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(54) **Attachable knife sharpener**

(57) An attachable knife sharpener is revealed. The attachable knife sharpener includes a knife sharpening base with an attachment device on one end and a knife sharpening part on the other end. The knife sharpening part is disposed with a horizontal sharpening slot and two vertical sharpening blades. A knife sharpening body is arranged at the horizontal sharpening slot and having a horizontal sharpening blade, a limiting member and a stopper. The horizontal sharpening blade includes a sharpening surface extending from the horizontal sharpening slot. The stopper includes a leaning part extending toward the sharpening surface. A cover is threaded on the knife sharpening part for clamping the knife sharpening body and the vertical sharpening blades. The knife sharpening base is fixed quickly by the attachment device while the vertical sharpening blades provide sharpening of both sides and the horizontal sharpening blade is for sharpening a single side.

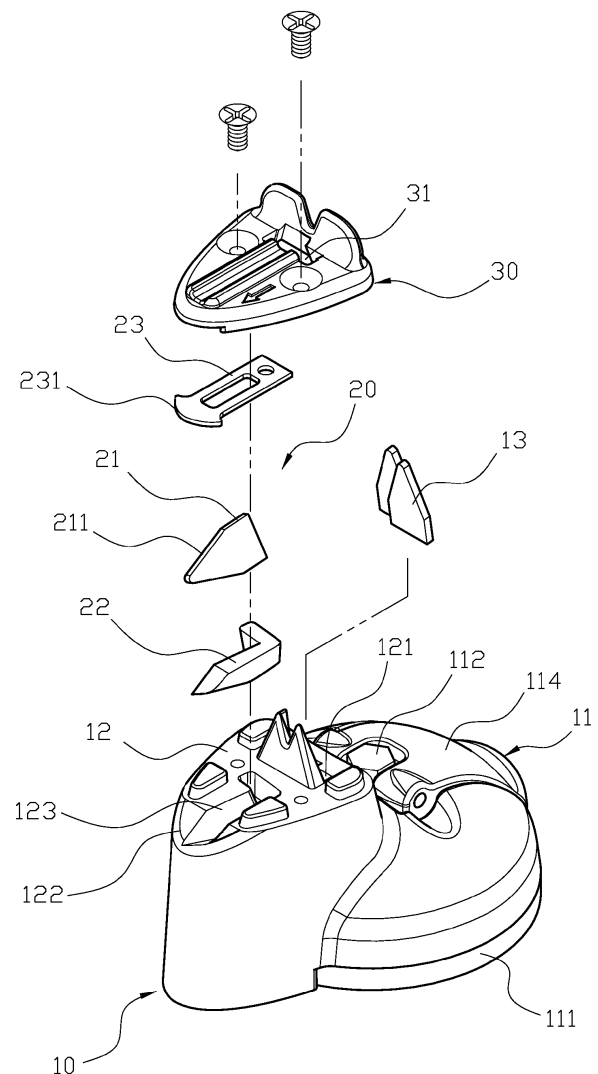


FIG. 2

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a knife sharpener, especially to an attachable knife sharpener for both knife sharpening and scissor sharpening.

2. Description of Related Art

[0002] After being used for a period of time, the cutting edges of cutting tools such as knives or scissors become blunt and a knife sharpening is required to make them work well. A blade of the knife/scissors is sharpened by grinding against a whetstone. Yet the whetstone is too heavy and having difficult storage. While in use, users have to hold the whetstone for fixing and they may nick themselves even their hands are safely positioned. Moreover, the knife or the scissors sharpened is gently inclined in such a manner that their cutting edge is touching the whetstone and their blade is adjusted to be placed on the whetstone at a certain angle. However, people don't know the ideal angle for sharpening blades. Besides difficulty in storage, the shortcomings of using the whetstone include difficulty in control of the angle of incline between the blade and the sharpening stone, and a risk of cutting hands/fingers.

[0003] Furthermore, only one side of the knife blade is sharpened by the whetstone at a time. During knife sharpening, the blade is pushed and pulled back and forth on the whetstone and then is turned to the other side. This is inconvenient in use. As to scissors, users open the scissor blades as wide as possible so that the blades are sharpened diagonally against the whetstone. There is still a certain portion of the scissor blades unable to be sharpened.

[0004] Thus there is a need to provide a novel knife sharpener that overcomes shortcomings of knife sharpening devices available now.

SUMMARY OF THE INVENTION

[0005] Therefore it is a primary object of the present invention to provide an attachable knife sharpener that includes a knife sharpening base with an attachment device on one end and a knife sharpening part on the other end. The knife sharpening part is disposed with vertical sharpening blades and a horizontal sharpening blade. The knife sharpening base is fixed quickly by the attachment device. Both sides of a knife are sharpened by the vertical sharpening blades and a single side of scissors is sharpened by the horizontal sharpening blade. The optimal knife sharpening effect is achieved due to effective and quick fixing of the knife sharpening base and designs of the vertical and horizontal sharpening blades. The attachable knife sharpener is with better effect and

wider applications.

[0006] It is another object of the present invention to provide an attachable knife sharpener in which an angle between two cross vertical sharpening blades is having a shape similar to the shape of a knife blade and an angle formed between a sharpening surface of a horizontal sharpening blade and a leaning part of a stopper is of a shape similar to the shape of a scissor blade. Thus both sides of a knife set vertically are sharpened directly by the vertical sharpening blades and a single side of scissors placed horizontally is sharpened easily by the horizontal sharpening blade. The attachable knife sharpener is more convenient in use.

