Nov. 22, 1938. H. S. BAKER ET AL 2,137,972

ILLUMINATED GAUGE

Filed May 7, 1936

Fig. 1.

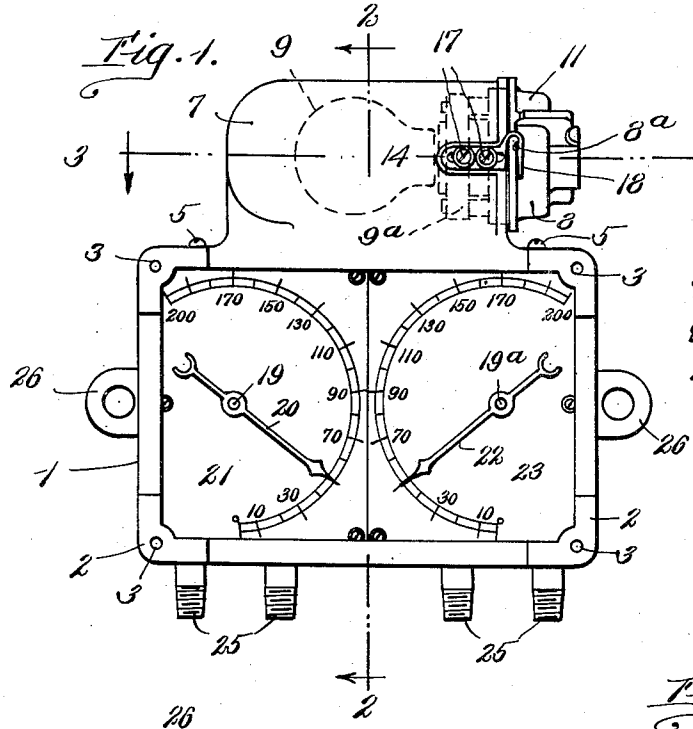



Fig. 4.

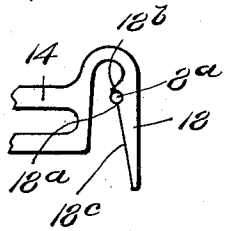



Fig. 2.

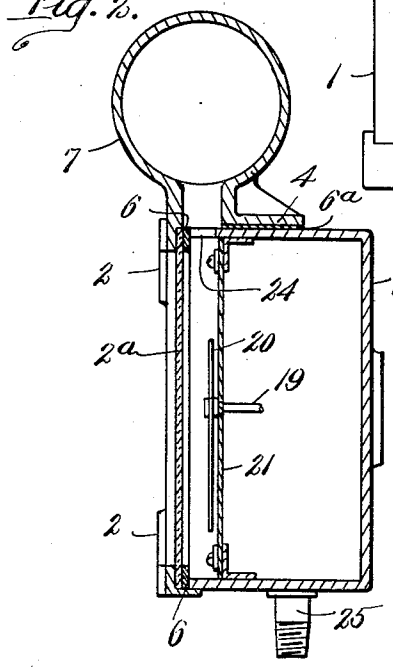
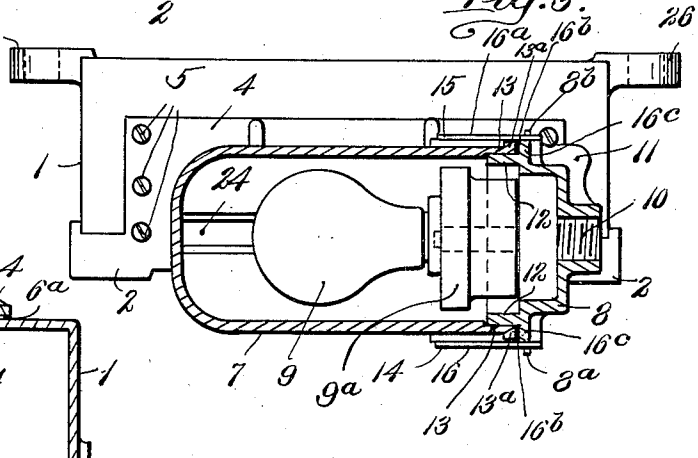



Fig. 3.




