

Feb. 27, 1934.

I. A. YOST

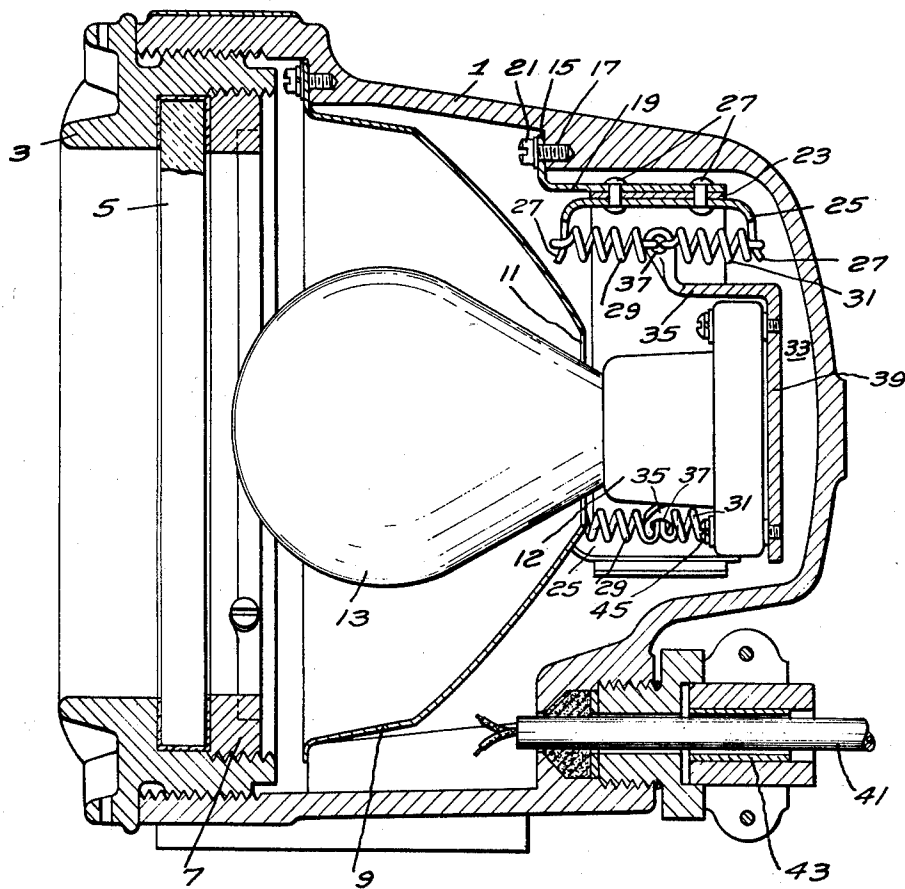
1,948,690

ILLUMINATION APPARATUS

Filed Nov. 12, 1931

2 Sheets-Sheet 1

Fig. 1.



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2 Sheets-Sheet 2

Fig. 2.

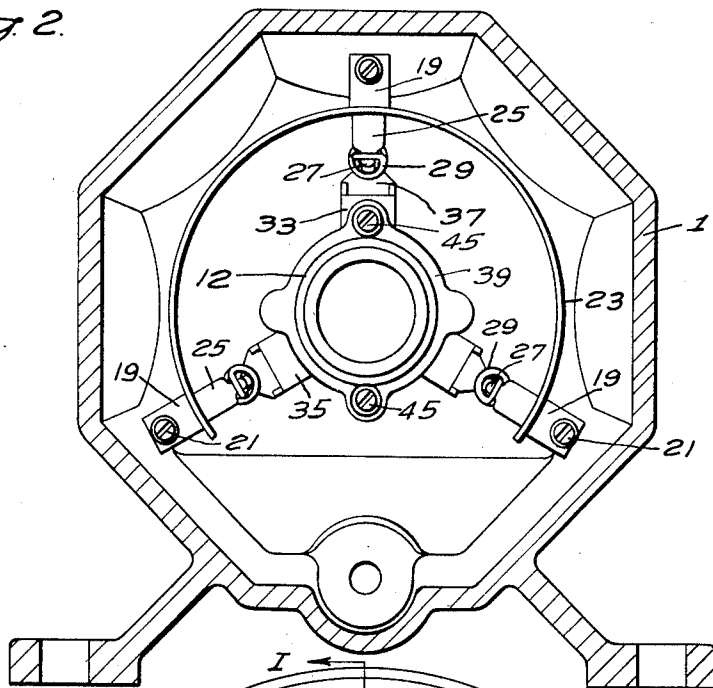
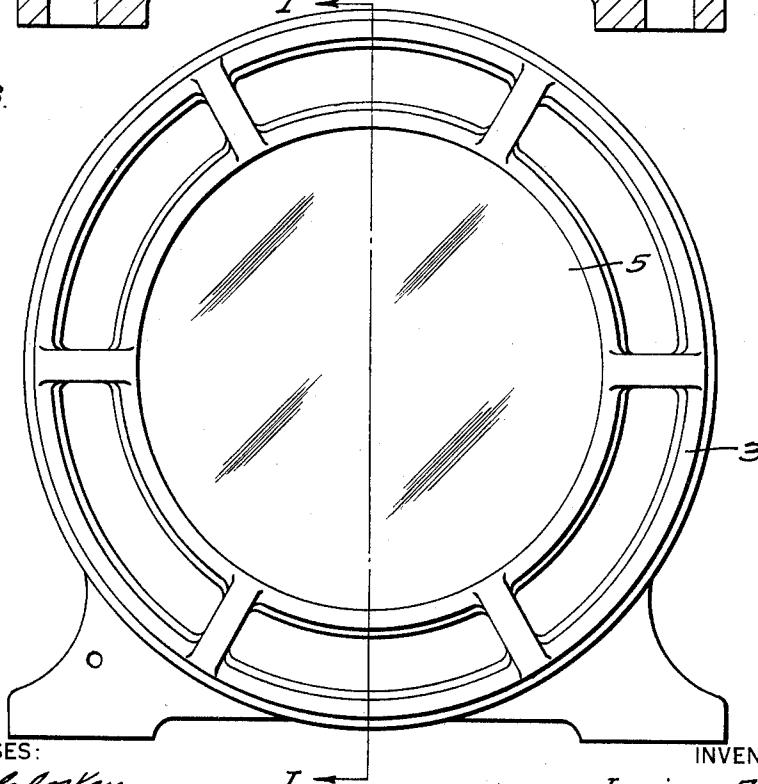


