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(54) **A ROTARY PEN LAMP WITH A PICKER**

(57) The invention discloses a rotary pen lamp with a picker, comprising a picker shell with hollow structure, and the picker shell is internally provided with a telescopic rod, and the bottom of the telescopic rod is provided with a cap shell, and the cap shell is internally provided with a first magnet; the top of the picker shell is provided with a rotary base, and the arc surface of the rotary base is provided with a slot, and the rotary base is internally provided with a ball sleeve, and the ball sleeve is connected with a screw cap through a screw and a nut, and the screw is sleeved with a spring; the screw cap is connected with a battery tank housing, and a boost circuit board is arranged at the bottom of the battery tank housing, and a battery cover and a switch button are arranged at the top of the battery tank housing; the outer side of the battery tank housing is provided with a COB lamp, which is electrically connected with the battery, and the two ends of the COB lamp are respectively provided with a reflecting bowl, and the outer side of the COB lamp is provided with a transparent panel corresponding to the COB lamp. The beneficial effects of the present invention are as follows: by setting a telescopic rod and a rotary base with a slot, and setting a ball sleeve and a spring component in the rotary base, the 360 degree rotation and telescoping of the pen lamp can be effectively realized, and the pen lamp can work flexibly in a narrow space and pick up smaller parts.

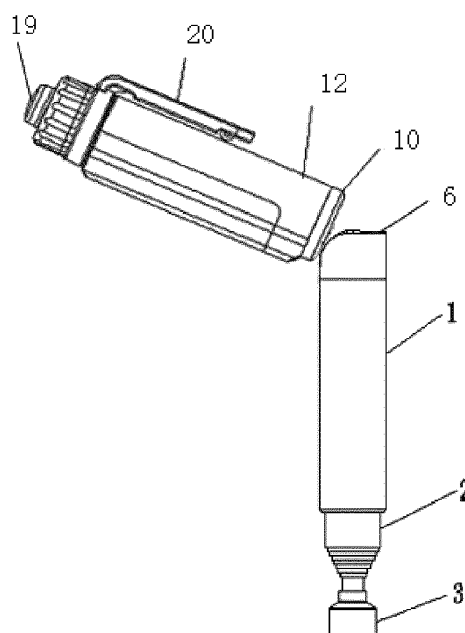


Figure 1

Description

TECHNICAL FIELD

[0001] The present invention relates to the technical field of magnetic picker, and in particular to a rotary pen lamp with a picker.

BACKGROUND

[0002] Magnetic picker is a tool for picking up small magnetic parts, which is widely used in the maintenance of automobiles, machines and radio. This is mainly due to the disassembly of parts in the maintenance process are mostly small magnetic parts with small size, which are difficult to use. If dropped carelessly, it will be difficult to find, so the magnetic picker is needed to facilitate the pickup of small magnetic parts. However, most of the existing magnetic pickers in the market are simple in structure and do not have telescopic function, while a few of the pickers with telescopic function can not rotate their telescopic rods, which is particularly laborious in picking up smaller parts in narrow space.

[0003] . The patent CN201410608425 discloses a rotatable pen lamp, which realizes the telescopic function and rotation function of the magnetic viewer. However, its second telescopic rod can only rotate in the plane where the handle is located, and can not achieve 360 degree rotation. It is inconvenient to operate when picking up smaller parts in narrow space.

[0004] At present, no effective solution has been put forward for the problems in related art.

SUMMARY

[0005] In view of the above technical problems in the related art, the present invention provides a rotary pen lamp with a picker, which can overcome the above-mentioned deficiencies of the prior art.

[0006] To achieve the above technical purpose, the technical solution of the present invention is implemented as follows:

[0007] A rotary pen lamp with a picker, comprising a picker shell with hollow structure, and the picker shell is internally provided with a telescopic rod, and the bottom of the telescopic rod is provided with a cap shell, and the cap shell is internally provided with a first magnet; the top of the picker shell is provided with a rotary base, and the arc surface of the rotary base is provided with a slot, and the rotary base is internally provided with a ball sleeve, and the ball sleeve is connected with a screw cap through a screw and a nut, and the screw is sleeved with a spring; the screw cap is connected with a battery tank housing, and a battery is arranged inside the battery tank housing, and a boost circuit board is arranged at the bottom of the battery tank housing, and a battery cover and a switch button are arranged at the top of the battery tank housing; the outer side of the battery tank housing is pro-

vided with a COB (Chip On Board) lamp, which is electrically connected with the battery, and the two ends of the COB lamp are respectively provided with a reflecting bowl, and the outer side of the COB lamp is provided with a transparent panel corresponding to the COB lamp.

[0008] Further, the rotary base is connected with the picker shell by threads.

[0009] Further, the screw cap is connected with the battery tank housing by threads.

