

June 2, 1925.

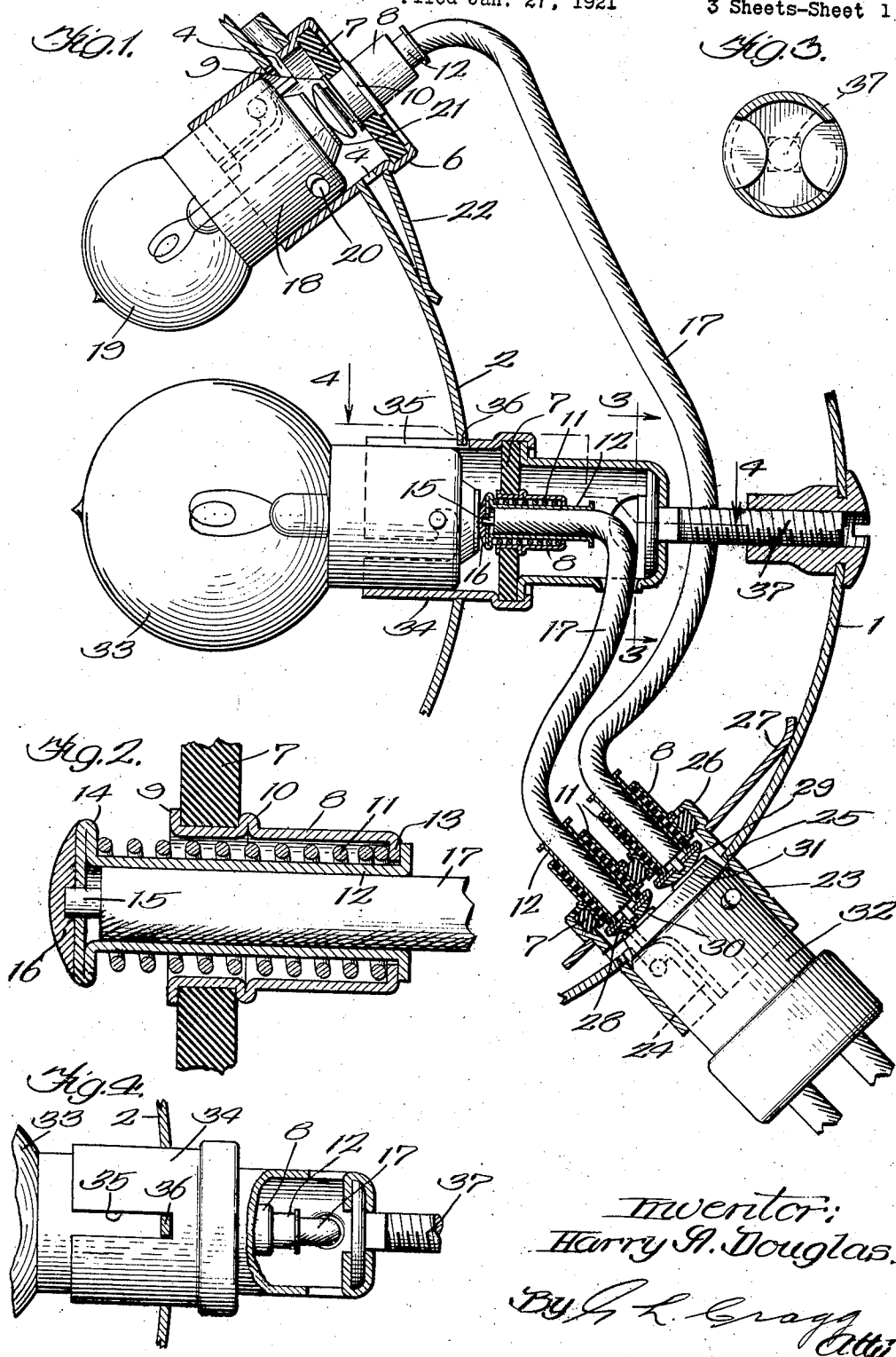
H. A. DOUGLAS

1,540,112

CIRCUIT CONTINUING DEVICE

Filed Jan. 27, 1921

3 Sheets-Sheet 1.



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Fig. 5.

