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(54) AUTOMATIC SAFETY NAIL CLIPPER

(57) The present invention provides an automatic and safe manicuring tool, comprising a disk blade, a blade driving device and a cover, wherein the blade driving device is connected to the disk blade, nail openings are provided on the cover and the nail openings are corresponding to the disk blade, characterized in that a plurality of nail openings of different size are provided on the periphery of the cover, and protruded arc slices are provided at the nail openings. As there is a plurality of nail openings in the structure provided by the present invention, an appropriate nail opening can be selected according to the size of a finger or toe for manicuring. Meanwhile, protruded arc slices are provided at the nail openings, so muscle on the finger or toe can be obstructed outside the nail openings to avoid injury to the finger or toe during manicuring. With selectable nail openings, the automatic and safe manicuring tool can be applied to the general population, and is safe and efficient in use.

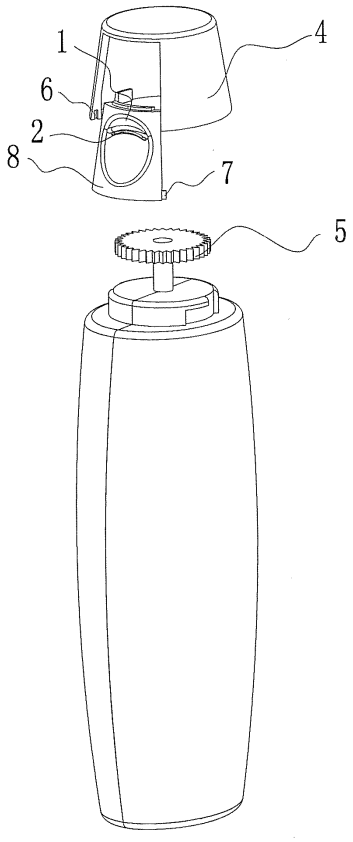

FIG.4

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Description

Technical Field

[0001] The present invention relates to a tool for daily use, particularly to a tool for manicuring nails, and more particularly to a tool for manicuring nails conveniently, quickly and safely.

Background of the Invention

[0002] Usually, nails are manicured with nail clippers or scissors. With the development of science, more and more people are using electric manicuring tools. The blade of such an electric manicuring tool is in a form of grinding disk so that nails are manicured by means of grinding. The grinding disk is usually made of a small grinding wheel or a frosted sheet metal. During grinding, the high-speed rotation of the grinding disk is likely to cause flying nail powders and burnt nails, accompanying with smell, and the high temperature generated by grinding makes people unpleasant, as a result, the effect of manicuring by such electric manicuring tools is unsatisfactory. In addition, such electric manicuring tools have high requirements for users. If used inappropriately, such electric manicuring tools will cause grinding by mistake and thus makes fingers or toes injured. In view of this, it is required to make many improvements to the manicuring tools. From Chinese Patent Database, for example, Patent CN102217830, entitled *Automatic Nail Clipper,* disclosed the following contents: an automatic nail clipper is provided, including a nail clipper, the nail clipper adopting a disk blade and including teeth and a body, the teeth being provided around the body; and further including a cover with an arc nail opening provided on the side of the cover. In the automatic nail clipper of such a structure, there is only one nail opening of a general size, such automatic nail clipper has a quite limited application scope. This is because different people have fingers or toes of different size. For example, there is a big difference between fingers or toes of an infant and fingers or toes of a strong person. When such an automatic nail clipper is used, a finger or toe of an infant will be inserted into the nail opening completely and thus be injured, while a finger or toe of a strong person can not be inserted into the nail opening to be manicured. Even for a same person, fingers or toes are different in size. For example, the thumb is much bigger than the little finger. When such an automatic nail clipper is used, the nail of the thumb cannot be manicured sometimes.

Summary of the Invention

[0003] In view of the deficiencies mentioned in the background, a technical problem to be solved by the present invention is to provide an automatic and safe manicuring tool which is applied to fingers or toes of different size and is safe in use.

[0004] Therefore, the present invention employs the following technical solution: an automatic and safe manicuring tool is provided, including a disk blade, a blade driving device and a cover, where the blade driving device is connected to the disk blade, nail openings are provided on the cover and the nail openings are corresponding to the disk blade, characterized in that a plurality of nail openings of different size are provided on the periphery of the cover, and protruded arc slices are provided at the nail openings.

[0005] Another technical solution of the present invention is as follows: an automatic and safe manicuring tool is provided, including a disk blade, a blade driving device and a cover, where the blade driving device is connected to the disk blade, nail openings are provided on the cover and the nail openings are corresponding to the disk blade, characterized in that movably detachable caps are provided on the cover, the nail openings are provided on the detachable caps, and protruded arc slices are provided at the nail openings.

