W. A. HARVEY.

ELECTRIC LAMP.

APPLICATION FILED APR. 19, 1915.

1,193,894.

Patented Aug. 8, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

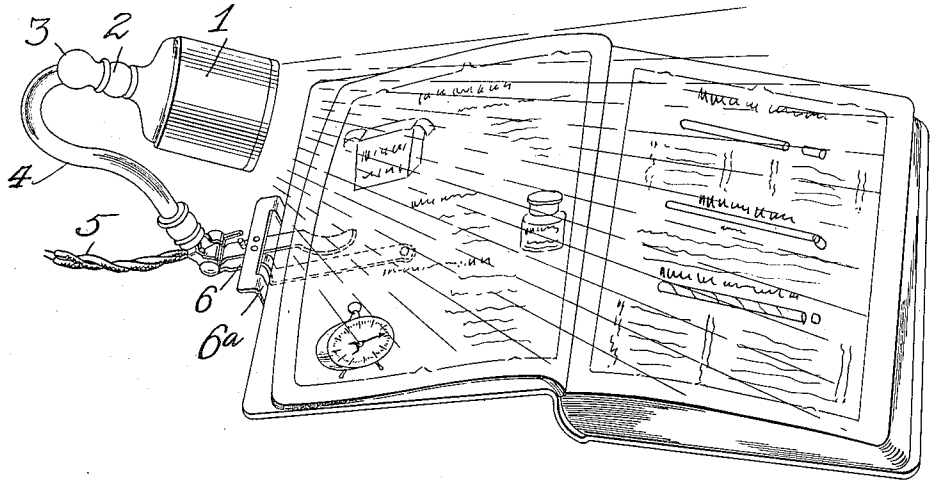
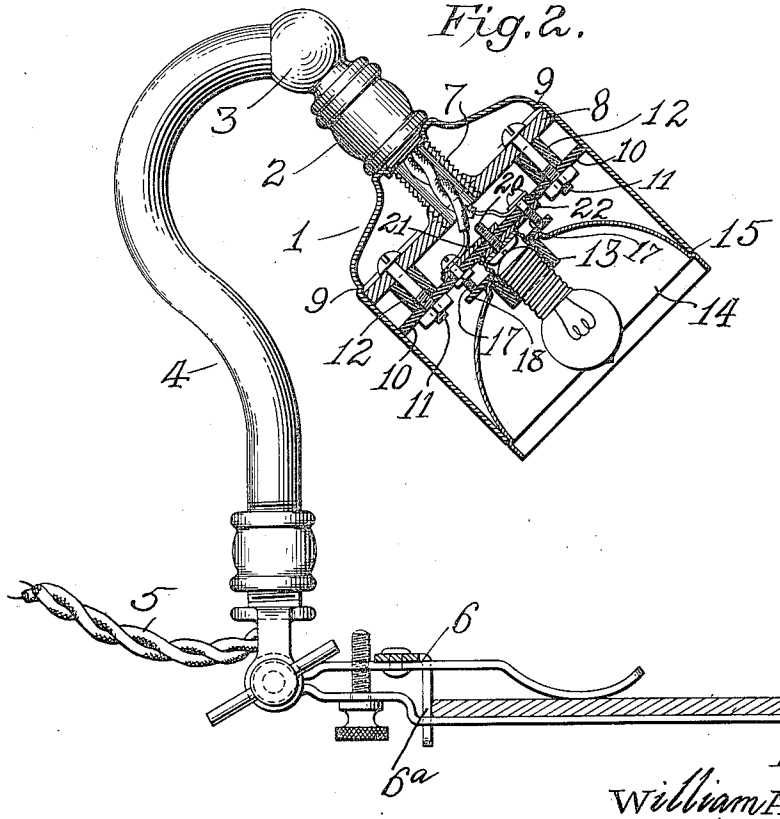