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# UNITED STATES PATENT OFFICE

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## ILLUMINATED GAUGE

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3 Claims. (Cl. 240—2.1)

Illuminated gauges used in certain locations, such as in connection with cabs in locomotives, are subjected to the action of various harmful elements, such as dust, smoke, soot, greases and oil. The principal purpose of our invention is to prevent the harmful action of such elements on the gauge dials, on the electric lamps or other illuminating means, and on the operating mechanism. Such harmful elements dull or darken the dials; blacken or cloud the electric lamp bulbs, reducing the illuminating power; and clog or coat the operating mechanism of the gauge.

A feature of our invention is making the housing for the illuminating means integral with a portion of the gauge casing and preferably integral with the face cover of the dial or dials. This permits dial covers of various types and with or without illuminating means to be associated interchangeably with the gauge casing.

Another feature resides in the relationship between the mating portions of the cover member and the gauge casing in accordance with which all the joints between these parts can be provided readily with gaskets so as to make them dust and oil-proof and so positioned as to protect the edges of the gaskets.

Still another feature is the mounting of electrical mechanism on a cap which is mounted on, but removable from, said housing.

In the drawing

Figure 1 is an elevation of a gauge embodying our invention;

Figure 2 is a section on line 2—2 of Figure 1;

Figure 3 is a section on line 3—3 of Figure 1; and

Figure 4 is an enlarged detail of the latch member.

The gauge casing comprises metal body portion 1 and metal face cover 2, the latter being held to the body portion by screw 3 and having an integral horizontal extension 4 overlying the top face of and held to the body portion by screws 5. The screws 3 and 5 provide means for tightening the face cover to the casing making a dustproof joint.

The horizontal extension 4 forms part of a marginal rim portion surrounding the open front of the casing body portion 1, which, except at the extension 4, overlaps the portion 1 to a relatively short distance. This rim thus overlaps the edges of the gasket 6 and holds it in position when the parts are being assembled.

All the way around between the smooth face of the body portion 1 and the glass plate 2a, except at the opening referred to below, is pliable packing or gasket 6 of felt or other suitable material. A similar packing 6a is also provided between the top of the body portion 1 and the lower machined face of horizontal extension 4. Since the packing or gasket 6a is horizontal there is no gasket edge upwardly presented and thus particularly exposed to oil, water, or other foreign materials which might tend to deteriorate the packing or work into the joint.

Integral with the face cover 2 is the housing 7 for the illuminating means.

Cap 8 is suitably mounted on the housing 7 and carries the electric lamp 9 and lamp base 9a and it is perforated at 10 for passage of suitable wires to conduct current to the lamp, which is shown as substantially cylindrical in outline and with its axis horizontal. The cap may have one or more projecting portions 11 to facilitate turning of the cap, as described below and carries pins 8a and 8b.

The cap has an annular turned male portion 12 to engage and fit the turned female portion 13 of the housing, the portion 13 having an annular shoulder 13a between which and cap 8 is located packing 16b. The portion 12 is of sufficient length to provide proper alignment and the portions 12 and 13 act to accurately position and center the lamp so that it will be in the proper position for proper diffusion of light along the dials.

The cap 8 carries two pins 8a and 8b, which engage, respectively, latch members 14 and 15, each of the latter being slotted, as at 16 and 16a, so that the latch members may be adjusted to make up for wear and especially to make up for any wear on the annular packing 16b, similar to packing 6, between the machined end of the housing and an adjacent machined portion 16c of the cap. Screws 17 engage the housing to hold the latch members in adjusted position.

Each latch member, as in Figure 4, has a projecting spring portion 18, the inner face of which has a cam surface 18c and is formed with a shoulder 18a, toward which, along cam surface 18c, the pin may be moved and beyond which pin 8a or 8b may be moved, portion 18 moving outwardly to permit this, and then springing inwardly to latch the pin in the recess between shoulder 18a and shoulder 13b, the latter projecting inwardly slightly more than projection 18a and limiting rotary movement of the pin 8a and cap 8 with relation to the housing 7. The spring portion 18 holds the cap firmly in position in the housing 7, the curvature between

shoulders 18a and 18b corresponding with the curvature of the exterior of the pin.

