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Schmidt et al.

[11] **3,723,720**

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[54] **ILLUMINATING DEVICE FOR DISPLAY FRAME**

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[52] **U.S. Cl.** .....**240/2 R,** 240/4, 240/6.4 R

[51] **Int. Cl.**.....**F21v 33/00**

[58] **Field of Search** .....240/2 R, 4, 52, 52.1, 6.4 R, 240/4.1, 4.2, 6, 2 AD, 2 C

[56] **References Cited**

UNITED STATES PATENTS

3,475,603 10/1969 Gheno .....240/2 R

3,307,026 2/1967 Kramer 240/4

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[57] **ABSTRACT**

An illuminating device for a display frame having a bracket that is adjustable to grip different sizes of frames, a lamp adjustably supported from the bracket by a flexible conduit, and a rechargeable battery pack supported by the bracket and electrically connected to the lamp through a remote operating switch.

4 Claims, 4 Drawing Figures

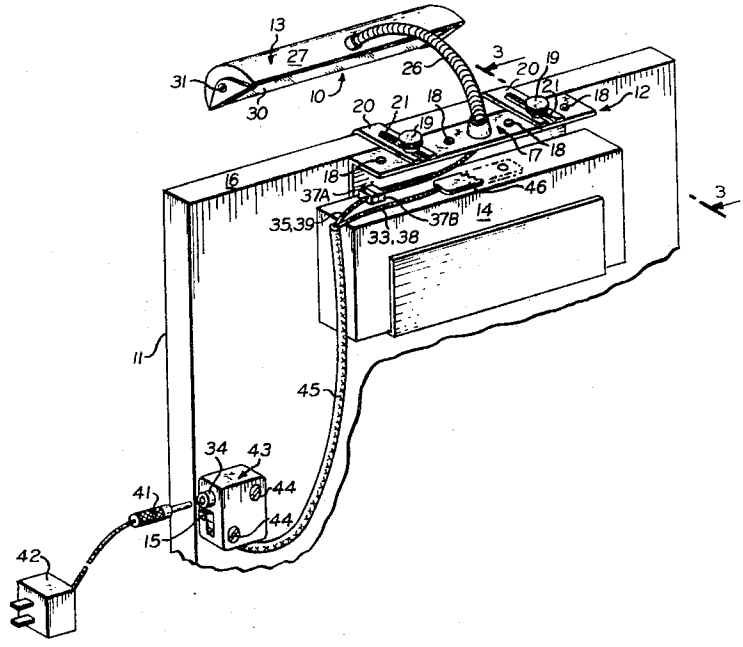


FIG. 2.

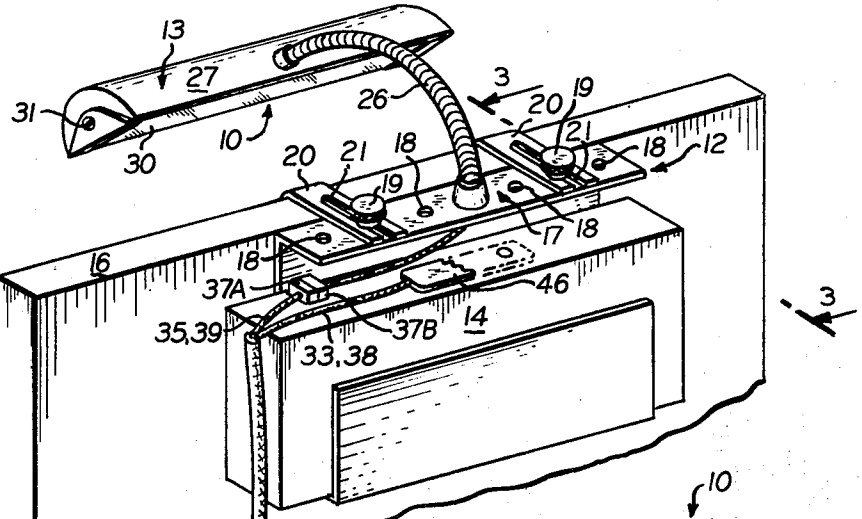


FIG. 1.

