

Dec. 6, 1927.

W. H. WOOD

1,651,431

LAMP

Filed Nov. 11, 1925

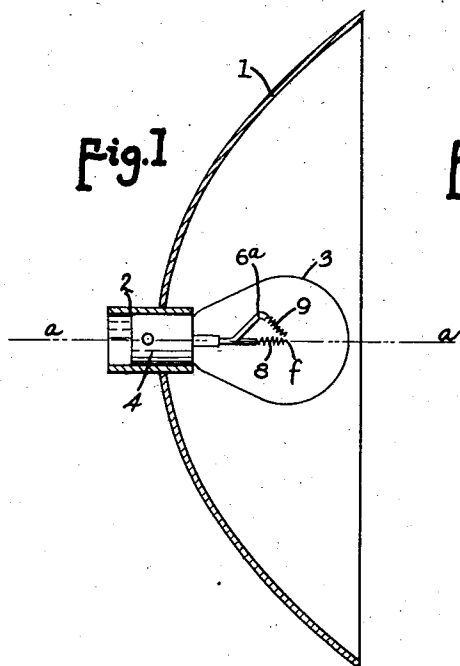


Fig. 3

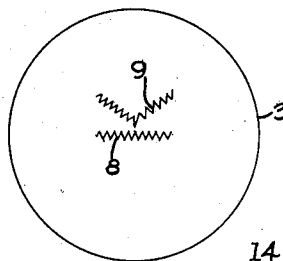


Fig. 4

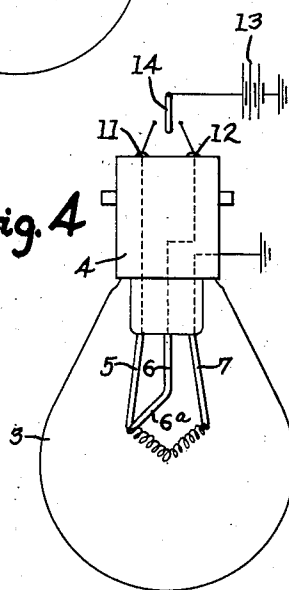


Fig. 2

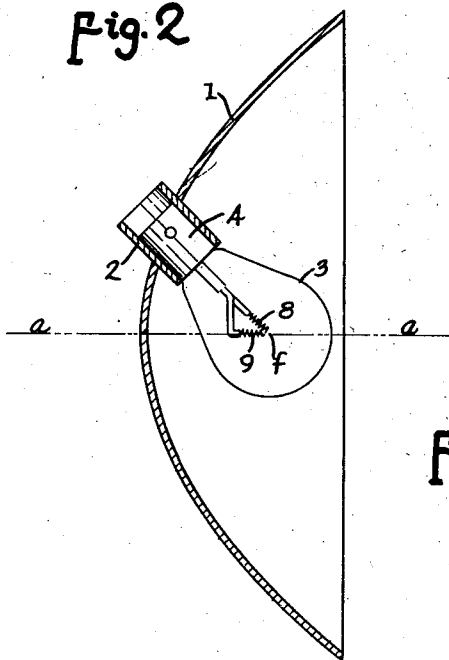


Fig. 5

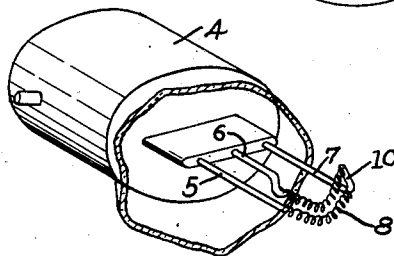
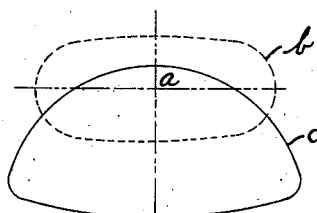


Fig. 6



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Application filed November 11, 1925. Serial No. 68,345.

This invention relates to vehicle headlights and has for its objects the provision of an improved type of lamp wherein the operator can change the distribution or pattern of the light at will from a long horizontal beam to a downwardly deflected beam having its upper corners cut away so as not to dazzle the eyes of men or animals moving in the opposite direction; the provision of a lamp bulb which shall be equally usable with plural socket positions and shall produce therewith substantially the same distribution or pattern of light beams; while further objects and advantages will become apparent as the description proceeds.

In the drawings accompanying and forming a part of this application Fig. 1 is a vertical longitudinal sectional view of the essential parts of a headlamp embodying my improvements; Fig. 2 is a similar view of a modification showing an altered position of socket; Fig. 3 is a front elevation of either form, the reflector being omitted; Fig. 4 is a top plan view of the lamp bulb together with a diagram of electrical connections; Fig. 5 is a perspective view showing the relation of the filaments to each other and to the base; and Fig. 6 is a diagram to reduced scale showing the light patterns as thrown upon a vertical screen at a distance from the lamp.

My improved headlamp employs the usual reflector 1 which is generally more or less parabolic and is supported with its axis *a*—*a* substantially horizontal. This reflector is provided with a socket 2 for the reception of a lamp bulb, which socket is sometimes coaxial with the reflector as shown in Fig. 1, and in my Patent No. 1,533,360 dated April 14, 1925, and is sometimes located above the axis and inclined at an angle of 45° as shown in Fig. 2 and in my Patent No. 1,284,019, dated November 5, 1918. In each case the axis of the socket passes through the focal point of the reflector.

