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(54) **SHARPENING GUIDE**

(57) The objective of the invention is to enable that the starting angle of sharpening is made constant and to facilitate the sharpening of especially curved blades. A sharpening guide (1) according to the invention for the sharpening of a tool blade (100) comprises a body (2) equipped with a magnet (9) at its base, where an elongated bar (4) is installed in the top part (3) of the body (2), which elongated bar (4) extends through the top part (3), whereby the sharpening guide (1) is fastenable on the blade (100) to be sharpened by means of the magnet (9) so that the bar (4) forms an essentially right angle relative to the blade line (101) when a reference end (400) of the bar (4) touches the surface of the honing device against which the blade to be sharpened is swept. The sharpening of curved blades, such as blades of sheath knives or chisels with a curved blade, is facilitated by means of the sharpening guide. The sharpening guide also enables the easy sharpening of straight blades.

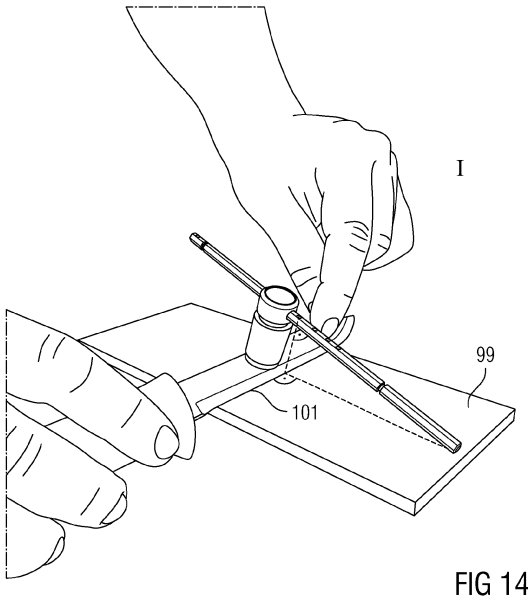

FIG 14

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Description

Field of invention

[0001] The invention is related to sharpening guides, namely such that are used to guide a tool blade when starting sharpening or during sharpening. The sharpening guide is most advantageously used for sharpening tools such as chisels, plane cutters, knives, scissors and similar.

Technical background

[0002] During sharpening, the tool blade to be sharpened is moved relative to the sharpening device, such as emery paper, carbide stone, oil stone, water stone or similar. In this case, the goal is to keep the angle between the tool blade and the sharpening device constant when starting sharpening. If there is a need to create a microchamfer in the blade, then after the actual chamfer has been sharpened, the sharpening angle is increased by a few (usually 2 to 5) degrees, and the tip part of the actual chamfer is sharpened to the increased sharpening angle.

[0003] Various types of blade guides are already known. As an example, Lie-Nielsen Toolworks, Inc sells a honing guide, a more detailed description of which can be found at the time of writing of this at: https://www.lie-nielsen.com/products/honing-guide-bladesstandard?path=sharpening-tool-care&node=4115. In order to adjust the correct blade angle in such a sharpening guide, a chisel or plane cutter, for example, must be set to extend over a certain distance beyond the sharpening guide. Curved blades cannot be sharpened with such a device, at least not easily, which makes it difficult or even impossible to sharpen, for example, chisels, plane cutters or knives with a curved blade.

Objective of invention

[0004] The objective of the invention is a sharpening guide with which the starting angle of sharpening can be made constant and with which especially curved blades can be sharpened easily. The sharpening guide also makes it easier to sharpen chisel blades or plane cutters, among others, to be convex.

[0005] This objective can be accomplished by means of the sharpening guide according to claim 1.

[0006] The dependent claims describe the advantageous aspects of the sharpening guide.

Advantages of invention

[0007] The sharpening guide according to the invention comprises a body equipped with a magnet at its base, where an elongated bar is installed in the top part of the body, which elongated bar extends through the top part, whereby the sharpening guide can be placed on top of the blade to be sharpened by means of the magnet so that the bar forms an essentially right angle relative to the blade line when the reference end of the bar touches the surface of the honing device against which the blade to be sharpened is swept.

[0008] By means of the sharpening guide it is easy to accomplish the desired constant angle at the beginning of sharpening between the blade to be sharpened and the sharpening device. This makes it easier to sharpen especially curved blades, such as sheath knives or chisels with curved blades, but it also enables easy sharpening of straight blades.

[0009] According to an advantageous aspect, the bar is movable relative to the top part, whereby the starting angle of sharpening provided by the sharpening guide is adjustable by adjusting the length of the protruding part of the bar. This enables the adjustment of the starting angle of sharpening in an easy manner. In this way, for example, it is easily possible to sharpen a plane cutter to the desired angle, or the starting angle of sharpening can be exactly as desired.

[0010] According to an advantageous aspect, the bar comprises at least one alignment mark, whereby the sharpening guide can also be positioned by means of the magnet so that the sharpening guide is aligned relative to the blade to be sharpened so that said alignment mark comes at the blade line of the blade to be sharpened, above it. This makes it possible to visually verify the starting angle of sharpening.

[0011] In this case, there are most preferably at least two alignment marks, whereby, to change the starting angle, the position of the bar relative to the body is shifted and the sharpening guide is aligned relative to the blade to be sharpened so that the second alignment mark indicating the desired sharpening angle comes at the blade line of the blade to be sharpened.

[0012] One end of the bar is most advantageously the reference end and the other end is the end intended to face the user. In the operation position of the sharpening guide, said at least one alignment mark is on the bar between the body and the reference end. In such a case, the bar most advantageously comprises a handle or holding part, such as a ring, fastened to the end intended to face the user. This intuitively helps to avoid an incorrect way of use, in other words that the user would attempt to position that end of the bar, which is intended to face the user, at the blade line of the blade to be sharpened.

[0013] The bar most preferably has a coding, such as a cut or notch, which corresponds to the alignment marks, to facilitate adjustment. The coding can be at the alignment mark.

[0014] According to a preferred aspect, the height of the body is adjustable, whereby when the distance between the top part and the magnet changes, the distance between the magnet and the bar also changes. This makes it possible to sharpen blades of different thicknesses to the same angle, when the distance between the top part and the magnet is adjusted on the basis of

the thickness of the blade so that the angle is constant. In practice, the distance must be changed essentially by half of the change in the thickness of the blade.

[0015] When the body and the top part are connected to each other by means of a thread so that the angle of pitch of the thread remains constant, the above-mentioned adjustment of the starting angle when sharpening blades of different thicknesses can be carried out steplessly using relatively simple technical means. Especially advantageously, an easily memorable angle of pitch can be chosen for the thread, such as 1/4, 1/2 mm or 1 mm per revolution (or, correspondingly, in countries using an inch size, for example, 1/16, 1/8 inch per revolution).

[0016] According to a preferred aspect, there is a loading spring between the body and the top part, which loading spring loads the bar to prevent unintentional movement of the bar. This improves the end result of sharpening by keeping the starting angle constant.

List of drawings

[0017] The sharpening guide and its preferred embodiments are presented in more detail in the detailed description by means of the embodiments presented in the attached drawing sheets FIG 1-18. Of the drawings:

FIG 1A shows the sharpening guide viewed from a side;

FIG 1B shows the sharpening guide shown in FIG 1A viewed from above;

FIG 1C shows section I-I of the sharpening guide (see FIG 1B);

FIG 2 shows the spring loading spring of the bar;

FIG 3 shows one embodiment of the body tube;

FIG 4A shows a second embodiment of the body tube;

FIG 4B shows section IV-IV of the body tube shown in FIG 4A;

FIG 5A shows a fastener of the magnet viewed in a perspective;

FIG 5B shows the fastener of the magnet shown in FIG 5A viewed from a side;

FIG 5C shows section V-V of the fastener of the magnet shown in FIG 5B;

FIG 5D shows detail B;

FIG 6A shows the top part without the bar, from a first side, viewed perpendicularly relative to the fastening hole of the bar;

FIG 6B shows the top part without the bar shown in FIG 6A, from a second side (turned 90 degrees relative to the first side), viewed from the direction of the fastening hole of the bar;

FIG 6C shows section VI-VI (see FIG 6A);

FIG 7A shows the bar viewed from above;

FIG 7B shows section VII-VII (see FIG 7A);

FIG 7C shows an embodiment of the bar with 19.5 degrees and 16 degrees alignment marks;

FIG 7D shows a transverse cross-section of the bar;

FIG 8 shows the blade angles attainable by means of the bar;

FIG 9 shows the sharpening guide in the intermediate position of the body height;

FIG 10 shows the sharpening guide in the top position of the body height;

FIG 11 shows the sharpening guide in the bottom position of the body height;

FIG 12 shows the adjustment of the body height;

FIG 13 - 17 show the sharpening of a knife with curved blade; and

FIG 18 shows the sharpening of a chisel with straight blade.

[0018] The same reference numbers refer to the same structural parts in all FIG.

