

(19)



(11)

EP 3 266 340 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
10.01.2018 Bulletin 2018/02

(51) Int Cl.:
A45F 5/02 (2006.01)

(21) Application number: **16172526.2**

(22) Date of filing: **01.06.2016**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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(30) Priority: **26.05.2016 US 201662341831 P**

(54) HANDHELD EQUIPMENT HOLDER WITH MECHANICAL LATCH

(57) A tool holder designed for battery operated power tools is attachable to a belt and has a quick release to allow access to the power tool. The tool holder grasps the power tool at the handle between the battery pack of the tool and the housing containing the operative part.

The tool holder is made of a flat material such as a high-density plastic and comprises a mechanical latch that secures the power tool within the holder until the user disengages the latch to allow removal of the tool.

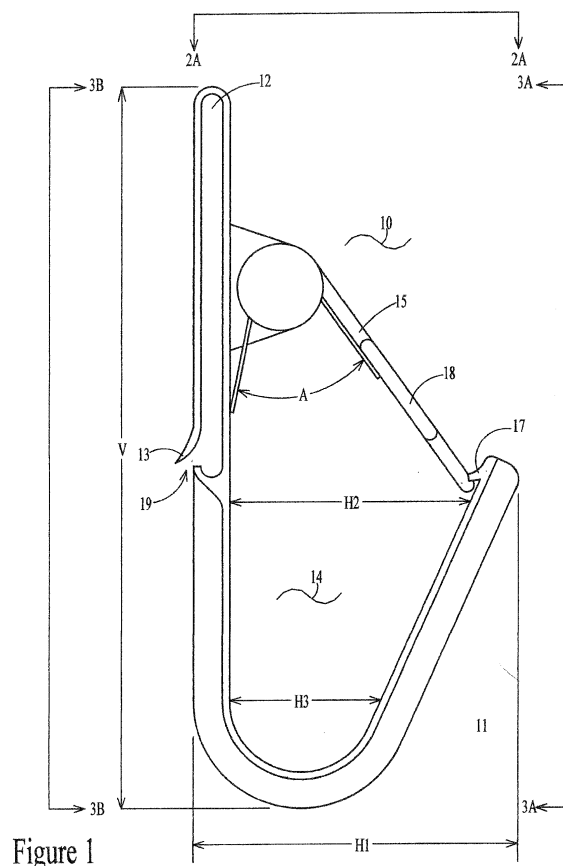


Figure 1

Description

Technical field

[0001] The present disclosure is related to holding equipment and more particularly holding hand held equipment at a user's side when not in use.

Background Art

[0002] People working in the construction and repair industry often use tool belts to keep small tools close at hand when not in use. Larger tools such as nail guns and electric drills are usually too bulky to be contained by existing tool belts; and therefore those larger tools are laid aside when not in use. If the movement of the person using the larger tools takes the person out of reach of the laid down tool, then that person must stop what they are doing and retrieve the tool.

[0003] Tool belts have been favorites of people who are in construction and are building housing and commercial buildings; however these tool belts have limitations and in general are limited to smaller hand tools. U. S. Patent 6,848,605 (Dillenberger) is directed to an augmentation for a tool belt wherein additional fixtures for holding tools are added to the tool belt by sliding a male portion into a female portion attached to the tool belt. U. S. Patent 6,508,390 (Karpati) is directed to a belt-mounted holder for spackling items comprising horizontal portion for holding tools. U.S. Patent Application 2007/0062013 (Mueller) is directed to a carabiner device comprising a handle that can carry devices around an area or as a work tool. Existing commercially are tool clips such as provided by Brigg Lugg, which have a belt clip and a bungee ball that can be wrapped around a tool such as a drill, and a Clip-Lock belt that carries a cordless drill of the same brand and can be attached or detached with a simple motion of the hand or fingers.

Summary of the invention

[0004] It is an objective of the present disclosure to provide a tool holder for hand held power tools.

[0005] It is further an objective of the present disclosure to provide the capability for the tool holder to be coupled to the wearing apparel of the user.

[0006] It is also an objective of the present disclosure to provide a quick release of the hand held power tool from the tool holder.

