Title: PORTABLE BATTERY POWERED LIGHT DEVICE

Abstract: A lighting appliance 100 includes a battery powered portable lighting device 102 with at least one light source 108, a body with a first region, and a user interface 114 with a second region. The user interface is rotatably affixed to the body. The user interface 114 is configured to rotate with respect to the body between a first position in which the first and second regions align to form an extended region and at least one other position in which the first and second regions do not align.
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PORTABLE BATTERY POWERED LIGHT DEVICE

TECHNICAL FIELD

The following relates generally to a battery powered portable lighting device, and finds particular application to a wall sconce light. However, it is also amenable to other lighting applications.

BACKGROUND

Lighting appliances such as sconce lights, pendent lights, floor lights and table lights are used in residential as well as industrial and manufacturer settings to provide general lighting. Wall and ceiling lights conventionally are tied into the mains power, whereas floor lights and table lights typically include an electrical cord with a plug that plugs into an electrical receptacle. All of these lights are generally stationary in that they are either affixed to a mounting bracket in a wall or ceiling, or their movement is limited by the electrical cord. Moreover, their lighting capabilities depend on the availability of the mains power.

Lighting appliances such as a battery powered flashlights provide portable lighting that is independent of the mains power. However, flashlights typically are not configured to provide general lighting for illuminating a hallway or room.

More recently, wall mountable battery-powered light devices have been used to provide light. Such devices accept individual non-rechargeable or rechargeable batteries or a battery pack, and mount to a wall, for example. As such, they do require direct connection with an alternating current (AC) power supply.

Unfortunately, batteries have limited life, and when the batteries need to be replaced, the battery-powered light device may need to be unmounted from the wall. This may require the user to remove one or more screws or other fasteners fastening the battery-powered light device to the wall. In addition, the batteries may be located in a region of the battery-powered light device that is behind a secured door. In this instance, the user also has to remove the fastener securing the door.

Likewise, if the user desires to move the battery-powered light device, the user must unmount the battery-powered light device and the mount the battery-powered light device at its new location.
SUMMARY

Aspects of the present application address these matters, and others.

In one aspect, a lighting appliance includes a battery powered portable lighting device with at least one light source, a body with a first region, and a user interface with a second region. The user interface is rotatably affixed to the body. The user interface is configured to rotate with respect to the body between a first position in which the first and second regions align to form an extended region and at least one other position in which the first and second regions do not align.

In another aspect, a battery powered portable lighting device includes at least one light source and a battery receiving region that receives a battery that powers the at least one light source. The battery receiving region includes a first electrical contact that receives a terminal of a battery inserted into the battery receiving region and a contact block disposed to opposing end of the battery receiving region. The contact block includes a first side with at least one electrically conductive contact and a second side.

The contact block is configured to transition between a first position in which the first side faces the first electrical contact for receiving an individual battery therebetween, and a second position in which the second side faces the first electrical contact for receiving a battery pack therebetween.

In another aspect, a battery powered portable lighting device includes at least one light source and a funnel-form. The funnel-form includes a first smaller end and a second larger end. The first smaller end is located proximal to the at least one light source and the second larger end is located distal, thereby reflecting light emitted by the at least one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

In another aspect, a method includes aligning a first region of a user interface of a battery powered portable lighting device with a second region of the battery powered portable lighting device, by rotating the user interface with respect to the second region of the battery powered portable lighting device, to form an extended region configured to be received in a battery charger interface, and rotating the user interface, with respect to the second region of the battery powered portable lighting device, to another different position in which a light source of the battery powered portable lighting device is illuminated.
In another aspect, a method includes moving a contact block in a battery receiving region of a battery powered portable device to a first position in which the battery powered portable device is configured to receive at least one individual battery, and alternately moving the contact block in the battery receiving region of the battery powered portable device to a second position in which the battery powered portable device is configured to receive a battery pack.

Those skilled in the art will recognize still other aspects of the present application upon reading and understanding the attached description.

BRIEF DESCRIPTION OF THE DRAWINGS

The present application is illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:

Figure 1 illustrates a block diagram of a lighting appliance.
Figures 2-6 illustrate an example lighting appliance.
Figures 7A, 7B, 8A, and 8B illustrate another example contact block.
Figures 9 and 10 illustrate methods.

DETAILED DESCRIPTION

Figure 1 illustrates a block diagram of a lighting appliance 100. The lighting appliance 100 includes a portable battery powered light device 102, a light device holder 104, and a base unit 106.

The portable battery powered light device 102 includes one or more light sources 108 such as a light emitting diode (LED), an incandescent light bulb and/or another type of light(s), including white and/or colored lights. A light diffuser 110 diffuses light emitted by the one or more light sources 108. The portable battery powered light device 102 also includes a battery receiving region 112 that alternately receives a set of rechargeable batteries, a set of non-rechargeable batteries, or a battery pack. Battery power from installed batteries is used to illuminate the one or more light sources 108. A user interface 114 provides a control for operating the one or more light sources 108 with battery power, including turning one or more of the one or more light sources 108 on and off, adjusting the light intensity of the one or more of the one or more light sources 108, causing one or more of the one or more light sources 108 to blink, etc. The portable
battery powered light device 102 also includes a base unit interface 116 that is selectively received by the base unit 106. A holder interface 118 allows for affixing the portable battery powered light 102 to the holder 104.

The light device holder 104 includes a light device receiving region 120 for receiving the portable battery powered light device 102. The light device holder 104 may be configured to alternately receive one or more light diffusers 122 that diffuse light emanating from the portable battery powered light device 102. The light device holder 104 also includes a mounting interface 124 for affixing the light device holder 104 to a surface such as a wall, a ceiling, or the like.

