

O. WINSTON.
HEADLIGHT.

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Patented Sept. 17, 1918.

1,279,201.

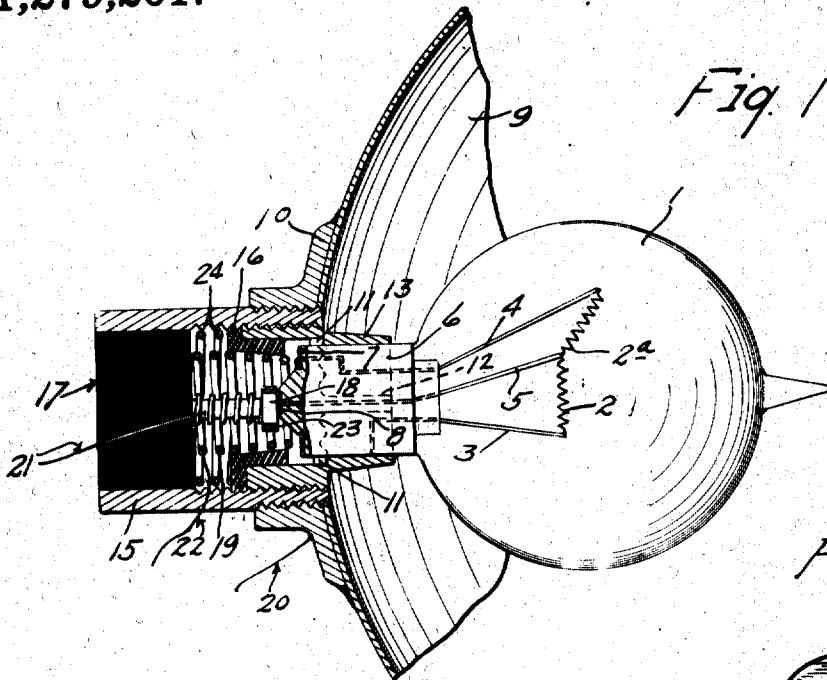


Fig. 2

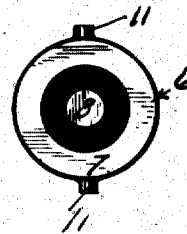
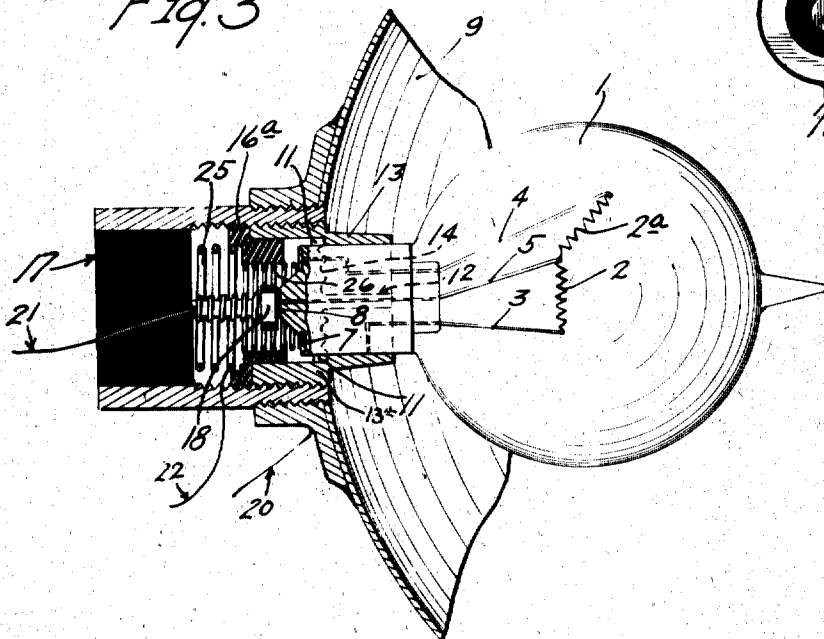


Fig. 3



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HEADLIGHT.

