



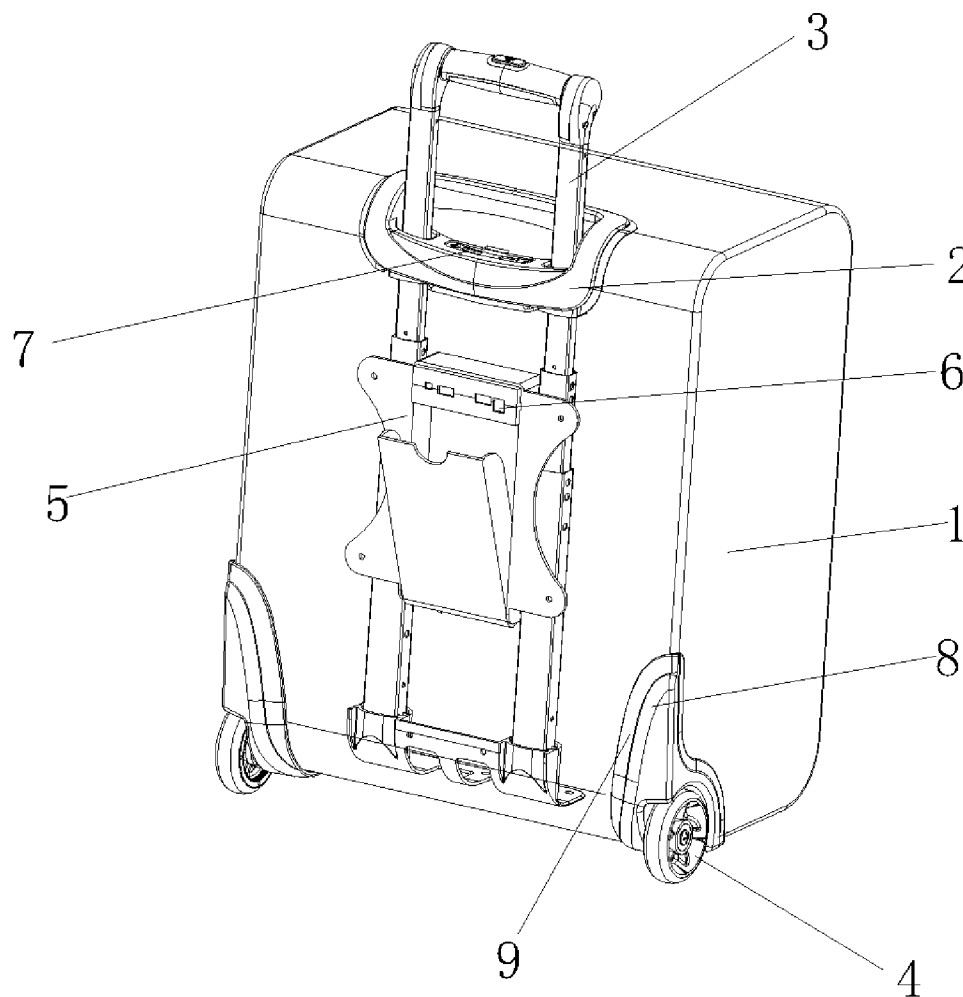
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(19) **United States**(12) **Patent Application Publication**
LU(10) **Pub. No.: US 2012/0152677 A1**(43) **Pub. Date: Jun. 21, 2012**(54) **LUGGAGE CASE WITH A POWER DEVICE**(52) **U.S. Cl. 190/18 A**(75) **Inventor: Huibao LU, SHENZHEN CITY (CN)**(73) **Assignee: TALENTECH PLASTIC (SHENZHEN) LIMITED, SHENZHEN CITY (CN)**(21) **Appl. No.: 13/039,253**(22) **Filed: Mar. 2, 2011**(30) **Foreign Application Priority Data**

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Publication Classification(51) **Int. Cl. A45C 5/14 (2006.01)**(57) **ABSTRACT**

The present invention relates to the field of luggage case products, more concretely, relates to a luggage case with a power device. This luggage case with a power device includes case body, fixing frames, pull rods and wheels, the pull rods are fixed in the rear part of the case body by the fixing frames, and the wheels are fixed at the bottom of the case body, which is characterized in that, at least one of the wheels has a current generator, the current generator connects with the battery, and the battery outputs to electrical equipment. The present invention generates power naturally during the moving, without additional acting or a long-time sunshine, its use is more convenient, and its application is more extensive, can store the generated power in the battery in reserve, it can not only charge the electronic devices at any time, but also has stable current output and little damage to electronic products.