[0006] The movably detachable caps are provided on the cover, and the nail openings are provided on the detachable caps.

[0007] A plurality of movably detachable caps are provided on the periphery of the cover.

[0008] Arc pits matched with fingers or toes are provided within regions of the nail openings.

[0009] In the structure provided by the present invention, as there is a plurality of nail openings, an appropriate nail opening may be selected according to the size of a finger or toe for manicuring. Moreover, protruded arc slices are provided at the nail openings, so the muscle on the finger can be obstructed outside the nail openings. Therefore, the finger or toe will not be injured during manicuring. With advantages of safety and reliability, the automatic and safe manicuring tool is applied to the general population, and is efficient in use.

Brief Description of the Drawings

[0010]

Fig. 1 is a structure diagram of a first embodiment according to the present invention;
Fig. 2 is a structure diagram of a cover according to the present invention;
Fig. 3 is a sectional view of Fig. 2 made along A-A according to the present invention;
Fig. 4 is a structure diagram of a second embodiment according to the present invention; and
Fig. 5 is an exploded structure diagram of a third embodiment according to the present invention.

Detailed Description of the Invention

[0011] Referring to Fig. 1, Fig. 2 and Fig. 3, the automatic and safe manicuring tool comprises a disk blade 5, a blade driving device and a cover 4, where the blade

driving device is connected to the disk blade 5, nail openings 1 are provided on the cover 5 and the nail openings 1 are corresponding to the disk blade 5. A plurality of nail openings 1 of different size are provided on the periphery of the cover 4. Therefore, a person may select an appropriate nail opening 1 for manicuring according to the size of own fingers or toes when in use. Protruded arc slices 2 are provided at the nail openings. The radian of the arc of each protruded arc slice 2 is matched with that of a finger or toe, so the protruded arc slice 2 will separate the muscle on the finger or toe from the nail during manicuring after the finger or toe is inserted into a nail opening 1. Therefore, the muscle is obstructed outside the nail opening, while the nail is inserted into the nail opening 1. After the disk blade 5 is driven by the blade driving device, the nail is manicured. The manicuring is safe and reliable, and the finger or toe will not be injured. Arc pits 3 matched with fingers or toes are provided within regions of the nail openings 1. The arc pits 3 are matched with the flesh parts of the fingers or toes. During manicuring, after the nail is inserted into a nail opening 1, the flesh part of the finger or toe leans against the arc pit 3, so that it is very comfort during manicuring, and the manicuring is very aesthetic.

[0012] Referring to Fig. 4, this embodiment has a structure different from the above embodiment in that: movably detachable caps 8 are provided on the cover 4, and nail openings 1 and arc pits 3 are all provided on the detachable caps 8. The remaining structure is the same as the above embodiment. When provided on the cover 4, movably detachable caps 8 may be provided by means of chutes. For example, chutes 6 are provided on the cover 4, and left and right swing plates 7 are provided on the movably detachable caps 8, so that the movably detachable caps 8 may be slipped-in or slipped-out for replacement through the fitting of the left and right swing plates 7 and the chutes 6. As the nail openings 1 in the above embodiment are fixed in size after installed, this structure may be not applicable to persons having particularly big fingers or toes or particularly small fingers or toes. Therefore, the nail openings 1 on the detachable caps 8 are designed to have different sizes and various specifications. In this way, the detachable caps 8 may be replaced to fit for more people. When all the nail openings 1 on the cover 4 are not appropriate, the detachable caps 8 on the cover 4 may be replaced. The movement of the cover 4 and the detachable caps 8 is achieved by means of chutes. Of course, it may be achieved by means of buckles. For example, elastic buckles are provided on the detachable caps, and pits matched with the elastic buckles are provided on the cover. There are many ways for such movable arrangements, which have been well known in the field and will not be exemplified here one by one.

[0013] Referring to Fig. 5, this embodiment is an improvement on the basis of the second embodiment. Here, a plurality of detachable caps 8 are provided on the periphery of the cover 4. This design is aimed at utilizing the upper surface area of the detachable caps 8 effectively. Similarly to the first embodiment, a plurality of selectable nail openings 1 are provided to reduce the frequency of replacing the detachable caps 8. The remaining structure is the same as the second embodiment.

[0014] The structure provided by the present invention is convenient in application, high in safety and good in manicuring effect, and may be applied to all people, thus has good effect in use.