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To all whom it may concern:

Be it known that I, OVERTON WINSTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Headlights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to headlights for automobiles and other vehicles and is in the nature of, or improvement on, or modification of the construction disclosed and claimed in my pending application S. N. 86,852, filed of date, March 27, 1916, and entitled, "Headlights", but is directed to means adapting the headlight for multifilament electric light bulbs. Generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 is a vertical section with some parts broken away, showing the reflector, the lamp socket and light bulb, the latter being shown in full;

Fig. 2 is a rear end elevation of the light bulb, some parts being broken away; and

Fig. 3 is a view corresponding to Fig. 1, but illustrating a somewhat modified construction.

The light bulb 1 has two filaments 2 and 2', the outer ends of which are connected, respectively, to terminal wires 3 and 4 and the inner ends of which are connected to an intermediate electrode, 5, which terminal wires are located within the bulb and supported from the shank thereof. The shank of the bulb has three electric contacts 6, 7 and 8, that are electrically connected, respectively, to the electrodes 3, 4 and 5, with the contact 6 in the form of a metallic sleeve which surrounds the shank. The contact 7 is in the form of a metallic ring applied to the end of the shank and the contact 8 is in the form of a small disk located at the axis of the shank. The said contacts 6, 7 and 8 are insulated, one from the other, by the insulating material of said shank.

The filament 2 has its intermediate or hot

spot at the axis of the bulb, and when the bulb is applied to the reflector of the headlight, the said hot spot will be at, or approximately at the axis of the reflector and usually, also, at the focal center thereof. The filament 2' is located above the axis of the bulb, and when the bulb is applied to the reflector, it will be above the axis of the reflector.

The reflector 9 has an axial opening and is surrounded by a flanged internally-threaded annular anchoring plate 10. The metallic sleeve 6 of the light bulb is provided with a plurality of radially projecting lugs 11 adapted to be inserted through a corresponding internal longitudinal groove 12 of a lamp holding collar 13, and to be engaged with a serrated or corrugated internal shoulder 14 of said collar. The collar 13 is provided at its inner end with an eccentric externally threaded portion that is screwed into the internally threaded portion of a socket tube 15, which, in turn, is screw-threaded into the annular anchoring plate 10 and is thereby rigidly held in respect to the reflector. The holding collar 13 and socket tube 15 afford a bulb holding socket, by means of which the light bulb may be given adjustments, both longitudinally and transversely of the axis of the reflector. The oscillatory movements of the lamp socket are not necessary or desirable where a multifilament light bulb is employed, and consequently, the relatively fixed member of the lamp socket is rigid or non-adjustable, in respect to the reflector.

The holding collar 13 of the socket has a centering ring 16 secured to and carried by its inner end portion. The passage through the centering ring 16 is concentric to the axis of the shank engaging the front end of the collar 13, and, consequently, in all of the rotary adjustments of said collar, will be concentric to the shank of the electric light bulb.

In the outer end of the fixed tubular rim 15 of the lamp socket is a plug or block 17 of insulating material and projecting axially forward therefrom is a forwardly spring-pressed contact plunger, the head of which is normally spring-pressed into engagement with the axial contact 8 of the light bulb. The numeral 19 indicates a coiled spring which is extended through the centering ring 16, reacting against the insulating block 17 and has electrical contact with the

annular contact 7 of the light bulb. The sleeve contact 6 of the light bulb is grounded through the collar 13, socket tube 15 and anchoring plate 10, and is connected to a circuit lead 20, while the contact plunger 18 and spring 19 are connected, respectively, to circuit leads 21 and 22, diagrammatically shown in Fig. 1. Obviously, when the circuit is closed through leads 20 and 21, the lower filament 2 will be heated while, when the circuit is closed through the leads 21 and 22, the upper filament 2' will be heated.

By reference to Fig. 1, it will be noted that through the passage thereof, the centering sleeve 16 is tapered and that the inner portion of the contact spring 19 is slightly contracted, so that the said spring will not spring out of working position when the light bulb is removed. Forward movement of the contact plunger 18 will also be limited by the usual or any well known means. As shown, the head of the said contact plunger is surrounded by an insulating collar 23 that prevents electrical contact between the same and the surrounding contact spring 19, under all conditions. The numeral 24 indicates a short coiled spring interposed between the plug 17 and the centering collar 16, and which simply serves to take up play between the threads of the eccentric 13 and socket tube 15, and by producing increased friction, prevents accidental rotary movements of the collar. The centering ring 16 is of insulating material so that electrical connection will not be made between the said collar 13 and the contact spring 19.