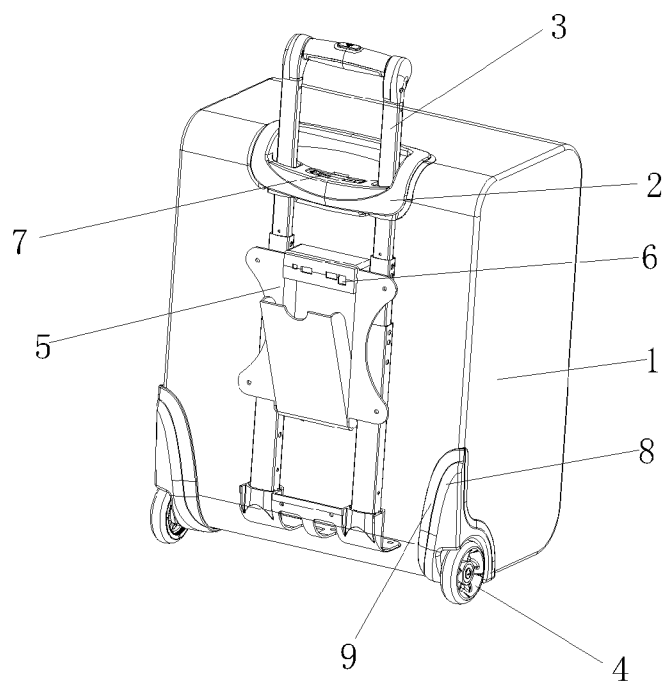


FIG.1

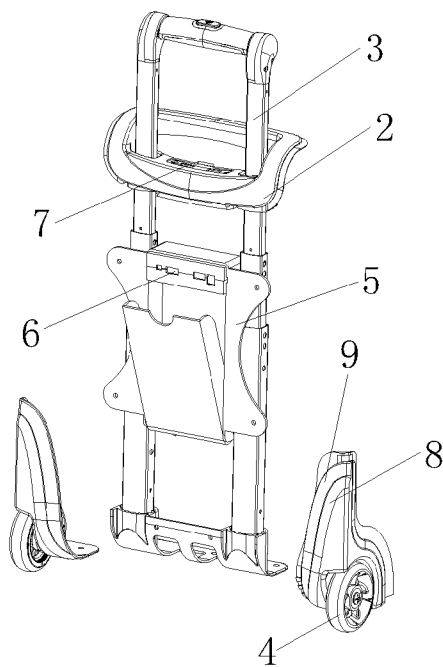


FIG.2

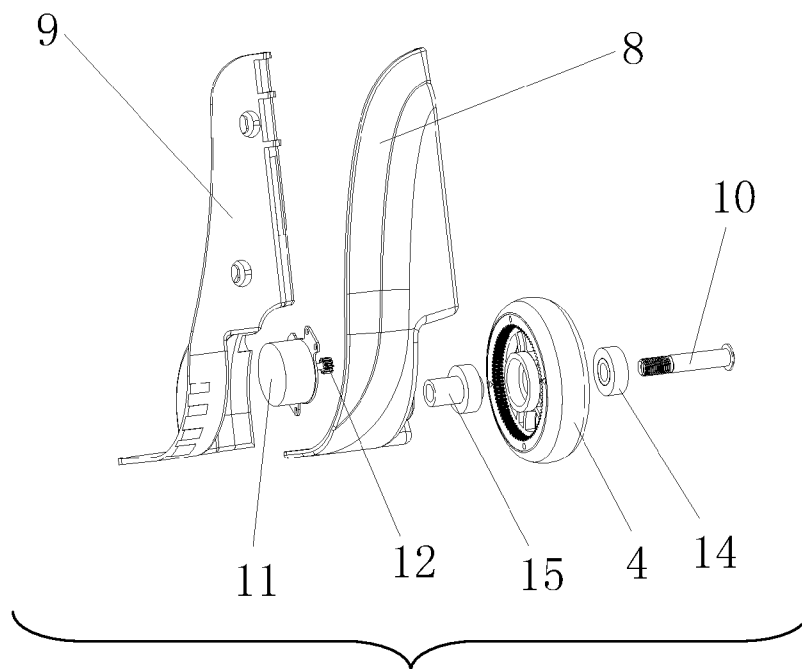


FIG.3