[0007] It is a further object of the present invention to provide an attachable knife sharpener in which both the sharpening surface of the horizontal sharpening blade and the leaning part of the stopper are arranged at an inclined opening of the knife sharpening base. Thus each portion of the scissor blades is sharpened more effectively and the difficulty in scissor sharpening is overcome.

[0008] In order to achieve the above objects, an attachable knife sharpener of the present invention includes a knife sharpening base with an attachment device on one end and a knife sharpening part on the other end. The attachment device consists of a suction cup, a connecting rod, an elastic part and an operating handle. Two ends of the connecting rod that penetrates the knife sharpening base are respectively connected to the suction cup and the operating handle. The elastic part is arranged against the suction cup and the knife sharpening base. A vertical sharpening slot, a horizontal sharpening slot and an inclined opening above the horizontal sharpening slot are mounted on the knife sharpening base. The vertical sharpening slot is close to the attachment device and is disposed with two cross vertical sharpening blades. The horizontal sharpening slot is arranged away from the attachment device. A knife sharpening body is set in the horizontal sharpening slot and is composed of a horizontal sharpening blade, a limiting member and a stopper. The horizontal sharpening blade is pressed by the limiting member to be fixed on the horizontal sharpening slot. The horizontal sharpening blade is inclined and is arranged at the horizontal sharpening slot. The horizontal sharpening blade includes a sharpening surface extending from the horizontal sharpening slot. The stopper is covered over the horizontal sharpening slot and is having a leaning part extending toward the sharpening surface. A cover with an insertion hole is threaded on the knife sharpening part of the knife sharpening base. The knife sharpening body and vertical sharpening blades are clamped and fixed by the cover. The insertion hole allows the vertical sharpening blades passing through to be exposed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The structure and the technical means adopted by the present invention to achieve the above and other

objects can be best understood by referring to the following detailed description of the preferred embodiments and the accompanying drawings, wherein:

Fig. 1 is a perspective view of an attachable knife sharpener according to the present invention;
 Fig. 2 is an explosive view of the attachable knife sharpener according to the present invention;
 Fig. 3 is a side view of the attachable knife sharpener according to the present invention in section;
 Fig. 4 is a cross sectional view of a knife sharpening body of the attachable knife sharpener according to the present invention;
 Fig. 5 is a schematic drawing showing knife sharpening by the attachable knife sharpener according to the present invention; and
 Fig. 6 is a schematic drawing showing scissor sharpening by the attachable knife sharpener according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0010] Refer to Fig. 1, Fig. 2 and Fig. 3, an attachable knife sharpener includes a knife sharpening base 10, a knife sharpening body 20 and a cover 30.

[0011] An attachment device 11 is disposed on one end of the knife sharpening base 10 and a knife sharpening part 12 is formed on the other end of the knife sharpening base 10. The attachment device 11 consists of a suction cup 111, a connecting rod 112, an elastic part 113 and an operating handle 114. The connecting rod 112 is passed through the knife sharpening base 10 and two ends of the connecting rod 112 are respectively connected to the suction cup 111 and the operating handle 114. The elastic part 113 is arranged between the suction cup 111 and the knife sharpening base 10. By the operating handle 114 being pulled toward the knife sharpening base 10, the connected rod 112 is moved and the suction cup 111 is pressed so as to attach to a flat surface. The knife sharpening part 12 is composed of a vertical sharpening slot 121, a horizontal sharpening slot 122 and an inclined opening 123 above the horizontal sharpening slot 122. The vertical sharpening slot 121 is arranged near the attachment device 11 and is disposed with two cross vertical sharpening blades 13 while the horizontal sharpening slot 122 is arranged away from the attachment device 11.

[0012] The knife sharpening body 20 is arranged at the horizontal sharpening slot 122 and is composed of a horizontal sharpening blade 21, a limiting member 22 and a stopper 23. The horizontal sharpening blade 21 is pressed by limiting member 22 to be arranged slantingly and fixed on the horizontal sharpening slot 122, as shown in Fig. 4. The horizontal sharpening blade 21 includes a sharpening surface 211 extending from the horizontal sharpening slot 122. The stopper 23 is disposed over the horizontal sharpening slot 122 and is having a leaning

part 231 extending toward the sharpening surface 211. The sharpening surface 211 of the horizontal sharpening blade 21 and the leaning part 231 of the stopper 23 are exposed from the inclined opening 123. The stopper 23 is made from metal and the leaning part 231 thereof is used to be against by the end of scissors without being sharpened so as to control sharpening positions of the scissors and reduce abrasion of the cover. As to the cover 30, it is threaded on the knife sharpening part 12 of the knife sharpening base 10 and is used to clamp both the knife sharpening body 20 and the vertical sharpening blades 13. An insertion hole 31 is provided on the cover 30, allowing the vertical sharpening blades 13 exposed. In accordance with the structure mentioned above, the attachment device 11 is used to fix the knife sharpening base 10 quickly. The vertical sharpening blades 13 are for sharpening both sides of knives while the horizontal sharpening blade 21 is used to sharpen a single side of scissors. Thus the attachable knife sharpener of the present invention has wider applications.

