

Worklight with USB charger

Field of the Invention

The present invention relates to lamps, and specifically to a portable lamp
5 equipped with charging and discharging function.

Description of the Related Art

Nowadays, there are an overwhelming variety of lighting products in the
market; however, most of lighting products only have a single and simple
10 function. Ordinary lamps are connected to an external power supply via a
power cord; however, in an environment where no external power supply is
available, such lamps cannot be normally used, which brings inconvenience to
customers. Also, customer's digital products (e.g. mobile phone, ipad, MP3,
MP4, digital camera and the like) all have to be charged. Therefore, what needs
15 to be designed is a portable lamp that can be autonomously powered and can
charge digital products.

Summary of the Invention

With respect to the defect of the prior art that the lamp cannot work in an
20 environment where no external power supply is available and cannot charge the
digital product, the present invention provides a portable lamp equipped with
charging and discharging function.

The present invention solves above technical problem by means of the

following technical solutions:

A portable lamp equipped with charging and discharging function, comprising a lamp body; the lamp body is accommodated with a storage battery, a light source board and an electronic circuit board that is used for adjusting
5 voltages; the storage battery provides power for the light source board within the lamp body; outer surface of the lamp body is mounted with a discharging port and a charging port that is used to connect a 5V adapter; the 5V adapter provides power for the storage battery via the charging port; the discharging port is connected to the digital product and supplies electrical energy to the
10 digital product; the charging port and the discharging port are both connected to the storage battery via the electronic circuit board. By mounting the storage battery on the lamp body, the lamp is able to work normally in an environment where no external power supply is available, and meanwhile is able to charge the digital product (e.g. mobile phone, ipad, MP3, MP4, digital camera and the
15 like); also, the lamp has a simple and rational structure, and brings convenience to customers.

Preferably, the charging port and the discharging port are both mounted on a bottom face of the lamp body; the lamp body is mounted with a protective cover; the protective cover is located at the outside of the charging port and
20 outside of the discharging port. With the charging port and the discharging port being both mounted on the bottom face of the lamp body, the lamp body will have a more elegant appearance; also, the protective cover can prevent dust and

water from entering the charging port and the discharging port, thus preventing short circuit from happening.

Preferably, the lamp body is mounted with a fixation bracket; the fixation bracket includes a bottom plate and two junction plates connected with the
5 bottom plate; these two junction plates are respectively mounted on each end of the bottom plate and are perpendicular to the bottom plate; the junction plates are mounted on lateral surfaces of the lamp body via bolts, and the bottom plate is deposited below the lamp body.

Preferably, the bottom plate is mounted with a supporting foot; and the
10 supporting foot is provided with a slide-proof pipe sleeve. The provision of the slide-proof pipe sleeve increases its friction force with the ground, and the present invention is thus more stable when in use, thus effectively preventing side slipping from happening.

Preferably, a bottom face of the lamp body is mounted with a button for
15 controlling the operations of the light source board within the lamp body. With the button, the light source board can be turned off when illumination is not needed, thus saving the energy resource.

Preferably, the lamp body is mounted with a handle, and the handle is secured at the upper part of the lamp body via a bolt. The mounting manner of
20 the handle makes the user be able to conveniently move the present invention that has a rational structure and is easy to be operated.

Since above technical solutions are employed, the present invention has

the following technical effects: by mounting the storage battery on the lamp body, the lamp is able to work normally in an environment where no external power supply is available, and meanwhile is able to charge the digital product (e.g. mobile phone, ipad, MP3, MP4, digital camera and the like); also, the
5 lamp has a simple and rational structure, and brings convenience to customers.

Brief Description of the Drawings

Figure 1 is a structural schematic diagram of the present invention.

Figure 2 is a structural schematic diagram of the present invention after
10 the angle of the lamp body has been adjusted.

Figure 3 is a functional block diagram of the present invention.

Description of the reference numbers in the Figures: 1 - lamp body; 2 - storage battery; 3 - charging port; 4 - discharging port; 5 - fixation bracket; 6 - bolt; 7 - supporting foot; 8 - button; 9 - handle; 10 - electronic circuit board; 11
15 - protective cover; 51 - bottom plate; 52 - junction plate; 71 - slide-proof pipe sleeve.

Detailed Description of the Preferred Embodiments

In the following, the present invention is further described in connection
20 of the figures and embodiments.