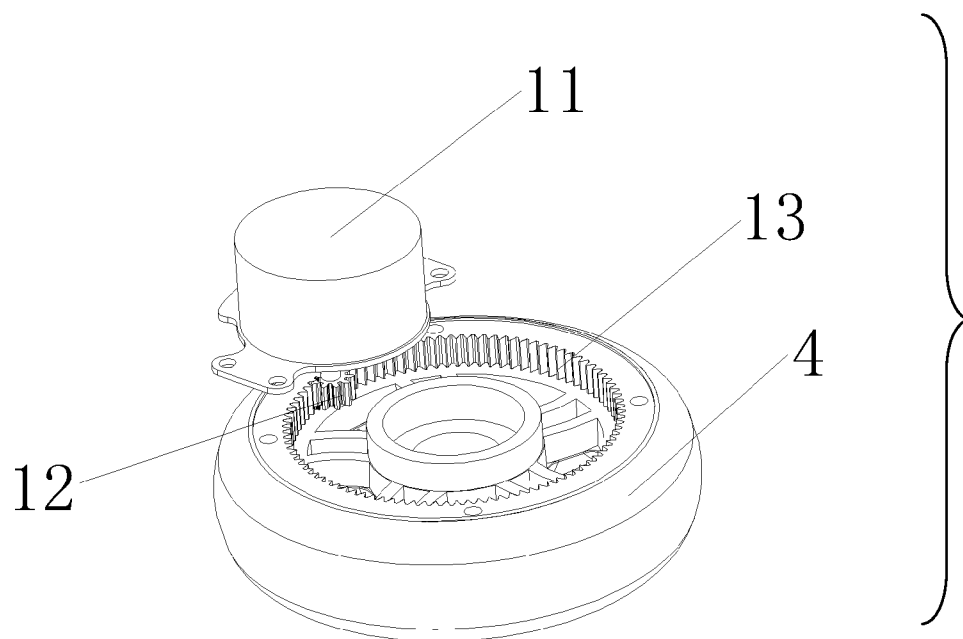


FIG.4

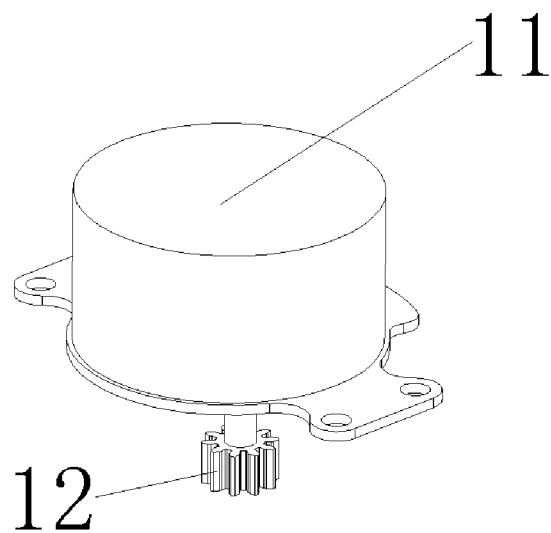


FIG.5

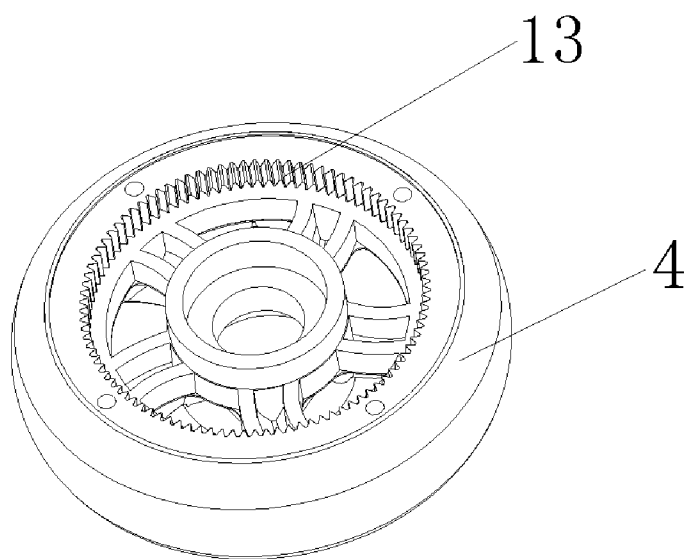


FIG.6

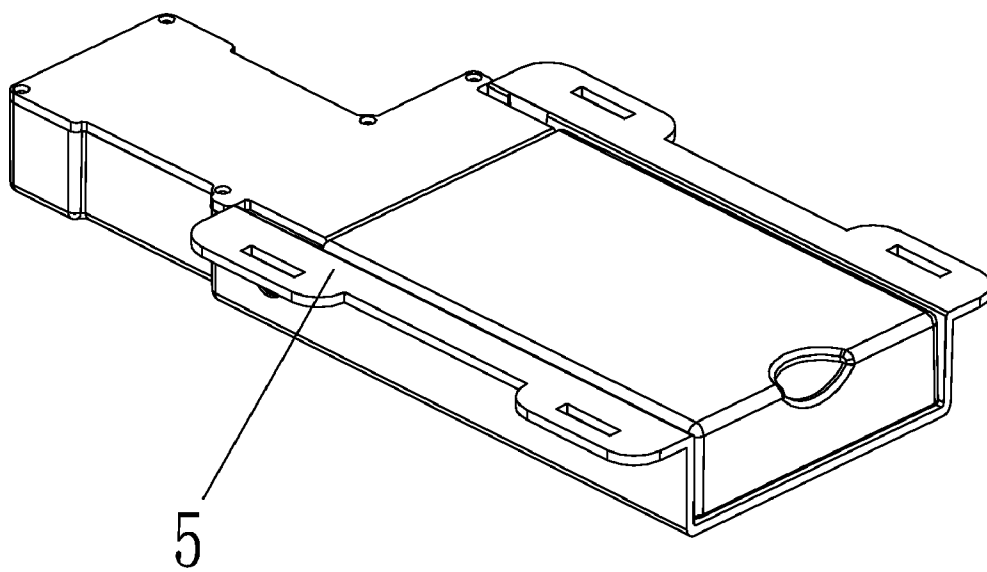