The cap 8 is readily removable without detaching of wires or cables connected to the cap because the spring portions of the latches will be pressed outwardly as the cap is rotated counterclockwise looking from the right end in Figure 1.

Shafts 19 and 19a may be suitably operated (as by a Bourdon spring and associated mechanism not necessary to be shown) and carry indicators 20 and 22 to cooperate with the markings on dials 21 and 23. In the particular form shown we illustrate two indicators 20 and 22 cooperating respectively with dials 21 and 23.

Glass plate 2a is held in place between an inner portion of the face cover 2 and the packing 6.

An opening 24 is provided along the top of the body portion to permit the lamp to illuminate the dials.

The gauge has threaded sockets 25 for pressure connection and the gauge may be suitably held in place by the lugs 26, through whose perforations screws may be passed to engage a suitable support.

Among the advantages of our invention we may point out that it is dustproof especially by reason of the integrality of the housing and a portion of the gauge casing and by reason of the packing or gaskets sealing, and making a dustproof joint between, all adjacent machined surfaces of the face cover, lamp housing and gauge casing; that the cap for the lamp housing is readily removable without the necessity of disconnecting wires or cables and especially without servicing by skilled electricians; and that we provide a very accurate, and preferably adjustable, spring latch member for guiding the cap to position and for holding it there properly centered so that the lamp is properly positioned with relation to the housing and with relation to the opening at the top of the body portion. It will also be noted that by forming the lamp housing integral with the face cover it is convenient to arrange the longitudinal axis of the housing in the central plane of the slot or opening 24 in the casing and the mating slot or passage in the housing which is in front of the dials 21 and 25. Thus, that part of the casing back of the dials, and which encloses the pressure-responsive mechanism, remains closed and protected against admission of foreign matter even when the housing 7 is open, as when the lamp 9 is to be renewed. The lamp itself, also, is in the best position to illuminate the dials without undesirable reflection or glare, the front of the cover through which the dials are visible being spaced forwardly of the dials, and the light shining in from the top through this space.

What we claim is:

1. A device of the class described, comprising a casing having an open front, a dial carried by said casing back of said front, a face cover for closing said open front spaced from said dial, said face cover having a lamp housing at the top and a rim portion surrounding said open front and overlying the side and bottom walls of said casing a relatively short distance, the top of said rim portion being rearwardly extended a substantial distance from said lamp housing, a gasket between said extended rim portion and said casing, and means for clamping said face cover downwardly to effect a tight gasketed joint between said casing and face cover, said lamp housing and casing having registering openings for passage of light from said lamp housing to said dial.

2. A device of the class described, comprising a casing having an open front, a dial carried by said casing back of said front, a face cover for closing said open front spaced from said dial, said face cover having a lamp housing at the top and a rim portion surrounding said open front and overlying the side and bottom walls of said casing a relatively short distance, the top of said rim portion being rearwardly extended a substantial distance from said lamp housing, a gasket between said extended rim portion and said casing, means for clamping said face cover downwardly to effect a tight gasketed joint between said casing and face cover, said lamp housing and casing having registering openings for passage of light from said lamp housing to said dial, said lamp housing being tubular and having an open end, a plug closing said open end, and a lamp carried by said plug and extending into said housing when said plug is in closing position.

3. A device of the class described, comprising a casing having an open front, a dial carried by said casing back of said front, a face cover for closing said open front spaced from said dial, said face cover having a lamp housing at the top and a rim portion surrounding said open front and overlying the side and bottom walls of said casing a relatively short distance, the top of said rim portion being rearwardly extended a substantial distance from said lamp housing, a gasket between said extended rim portion and said casing, means for clamping said face cover downwardly to effect a tight gasketed joint between said casing and face cover, said lamp housing and casing having registering openings for passage of light from said lamp housing to said dial, said lamp housing being tubular with its axis arranged in a plane substantially parallel to and between said face cover and dial, and having an open end, a plug closing said open end, and a lamp carried by said plug and extending into said housing when said plug is in closing position.

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