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(54) **HAIR CLIPPER MOVING CUTTER ADJUSTING STRUCTURE**

(57) The present disclosure provides a moving blade adjusting structure for a hair clipper, which include includes a blade assembly, a blade adjusting push rod, an inner container assembly, a knob assembly, a blade cover and a body housing. The blade adjusting push rod is slidably coupled to the inner container assembly, the inner container assembly is fitted in the body housing, the knob assembly is arranged on a stud of the inner container assembly, and the blade adjusting push rod is movably coupled to the knob assembly. The blade assembly is arranged in the blade cover, the blade assembly is elastically coupled to the blade adjusting push rod, and the blade cover is fixedly coupled to the body housing. In the moving blade adjustment structure for the hair clipper according to the disclosure, a structure of a force-saving knob is employed, and a self-locking function is realized, thus achieving easy adjustment of a position of the blade and solving the problem of the retreat of the blade at the same time. Through the rotation of the cam, the blade adjusting push rod is driven to move horizontally, so that a rotary motion is converted into a horizontal motion. Moreover, a self-locking function is realized, and the overall structure is stable and reliable.

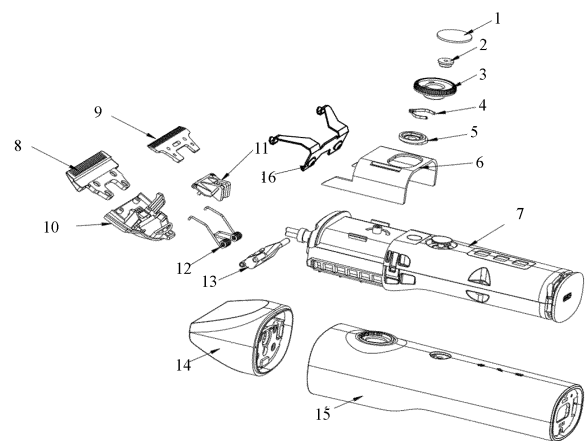


FIG. 1

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and benefits of Chinese Patent Application Serial No. 202022471660.1, filed on October 31, 2020, the entire content of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to the field of hair clipper technologies, and more particularly, to a moving blade adjusting structure for a hair clipper.

BACKGROUND

[0003] At present, an adjustment stroke of a moving blade of the hair clippers on the market is small, and it is difficult to control a force. Thus, it is difficult for consumers to adjust to a desired scale. In addition, there is a problem of retreat when the moving blade of the hair clippers is adjusted to the topmost position, and a position of the moving blade is unstable, thus, affecting a length of hair-cut.

SUMMARY

[0004] The present disclosure provides a moving blade adjusting structure for a hair clipper, and solves the technical problems of an inconvenient adjustment of a position of the moving blade of the hair clipper and an unstable position of the moving blade.

[0005] In order to achieve the above objective, the present disclosure provides the following technical solutions.

[0006] A moving blade adjusting structure for a hair clipper, including a blade assembly, a blade adjusting push rod 6, an inner container assembly 7, a knob assembly, a blade cover 14 and a body housing 15. The blade adjusting push rod 6 is slidably coupled to the inner container assembly 7, the inner container assembly 7 is fitted in the body housing 15, the knob assembly is arranged on a stud of the inner container assembly 7, and the blade adjusting push rod 6 is movably coupled to the knob assembly. The blade assembly is arranged in the blade cover 14, the blade assembly is movably coupled to the blade adjusting push rod 6, and the blade cover 14 is fixedly coupled to the body housing 15.

[0007] In some embodiments, the knob assembly includes a knob pressing block 2, a knob 3, a metal elastic sheet 4 and a cam 5. The cam 5 is arranged on the inner container assembly 7 through the stud on the inner container assembly 7, and an end face of the cam 5 is engaged with the blade adjusting push rod 6 in a horizontal direction. The metal elastic sheet 4 is coupled to the knob 3 in a snapped manner, the knob 3 is concentrically assembled with the cam 5 through the stud on the inner

container assembly 7, and the knob pressing block 2 is concentrically assembled with the knob 3 through the stud of the inner container assembly 7.

[0008] In some embodiments, the knob assembly also includes a scale trim 1 arranged on the knob 3.

[0009] In some embodiments, the cam 5 is a structure of an eccentric wheel, and the knob 3 rotates, to drive the cam 5 to rotate synchronously.