[0010] Further, the switch button is sleeved with a button sheath.

[0011] Further, a pen clip is arranged on the outer side of the battery tank housing.

[0012] Further, the inner side of the pen clip is provided with a second magnet.

[0013] Further, a tail plug is arranged at the top of the telescopic rod.

[0014] The beneficial effects of the present invention are as follows: by setting a rotary base with a slot, and setting a ball sleeve and a spring component in the rotary base, the 360 degree rotation of the pen lamp can be effectively realized, and the pen lamp can stay at any position when it rotates; by setting a telescopic rod, the pen lamp also has telescoping function and can work flexibly in a narrow space and pick up smaller parts.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] In order to illustrate more clearly the embodiments of the present invention or the technical solutions in the prior art, the drawings needed in the embodiments will be briefly introduced below. Obviously, the drawings described below are only some embodiments of the present invention, and for those skilled in the art, other drawings can also be obtained from these drawings without creative work.

FIG. 1 is a schematic diagram of the overall structure of the rotary pen lamp with a picker according to an embodiment of the present invention;

FIG. 2 is a schematic diagram of the structure of the rotary pen lamp with a picker according to an embodiment of the present invention;

FIG. 3 is a cross-sectional view of the rotary pen lamp with a picker according to an embodiment of the present invention;

FIG. 4 is a schematic diagram of the structure of the rotary base of the rotary pen lamp with a picker according to an embodiment of the present invention;

wherein:

[0016] 1 refers to a picker shell; 2 refers to a telescopic rod; 3 refers to a cap shell; 4 refers to a first magnet; 5 refers to a tail plug; 6 refers to a rotary base; 61 refers to a arc surface; 62 refers to a slot; 7 refers to a ball sleeve; and

8 refers to a screw; 9 refers to a nut; 10 refers to a screw cap; 11 refers to a spring; 12 refers to a battery tank housing; 13 refers to a boost circuit board; 14 refers to a battery cover; 15 refers to a switch button; 16 refers to a COB lamp; 17 refers to a reflecting bowl; 18 refers to a transparent panel; 19 refers to a button sheath; 20 refers to a pen clip; 21 refers to a second magnet; 22 refers to a battery.

DETAILED DESCRIPTION

[0016] The technical solutions in the embodiments of the present invention are described clearly and completely in the following with reference to the accompanying drawings in the embodiments of the present invention. It is obviously that the accompanying embodiments are only a part of the embodiments of the present invention and not all embodiments. Based on the embodiments of the present invention, all other embodiments acquired by ordinary technicians in the art belong to the scope of protection of the present invention.

[0017] In order to facilitate the understanding of the above-mentioned technical solution of the invention, the above-mentioned technical solution of the invention is described in detail in the following way of specific use.

[0018] Referring to FIG. 1-4, a rotary pen lamp with a picker according to an embodiment of the invention, comprising a picker shell 1 with hollow structure, and the picker shell 1 is internally provided with a telescopic rod 2, and the bottom of the telescopic rod 2 is connected with a cap shell 3, and the cap shell 3 is internally provided with a first magnet 4, and a tail plug 5 is arranged at the top of the telescopic rod 2, which allows the viewer to telescope freely to meet the needs of different pickup heights; the top of the picker shell 1 is connected with a rotary base 6 by threads, and the arc surface 61 of the rotary base 6 is provided with a slot 62, and the rotary base 6 is internally provided with a ball sleeve 7, and the ball sleeve 7 is connected with a screw cap 10 through a screw 8 and a nut 9, and the screw cap 10 is connected with the battery tank housing 12 by threads, and the screw 8 is sleeved with a spring 11, which enables the picker shell 1 of the rotary pen lamp and the battery tank housing 12 to rotate freely. The picker shell 1 can rotate along the slot 62 on the arc surface 61 of the rotary base 6 (as shown in FIG. 1), and can also rotate 360 degrees at a certain angle to the battery tank housing 12 with the screw 8 as the center. The picker shell 1 can also rotate with the battery groove housing 12 in a plane along the non-grooved area of the rotary base through matching of the spring 11 and the screw 8 (as shown in FIG. 2); a battery 22 is arranged inside the battery tank housing 12, and a boost circuit board 13 is arranged at the bottom of the battery tank housing 12, and a battery cover 14 and a switch button 15 are arranged at the top of the battery tank housing 12, and the switch button 15 is sleeved with a button sheath 19; the outer side of the battery tank housing 12 is provided with a COB lamp 16, which is

electrically connected with the battery 22, and the two ends of the COB lamp 16 are respectively provided with a reflecting bowl 17, and the outer side of the COB lamp 16 is provided with a transparent panel 18 corresponding to the COB lamp 16.