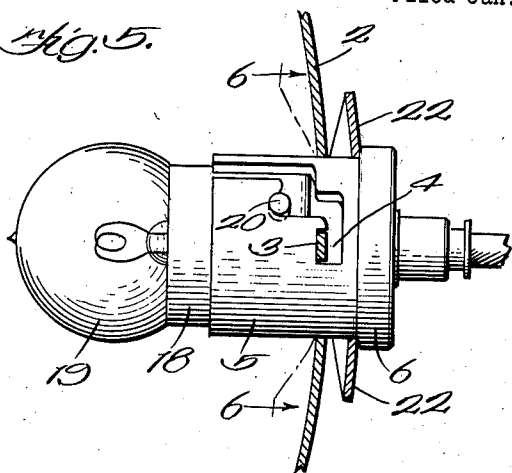


Fig. 6.

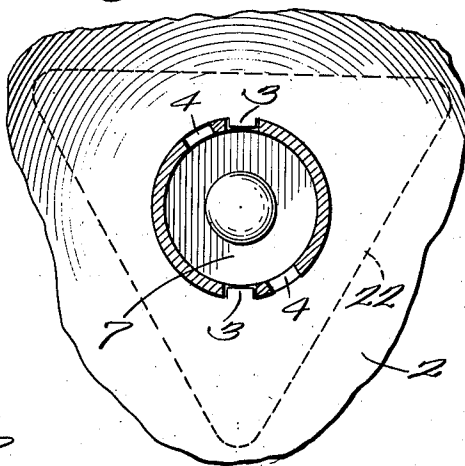


Fig. 7.

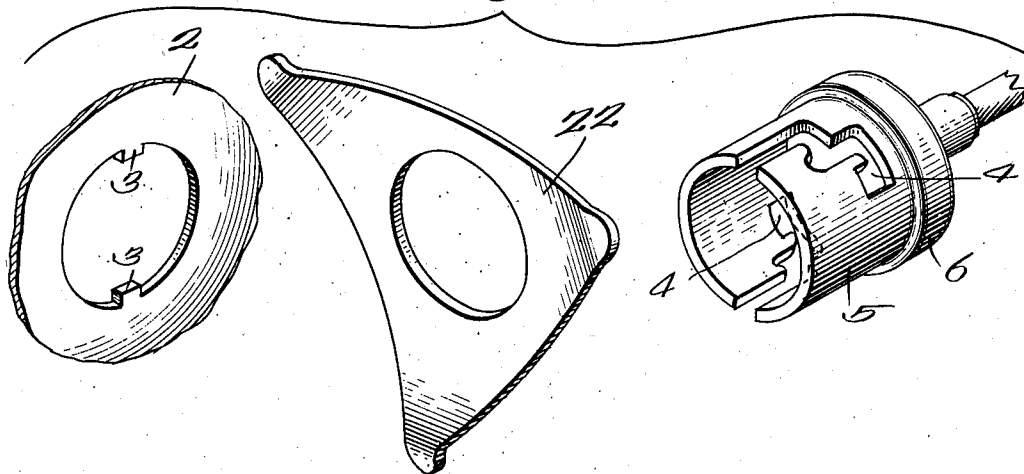
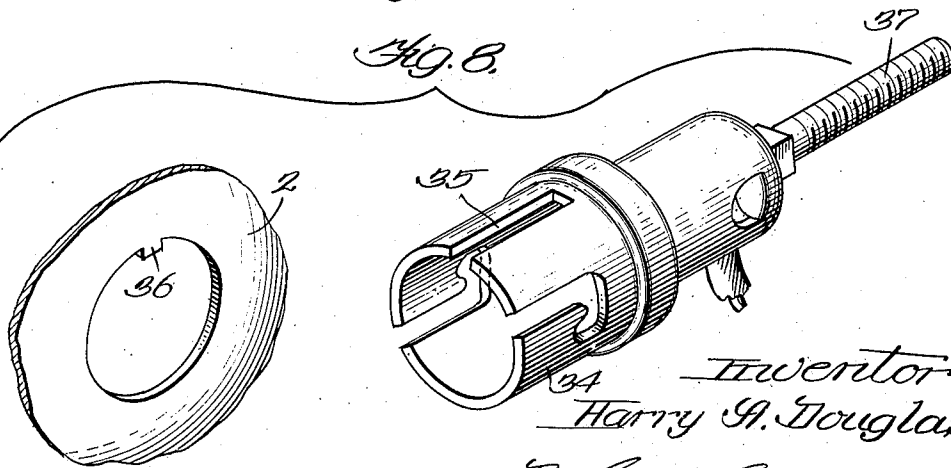


Fig. 8.



