Sept. 14, 1943. C. W. RAABE 2,329,556

ILLUMINATING DEVICE

Filed March 2, 1942

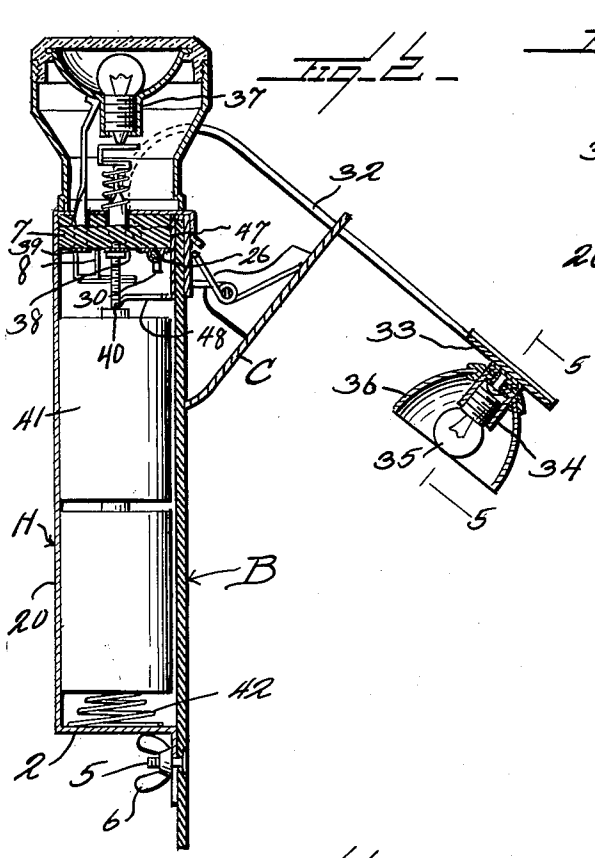


Fig. 2

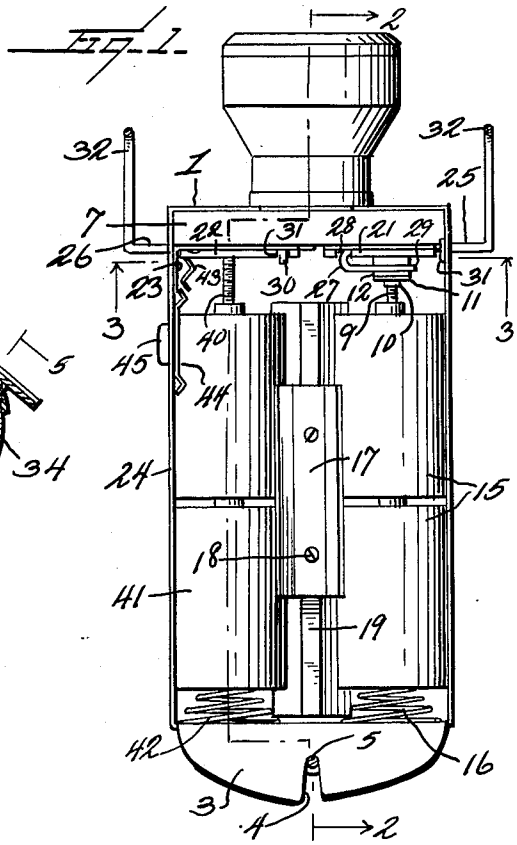


Fig. 1

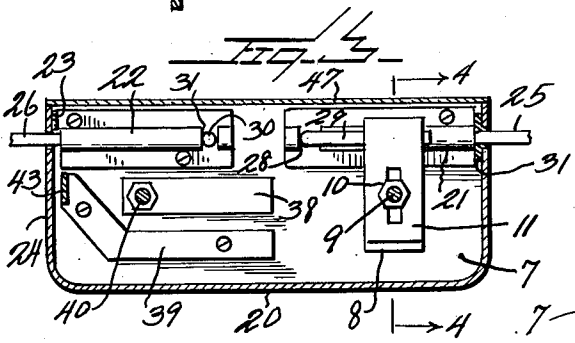


Fig. 3

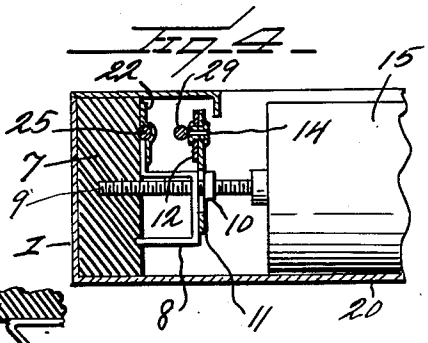


Fig. 4

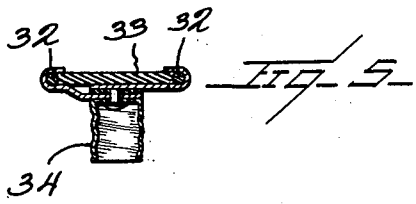


Fig. 5

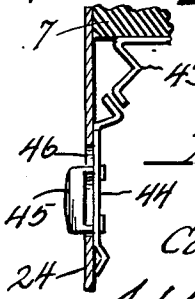


Fig. 6

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ILLUMINATING DEVICE

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3 Claims. (Cl. 240—6.4)

This invention relates to an illuminating device, and it is primarily an object of the invention to provide a device of this kind which may be readily applied to a writing board and which, when so applied, provides means whereby the board may be effectively illuminated to facilitate its use in the dark, together with means for throwing a ray of light in advance of the user so as to permit ready discernment of data to be recorded on a writing sheet on the board.

It is also an object of the invention to provide a device or attachment of this kind wherein is included an illuminating element supported for swinging movement toward or from the board to which the device may be applied, together with means to make the illuminating element effective when in a predetermined position with respect to the board, but wherein the element is ineffective when the same is in a position closely adjacent to the board or when swung to a position beyond the board.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved illuminating device whereby certain important advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein—

Figure 1 is a view in rear elevation, with parts omitted, of an illuminating device constructed in accordance with an embodiment of my invention;

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1, the illuminating member being shown in effective position;

Figure 3 is a detailed enlarged sectional view taken substantially on the line 3—3 of Figure 1;

Figure 4 is a detailed sectional view taken substantially on the line 4—4 of Figure 3;

Figure 5 is a detailed sectional view taken substantially on the line 5—5 of Figure 2, with parts omitted; and

