Oct. 8, 1929. C. W. WYMAN 1,730,836

ILLUMINATING DEVICE

Filed June 20, 1927

Fig. 1.

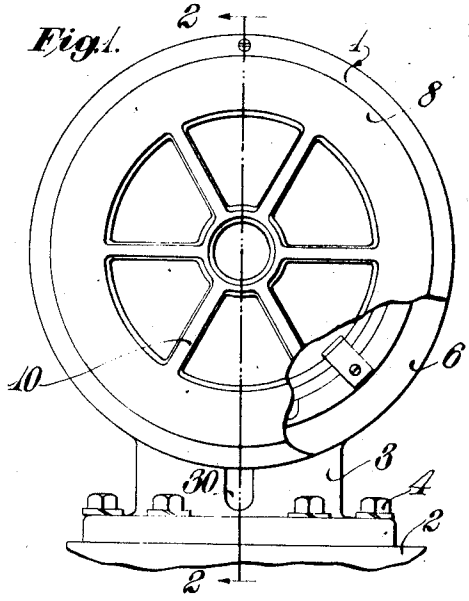


Fig. 2.

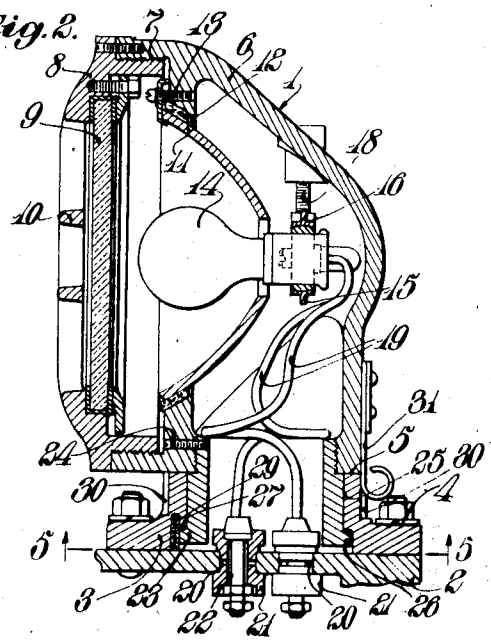


Fig. 3.

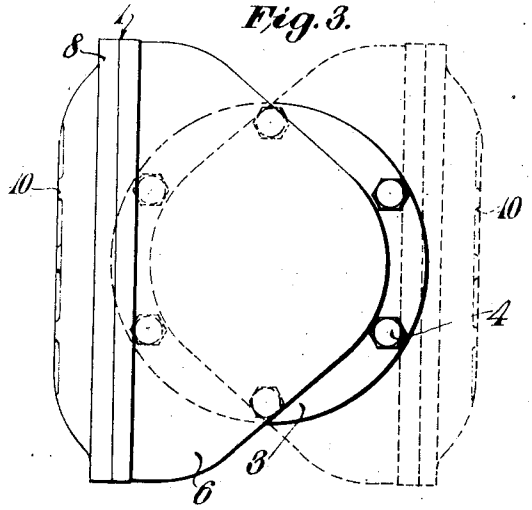


Fig. 4.

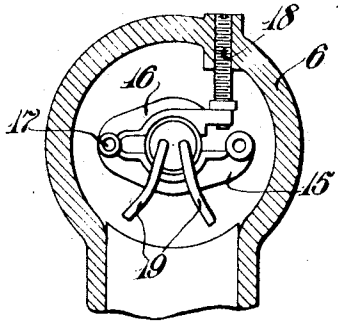
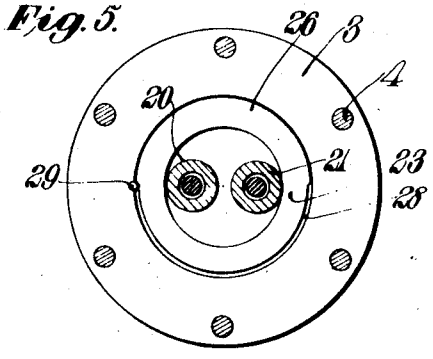


Fig. 5.