[0007] The present disclosure is a tool holder for holding hand held power tools at the side of a user. A flat strap like material, comprising a high-density plastic, is shaped to form a belt loop and a tool loop, or pocket. The tool loop is shaped to hold a battery powered hand tool, such as a nail gun, a power hand drill and a power screwdriver, and is formed in part by the flat material and in part by a mechanical latch, or gate, attached to the flat material. The mechanical latch is spring loaded to keep

the tool loop closed except when the user disengages the mechanical latch by pressing a thumb bar on the mechanical latch to allow the power tool contained within the tool loop to be removed by the user. When a power tool is placed into the tool holder, the power tool is pressed against the mechanical latch by the user, which disengages the mechanical latch and allows the power tool into the tool loop. The mechanical latch is then allowed to close under the force of the spring to maintain the power tool within the tool loop, or pocket, formed by the flat material and the mechanical gate. The tool loop grasps the battery operated hand held power tool between the battery power pack and the housing containing the operational portion of the power tool.

Description of the drawings

[0008] In the accompanying drawings forming a material part of this description, there is shown:

FIG. 1 is a diagram of the side view of the tool holder of the present disclosure;

FIG. 2A is a top view of the tool holder of the present disclosure;

FIG. 2B is a cut away view of the mechanical latch mechanism of the present disclosure;

FIG. 3A is a front view of the tool holder of the present disclosure; and

FIG. 3B is a back view of the tool holder of the present disclosure.

Description of the preferred embodiments

[0009] In FIG. 1 is shown a side view of the tool holder 10 of the present disclosure. The tool holder is designed to hold hand held power tools, i.e. battery powered nail guns, battery powered screwdrivers and battery powered drills or similar equipment, close to the user when the tools are not in use. A flat material 11 made from high-density plastic or other matter that can maintain a formed shape is used to form the tool holder 10. A preferably single piece of plastic is molded to form the tool holder 10. The tool holder can be thought of as having two portions. The first portion is a belt clip 12 in which the material is formed as an inverted u-shape having an opening at the mouth of the u-shape toward the user. The end of the clip 13 at the mouth has an opening 19 to allow a tool belt of any thickness to slide within the belt clip area 12. The clip 13 is optionally able to flex sufficiently so that the clip can be placed over a belt that is approximately as thick as or thicker than the width of the opening of the belt clip 12. An extension of the outer surface of the belt clip portion 12 facing away from the user becomes the inner surface of the second portion of the tool holder forming a tool loop 14, or pocket, that holds the battery operated power tools when not in use.

[0010] A mechanical latch 15, or mechanical gate, abuts the first portion that forms the belt loop 12. The

arm of mechanical latch 15 is held in contact with a male latch element 17 on the end of the second portion by a torsion spring 25 (FIG. 2B) to maintain a tool in the tool loop 14 while not in use. An optional thumb bar 18 on the mechanical latch directly actuates the latch, allowing a user to disengage the mechanical latch 15 with the male latch element 17 and remove the battery operated power tool from the tool loop 14.

[0011] The dimensions of the tool holder 10 are dependent upon the tools that are to be held by the user. As an example only, the approximate vertical height V is approximately about eight inches, the horizontal width H1 of the tool holder is approximately about four inches and the horizontal width H2 of the tool loop 14 is approximately about two and one-half inches. The horizontal width H2 of the top portion of the pocket 14 is larger than the width H3 of the bottom portion of the pocket. For example, H3 is approximately about two inches. The hand held power tool is grasped by the tool loop 14 on the handle between the battery power pack and the housing of the power tool containing the operating mechanism. It should be noted that it is within the scope of the present disclosure that the shape and dimensions of the tool holder 10 can be adjusted depending upon the tools that are to be held within the tool loop 14 without changing the intent or claims of the present disclosure.