Figure 6 is an enlarged detailed view, partly in section and partly in elevation, illustrating the circuit closer for the bull's-eye lamp as herein embodied.

As disclosed in the accompanying drawing, B denotes a portable writing board of desired dimensions and which is provided at one end portion with a conventional clamp C for holding a sheet of paper or the like in place upon the board.

The illuminating device, as herein disclosed, comprises an elongated housing H of desired dimensions and having its rear face open. The upper or outer end wall 1 of the housing H, at substantially its longitudinal center, is provided at its free margin with an outstanding resilient clip which is adapted to engage over the top end of the board B, or that end portion of the board B provided with the clip C. The opposite end wall 2 of the housing H has its free marginal portion defined by an outstanding flange 3 provided at its longitudinal center with an open slot 4 in which is received an outstanding shank 5 carried by the board B and extending outwardly from the rear face of the board. This shank 5 is at substantially the transverse center of the board B and at a distance inwardly of the top end of the board B, as determined by the length of the housing H. Threading upon the shank 5 for clamping engagement with the flange 3 in a wing nut 6. It is believed to be apparent from the foregoing that the housing H may be quickly applied to or removed from the board B upon proper manipulation of the wing nut 6.

Within the housing H, immediately adjacent to the upper end 1 thereof, is a block 7 of insulating material and from which depends at an end portion thereof a bracket 8. Depending from the block 7 and extending through the bracket 8 is a shank 9 upon which threads a nut 10 for clamping to the bracket 8 a spring arm 11 of conductive material, as is also the shank 9. The shank 9 is directed through a longitudinally disposed slot provided in the arm 11 whereby said arm may be adjusted lengthwise as desired and, of course, maintained in selected adjustment by the clamping action of the nut 10.