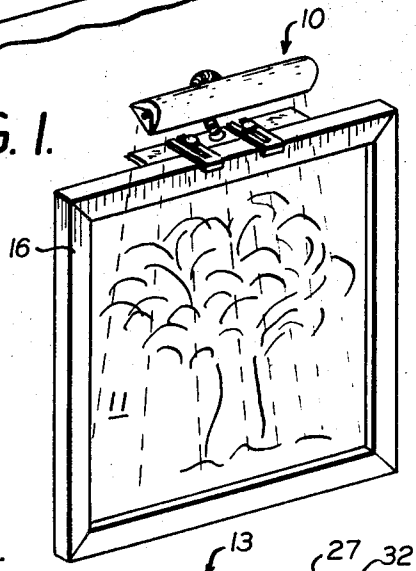


FIG. 3.

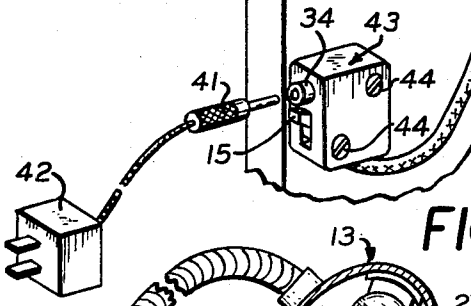
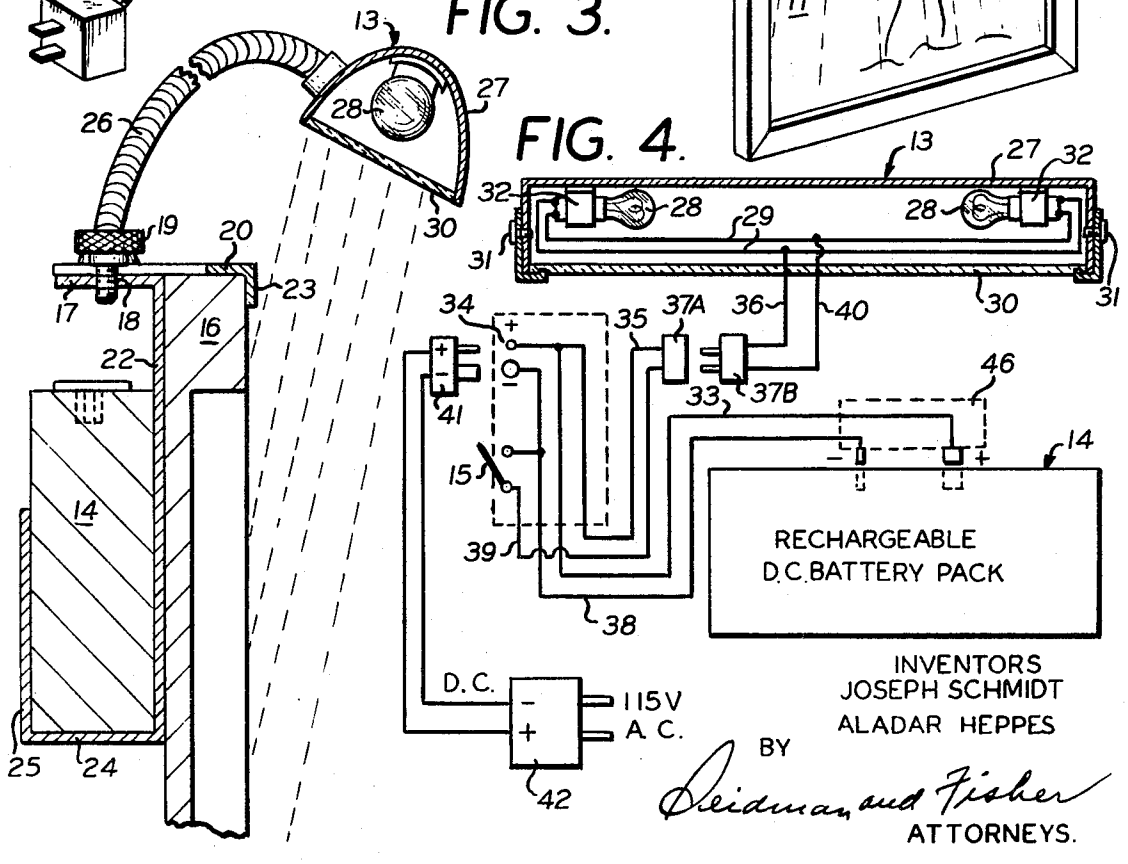


FIG. 4.