[0010] In some embodiments, the blade assembly includes a stationary blade 8, a moving blade 9, a stationary blade holder 10, a moving blade holder 11, a moving blade compression spring 12 and a compression spring holder 13. The moving blade compression spring 12 is arranged on the compression spring holder 13, the stationary blade 8 is fixedly arranged on the stationary blade holder 10, and the moving blade 9 is fixedly arranged on the moving blade holder 11. The stationary blade holder 10 is movably coupled to the moving blade holder 11 through the moving blade compression spring 12, and the compression spring holder 13 is movably coupled to the blade adjusting push rod 6.

[0011] In some embodiments, the blade assembly further includes a coupling elastic sheet configured to couple the blade assembly to the inner container assembly 7.

[0012] By implementing the above technical solutions, the following technical effects are realized: in the moving blade adjustment structure for the hair clipper according to the disclosure, a structure of a force-saving knob is employed, and a self-locking function is realized, thus achieving easy adjustment of a position of the blade and solving the problem of the retreat of the blade at the same time. Through the rotation of the cam, the blade adjusting push rod is driven to move horizontally, so that a rotary motion is converted into a horizontal motion. Moreover, a self-locking function is realized, and the overall structure is stable and reliable.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]

FIG. 1 is an exploded view of a moving blade adjusting structure for a hair clipper according to the present disclosure;

FIG. 2 is a schematic view of a cam of a rotating assembly according to the present disclosure;

FIG. 3 is a schematic view of a metal elastic sheet of a rotating assembly according to the present disclosure.

DETAILED DESCRIPTION

[0014] In order to better understand the technical solution of the present disclosure, embodiments of the present disclosure are described in detail below with reference to the accompanying drawings.

[0015] A moving blade adjusting structure for a hair clipper includes: a blade assembly, a blade adjusting

push rod 6, an inner container assembly 7, a knob assembly, a blade cover 14 and a body housing 15. The blade adjusting push rod 6 is slidably coupled to the inner container assembly 7, the inner container assembly 7 is fitted in the body housing 15, the knob assembly is arranged on a stud of the inner container assembly 7, and the blade adjusting push rod 6 is movably coupled to the knob assembly. The blade assembly is arranged in the blade cover 14, the blade assembly is movably coupled to the blade adjusting push rod 6, and the blade cover 14 is fixedly coupled to the body housing 15. The knob assembly rotates to drive the blade adjusting push rod 6 to slide up and down, and the blade adjusting push rod 6 pushes the blade assembly. The knob assembly and the blade adjusting push rod 6 constitute a force-saving structure, so that the knob assembly converts a rotary motion into a horizontal motion, thus achieving a purpose of adjusting the moving blade. A structure of a force-saving knob is employed, and a self-locking function is realized, thus achieving easy adjustment of a position of the blade.

[0016] On the basis of the above embodiment, in other embodiments, the knob assembly further includes a knob pressing block 2, a knob 3, a metal elastic sheet 4 and a cam 5. The cam 5 is arranged on the inner container assembly 7 through the stud on the inner container assembly 7, and an end face of the cam 5 is engaged with the blade adjusting push rod 6 in a horizontal direction. The metal elastic sheet 4 is coupled to the knob 3 in a snapped manner, the knob 3 is concentrically assembled with the cam 5 through the stud on the inner container assembly 7, and the knob pressing block 2 is concentrically assembled with the knob 3 through the stud of the inner container assembly 7. In this embodiment, as illustrated in FIG. 1, the blade adjusting push rod 6 is assembled with the inner container assembly 7 in the snapped manner, a movable gap is provided between a snap position on the inner container assembly 7 and a sliding groove of the blade adjusting push rod 6, to slide up and down. The cam 5 is assembled concentrically with the stud of the inner container assembly 7, and the inner container assembly 7 is fixed to the body housing 15 by a screw. The metal elastic sheet 4 is assembled with the knob 3 in the snapped manner, the knob 3 is assembled concentrically through the stud of the inner container assembly 7, and the knob pressing block 2 is assembled concentrically with the knob 3 through the stud of the inner container assembly 7. In this embodiment, the knob assembly further includes a scale trim 1, and the scale trim 1 is arranged on the knob 3. In this embodiment, the scale trim 1 is bonded with the knob 3 through an adhesive backing, and the knob 2 rotates to drive the cam 5 to rotate synchronously. As illustrated in FIGS. 2-3, the cam 5 has a structure of an eccentric wheel. The knob 3 rotates to drive the cam 5 to rotate synchronously. The blade adjusting push rod 6 is engaged with the end face of the cam 5 in the horizontal direction. A radius of the cam 5 changes during the rotation, to drive the blade

