April 8, 1952 W. Y. STAMPER 2,592,208

BEZEL LOCK FOR ELECTRIC SAFETY LAMPS

Filed Aug. 31, 1949

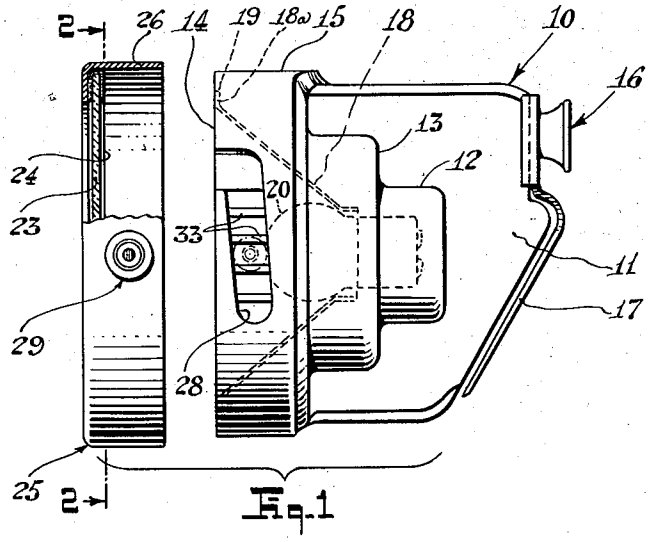


Fig. 1

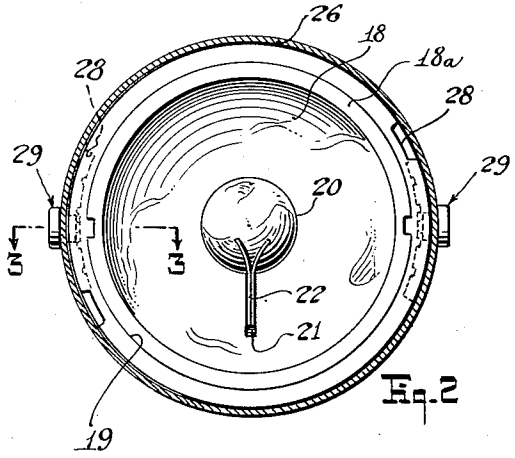


Fig. 2

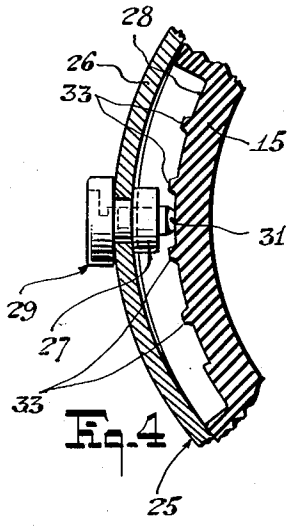


Fig. 4

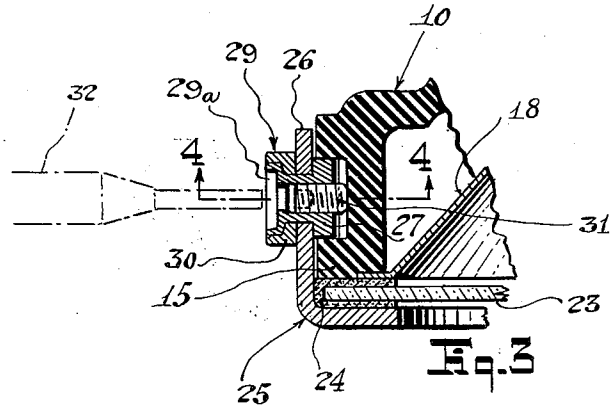


Fig. 3

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Patented Apr. 8, 1952 2,592,208

UNITED STATES PATENT OFFICE

2,592,208

BEZEL LOCK FOR ELECTRIC SAFETY LAMPS

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Application August 31, 1949, Serial No. 113,407

3 Claims. (Cl. 240—19)

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This invention relates to electric safety lamps such as are used in mines or other places where explosive gases are likely to be present, and more particularly the invention relates to a bezel lock for such lamps, which is adapted to prevent unauthorized opening of the lamps as well as unauthorized tampering with the lamp mechanism.