The construction illustrated in Fig. 3 is like that illustrated in Figs. 1 and 2 with the following exceptions:

Instead of the spring centering ring arranged to keep the front end of the contact spring 19 centered in respect to the shank of the light bulb, the bulb holding collar 13 is provided with an insulating centering ring 16', the passage in which is concentric to the axis of the socket tube 15, and, consequently, eccentric to the axis of the shank of the light bulb. Instead of the two springs 19 and 24 used in Fig. 1, the construction illustrated in Fig. 3 employs a coiled spring having relatively large and small sections 25 and 26, both of which constitute part of one of the electrical contacts. The rear end of the large section 25 re-acts against the insulating block 17 and against a shoulder on the centering ring 16', whereas, the small portion 26 of said spring is extended through the passage of said ring and engages the annular contact 7 of the light bulb. The said spring 25-26, therefore, serves the combined function of a spring contact and of a spring taking up play between the threaded engagement of the collar 13 and socket tube 15.

When the collar 13, in the construction

illustrated in Fig. 1, is rotated, the front end of the spring 19 will be kept concentric to the shank of the light bulb, and when the socket of the construction illustrated in Fig. 3 is rotated, the front end of the spring section 26 will be held always concentric to the axis of the socket tube 15, but will be eccentric to the shank of the light bulb, but nevertheless, always in more or less contact with the annular contact ring 7. The arrangement illustrated in Fig. 1 is believed to be the most practical of the two constructions illustrated, but either form will be found perfectly operative and practicable.

Obviously, under rotary adjustments of the bulb holding collar 13, the threaded engagement between the same and the socket tube 15 will impart adjustments to the light bulb longitudinally to the axis of the reflector and will also adjust the light bulb transversely of the axis of the reflector, or in a plane that transversely intersects the axis of said reflector and of the lamp. When the shank of the bulb is pressed rearward against the tension of the spring contact plunger 18, the collar 13 may be adjusted without rotating the lamp, and by these compound adjustments, the filaments of the light bulb will always be properly set in respect to the reflector.

It will be noted that the shank of the electric light bulb, at its end, is formed with a conical boss that projects through and beyond the annular intermediate contact 7 and that the axial contact 8 is applied on the extended or truncated end of this boss. This construction is important for the following reasons: When the bulb is removed from the holding collar, the outer end of the contact spring 19, or of the contact springs 25 and 26, as the case may be, will project out into the collar 13 much farther than shown in the drawings and will project through and from the insulating centering ring. When the bulb is inserted into the holding collar, the conical boss will come into engagement with the free outer end of said contact spring and will immediately center the same in respect to the shank of the bulb and bring the same into proper engagement with the intermediate contact 7, and moreover, as the bulb is forced into interlocking engagement with the holding collar, the said boss will maintain such proper engagement between the said spring and the said intermediate contact.

What I claim is:

1. In a headlight, the combination with a reflector, of a socket tube rigidly secured to the back thereof, and a lamp-holding collar provided with an eccentric portion having screw-threaded engagement with the said fixed socket tube.

2. In a headlight, the combination with a reflector, of a socket tube supported at the

back thereof, a bulb holding collar provided with an eccentric portion having threaded engagement with the interior of said socket tube, a forwardly spring-pressed axially located contact plunger within said socket tube, a coiled contact spring within said socket tube, and an insulated centering ring carried by said collar and engaging the front portion of said coiled contact spring.

3. In a headlight, the combination with a reflector, of a socket tube supported at the back thereof, a bulb holding collar provided with an eccentric portion having threaded engagement with the interior of said socket tube, a forwardly spring-pressed axially located contact plunger within said socket tube, a coiled contact spring within said socket tube, an insulated centering ring carried by said collar and engaging the front portion of said coiled contact spring, and a multifilament electric light bulb having a shank fitting said holding collar and provided with three electrical contacts, one engaging said contact plunger, one engaging said coiled contact spring, and the other grounded through said holding collar.