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

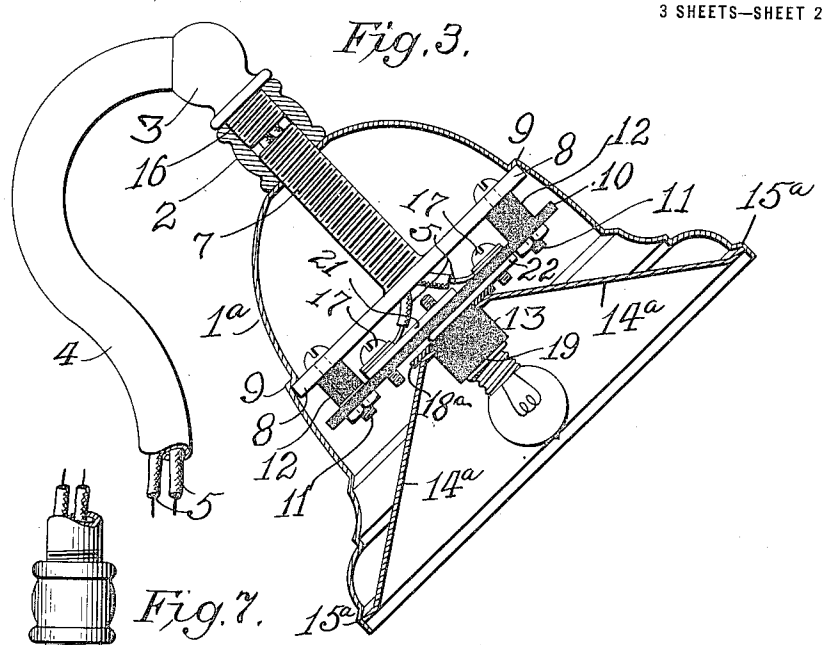


Fig. 7.

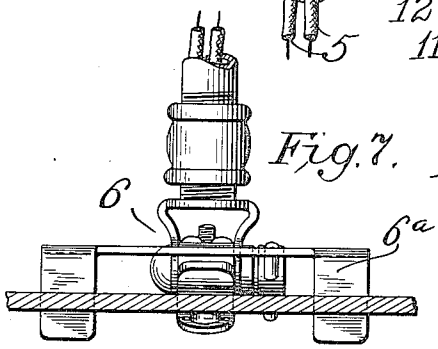


Fig. 6.

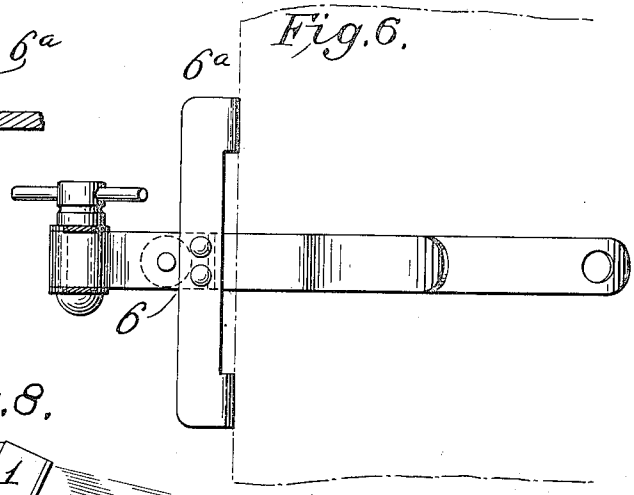
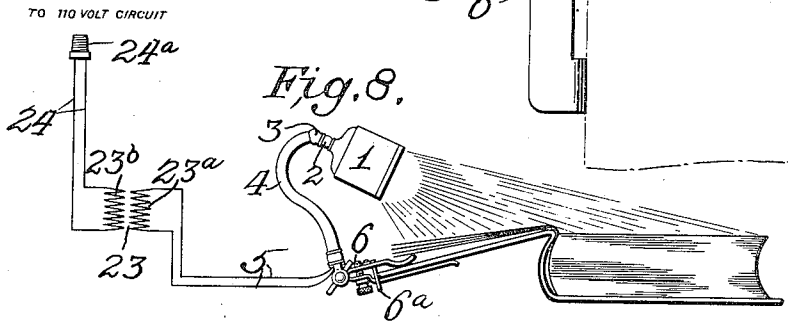


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 4.

