonet channels 10 for receiving the bayonet pins or projections 11 extending from the rear outer contact carrying plug 12. Conductors 13 and 14, extending to and from a suitable source of current, are electrically and mechanically coupled with the contacts 15 and 16, that extend through the plug 12, by means of screws 17. These contacts 15 and 16 extend forwardly through the plug 12 so as to be engaged by contacts 18 and 19 which are rearwardly pressed by springs 20 and 21. The contacts 18 and 19 are preferably in the form of spring barrels in whose bores the springs 20 and 21 are received. These contacts are received within the metallic sleeves 22 and 23, with which sleeves said contacts have sliding electrical contact. These sleeves terminate in blocks 24 and 25 at the forward ends and both of these blocks themselves terminate in rivet portions 26 and 27 that pass through the floating contact coupler 28, of insulating material, which is riveted upon the blocks 24 and 25 by said rivet portions 26 and 27 whereby these blocks and the sleeves with

which the blocks are integrally formed are held in parallelism at the forward end of the blocks. The sleeves 22 and 23 slide through the plug 29 that is stationary within the shell 3, whereby these sleeves may have their positions altered to conform with the positions of the contact carriers 6 and 12. The rivet 27, in addition to holding the block 25 in assembly with the insulating disc 28, also secures a branch of the contact or contact portion 30 between the head of the rivet and said disc 28. This contact 30 is provided with an offset contacting portion that is forwardly extended and is located at the axis of the shell 3 to engage the contact 9 upon the lamp base 6, this contact 9 being coaxial with the shell.

To preserve the spacing between the insulating disc 28 and the forward contracting portion of the contact 30, I provide this forward contact portion with rearwardly extending ears 31 whose rear ends engage said disc for the purpose stated. These ears also are sufficiently spaced apart to aid in maintaining the disc 28 at right angles to the axis of the shell 3. The sleeve 22 houses a second contact 32, this latter contact being at the forward end of the sleeve and projecting, at its forward end, into the channels 33 formed transversely through the block 24. The plug 34 upon one end of a single stranded cord 35 may be projected through a side of the shell 3 into the channel 33 into engagement with the contact 32 whose forward end is receivable within the annular groove 36 formed in the plug 34. The other end of the single stranded conductor 35 terminates in a plug 37 which is similar to the plug 34, this plug being receivable within the channel 38 formed in the plug 39 which carries a rearwardly spring pressed contact 40 that is receivable within the annular groove 41 in the plug 37. A forwardly spring pressed contact 42 is engageable with the contact 43 upon the rear end of the base of the small incandescent lamp 44. This lamp has a filament 45 having one terminal connected with the metallic sheath of the lamp base and the other terminal connected with the contact 43. The metallic sheath 46 of the base of the lamp 44 is adapted for electrical connection with the shell 47 which in turn is electrically connected with the metallic reflector 2. The shell 47 is formed with bayonet channels 48 adapted to receive the bayonet projections 49 upon the base of the lamp 44.

Suitable switching devices, not shown, may be employed for bringing the large and small incandescent lamps 7 and 44 into and out of circuit as desired. When the contact carriers 6 and 12 are received in the ends of the shell 3, the coiled springs 20 and 21 are placed under compression, the contacts 15 and 16 pressing forwardly upon these springs and the disc 28 causing pressure to be exerted rearwardly upon these springs, this latter result being effected by the engagement of the base of the lamp 7 with the contact 30.

The sleeves 22 and 23 will adapt themselves with relation to the contact carrier 6, being permitted so to do by the sliding engagement thereof with the stationary insulating plug 29 and being maintained in parallelism by the plug 29 and also by the disc 28.

In order to prevent any twisting movement from being effectively exerted upon the disc 28, said disc is provided with tongues 50 receivable within slots 51 extending longitudinally of the shell 3 forwardly and rearwardly of the disc 28 to permit this disc to have a floating movement sufficient to accommodate the sleeves 22 and 23 in all of the positions in which the latter may be placed. If the plug 34 is removed from engagement with the block 24 the spring 20 will press the contact 32 forwardly to bring the inner shoulder thereof into abutting engagement with said plug whereby the spring 20 will continue to co-operate with the spring 21 in forwardly pressing the mechanically coupled sleeves 22 and 23. The ears 31, in addition to performing the functions previously described, also co-operate with the anchored base of the contact 30 to prevent the disc 28 from rotating in either direction upon a diameter of this disc, a tendency which might be present if one of the springs should exert more pressure than the other.

Novel features not herein claimed form the subject matter of a division of this application Serial No. 554,267, filed April 17, 1922.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as changes may readily be made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:

1. A circuit continuing device including a shell; a pair of contacts within the shell and movable along the same; an insulating disc with which said contacts are assembled; and a contacting portion carried by one of said contacts and spaced apart at one place from said disc, this contacting portion having formed therewith a spacing portion in the space between it and the disc.

2. A circuit continuing device including a shell; a pair of contacts within the shell and movable along the same; an insulating disc with which said contacts are assembled and a contacting portion carried by one of said contacts and spaced apart at one place

from said disc, this contacting portion having formed therewith spacing ears in the space between it and the disc.

3. A circuit continuing device including a metallic shell; a contact plug within an intermediate portion of the shell; two metallic sleeves in sliding engagement with said plug; a member assembled with said sleeves, one of said sleeves having a contact upon its outer end and located at the axis of the shell; springs within said sleeves; and contacts extending through said sleeves and pressed outwardly upon by said springs.

In witness whereof, I hereunto subscribe my name this 10th day of July A. D., 1919.

HARRY A. DOUGLAS.