The base unit 106 includes a light device receiving region 126 that receives the portable battery powered light device 102. As described in greater detail below, the light device receiving region 126 is configured to selectively receive the portable battery powered light device 102. The base unit 106 also includes a battery charger 128 and an electrical interface 130 for receiving electrical power for charging a battery.

The portable battery powered light device 102 can be used as a portable light such as a flashlight. Alternatively, the portable battery powered light device 102 can be used as a hallway or room light, for example, by inserting the portable battery powered light device 102 in the light device holder 104 mounted to a wall. As such, the portable battery powered light device 102 can provide general hallway or room lighting similar to a commercially available sconce or other lighting appliance. Alternatively, the portable battery powered light device 102 can be inserted into the base unit 106 to charge batteries in the battery receiving region 112. The portable battery powered light device 102 may also be otherwise used.

It is to be appreciated that the lighting appliance 100 may also include a wireless interface. The wireless interface may be included with the portable battery powered light device 102, the light device holder 104 and/or the base unit 106. The wireless interface may include a receiver configured to receive a wireless signal from a remote device and/or a transmitter configured to transmit information, such as state information, to the remote device. The wireless interface alternatively may be a transceiver with both receiving and transmitting capabilities. It is to be appreciated that a signal may effectuate operation of the portable battery powered light device 102. For instance, a received remote signal may invoke one or more of the one or more of the one or more light sources 108 to turn on, turn
off, blink, vary the intensity (e.g., via pulse width modulation, etc.), and/or otherwise operate. In another instance, reception of a signal or loss of reception of a signal results in defined operation of the portable battery powered light device 102. For example, the wireless interface may sense when mains power becomes unavailable or the wireless may receive a signal when mains power becomes unavailable, and one or more of the one or more light sources 108 may be operated to provide light, which may be used, for example, as emergency lighting.

Figure 2 illustrates a non-limiting example of the lighting appliance such as the lighting appliance 100 of Figure 1. In this example, the lighting appliance 100 is a sconce light. However, it is to be understood that other types of lighting appliances such as a ceiling lighting appliance, an under counter lighting appliance, table lighting appliances, and the like are also contemplated. In addition, the shapes of the various components are also provided for explanatory purposes and may be different.

The illustrated portable battery powered light device 102 is generally cylindrical in shape and includes an elongate body 202. The light diffuser 110 removably attaches to a first end 204 of the body 202, and the user interface 114 is affixed to an opposing end 206 of the body 202. The body 202 houses the one or more light sources 108 (not visible), the battery receiving region 112 (not visible), a switch (not visible), the battery charger interface 116, a circuit board (not visible), various electrical components and connections (not visible), as well as other components of the battery powered light device 102. The body 202 also includes the mounting interface 118 (Figure 1), which, in this example, includes one or more nubs 208 for affixing the portable battery powered light device 102 to the light device holder 104.

A region 210 of the generally cylindrical body 202 includes a generally flat surface 212. As shown, the battery charger interface 116 may be located in the region 210. More particularly, the illustrated battery charger interface 116 includes a first electrical contact 214 and a second electrical contact 216 that extend perpendicularly through openings in the region 210. The contacts 214 and 216 extend into the body 202 and electrically communicate with the circuit board therein. A spring (not visible) or the like urges each contact 214 and 216 outwardly through the openings in the region 210. The contact 214 and 216 are configured to include a lip that abuts an inside surface of the battery powered light device 102, thereby limiting travel and defining an outermost position of the contacts.
214 and 216. The contacts 214 and 216 include a negative and a positive contact, through which a charging current is passed to a rechargeable battery inserted in the battery powered light device 102. The region 210 may also include a protrusion 218, which facilitates suitably aligning the portable battery powered light device 102 for insertion into the base unit 106. An access door 224 such as a removable panel may be used to cover the battery receiving region 112.

The user interface 114 is rotatably coupled to the end 206 of the body 204 and rotates with respect to the body 204. Similar to the body 204, the user interface 114 is generally cylindrical and includes a region 220 with a generally flat surface 222. The region 220 rotates with the user interface 114 and, in one rotational position, aligns with the region 210 of the body 202 to form an extended flat surface of the portable battery powered light device 102.

With reference to Figures 2 and 3, the light device receiving region 120 of the base unit 106 includes a generally cylindrical material free volume 302 for receiving the portable battery powered light device 102. The volume 302 includes a region 304 with a generally flat surface 306 extending upwardly away from an inside bottom surface of the light device receiving region 126. The region 304 includes slots 308 through which first and second electrical contacts 310 and 312 are accessible. The contacts 310 and 312 are electrically coupled with the charging circuit in the base unit 106. The region 304 may also include a recess 314 in which the protrusion 218 inserts when the battery powered light device 102 is inserted into the base unit 106.

The above paragraph is one example of providing power to the light device 102. Other suitable mechanisms, including wireless power transfer, inductive power, and the like are contemplated in accordance with the present invention. For example, the base unit could include a primary inductive coil that generates a magnetic or inductive field that is received by a secondary coil present in the light device 102.

At least one indicator 316 provides state information about the base unit 106. In the illustrated example, the at least one indicator includes two (2) three (3) mm LED's 316, each electrically coupled with circuitry internal to the base unit 106. The LEDs are positioned so as to be visible through corresponding apertures in the base unit 106. In this example, the first LED may be activated to emit, for example, a red light to indicate that a charge is being applied, and the second LED may be activated to emit, for example, a
green light to indicate that charging is complete. Of course, other patterns and/or colors
and/or types of lights may used to provide similar and/or different information.