The light bulb and mechanism of electric safety lamps are generally made accessible by removing the bezel and glass. However, such removal is not to be permitted except by authorized service men under authorized conditions because of the danger of an electric spark occurring in the lamp and setting off an explosion. It has been customary therefore to lock the bezel and glass to the lamp casing so that it can be removed only by a special tool which is provided only to authorized persons.

The present invention resides in the provision of a bezel mounting and lock which is simple and economical, which is especially durable and dependable, and which is adapted to provide a great measure of protection against unauthorized opening of the lamp casing.

A particular feature of the invention lies in the novel combination of a bayonet joint and lock for releasably locking the bezel to the lamp casing.

Other objects and features of the invention will be apparent from the following description and the appended claims.

In the description of my invention reference is had to the accompanying drawings, of which:

Figure 1 is a side elevation of a lamp casing and bezel incorporating my invention and showing the bezel removed and with a portion thereof broken away;

Figure 2 is a front sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is an enlarged sectional view taken substantially on the line 3—3 of Figure 2; and

Figure 4 is a partially sectional view as seen from the line 4—4 of Figure 3.

The safety lamp shown in the accompanying figures comprises a lamp casing 10 which has a relatively narrow rearward portion 11 leading through stepped portions 12 and 13 at the sides into a circular head portion 14. This head portion is provided with a border or rim 15 of increased wall thickness. At the back side of the casing there is an outwardly-extending ferrule 16 for a lead-out cable to a battery (not shown) and projecting downwardly from this ferrule at a short distance from the casing is a metal clip

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17 by which the lamp may be attached to a miner's cap, belt, etc.

The present invention does not involve the internal lamp mechanism and so this mechanism may be described very briefly. Suffice it to say that this mechanism comprises a reflector 18 having a peripheral flange 18a seated in a peripheral recess 19 provided on the end face of the rim 15. This reflector has a central opening to receive the base plug of an electric light bulb 20, and has a slot 21 leading from the central opening and through which projects a member 22 that is spring-urged against the bulb to hold it normally in place. Also, as is known in the art and as is, for instance, described in my pending Application Serial No. 634,824 filed December 13, 1945, now Patent No. 2,535,819, dated December 26, 1950, this spring-urged member is adapted upon breakage of a light bulb to operate a suitable switch mechanism to interrupt the light circuit and prevent electric sparks from occurring such as might set off an explosion.

Across the open end of the lamp casing there is a glass 23 the rim of which is covered by a rubber gasket 24. This glass is held in place by a bezel 25 having a flange 26 which telescopes with the rim 15 of the casing. This bezel is secured removably to the casing by means of a bayonet joint. This joint comprises a plurality of inwardly-extending coupling members 27 on the bezel flange 26, each of which is circular in cross section. Preferably, two of these coupling members are provided in positions diametrically opposite the central axis of the bezel. These coupling members are engageable with respective grooves 28 provided in the rim 15. As shown in Figure 1, each groove leads inwardly through the edge of the rim 15 and then curves sidewise to extend partially about the rim at a slight angle away from the edge thereof. By aligning the coupling members with the open ends of the grooves, pressing the bezel inwardly and then turning the same clockwise the bezel is secured tightly to the casing in the well-known manner of the bayonet-type joint.

A means is provided on the bezel to lock it to the casing. This locking means is arranged so that it is seemingly inaccessible and so that a special tool is required to unlock the bezel. With safety lamps, which are used where explosive hazards are present, and which are to operate without failure, these precautions are all-important so that unauthorized persons will normally be prevented from opening the casing

or tampering with the lamp mechanism. In accordance with the present invention, a locking member is provided in combination with the bayonet joint above described to provide this locking function. This locking member is mounted on the bezel and is adjustable inwardly against the bottom wall of a groove of the bayonet joint. Preferably, as a special feature of the invention, the bayonet joint is especially adapted to receive this locking member as is herein next described.