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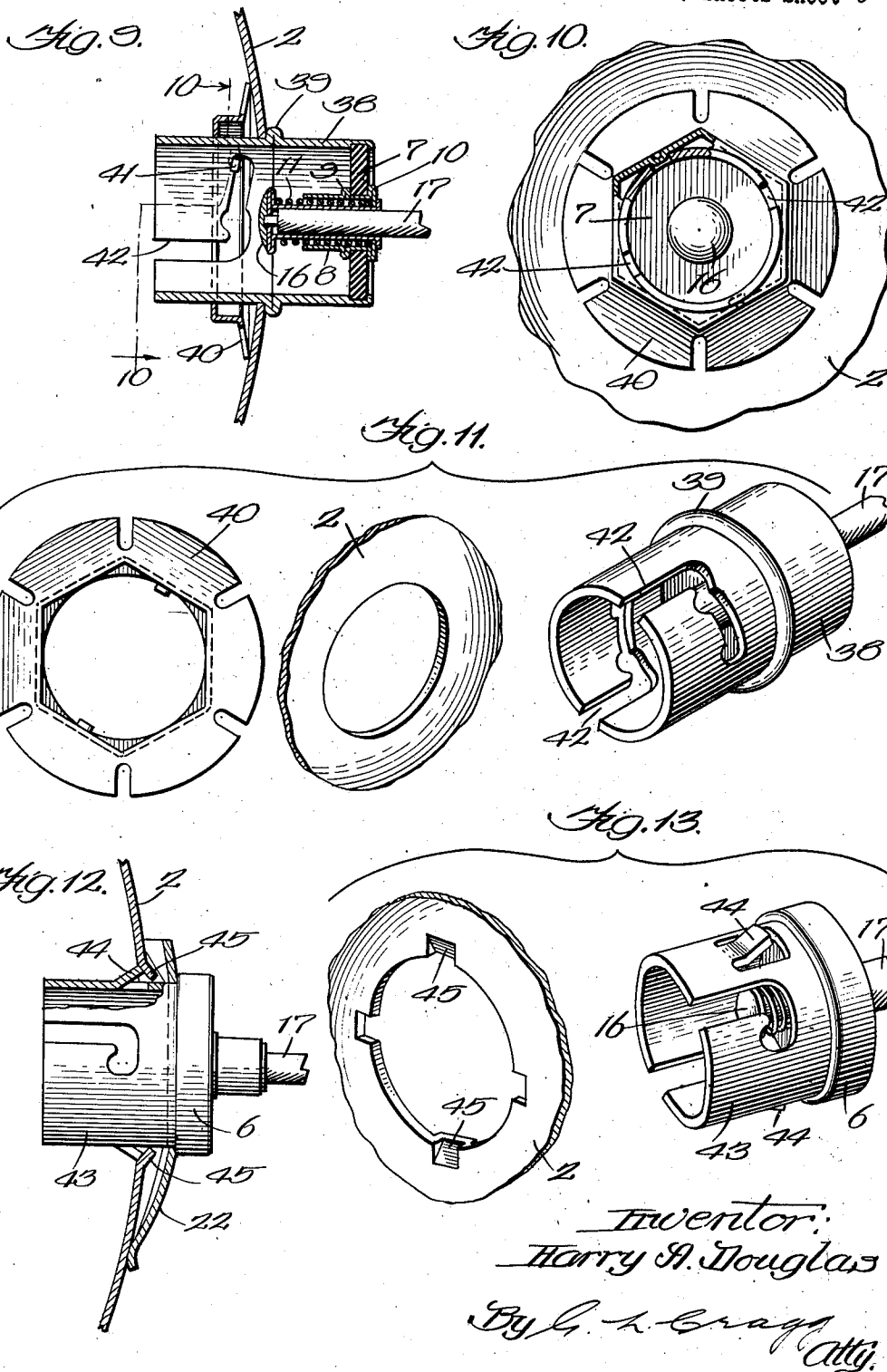
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3 Sheets-Sheet 3



Patented June 2, 1925.

UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN.

CIRCUIT-CONTINUING DEVICE.

Application filed January 27, 1921. Serial No. 440,481.