adjusting push rod 6 to slide forward. The blade adjusting push rod 6 slides forward to drive a compression spring holder to move, achieving the purpose of adjusting the moving blade. The knob 3 drives the cam 5 to rotate, and the blade adjusting push rod 6 slides up and down through the eccentric wheel. A torque of the knob 3 is big, and converts the rotary motion into the horizontal motion, thus constituting the force-saving structure. The metal elastic sheet 4 is fixedly coupled to the knob 3. The metal elastic sheet 4 is provided with a protruding rib snapped with a groove in the body housing 15, to achieve the self-locking function of the knob. Each groove corresponds to a stop position. Moreover, due to impact sound of metal and plastic, a feedback function of the stop position through the sound can be provided when the metal elastic sheet slides on the body housing and suddenly falls into the groove from a high position.

[0017] On the basis of the various embodiments described above, in other embodiments, the blade assembly further includes a stationary blade 8, a moving blade 9, a stationary blade holder 10, a moving blade holder 11, a moving blade compression spring 12 and a compression spring holder 13. The moving blade compression spring 12 is arranged on the compression spring holder 13. The stationary blade 8 is fixedly arranged on the stationary blade holder 10, and the moving blade 9 is fixedly arranged on the moving blade holder 10. The stationary blade holder 10 is movably coupled to the moving blade holder 11 through the moving blade compression spring 12, and the compression spring holder 13 is movably coupled to the blade adjusting push rod 6. In this embodiment, the compression spring holder 13 includes a cylindrical shaft and a support rod with the cylindrical shaft as an axis. The blade adjusting push rod 6 slides up and down to drive the support rod to rotate, and the support rod drives the compression spring holder 13, to drive the stationary blade and the moving blade to move, thus realizing the technical effect of adjusting the blade. In this embodiment, the blade assembly further includes a coupling elastic sheet configured to couple the blade assembly to the inner container assembly 7. The coupling elastic sheet can be a metal elastic sheet, a first end of the coupling elastic sheet is coupled to a stationary blade fixing seat, and a second end of the coupling elastic sheet is coupled to the inner container assembly, so that a coupling between the blade assembly and the inner container assembly is more stable and not easy to separate.

[0018] The moving blade adjustment structure for the hair clipper according to the embodiments of the present disclosure is described in detail above. For those skilled in the art, there will be changes in the specific implementations and the application scope according to the idea of the embodiments of the present disclosure. In conclusion, the content of the specification should not be understood as a limitation of the present disclosure.

Claims

1. A moving blade adjusting structure for a hair clipper, comprising a blade assembly, a blade adjusting push rod (6), an inner container assembly (7), a knob assembly, a blade cover (14) and a body housing (15);

the blade adjusting push rod (6) being slidably coupled to the inner container assembly (7), the inner container assembly (7) being fitted in the body housing (15), the knob assembly being arranged on a stud of the inner container assembly (7), and the blade adjusting push rod (6) being movably coupled to the knob assembly; and the blade assembly being arranged in the blade cover (14), the blade assembly being movably coupled to the blade adjusting push rod (6), and the blade cover (14) being fixedly coupled to the body housing (15).
2. The moving blade adjusting structure according to claim 1, wherein the knob assembly comprises a knob pressing block (2), a knob (3), a metal elastic sheet (4) and a cam (5), the cam (5) is arranged on the inner container assembly (7) through the stud on the inner container assembly (7), and an end face of the cam (5) is engaged with the blade adjusting push rod (6) in a horizontal direction; and wherein the metal elastic sheet (4) is coupled to the knob (3) in a snapped manner, the knob (3) is concentrically assembled with the cam (5) through the stud on the inner container assembly (7), and the knob pressing block (2) is concentrically assembled with the knob (3) through the stud of the inner container assembly (7).
3. The moving blade adjusting structure according to claim 2, wherein the knob assembly further comprises a scale trim (1), and the scale trim (1) is arranged on the knob (3).
4. The moving blade adjusting structure according to claim 2 or 3, wherein the cam (5) is a structure of an eccentric wheel, and the knob (3) rotates to drive the cam (5) to rotate synchronously.
5. The moving blade adjusting structure according to any one of claims 1 to 4, wherein the blade assembly comprises a stationary blade (8), a moving blade (9), a stationary blade holder (10), a moving blade holder (11), a moving blade compression spring (12) and a compression spring holder (13), the moving blade compression spring (12) is arranged on the compression spring holder (13), the stationary blade (8) is fixedly arranged on the stationary blade holder (10), the moving blade (9) is fixedly arranged on the moving blade holder (11), the stationary blade holder (10) is movably coupled to the moving blade holder (11) through the moving blade compression spring (12), and the compression spring holder (13) is movably coupled to the blade adjusting push rod (6).
6. The moving blade adjusting structure according to claim 5, wherein the blade assembly further comprises a coupling elastic sheet configured to couple the blade assembly to the inner container assembly (7).

