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(54) **A hand tool for cutting wallpaper**

(57) A hand tool (1) comprising a tool body and a handle, said tool body including a planar base part (40,50) intended to be placed against a surface and thereby arranging the base plate parallel with said surface, at least one slit (70) being arranged in said base part (40,50) and a cutting unit (20) being parallel with the base part (40,50). The hand tool (1) comprises an activator (10) disposed on said handle wherein the activator can be in at least one activated position in which the cutting unit (20) protrudes from the base part (40,50) through the at least one slit (70) and the activator can be in at least one deactivated position in which the cutting unit (20) is retracted entirely inside said base part (40,50).

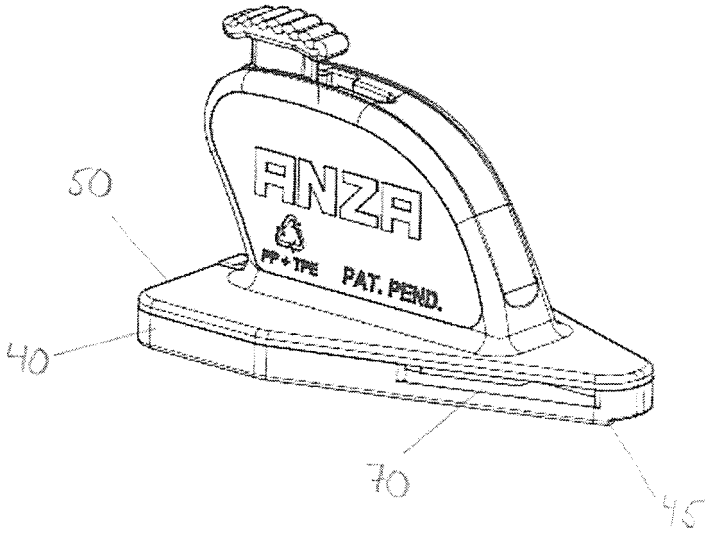

FIG. 4

EP 1 875 992 A1

Description

Field of the invention

[0001] The present invention relates to hand tools and especially a paperhanger's knife.

Background of the invention

[0002] In the area of designing interiors, such as paperhanging, persons skilled in the art as well as laymen uses a number of tools in order to facilitate the operation as well as to reduce the burden on the body that arises due to the odd and uncomfortable working positions. These positions often cause pain in the certain areas of the body such as the back and/or the neck and the like, and due to this a person may hesitate and postpone or even omit the hanging of wallpaper or the like. In addition, the hard challenge when cutting wallpaper is to cut the wallpaper straight. People may try and fit the "edge" strip of wallpaper by cutting it by hand before applying it to the wall. This often results in paste all over the place or an uneven edge of the wallpaper or maybe even a slit of no wallpaper if the slip is to short and the perfect match to fit the last piece does not appear. Further, when cutting wallpaper the user of an ordinary cutting tool often sinks in and gets stuck in the wallpaper thereby destroying the strip of wallpaper. This may be caused by a lot of things such as the person using excessive force as well as the cutting tool may be damaged and blunt. Furthermore, in order to reach all the way up to the ceiling when a person wants to cut a strip of wallpaper already applied to the wall to remove excessive material a person uses aids such as ladders or the like and when cutting the strip a person probably must hold the cutting tool still and in place when stepping off the aid, used for reaching, in order to continue the sweep which is hard and may result in an uneven edge of the wallpaper. To get a straight edge the normal manner is to cut along some kind of aid such as set square or the like to achieve the straight edge. However, this operation is not very accurate due to the fact that the aid may slip during operation as well as the aid often has a limited length providing only aid for a certain length and results in that the aid must be moved in order to continue the cut making it hard to achieve the straight cut. Adapting aids when cutting wallpaper along a door frame, window frame or the like is very hard and these types of operations are often very time consuming.

