

April 30, 1940.

S. J. MORRIS

2,198,945

ILLUMINATED LEVEL

Filed July 10, 1939

2 Sheets-Sheet 1

Fig. 1.

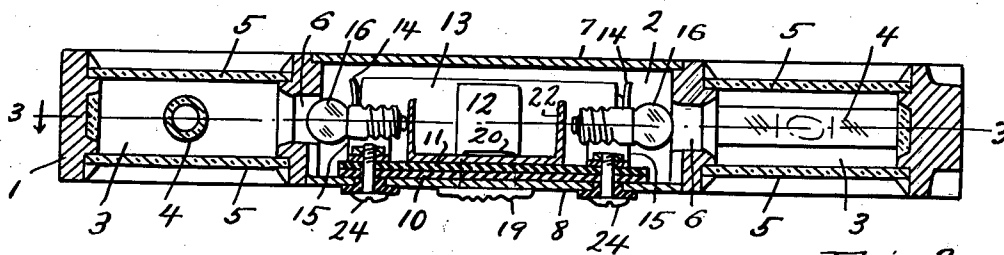
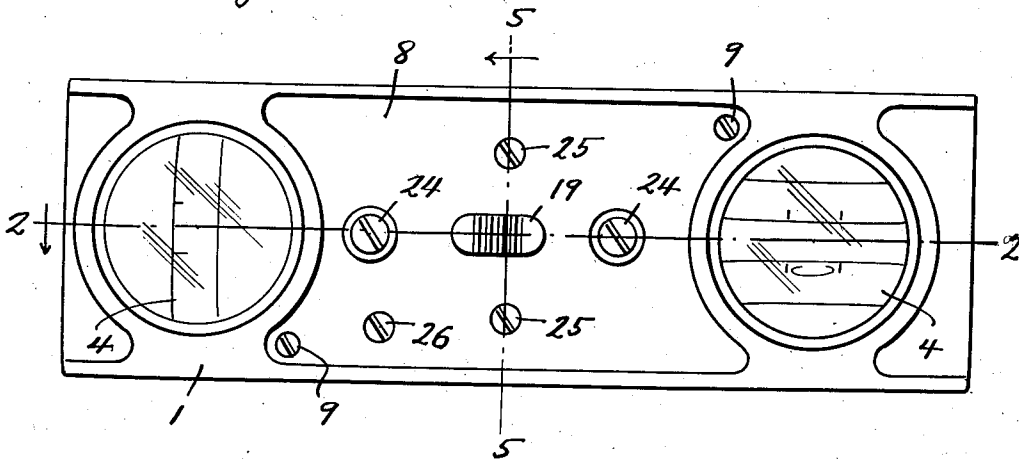


Fig. 2.

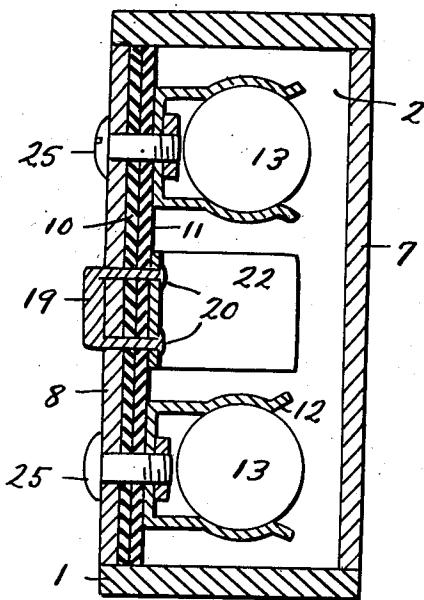


Fig. 5.

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2 Sheets-Sheet 2

Fig. 3.