FIG. 7

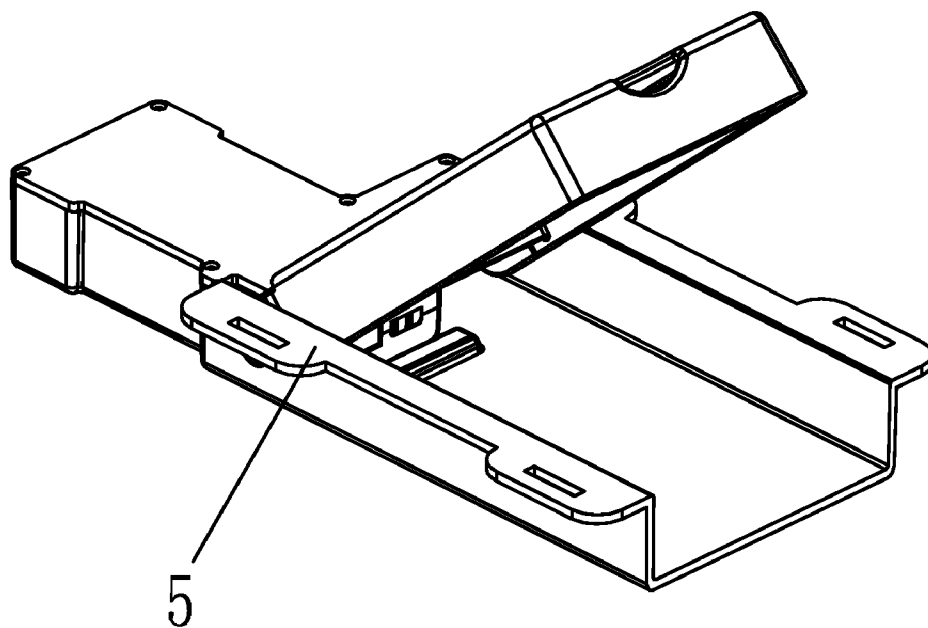


FIG. 8

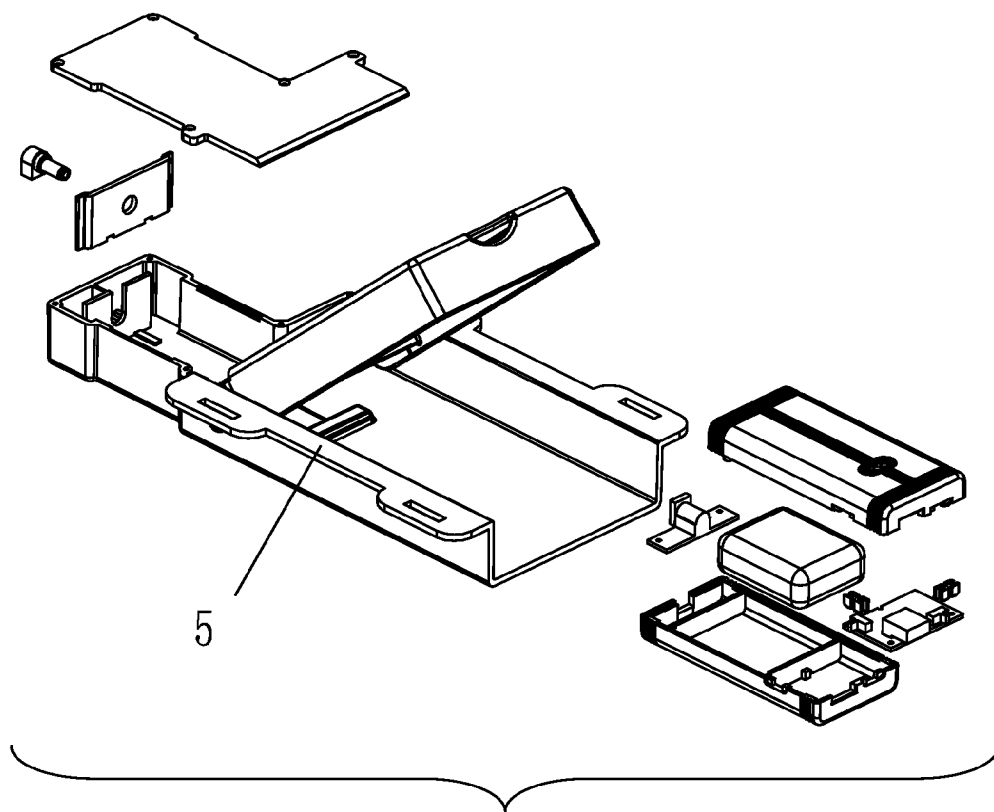


FIG.9

LUGGAGE CASE WITH A POWER DEVICE

BACKGROUND OF THE INVENTION

[0001] The present invention relates to the field of luggage case products, more concretely, relates to a luggage case with a power device.