The outer or free end portion of the arm 11 carries a pad 12 of insulating material, and which pad 12 is held to the arm 11 by a contact member 14 herein disclosed as in the form of a grommet. The shank 9 has proper electrical connection with one of a set of dry batteries 15 and which battery is normally maintained in such contact under the action of the expansible spring member 16 carried by the lower or bottom end wall 2 of the housing H. This spring member 16 constitutes a ground element and, of course, is in proper connection with the housing H which is of conductive material. The set of batteries 15 are maintained within the housing H by an overlying side marginal portion of a holding plate 17 mounted upon and anchored, as at 18, to the outer longitudinal edge face of a rib 19 secured to the front face 20 of the housing H at substantially the transverse center thereof. The inner

face of the block 7 is provided with the substantially aligned bearing members 21 and 22, the member 22 having an extended portion 23 suitably connected or anchored to an adjacent side wall 24 of the housing H whereby said bearing 22 is grounded. It is to be stated that both of the bearings 21 and 22 are of a material conductive of electricity.

Extending inwardly of the housing H through the side walls 24 thereof are the rock shafts 25 and 26 rotatably engaged, respectively, within the bearings 21 and 22. These shafts 25 and 26 are conductive of electricity and the inner end portion of the shaft 25 is provided with a short angular extension 27 which is disposed outwardly through a transverse slot 28 in the inner end portion of the bearing 21. The outer end of this extension 27 is continued by an outwardly disposed elongated contact arm 29 substantially parallel with the adjacent shaft 25 and of a length to overlie the contact member 14 hereinbefore referred to. When the shaft 26 is at the limit of its rocking movement in either direction the contact arm 29 is free of engagement with the contact member 14 but when said arm 29 is in its intermediate positions such contact will occur.

The arm 26 is held in assembled position with respect to its bearing 22 by the outstanding angular extension 30 directed through the transversely disposed slot 31 in the inner end portion of the bearing 22. The angular extensions 27 and 30 provide means whereby the extent of swinging movement of the shafts 25 and 26 in either direction may be positively limited.

The shaft 25 extends within the housing H through a bearing 31 of insulating material so that said shaft will not have electrical contact with the associated or adjacent side wall 24. The shafts 25 and 26 extend a desired distance outwardly beyond the opposite sides of the housing H and the outer end portions of these shafts 25 and 26 are continued by the suitably formed and elongated conductor arms 32. The outer end portions of these arms 32 are inwardly offset and the outer or free extremities thereof are anchored to a plate 33 which carries a socket 34 in proper electrical connection with the adjacent portions of the arms 32. This plate 33 is of a material non-conductive of electricity.

The socket 34 has applied thereto in a conventional manner the desired incandescent bulb 35, and also secured to the socket 34 is a reflector 36. When the device is in applied position upon the board B and the arms 32 swung inwardly of the board to a point in close proximity thereto the contact arm 29 will be free of electrical engagement with the contact member 14 and when said arms 32 are swung outwardly beyond the adjacent end of the board B, the contact arm 29 will also be out of engagement with the contact member 14 so that when the arms 32 are in either of these two positions the circuit for the bulb 35 will be broken. However, when the arms 32 are in a position to overlie the board B within a certain range of movement of the arms 32 said contact arm 29 will have proper engagement with the contact member 14 to close the circuit for the bulb 35 so that the same will be caused to function and, of course, in a manner to effectively illuminate the working surface of the board B or the sheet thereon.

By having the operating circuit for the bulb 35 open when the arms 32 are swung outwardly beyond the adjacent end of the board B the arms 32 will be out of the way and at the same time the energy of the batteries is not being used up. This is of particular advantage when the board B is being used in the daylight. When the device is not being used it is preferable that the arms 32 be swung to a position to overlie and closely approach the board B, and obviously at such time it is of advantage to also have the operating circuit broken for the bulb 35.