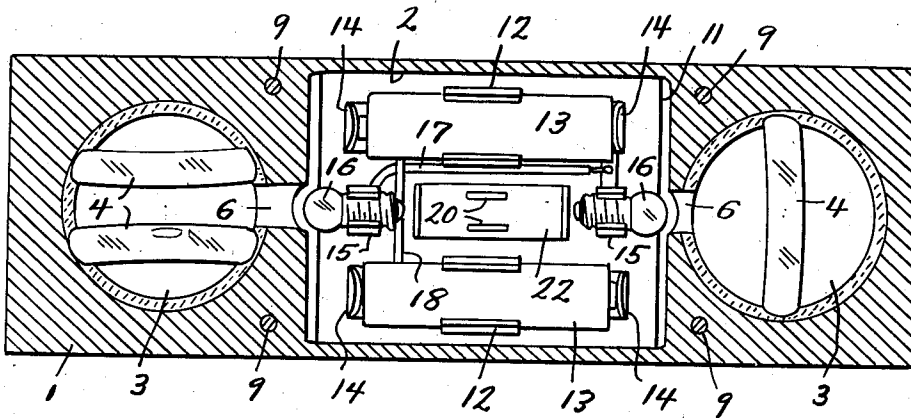
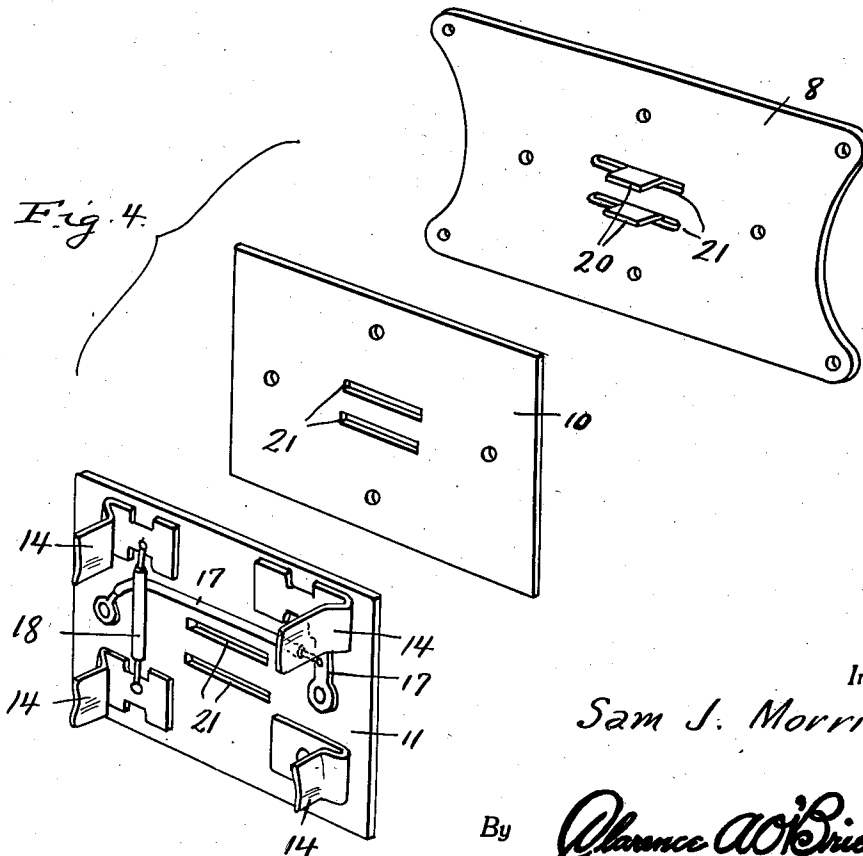


Fig. 4.



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UNITED STATES PATENT OFFICE

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ILLUMINATED LEVEL

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Application July 10, 1939, Serial No. 283,703

1 Claim. (Cl. 240—6.44)

The present invention relates to new and useful improvements in spirit levels and has for its primary object to provide, in a manner as hereinafter set forth, an instrument of this character comprising novel means for electrically illuminating the bubble tubes when desired.

Another important object of the invention is to provide a level of the aforementioned character comprising a unique construction and arrangement whereby the electrical illuminating means may be removed as a unit.

Other objects of the invention are to provide an illuminated level of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, light in weight and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation of an illuminated level constructed in accordance with the present invention.

Figure 2 is a view in horizontal section through the device, taken substantially on the line 2—2 of Fig. 1.

Figure 3 is a view in vertical longitudinal section, taken substantially on the line 3—3 of Fig. 2.