Fig. 3.



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ILLUMINATION APPARATUS

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inghouse Electric & Manufacturing Company,
a corporation of Pennsylvania

Application November 12, 1931
Serial No. 574,469

9 Claims. (Cl. 240—90)

My invention relates to illumination apparatus, and particularly to resilient suspension means for headlights of the type used on locomotives and other track vehicles.

It is an object of my invention to provide a resilient suspension device which will absorb the shocks and jars incident to the running of track vehicles, and thereby increase the life of the incandescent lamp used in the headlight of such a vehicle. Spring suspensions have been used before but have had objectionable characteristics which it is my purpose to avoid. Unless a complicated suspension was used, the headlamp was subject to shocks or bumps. Furthermore, the lamp often vibrated in resonance with the vibrations of the vehicle on which it was mounted, and the lamp soon wore out because of this. It is, therefore, an object of my invention to avoid these objectionable characteristics.

Other objects and advantages of my invention will become apparent from the following description and drawings, wherein

Figure 1 is a sectional view of a locomotive headlight taken on line I—I of Fig. 3.

Fig. 2 is a sectional view of a mine locomotive headlight, showing the front of the headlight cut away to illustrate an embodiment of my invention; and

Fig. 3 is a front elevational view of a locomotive headlight.

I have illustrated a mine locomotive headlight which is incident to many shocks and jars, but it is understood that I do not wish to be limited to this type of apparatus as the device is capable of use in any lighting device in which it is desirable to prevent the transmission of extraneous shocks to the incandescent lamp.

I accomplish the objects of my invention, broadly speaking, by suspending the lamp and socket of a headlight completely from the centers of relatively short and heavy sets of resilient members disposed substantially horizontally to the longitudinal axis of the lighting unit, and provide preferably three sets in number spaced 120° apart about the inside of the unit. The lamp and socket are, therefore, free to move a short distance in any direction, and their movement is quickly dampened. By providing relatively short and heavy resilient members, the frequency of vibration of the lamp and socket is limited to a low value and is not likely to approach the vibration frequency of the vehicle on which it is mounted and become resonant thereto.

Referring specifically to the drawings for a

detailed description of the invention, numeral 1 designates a headlamp housing for a mine locomotive. A heavy casting 3 is screwed onto the front of the housing 1 and contains a lens 5 held in place therein by a ring 7. A reflector 9 is disposed within the housing 1, and is provided with an aperture 11 through which an incandescent lamp 13 extends, held by a socket 12. The aperture 11 is preferably of sufficient size that the lamp 13 does not strike the edges of the reflector 9 when the lamp 13 vibrates.

A shoulder or ledge 15 is formed substantially in the middle of the housing 1 and extends peripherally around the greater part of the inside of the housing 1. Tapped screw holes 17 are provided in the shoulder, preferably 120° apart, with one of the screw holes 17 at the top of the lighting unit. L-shaped members 19 are fastened to the shoulder 15 by screws 21 entering the tapped holes 17. A ring or bracket 23 extending partially in a circle and U-shaped members 25 spaced in the same positions as the L-shaped members 19 are fastened to the L-shaped members 19 by rivets 27, the ring 23 being held preferably between the L-shaped members 19 and the U-shaped members 25.

The U-shaped members 25 are provided with out-turned sides 27 which each engage one end of relatively short and heavy springs 29 and 31. A spider 33, provided preferably with three legs 35 spaced 120° apart and having eyelets 37 on the ends thereof, and also including a flat body portion 39 which is attached to the socket 12, engages the two free ends of the sets of springs 29 and 31 at the eyelets 37. The socket is, therefore, supported solely by the springs 29 and 31.