A plurality of bumpers 318 such as four adhesive backed bumpers may be affixed
to a bottom exterior surface of the base unit 106. Such bumpers can be made of slow
recovery memory foam or other soft durometer material or the like to prevent skidding or
marring surfaces upon which the battery charger may be placed. The base unit 106 may
also include a direct current (DC) power jack that interconnects with an AC-DC converter
via a barrel-type power plug so that direct current (DC) converted from standard
household alternating current (AC) may pass to the charging circuit.

With reference to Figures 2 and 4, the holder 104 includes a cylindrically shaped
sleeve 400 with an opening that defines the light device receiving region 120. The sleeve
400 includes a pair of inverted L-shaped recesses 402, one of which is visible in the
illustrated drawings. Each L-shaped recess 402 includes a long leg 404 that extends
upwardly away from a bottom 406 of the sleeve 400, and a short leg 408 that extends
parallel to and proximate a top 410 of the sleeve 400. The long leg 404 provides a channel
through which a one of the two opposing nubs 208 of the body 202 may traverse during
passage of the battery powered light device 102 through the sleeve 400. The short leg 408
provides a channel through which a one of the nubs 208 may traverse when the battery
powered light device 102 is rotated after having reached its uppermost limit of insertion in
the long leg 404.

A securement 412 includes a pair of parallel flexing fingers residing within each
short leg 408. Each flexing finger includes a beam attached to the sleeve 400 proximate
the long leg 402. Each beam extends over a portion of the short leg length, and each beam
includes an inwardly facing hook at its distal end. Each finger pair may be forcibly flexed
apart when a nub 208 is moved through the space between the inwardly facing hooks.
Each of the finger pairs may return to its relaxed state after the nub 208 has been moved
past the inwardly facing hooks.

The diffuser 122 includes at least one open end, which is inserted into the top of
the sleeve 400 so as to rest upon a internal shelf provided in the sleeve 400. The diffuser
122 is configured so as to surround the portion of the battery powered light device 102
extending up from the sleeve 400. A plurality of fasteners such as knurled head screws or
the like extend through openings in the sleeve 400 and secure the diffuser 122 in place.
The diffuser 122 may be made of a translucent material such as frosted glass.

The mounting interface 124 fastens through fasteners such as a screw, a nail, or the like to a surface such as a bracket, a stud in the wall, etc. An arm coupled to the mounting interface 124 extends outwardly from the mounting interface 124. The sleeve 400 is coupled to the other end of the arm.

The holder 104 can also be configured to provide power to the light device 102. The holder 104 may provide power by a contact system similar to that employed by the base unit 106. Alternately, the holder may provide power by other suitable mechanisms, including wireless power transfer, inductive power, and the like. For example, the holder 104 could include a primary inductive coil that generates a magnetic or inductive field that is received by a secondary coil present in the light device 102.

Figures 5 and 6 illustrate exploded views of the battery powered lighting device 102. In this example, the battery receiving region 112 is configured to alternately receive three (3) individual AAA batteries such as three (3) 1.2 volt Nickel Metal Hydride (Ni-MH) or a 3.6 volt battery pack. Of course, in other instances the battery receiving region 112 is configured to receive other batteries.

The battery receiving region 112 includes a contact block 502 with a pair of electrically conductive strips 504 and 506. The contact block 502 is rotatably or pivotably coupled to the battery receiving region 112. The contact block 502 may be manually rotated or pivoted, for example, ninety (90) degrees from a first position to a second position. In the first position (Figure 6), the contact block 502 is oriented such that the electrically conductive strips 504 and 506 face into the battery receiving region 112 and can receive battery terminals of batteries inserted in the battery receiving region 112. In the second position (Figure 5), the contact block 502 is oriented such that the electrically conductive strips 504 and 506 face 90 degrees away from the battery receiving region 112 and a surface 508 faces into the battery receiving region 112. In one instance, the surface 508 includes an electrically insulated surface. In another instance, the surface 508 may include an electrically conductive element.

On an end of the battery receiving region 112 opposing the contact block 502 are conductive springs 510, 512, and 514. Each of the conductive springs 510, 512, and 514 is electrically coupled with circuitry on the circuit board in the body 202. The conductive springs 510, 512, and 514 are oriented such that the conductive springs 510, 512, and 514...
are positioned opposite the contact block 502, and spaced apart from the contact block 502 a predetermined distance so as to define a battery compartment within the battery receiving region 112. The conductive springs 510, 512, and 514 compressively hold individual batteries or a battery pack in place in the battery receiving region 112.

A generally cylindric insulator is affixed to at least one of the conductive springs 510, 512, and 514, based on the orientation in which batteries are inserted into the battery receiving region 112. In the illustrated device 102, two insulators 516 and 518 are affixed to the conductive springs 510 and 514. Each of the insulators 516 and 518 includes a recess in which an exposed free end of the conductive springs 510 and 514 rests. The recess is of sufficient size to allow a positive terminal of a battery to rest within it so that the battery terminal abuts the conductive spring 510 or 514. As such, an electric circuit can be established when a full set of individual batteries are placed together within the battery receiving region 112. The outside diameter of each insulator 516 and 518 is of sufficient size to prevent direct contact being made between the conductive springs 510 and 514 and an inserted battery pack. This may facilitate mitigating a short circuit condition if a cell of the battery pack should become exposed.

A battery pack connector receptacle 520 is coupled with the electrical circuit board in the body 202. A mating connector plug, typically included as part of a battery pack, may be insertably attached to the connector receptacle 520 so that an electric circuit can be established. In the illustrated example, the connector receptacle 520 is recessed in a floor of the battery receiving region 112. As such, neither the connector receptacle 520 nor the attached connector plug can physically interfere with a battery pack inserted in the battery receiving region 112. In other instances, the connector receptacle 520 may be otherwise located.