[0013] Refer from Fig. 1 to Fig. 4, the attachment device 11 is arranged at one end of the knife sharpening base 10 by the connecting rod 112 penetrating through the knife sharpening base 10. One end of the connecting rod 112 is disposed with the elastic part 113 and the suction cup 111 for fixing while the other end of the connecting rod 112 is pivotally connected to the operating handle 114. The cross vertical sharpening blades 13 are mounted into the vertical sharpening slot 121 of the knife sharpening part 12 and the knife sharpening body 20 is arranged at the horizontal sharpening slot 122. Firstly the horizontal sharpening blade 21 of the knife sharpening body 20 is inclined and mounted into the horizontal sharpening slot 122, allowing the sharpening surface 211 of the horizontal sharpening blade 21 extending from the inclined opening 123 of the knife sharpening base 10. Then the limiting member 22 is set into the horizontal sharpening slot 122 for pressing and limiting the horizontal sharpening blade 21. As to the stopper 23, it is covered on the horizontal sharpening slot 122. The leaning part 231 of the stopper 23 is extended toward the sharpening surface 211 of the horizontal sharpening blade 21. A knife sharpening space is formed by the sharpening surface 211 and the leaning part 231. Moreover, the cover 30 is threaded on the knife sharpening part 12 of the knife sharpening base 10 to fix the knife sharpening body 20. And the vertical sharpening blades 13 are extended from the insertion hole 31.

[0014] While in use, refer to Fig. 2 and Fig. 3, the knife sharpening base 10 is fixed on a flat surface by the attachment device 11. The flat surface can be a desk surface, a wall surface, a surface on closets, a surface of refrigerators, etc. The attachment device 11 is against any of the flat surfaces by means of the suction cup 111. The operating handle 114 is pulled to push against the knife sharpening base 10 and move the connecting rod 112. Then the suction cup 111 is pressed against the flat surface by the connecting rod 112. Thereby the knife

sharpening base 10 is fixed quickly due to pressure difference the atmosphere outside the suction cup 111 and a cavity in the suction cup 111. The storage of the knife sharpener is more convenient by being attached to the wall surface through the attachment device 11. As shown in Fig. 5, for sharpening of a knife (A), a blade (A1) of the knife (A) is directly placed between the two vertical sharpening blades 13 of the knife sharpening base 10. Due to cross arrangement of the vertical sharpening blades 13 to form an angle whose shape is similar to the shape of the blade (A1), the knife (A) is moved back and forth to be sharpened directly in a vertical state. Thereby both sides of the knife (A) are sharpened and users don't need to find out the ideal angle between the knife (A) and the vertical sharpening blades 13. Moreover, refer to Fig. 6, while sharpening scissors (B), one side of a scissor blade (B1) of the scissors (B) is against the horizontal sharpening blade 21 and the other side of the scissor blade (B1) is against the leaning part 231 of the stopper 23. Thus one side of the scissors (B) is sharpened. The shape of an angle formed between the sharpening surface 211 of the inclined horizontal sharpening blade 21 and the leaning part 231 of the stopper 23 is also similar to the shape of the scissor blade (B1). Thus the scissors (B) is moved back and forth to be sharpened directly in a horizontal state. Furthermore, both the sharpening surface 211 of the horizontal sharpening blade 21 and the leaning part 231 of the stopper 23 are arranged at the inclined opening 123 of the knife sharpening base 10. Thus each portion of the scissor blade (B1) of the scissors (B) can be sharpened more effectively and the difficulty in sharpening of the scissors (B) is reduced.

[0015] In summary, the attachable knife sharpener of the present invention has following advantages:

(1). The knife sharpening base 10 is disposed with the attachment device 11 on one end and the knife sharpening part 12 on the other end thereof. The knife sharpening part 12 is arranged with the vertical sharpening blades 13 and the horizontal sharpening blade 21. The knife sharpening base 10 is fixed quickly by means of the attachment device 11. The vertical sharpening blades 13 are for sharpening both sides of knives while the horizontal sharpening blade 21 provides a single-side sharpening of scissors. Due to quick fixing of the knife sharpening base 10 and special designs of the vertical and horizontal sharpening blades, the sharpening effect is improved significantly and the knife sharpener has more applications.

(2). The knife (A) can be directly positioned between the two cross vertical sharpening blades 13 and moved back and forth to be sharpened. An angle formed between the cross vertical sharpening blades 13 is of a shape similar to the blade (A1) of the knife (A), allowing the knife (A) being sharpened directly in a vertical state. Thereby both sides of the knife (A) are sharpened. The horizontal sharpening

blade 21 is inclined and arranged at the horizontal sharpening slot 122 (as shown in Fig. 4). An angle between the sharpening surface 211 of the horizontal sharpening blade 21 and the leaning part 231 of the stopper 23 also has the shape similar to the scissor blade (B1). Thus the scissors (B) is moved back and forth to be sharpened at a single side thereof in a horizontal state. The knife sharpener is more convenient in use.

(3). Both the sharpening surface 211 of the horizontal sharpening blade 21 and the leaning part 231 of the stopper 23 are arranged at the inclined opening 123 of the knife sharpening base 10. Each portion of scissor blades can be sharpened more effectively and the difficulty in scissor sharpening is solved.

[0016] Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details, and representative devices shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalent.