Any number of sets of springs 29 and 31 around the inside periphery of the housing 1 may be utilized, but I have found that by placing the sets 120° apart, and suspending the socket 12 from the middle of each set, or if one resilient member is used rather than two, from the middle of each resilient member, that the lamp may move in any direction a short distance, and the movement is quickly dampened. It is preferable to place one suspension at the top of the unit since many of the shocks and jars are vertical in direction.

Electrical energy is supplied to the lamp 13 by means of a conductor 41 which extends through a gas tight seal 43. Binding posts 45 are provided on the socket 12 for connecting the conductor 41 to the socket 12 in a well known manner.

From the foregoing description, it will be ap-

parent that I have provided a headlight suspension which dampens the movement of the lamp in any direction, and which maintains a low frequency of vibration in the lamp. The lamp is completely spring suspended, and jars cannot be transmitted to the lamp except through the medium of the resilient members. The resilient sets being preferably three in number and spaced 120° apart, assist in dampening movements in any direction, and furthermore, provide a compact and relatively uncomplicated structure.

Although I have shown and described a specific embodiment of my invention, it is understood that modifications and changes may be made by those skilled in the art, without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. A lighting unit comprising a source of light, a housing, a reflector mounted in the housing, a lamp socket for holding said source of light, means for suspending said socket comprising means fastened to said housing for supporting under tension a plurality of resilient members substantially parallel to the longitudinal axis of said lamp housing, and single means attached directly to the middle of each of said resilient members for supporting said lamp socket therefrom.

2. A lighting unit comprising a source of light, a reflector, a lamp socket for holding said source of light and a housing, means for suspending said socket within the housing comprising a plurality of resilient members and means fastened to said housing for supporting said resilient members under tension substantially parallel to the longitudinal axis of said lamp housing, and single means secured directly to each of said resilient members for supporting said lamp socket therefrom comprising a spider, said spider including fingers adapted to engage the said resilient members intermediate their ends and a body portion for connecting said fingers rigidly to said socket.

3. A lighting unit comprising a source of light, a reflector, a lamp socket for holding said source of light, a housing, means for resiliently suspending said socket comprising a plurality of sets of resilient members, means fastened to said housing for supporting the sets of resilient members under tension substantially parallel to the longitudinal axis of said housing, and means provided with arm portions attached directly to the middle of each of said sets of resilient members for supporting said lamp socket therefrom.

4. A lighting unit comprising a source of light, a reflector, a lamp socket for holding said source of light, a housing, means for suspending said socket comprising three sets of resilient members, means fastened to said housing for supporting the sets of resilient members equally spaced apart substantially parallel to the longitudinal axis of said housing, and a single means for engaging the resilient members and for supporting said lamp socket therefrom, comprising a spider provided with three fingers equally spaced apart and secured directly to the ends of the resilient members of each set to hold said members under tension and a body portion for connecting said fingers rigidly to said socket.

5. A head lamp comprising a housing, a reflector mounted within the housing, a lamp, a socket for supporting the lamp, a plurality of pairs of relatively short spring members, means secured to the housing adapted to support one end of each spring member of each pair in a position whereby when the opposite ends of the spring members of each pair are attached together the spring members are positioned under tension substantially parallel to the longitudinal axis of the housing, and means for supporting the lamp socket directly from the spring members, said means being adapted to attach the unsupported ends of the spring members of each pair together.

6. A headlamp comprising a housing, a source of light, a reflector, a socket for holding the source of light, means for resiliently suspending said socket within said housing comprising a plurality of L-shaped members fastened to the inside of said housing, means including a plurality of U-shaped members fastened to said L-shaped members, said U-shaped members being supported substantially parallel to the longitudinal axis of the housing, a pair of resilient members individual to each U-shaped member each held at one end by its associated U-shaped member, and a spider fastened rigidly to said socket and provided with a plurality of legs, each of said legs being fastened to the loose ends of said pairs of resilient members to connect said resilient members of each pair under tension.

7. A lighting unit comprising a housing, a light source, means for holding the light source, a plurality of resilient members, means secured to the housing for supporting the resilient members from their ends in spaced relation under tension and substantially parallel to the longitudinal axis of the housing around the inside of the housing, said means for holding the light source being secured directly to the resilient members, thereby to provide a resilient mounting for the light source.

8. A lighting unit comprising a housing, a reflector mounted in the housing, a light source, a socket for the light source, and means for resiliently supporting the socket and light source within the housing, said means comprising a plurality of spring members suspended under tension substantially parallel to the longitudinal axis of the housing and means attached to the socket and directly to the spring members intermediate of their ends, whereby the light source and socket are supported solely by the spring elements.

9. A lighting unit comprising a housing, a light source, a socket for holding the light source, means for resiliently suspending said light source and socket within the housing comprising a plurality of bracket members secured to the housing, a pair of resilient members individual to each bracket, each resilient member being supported at one end by the bracket member, and a spider member secured to the socket and having arm portions attached to the unsupported ends of each pair of resilient members to hold said members under tension substantially parallel to the longitudinal axis of the housing.

IRVINE A. YOST.