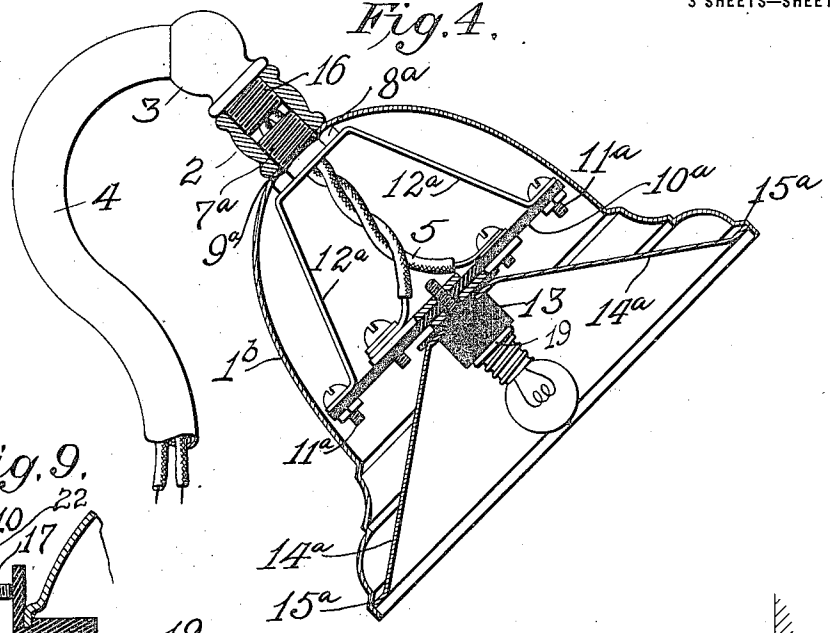


Fig. 9.

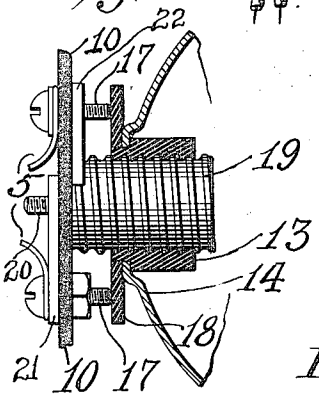
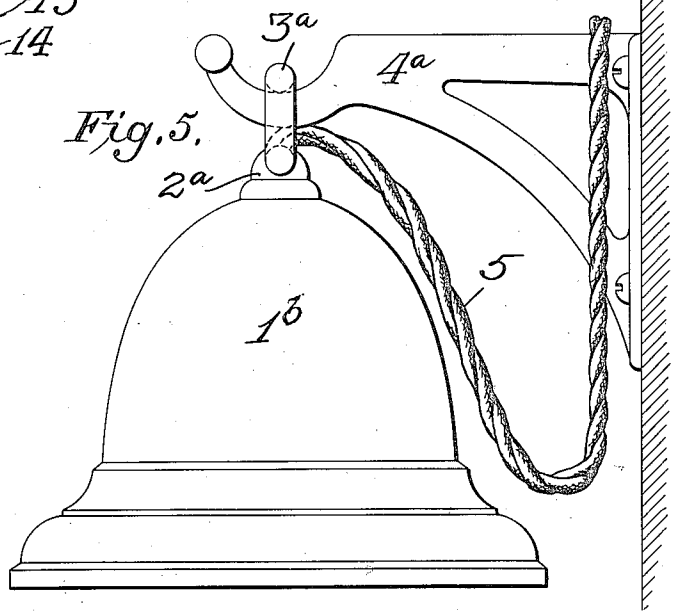


Fig. 5.



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UNITED STATES PATENT OFFICE.

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ELECTRIC LAMP.

1,193,894. Specification of Letters Patent. Patented Aug. 8, 1916.

Application filed April 19, 1915. Serial No. 22,462.

To all whom it may concern:

Be it known that I, WILLIAM A. HARVEY, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Electric Lamps, of which the following is a specification.

This invention, while adapted for embodiment in electric lamps for general uses, is particularly appropriate for small reading lamps designed to illuminate a comparatively restricted area, such as the surface of a book, or illuminating a comparatively larger area where a brilliant light is not required.

