July 13, 1948. A. L. LEE 2,445,072

MINING MACHINE HEADLIGHT

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Fig. 1

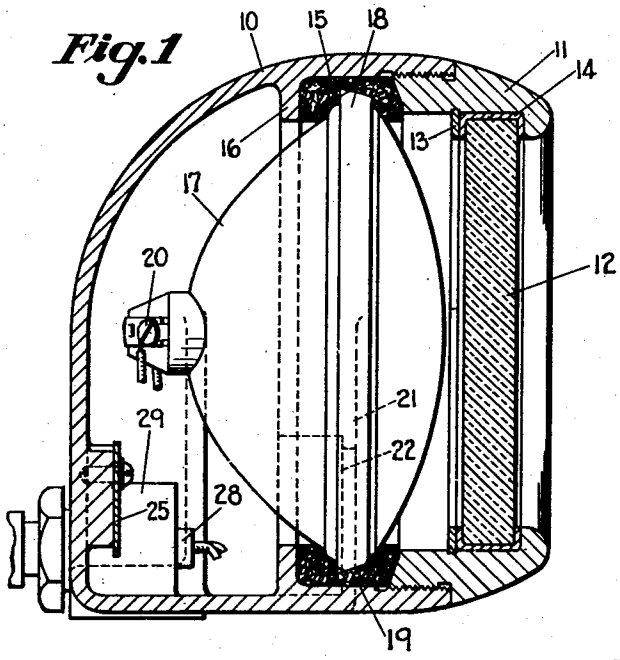
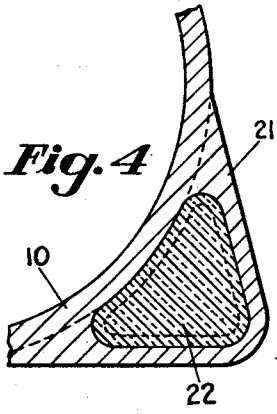


Fig. 4



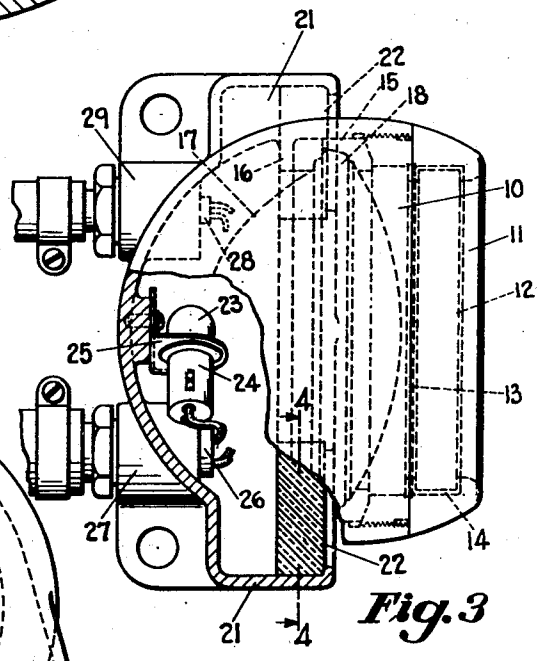


Fig. 3

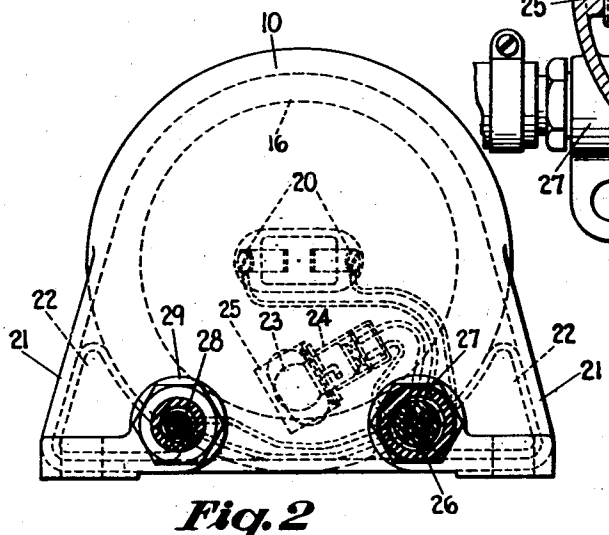


Fig. 2

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MINING MACHINE HEADLIGHT

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9 Claims. (Cl. 240—11.2)

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This invention relates to a headlight for a mining machine which in one aspect of the invention is a combination headlight and tail light.

An object of the invention, therefore, is to provide an improved headlight and tail light particularly of a flame proof type for use on a mining machine or other mining apparatus.

A further object of the invention is to provide an improved flame proof headlight.

Still another object of the invention is to provide a headlight including improved cushioning means for supporting a reflector for a combination light bulb and reflector such as the sealed-beam light bulb for automobiles.