Embodiment 1

As shown in the figures, a portable lamp equipped with charging and discharging function comprises a lamp body 1. The lamp body 1 is

accommodated with a storage battery 2, a light source board and an electronic circuit board 10 that is used for adjusting voltages. The storage battery 2 provides power for the light source board within the lamp body 1. Outer surface of the lamp body 1 is mounted with a discharging port 4 and a charging port 3 that is used to connect a 5V adapter. The 5V adapter provides power for the storage battery via the charging port 3; and the discharging port 4 is connected to the digital product and supplies electrical energy to the digital product. The charging port 3 and the discharging port 4 are both connected to the storage battery 2 via the electronic circuit board 10. When the storage battery 2 is being charged, the electronic circuit board 10 converts the voltage of the 5V adapter into a voltage that is suitable for charging the storage battery; and via its internal step-down module and storage battery charging management module, the electronic circuit board 10 can automatically adjust the voltage and current so as to be suitable for the charging of the storage battery 2 according to the remaining electricity of the storage battery 2, thus achieving the goal of protecting the storage battery 2. When the storage battery 2 is discharging energy to the outside, the electronic circuit board 10, via its internal step-up module, converts the voltage of the storage battery 2 into a voltage of 5V for charging the digital product. When illumination is required, the storage battery 2 provides power to the portable lamp. The digital product is connected to the discharging port 4 via a data cable, so that the storage battery 2 can provide power to the digital product. The charging port 3 and the

discharging port 4 are both mounted on a bottom face of the lamp body 1. The lamp body 1 is mounted with a protective cover 11. The protective cover 11 is a around cover. The protective cover 11 is located at the outside of the charging port 3 and outside of the discharging port 4. When the charging port 3 and the discharging port 4 are not in usage, the protective cover 11 is put outside the charging port 3 and the discharging port 4 for protecting them, which can prevent dust and water from entering the charging port 3 and the discharging port 4, thus preventing short circuit from happening. The lamp body 1 is mounted with a fixation bracket 5. The fixation bracket 5 includes a bottom plate 51 and two junction plates 52 connected with the bottom plate 51; and these two junction plates 52 are respectively mounted on each end of the bottom plate 51 and are perpendicular to the bottom plate 51. The junction plates 52 are mounted on lateral surfaces of the lamp body 1 via bolts 6, and the bottom plate 51 is deposited below the lamp body 1. The bolt 6 is provided with a rotary sleeve; the rotary sleeve can be manually rotated so as to loosen the bolt 6, thus adjusting the angle of the lamp body 1; and when the lamp body 1 has a suitable angle, the bolt 6 can be screwed and fastened again. The bottom plate 51 is mounted with supporting feet 7, and there are two supporting foot 7 that are respectively mounted on each end of the bottom plate 51. The supporting foot 7 is provided with a slide-proof pipe sleeve 71. The slide-proof pipe sleeve 71 is provided with multiple raised stripes for increases its friction force with the ground, and the slide-proof pipe sleeve 71 prevents side slipping

between the portable lamp and the ground. A bottom face of the lamp body 1 is mounted with a button 8 for controlling the operations of the light source board within the lamp body 1. When the portable lamp has no need to illuminate, connection between the light source board and the storage battery within the lamp body 1 can be disconnected via the button 8, thus saving the energy resource. The lamp body 1 is mounted with a handle 9, and the handle 9 is secured at the upper part of the lamp body 1 via a bolt.

In summary, above descriptions are only some preferred embodiments of the present invention, and equivalent alternatives and modifications that are made according to the principle of the present invention application all fall into the scope of the present invention.

CLAIMS

1. A portable lamp equipped with charging and discharging function, comprising: a lamp body (1), characterized in that: the lamp body (1) is
5 accommodated with a storage battery (2), a light source board and an electronic circuit board (10) that is used for adjusting voltages; the storage battery (2) provides power for the light source board within the lamp body (1); outer surface of the lamp body (1) is mounted with a discharging port (4) and a charging port (3) that is used to connect a 5V
10 adapter; the 5V adapter provides power for the storage battery via the charging port (3); the discharging port (4) is connected to the digital product and supplies electrical energy to the digital product; the charging port (3) and the discharging port (4) are both connected to the storage battery (2) via the electronic circuit board (10).

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2. The portable lamp equipped with charging and discharging function according to claim 1, characterized in that: the charging port (3) and the discharging port (4) are both mounted on a bottom face of the lamp body (1); the lamp body (1) is mounted with a protective cover (11); the
20 protective cover (11) is located at the outside of the charging port (3) and outside of the discharging port (4).

3. The portable lamp equipped with charging and discharging function according to claim 1, characterized in that: the lamp body (1) is mounted with a fixation bracket (5); the fixation bracket (5) includes a bottom plate (51) and two junction plates (52) connected with the bottom plate (51); these two junction plates (52) are respectively mounted on each end of the bottom plate (51) and are perpendicular to the bottom plate (51); the junction plates (52) are mounted on lateral surfaces of the lamp body (1) via bolts (6), and the bottom plate (51) is deposited below the lamp body (1).

4. The portable lamp equipped with charging and discharging function according to claim 3, characterized in that: the bottom plate (51) is mounted with a supporting foot (7); the supporting foot (7) is provided with a slide-proof pipe sleeve (71).

5. The portable lamp equipped with charging and discharging function according to claim 1, characterized in that: a bottom face of the lamp body (1) is mounted with a button (8) for controlling the operations of the light source board within the lamp body (1).

6. The portable lamp equipped with charging and discharging function according to claim 1, characterized in that: the lamp body (1) is mounted with a handle (9), and the handle (9) is secured at the upper part of the lamp body (1) via a bolt.