Claims

1. An attachable knife sharpener comprising:

a knife sharpening base having an attachment device on one end thereof and a knife sharpening part on the other end thereof; the knife sharpening part disposed with a horizontal sharpening slot and a vertical sharpening slot while the vertical sharpening slot having two cross vertical sharpening blades;

a knife sharpening body arranged at the horizontal sharpening slot and having a horizontal sharpening blade, a limiting member and a stopper; the horizontal sharpening blade pressed by the limiting member to be fixed on the horizontal sharpening slot and having a sharpening surface extending from the horizontal sharpening slot; the stopper covering the horizontal sharpening slot and having a leaning part extending toward the sharpening surface; and

a cover that is threaded on the knife sharpening part of the knife sharpening base for clamping and fixing both the knife sharpening body and the vertical sharpening blades; the cover provided with an insertion hole allowing the vertical sharpening blades passing through the insertion hole to be exposed; wherein the knife sharpening base is fixed quickly by the attachment device while the vertical sharpening blades are for sharpening both sides and the horizontal sharpening blade provides single-side sharpening.

2. The device as claimed in claim 1, wherein the attachment device includes a suction cup, , a connecting rod, an elastic part and an operating leveroperating handle; two ends of the connecting rod penetrating the knife sharpening base are respectively 5
connected to the suction cup and the operating leveroperating handle; the elastic part is arranged between the suction cup and the knife sharpening base und abuts on these two; by pulling the operating handle toward the knife sharpening base, the connecting 10
rod is moved to press the suction cup so that the suction cup is attached to a flat surface.
3. The device as claimed in claim 1, wherein the stopper of the knife sharpening body is made from metal; the 15
leaning part of the stopper serves as a part on which one unsharpend end of the scissors abuts so as to control sharpening positions of scissors and reduce abrasion of the cover. 20
4. The device as claimed in claim 1, wherein the vertical sharpening slot of the knife sharpening part is arranged on the end located close to the attachment device while the horizontal sharpening slot of the 25
knife sharpening part is arranged on the end located distal to the attachment device; an inclined opening is formed on the horizontal sharpening slot of the knife sharpening part while the sharpening surface of the horizontal sharpening blade and the leaning 30
part of the stopper are exposed from the inclined opening.
5. The device as claimed in claim 1, wherein the horizontal sharpening blade is inclined and arranged at 35
the horizontal sharpening slot.

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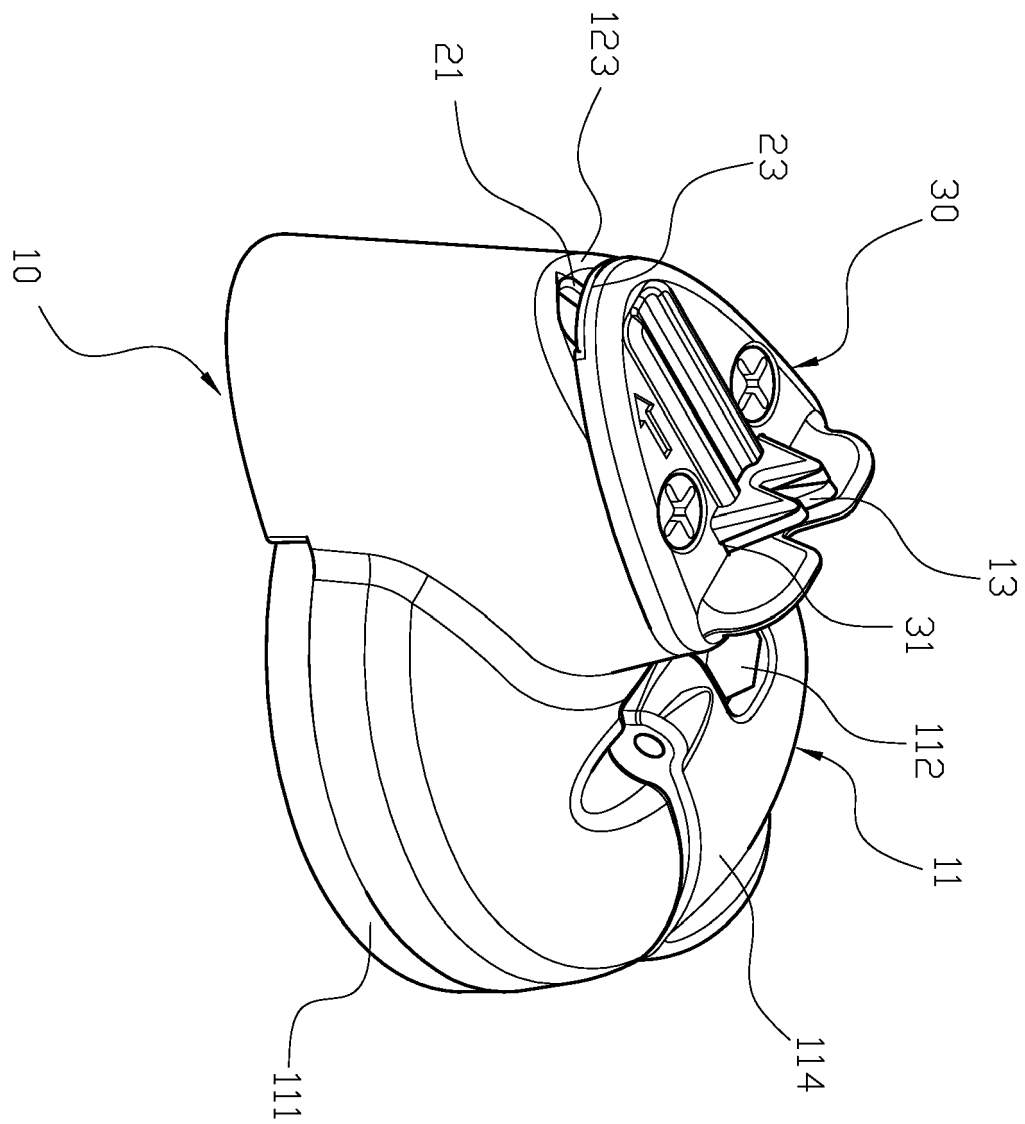