A flexible ribbon 522 with a proximal end attached to the battery compartment floor near a one side wall of said compartment is extendable along the cross sectional periphery of an inserted power source so that its distal end may rest above and in near alignment with said proximal end. The flexible ribbon 522 may be gripped and pulled outwardly so as to assist in the removal of the power source from the battery compartment.

A manually operated switch 524 is coupled with the electrical circuit board in the body 202. The switch 524 may be a rotary or other type of switch. In one instance, the switch is a three (3) position rotary switch that rotates between first, second, and third
positions. In the first position, none of the light sources 108 are illuminated. In the second position, less than all of the light sources 108 concurrently illuminate. For example, half of the individual light sources may be illuminated when the switch is in the second position. In the third position, all of the light sources 108 concurrently illuminate.

As shown, a portion of the switch 524 extends longitudinally outwardly from the body 202. The user interface 114 includes a recess 526 that fixidly receives the portion of the switch 524 extending from the body 202. As such, rotating the user interface 114 rotates the switch 524 between the different positions.

A light source retaining board 528 with a correlated aperture retains the one or more light sources 108, which are visible through the retaining board 528. As shown, the one or more light sources 108 may be arranged so as to form a generally circular pattern, with each LED extending longitudinally outward through a corresponding one of the correlated apertures. In this example, the one or more light sources 108 includes four (4) LED's, which may be five (5) millimeter (mm) white or other LED's. Other numbers of light and/or colors of light sources are also contemplated.

A partially reflective funnel-form 530 directs emitted light outwardly and downwardly away from the battery powered light device 102, thereby directing light to illuminate a longitudinal periphery about the battery powered light device 102. The funnel-form 530 is also partially translucent and, as such, allows emitted light to pass through the funnel-form 530. In one instance, the funnel-form 530 is hollow and made of a thermoplastic material. In the illustrated example, the funnel-form 530 has a hyperboloid shape with a smaller diameter end 532 and an opposing larger diameter end 534. The smaller diameter end 532 is smaller than the diameter defined by the light source 108 array pattern, and the larger diameter end 534 is slightly smaller than the inside diameter of the diffuser 110. The funnel-form 530 may be attached to the body 202 such that the smaller diameter end 532 is located proximal to the light source 108 and the larger diameter end 534 is located distal to the light source 108. For instance, the smaller diameter end 532 is centrally affixed to the outwardly exposed surface of the light source retaining board 528.

The diffuser 110 may be a generally cylindrical shaped transparent lens with a closed end 536 and an open end 538, defining a hollow interior 540. The diffuser 110 removably affixes to body 202 and encloses the one or more lights 108 and the funnel
form 530, where the larger diameter end 534 of the funnel form 530 is nearer the inside front surface of the diffuser 110. As a consequence, the diffuser 110 may protectively enclose the funnel form 530 and the one or more lights 108. The inside surface of the diffuser 110 may be texturized, which may facilitate diffusing light evenly out of the diffuser 110.

In operation, to insert the portable battery powered light device 102 into the base unit 106, the user interface 114 is rotated such that the flat surface 222 in the region 220 aligns with the flat surface 212 in the region 210 of the body 202 to form an extended flat surface. In this configuration, the portable battery powered light device 102 securely inserts into the light device receiving region 120 of the base unit 106. For example, in this configuration the portable battery powered light device 102 is oriented so that the flat surfaces 212 and 222 align with the flat surface 306 of the base unit 106. When the user interface 114 is otherwise oriented with respect to the body 202, the portable battery powered light device 102 is inhibited from being inserted into the base unit 106. As such, the configuration of the battery powered light device 102 and the base unit 106 are keyed so that the charging process is possible only when the LEDs are turned off. When the battery powered light device 102 is inserted into the base unit 106, the contacts 214 and 216 of the body 202 make and maintain electrical communication with the contacts 310 and 312, and the batteries in the portable battery powered light device 102 can be charged.

To use the portable battery powered light device 102 as a hall way or room light, the portable battery powered light device 102 is inserted into the sleeve 400 of the holder 104 as described above. When the battery powered light device 102 is secured in the holder 104, the battery powered light device 102 may rest with the diffuser 110 fully exposed above the top end of the sleeve 400 so that emitted light can be transmitted away from the portable battery powered light device 102. The battery powered light device 102 may rest with the user interface 114 fully exposed below the bottom end of the sleeve 400, whereby the user interface 114 may be gripped and manipulated so as to control the light output while the portable battery powered light device 102 remains securely seated within the holder 114.

To use the portable battery powered light device 102 as a flashlight, the portable battery powered light device 102 is removed from the sleeve 400 or the base unit 106, if previously inserted into the sleeve 400 or the base unit 106. The user may grip and
manipulate the user interface 114 to control the light output of the portable battery
powered light device 102.

FIGURES 7A, 7B, 8A, and 8B further describe the contact block by way of a
block diagram. FIGURES 8A, and 8B are sectional views of FIGURES 7A and 7B along
A-A. In the above description, the contact block is described in connection with the
sconce light 100. In this example, the contact block is described in connection with a
lighting device 700. For the sake of brevity, the light source and other components of the
lighting device are not shown or discussed. It is to be understood that the contact block
can also be used in connection with other lighting applications, including, but not limited
to, a table light, a floor light, a ceiling light, a desk light, etc.

The lighting device 700 includes a battery receiving region 702. The receiving
region 702 includes a first upright side 704, which includes one or more electrical contacts
706, such as the electrical contacts described in connection with Figures 5 and 6, along a
length of the side 704. The one or more electrical contacts 706 are configured so that each
contact may receive a terminal of a battery. The one or more electrical contacts 706 may
alternately receive a battery pack. The receiving region 702 includes a second opposing
upright side 708. Elongate sides 710 and 712 extend in a direction generally perpendicular
to and are coupled to the first and second walls 704 and 708. The sides 704, 708, 710 and
712 are coupled to a floor 714, and the sides 704, 708, 710 and 712, along with the floor
714, define a tray or volume configured to alternately receive one or more batteries or a
battery pack.