[0012] Continuing to refer to FIG. 1, with the tool holder 10 attached to a belt of the apparel of a user, a hand held power tool is placed into the tool loop 14 by pressing the tool on and past the arm of the mechanical latch 15 after which the arm of the mechanical latch 15 is allowed to return to a closed position under the force of the spring 25 in contact with the male latch element 17. The mechanical latch is configured to deflect at least an angle A of about 30 degrees. The power tool is now contained within the tool loop 14. To remove a power tool from the tool loop, the user presses the thumb bar 18 or mechanical latch 15, which disengages the mechanical latch 15 from the male latch element and allows the power tool to be removed from the tool holder 10.

[0013] In FIG. 2A is shown a top view of the tool holder 10. The arm of the mechanical latch 15 is shown in contact with the male latch element 17 at the end of the second portion of the tool holder 10. The thumb bar 18 is shown on one side of the arm of the mechanical latch 15. It should be noted that the thumb bar 18 can be on either or both sides of the arm of the mechanical latch to accommodate both right handed and left handed users. The mechanical latch 15 is coupled to a housing 22 that allows the arm of the mechanical latch to pivot. The housing abuts the first portion of the tool holder as previously described. FIG 2B shows a cross section of the arm of the mechanical latch 15 and the housing 22. A torsion spring 25 is shown that maintains the arm of the mechanical latch 15 in contact with the male latch element 17 except when overridden by the user when inserting a tool in the tool loop or removing a tool from the tool loop.

[0014] FIG. 3A shows a front view of the tool holder

10. The housing 22 that allows the arm of the mechanical latch 15 to rotate forms the front part of the first portion of the tool loop, which forms the belt clip 12. FIG 3B shows the back view of the tool holder 10 where the clip 13 abuts the second portion of 11, which forms the tool loop 14. The width W of the material forming the tool holder 10 can be any dimension that is wide enough to accommodate the housing 22 of the mechanical latch and grasp the power tool between the battery power pack and the housing containing the operative mechanism of the power tool. It should be noted that the tool holder 10 can be used with any tool in which a portion of that tool can be held by the tool loop in part or in total, with and without a battery power pack.

[0015] Although the preferred embodiment of the present disclosure has been illustrated, and that form has been described in detail, it will be readily understood by those skilled in the art that various modifications may be made therein without departing from the spirit of the disclosure or from the scope of the appended claims.

Claims

1. A tool holder comprising:

- a) an apparatus configured to hold a battery powered hand held power tool close to an operator when the hand held power tool is not in use;
- b) said apparatus formed of a high-density plastic material molded in a single piece, having the shape of a thin flat strap, wherein the material is wider than the material is thick, forming a rectangular cross section, and which further comprises:

- (i) a belt clip to attach said apparatus to wearing apparel of the operator;
- (ii) a pocket shaped to grasp said power tool between a battery power pack and an operational housing and to hold the hand held power tool;
- (iii) an arm of a mechanical latch capable of maintaining the hand held power tool in the pocket until needed by the operator, wherein said arm of the mechanical latch is spring loaded to keep the pocket closed wherein said spring is a wound torsion spring; and
- (iv) a male latch element at one end of said pocket; and

c) said arm of the mechanical latch is configured to be opened when:

- (i) the power tool is pressed downwardly against the arm of the mechanical latch to insert the power tool into the pocket; or

