

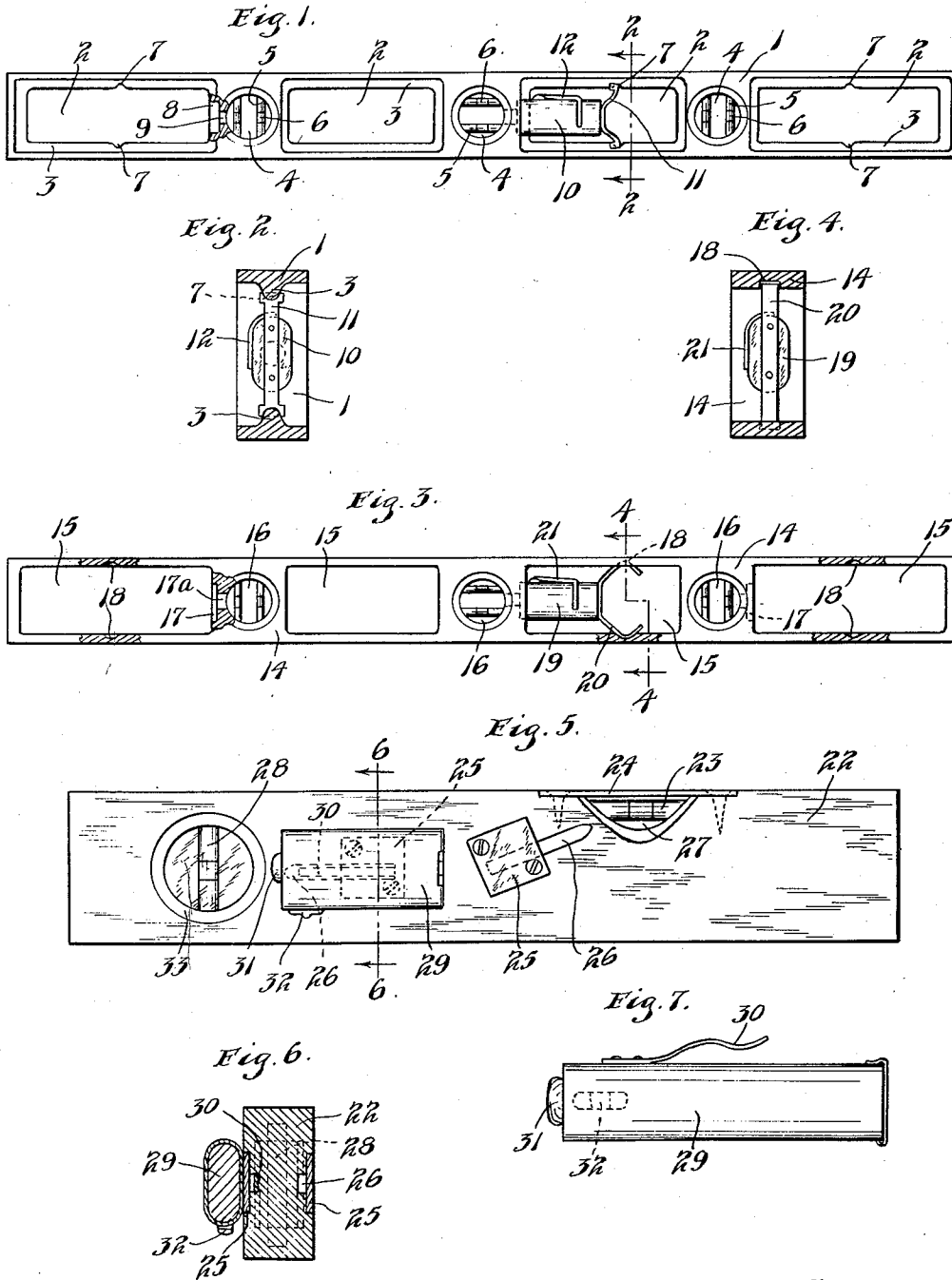
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ELECTRIC LIGHT ATTACHMENT FOR LEVELS

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ELECTRIC-LIGHT ATTACHMENT FOR LEVELS.

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To all whom it may concern:

Be it known that I, JAMES C. KIRBY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Electric-Light Attachments for Levels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a level device such as commonly used by carpenters, stone masons, and other mechanics, and particularly to a lighting means mounted in said level. It frequently happens that a mechanic using a level is obliged to work in quite a dark place or at night when it is impossible to readily and accurately read the instrument. It is quite inconvenient to strike a match or to hold a lantern or other lighting means adjacent the level to read the same.

It is an object of this invention, therefore, to provide a level with a lighting means which can readily be manipulated to illuminate the level indicating means so that the instrument can readily be read or positioned.

It is a further object of the invention to provide such a level having means for supporting said lighting means so that the same will efficiently light the level indicating means and will not be in the way in using the level.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a view in side elevation of one common commercial form of level having the invention applied thereto;

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

Fig. 3 is a view in side elevation of another form of commercial level also comprising the invention;

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 3;

Fig. 5 is a view in side elevation of a commercial level usually made of wood;

Fig. 6 is a vertical section taken on the line 6—6 of Fig. 5, and

Fig. 7 is a view in side elevation of the lighting means used with the level shown in Fig. 5.