Prior art

[0003] A hand operated tool is disclosed in US-A-3 724 010 which provides means for guiding the knife movement along a desired linear line of cut. The cutting depth may be selected by the user and the knife is manually adjusted using a bolt arrangement. The disadvantage with this type of hand tool is that the cutting part is always in an active position and thereby being in the open presenting a danger to the surroundings such as people, furniture and the like. Moreover, the cutting tool according to US-A-3 724 010 provides a rather awkward handle in the matter of fitting the fingers between the handle and the wall when being used as well as making the linear cut sway due to movement of the wrist of the user.

[0004] In recognition of the foregoing shortcomings and difficulties of prior art devices, the present invention has been developed for the purpose of providing a new, improved and safe to handle hand tool capable of neat and straight trimming of wall coverings such a wallpaper, the tool being easy to operate even for a person not skilled in the art.

[0005] An object of the present invention is to provide an improved hand tool for cutting wallpaper along a linear line.

[0006] A further object of the present invention is to provide a cutting tool that is safe to handle when not being used.

[0007] Another object of the present invention is to provide a hand tool for cutting wallpaper which is easy to use by a user not skilled in the art.

Summary of the invention

[0008] The aforesaid disadvantages in the prior art are solved by the present invention by providing a hand tool comprising a tool body and a handle. Said tool body includes a planar base part intended to be placed against a surface and thereby arranging the base part parallel with said surface. At least one slit is arranged in said base part and a cutting unit being parallel with the base part. According to the invention the cutting unit in an active position protrudes from the base part through the at least one slit and in an inactive position is retracted entirely inside said base part. The activation and deactivation of said cutting unit is performed by an activator disposed on said handle of said hand tool.

Brief description of the drawings

[0009] The present invention is described in further detail below with reference to the accompanying drawings, wherein

FIG. 1 is a schematic view of an embodiment of the present invention inserted in a holder adapted to the embodiment;

FIG. 2a is a cross-section view of an embodiment of the present invention when the hand tool is in an inactive state;

FIG. 2b is a cross-section view of an embodiment of the present invention when the hand tool is in an active state;

FIG. 3 is an exploded view of an embodiment of the present invention;

FIG. 4 is a schematic view of an embodiment of the present invention in an inactive state;

FIG. 5 is a top view of an embodiment of the present invention being in an active state;

FIG. 6a is an elevated view of the underside of an embodiment of an upper plate of the present invention; and

FIG. 6b is an elevated view of the upper side of an embodiment of an upper plate of the present invention.

Detailed description of the invention

[0010] Referring to fig. 1, a hand tool generally indicated at 1 for cutting wallpaper is shown wherein the hand tool is inserted in a holder 2 formed to receive a hand tool according to the present invention. Referring to figure 3, the hand tool comprises mainly by three parts: an activating part 10, a cutting unit 20 and a base part 30 comprising a handle. The operation of the hand tool is as follows. The activating part is first in a position herein called deactivated position, shown in FIGs. 2a and 4, wherein the cutting unit is entirely retracted inside the base part. Now, to activate the hand tool the user slides the activating part by first pressing down an upper part of a supporting part of the activating part and then pushing it forward. This is done to unhook or release the activating part from the base part wherein the activating part of the hand tool is arranged to be kept in certain positions by a hook arrangement or the like. The activating part then slides to an activated position, shown in FIGs 2b and 5, wherein a recess is arranged in the base part to catch and keep the activating part in the activated position. Being in the activated position the cutting unit protrudes from the base part, thereby exposing the cutting edge to the surroundings and the hand tool is ready to be used. The cutting unit protrudes from both the sides of the base part in order to be able to cut both ways. When finished cutting the user presses the activating part back to the deactivated position wherein the cutting unit retracts back into the base plate and the danger of the exposed cutting unit is removed and the hand tool may be holstered in the previously mentioned holder 2.