[0002] With the development of the wireless communications and information processing technology, the use of various portable electronic devices such as mobile phone, PDA (Personal Digital Assistant), MP3, radio and so on has become more and more common. The power for the use of portable electronic devices are generally provided by the battery, but after a period of use, the battery will run out, and you have to charge the battery. At present, the charging of the battery of portable electronic devices generally need to be carried out with a fixed power supply, this brings great inconvenience to the use of portable electronic devices during long-time field work or travel. In order to facilitate the people who go out emergency charging, there are charging machines usually placed in the airport, railway and bus stations and the like, or there are charging devices set in the locomotive cab, however, this kind of devices are still relatively fixed, the problem of charging for the people who go out is still not completely solved.

[0003] In response to the idea of green, the solar charger that convert solar energy into electricity has been developed, but this kind of charger exists some drawbacks, for example, the conversion efficiency is low, the charge speed is slow, and its function is almost lost if encountered a long time of rainy weather. Meanwhile, manually power charger also has been designed, which charge small electronic products with the power generated by manual compression of the device, the defects of this kind of product are that: users need to press the charger for a long time to provide the electronic products adequate electricity supply, the long-time and monotonous pressing action is not only laborious but also tedious, more defects of this product are that, the instability of press speed and intensity will lead to unstable output current, and the electronic equipment is easy to damaged, so the practical application of the product is relatively small.

BRIEF SUMMARY OF THE INVENTION

[0004] To solve the problem of the urgent need for charging the small electronic products when people go out effectively, the present present invention provides a luggage case with a power device, which can generate power during the wheel rolling, the power can be stored in the battery in the luggage case in reserve, therefore it greatly facilitates people to go out.

[0005] To achieve this purpose, the embodiment that the present invention takes includes: a luggage case with a power device, which includes case body, fixing frames, pull rods and wheels, the pull rods are fixed in the rear part of the case body by the fixing frames, and the wheels are fixed at the bottom of the case body, which is characterized in that, at least one of the wheels has a current generator, the current generator connects with the battery, and the battery outputs to electrical equipment.

[0006] The embodiment to achieve the purpose of the present invention further includes: the current generator includes wheels and motor, the wheels have gears inside the circle, and the outer ends of the motor shaft have gears correspondingly.

[0007] The wheels are fixed on the outer frame of the wheels by the wheel shafts, outer bearings and inner bearings, the motor is fixed in the gap between the outer frame and the inner frame of the wheel, the gears of the outer end of the shaft are engaged with the gears on the wheel through the outer frame of wheel.

[0008] The embodiment to achieve the purpose of the present invention further includes: the battery is installed in the battery box.

[0009] The battery box has a structure of rectangular box, whose rear part has a flip lid and has outstanding wings, the outstanding wings have thread-holes to fix it in the gap between the two pull rods.

[0010] The power output is set at the outer surface of the fixing frame.

[0011] The advantages of the present invention with above structure are in:

[0012] 1. The present invention generates power naturally during the moving, without additional acting or a long-time sunshine, its use is more convenient, and its application is more extensive.

[0013] 2. The present invention can store the generated power in the battery in reserve, it can not only charge the electronic devices at any time, but also has stable current output and little damage to electronic products.

[0014] 3. The present invention has a reasonable designed structure, and can be achieved without huge change to the existing products, it doesn't take the space of the existing case body, and has good practical effect, energy saving and environment protecting.

[0015] 4. The wheels of the present invention are removable, it can facilitates cleaning the rubbish and foreign in the gear and replacing the parts.

[0016] 5. The present invention generates power using the edge of the gear rather than the shaft of the gear, which greatly improved the efficiency of rotation and increased the power conversion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1 is the overall structural diagram of the present invention.

[0018] FIG. 2 is the partial structural diagram of the present invention.

[0019] FIG. 3 is the exploded view of the wheel and the current generator of the present invention.

[0020] FIG. 4 is the structural diagram of the wheel combined with the motor of the present invention.