Detailed description of the invention

[0019] FIG 1A shows sharpening guide 1 viewed from a side, FIG 1B shows it viewed from above, and FIG 1C shows section I-I. Sharpening guide 1 comprises body 2 and top part 3, and bar 4, which assists the taking of the starting position of sharpening, is installed on top part 3, and bar 4 has reference end 400 and end 500 intended to face the user. At end 500 of bar 4 intended to face the user, there can be a ring, handle or similar.

[0020] Bar 4 can have one or more limiters 42, such as o-rings. The purpose of limiter 42 is to prevent the unintentional removing of bar 4 from sharpening guide

1. In addition to this, bar 4 contains a number of alignment marks 41. Each alignment mark 41 corresponds to the starting position of sharpening accomplishable with the selected alignment mark, which starting position accomplishes the desired sharpening angle.

[0021] Magnet 9 is advantageously located in recess 214 in magnet fastener 21 (cf. FIG 5A-5D). Magnet fastener 21 is installed on body tube 22 (cf. FIG 3). Thread 25 and a counter thread in body tube 22 are arranged for height adjustment. Spring 24 between bar 4 and magnet fastener 21 (cf. FIG 2) spring loads bar 4.

[0022] FIG 4A shows a second embodiment of body tube 22, and FIG 4B shows its section IV-IV. Body tube 22 has an embossed surface in a similar manner as in a hand grenade for ensuring a better grip. This may be of advantage especially if the body tube is slippery to the hand, as may easily be the case in particular when the honing device is a water stone or oil stone.

[0023] FIG 5A shows magnet fastener 21 viewed in a perspective, and FIG 5B shows it viewed from a side. FIG 5C shows section V-V, and FIG 5D shows detail B. There is thread 211 on the outer shell of fastener 21. Roughening 212 facilitates getting a better grip. Stopper 213 can come against body tube 22 when the height of sharpening guide 1 is adjusted to the shortest dimension.

[0024] FIG 6A shows top part 3 without bar 4, from a first side, viewed perpendicularly relative to fastening hole 32 of the bar. FIG 6B shows same top part 3 without bar 4, from a second side (turned 90 degrees relative to the first side), viewed from the direction of fastening hole 32 of bar 4, and FIG 6C shows section VI-VI. Knob 31 comprises through-hole 32. Distance indicator 33, which can also be in the form of a roughening, most advantageously includes a scale, which can be in a spacing in mm (such as a spacing of 0.5 mm or 1 mm) or in a spacing in inches (such as a spacing of 1/16 or 1/8 inch). Top part 3 also comprises counter thread 35 for thread 35. Most advantageously, counter thread 35 is located inside body 34 of the top part. Body 34 can also comprise o-rings at the top and bottom.

[0025] FIG 7A shows bar 4 viewed from above. FIG 7B shows section VII-VII. FIG 7C shows a second embodiment of bar 4 with 19.5 degrees and 16 degrees alignment marks. Bar 4 comprises a number of alignment marks 41 and possibly also limiter 42 or limiters, such as o-rings. FIG 7D shows the advantageous cross-section of bar 4, which cross-section is perpendicular (in other words transverse) relative to the longitudinal direction.

[0026] FIG 8 shows different angles that are attainable by sharpening guide 1. Each of these is accomplished so that alignment mark 41 corresponding to each different angle causes, when bar 4 is at the alignment mark relative to blade line 101 of blade 100 to be sharpened, a different starting angle of sharpening between reference end 400 of bar 4 and honing device 99. This is illustrated below in connection with the description of FIG 13-18.

[0027] There is no limit to the width of blades 100 to be sharpened.

[0028] The position of bar 4 determines the angle relative to the front edge of blade 100 (blade line 101). When bar 4 is further out (in other words reference end 400 of bar 4 is father away from body 2 of sharpening guide 1), then the sharpening angle is gentler. When bar 4 less out (in other words reference end 400 of bar 4 is closer to body 2 of sharpening guide 1), then the sharpening angle is steeper.

[0029] The generally used sharpening angles are 16, 18, 21, 23, 25, 27 degrees (+-1 degree).

[0030] The sharpening of a microchamfer can also be carried out with the sharpening guide. In this case, bar 4 is first moved outwards, to a position of 23 degrees, for example. After this, blade 100 is sharpened. Finally, bar 4 is moved inwards, to a position of 21 degrees, for example. After this, blade 100 is swept a few times against honing device 99.

[0031] FIG 9-11 show height adjustment of sharpening guide 1, used for compensating for the thickness of the blade to be sharpened. In FIG 11, sharpening guide 1 is in its shortest configuration, and in FIG 10 it is in its longest configuration. FIG 9 shows sharpening guide 1 in the intermediate position.

[0032] Height adjustment most advantageously takes place in the manner shown in FIG 12 by rotating bar 4, whereby top part 3 rotates relative to body 2, in other words also relative to magnet fastener 212 and magnet 9. Thread 211 and counter thread 35 accomplish a change in the height of body 2 (in other words, the distance between bar 4 and magnet 9 changes), and by means of distance indicator 33 it is possible to visually verify that the desired height has been accomplished. An even easier way to ensure that the desired height is accomplished is to count the opening or closing revolutions (such as 0.5 mm per revolution).

[0033] As an example, if the blade to be sharpened is 1 mm thick, the compensation is: the thread is opened 7 revolutions from the closed position, in other words, bar 4 is lifted 3.5 mm.

[0034] Example: A survival sheath knife where the thickness of the blade is 8 mm. In this case, turning to the closed position relative to body 2 (rise of bar 0 mm by means of the sharpening device or in an alternative approach calculated from the maximum adjusting margin of 4 mm.

[0035] Example: A thicker blade (such as a sheath knife) is compensated for by turning towards the closed position (in sharpening guide 1 the distance gets smaller, in other words, the distance brought by the thickness of the blade of the knife to the bar is compensated for). A thinner blade (such as a sheath knife) is compensated for by turning a maximum of 8 revolutions/4 mm towards the open direction (the distance of bar 4 from the blade to be sharpened increases by means of sharpening guide 1).

[0036] As an example, a rise of 4 mm is usually a suitable amount of compensation for a chisel, when the one-

sided blade of a chisel requires a compensation of 4 mm.

[0037] In other words, sharpening guide 1 comprises body 2 equipped with magnet 9 at its base, where elongated bar 4 is installed in top part 3 of body 2, which elongated bar 4 extends through top part 3, whereby sharpening guide 1 can be fastened on blade 100 to be sharpened by means of magnet 9 so that bar 4 forms an essentially right angle relative to blade line 101 when reference end 400 of bar 4 touches honing device 99.

[0038] Bar 4 is movable relative to top part 3, whereby the starting angle of sharpening provided by sharpening guide 1 is adjustable by adjusting the length of the protruding part of bar 4 (in other words the distance between reference end 400 and body 2).

[0039] Bar 4 comprises at least one alignment mark 41, whereby sharpening guide 1 can also be positioned by means of magnet 9 so that the sharpening guide is positioned relative to the blade to be sharpened so that said alignment mark 41 comes at blade line 101 of blade 100 to be sharpened, above it.

[0040] There are most advantageously at least two alignment marks 41, whereby, to change the starting angle, the position of bar 4 relative to body 2 is shifted and sharpening guide 1 is positioned relative to blade 100 to be sharpened so that second alignment mark 41 indicating the desired sharpening angle comes at blade line 101 of blade 100 to be sharpened.

[0041] One end of bar 4 is end 500 intended to face the user. In the operation position of sharpening guide 1, said at least one alignment mark 41 is on bar 4 between body 2 and reference end 400.

[0042] Bar 4 comprises handle or holding part 5, such as a ring, fastened to end 500 intended to face the user.

[0043] Bar 4 most advantageously has a coding, such as a cut or notch, which corresponds to alignment marks 41, to facilitate adjustment.

[0044] The height of body 2 is adjustable, whereby when the distance between top part 3 and magnet 9 changes, the distance between magnet 9 and bar 4 also changes.

[0045] Body 2 and top part 3 are connected to each other by means of thread 25 so that the angle of pitch of thread 25 remains constant.

[0046] There is loading spring 24 between body 2 and top part 3, which loading spring 24 loads bar 4 to prevent unintentional movement of bar 4.

[0047] FIG 13-17 show the sharpening of a knife with a curved blade. It has been difficult to carry out the controlled sharpening of a curved blade by using currently available sharpening devices. Sharpening guide 1 according to the invention facilitates this considerably. By means of sharpening guide 1, it is possible to specify an exact starting angle in the sharpening of curved blade 100. The exact starting angle is specified most advantageously so that by means of sharpening guide 1, it is possible to increase the blade angle, or make the blade angle steeper steplessly during the sharpening movement after the starting angle / most gentle blade angle - in other words enabling the sharpening of a blade where the blade line is curved.

[0048] FIG 13 and 14 show the starting of sharpening (stage I). Blade 100 to be sharpened (in the example a sheath knife with curved blade) lies on top of honing device 99. Magnet 9 is fastened to blade 100 to be sharpened. Alignment mark 41 is placed so that it is vertical on top of blade line 101. Blade line 101 is most advantageously at a right angle relative to the longitudinal direction of honing device 99.