Figure 4 is a perspective view of the plates on which the electrical apparatus is mounted, showing said plates separated, certain of the electrical elements being illustrated on one of said plates.

Figure 5 is a cross sectional view, taken substantially on the line 5—5 of Fig. 1.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a cast beam 1 of a suitable material having formed therein, at an intermediate point, a chamber 2 which is open on both sides. Adjacent the ends of the chamber 2, the beam 1 is further provided with circular compartments 3 having mounted therein spirit or bubble tubes 4. Lenses 5 are provided in the side portions of the compartments 3. The chamber 2 communicates with the compartments 3 through passages 6 in the beam 1.

The chamber 2 is closed at its sides through the medium of removable plates 7 and 8 which are detachably secured in position through the

medium of screws 9. The plates 7 and 8 are also of suitable metal. Mounted on the inner side of the plate 8 are insulating plates or sheets 10 and 11. The plates 8, 10 and 11 are illustrated to advantage in Fig. 4 of the drawings.

Mounted on the plate 11 in the chamber 2 are vertically spaced resilient clips 12 which are adapted to releasably secure a pair of dry cell batteries 13 in position. Also mounted on the plate 11 on opposite sides of the clips 12 are pairs of opposed, resilient contacts 14 for engagement with the poles of the batteries 13. The reference numeral 15 designates a pair of comparatively small resilient clips which are mounted on the plate 11 for the reception of electric lamps 16. It will be observed that the electric lamps 16 are positioned to illuminate the spirit tubes 4 in the compartments 3 through the passages 6.

The clips 15 are electrically connected with one of the contacts 14, as at 17. A conductor 18 extending between two of the contacts 14 electrically connects the batteries 13. Slidably mounted on the outer side of the plate 8 is a switch button 19 comprising spaced legs 20 which are operable in longitudinal slots 21 provided therefor in the plates 8, 10 and 11. Secured on the inner end portions of the legs 20 is a substantially U-shaped, resilient double contact 22 which is engageable selectively with the base contacts of the electric lamps 16.

It is thought that the operation of the device will be readily apparent from a consideration of the foregoing. When it is desired to illuminate the horizontal spirit tubes in one end portion of the instrument the switch button 19 is moved in that direction to engage one end portion of the double contact 22 with the corresponding lamp 16. When it is desired to illuminate the other compartment 3 the button 19 is, of course, moved in the opposite direction. Thus, either of the compartments 3 may be conveniently illuminated. When the switch button 19 and the double contact 22 are in an intermediate or neutral position neither of the electric lamps 16 is energized. It will be noted that the current from both batteries 13 is utilized. By simply removing the plate 8 all of the electrical elements or members may be removed from the chamber 2. Thus, the batteries 13 and the electric lamps 16 may be expeditiously renewed when necessary. Insulated bolts 24 secure the electric lamp clips 15 in position. These bolts are shown to advantage in Fig. 2 of the drawings. Bolts 25 secure the battery clips 12 in position. Referring to Fig. 5

of the drawings, it will be observed that the bolts 25 are not insulated from the plate 8. One of the contacts 14 is secured in position on the insulating plate 11 and electrically connected with the metallic plate 8 by a bolt 26. Thus, the electric circuit is completed when the switch contact 22 is moved to either of its closed positions.

It is believed that the many advantages of an illuminated level constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

An illuminated level of the character described comprising a beam having longitudinally spaced spirit tube compartments therein and further having a chamber therein between said compartments, said chamber communicating with said

compartments, a plate removably mounted on the beam for closing the chamber on one side, a pair of clips mounted on the inner side of said plate, electric lamps removably mounted in said clips for illuminating the compartments, additional clips mounted on the inner side of the plate, batteries removably mounted in the second named clips, means including resilient contacts mounted on the plate for electrically connecting the batteries, means mounted on the plate electrically connecting the first named clips to the batteries, a metallic switch button slidably mounted on the plate and operable from the outer side thereof, metallic legs on the switch extending through the plate, said plate having slots therein, said legs being operable in the slots, and a substantially U-shaped contact mounted on the legs and engageable with either of the lamps for closing an electric circuit thereto for selectively illuminating the spirit tube compartments.

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