- (ii) the arm of the mechanical latch is pressed by the operator to disengage the male latch element from the arm of the mechanical latch to remove the power tool from the pocket.
2. The tool holder of claim 1, wherein said belt clip is formed from a first portion of a material used to form said apparatus, in an inverted u-shape having an opening at the mouth of the u-shape toward the operator wherein a belt is held within said belt clip and wherein an extension of an outer surface of said belt clip facing away from the operator becomes an inner surface of a second portion of the apparatus forming said pocket.
 3. The tool holder of claim 2, wherein said mechanical latch arm is configured to deflect at least 30 degrees.
 4. The tool holder of claim 1, wherein said pocket grasps a handle of the hand held power tool between a battery power pack location and a housing enclosing an operational portion of the hand held power tool.
 5. The tool holder of claim 1, wherein said hand held power tool further comprises:
 - a) a battery powered nail gun;
 - b) a battery powered drill; or
 - c) a battery powered screw driver.
 6. The tool holder of claim 1, wherein a top portion of said pocket is wider than a bottom portion of said pocket.
 7. The tool holder of claim 1, wherein the arm of the mechanical latch is integrally coupled to a thumb bar to directly actuate said arm of the mechanical latch to disengage the male latch element from the arm of the mechanical latch.
 8. A holder for hand held power tools comprising;
 - a) a means for connecting a tool holder to wearing apparel of a user;
 - b) a means for securely grasping and holding a hand held power tool in a pocket of the tool holder close to the user; and
 - c) a means for disengaging an arm of a mechanical latch from a male latch element to open said tool holder for removal of said hand held power tool from said pocket wherein said arm of the mechanical latch is spring loaded to keep the pocket closed wherein said spring is a wound torsion spring and wherein said mechanical latch arm is configured to deflect at least 30 degrees.
 9. The holder of claim 8, wherein said tool holder is formed of a high-density plastic material molded in a single piece.
 10. The holder of claim 8 wherein the means for connecting the tool holder to wearing apparel is through a belt clip formed at an end of the tool holder.
 11. The holder of claim 10, wherein said belt clip is formed from a first portion of a material used to form said tool holder, in an inverted u-shape having an opening at the mouth of the u-shape toward the user wherein a belt is held within said belt clip and wherein an extension of an outer surface of said belt clip facing away from the user becomes an inner surface of a second portion of the tool holder forming said pocket.
 12. The holder of claim 8, wherein the means for securely holding the hand held power tool comprises the pocket for grasping a handle of the hand held power tool and the arm of the mechanical latch for closing the pocket.
 13. The holder of claim 8 wherein the means for opening said tool holder is a thumb bar integrally coupled to the mechanical latch, wherein the thumb bar when pressed by a user directly actuates said arm of the mechanical latch to disengage said mechanical latch from the male latch element and allows removal of the hand held power tool from the pocket.
 14. A method of use for a tool holder, comprising:
 - a) providing a tool holder formed from a thin flat strap shaped material, wherein the material is wider than the material is thick, forming a rectangular cross section, and which further comprises:
 - (i) a belt clip to attach said tool holder to wearing apparel of a user;
 - (ii) a pocket shaped to grasp a hand held power tool between a battery power pack and an operational housing and to hold the hand held power tool wherein a top portion of said pocket is wider than a bottom portion of said pocket;
 - (iii) an arm of a mechanical latch capable of maintaining the hand held power tool in the pocket until needed by the user, wherein said arm of the mechanical latch is spring loaded to keep the pocket closed wherein said spring is a wound torsion spring and wherein said mechanical latch arm is configured to deflect at least 30 degrees; and
 - (iv) a male latch element at one end of said pocket;

- b) slipping a belt into a belt clip area of said tool holder and fastening the belt at the waist of a user;
- c) pressing a hand tool into said pocket past said mechanical latch arm and allowing said mechanical latch to close an opening in the pocket; 5
- d) pressing a thumb bar on said mechanical latch arm to disengage the mechanical latch; and
- e) removing said hand tool from the tool holder. 10

15. The method of claim 14, wherein said mechanical latch is spring loaded to hold the mechanical latch in a closed position to maintain said hand tool in the pocket until said user presses the thumb bar to disengage the mechanical latch and open the tool loop for removal of the hand tool. 15