[0049] FIG 15 and 16 show the final part of a sharpening sweep (stage II). Blade 100 to be sharpened has been drawn on honing device 99, with the blade line following this. Blade line 101 is most advantageously kept at a right angle relative to the longitudinal direction of honing device 99 throughout the draw. The blade can be pressed downwards during a draw, whereby bar 4 comes off from the surface of honing device 4 over distance d.

[0050] FIG 17 shows a draw.

[0051] In practice, when blade 100 of a sheath knife or other tool is sharpened, the distance of bar 4 is adjusted to conform to the desired angle. The height of body 2 is also adjusted to conform to the thickness of blade 100 (whereby the distance of bar 4 from magnet 9 changes).

[0052] When the blade is pulled backwards and pressed down, the angle decreases by a few degrees, whereby bar 4 comes off from the surface of the honing device over distance d.

[0053] If there are honing devices of the same thickness (such as honing stones) available or if there is a riser with the thickness of the honing device available, they can be placed one after the other. In this case, bar 4 can be moved to the side of the other honing device (the one further at the back) or to the side of the riser, and blade 100 can be kept on the side of the honing device at the front, enabling the use of the entire length of the honing device.

[0054] FIG 18 shows the sharpening of straight chisel blade 100. When magnet 9 is in contact with chisel blade 100, it has been necessary to increase the length of body 2 by turning 8 revolutions, because the one-sided chisel blade has not lifted the sharpening device upwards (in other words there has not been a need to perform downward compensation (turning towards the closed position)). In this case, body 2 has risen 0.5 mm per revolution, in other words a total of 4 mm. 4 mm of the thread, roughening or distance indicator 33 is visible.

[0055] The invention should not be understood to be limited only by the below claims, but the invention is to be understood to include all their legal equivalents and the combinations of the embodiments presented.

List of reference numbers used:

[0056]

1	sharpening guide
2	body

3	top part
4	bar
5	ring
9	magnet
21	magnet fastener
22	body tube (customisable, of hard plastic, of metal)
24	spring
25	thread
31	knob
32	through-hole/hole
33	distance indicator
34	top part body
35	counter thread for thread 211
41	alignment mark
42	bar limiter, e.g. o-ring
99	honing device
100	blade
101	blade line
211	thread that attaches to thread 35
212	roughening into which glue is applied so that it stays in place in body tube 22
213	body tube 22 stopper
214	magnet recess
215	magnet recess (recess with counter thread)
400	reference end of bar
500	end of bar intended to face the user

Claims

1. A sharpening guide (1) for the sharpening of a tool blade (100), **comprising:** a body (2) equipped with a magnet (9) at its base, where an elongated bar (4) is installed in the top part (3) of the body (2), which elongated bar (4) extends through the top part (3), whereby the sharpening guide (1) can be fastened on the blade (100) to be sharpened by means of the magnet (9) so that the bar (4) forms an essentially right angle relative to the blade line (101) when a reference end (400) of the bar (4) touches the surface of a honing device (99) against which the blade to be sharpened is swept.

2. The sharpening guide (1) according to claim 1, **where:** the bar (4) is movable relative to the top part (3), whereby the starting angle of sharpening provided by the sharpening guide (1) is adjustable by adjusting the length of the protruding part of the bar (4).

3. The sharpening guide (1) according to claim 1 or 2, **where:** the bar (4) comprises at least one alignment mark (41), whereby the sharpening guide (1) can also be set by means of the magnet (9) so that the sharpening guide is aligned relative to the blade to be sharpened so that said alignment mark (41) comes at the blade line (101) of the blade (100) to be sharpened, directly above it.

4. The sharpening guide (1) according to claim 3, **where:** there are at least two alignment marks (41), whereby, to change the starting angle, the position of the bar (4) relative to the body (2) is shifted and the sharpening guide (1) is aligned relative to the blade to be sharpened so that the second alignment mark (41) indicating the desired sharpening angle comes at the blade line (101) of the blade (100) to be sharpened.

5. The sharpening guide (1) according to claim 3 or 4, **where:** one end of the bar (4) is an end (500) intended to face the user, and where said at least one alignment mark (41) is in the operation position of the sharpening guide (1) on the bar (4) between the body (2) and the reference end (400).

6. The sharpening guide (1) according to claim 5, **where:** the bar (4) comprises a handle or holding part (5), such as a ring, fastened to the end (500) intended to face the user.

7. The sharpening guide (1) according to any one of the claims 3-6, **where:** the bar (4) has a coding, such as a cut or notch, which corresponds to the alignment marks (41), to facilitate adjustment.

8. The sharpening guide (1) according to any one of the preceding claims 1-7, **where:** the height of the body (2) is adjustable, whereby when the distance between the top part (3) and the magnet (9) changes, the distance between the magnet (9) and the bar (4) also changes.

9. The sharpening guide (1) according to claim 8, **where:** the body (2) and the top part (3) are connected to each other by means of a thread (25) so that the angle of pitch of the thread (25) remains constant.

10. The sharpening guide (1) according to any one of the preceding claims, **where:** there is a loading spring (24) between the body (2) and the top part (3), which loading spring (24) loads the bar (4) to prevent unintentional movement of the bar (4).