The invention has for its object to provide a lamp structure that will be simple and cheap to make and assemble, and to these ends, the invention consists in novel features of construction hereinafter fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view illustrating one use for which the lamp is peculiarly adapted. Fig. 2 is an elevation of the lamp in the same relation as shown in Fig. 1, and with the lamp proper in section to disclose the internal construction. Fig. 3 is a sectional view of a lamp of somewhat modified construction. Fig. 4 is a view similar to Fig. 3, showing a further modification of the internal construction of the lamp. Fig. 5 is an elevation showing another method of hanging the lamp. Fig. 6 is a detail view of a book clamp with which the lamp is preferably provided. Fig. 7 is a detail view of parts shown in Fig. 6, but viewed in directions at right angles to Fig. 6. Fig. 8 is a schematic view, suggesting the use of the lamp with current derived through the medium of an induction device, which adapts it to be introduced in an ordinary house-lighting system, and Fig. 9 is a detail view of the electrical fittings incident to mounting the lamp upon its support within the housing.

The lamp is preferably constructed of a housing 1, a coupling 2 and a hanger 3, which latter is preferably adapted to be supported by an arm 4, which forms a conduit for the lamp circuit wires 5, and which is in turn supported on the bracket 6.

The interior construction of the lamp embodies an attaching shank 7 threaded into the coupling 2 and carrying a shoulder bar 8, which is adapted to seat against the annular shoulder 9 on the housing 1, whose upper end seats against the coupling 2, so that when the shank 7 is screwed into the coupling 2, the shell is held firmly on the latter and steadied in position by the bar 8. The essential characteristics of the parts 7 and 8 are to provide a means of attachment to the coupling 2 and to provide an enlargement that will engage the shell and firmly clamp it against said coupling.

Spaced from the bar 8, is an insulation bar 10 connected thereto through bolts 11 and with intervening spacing members 12; the spacing members in the form shown in Fig. 2 being insulated sleeves around the bolts, and said bolts extending through both bars. Secured to the bar 10, is the socket 13 adapted to receive the lamp bulb; said socket being constructed with the usual conductive threaded lining forming one terminal of the electric circuit, and a central button forming the other terminal so as to complete the circuit through the electric bulb when screwed into place.

14 represents a reflector which is seated at 15 upon the shell (in the construction of Fig. 2, upon the lower edge of the shell), and this reflector is seated upon the socket 13, which provides a shoulder therefor in such manner that when the shank 7 is screwed into the coupling 2, and the bar 8 which in effect forms a shoulder on said shank is seated against the shoulder 9, the reflector will be drawn against its seat 15, and by said single threaded member (the shank 7), the parts will be held together, and by separating said shank from the coupling, the interior fittings of the lamp may be removed from the housing and exposed to view.

The coupling 2 fits the nipple 16 on the hanger 3, or is otherwise suitably connected to the hanger.

To fix the reflector 14 relatively to the socket 13, independently of the bearing of the reflector upon the seat 15, the screws 17 which pass through the insulated bar 10 are made to impinge upon a clamping disk 18, which rests upon the apex of the reflector immediately over the shoulder provided by the socket 13, and this socket 13 is preferably made in the form of an insulated sleeve,

the thread for receiving the lamp being provided by a threaded thimble 19, whose closed upper end receives the button that provides the center contact for the bulb, and which is preferably in the form of a screw 20. The screws 17 serve the further purpose of binding posts for the wires 5, one of them being connected through plate 21 with the central contact 20, and the other through a plate 22 with the threaded thimble 19. With this construction, it is obvious that the reflector may be removed or replaced by withdrawing the insulating sleeve 13 from the threaded thimble 19 of the socket and taking off the reflector and the clamping disk with it.

According to Fig. 3, the housing is in the form of a bell-shaped dome 1^a, but the parts are constructed similarly to those of Fig. 2, except that the reflector is of conical shape, as shown at 14^a (Fig. 3), instead of spheroidal, as in Fig. 2, and the clamping disk 18^a which holds the apex of the reflector upon the sleeve 13, abuts directly against the circuit plate 22. The reflector, however, still has its bearing against the housing, which in this instance is provided by the seat 15^a.

According to Fig. 4, which shows a somewhat modified design of bell dome or casing 1^b, the shoulder afforded by the bar 8 in Figs. 2 and 3 now becomes a nut 8^a, which seats against the casing, but immediately opposite the bearing which the casing has against the coupling 2, the casing being thereby clamped in position and the interior mountings being held within the casing; also the spacing members for the bar 10^a now become a pair of metal legs 12^a which are united to the bar 10^a by short screws 11^a. The lamp socket 13 and the parts immediately associated therewith correspond to those of Fig. 3, the reflector being in the form of a cone and finding its seat upon the casing at 15^a, just as in Fig. 3.