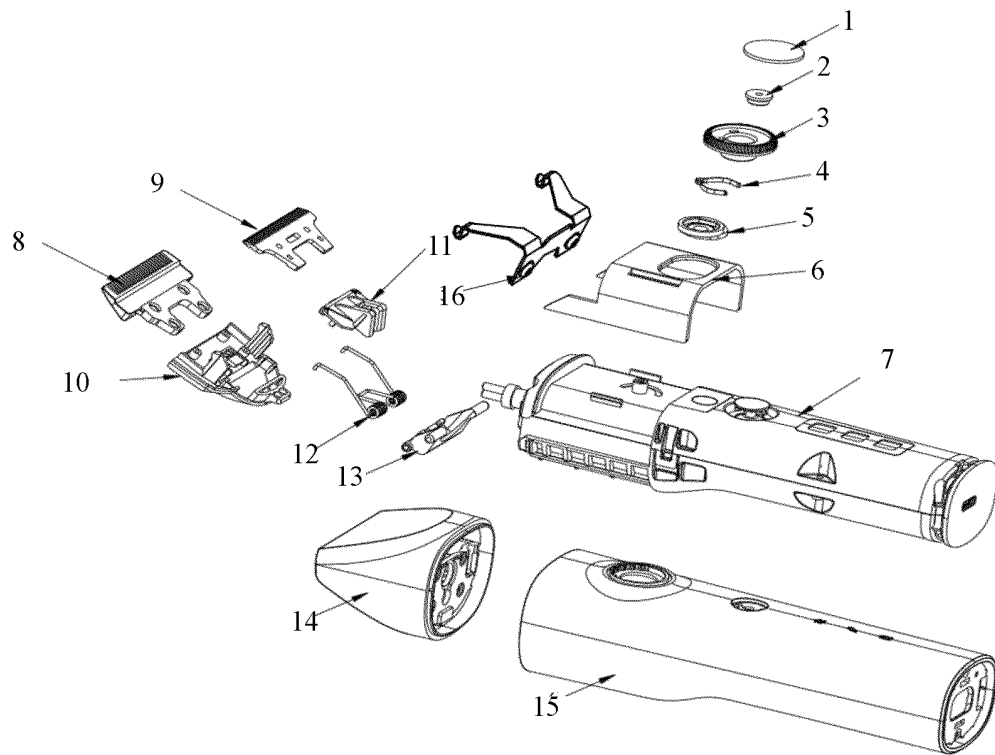


FIG. 1

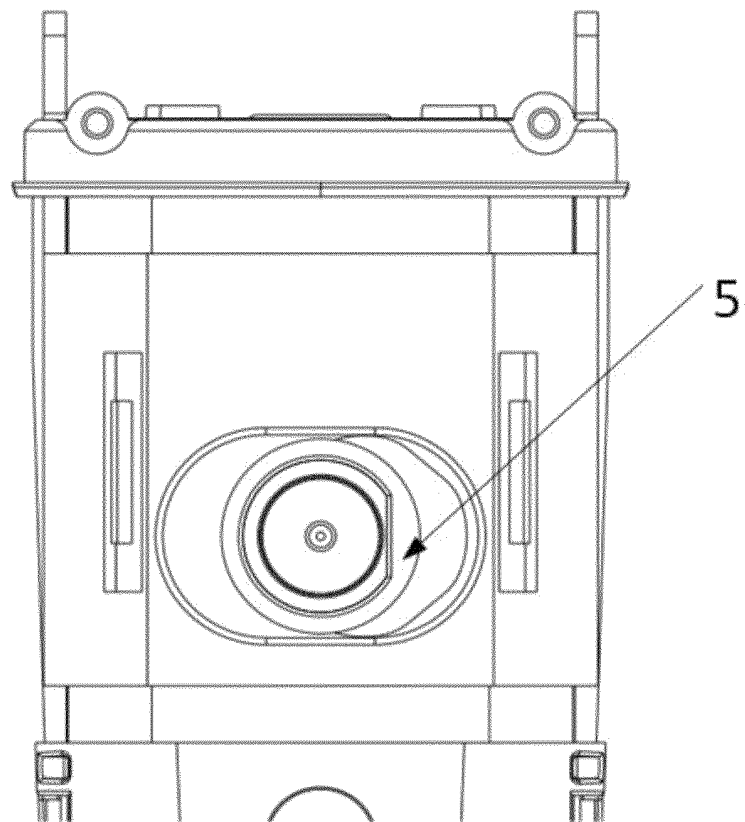


FIG. 2

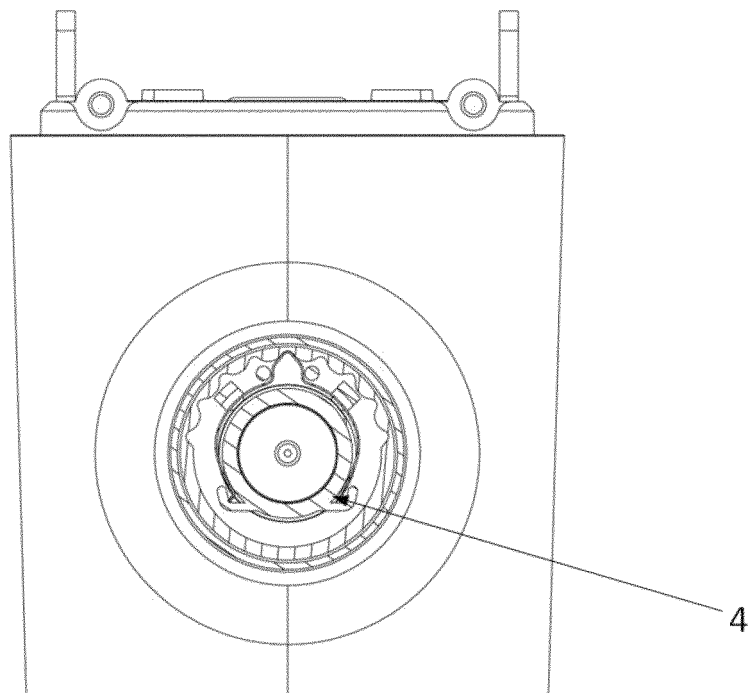


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/125015

A. CLASSIFICATION OF SUBJECT MATTER

B26B 19/04(2006.01)i; B26B 19/38(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B26B19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CNTXT, VEN, SIPOABS, CNKI, 理发器, 剃头, 推子, 刀, 调节, hair, cut+, clipper, knife, adjust+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 213918368 U (BEIJING XIAOMI MOBILE SOFTWARE CO., LTD. et al.) 10 August 2021 (2021-08-10) claims 1-6, description paragraphs [0019]-[0021], figures 1-3	1-6
X	CN 208930320 U (NINGBO HOFORD ELECTRICAL APPLIANCES CO., LTD.) 04 June 2019 (2019-06-04) description, paragraphs [0027]-[0037], and figures 1-5	1-6
A	CN 203527495 U (SHANGHAI POVOS ELECTRIC WORKS CO., LTD.) 09 April 2014 (2014-04-09) entire document	1-6
A	CN 202805229 U (NINGBO BANGSHOU ELECTRIC CO., LTD.) 20 March 2013 (2013-03-20) entire document	1-6
A	CN 110900667 A (SHANGHAI POVOS ELECTRIC WORKS CO., LTD.) 24 March 2020 (2020-03-24) entire document	1-6
A	DE 3638872 A1 (MATSUSHITA ELECTRIC WORKS LTD.) 21 May 1987 (1987-05-21) entire document	1-6

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

16 December 2021

Date of mailing of the international search report

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Name and mailing address of the ISA/CN

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/125015

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2009232893 A (PANASONIC ELEC WORKS CO., LTD.) 15 October 2009 (2009-10-15) entire document	1-6

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2021/125015

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CN	213918368	U	10 August 2021	None			
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CN	203527495	U	09 April 2014	None			
CN	202805229	U	20 March 2013	None			
CN	110900667	A	24 March 2020	None			
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				DE	3638872	C2	22 November 1990
JP	2009232893	A	15 October 2009	None			

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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