A contact block 716 is located nearer to the second side 708, relative to the first
side 704. In the illustrated example, the contact block 716 pivots between a first position
(FIGURES 7B and 8B) in which the battery receiving region 702 is configured to receive
one more individual batteries and a second position (FIGURES 7A and 8A) in which the
battery receiving region 702 is configured to receive a battery pack. For instance, in the
first position one or more electrical contacts 718 disposed on the contact block 716 are
oriented to receive an opposing terminal of a battery inserted into the battery receiving
region 702. In the second position, the contact block 716 is oriented to receive an
opposing end of a battery pack inserted into the battery receiving region 702. It is to be
appreciated that instead of a pivoting contact block, the lighting device 700 may include a
rotating contact block. In another instance, the lighting device 700 may include a sliding
contact block. In yet another instance, the lighting device 700 may include a spring loaded contact block. In still another instance, the lighting device 700 may include a removable contact block. Other configurations are also contemplated.

The contact block 716 includes first and second protrusions 720. In other instances, the contact block 716 includes more or less protrusions. As shown, the illustrated first and second protrusions 720 are offset from a center line extending along the length of the contact block 716 and are located on the end of the contact block 716 that is nearer to the floor 714. The first and second protrusions 720 are pivotably coupled to the sides 710 and 712. For instance, in the illustrated example the first and second protrusions 720 extend through material free regions 722 located in the sides 710 and 712. As such, the contact block 716 may pivot about a pivot axis 724 that extends along a path through the first and second protrusions 718. As noted above, such pivoting may be between the first and second positions.

Although the above describes two protrusions 720, in another instance a single pivot arm such as a rod may extend along the pivot axis 724 and through the material free regions 722. In yet another instance, the sides 710 and 712 may include protrusions or the like and the contact block 716 may include corresponding material free regions, and the protrusions are pivotably coupled to the contact block 716 via the material free regions in the contact block 716. It is also to be appreciated that the protrusion(s) may alternatively extend along the center line instead of the pivot axis 724. As such, the contact block 716 may rotate about the center line between the first and second positions.

Figure 9 illustrates a method 900 of operating an appliance according to an embodiment of the invention. The method 900 is shown in an illustrated order, however the method 900 can be performed in other suitable orders and omit blocks or steps and/or include additional blocks or steps.

The method 900 begins at block 902 wherein a battery powered portable lighting device 102 having a user interface is provided. A first region 220 of the user interface 114 is aligned with a second region 210 of the battery powered portable lighting device at block 904, by rotating the user interface 114 with respect to the second region 210 of the battery powered portable lighting device, to form an extended region. The user interface 114 is rotated with respect to the second region to a different position to un-form the extended region at block 906.
The method 900 continues at block 908 where the extended region is received in a battery charger interface 130, 126 of a base unit 106. At block 910, a light device holder 104 operable to receive the battery powered portable lighting device 102 is provided. At block 912, the light device holder is mounted 104 to a surface. The surface can be a substantially vertical surface such as a wall of a home or building.

At block 914, the battery powered portable lighting device 102 is removed from a base unit 106 and inserted into the light device holder 104. At block 916, the battery powered portable lighting device 102 is removed from the light device holder 104 and inserted into the base unit 106.

The method also optionally includes, operating the portable battery powered light device 102 with the user interface 114 at block 918. The portable battery powered light device 102 with the user interface 114 can be operated at block 920 by rotating the user interface 114 to turn the portable battery powered light device on. Additionally, the portable battery powered light device 102 can be operated by rotating the user interface 114 to turn the portable battery powered light device off.

The portable battery powered light device 102 is operable via a wireless interface at block 922.

The method additionally includes charging batteries of the portable battery powered light device and/or replacing the batteries prior to charging the batteries. At block 924, the user interface 114 is rotated with respect to the second region 210 to uniform the extended region, wherein the battery powered portable lighting device is inhibited from being inserted in a battery charger interface when the first and second regions are not aligned.

Figure 10 illustrates a method 1000 of operating an appliance according to an embodiment of the invention. The method 1000 is shown in an illustrated order, however the method 1000 can be performed in other suitable orders and omit blocks or steps and/or include additional blocks or steps.

The method 1000 begins at block 1002, wherein a battery powered portable lighting device is provided. At block 1004, a base unit operable to recharge batteries of the lighting device is provided. At block 1006, the lighting device is inserted into the base unit. At block 1008, a light device holder operable to receive the lighting device is provided. At block 1010, the lighting device is inserted into the light device holder.
The light device holder can be mounted to a substantially vertical surface. The lighting device can be removed from the base unit prior to inserting the lighting device into the light device holder. The lighting device can be removed from the light device holder prior to inserting the lighting device into the base unit.

The light device can be operated with a user interface. The light device can be operated with a wireless interface.

The method 1000 also includes charging batteries of the light device at block 1012. The batteries can be replaced prior to charging the batteries. The method 1000 can also include moving a contact block of a battery receiving region of the lighting device to a first position in which the battery powered portable device is configured to receive at least one individual battery and alternately moving the contact block to a second position in which the battery powered portable device is configured to receive a battery pack.

The following paragraphs are part of the specification.

1. A lighting appliance, comprising:

   a battery powered portable lighting device, including
   - at least one light source;
   - a body with a first region; and
   - a user interface with a second region, wherein the user interface is rotatably affixed to the body, and the user interface is configured to rotate with respect to the body between a first position in which the first and second regions align to form an extended region and at least one other position in which the first and second regions do not align.