FIG. 1

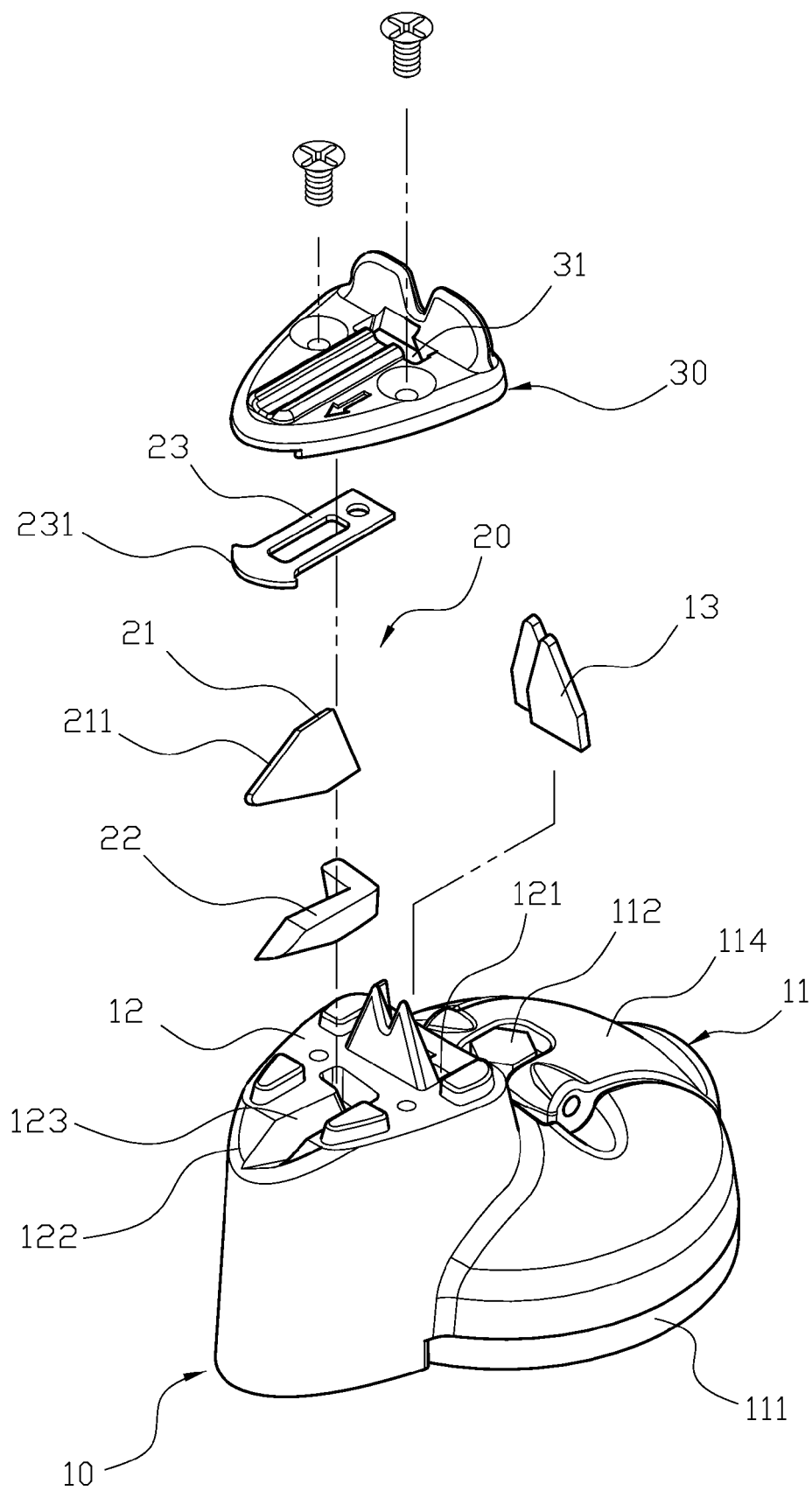


FIG. 2

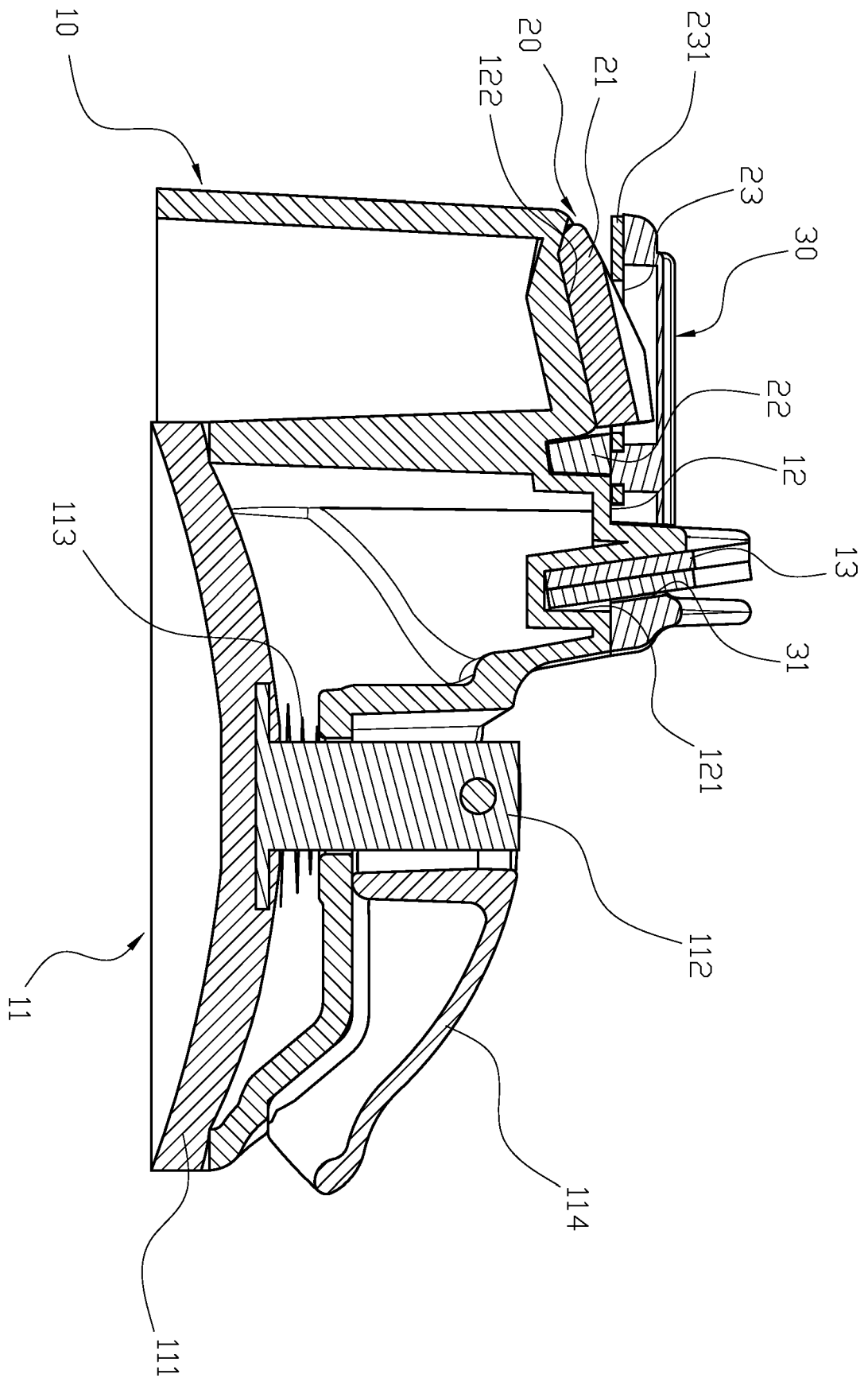


FIG. 3

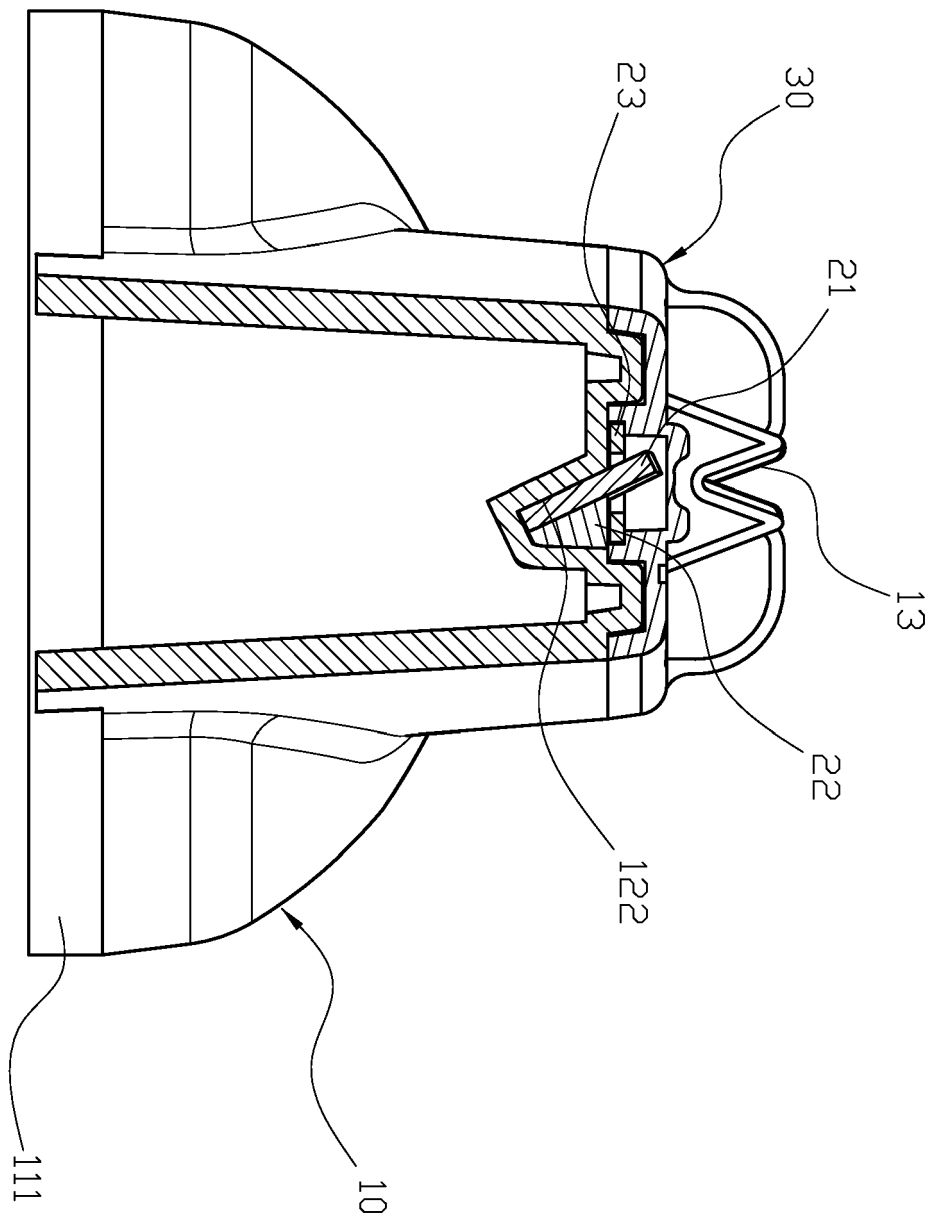


FIG. 4

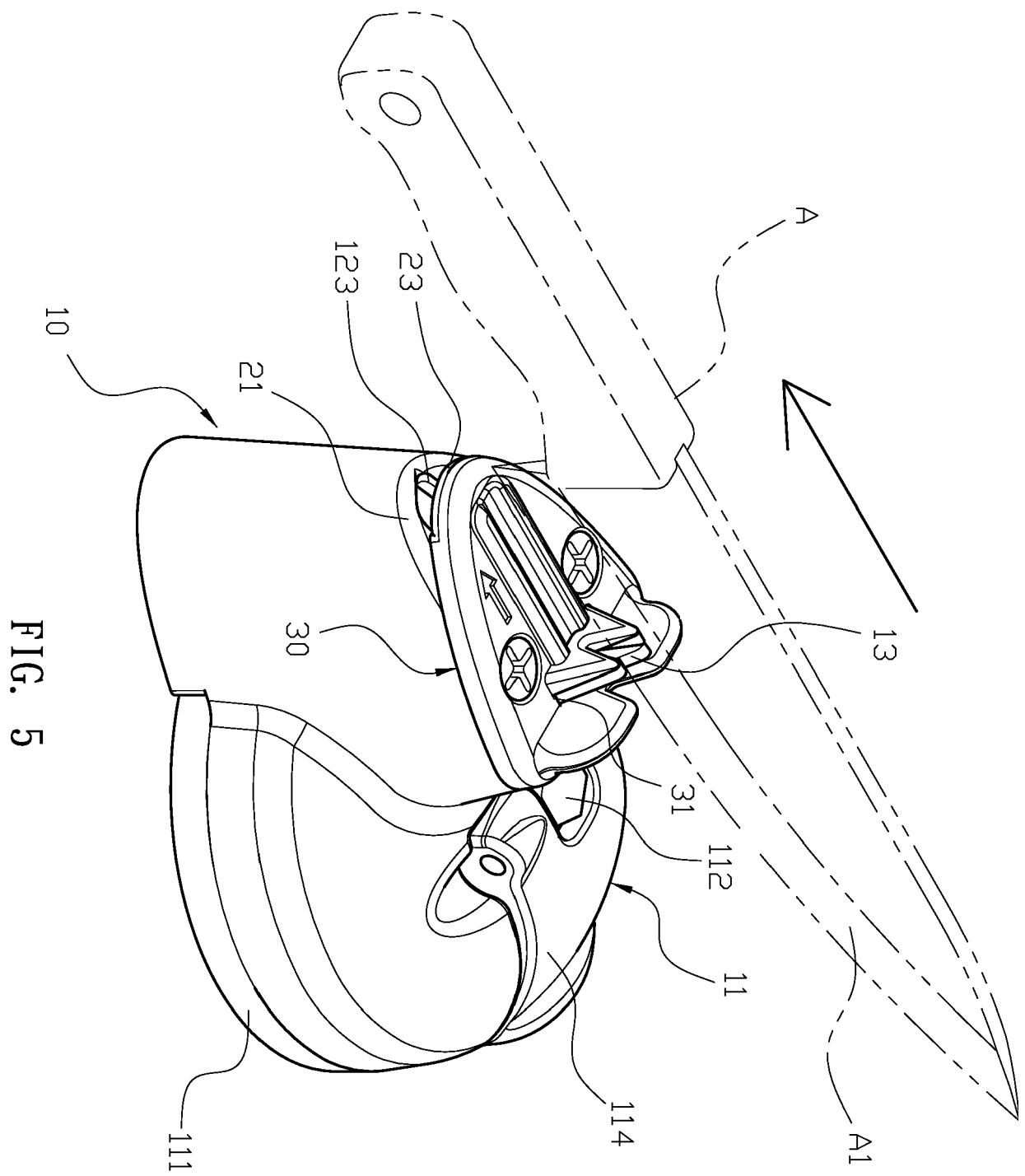


FIG. 5

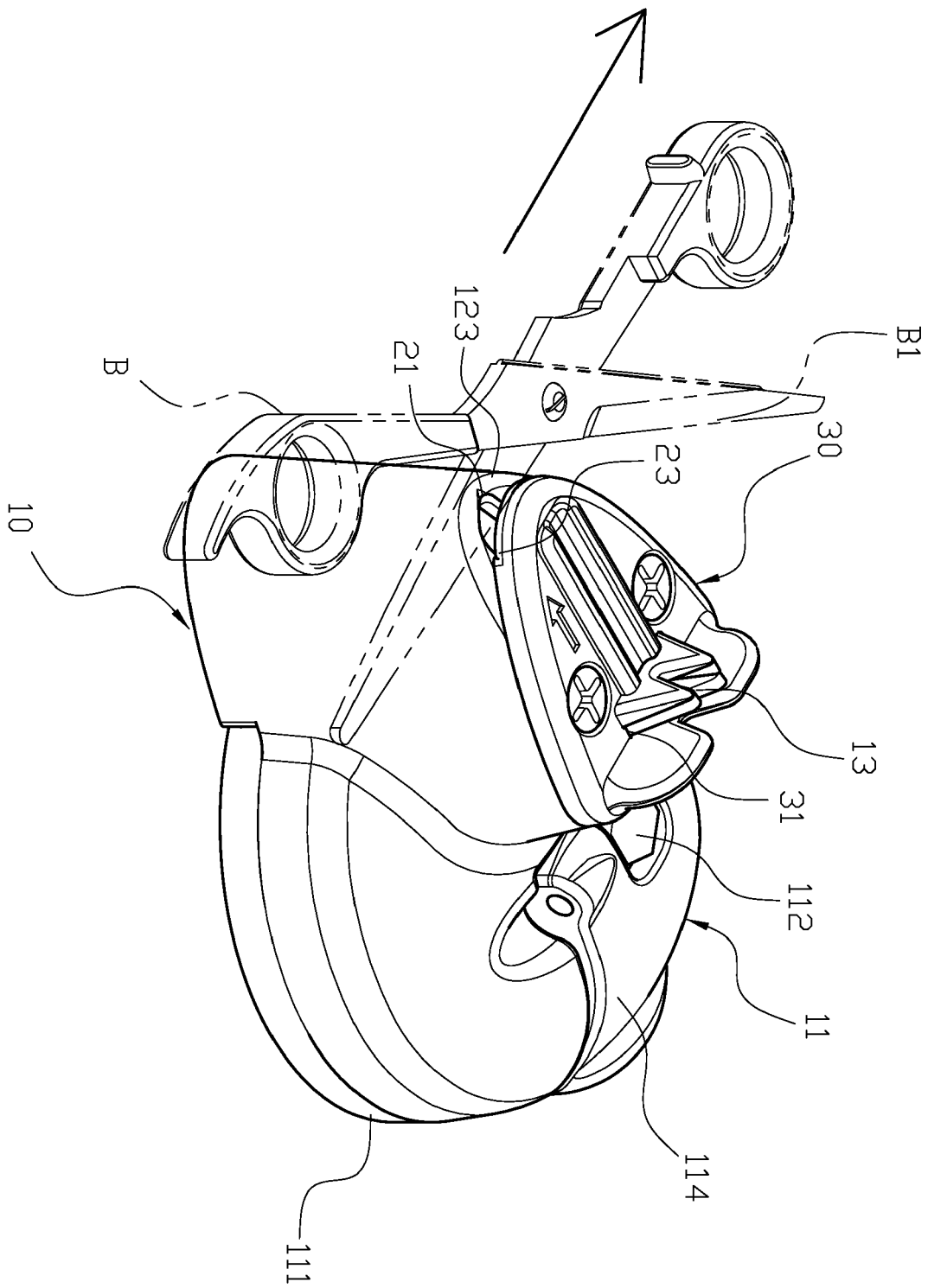


FIG. 6



EUROPEAN SEARCH REPORT

Application Number
EP 12 15 8935

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2009/133459 