[0011] Referring back to the Fig. 3, the activating part 10 comprises a bottom plate 12 arranged to receive the cutting unit 20, preferably a razor blade. In order to attach the cutting unit to the bottom plate, the bottom plate 12 is arranged with protrusions 13 which are arranged, in the case working with razor blades, according to holes 22 in the razor blade 20 in a row centred in the bottom plate 12. However, the protrusions may be formed in a different ways, such as gripping flanges, teeth or the like in order to attach a cutting unit and do not have to be centred of said bottom plate. The protrusion may be arranged as flanges mainly surrounding the cutting unit; however, the cutting unit must have free edges whereat the cutting unit will cut. Further, the bottom plate 12 may comprise at least one protrusion, shown in figure 2a,2b denoted as 14, protruding the opposite direction of the aforementioned protrusions 13. This at least one protrusion 14 is arranged in the surface facing the lower plate, generally indicated at 40, of the base part 30 in order to add stability during the sliding of the activating part 10 when moving between the activated position/s and the deactivated position/s. The protrusion 14 is formed to fit a groove 41 arranged in the lower plate 40 of said base part 30. The base part will be explained below. To facilitate the manufacturing process the protrusions 14 according to the figures are arranged correspondingly to the protrusion 13 of the opposite surface. However, the protrusion 14 may be in any form and any number.

[0012] Furthermore, in an embodiment of the present invention the bottom plate 12 is formed with a tapered part 15 in the front part of the bottom plate in order to expose the cutting unit 20 as well as stabilize the cutting unit. The tapered part 15 of the bottom plate is formed in accordance to the tapered part of the base part 30 which is described below and the width of the bottom plate is preferably adjusted to the cutting unit in order to provide a small, light yet stable handle tool.

[0013] The activating part 10 further comprises an upwardly elongated supporting part 16 being arranged at the back of the bottom plate 12. Preferably, the supporting part 16 is arranged centred laterally of the bottom plate 12 to provide a balanced hand tool. The upper portion of the supporting part 16 provides at least one, preferably two, protrusions 17, flanges or the like to be able to hook, catch or keep the activating part 10 in a certain position cooperating with a corresponding part 56 of the base part 30. In the embodiment according to the figures the upper portion of said supporting part comprises a button portion 18 with a rough, wavy or rugged top surface in order to provide a surface that is easy to move sideways by a finger without slipping and the button portion is also curved in order to facilitate the activation/deactivation of the hand tool due to that the activation/deactivation step is made by first pressing down the button part 18 and then pushing it forward or backwards depending if activation or deactivation is desired. Further, in order to provide a supporting part 16 that is able to perform the releasing and catching of the activating part 10 in said base part 30, according to the embodiment of the figures, the supporting part 16 is preferably resilient to be able to flex down and up according to the activation and deactivation of the embodiment. Either, the entire or part of the supporting part 16 is formed of elastic material or, as shown in the embodiment in the figures 2 and 3, the structure of the supporting part comprises at least one slot 19 in the upper portion of the supporting part 16 and preferably portions of material within the upper por-

tion will be omitted through known processes such as compression or injection moulding or the like in order to provide the desired resilient supporting part 16.

[0014] The activating part is preferably formed of POM-material (polyoxymethylene) as a one-part product.

[0015] The base part 30 comprises a lower plate 40 and an upper plate 50 attachable to each other, preferably, through flanges, hooks or the like 51 that snap into recesses 42 provided in the opposite part of the base part. The lower plate 40 is as well as the upper plate 50 are tapered in a way so that, according to the embodiment of the figures, the plates are formed into a classical flat iron. By shaping the base part 30 in this manner the protrusion of the cutting unit 20 is achieved in an easy and simple way. The cutting depth of the cutting unit is influenced by the angle of the tapering as well as the distance that the activating part slides during activation.

[0016] The lower plate 40 is preferably formed of a plastic material, e.g. polypropylene PP and may be arranged with a groove or track 41 extending longitudinally from the back edge of the lower plate to the front of the lower plate in order to provide guidance of the activating part 10 during activation/deactivation as well as insertion of the activating part 10 into the base part 30 after the hand tool has been disassembled to, for example, exchange the cutting unit 20 when the cutting unit has become to blunt or damaged and a new cutting unit is needed. The groove 41 according to the embodiment of the figures is arranged with a width to fit the protrusions 14 arranged on the underside of the activating part 10 to stabilise and guide the activating part. To further stabilise and guide the activating part flanges may be arranged alongside the groove with a spacing corresponding at least to the width of the bottom plate 12 of the activating part and extend longitudinally mainly or partly over the lower plate (not shown). To facilitate the insertion of the activating part the back edge of the lower plate may be bevelled.