If desired, the hanger 3 which supports the lamp fitting upon the bracket 4, may give place to a hanger 3^a, as in Fig. 5, which is adapted to be received by the bracket 4^a where it is desired to locate the lamp without particular regard to the brightness of the illumination, or localizing it upon an object such as a book. This hanger 3^a or ring is connected with the casing 1^b by means of the coupling pendant 2^a, which is functionally identical with the coupling 2, so far as concerns the housing and the parts within it.

The clamp 6 is of known construction, so far as concerns its clamping jaws, the means for drawing them together upon a thin object, such as a book cover, and the means for angularly adjusting the arm 4; but according to the present invention, an alining yoke 6^a is mounted upon the upper jaw and made to extend considerably on either side thereof, and thence downwardly to form an abutment for the straight edge of the object to be clamped and thereby hold the clamp against displacement on the book, other than that which is intentionally developed by its jointed arm.

To adapt the lamp to be used in an ordinary house-lighting system, notwithstanding the low capacity of the lamp and its fittings, the circuit 5 is made to include the secondary winding 23^a of an inductance 23, whose primary winding 23^b is in the cord or other circuit 24, which includes the plug 24^a adapted to enter a lamp socket in any existing system using alternating current. The inductance 23 is such that it will step-down the current to a voltage safely within the capacity of the lamp and its fittings, and thus make it practicable to use a very small lamp for the sake of economy in current consumption, as well as cost of equipment, and convenience in mounting and supporting the lamp in position to localize its radiation. But ordinarily the lamp circuit 5 will be connected to a portable battery of suitable capacity. I have found in practice that a battery of several dry cells, such as can be readily purchased in open market, will give results that are satisfactory both as to illumination and economy of consumption when used in connection with the lamp herein described.

I claim:—

1. In a lamp, the combination of a housing, a reflector seating against said housing, a socket member protruding through said reflector and having a shoulder through which it engages the reflector in the direction to hold it against its seat upon the housing, a supporting bar carrying the socket member in position to clamp the reflector between the shoulder and said supporting bar, and means for holding the bar within the housing with the reflector seated against the housing.

2. In a lamp, the combination of a housing, a reflector seating against said housing, a socket member protruding through said reflector and having a shoulder through which it engages the reflector in the direction to hold it against its seat upon the housing, a supporting bar carrying the socket member in position to clamp the reflector between the shoulder and said supporting bar, and means for holding the bar within the housing with the reflector seated against the housing, comprising a shank connected with the supporting bar, and a coupling member outside the housing, receiving the shank; the housing being drawn against said coupling through means of said shank.

3. In a lamp, the combination of a housing, a socket member adapted to receive a suitable illuminating device and having a shoulder thereon, a reflector seated against

the housing and also against said shoulder, means for drawing the socket endwise into the housing, and thereby fixing the reflector in position; said means comprising a bar with which the socket member is connected, and the housing being provided with a seat against which the bar rests when the reflector is seated, a shank projecting from said bar, in the direction to draw the bar and reflector to their seats, and a coupling outside the housing, receiving and holding the shank, and seated against the housing when the bar and reflector are seated.

4. In a lamp, the combination of a coupling, a housing seated against said coupling, an attaching shank fitted to said coupling and provided with a shoulder-forming member through which it is seated against the housing, and adapted to draw the housing to its seat against the coupling, a reflector seated against the housing, and a socket member seated against the reflector and connected with the shank and held by the shank in position to hold the reflector to its seat upon the housing.

5. In a lamp, the combination of a coupling, a housing seated against said coupling, an attaching shank fitted to said coupling and provided with a shoulder-forming member through which it is seated against the housing, and adapted to draw the housing to its seat against the coupling, a reflector seated against the housing, and a socket member seated against the reflector and connected with the shank and held by the shank in position to hold the reflector to its seat upon the housing; said shank being adjustable in the coupling for tightening its seating against the housing and the seating of the housing against the coupling.

6. In a lamp, the combination of a coupling, a housing seated against said coupling, an attaching shank fitted to said coupling and provided with a shoulder-forming member through which it is seated against the housing, and adapted to draw the housing to its seat against the coupling, a reflector seated against the housing, and a socket member seated against the reflector and connected with the shank and held by the shank in position to hold the reflector to its seat upon the housing; said socket member being adjustable relatively to the shank for tightening its seating against the reflector and the seating of the reflector against the housing.