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Patented Oct. 8, 1929 1,730,836

UNITED STATES PATENT OFFICE

CHARLES W. WYMAN, OF CLAREMONT, NEW HAMPSHIRE, ASSIGNOR TO SULLIVAN MACHINERY COMPANY, A CORPORATION OF MASSACHUSETTS

ILLUMINATING DEVICE

Application filed June 20, 1927. Serial No. 200,267.

My invention relates to illuminating devices.

It has for its object to provide an improved illuminating device and more specifically an explosion-proof head light which is angularly adjustable relative to its support, particularly adapted for use in connection with portable equipment in mines. Other objects and advantages will, however, subsequently more fully appear.

In the accompanying drawings I have shown for purposes of illustration one form which my invention may assume in practice.

In these drawings,—

Fig. 1 is a front elevation view of my improved head light, parts being broken away to facilitate illustration.

Fig. 2 is a central vertical section on the line 2—2 of Fig. 1.

Fig. 3 is a plan view of my device shown in one extreme position in dotted lines.

Fig. 4 is a fragmentary vertical sectional view through a portion of Fig. 2.

Fig. 5 is a horizontal section on the line 5—5 of Fig. 2.

In the illustrative form of my invention I have shown the head light, generally designated by the numeral 1, mounted on a suitable support 2 which may be, for example, a part of a mining machine casing or a locomotive frame. A bearing member 3 is rigidly attached to the support 2 by suitable retaining means such as studs 4, and this bearing member has a horizontal bearing surface 5 on which the weight of the head light rests. The head light casing 6 has a screw threaded bore 7 adapted to receive a lens retaining member 8 for holding a lens 9 in a well known manner. The retaining member 8 has transverse ribs 10 providing protection for the lens and other parts of the lamp as is usual practice in lights of this kind. The casing 6 also has means for retaining a reflector 11 against a felt washer 12 by suitable holding devices 13. A bulb 14 is mounted at the rear end of the lamp casing in an adjustable bearing member comprising a rigid section 15 and a section 16 pivoted on a cap screw 17 threaded into a lug 17′ on the interior of the casing as best shown in Figs. 2 and 4. A suitable adjusting screw 18 is provided for holding the bulb in any adjusted position.

At this point it should be noted that all of the joints between the various parts of the device so far described which are in communication with the atmosphere are made in such a manner as to be explosion-proof. It is a well known fact that a screw threaded joint is very effective in preventing the passage of any flame and it is also a commonly known fact that any joint consisting of two members in metal to metal contact over a relatively wide area prevents the passage of flame between the since the metal cools any flame which tends to pass through the joint and thus extinguishes the same. The terms "flame proof" and "explosion proof" as used herein to describe a joint, denote a joint of the character above mentioned or its equivalent, and as applied to a casing, mean a casing all of whose joints are of such character.

Power conducting wires 19 lead from any suitable source of supply through apertures 20 in the supporting base 2. For the purpose of making the connection between the wires 19 and apertures 20 explosion-proof, suitable adjustable, two-part bushings 21 are provided, which bushings may be held in place by any suitable retaining bolts 22. In this instance the bolts 22 themselves serve as the conductors through the bushings. Into the bottom of the lamp casing 6 is screw threaded a suitable flanged journal member 23 and this bushing may be locked to the casing by a small set screw 24. Bearing member 23 has a cylindrical portion 25 closely fitting in a corresponding portion of the bearing member 3 and has a flange 26 engaging under a shoulder 27 on the bearing member to hold the head light against any possible vertical displacement. As best shown in Fig. 5, a notch 28 is provided in the periphery of the flange 26 extending around the circumference of the same approximately one hundred eighty degrees. Obviously this notch may be made of greater or lesser extent according to the maximum adjustment desired. A small screw 29 attached to the bearing member cooperates with the notch 28 for limiting the angular movement between the

journal member 23 and the bearing member 3. Any desired number of notches 30 may be formed on the outside of the bearing member 3 and a spring detent member 31 attached to the casing 6 may be provided to cooperate with the notches 30 and hold the head light in angularly adjusted position relative to the bearing member 3 and the support. It will be apparent from the drawings that the lower end of the casing 6 is sealed from the atmosphere except by the joint between the bearing and its journal and this joint being relatively wide, is flame-proof or explosion-proof.