[0017] The lower plate may be arranged with a stopping flange 43 in the front part of the lower plate, arranged to stop the bottom plate of the activating part. Furthermore, the lower plate has, according to the embodiment of the figures, flanges 44 on the upper side of the lower plate extending along the sides of the lower plate from the back edge of the lower plate. However, the flanges 44 extending along the sides of the lower plate end in the tapered part thereby forming slits with the stopping flange 43 in the front through which slits the cutting unit protrudes. It should be understood that the said flanges may be arranged in the upper plate instead. According to the embodiment of the figures the underside of the lower plate may be arranged with flanges 45 along the sides of the lower plate extending downwards providing stability during operation of the tool.

[0018] Referring to Fig 6a, the upper plate 50 of the base part 30 is as previously mentioned in a form comprising a tapered part in accordance with the lower plate 40 and comprises protrusions, hooks or the like 51 in order to attach the upper plate 50 with the lower plate 40. Just as the flanges of the lower plate may be arranged in the upper plate, the protrusions or hooks may be arranged in the lower plate. The back edge of the upper plate may be bevelled to facilitate the insertion of the activating part in the base part.

[0019] The upper plate further comprises a slot 52 extending longitudinally from the back edge of the upper plate, laterally centred, and arranged to receive and guide the activating part, especially the supporting part 16 of the activating part 10 and the protrusions 13 arranged in the upper side of the bottom plate 12 of said activating part. According to the embodiment of Fig. 6a, the slot 52 changes into a groove 53 only guiding and stabilizing the activating part by the mentioned protrusions 13.

[0020] As shown in Figs 6a and 6b, the handle is integrated with the upper plate forming a one-piece object in order to reduce manufacturing costs as well to facilitate the assembly of the hand tool. The handle part of the upper plate is flanges extending upwardly from the edges of said slot 52 forming a hollow spacing formed to receive the supporting part of the activating part. The upper side of the handle is covered and arranged with a slot 55 extending from the back edge of said upper side to receive the upper portion of the supporting part. According to the embodiment of the figures 5 and 6b recesses 56 are arranged along the slot 55 in order to engage the protrusion, hook or the like 17 of the upper portion of said supporting part 16, placing the activating part in an activated position or a deactivated position and keeping it there. It should be understood that more recesses may be arranged along said slot in order to provide an adjustable cutting depth and that the handle part may be a separated part attachable to the upper plate through known techniques.

[0021] Along the sides of the handle in order to provide a grip friendly handle a rubber material such as thermoplastic elastomer, TPE, 60 is arranged. The material may be arranged by injection moulding by injecting the material from the underside of the upper plate through holes.

[0022] It will be understood by those skilled in the art that the foregoing illustrated embodiment is exemplary of the invention, and that various changes and modifications may be made without departing from the scope of the invention which is only limited by the following claims.

Claims

1. A hand tool (1) comprising a tool body and a handle, said tool body including a planar base part (40,50) intended to be placed against a surface and thereby arranging the base plate parallel with said surface, at least one slit (70) being arranged in said base part (40,50) and a cutting unit (20) being parallel with the base part (40,50), **characterized in that** the hand tool (1) comprises an activator (10) disposed on said handle wherein the activator can be in at least one

activated position in which the cutting unit (20) protrudes from the base part (40,50) through the at least one slit (70) and the activator can be in at least one deactivated position in which the cutting unit (20) is retracted entirely inside said base part (40,50).

2. A hand tool according to claim 1, **characterized in that** said base part (40,50) includes a tapered part wherein the cutting unit (20) protrudes from the tapered part of said base part in the active position.