[0019] A pen clip 20 is arranged on the outer side of the battery tank housing 12, and the inner side of the pen clip 20 is provided with a second magnet (21).

[0020] The working principle is as follows: when not in use, the rotary pen lamp with a picker can be hung in a pocket or other position by the pen clip 20, or fixed on a magnetic object by the second magnet in the pen clip 20. In specific use, it can be removed directly, and when picking up small magnetic parts, the first magnet 4 installed in the cap shell 3 at the bottom of the telescopic rod 2 is directly used to contact the small magnetic parts. If the small magnetic parts are located in narrow space or in dark conditions, the COB lamp can be opened and the telescopic rod 2 can be pulled out from the picker shell 1 and the picker shell 1 can rotate through the rotary base until the first magnet 4 contacts the small magnetic parts to complete the action.

[0021] In summary, with the aid of the above technical solution of the invention, the 360 degree rotation of the pen lamp can be effectively realized by setting a rotary base with a slot, and setting a ball sleeve and a spring component in the rotary base, and the pen lamp can stay at any position when it rotates; by setting a telescopic rod, the pen lamp also has telescoping function and can work flexibly in a narrow space and pick up smaller parts.

[0022] The above example is only the preferred embodiment of the present invention, and is not intended to limit the present invention. Any modifications, equivalent substitutions, improvements, etc., which are included in the spirit and scope of the present invention, should be included in the present invention within the scope of protection.

Claims

1. A rotary pen lamp with a picker, comprising a picker shell (1) with hollow structure, **characterized in that** the picker shell (1) is internally provided with a telescopic rod (2), and the bottom of the telescopic rod (2) is provided with a cap shell (3), and the cap shell (3) is internally provided with a first magnet (4); the top of the picker shell (1) is provided with a rotary base (6), and the arc surface (61) of the rotary base (6) is provided with a slot (62), and the rotary base (6) is internally provided with a ball sleeve (7), and the ball sleeve (7) is connected with a screw cap (10) through a screw (8) and a nut (9), and the screw (8) is sleeved with a spring (11); the screw cap (10) is connected with a battery tank housing (12), and a battery (22) is arranged inside the battery tank housing (12), a boost circuit board (13) is arranged at the bottom of the battery tank housing (12), and a battery

cover (14) and a switch button (15) are arranged at the top of the battery tank housing (12); the outer side of the battery tank housing (12) is provided with a COB lamp (16), which is electrically connected with the battery (22), and the two ends of the COB lamp (16) are respectively provided with a reflecting bowl (17), and the outer side of the COB lamp (16) is provided with a transparent panel (18) corresponding to the COB lamp (16).

2. The rotary pen lamp with a picker according to claim 1, **characterized in that** the rotary base (6) is connected with the picker shell (1) by threads.
3. The rotary pen lamp with a picker according to claim 1, **characterized in that** the screw cap (10) is connected with the battery tank housing (12) by threads.
4. The rotary pen lamp with a picker according to claim 1, **characterized in that** the switch button (15) is sleeved with a button sheath (19).
5. The rotary pen lamp with a picker according to claim 1, **characterized in that** a pen clip (20) is arranged on the outer side of the battery tank housing (12).
6. The rotary pen lamp with a picker according to claim 5, **characterized in that** the inner side of the pen clip (20) is provided with a second magnet (21).
7. The rotary pen lamp with a picker according to claim 1, **characterized in that** a tail plug (5) is arranged at the top of the telescopic rod (2).