Mounted on the flange **26** of the bezel are hollow metal studs **29** each of which has a circular head at its inner end constituting one of the coupling members **27** above described. On the outer end of each stud there is a washer **30** which is staked thereto in tight compressment of the flange wall. Each stud has an aperture **29***a* extending axially therethrough the inner portion of which is enlarged and threaded to receive a locking screw **31**. This screw is of the headless type having the outer end portion thereof formed to receive interlockingly an adjusting tool of lesser diameter than that of the screw. Preferably, the outer end portion of the screw is recessed to receive a tool **32** of a suitable non-circular cross section shown by dash-dot lines in Figure 3. The outer unthreaded portion of each aperture **29***a* is a clearance opening only for the tool. Thus, an observer is prevented from seeing the nature of the locking screw and of determining what sort of a tool is required to adjust the screw, this being particularly true when the screw is in an inner locking position.

By means of the tool abovementioned, the locking screw can be threaded inwardly and outwardly into and out of locking position. The locking position may be one wherein the inner end of the screw bears tightly against the bottom wall of the respective groove in the rim of the casing. Preferably, the bottom wall of the groove is recessed, as by providing the wall with spaced transverse ribs **33** (Figures 1 and 4) and the screw is threaded in between two adjacent ribs to interlock it with the casing and securely lock the bezel in mounted position.

While I have herein shown and do preferably use one locking screw for each coupling member of the bayonet joint, it will be understood that a substantial and effective locking can be obtained by the use of only a single locking screw, and that I intend therefore that my invention embrace such single locking means.

The embodiment of my invention hereinabove described is intended to be illustrative and not limitative of my invention, since the same is subject to changes and modifications without departure from the scope of my invention, which I endeavor to express according to the following claims.

I claim:

1. In a safety lamp: the combination of a lamp casing having an opening for emission of light therefrom, a bezel for holding a glass on said casing, said bezel having a flange telescoping with the rim of the casing around said opening, a bayonet joint for securing said bezel to said casing comprising hollow studs on said flange having inwardly-extending heads forming coupling members, and exterior grooves in said rim for receiving said coupling members, each of said grooves leading inwardly from the edge of the rim and having an extending portion leading partially about the rim at a slight angle to the edge thereof, said coupling members being respectively engageable with said grooves and effective upon turning said bezel relative to said casing to secure the bezel thereto, and means for locking said bezel in a tightened position comprising a locking screw threaded in the inner portion of one of said studs and engaging the bottom wall of the respective one of said grooves, said locking screw having an outer end portion adapted to receive interlockingly an adjusting tool of lesser diameter than that of said screw by way of the outer portion of said one stud, and the outer portion of said stud having a clearance hole for said adjusting tool substantially smaller in diameter than the diameter of said locking screw.

2. The combination set forth in claim 1 wherein each of said studs is provided with one of said locking screws, and wherein the bottom walls of said groove portions have recesses at spaces therealong for interlocking engagement with the inner ends of said locking screws.

3. In a safety lamp: the combination of a lamp casing having an opening for emission of light therefrom, a bezel for holding a glass on said casing, said bezel having a flange telescoping with the rim of the casing around said opening, a bayonet joint for securing said bezel to said casing comprising studs on said flange having inwardly-extending heads forming coupling members, and exterior grooves in said rim for receiving said coupling members, each of said grooves leading inwardly from the edge of the rim and having an extending portion leading partially about the rim at a slight angle to the edge thereof, said coupling members being respectively engageable with said grooves and effective upon turning said bezel relative to said casing to secure the bezel thereto, and means for locking said bezel in a tightened position comprising locking screws threaded axially through the inner portions of said studs, each of said locking screws having a recessed outer end portion for receiving the end portion of an adjusting tool by way of the outer portion of the respective stud, said outer portions of said studs having clearance openings for said tool, and the bottom walls of said extending groove portions having means for interlocking engagement of said locking screws with said casing when the locking screws are in their innermost positions.

WILLSON Y. STAMPER.

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