3. A hand tool according to claim 2, **characterized in that** said at least one slit of said base part (40,50) is arranged mainly or partly at said tapered part.

4. A hand tool according to any of claims 2-3, **characterized in that** the sides of the tapered part of the base part (40,50) meet at a rounded tip.

5. Hand tool according to any of claims 1-4, **characterized in that** said activator is mechanically attached to the cutting unit wherein the activator, pressed for activating the cutting unit (20), forces the cutting unit in a longitudinal direction and hence the cutting unit protrudes through said slit (70).

6. A hand tool according to any of claims 1-5, **characterized in that** the activator employs a mechanism with steps, wherein the activator is kept in the different positions by fastening the activator in grooves arranged in said base part corresponding to at least one activated position and at least one deactivated position.

7. A hand tool according to any of claims 1-6, **characterized in that** the base part (40,50) comprises a lower plate (40) and an upper plate (50) and that the lower plate (40) and the upper plate (50) is connectable to each other by fastening means (42,51).

8. A hand tool according to any of claims 1-7, **characterized in that** said activator comprises a slide mechanism to move said cutting unit between the activated position and the deactivated position.

9. A hand tool according to any of claims 1-8, **characterized in that** the activator comprises an activating part (10) including a bottom plate (12) and a supporting part (16).

10. A hand tool according to claim 9, **characterized in that** the supporting part (16) of the activating part (10) comprises a slot (19) in order to make the activating part resilient.

11. A hand tool according to any of claims 9-10, **characterized in that** the bottom plate (12) of said activator includes fastening elements (13) to attach the cutting unit (20) to the bottom plate (12).

12. A hand tool according to any of claims 9-11, **characterized in that** the lower plate (40) comprises groove/s, flanges or the like (41) to guide and stabilise the activating part (10).

13. A hand tool according to any of claims 9-12, **characterized in that** the upper plate (50) comprises grooves, flanges, a slot or the like (52,53) to guide and stabilise the activating part (10).

14. A hand tool according to any of claims 9-13, **characterized in that** the handle comprises a slot (55) arranged to receive and support the activator (10) during the activation and deactivation of said cutting unit (20).

15. A hand tool according to claim 14, **characterized in that** the handle comprises at least one recess (56) arranged along said slot (55) to receive and fasten the activator (10) in at least one activation position and/or at least one deactivation position.

16. A hand tool according to any of claims 1-15, **characterized in that** said handle is arranged on top of said base part (40,50).

17. A hand tool according to any of claims 1-16, **characterized in that** the handle is integrated with the base part (40,50) and formed in the same material.