Carried by and extending outwardly from the top end wall 1 of the housing H is a bull's-eye type of lamp of desired dimensions and the bulb carrying socket 37 of which has in proper connection therewith the contact plates 38 and 39 which extend through and overlie the inner face of the insulating block 7. Depending from the block 7 and in electrical contact with the plate 38 is a shank 40 having proper electrical contact with the adjacent end of a set of batteries 41, the opposite end of said set having contact with the expansible spring ground contact member 42 carried by and in electrical connection with the inner or lower end wall 2 of the housing H. This second set of batteries 41 is held in applied position through the medium of the second extended side marginal portion of the holding plate 17.

The contact plate 39 is provided with the depending or inwardly disposed spring contact extension 43 with which is adapted to engage a sliding contact member 44 having grounding contact with a side wall 24 of the housing H. This sliding contact 44 carries a button 45 which extends exteriorly of the housing H through a suitably positioned slot 46 of the side wall 24 to provide means whereby the sliding contact 44 may be conveniently operated manually to open or close, as desired, the circuit for the bull's-eye lamp. The circuit making and breaking mechanism within the housing and as carried by the block 7 is protected by a shield 47 which extends across the rear or open face of the housing H at the top portion thereof, and which shield is held in position by an elongated arm 48 contacting with the rib 19 and suitably anchored thereto.

From the foregoing description it is thought to be obvious that an illuminating device constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. An illuminating device to be placed upon a portable writing board comprising a housing, means for attaching the housing to the board, substantially aligned shafts extending within the housing from opposite sides, bearings within the housing for said shafts, means for grounding one of the bearings, said bearings and shafts being conductive of electricity, arms carried by the outer end portions of the shafts and angularly disposed with respect thereto, said arms being conductive of electricity, an electric illuminating element carried by the outer end portions of the arms and in electrical connection therewith, a contact arm within the housing adjacent to the second bearing, means for connecting said contact arm with a source of electrical energy, and a second contact arm carried by the shaft associated with the second bearing, said second contact arm being offset to one side of the shaft and free of the first contact arm when the arms of the shafts are at substantially the limit of their swinging movement in either direction, said contact arm of the shaft engag-

ing the first contact arm when said arms of the shafts are in a selected position intermediate their ends of swinging movement.

2. An illuminating device to be placed upon a portable writing board comprising a housing, means for attaching the housing to the board, substantially aligned shafts extending within the housing from opposite sides, bearings within the housing for said shafts, means for grounding one of the bearings, said bearings and shafts being conductive of electricity, arms carried by the outer end portions of the shafts and angularly disposed with respect thereto, said arms being conductive of electricity, an electric illuminating element carried by the outer end portions of the arms and in electrical connection therewith, a contact arm within the housing adjacent to the second bearing, means for connecting said contact arm with a source of electrical energy, and a second contact arm carried by the shaft associated with the second bearing, said second contact arm being offset to one side of the shaft and free of the first contact arm when the arms of the shafts are at substantially the limit of their swinging movement in either direction, said contact arm of the shaft engaging the first contact arm when said arms of the shafts are in a selected position intermediate their ends of swinging movement, and means carried by the shafts for limiting the swinging movement of the arms of the shaft.

3. An illuminating device to be placed upon a portable writing board comprising a housing, means for attaching the housing to the board, substantially aligned shafts extending within the housing from opposite sides, bearings within the housing for said shafts, means for grounding one of the bearings, said bearings and shafts being conductive of electricity, arms carried by the outer end portions of the shafts and angularly disposed with respect thereto, said arms being conductive of electricity, an electric illuminating element carried by the outer end portions of the arms and in electrical connection therewith, a contact arm within the housing adjacent to the second bearing, means for connecting said contact arm with a source of electrical energy, and a second contact arm carried by the shaft associated with the second bearing, said second contact arm being offset to one side of the shaft and free of the first contact arm when the arms of the shafts are at substantially the limit of their swinging movement in either direction, said contact arm of the shaft engaging the first contact arm when said arms of the shafts are in a selected position intermediate their ends of swinging movement, the contact arm of the shaft extending inwardly of the shaft and substantially parallel therewith, said contact arm of the shaft being exterior of the bearings.

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