Other objects of the invention will appear hereinafter the novel features and combinations being set forth in the appended claims.

In the accompanying drawings,

Fig. 1 is a transverse sectional view through the headlight of my invention;

Fig. 2 is a rear view thereof;

Fig. 3 is a top plan view thereof with parts shown in section; and

Fig. 4 is an enlarged partial sectional view taken on the line 4—4 of Fig. 3, looking in the direction of the arrows.

The headlight of my invention is designed particularly for use in gaseous coal mines though in some of its broader aspects it involves features used in non-gaseous mines and for general utility.

Said headlight is actually a combination headlight and tail light and in a mining machine, such as a locomotive, there will be two such lights employed and the tail light bulb of one of them will be connected in parallel with the headlight of the other and vice versa.

In addition, the headlight in another aspect of my invention may be considered as a combination headlight and junction box which is flame proof and thus usable in a gaseous mine since means are provided for running a cable from the housing thereof to an extraneous light in the nature of a searchlight or flashlight.

The device comprises a casing or housing 10 having an open internally threaded front end preferably formed as a steel casting though other material may be employed. Forming a part of the casing or housing 10 is a removable front ring or rim 11 which is threaded into the open front end of the main casting of said housing 10. Ring 11 is provided with a front opening which is closed by a heavy glass lens 12 held in place by a snap ring 13 which snaps into a groove in the rim 11. The lens 12 is provided with a peripheral lead beading 14 or other sealing means which provides

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a flame proof seal between its periphery and the ring portion 11 of the casing or housing 10. Substantially midway between the front and back of the housing 10 there is a peripheral groove 15 formed on the interior of said housing 10 by rear peripheral flange 16 which forms a forwardly facing abutment or peripheral shoulder adjacent the open end of the main casting of housing 10 and the rear face of the rim 11 which forms a rearwardly facing abutment or peripheral shoulder.

Mounted in said housing 10 is a combination light bulb and reflector 17, or what is commonly known as a sealed-beam light bulb or lamp. Said sealed-beam bulb is provided with an integrally formed peripheral rim 18 at its greatest diameter which is particularly effective to cooperate with cushioning or damped-resilient mounting means of snarled material interposed between said rim 18 and the groove 15. This cushion or damped-resilient mounting of snarled material is preferably in the form of a packing 19 of metal wool such as turnings or curlings of steel, brass or bronze wool, which possess internal friction and provides a snubbing effect to prevent high frequency vibration or aggravation from vibratory shock in said bulb or lamp. Said packing 19 is preferably formed in the shape of a pre-formed ring which is fitted into the groove 15 between the abutments or shoulders provided by the peripheral flange 16 and the ring 11. The packing 19 encases or surrounds the peripheral rim 18 of the light bulb or reflector 17 and is compressed about the rim 18 and between the shoulders or abutments of flange 16 and ring 11 and the outer wall of the main casting of the casing or housing 10 which abut it when the ring or rim 11 is screwed tight to provide a flame proof fitting between itself and the other portion of the casing or housing 10. This particular type of packing 19 is extremely desirable in a mining machine headlight since such machines are subject to severe shock such as the dropping of lumps of coal thereon and it is desirable that this shock be absorbed to a large extent without being transferred to the bulb 17. It is desirable that this flexible mounting be of damped resiliency so that any vibration transferred to the bulb 17 will be immediately dampened out. The packing 19 provides such a characteristic which would not be provided by a rubber packing or the equivalent. It is to be noted that the reflector which carries the filament is resiliently supported solely through the damped-resilient packing 19.

The light bulb 17 provides its own reflecting surface since that portion thereof to the left of

the rim 18, as viewed in Fig. 1 of the drawings, has its inner surface coated with an opaque reflecting material such as silver, nickel or chromium. The rear or reflector portion of the light bulb 17 is provided with terminals 20 by which the filament is supported from the reflector and current is conducted thereto.

To provide the tail light characteristic of the headlight, the casing 10 is provided with a pair of lateral ears or projections 21, 21 each of which is provided with an insert 22 of heavy colored glass which is closely fitted to the adjacent periphery of the casing 10 and is glued in place to provide a flame proof fitting therewith. Adequate space is provided to the rear of the inserts 22 so that light from a bulb 23 located behind the light bulb reflector 17 will readily pass through said inserts 22 and be visible from the outside of said lamp. It is also desirable to paint the interior of the casing 10 white to aid in reflection of light from the bulb 23. Light bulb 23 is received in a socket 24 carried by a bracket 25 mounted on a boss formed on the rear wall of the casing 10. At its rear the casing 10 is provided with a conduit or cable receiving opening into which an electric cable 26 extends, there being a flame proof fitting or stuffing box 27 formed in the casing 10 to receive said cable 26, thus preserving the flame proof character of said housing 10.