[0021] FIG. 5 is the structural diagram of the motor of the present invention.

[0022] FIG. 6 is the structural diagram of the wheel of the present invention.

[0023] FIG. 7 is the structural diagram I of the battery box of the present invention.

[0024] FIG. 8 is the structural diagram II of the battery box of the present invention.

[0025] FIG. 9 is the structural diagram III of the battery box of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0026] Thereafter the present invention will be described in detail combining the drawings and examples.

[0027] Shown as FIGS. 1 and 2, the present invention includes case body 1, fixing frames 2, pull rods 3 and wheels

4, the pull rods 3 are fixed in the rear part of the case body 1 by the fixing frames 2, and the wheels 4 are fixed at the two sides of the bottom of the case body 1. At least one of the wheels 4 has a current generator, the current generator connects with the battery.

[0028] The current generator includes wheels 4 and motor 11, the wheels 4 have gears 13 inside the circle, the wheels 4 are fixed on the outer frame 8 of the wheels by the wheel shafts 10, outer bearings 14 and inner bearings 15, as shown in FIG. 3. The motor 11 is fixed in the gap between the outer frame 8 and the inner frame 9 of the wheel, the shaft goes through the outer frame 8 of the wheel, the outer end of the shaft has gears 12, the gears 12 are engaged with the gears 13 on the wheel 4, as shown in FIGS. 4, 5 and 6. The above-mentioned current generator is connected with the steel sheet in the case body 1 using screw, meanwhile, the motor 11 is connected with battery through the wires (not shown in figures).

[0029] The battery is installed in the battery box 5, the battery box 5 has a structure of rectangular box, whose rear part has a flip lid and has outstanding wings, the outstanding wings have thread-holes to fix it in the gap between the two pull rods 3, as shown in FIGS. 1 and 7. After the flip lid opens, the cavity of the battery box is exposed, which is used to store the battery inside. This structural design allows the battery of the present invention can easily be stored, without huge structural change to the existing products or increase of other devices, it has beautiful appearance and reasonable structural design. The battery can store the current generated by the current generator inside, and output to the power output through the wires. The power output can be set at the outer surface of the battery box 5 or/and the outer surface of the fixing frame 2 according to the requirements. The power output 6 or 7 includes various of power outputs such as USB type, pin type that match to common outdoor electronic products such as mobile phones, MP3, batteries, notebook computers and so on.

[0030] The above-mentioned examples are the better implementation of the structure to achieve the purpose of the present invention for applicant, but it does not limited to the structure. Any modification, change or/and replacement to the structure of the present invention within the scope of the claims should be considered within the scope of the present invention.

What is claimed is:

1. A luggage case with a power device, which includes case body, fixing frames, pull rods and wheels, the pull rods are fixed in the rear part of the case body by the fixing frames, and the wheels are fixed at the bottom of the case body, which is characterized in that, at least one of the wheels (4) has a current generator, the current generator connects with the battery, and the battery outputs to electrical equipment.

2. The luggage case with a power device according to claim 1, which is characterized in that, the current generator includes wheels (4) and motor (11), the wheels (4) have gears (13) inside the circle, and the outer ends of the motor (11) shaft have gears (12) correspondingly.

3. The luggage case with a power device according to claim 1 or 2, which is characterized in that, the wheels (4) are fixed at the bottom of the outer frame (8) of the wheels by the wheel shafts (10), outer bearings (14) and inner bearings (15), the motor (11) is fixed in the gap between the outer frame (8) and the inner frame (9) of the wheel, the gears (12) of the outer end of the shaft are engaged with the gears (13) on the wheel (4) through the outer frame (8) of wheel.

4. The luggage case with a power device according to claim 1, which is characterized in that, the battery is installed in the battery box (5).

5. The luggage case with a power device according to claim 4, which is characterized in that, the battery box (5) has a structure of rectangular box, whose rear part has a flip lid and has outstanding wings, the outstanding wings have thread-holes to fix it in the gap between the two pull rods (3).

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