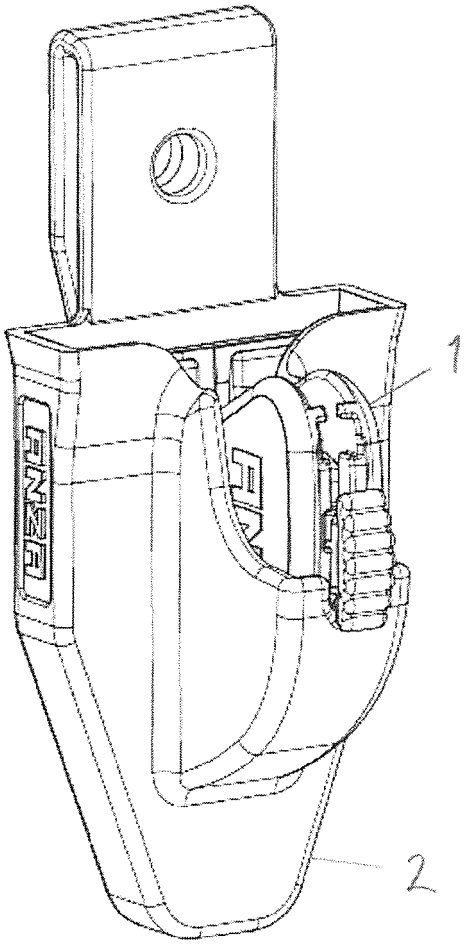

FIG 1

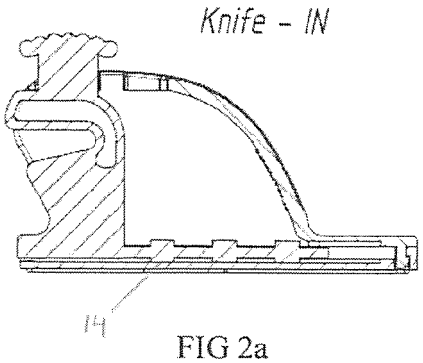

FIG 2a

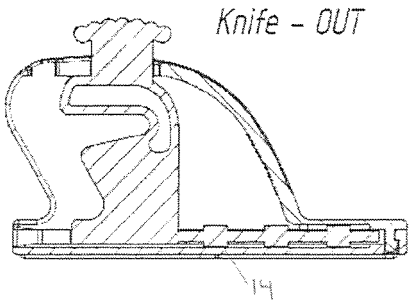

FIG 2b

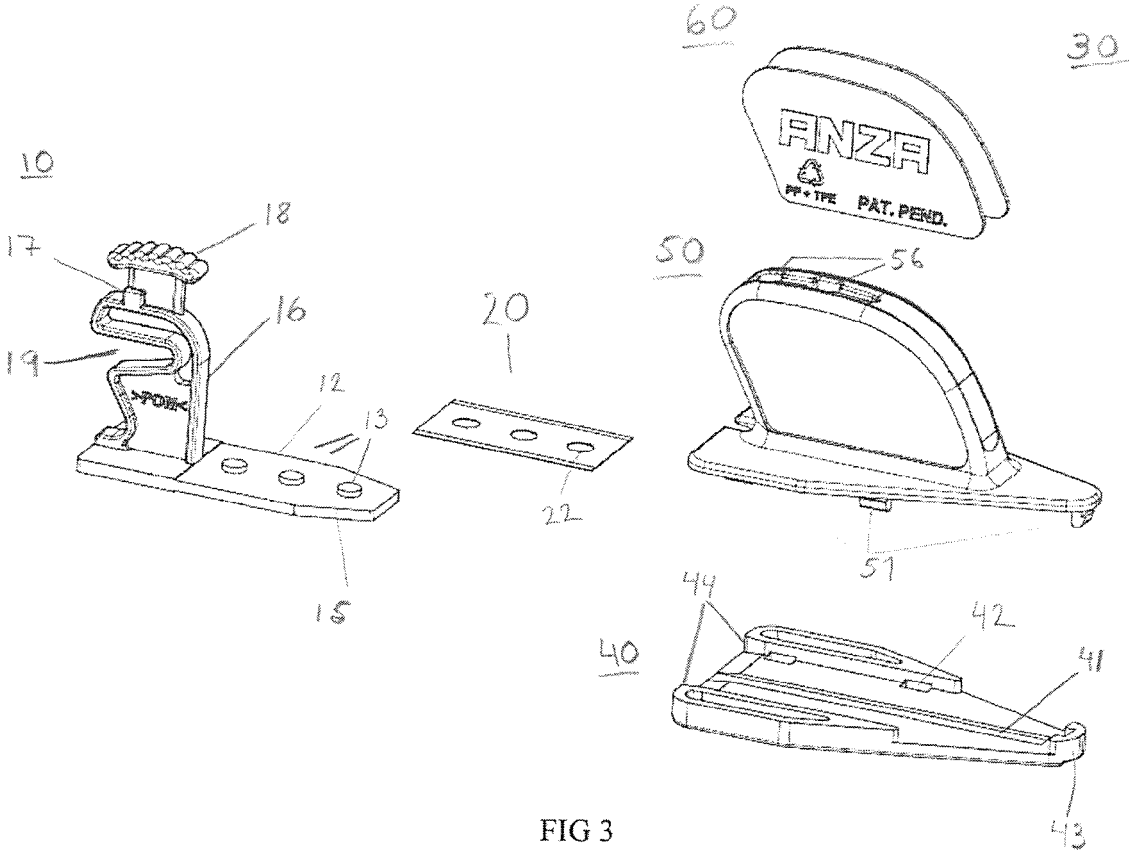
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FIG 3