2. The lighting appliance of claim 1, wherein the first and second regions are generally flatted shaped and the body is generally non-flatted shaped and, and the first and second regions align to form an extended flatted region.

3. The lighting appliance of claim 1, further including a battery charger, including:
   - a light device receiving region; and
   - a third region in the light device receiving region, wherein the third region is configured to receive the extended region formed when the first and second regions are aligned.
4. The lighting appliance of claim 3, wherein the light device receiving region inhibits insertion of the battery powered portable lighting device when the first and second regions are not aligned to form the extended region.

5. The lighting appliance of claim 1, wherein the first position turns the at least one light source off.

6. The lighting appliance of claim 1, wherein the at least one other position turns the at least one light source on.

7. The lighting appliance of claim 1, wherein the at least one other position includes two positions that respectively operate the at least one light source at different light intensities.

8. The lighting appliance of claim 1, wherein the user interface rotates to a third position, wherein a lesser number of the at least one light sources is illuminated when the user interface is in the second position relative to the third position.

9. The lighting appliance of claim 1, wherein the user interface includes a rotary switch.

10. The lighting appliance of claim 1, further including a light device holder interface for removably affixing the battery powered portable lighting device to a light device holder mounted to a surface.

11. The lighting appliance of claim 1, further including at least one electrical contact for receiving a charging current used to charge a rechargeable battery in the battery powered portable lighting device.

12. The lighting appliance of claim 11, wherein the at least one electrical contact extends from inside of the body to outside of the body through the first region of the body.

13. The lighting appliance of claim 1, further including a battery receiving region, including:

   a first electrical contact that receives a terminal of a battery inserted into the battery receiving region; and

   a moveable contact block disposed at an opposing end of the battery receiving region, wherein the moveable contact block is configured to transition between a first position in which at least one electrically conductive contact faces the first electrical contact and a second position in which the at least one electrically conductive contact faces a direction that is perpendicular to the first electrical contact.
14. The lighting appliance of claim 1, further including a partially reflective funnel-form that directs light emitted by the at least one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

15. The lighting appliance of claim 1, wherein the lighting appliance is a wall sconce light and the at least one light source provides general room lighting.

16. A battery powered portable lighting device, comprising:

   at least one light source; and

   a battery receiving region that receives a battery that powers the at least one light source, the battery receiving region including:

   a first electrical contact that receives a terminal of a battery inserted into the battery receiving region; and

   a contact block disposed to opposing end of the battery receiving region, the contact block including:

   a first side with at least one electrically conductive contact; and

   a second side, wherein the contact block is configured to transition between a first position in which the first side faces the first electrical contact for receiving an individual battery therebetween, and a second position in which the second side faces the first electrical contact for receiving a battery pack therebetween.

17. The battery powered portable lighting device of claim 16, wherein the contact block is pivotally coupled to the opposing end of the battery receiving region and pivots between the first and second positions.

18. The battery powered portable lighting device of claim 16, wherein the contact block slides between the first and second positions.

19. The battery powered portable lighting device of claim 16, wherein the contact block includes at least one spring that urges the at least one electrically conductive contact of the first side of the contact block towards the first electrical contact.

20. The battery powered portable lighting device of claim 16, wherein the second side is electrically insulated.
21. The battery powered portable lighting device of claim 16, wherein the first electrical contact is spring biased, thereby holding the individual battery or the battery pack in the battery receiving region under compression.

22. The battery powered portable lighting device of claim 16, further including:

   a cylindrically shaped body with a first flatted region; and

   a cylindrically shaped user interface with a second flatted region, wherein the user interface is rotatably affixed to the body, and the cylindrically shaped user interface is configured to rotate with respect to the body between a first position in which the first and second flatted regions align to form an extended flatted region and at least one other position in which the first and second flatted regions do not align.

23. The battery powered portable lighting device of claim 22, further including a battery charger, including:

   a generally cylindrically shaped light device receiving region; and

   a third flatted region in the generally cylindrically shaped light device receiving region, wherein the third flatted region is configured to receive the extended flatted region formed when the first and second flatted regions are aligned and to inhibit insertion of the battery powered portable lighting device when the first and second flatted regions are not aligned.

24. The battery powered portable lighting device of claim 16, further including a partially reflective funnel-form that directs light emitted by the at least one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

25. The battery powered portable lighting device of claim 16, wherein the lighting appliance is a wall sconce light and the at least one light source provides general room lighting.

26. A battery powered portable lighting device, comprising:

   at least one light source; and

   a funnel-form including:

   a first smaller end; and

   a second larger end, wherein the first smaller end is located proximal to the at least one light source and the second larger end is located distal, thereby
reflecting light emitted by the at least one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

27. The battery powered portable lighting device of claim 26, wherein the funnel-form is partially translucent, thereby allowing light emitted by the at least one light source to traverse the funnel-form outwardly away from the battery powered light device.

28. The battery powered portable lighting device of claim 26, wherein the reflective funnel-form is hyperboloid shaped, the first smaller end includes a first diameter and the second larger end includes a second diameter, and the first diameter is relatively smaller than the second diameter.

29. The battery powered portable lighting device of claim 26, further including:

- a rotatable user interface, wherein the rotatable user interface rotates between a first position in which the at least one light source is illuminated and a second different position in which a light source of the battery powered portable lighting device is inhibited from being inserted in the battery charger interface when the first and second regions are not aligned to form the extended region.