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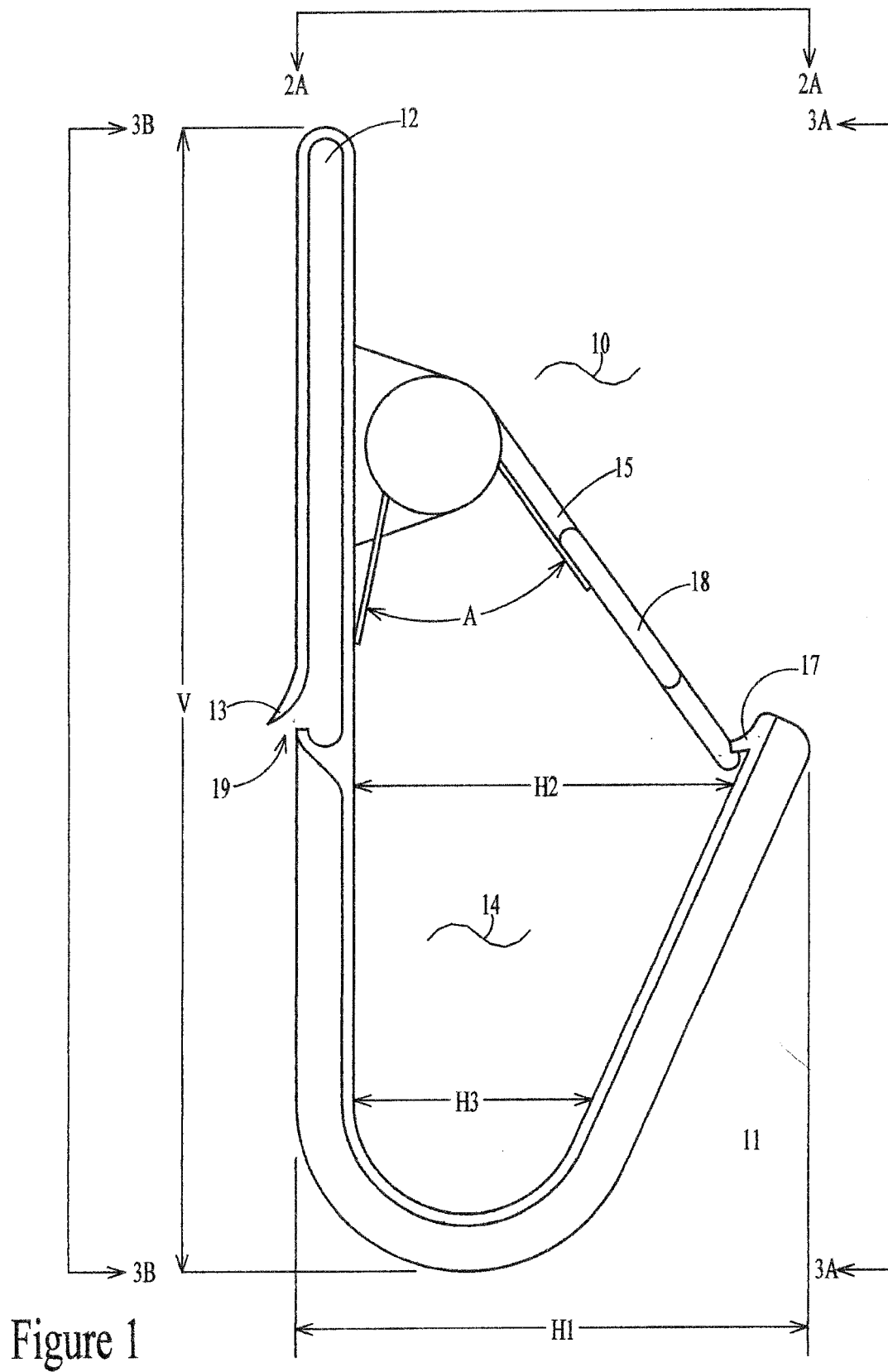