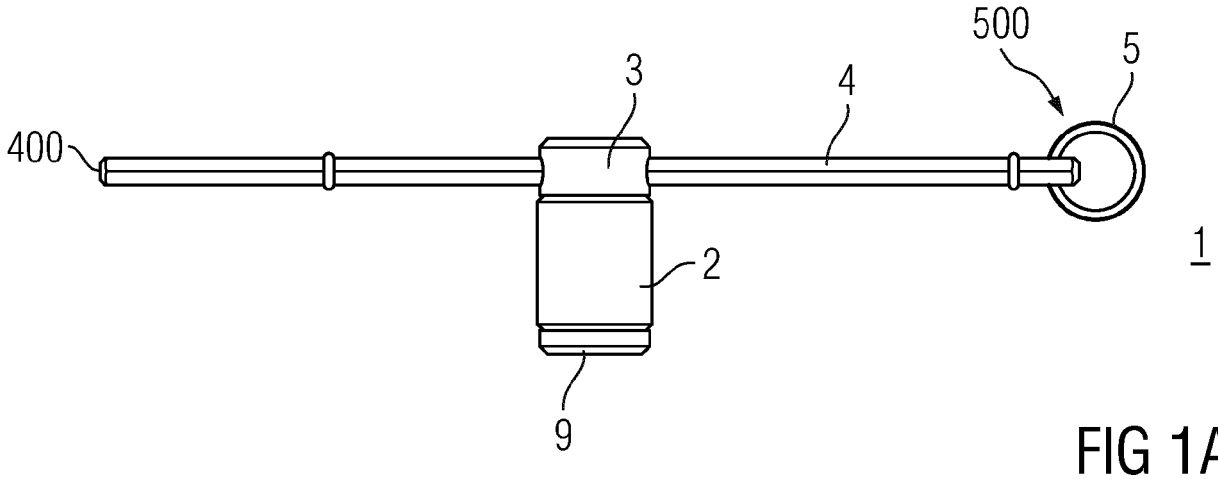

FIG 1A

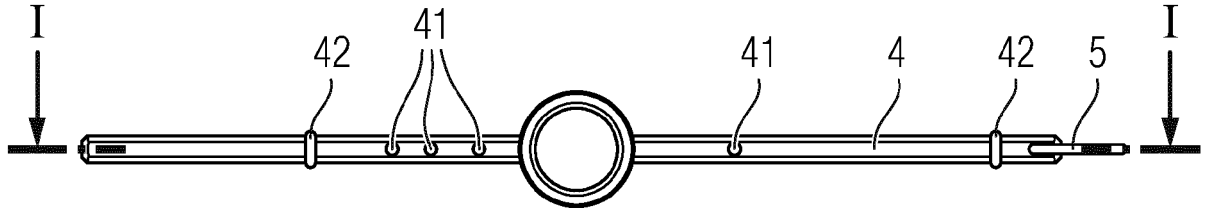

FIG 1B

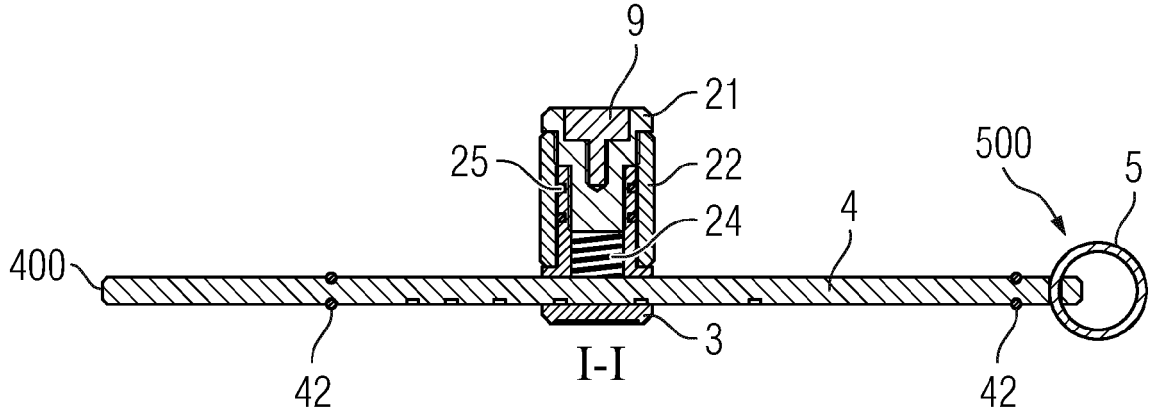

FIG 1C

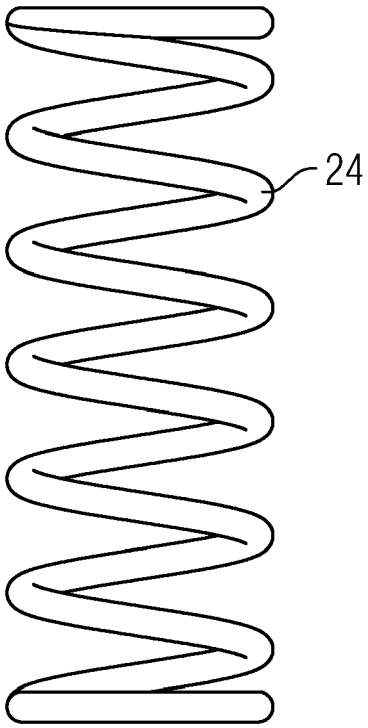

FIG 2

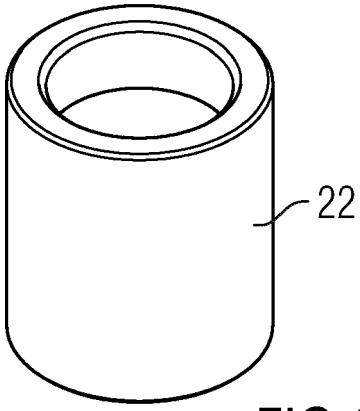

FIG 3

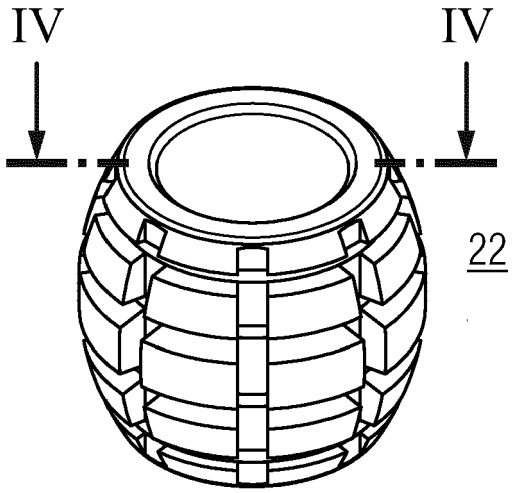

FIG 4A

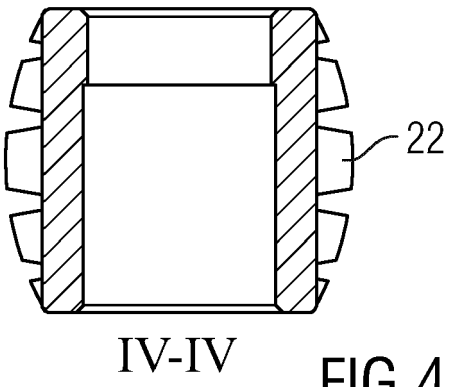

FIG 4B

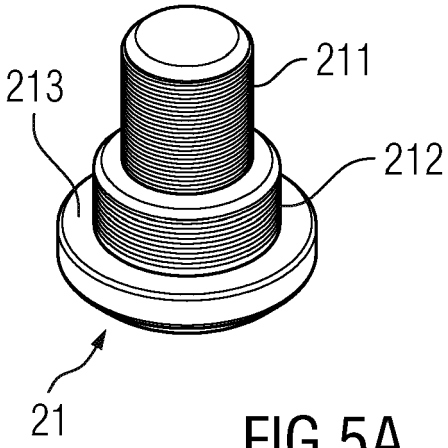

FIG 5A

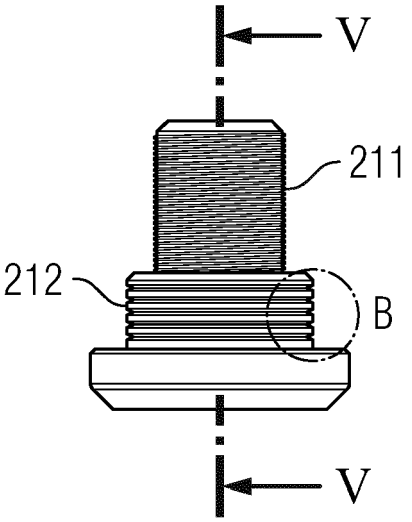

FIG 5B

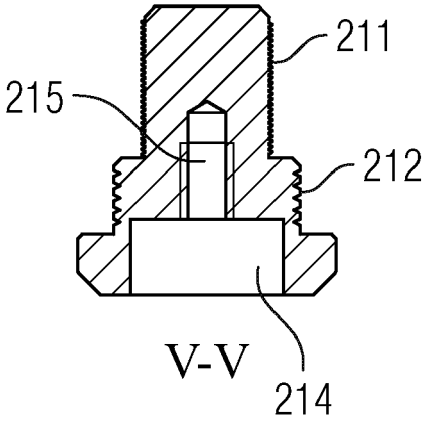