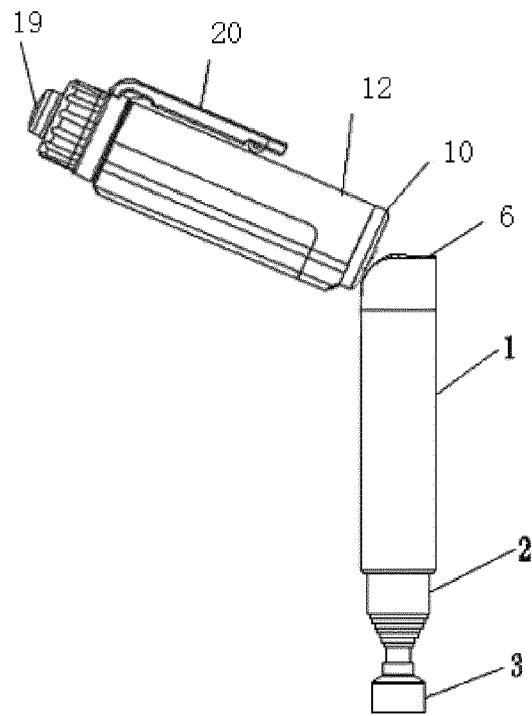


Figure 1

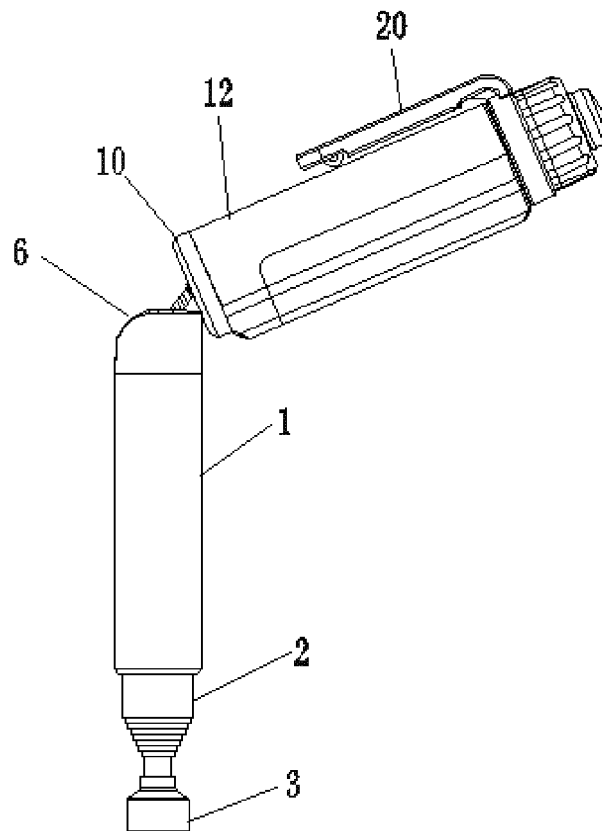


Figure 2

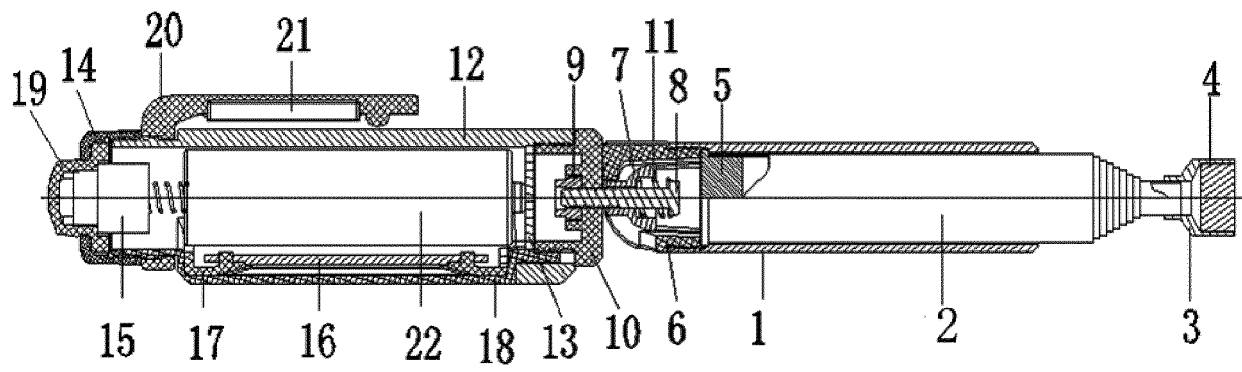


Figure 3

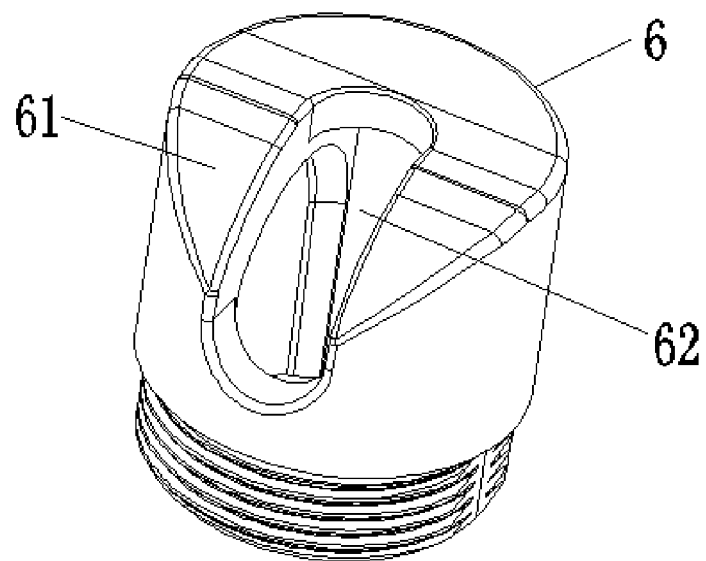


Figure 4



EUROPEAN SEARCH REPORT

Application Number
EP 19 19 9086

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 January 2020	Examiner Thibaut, Arthur
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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