Figure 1

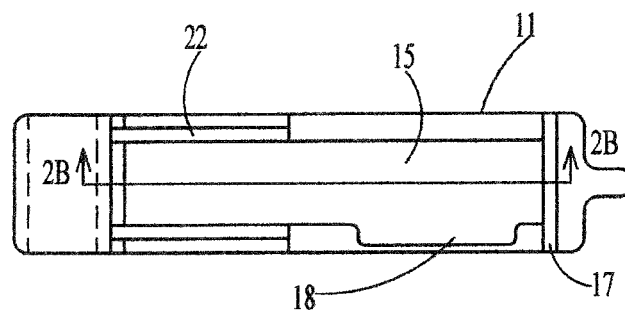


Figure 2A

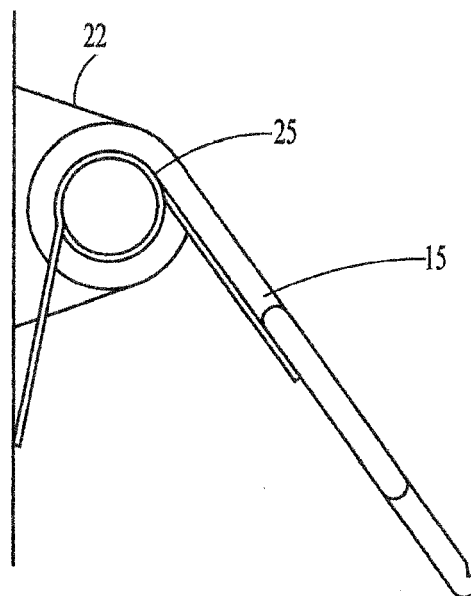


Figure 2B

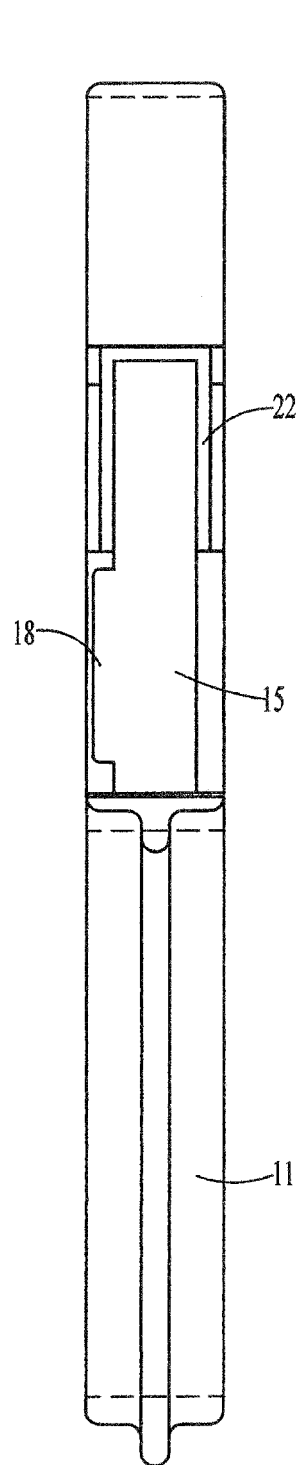


Figure 3A

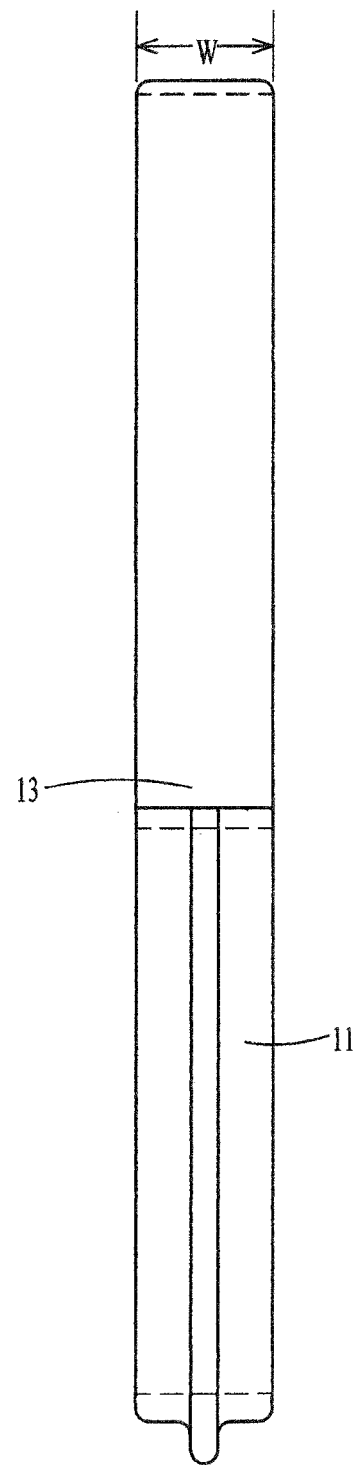


Figure 3B



EUROPEAN SEARCH REPORT

Application Number
EP 16 17 2526

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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 December 2017	Examiner Nicolás, Carlos
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 16 17 2526

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04-12-2017

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

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