Referring to the drawings, in Fig. 1 is shown a commercial form of level comprising a substantially rectangular bar 1 having spaced openings 2 extending there-through around the interior of which a rib 3 projects inwardly. The portions of the bar between the openings 2 are provided with recesses or pockets 4 in which are disposed the liquid carrying tubes 5 having therein the bubbles 6, all of which is of standard level construction. The pockets 4 are usually equipped with glass plates or other transparent means so that the position of the bubbles 6 in the tubes 5 readily can be seen. In accordance with the present invention, oppositely disposed transverse grooves 7 are formed in the ribs at the top and bottom of openings 2 and at an intermediate point therein. A recess 8 is also formed in the rib 3 at the end thereof adjacent the pocket 4 and a passage 9 is formed extending from the recess 8 into said pocket. The recess 8 is shaped to receive the end of a flash light casing 10 and said casing is provided at its end with oppositely extending spring arms 11 having means at the end adapted to engage in and fit in the grooves 7. The casing 10 is also provided with a longitudinally slidable arm 12 by which the flash light is lighted or extinguished.

With the structure described it is seen that the flash light casing 10 is disposed substantially centrally of the bar 1 so that the same is protected by the top and bottom of said bar and will not form an obstruction at any side of the bar. The casing is firmly held in position and when the flash light is lighted the light will be directed through the passage 9 into the pocket 4. The tubes 5 will thus be efficiently illuminated and the position of bubbles 6 therein can readily be ascertained in the dark. The flash light

can easily and quickly be inserted or removed from the level by manipulation of the springs 11.

In Fig. 3, another commercial form of level is illustrated comprising the bar 14 with openings 15 therein. Said openings 15, however, are not provided with the inwardly extending ribs 3. The bar 14 is provided with the pockets 16 similar to the pockets 4, already described in connection with bar 1, and said pockets 16 carry bubble-containing tubes similar to the tubes 5. A recess 17 is formed in the end of openings 15 and a passage 17^a extends from said recess into the pocket 16. The upper and lower sides of openings 15 are provided with oppositely arranged grooves 18. A flash light casing 19 is adapted to be inserted into the recess 17 and has a holding member comprising spring arms 20 adapted to fit in the grooves 18 and be held therein by the resiliency of said arms. The grooved surfaces at the opposite sides of opening 15 thus form means adapted to be engaged by arm 20. The casing 19 is thus firmly and securely held in the bar 14. Casing 10 also carries the longitudinally slidable member 21 for lighting and extinguishing the flash light.

The operation of the device shown in Figs. 3 and 4 is identical with that already set forth in the device shown in Figs. 1 and 2 and need not be repeated.

In Figs. 5 and 6, a commercial type of level is illustrated which is usually made of wood. Said level comprises a bar 22 having a pocket 27 formed in one edge thereof in which pocket is disposed a bubble-containing tube 23, said tube and bubble being visible through a plate 24 attached to the bar 22. The pocket 27 also is open at one side of the bar, as clearly shown in Fig. 5. In accordance with the present invention, the side of the bar 22 is provided with recesses illustrated as of rectangular shape in which are disposed plates 25, the outer surfaces of which lie flush with the side of bar 22, said plates being held in place by suitable screws having their heads countersunk therein. A slot 26 of rectangular cross section extends normally to one side of each of the plates 25 and extends under said plate. One of the slots 26 thus has its longitudinal axis directed toward the pocket 27 and the other slot 26 has its longitudinal axis directed toward a cylindrical pocket 33 having therein a bubble-containing tube 28, which pocket is similar to the pockets 4 and 16 shown in Figs. 1 and 3. A flash light casing 29 is provided having secured along one side thereof a holding means illustrated as a clip 30 preferably of resilient material.

In operation the flash light casing 29 will be placed along side of bar 22 and the clip 30 inserted in the groove or slot 26 and slid under the plate 25. The flash light will thus

be held along one side of the bar 22 with the lamp 31 therein closely adjacent either the pocket 27 or the pocket 33. The casing 29 has a slidable member 32 for lighting and extinguishing the lamp. It will thus be seen that the flash light comprising casing 29 can be secured against either pocket of a level bar 22 and when so secured, will efficiently light the pocket so that the position of the bubble in the tube in said pocket readily can be seen.

From the above description it is seen that applicant has provided a simple and efficient means for illuminating the level indicating means in a level bar. The invention can readily be applied to levels of standard construction or it can be easily applied to the levels when manufactured. The device has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood, that various changes may be made in the form, details and arrangement of the parts without departing from the scope of applicant's invention, which, generally stated, consists in a device capable of carrying out the objects above stated, such as shown and described and set forth in the appended claims.

What is claimed is:

1. A level comprising a substantially rectangular bar having a pocket therein, a bubble-containing tube in said pocket visible from the exterior of said bar, a passage leading from said pocket longitudinally of said bar, said bar having openings there-through, a recess in the end of one of said openings with which said passage communicates, grooves in the sides of said opening, and a flash light casing having one end disposed in said recess and carrying means engaging in said grooves and carrying a lamp whereby light is directed into said passage and pocket to illuminate said tube.

2. A level comprising a substantially rectangular bar having a pocket therein, a bubble containing tube in said pocket visible from the exterior of said bar, a passage leading from said pocket longitudinally of said bar, said bar having openings there-through, a recess in the end of one of said openings with which said passage communicates, said bar having holding means at opposite sides of said opening, and a flash light casing having one end disposed in said recess having resilient means secured to each side thereof engaging said means so as to be held in said opening and carrying a lamp whereby light is directed into said passage and pocket to illuminate said tube.

3. A level with light attachment comprising a substantially rectangular bar having a pocket therein, a bubble containing tube in said pocket visible from the exterior of said bar, said level having an exposed flat surface adjacent said pocket, said surface hav-

ing a groove formed therein, said level also having a surface disposed opposite said groove, and a flash light casing having a holding means rigidly secured thereto, said holding means being disposed at an angle to said casing to enter said groove and also engage with said latter surface to hold said casing in position to direct light into said pocket and illuminate said tube, said casing and holding means being readily removable by disengaging said holding means from said groove. 10

In testimony whereof I affix my signature.
JAMES C. KIRBY.