FIG 5C

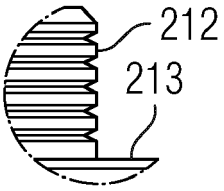

FIG 5D

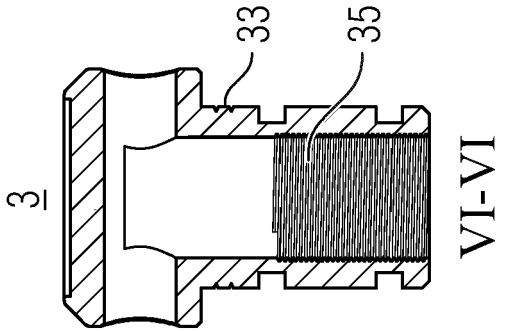

FIG 6C

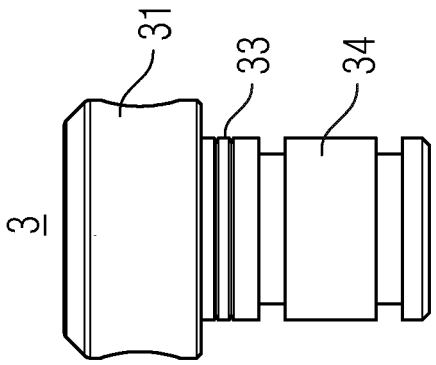

FIG 6B

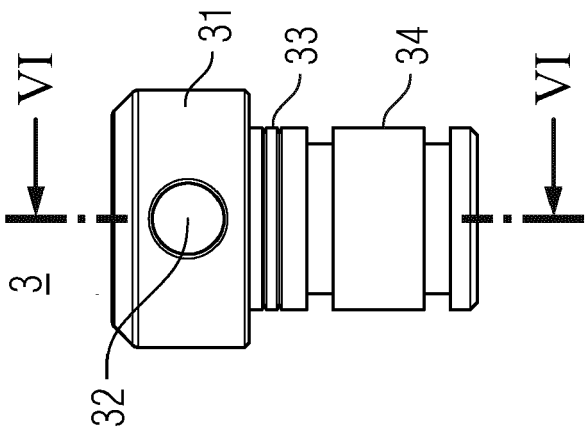

FIG 6A

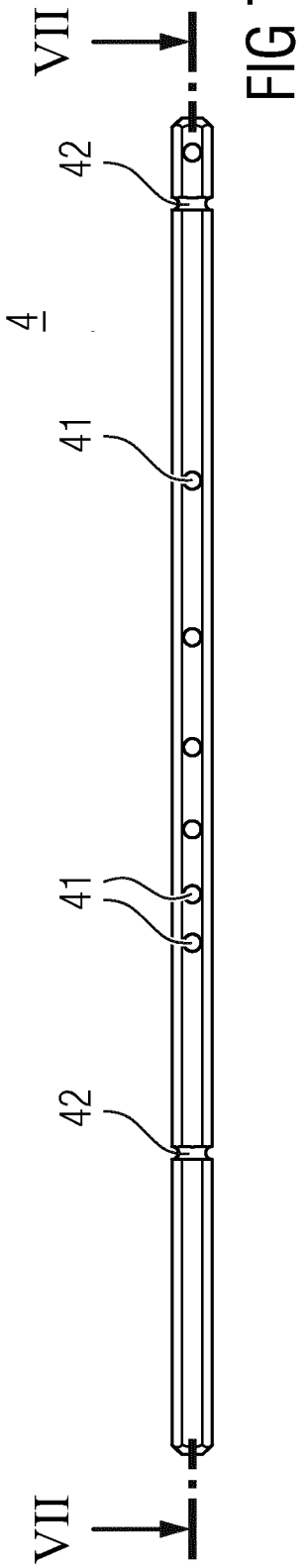

FIG 7A

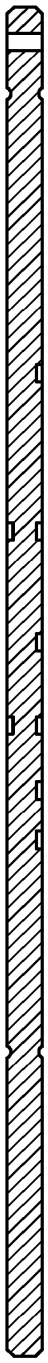

FIG 7B

FIG 7C

FIG 7D

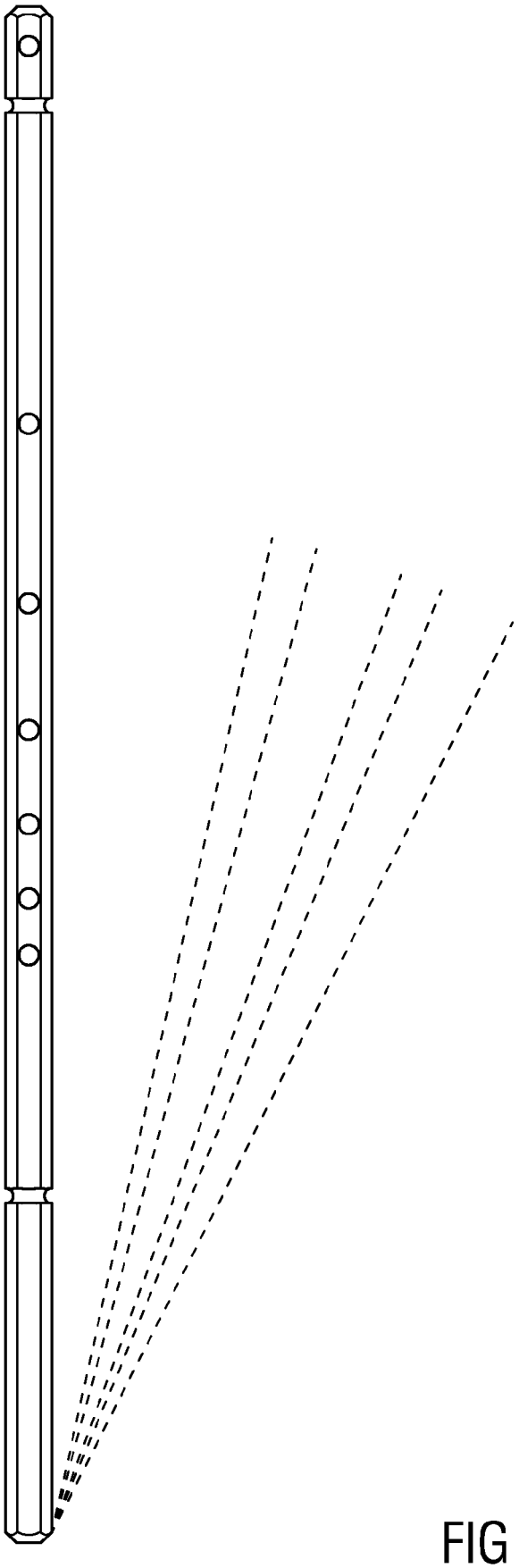

FIG 8

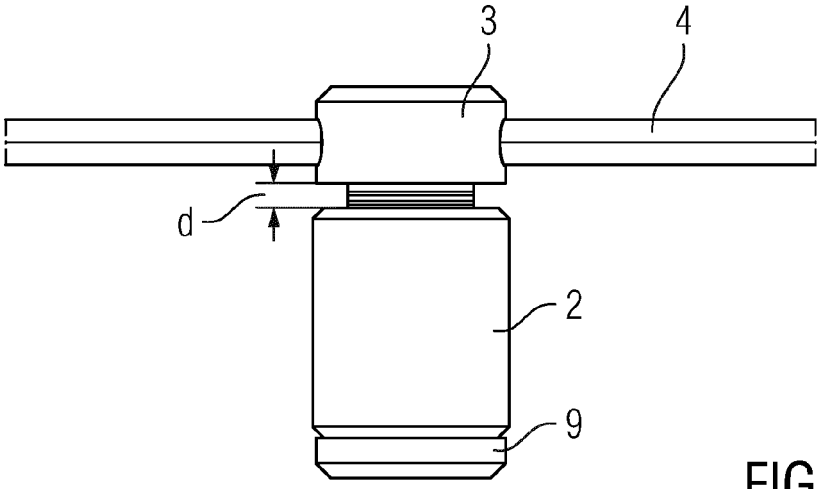

FIG 9

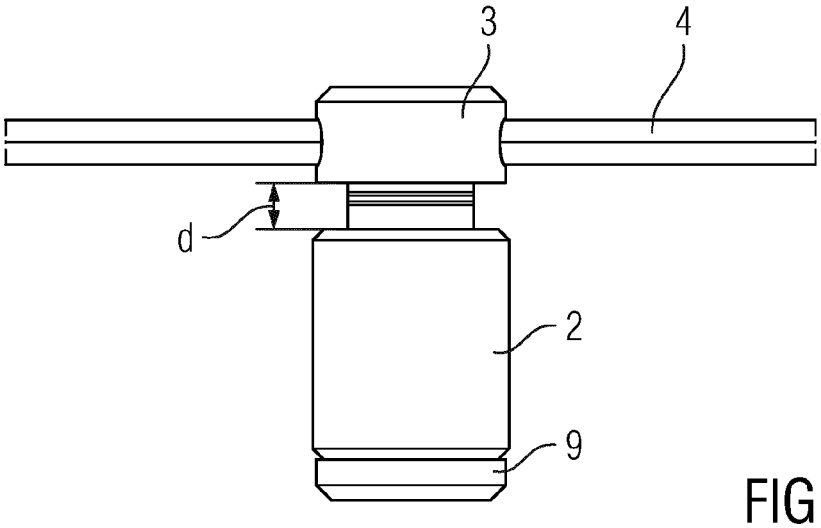