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ILLUMINATING DEVICE FOR DISPLAY FRAME

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates in general to the illumination of display frames and more particularly to an illuminating device powered by a rechargeable battery pack.

By individual illumination, the appearance of framed pictures and other works of art can often be improved.

In general, cordless, rechargeable battery powered picture lighting devices are known in the prior art, as exemplified by U. S. Pat. No. 3,475,603 issued to Roger A. Gheno. Such type of lighting device, while suitable for many applications is quite restricted as to direction of illumination, and because the operating switch and removable battery pack are located on the lamp structure itself, a certain inconvenience occurs when that type of device is installed on either a large frame or one having its upper edge above shoulder height.

The invention provides an illuminating device having a bracket that is adjustable to grip different sizes of frames for support thereby. Illumination of the framed work is effected by a lamp that is adjustably supported from the bracket by a flexible conduit, and powered by a rechargeable battery pack also supported by the bracket. The battery pack is electrically connected to the lamp through a remote operating switch and by conductors extending through the flexible conduit.

For recharging the battery pack there is provided a jack electrically connected to the battery pack and disposed to receive a matching plug connected to a suitable DC power source.

Both the recharging jack and the operating switch are mounted on a housing disposed for support by the frame and located at a convenient position thereon remote from the bracket which grips the top portion of the frame.

The flexible conduit allows the lamp to be shifted either parallel to the top edge of the picture, or tilted in relation thereto as desired to produce a selected lighting effect.

For a better understanding of the invention and its several advantages, reference should be had to the accompanying drawings and following detailed description pertaining to a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a frontal perspective view of an illuminating device according to a preferred embodiment of the invention, shown as installed upon the frame of a picture to be illuminated.

FIG. 2 is a perspective view of the back of the illuminating device and picture shown in FIG. 1.

FIG. 3 is a vertical cross-sectional view taken substantially along the line 3—3 of FIG. 2.

FIG. 4 is a wiring diagram of the illuminating device.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

In FIGS. 1–3 there is exemplified a device 10 for illuminating a framed picture 11 that can be hung on a wall or otherwise supported in the upright position shown.

Illuminating device 10 has an adjustable bracket 12, a lamp 13 supported by bracket 12 for adjustment relative thereto, and a rechargeable battery pack 14 that is also supported by bracket 12 and electrically connected to lamp 13 through an operating switch 15 remote from bracket 12.

Bracket 12 is essentially hung behind the picture 11 and from the top portion of frame 16, so that when picture 11 is hung upon a wall, much of the illuminating device 10 will be hidden from view as shown in FIG. 1, thereby giving a more aesthetic presentation of picture 11. For such purpose, the upper flange 17 of bracket 12 is provided with a plurality of tapped holes 18 adapted to receive thumbscrews 19 used for locking clamp member 20, Each clamp 20 has an elongated slot 21 through which extends a corresponding thumbscrew 19, the slot 21 making the clamp 20 adjustable relative to the front wall 22 of bracket 12 to accommodate gripping frames 16 of different thickness sizes. As better seen in FIG. 3, the bracket wall 22 is set against the back of frame 16 and the two clamps 20 are adjusted until the lip 23 of each clamp 20 engages the front of frame 16. For practical purposes, two clamps 20 are used, and a plurality of spaced tapped holes 18 are provided so as to allow a choice in selectively spacing the clamps 20 to accommodate frames 16 of different widths and ornamental contours.

The rechargeable battery pack 14 rests upon the bottom 24 of bracket 12 and between the front wall 22 and back wall 25 thereof.