To all whom it may concern:

Be it known that I, HARRY A. DOUGLAS, 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 such, for example, as are found in automobile headlight construction and has for its general object the provision of improved means for effecting the assembly between contact carriers and their supports. In the case of headlights, the invention embraces improved means for effecting the assembly between the mirror or back of a headlight and a contact carrying socket designed either for holding an incandescent lamp bulb or for holding a circuit continuing plug that is employed to include the lamp in circuit.

As I have practiced my invention the support for the contact carrier limits the longitudinal movement of the carrier in one direction and a spring maintains the support and carrier in assembly and yieldingly limits the longitudinal movement of the carrier in an opposite direction.

The contact carrier, by means of my invention, is thus separably assembled with a support by means of the spring that maintains its assembly with such support, the device of my invention being thus broadly distinguished from those structures employing springs for maintaining the holders of incandescent lamp bulbs in assembly with supports with which contact carriers that are complementary to the lamps are also assembled but by means of threaded connections rather than springs.

I will explain my invention more fully by reference to the accompanying drawings showing preferred embodiments thereof and in which Fig. 1 is a view in section, partially in elevation, showing enough of a headlight to illustrate the adaptation of my invention thereto; Fig. 2 is an enlarged sectional view of a part of the structure as it appears in Fig. 1; 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 view in elevation of the auxiliary incandescent lamp illustrated in Fig. 1 with elements of my invention associated therewith illustrated in section; Fig. 6 is a

view on line 6—6 of Fig. 5; Fig. 7 is a perspective view of parts illustrated in Figs. 5 and 6 in separated relation; Fig. 8 is a perspective view of parts found at the axis of the lamp and at the rear thereof in separated relation; Fig. 9 illustrates, in section, a modification that may be employed; Fig. 10 is a sectional view on line 10—10 of Fig. 9; Fig. 11 is a perspective view illustrating the parts shown in Figs. 9 and 10 in separated relation; Fig. 12 is a view in elevation, partially in section, showing another modification; and Fig. 13 is a perspective view of the parts shown in Fig. 12 in separated relation.

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

The headlight, that is partially illustrated, includes the back 1 and the reflector 2 spaced apart from the back. Referring more particularly to Figs. 1, 2, 5, 6 and 7 which illustrate the preferred embodiment of the invention, the reflector 2 is formed with bayonet projections 3 that are received within the innermost seats at the closed ends of the bayonet grooves or slots 4 in the shell 5 forming a part of the contact carrier which is in the form of a socket. The base of this contact carrier is formed with an annular shoulder 6. In forming this shoulder an annular recess is afforded in which an insulating disc 7 is received. This insulating disc carries, at its center, (though the invention is not to be limited to this characteristic) a spring barrel 8 having shoulders 9 and 10 formed thereon in which the disc 7 is received. The coiled spring 11 is received within the spring barrel 8 and surrounds the metal sleeve 12. The spring is received between the annular bottom portion 13 of the spring barrel and the flange portion 14 of the sleeve so that forward spring pressure is exerted upon the sleeve 12. The circuit conductor 15 is projected through the forward end of the sleeve 12, a button of solder 16 or other current conducting material being employed to mechanically and electrically unite such conductor and sleeve. It is preferred to maintain the insulating serving 17 about the wire 15 throughout the major portion of the bore of the sleeve 12 that preferably snugly engages the serving. The shell 5, forming a part of the contact carrier that is assembled with the supporting mirror 2 in a man-

ner to be described, is designed to receive another contact carrier 18, in this instance the base of an auxiliary incandescent lamp 19. This lamp base is equipped with the usual bayonet pins 20 that are receivable within the bayonet slots or channels 4, these bayonet pins engaging other seats in said channels that are located at the mid portions of the channels. The forwardly spring pressed contact 16 engages the central contact 21 upon the lamp base whereby one terminal of the lamp is connected in circuit with the battery or other source of current, the other terminal being grounded in the particular embodiment of the invention illustrated but to which grounding the invention is not to be limited. The spring 11 not only serves to effect and maintain the auxiliary incandescent lamp 19 in circuit but also serves to maintain the mechanical assembly of this lamp with the socket that receives its base.

In assembling the parts the shell 5 is passed through a central circular opening in the spring plate 22.

I then pass the shell 5 into an opening in the reflector 2 and then manipulate the shell so that it will have bayonet projection and channel engagement 3, 4 with the reflector. When such engagement has been effected the spring plate 22, which is desirably of dish or bowed form, is made flatter to cause it to exert outward spring pressure upon the shoulder 6 and inward spring pressure upon the reflector 2 whereby the bayonet projection and channel engagement 3, 4 is maintained.