FIG 10

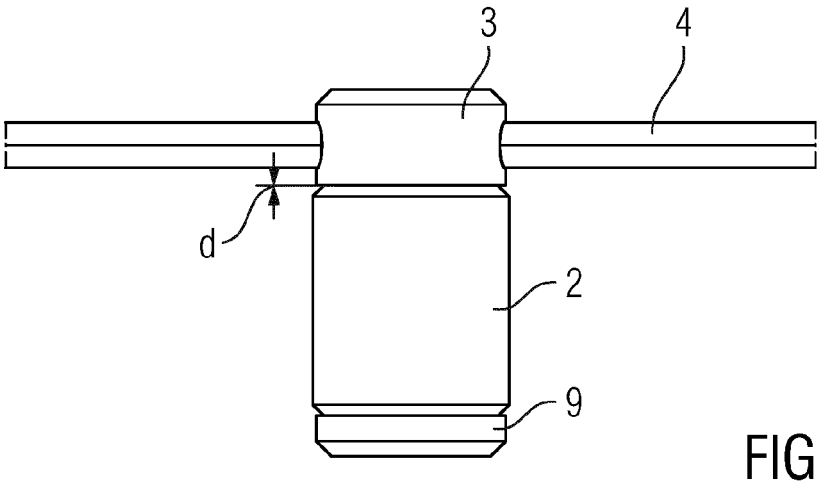

FIG 11

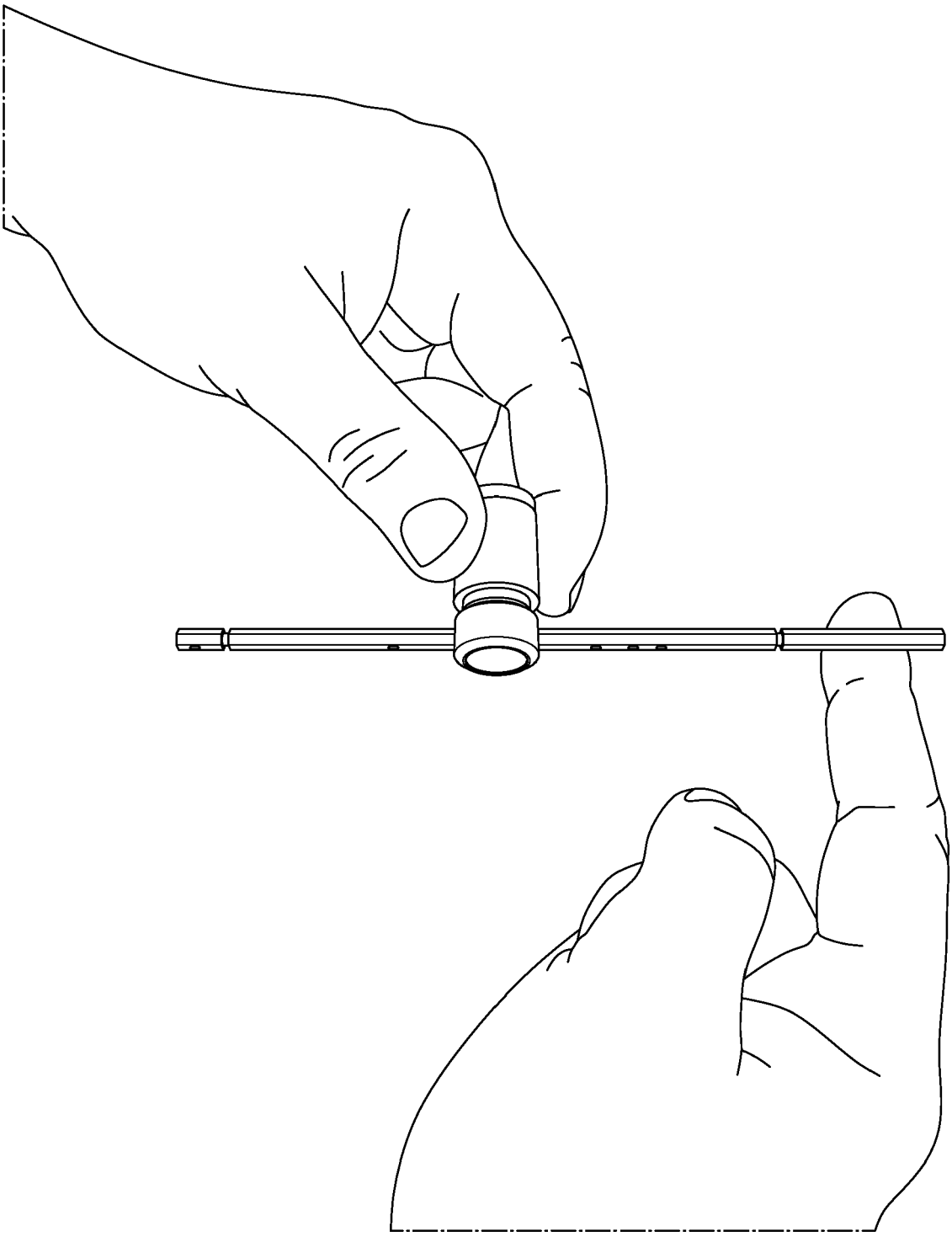

FIG 12

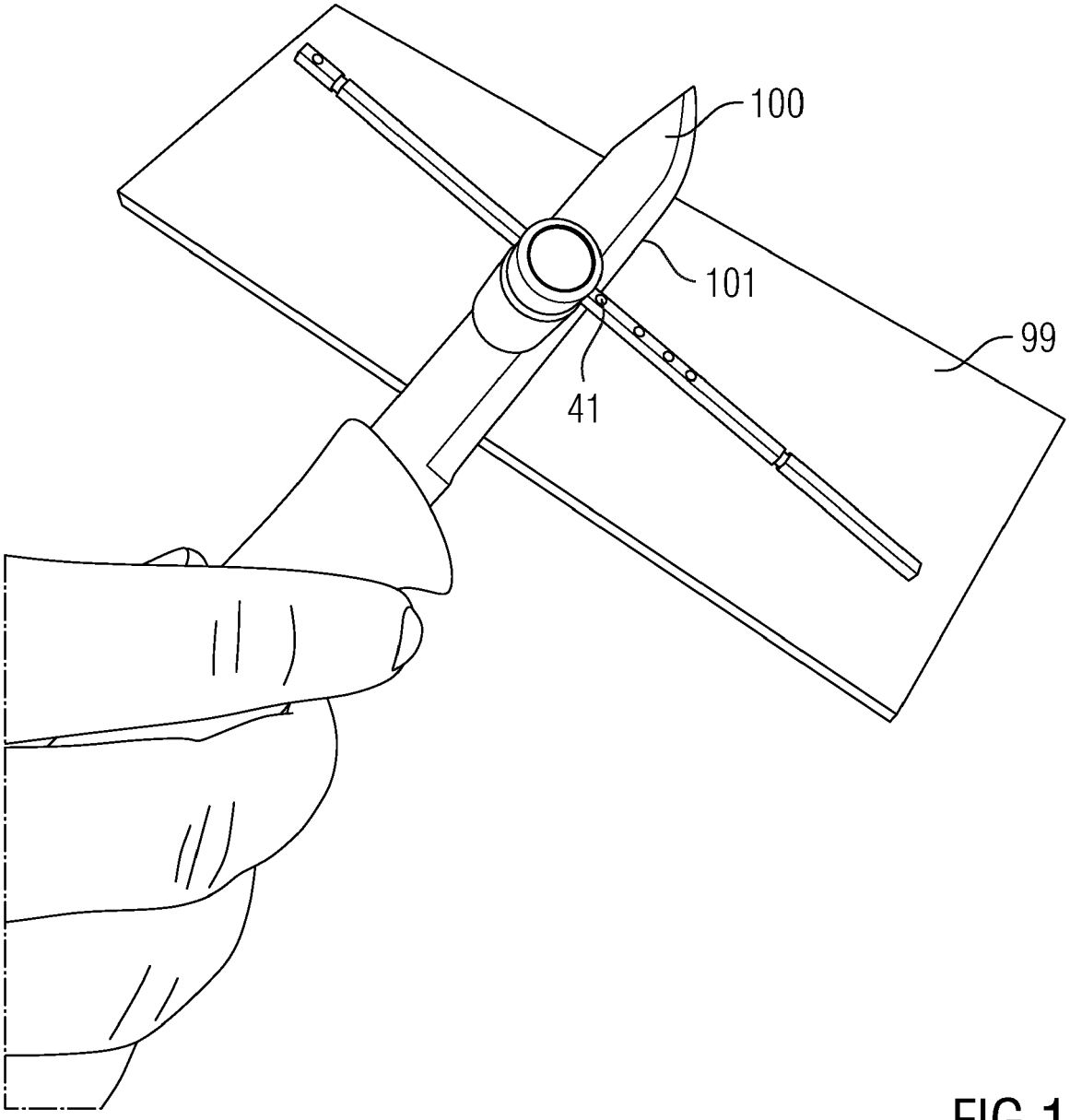

FIG 13

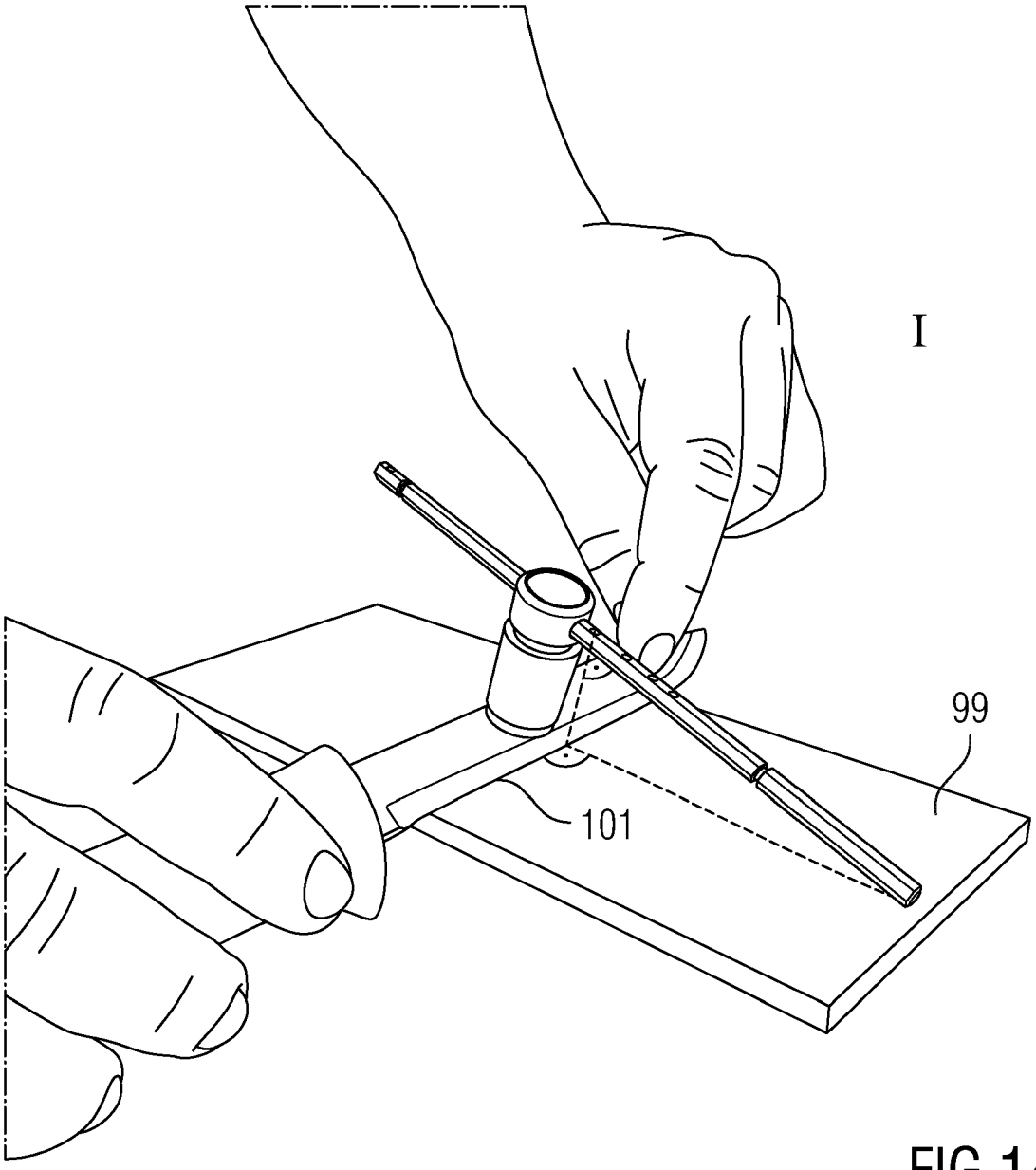

FIG 14

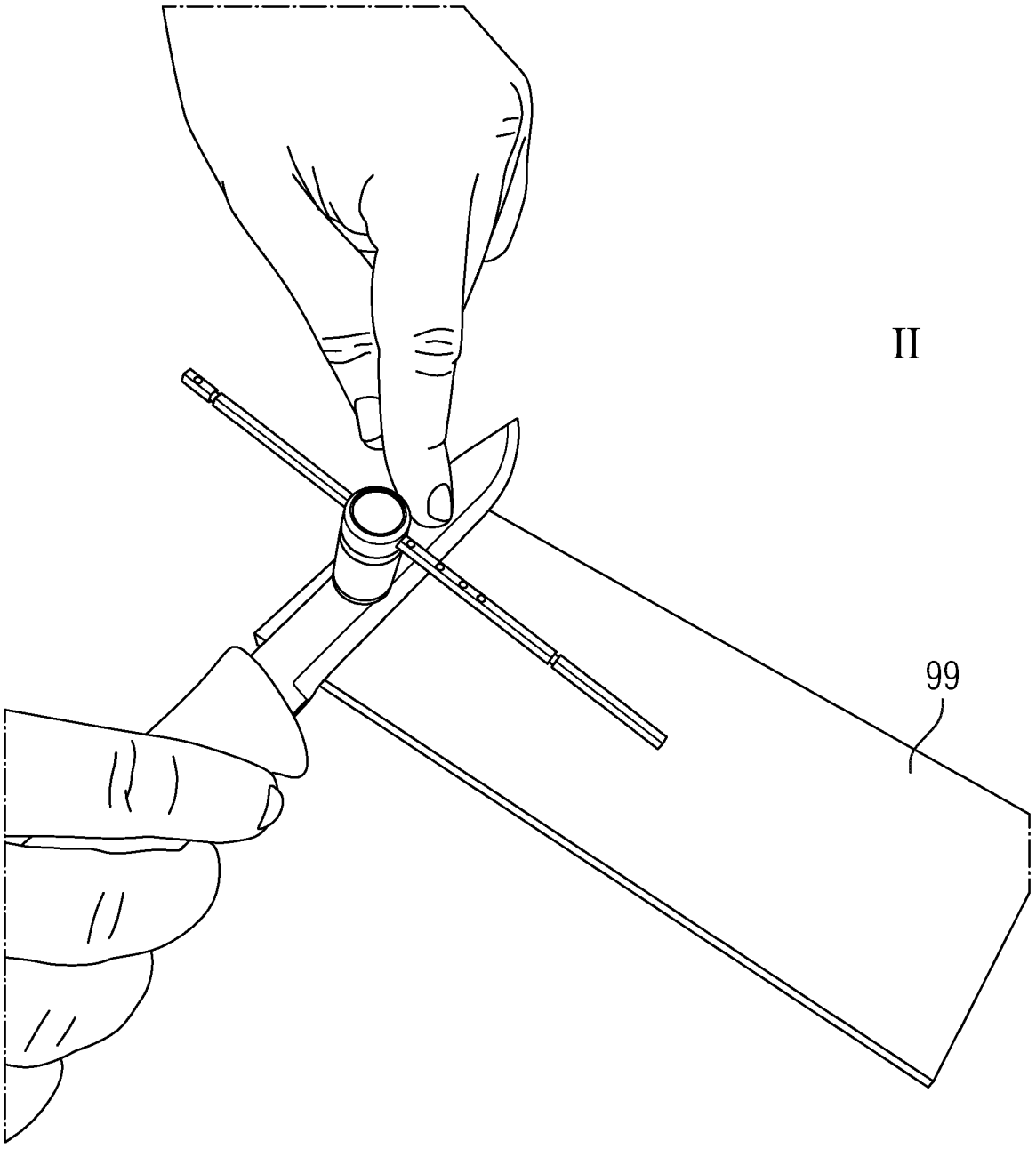

FIG 15

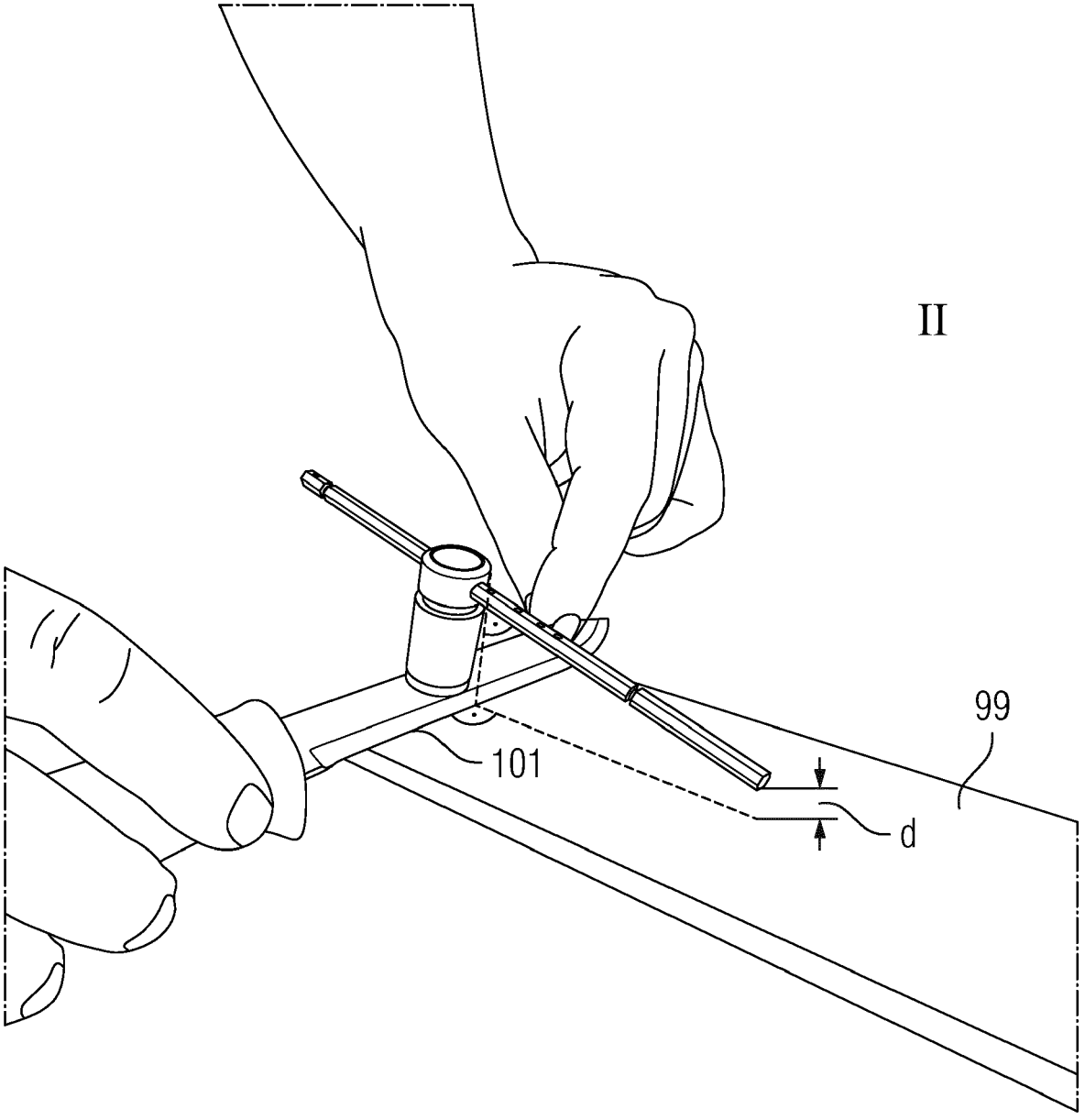

FIG 16

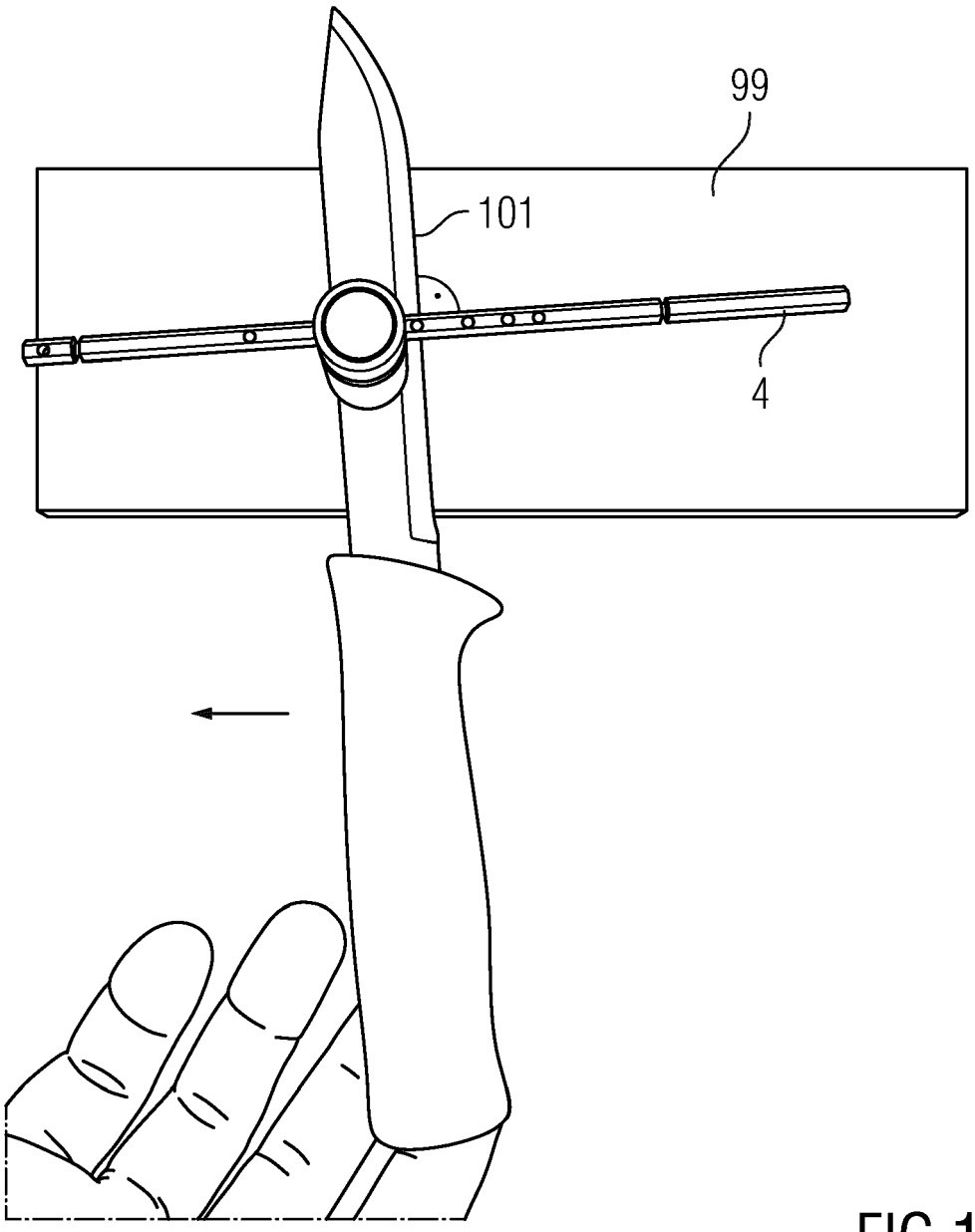

FIG 17

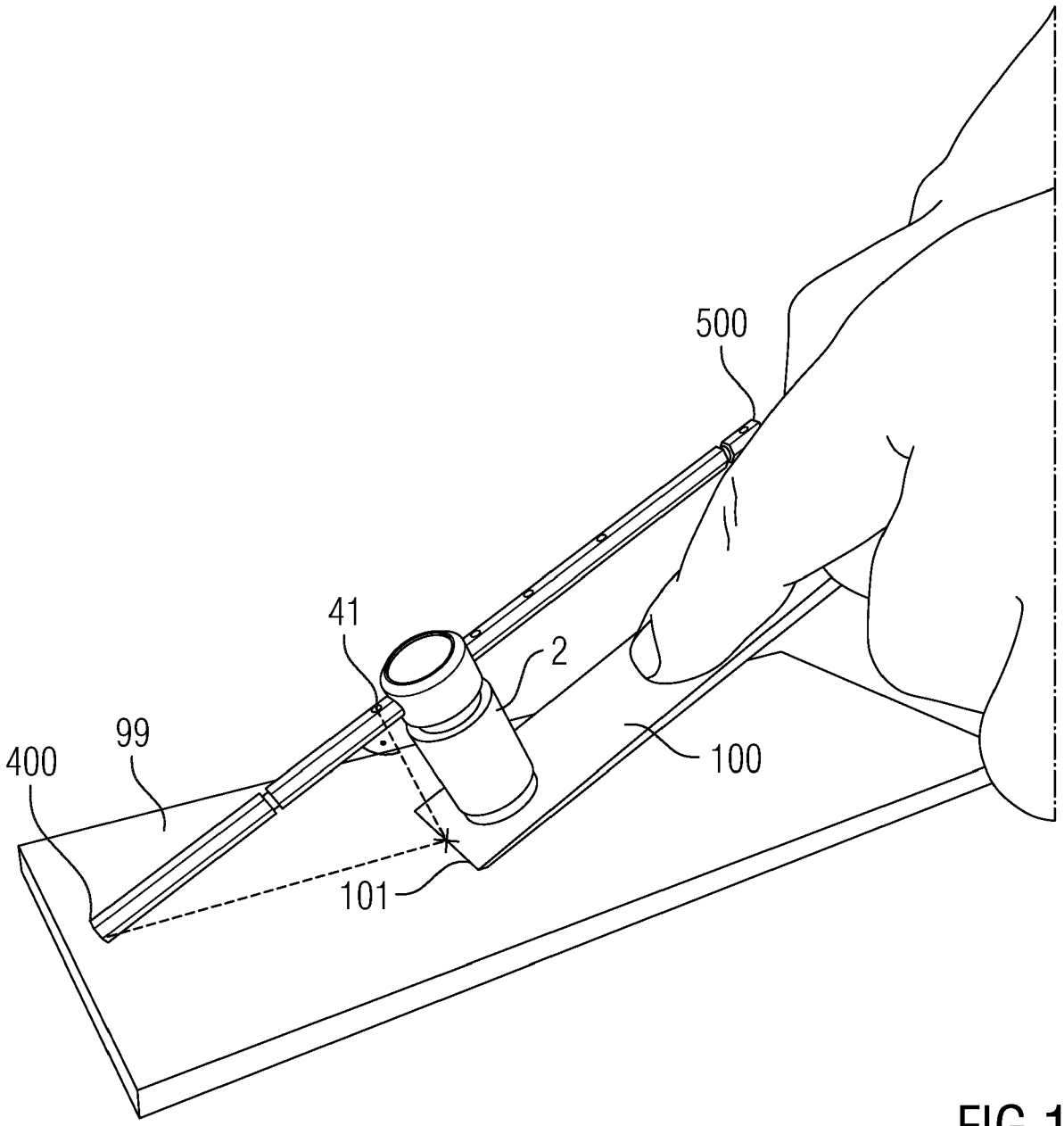

FIG 18

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EUROPEAN SEARCH REPORT

Application Number
EP 23 20 6876

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 7 874 896 B1 (WATSON STANLEY A [US]) 25 January 2011 (2011-01-25) * figure 4 * * column 1, line 42 - column 2, line 16 * * column 4, lines 13-50 *	1-10	INV. B24B3/36 B24B3/40 B24B3/54 B24D15/08
A	WO 2022/038594 A1 (GONTMAKHER ALEX [IL]; KOSITSIN ALEXEI [IL]) 24 February 2022 (2022-02-24) * figures 1,2 * * claim 4 *	1-10	
A	US 2011/159791 A1 (HENG WU [CN]) 30 June 2011 (2011-06-30) * figures 1,2,6,7 *	1-10	

TECHNICAL FIELDS SEARCHED (IPC)

B24B
B24D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	19 March 2024	Herrero Ramos, J

CATEGORY OF CITED DOCUMENTS

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19-03-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7874896 B1	25-01-2011	NONE	
WO 2022038594 A1	24-02-2022	NONE	
US 2011159791 A1	30-06-2011	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82