30. A method, comprising:

- aligning a first region of a user interface of a battery powered portable lighting device with a second region of the battery powered portable lighting device, by rotating the user interface with respect to the second region of the battery powered portable lighting device, to form an extended region configured to be received in a battery charger interface; and

- rotating the user interface, with respect to the second region of the battery powered portable lighting device, to another different position in which a light source of the battery powered portable lighting device is illuminated.
moving a contact block in a battery receiving region of a battery powered portable
device to a first position in which the battery powered portable device is configured to receive at least one individual battery; and
alternately moving the contact block in the battery receiving region of the battery powered portable device to a second position in which the battery powered portable device is configured to receive a battery pack.

The above paragraphs are part of the specification.

The invention has been described with reference to the preferred embodiments. Of course, modifications and alterations will occur to others upon reading and understanding the preceding description. It is intended that the invention be construed as including all such modifications and alterations insofar as they come within the scope of the appended claims and the equivalents thereof.
What is claimed is:

1. A lighting appliance 100, comprising:
   a battery powered portable light device 102, including
   at least one light source;
   a body 202 with a first region; and
   a user interface 114 with a second region, wherein the user interface is
   rotatably affixed to the body, and the user interface is configured to rotate with
   respect to the body between a first position in which the first and second regions
   align to form an extended region and at least one other position in which the first
   and second regions do not align.

2. The lighting appliance of claim 1, wherein the first and second regions are
   generally flatted shaped and the body is generally non-flatted shaped and, and the first and
   second regions align to form an extended flatted region.

3. The lighting appliance of claim 1, further including a battery charger, including:
   a light device receiving region; and
   a third region in the light device receiving region, wherein the third region is
   configured to receive the extended region formed when the first and second regions are
   aligned.

4. The lighting appliance of claim 3, wherein the light device receiving region
   inhibits insertion of the battery powered portable light device when the first and second
   regions are not aligned to form the extended region.

5. The lighting appliance of any one of claims 1-4, wherein the first position turns the
   at least one light source off.

6. The lighting appliance of any one of claims 1-4, wherein the at least one other
   position turns the at least one light source on.
7. The lighting appliance of any one of claims 1-4, wherein the at least one other position includes two positions that respectively operate the at least one light source at different light intensities.

8. The lighting appliance of any one of claims 1-4, wherein the user interface rotates to a third position, wherein a lesser number of the at least one light sources is illuminated when the user interface is in the second position relative to the third position.

9. The lighting appliance of any one of claims 1-4, wherein the user interface includes a rotary switch.

10. The lighting appliance of any one of claims 1-4, further including a light device holder interface for removably affixing the battery powered portable light device to a light device holder mounted to a surface.

11. The lighting appliance of any one of claims 1-4, further including at least one electrical contact for receiving a charging current used to charge a rechargeable battery in the battery powered portable light device.

12. The lighting appliance of claim 11, wherein the at least one electrical contact extends from inside of the body to outside of the body through the first region of the body.

13. The lighting appliance of claim 1, further including a battery receiving region, including:

   a first electrical contact that receives a terminal of a battery inserted into the battery receiving region; and

   a moveable contact block disposed at an opposing end of the battery receiving region, wherein the moveable contact block is configured to transition between a first position in which at least one electrically conductive contact faces the first electrical contact and a second position in which the at least one electrically conductive contact faces a direction that is perpendicular to the first electrical contact.
14. The lighting appliance of any one of claims 1-4 and 13, further including a partially reflective funnel-form that directs light emitted by the at least one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

15. The lighting appliance of any one of claims 1-4 and 13, wherein the lighting appliance is a wall sconce light and the at least one light source provides general room lighting.

16. A battery powered portable light device 102, comprising:
   at least one light source 108; and
   a battery receiving region 112 that receives a battery that powers the at least one light source, the battery receiving region including:
       a first electrical contact that receives a terminal of a battery inserted into the battery receiving region; and
       a contact block 502 disposed to opposing end of the battery receiving region, the contact block including:
           a first side with at least one electrically conductive contact; and
           a second side, wherein the contact block is configured to transition between a first position in which the first side faces the first electrical contact for receiving an individual battery therebetween, and a second position in which the second side faces the first electrical contact for receiving a battery pack therebetween.

17. The battery powered portable light device of claim 16, wherein the contact block is pivotably coupled to the opposing end of the battery receiving region and pivots between the first and second positions.

18. The battery powered portable light device of claim 16, wherein the contact block slides between the first and second positions.
19. The battery powered portable light device of claim 16, wherein the contact block includes at least one spring that urges the at least one electrically conductive contact of the first side of the contact block towards the first electrical contact.

20. The battery powered portable light device of claim 16, wherein the second side is electrically insulated.

21. The battery powered portable light device of claim 16, wherein the first electrical contact is spring biased, thereby holding the individual battery or the battery pack in the battery receiving region under compression.

22. The battery powered portable light device of any one of claims 16-21, further including:
   a cylindrically shaped body with a first flatted region; and
   a cylindrically shaped user interface with a second flatted region, wherein the user interface is rotatably affixed to the body, and the cylindrically shaped user interface is configured to rotate with respect to the body between a first position in which the first and second flatted regions align to form an extended flatted region and at least one other position in which the first and second flatted regions do not align.

23. The battery powered portable light device of claim 22, further including a battery charger, including:
   a generally cylindrically shaped light device receiving region; and
   a third flatted region in the generally cylindrically shaped light device receiving region, wherein the third flatted region is configured to receive the extended flatted region formed when the first and second flatted regions are aligned and to inhibit insertion of the battery powered portable light device when the first and second flatted regions are not aligned.

24. The battery powered portable light device of any one of claims 16-21 and 23, further including a partially reflective funnel-form that directs light emitted by the at least
one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

25. The battery powered portable light device any one of claims 16-21 and 23, wherein the lighting appliance is a wall sconce light and the at least one light source provides general room lighting.