The plugging in device by which the lamp is included in circuit includes a contact carrier in the form of a support into whose construction a metallic shell 23 enters. This shell is provided with bayonet channels 24 that are analogous in purpose to the bayonet channels 4, the innermost ends of the bayonet channels 24 receiving the bayonet projections 25 that are formed in the back 1 of the lamp and which are upon the margins of the opening through which the shell 23 is outwardly passed in the process of its assembly with the back. The shell 23 is also provided with a shoulder 26 that is analogous to the shoulder 6 of the shell 5, this shoulder being engaged by a spring plate 27 which is interposed between the shoulder and the inner face of the back 1 for the purpose of maintaining the shell 23 in its bayonet projection and channel connection with the back 1, the plate 27 thus performing a function similar to the plate 22. There are two spring pressed contacts 28, 29 carried by the contact carrier 23, these contacts being respectively engageable with the contacts 30 and 31 upon the inner end face of the contacting plug 32. The spring pressed contacts 28 and 29 serve to maintain the plug 32 in assembly

with the shell 23 as well as to include the auxiliary incandescent lamp 19 and the main incandescent lamp 33 in circuit, the illustrated circuit paths followed by the current passing through the lamps being well understood by those skilled in the art. The incandescent lamp 33 may be adjusted axially of the reflector and when this adjustment is afforded the lamp holder 34 may be provided with slots 35 that engage tongues 36 formed upon the reflector so that the lamp holder will not turn as the bulb is being axially adjusted, as by means of the screw device 37.

I will now describe the modification of the invention illustrated in Figs. 9, 10 and 11 which show another arrangement for assembling the carrier for the auxiliary incandescent lamp with the lamp reflector 2. In this modified construction the shell 38 is provided with an annular shoulder 39 at its midportion that is engageable with the exterior of the reflector 2. The spring plate 40 is desirably of dish form and carries insetting bayonet projections 41 that are receivable within the bayonet channels 42 formed in the shell 38, these bayonet projections joining their seats at the inner ends of said channels. In assembling the parts of the structure shown in Figs. 9 to 11, inclusive, the shell 38 is inserted through the reflector 2 from the back of the reflector and until the shoulder 39 engages the reflector, whereafter the spring 40 is manipulated to bring the bayonet projections 41 into the bayonet channels 42 and ultimately to the rear ends of such channels in which latter position of the bayonet projections 41 the spring plate 40 has been adjusted to exert sufficient spring tension to maintain the shoulder 39 in firm engagement with the rear face of the reflector 2. The other parts of the structure shown in Figs. 9 to 11 that are similar to structural parts hitherto specifically described will be given characters of reference similar to the characters of reference applied to such other parts.

The construction shown in Figs. 12 and 13 is in several respects similar to the construction previously described for supporting the auxiliary incandescent lamp 19 in place with the difference that in the structure of Figs. 12 and 13 the shell 43, instead of having bayonet projection and channel connection with the reflector, is caused to have engagement with the reflector by means of tongues 44 struck obliquely from the shell 43 into engagement with the shoulder 45 formed upon the reflector. In the process of assembling the parts of the structure shown in Figs. 12 and 13 a spring plate 22 is placed against the shoulder 6 and the shell 43 is passed through the reflector 2 to a position in which the spring 22 will be placed under sufficient tension to maintain the tongues 44 in engagement with the shoulders 45

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:—

- 10 1. The combination with a contact carrier having an external shoulder; of a support in bayonet projection and channel connection with the contact carrier; and a bowed spring plate having an opening through which the
15 contact carrier is passed, the opening being of a size to enable the portion of the plate margining it to engage said shoulder, said bayonet projection and channel connection between the contact carrier and support

serving to draw said shoulder against said spring plate and to press the spring plate against said support.

2. The combination with a contact carrier having an external shoulder; of a support, said carrier and support having means for effecting their assembly; and a bowed spring plate having an opening through which the contact carrier is passed, the opening being of a size to enable the portion of the plate margining it to engage said shoulder, said assembly effecting means serving to draw said shoulder against said spring plate and to press the spring plate against said support.

In witness whereof, I hereunto subscribe my name this 12th day of November, A. D. 1920.

HARRY A. DOUGLAS.