4. In a headlight, the combination with a reflector, of a socket tube rigidly secured to the back thereof, and a lamp holding collar provided with an eccentric portion having screw-threaded engagement with the said fixed socket tube, said socket tube and holding collar constituting an adjustable bulb supporting socket and having three electrical contacts, and a multifilament electric light bulb having a shank detachably engageable with said holding collar and provided with three electrical contacts for engagement with the three electrical contacts of said socket.

5. The combination with a socket sleeve having an insulating block in one end, and having internal threads in its other end, of a lamp holding collar having an externally threaded eccentric engaging the internal threads of said sleeve, an axial spring-pressed contact plunger projecting from said insulating block, an insulating ring inserted into said threaded eccentric, and a contact spring seated at its rear end against said insulating block, and at its forward end projecting through said insulating ring for engagement with one of the lamp shank contacts, the outer end of said contact spring and the interior of said insulated ring being outwardly tapered so that the said spring cannot be projected out of said collar.

6. In a headlight, the combination with a reflector, of a socket tube located at the back thereof, a lamp holding collar rotatively mounted in said socket tube and adapted to hold an electric light bulb, a forward spring-pressed contact plunger within said socket tube for engagement with an axial contact of the light bulb, a coiled con-

tact spring within said socket tube, for engagement with another contact of the light bulb, and an insulated centering ring carried by said collar and engaging the front portion of said coiled contact spring.

7. In a headlight, the combination with a reflector, of a socket tube located at the back thereof, a lamp holding collar rotatively mounted in said socket tube and adapted to hold an electric light bulb, a forward spring-pressed contact plunger within said socket tube for engagement with an axial contact of the light bulb, a coiled contact spring within said socket tube, for engagement with another contact of the light bulb, an insulated centering ring carried by said collar and engaging the front portion of said coiled contact spring, the axis of said holding collar being eccentric to the axis of said socket tube, and an electric light bulb rotatively adjustable within said holding collar.

8. The combination with a bulb socket having within the same a contact in the form of a coiled spring, of an electric light bulb provided on the end of its shank with a projecting tapered boss and at the base of said boss with a contact, the said boss being engageable with the end of said contact spring to position the same in proper engagement with said contact.

9. The combination with a bulb socket having within the same a contact in the form of a coiled spring, of an electric light bulb provided on the end of its shank with a projecting tapered boss and at the base of said boss with a contact, the said boss being engageable with the end of said contact spring to position the same in proper engagement with said contact, the said socket further having an internal insulation holding said contact spring out of engagement with the walls thereof.

10. The combination with a bulb socket having within the same a contact in the form of a coiled spring, of an electric light bulb provided on the end of its shank with a projecting tapered boss and at the base of said boss with a contact, the said boss being engageable with the end of said contact spring to position the same in proper engagement with said contact, the said bulb having two other contacts, one at the extended portion of said tapered boss and the other at the exterior of its shank, the said bulb further having two filaments and three wires connecting said two filaments to the said three contacts of said bulb.

11. The combination with a bulb socket having within the same a contact in the form of a coiled spring, of an electric light bulb provided on the end of its shank with a projecting tapered boss and at the base of said boss with a contact, the said boss being engageable with the end of said contact

- spring to position the same in proper engagement with said contact, the said bulb having two other contacts, one at the extended portion of said tapered boss and the other at the exterior of its shank, the said bulb further having two filaments and three wires connecting said two filaments to the said three contacts of said bulb, the said socket having an axial contact for engagement with the contact on the extended portion of the boss of said bulb, and said socket further having an insulating centering device holding said contact spring out of engagement with the walls of said socket.
12. The combination with a socket sleeve having an insulating block in one end, and having internal threads in its other end, of

a lamp holding collar having an externally threaded eccentric engaging the internal threads of said sleeve, an axial spring pressed contact plunger projecting from said insulating block, an insulating ring inserted into said threaded eccentric and a contact spring seated at its rear end against said insulating block, and at its forward end projecting through said insulating ring for engagement with one of the lamp shank contacts.

In testimony whereof I affix my signature in presence of two witnesses.

OVERTON WINSTON.

Witnesses:

BERNICE G. WHEELER,
HARRY D. KILGORE.