Claims

1. An automatic and safe manicuring tool, comprising a disk blade, a blade driving device and a cover, wherein the blade driving device is connected to the disk blade, nail openings are provided on the cover and the nail openings are corresponding to the disk blade, **characterized in that** a plurality of nail openings of different size are provided on the periphery of the cover, and protruded arc slices are provided at the nail openings.

2. An automatic and safe manicuring tool, comprising a disk blade, a blade driving device and a cover, wherein the blade driving device is connected to the disk blade, nail openings are provided on the cover and the nail openings are corresponding to the disk blade, **characterized in that** movably detachable caps are provided on the cover, the nail openings are provided on the detachable caps, and protruded arc slices are provided at the nail openings.

3. The automatic and safe manicuring tool according to claim 2, **characterized in that** a plurality of movably detachable caps are provided on the periphery of the cover.

4. The automatic and safe manicuring tool according to claim 1 or 2, **characterized in that** arc pits matched with fingers or toes are provided within regions of the nail openings.

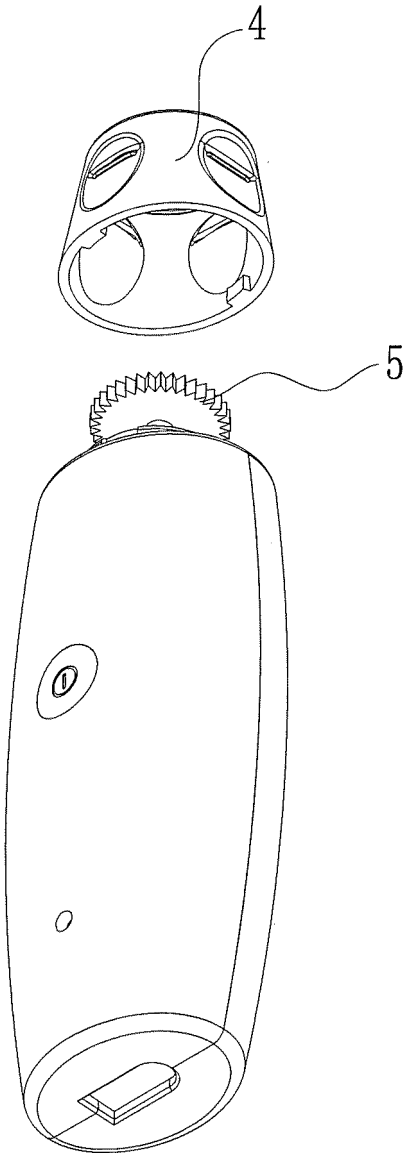

FIG.1

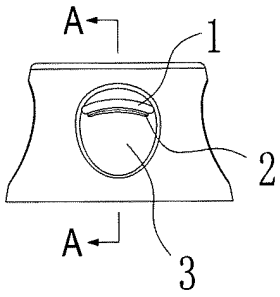

FIG.2

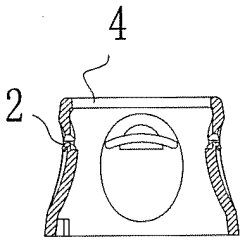

FIG.3

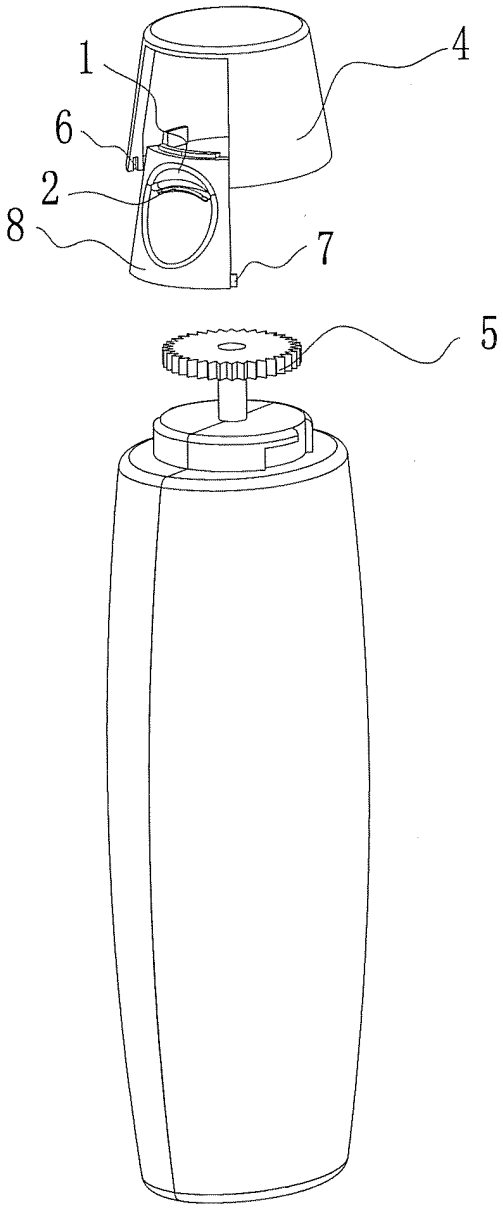

FIG.4

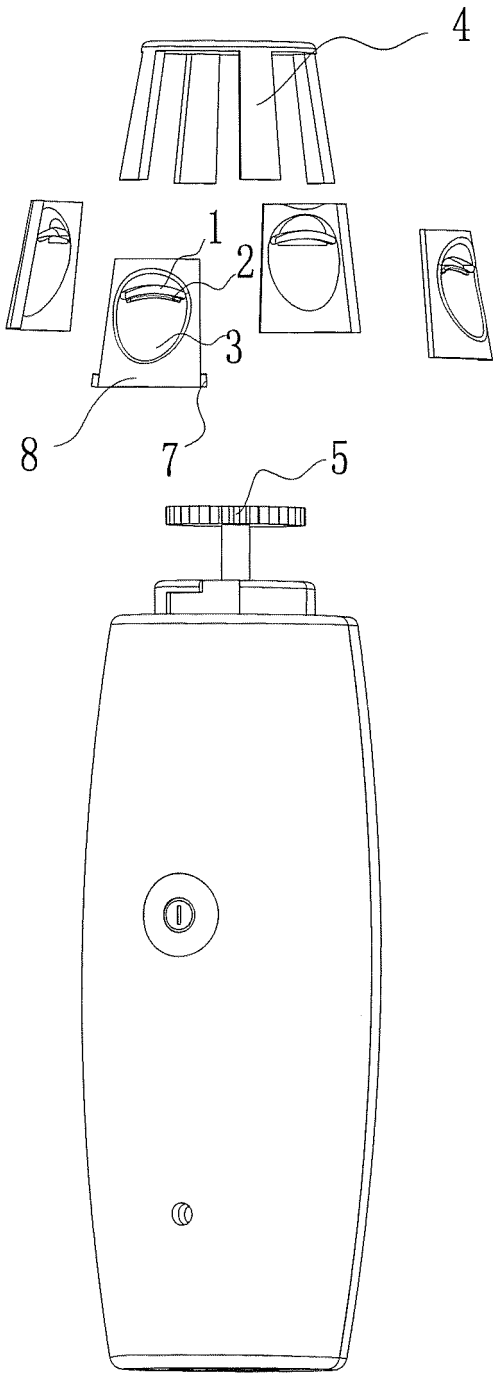

FIG.5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2013/080469

A. CLASSIFICATION OF SUBJECT MATTER