A1 (HABERSTROH MICHAEL [DE]) 5 November 2009 (2009-11-05) * page 6, line 6 - page 6, line 15; figure 1 *	1	INV. B24D15/06
X	US 2011/009040 A1 (WU SHIH-PIAO [TW]) 13 January 2011 (2011-01-13) * figure 4 *	1	
A		2-5	
X	US 2007/266828 A1 (BYERS GARY L [US]) 22 November 2007 (2007-11-22) * figures 1,8,9,10 *	1	
A		2-5	
X	US 7 229 344 B1 (WU SHIH-PIAO [TW]) 12 June 2007 (2007-06-12) * figure 3 *	1	2-5
A		2	
A	US 7 153 200 B1 (WU SHIH-PIAO [TW]) 26 December 2006 (2006-12-26) * figure 5 *	2	
			TECHNICAL FIELDS SEARCHED (IPC)
			B24D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 2 August 2012	Examiner Müller, Andreas
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 15 8935

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02-08-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009133459 A1	05-11-2009	EP 2318182 A1 TW 201000258 A WO 2009133459 A1	11-05-2011 01-01-2010 05-11-2009
US 2011009040 A1	13-01-2011	NONE	
US 2007266828 A1	22-11-2007	CA 2589436 A1 US 2007266828 A1	19-11-2007 22-11-2007
US 7229344 B1	12-06-2007	NONE	
US 7153200 B1	26-12-2006	NONE	

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