Considered in another aspect of my invention the unit is both a headlight and a junction box in that I preferably also provide another cable inlet or opening for a cable 28 leading into the housing 10, there being a flame proof fitting or stuffing box 29 cooperating therewith. The cable 28 has its conductors connected in parallel with the conductors leading to light bulb 23 or to the conductors leading to light bulb 17 as desired. Said cable 28 may supply power to an external light such as a portable searchlight or flashlight.

From the above description it is obvious that I have produced a very rugged headlight which is preferably not only a headlight but also a combination headlight and tail light and one which is designed for rugged service and in the preferred embodiment of my invention for use in a gaseous mine since it is flame proof. Furthermore in another aspect of the invention the unit constitutes a combination headlight and junction box which is flameproof in character.

Obviously those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended and I wish therefore not to be restricted to the precise construction herein disclosed.

Having thus described and shown an embodiment of my invention, what I desire to secure by Letters Patent of the United States is:

1. A flame proof headlight including a flame proof casing, a reflector in said casing, a transparent insert in said casing outside the peripheral extremities of said reflector, said insert having a flame proof fit with said casing, a flame proof lens positioned in front of said reflector, said insert and lens lying in parallel planes and visible from the same side of said headlight, and a light bulb behind said reflector for producing light visible through said insert.

2. A flame proof headlight including a casing having an internally threaded open end, means in said casing adjacent its open end forming a peripheral shoulder, a combination light bulb and reflector in said casing having a peripheral rim, metal wool encasing the peripheral rim of said combination light bulb and reflector abutting said peripheral shoulder, and an externally threaded rim having a flame proof lens therein threaded into the threaded open end of said casing and having means adapted to compress said metal wool against said shoulder and about the rim of said combination light bulb and reflector whereby said combination light bulb and reflector is damped-resiliently supported in said casing solely through said metal wool.

3. A flame proof headlight including a casing having an open end, means in said casing adjacent its open end forming a peripheral shoulder, a combination light bulb and reflector in said casing having a peripheral rim, metal wool encasing the peripheral rim of said combination light bulb and reflector abutting said peripheral shoulder, and a rim having a flame proof lens therein associated with the open end of said casing and having means adapted to compress said metal wool against said shoulder and about the rim of said combination light bulb and reflector whereby said combination light bulb and reflector is damped-resiliently supported in said casing solely through said metal wool.

4. A headlight including a casing having an open end, means in said casing adjacent its open end forming a peripheral shoulder, a combination light bulb and reflector in said casing having a peripheral rim, metal wool encasing the peripheral rim of said combination light bulb and reflector abutting said peripheral shoulder, and a rim associated with the open end of said casing and having means adapted to compress said metal wool against said shoulder and about the rim of said combination light bulb and reflector whereby said combination light bulb and reflector is damped-resiliently supported in said casing solely through said metal wool.

5. A light including a casing having an open front end, means in said casing forming a generally forwardly facing abutment, a combination light bulb and reflector in said casing having a peripheral rim, means positioned forwardly of said rim providing a generally rearwardly facing abutment, and metal wool interposed between said abutments, casing and edge of said rim whereby said combination light bulb and reflector is damped-resiliently supported in said casing solely through said metal wool.

6. A flame proof headlight including a casing having an internally threaded open end, means in said casing adjacent its open end forming a peripheral shoulder, a reflector in said casing having a peripheral rim, a filament carried by said reflector, metal wool encasing the peripheral rim of said reflector abutting said peripheral shoulder, and an externally threaded rim having a flame proof lens therein threaded into the threaded open end of said casing and having means adapted to compress said metal wool against said shoulder and about the rim of said reflector whereby said reflector and filament are damped-resiliently supported in said casing solely through said metal wool.

7. A flame proof headlight including a casing having an open end, means in said casing adjacent its open end forming a peripheral shoulder, a reflector in said casing having a peripheral rim, a filament carried by said reflector, metal wool encasing the peripheral rim of said reflector abutting said peripheral shoulder, and a rim associated with the open end of said casing and having

means adapted to compress said metal wool against said shoulder and about the rim of said reflector whereby said reflector and filament are damped-resiliently supported in said casing solely through said metal wool.

8. A headlight including a casing having an open end, means in said casing adjacent its open end forming a peripheral shoulder, a reflector in said casing having a peripheral rim, a filament carried by said reflector, metal wool encasing the peripheral rim of said reflector abutting said peripheral shoulder, and a rim associated with the open end of said casing and having means adapted to compress said metal wool against said shoulder and about the rim of said reflector whereby said reflector and filament are damped-resiliently supported in said casing solely through said metal wool.

9. A light including a casing having an open front end, means in said casing forming a generally forwardly facing abutment, a reflector in said casing having a peripheral rim, a filament carried by said reflector, means positioned forwardly of said rim providing a generally rearwardly facing abutment, and metal wool interposed between said abutments, casing and edge of said rim whereby said reflector and filament are damped-resiliently supported in said casing solely through said metal wool.

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