A45D 29/02 (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)

A45D 29

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, VEN: opening, insert, protrude, detachable cap, push, auto, electro+, cover, lid, top, cap, arc, camber, radian, circul+, round, discal, knife, motor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 20010077409 A (LEE, K.H.), 17 August 2001 (17.08.2001), the whole description, and figures 1-5	1, 4
A	CN 102217830 A (SHANGHAI CHAMPON AUTO MIRROR CO., LTD.), 19 October 2011 (19.10.2011), the whole document	1-4
A	CN 2126673 Y (LU, Qingquan), 03 February 1993 (03.02.1993), the whole document	1-4
A	CN 2096260 U (JIN, Caolin), 19 February 1992 (19.02.1992), the whole document	1-4
A	KR 20090048661 A (JUNG, G.T.), 15 May 2009 (15.05.2009), the whole document	1-4
A	KR 20010103849 A (CHA, S.I.), 24 November 2001 (24.11.2009), the whole document	1-14

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

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 January 2014 (17.01.2014)	**13 February 2014 (13.02.2014)**
Name and mailing address of the ISA/CN: State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No.: (86-10) 62019451	Authorized officer **LIU, Yanmei** Telephone No.: (86-10) **62085549**

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2013/080469

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
KR 20010077409 A	17.08.2001	None	
CN 102217830 A	19.10.2011	WO 2012142843 A1	26.10.2012
CN 2126673 Y	03.02.1993	None	
CN 2096260 U	19.02.1992	None	
KR 20090048661 A	15.05.2009	None	
KR 20010103849 A	24.11.2009	None	

Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- CN 102217830 **[0002]**