As a part of my improved headlamp I employ a novel form of incandescent lamp bulb, containing two specially arranged filaments to constitute light sources, the essential feature being that one of these filaments defines and is substantially confined to a horizontal plane which also includes the reflector axis, said filament being substantially "focussed" as regards the reflector; while the other filament defines and is substantially confined to a plane which intersects the horizontal plane obliquely along a transverse line

which also passes substantially through the focal point, this second filament being located above the first filament and slants rearwardly from such focal point.

In the form of the invention here shown each filament consists of a helix of fine wire, bent to the form of a V, whose apex lies substantially at the focal point and whose legs are symmetrically located as regards the vertical plane which includes the reflector axis. The apices of the two filaments accordingly lie close together. The effect of the horizontal filament is to produce an oval beam indicated at *b* in Fig. 6, the major axis being horizontal and the beam being bilaterally symmetrical about the point *a* which indicates the projected axis of the reflector. The effect of the inclined filament is to produce a beam substantially of the shape shown at *c* in Fig. 6 which is mostly deflected below the axis *a* and is rounded off at its two upper quadrants. These filaments are arranged for selective actuation so that one or the other light pattern can be used at the will of the operator.

The preferred mode of employing such filaments is by the use of the lamp bulb illustrated herein which comprises a glass globe 3 having a cylindrical base 4 to fit the sockets 2 and having three leading-in wires 5, 6, 7. One filament, as 8, is connected across wires 5 and 7, its apex being turned away from the base, its plane including the axis of the base, and its two legs diverging symmetrically from that axis. The other filament 9, is connected between wires 6 and 7, its apex likewise being turned away from the base and its plane making an oblique angle with the plane of the first filament, the angle preferably being 45°. To effect this the wire 6 is preferably bent upwardly and outwardly as shown at 9 in Figs. 1 and 4, while the end of the wire 7 is bent as shown at 10 in Fig. 5. The wire 7 is grounded to the base 4 and constitutes a common return; the wires 5 and 6 are connected to terminals 11 and 12 respectively, insulated from the base and from each other so as to be connected to the battery 13 selectively by means of suitable circuits including a switch 14.

When such a bulb is located in the axial socket shown in Fig. 1 the filament 8 occupies the horizontal position hereinbefore described and produces the oval beam *b*, while the filament 9 occupies the inclined position

and produces the deflected beam *c*. When such bulb is located in the inclined socket shown in Fig. 2 the positions of the filaments are exactly reversed, filament 9 now being horizontal and producing the oval beam and filament 8 being inclined and producing the deflected beam. This enables both types of lamps to be equipped without requiring dealers to maintain separate types of bulbs.

I have shown the two filaments as having substantially the same spread and angle so that when viewed from above as in Fig. 4 one overlies the other. This is desirable but not necessary. Of course it is necessary to leave a small amount of space between the apices of the two V's to prevent contact, so that, speaking with strict geometrical accuracy both cannot exactly occupy the focal point but the error lies within permissible tolerance limits.

In order to protect the reflector any suitable or desirable type of housing may be employed as will be understood by those skilled in the art. It is immaterial to my invention whether a plane glass or some type of lens be employed or whether the device be used naked. Variations may also occur in the shape and construction of the filaments within the purview of essential requirements herein set forth, and I do not limit myself in any way except as specifically recited in my several claims.

Having thus described my invention what I claim is:

1. A lamp bulb for headlight use comprising a base and two independently usable concentrated filaments, one of said filaments defining and being substantially confined within a plane which also includes the axis of the base, the other filament being located wholly at one side of the first filament and defining and being substantially confined within a plane which intersects the plane of the first filament obliquely along a line which is perpendicular to the axis of said base, said filaments approaching close to each other at their margins which are fur-

thest from said base and diverging from each other as they approach said base.

2. A lamp bulb for headlight use comprising a base and two independently usable concentrated filaments, each of which defines and is substantially confined within a plane, said filaments approaching closely together but without touching at a point removed from said base, the planes of said filaments diverging from each other at an angle substantially 45° , the plane of one filament substantially including the axis of the base, and the line of intersection between said planes being transverse to said axis.

3. A lamp bulb for headlight use comprising a base and two independently usable V-shaped filaments having their apices close together and turned away from said base, the plane of one filament including the axis of the base and the legs of that filament diverging symmetrically from that axis, the plane of the other filament intersecting the first plane obliquely along a line which is perpendicular to said axis.

4. A lamp bulb for headlight use comprising a base and two independently usable V-shaped filaments having their apices close together and turned away from said base, the plane of one filament including the axis of the base and the legs of that filament diverging symmetrically from that axis, the plane of the other filament intersecting the first plane at an angle of substantially 45° and the legs of said second filament diverging symmetrically from a plane which is normal to the first plane and also includes said axis.

5. A lamp bulb for headlight use having a base and two filaments which converge together at the point furthest from said base, said filaments defining and substantially confined within planes whose included angle is substantially 45° , the line of intersection of said planes being perpendicular to the axis of the base, and one of said planes including said axis.

In testimony whereof I hereunto affix my signature.

WILLIAM H. WOOD.