7. In a lamp, the combination of a coupling, a housing seated against said coupling, an attaching shank fitted to said coupling and provided with a shoulder-forming member through which it is seated against the housing, and adapted to draw the housing to its seat against the coupling, a reflector seated against the housing, and a socket member seated against the reflector and connected with the shank and held by the shank in position to hold the reflector to its seat upon the housing; said shank being adjustable in the coupling for tightening its seating against the housing and the seating of the housing against the coupling; said socket member being adjustable relatively to the shank for tightening its seating against the reflector and the seating of the reflector against the housing.

8. In a lamp, the combination of a coupling, a housing seated against said coupling, an attaching shank fitted to said coupling and provided with a shoulder-forming member through which it is seated against the housing, and adapted to draw the housing to its seat against the coupling, an insulating support mounted on the shoulder-forming member of the shank and suitably spaced therefrom, a reflector seated against the housing, and a socket member seated against the reflector and connected with the shank, through the medium of said insulating support, and held by the shank in position to hold the reflector to its seat upon the housing.

9. In a lamp, the combination of a housing, a support within said housing, an insulating mounting carried by said support, a lamp socket carried by said mounting, a shoulder-forming member carried by and axially adjustable upon said socket, a reflector against which said shoulder-forming member seats, a clamping disk sustained by the insulating mounting and sustaining the reflector against said shoulder-forming member, and a seat for the reflector on the housing.

10. In a lamp, the combination of a housing, a support within said housing, an insulating mounting carried by said support, a lamp socket carried by said mounting, a shoulder-forming member carried by and axially adjustable upon said socket, a reflector against which said shoulder-forming member seats, a clamping disk sustained by the insulating mounting and sustaining the reflector against said shoulder-forming member, and a seat for the reflector on the housing; said mounting member having means for drawing it axially into the housing and thereby drawing the reflector to its seat upon the housing.

11. In a lamp, the combination of a housing, a support within said housing, an insulating mounting carried by said support, a lamp socket carried by said mounting, a shoulder-forming member carried by and axially adjustable upon said socket, a reflector against which said shoulder-forming member seats, a clamping disk lying against said reflector, screws mounted in and protruding beyond the insulating member, providing means through which the clamping disk is sustained by the insulating mounting

and sustaining the reflector against said shoulder-forming member, and a seat for the reflector on the housing.

12. In a lamp, the combination of a housing, fittings within said housing, an attaching shank connected with said fittings and seated against the housing, a coupling receiving said shank and providing a seating for the housing and against which the housing is held by the seat upon the shank, a hanger receiving said coupling, and means for supporting said hanger.

13. In a lamp, the combination of a housing, fittings within said housing, an attaching shank connected with said fittings and seated against the housing, a coupling receiving said shank and providing a seating for the housing and against which the housing is held by the seat upon the shank, a hanger receiving said coupling, and means for supporting said hanger, comprising a bracket arm, and means for supporting said bracket arm.

14. In a lamp, the combination of a supporting bar having a connecting member projecting rearwardly therefrom, an insulating bar mounted upon and spaced from said supporting bar, a lamp socket secured to said insulating bar, a reflector through which said lamp socket protrudes having a flange projecting toward the lamp socket and in abutment with the insulating bar, and a clamping nut surrounding the lamp socket and gripping the reflector flange against the insulating bar.

15. In a lamp, the combination of a supporting bar having a connecting member projecting rearwardly therefrom, an insulating bar mounted upon and spaced from said supporting bar, a lamp socket secured to said insulating bar, a reflector through which said lamp socket protrudes having a flange projecting toward the lamp socket and in abutment with the insulating bar, and a clamping nut surrounding the lamp socket and gripping the reflector flange against the insulating bar; said insulating bar having suitable conducting contacts in position to connect with the lamp socket and with a lamp introduced therein, and having a raised insulating portion through which it coacts with the nut in clamping the reflector.

The foregoing specification signed at Scranton, Pennsylvania, this twenty ninth day of March, 1915.

WILLIAM A. HARVEY.

In presence of two witnesses—

JAMES MOIR,

P. S. BROWNING.