A flexible gooseneck conduit 26 connected to bracket flange 17 and connected to the reflector shade 27 of lamp 13 provides an adjustable support therefor from bracket 12 whereby the lamp 13 can be shifted either parallel to the top edge of frame 16, or can be tilted in relation thereto as needed to achieve a desired lighting effect upon picture 11.

Within shade 27 at opposite ends thereof are a pair of incandescent lamp bulbs 28 which, as indicated by FIG. 4, are electrically connected in parallel by a pair of conductors 29. Lamp 13 is provided with a translucent diffuser 30 that is releasably connected to shade 27 by screws 31 so as to allow convenient replacement of bulbs 28 in sockets 32.

The battery pack 14 positive terminal is connected by a conductor 33 to a designated terminal of a jack 34 which terminal is in turn connected to one of the conductors 29 by conductors 35 and 36 through assembled matching connectors 37A and 37B. The negative terminal of battery pack 14 is connected by conductor 38 to another terminal of jack 34 identified by a negative polarity sign in FIG. 4. This negative terminal of jack 34 is connected to one side of switch 15, and the other side of switch 15 is connected to the other one of the conductors 29 by conductors 39 and 40 through the assembled connectors 37A and 37B.

In essence, the battery pack 14 is, regardless of the state of switch 15, electrically connected at all times to jack 34 and can be recharged by electrical current transferred therethrough. Jack 34 is disposed to receive a matching polarized plug 41 that is connected to a suitable power source, such as an AC to DC converter 42 adapted for plug-in operation with a conventional residential electrical outlet (not shown). There are numerous commercially available solid-state converters that can be used for battery pack recharging, the par-

ticular converter **42** selected depending upon the operating voltage of the battery pack **14**.

To allow the lamp **13** to be turned on and off, and the battery pack **14** to be recharged without the need for reaching up to the top of the frame **16**, the invention provides for supporting both the switch **15** and jack **34** at a convenient location along the side of frame **16**. For such purpose, switch **15** and jack **34** are connected to a housing **43** for support thereby, and said housing **43** is secured to frame **16** as by screws **44**. Alternatively, housing **43** may be secured to frame **16** by other conventional means; such as tape or adhesives.

For neater wiring, the four conductors **35, 39, 33, 38** are combined into a common cable **45** that extends behind picture **11** from housing **43** up to bracket **12**, the conductors **35, 39** terminating in connector part **37A**, and the conductors **33, 38** terminating in a polarized connector plug **46** fitting into battery pack **14**. The conductors **36** and **40** which terminate at connector part **37B**, extend through the conduit **26** for connection to corresponding conductors **29**.

Operation and maintenance of the illuminating device **10** is extremely simple because its lamp **13** can be selectively turned on or off by a single switch **15**, its battery pack **14** can be recharged by inserting plug **41** into jack **34** with converter **42** energized, and battery pack **14** as well as bulbs **28** can be installed and replaced without disturbing any permanent wiring connections.

By using a translucent diffuser **30**, diffuse lighting of picture **11** can be obtained with clear bulbs **28**.

As can be appreciated by the artisan, the invention is adaptable to numerous modifications and variations as will become obvious from the drawing and description of a preferred embodiment presented herein by way of example.

What is claimed is:

1. An illuminating device for a display frame, which comprises an adjustable bracket disposed for engagement with the frame for support thereby, a lamp adjustable relative to said bracket, a flexible conduit connected to said bracket and connected to said lamp to adjustably support same from said bracket, and a rechargeable battery pack electrically connected to the lamp by conductors extending through said conduit to energize said lamp for illuminating the display frame.

2. An illuminating device according to claim **1** including a switch electrically connected to said battery pack and lamp, said switch being operable at a location remote from said bracket to selectively energize the lamp from the battery pack.

3. An illuminating device according to claim **2** including a jack electrically connected to said battery pack and disposed to receive a matching plug connected to an electrical power source for recharging the battery pack.

4. An illuminating device according to claim **3** including housing means disposed for support by the frame and connected to said switch and jack to support both at a location remote from said bracket.

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