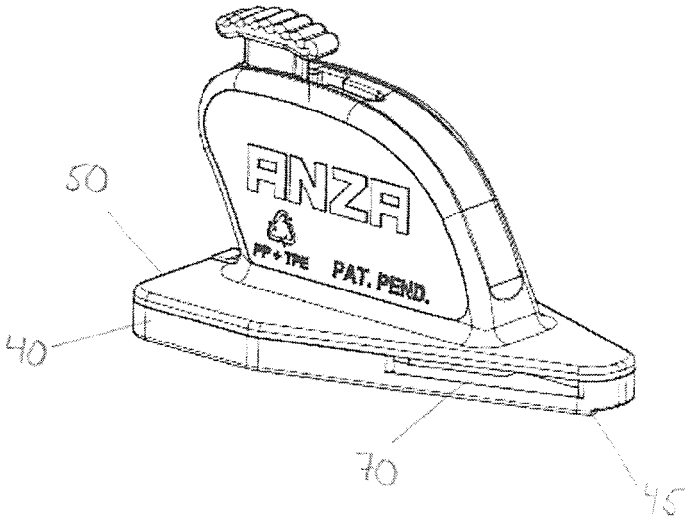
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FIG. 4

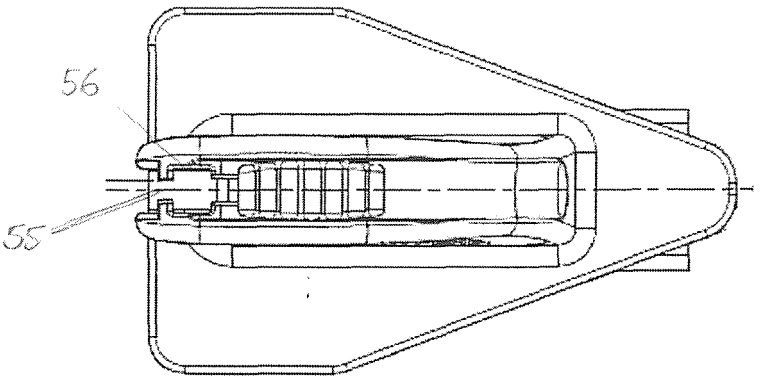

FIG.5

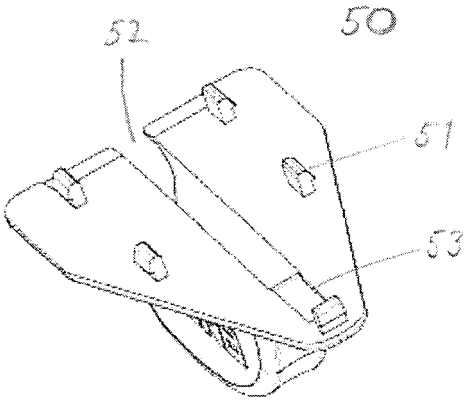

FIG 6a

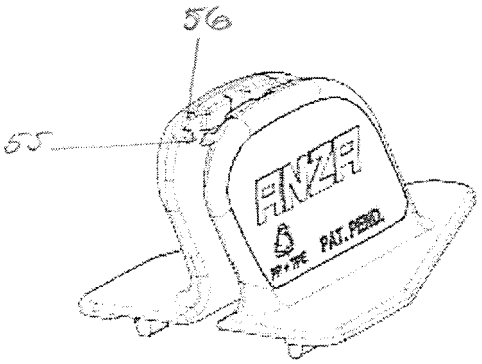

FIG 6b

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 11 6761

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TECHNICAL FIELDS SEARCHED (IPC)

B44C
B26B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	28 November 2006	Kelliher, Cormac

CATEGORY OF CITED DOCUMENTS

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28-11-2006

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