As a result of my invention, a head light for use with portable equipment in mines is made so as to be rotatable on a vertical axis and at the same time there is no danger of an explosion inside the lamp casing being transmitted to the outside atmosphere.

While I have in this application specifically described one from which my invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various forms of the same without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In combination, a support, a bearing member attached to said support, a head light mounted thereon having an explosion-proof casing with a journal portion received in said bearing member so that said light is normally free to be swung relative to said support, said lamp casing and journal member being rotatable in said bearing member on a vertical axis, means for limiting said rotary movement, and means for locking the light in angularly adjusted position, the bearing surfaces on said journal member and said bearing member being in continuous contact over a relatively wide area completely around the axis of pivotal movement so as to prevent the passage of any flame therethrough.

2. In combination, a machine frame presenting a support, an electric lighting device mounted thereon for limited pivotal movement, said device having an explosion-proof casing with an opening therein adjacent said support, power conducting wires extending through said opening, an adjustable bulb mounted in said casing, means for providing an explosion-proof joint between said wires and said support, including a bushing surrounding one of said wires and in close contact therewith, said bushing fitting in a hole in said support, and means comprising relatively wide surfaces of revolution contacting throughout with each other during pivotal movement for providing an explosion-proof joint between relatively movable portions of said casing and said support during pivotal movement of said device.

3. In combination, a machine frame presenting a support, an illuminating device having a casing with a hollow interior, said casing being made up of sections having cooperating means to provide flame proof joints therebetween, said casing also having an opening therein, power conducting wires extending through said opening, a member surrounding said opening and forming a connection between said casing and support, means for securing said member to said support, means on said member to form a flame proof joint with said support when fixed thereto, said casing being freely rotatable relative to said member, and means providing a flame proof joint between said casing and member comprising angularly related surfaces on said member and on said casing completely surrounding said opening and contiguous to each other in any relative position of said casing and member.

4. In combination, a machine frame presenting a support, an illuminating device having a casing with a hollow interior, said casing being made up of sections having cooperating means to provide flame proof joints therebetween, said casing also having an opening therein, power conducting wires extending through said opening, a member surrounding said opening and forming a connection between said casing and support, means for securing said member to said support, means on said member to form a flame proof joint with said support when fixed thereto, said casing being freely rotatable relative to said member, means providing a flame proof joint between said casing and member comprising angularly related surfaces on said member and on said casing completely surrounding said opening and contiguous to each other in any relative position of said casing and member, and means providing an interlocking connection between said movable casing and said stationary member to prevent removal of the device from said support without removal of said member.

5. In combination, a machine frame presenting a support, an illuminating device having a casing with a hollow interior, said casing being made up of sections having cooperating means to provide flame proof joints therebetween, said casing also having an opening therein, power conducting wires extending through said opening, means carried by said support to provide a bearing for rotatably receiving said casing, and means providing a flame proof joint between said casing and support comprising angularly related surfaces on said member and said casing completely surrounding said opening and contiguous to each other in any relative position of said casing and support.

6. In combination, a machine frame presenting a support, an explosion proof head light casing mounted thereon for normally

free pivotal movement relative thereto, means forming cooperating bearing surfaces between said casing and support to permit such free pivotal movement, said surfaces being in contact with each other over a relatively wide area completely around the axis of pivotal movement so as to form an explosion proof joint throughout pivotal movement of said lamp.

In testimony whereof I affix my signature.

CHARLES W. WYMAN.

CERTIFICATE OF CORRECTION.

Patent No. 1,730,836. Granted October 8, 1929, to

CHARLES W. WYMAN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 64, for the article "the" first occurrence read "them"; page 2, line 56, claim 2, after the word "support" strike out the comma; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 3rd day of December, A. D. 1929.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)