26. A battery powered portable light device 102, comprising:
   at least one light source 108; and
   a funnel-form 530 including:
   a first smaller end 532; and
   a second larger end 534, wherein the first smaller end is located proximal to the at least one light source and the second larger end is located distal, thereby reflecting light emitted by the at least one light source outwardly and downwardly away from the battery powered light device along a periphery about the battery powered light device.

27. The battery powered portable light device of claim 26, wherein the funnel-form is partially translucent, thereby allowing light emitted by the at least one light source to traverse the funnel-form outwardly away from the battery powered light device.

28. The battery powered portable light device of claim 26, wherein the reflective funnel-form is hyperboloid shaped, the first smaller end includes a first diameter and the second larger end includes a second diameter, and the first diameter is relatively smaller than the second diameter.

29. The battery powered portable light device of any one of claims 26-28, further including:
   a pivotable contact block, wherein the pivotable contact block alternately pivots between a first position in which at least one electrically conductive contact is configured to receive an individual battery and a second different position in which an electrically insulated side is configured to receive a battery pack; and
a rotatable user interface, wherein the rotatable user interface rotates between a first position in which the battery powered portable light device is configured for insertion into a base charging unit and a second different position in which the at least one light source is operated.

30. A method, comprising:

- providing a battery powered portable light device 102 having a user interface 114;
- aligning a first region 220 of the user interface 114 with a second region 210 of the battery powered portable light device, by rotating the user interface 114 with respect to the second region 210 of the battery powered portable light device, to form an extended region; and
- rotating the user interface 114, with respect to the second region to a different position to un-form the extended region.

31. The method of claim 30, further comprising receiving the extended region in a battery charger interface 130, 126 of a base unit 106.

32. The method of claim 31, further comprising providing a light device holder 104 operable to receive the battery powered portable light device 102.

33. The method of claim 32, further comprising mounting the light device holder 104 to a substantially vertical surface.

34. The method of claim 32 or 33, further comprising removing the battery powered portable light device 102 from a base unit 106 and inserting the battery powered portable light device 102 into the light device holder 104.

35. The method of claim 32 or 33, further comprising removing the battery powered portable light device 102 from the light device holder 104 and inserting the battery powered portable light device 102 into the base unit 106.
36. The method of claim 34, further comprising operating the portable battery powered light device 102 with the user interface 114.

37. The method of claim 36, wherein operating the portable battery powered light device 102 with the user interface 114 comprises rotating the user interface 114 to turn the portable battery powered light device on.

38. The method of claim 36, wherein operating the portable battery powered light device 102 with the user interface 114 comprises rotating the user interface 114 to turn the portable battery powered light device off.

39. The method of claim 34, further comprising operating the portable battery powered light device 102 via a wireless interface.

40. The method of claim 35, further comprising charging batteries of the portable battery powered light device.

41. The method of claim 40, comprising replacing the batteries prior to charging the batteries.

42. The method of claim 30, further comprising rotating the user interface 114 with respect to the second region 210 to un-form the extended region, wherein the battery powered portable light device is inhibited from being inserted in a battery charger interface when the first and second regions are not aligned.

43. A method, comprising:
   providing a battery powered portable light device;
   providing a base unit operable to recharge batteries of the light device;
   inserting the light device into the base unit;
   providing a light device holder operable to receive the light device; and
   inserting the light device into the light device holder.
44. The method of claim 43, further comprising mounting the light device holder to a substantially vertical surface.

45. The method of claim 43, further comprising removing the light device from the base unit prior to inserting the light device into the light device holder.

46. The method of claim 43, further comprising removing the light device from the light device holder prior to inserting the light device into the base unit.

47. The method of any one of claims 43-46, further comprising operating the light device with a user interface.

48. The method of any one of claims 43-47, further comprising operating the light device with a wireless interface.

49. The method of any one of claims 43-47, further comprising charging batteries of the light device.

50. The method of claim 49, comprising replacing the batteries prior to charging the batteries.

51. The method of any one of claims 43-50, further comprising:
   moving a contact block of a battery receiving region of the light device to a first position in which the battery powered portable device is configured to receive at least one individual battery; and
   alternately moving the contact block to a second position in which the battery powered portable device is configured to receive a battery pack.

52. A lighting appliance 100 comprising:
   a portable light device 102 comprising one or more light sources 108 and a battery receiving region 112; and
a light device holder 104 having a light device receiving region 120 for receiving the light device 102.

53. The appliance of claim 52, wherein the battery receiving region 112 receives one or more of rechargeable batteries, non-rechargeable batteries, and/or a battery pack.

54. The appliance of claims 52 or 53, wherein the light device 102 includes a user interface for operating the one or more light sources 108.

55. The appliance of claims 52 or 53, wherein the light device 102 includes a wireless interface for operating the one or more light sources 108.

56. The appliance of any one of claims 52-55, wherein the light device 102 includes a diffuser 110.

57. The appliance of any one of claims 52-56, wherein the light device holder 104 includes one or more light diffusers 122.

58. The appliance of any one of claims 52-57, further comprising a base unit 106 that receives the light device 102.

59. The appliance of claim 58, wherein the base unit 106 charges the light device 102.

60. The appliance of any one of claims 52-59, wherein a user interface 114 of the light device 102 is configured to prevent receiving of the light device 102 by the base unit 106.

61. The appliance of claim 58, wherein a user interface 114 is rotated to a first position to turn off the one or more light sources 108 and to prevent receiving of the light device 102 by the base unit 106.
62. The appliance of any one of claims 52-61, wherein the battery receiving region 112 comprises a contact block 502 adjustable to a first position to receive batteries and a second position to receive a rechargeable battery pack.

63. The appliance of claim 62, wherein the battery receiving region 112 further comprises a battery pack connector receptacle 520 to connect the rechargeable battery pack.
Fig. 1