



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**10.08.2022 Bulletin 2022/32**

(51) International Patent Classification (IPC):  
**B43K 23/08** <sup>(2006.01)</sup> **B43K 29/00** <sup>(2006.01)</sup>  
**B43K 29/007** <sup>(2006.01)</sup> **B43K 29/20** <sup>(2006.01)</sup>

(21) Application number: **22155745.7**

(52) Cooperative Patent Classification (CPC):  
**B43K 29/20; B43K 23/08; B43K 29/001;**  
**B43K 29/002; B43K 29/007**

(22) Date of filing: **08.02.2022**

(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:  
**KH MA MD TN**

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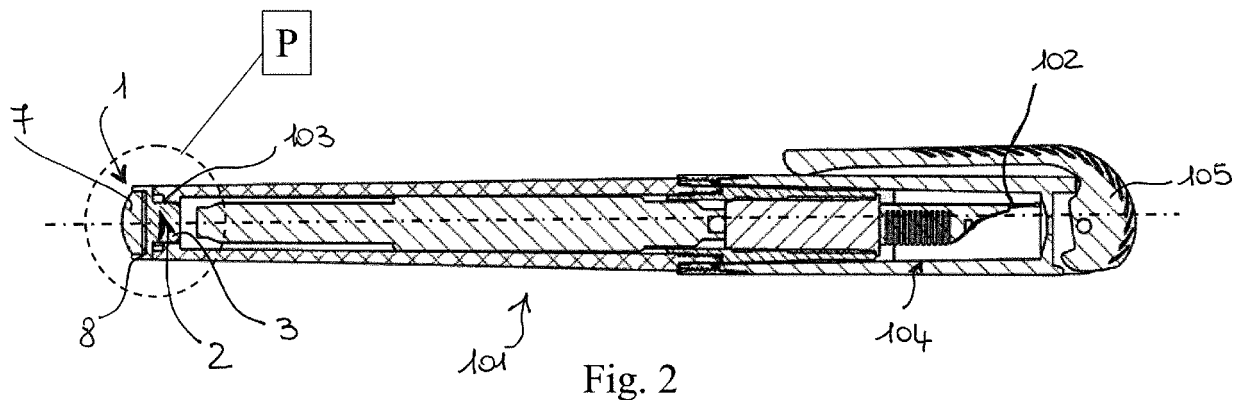
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(30) Priority: **08.02.2021 IT 202100002753**

(54) **DEVICE FOR APPLICATION OF INTERCHANGEABLE CUSTOMIZATION ELEMENTS TO AN OBJECT**

(57) A device for application of interchangeable customization elements to an object comprises a body (2) having a housing seat (5) that can be accessed from outside said device (1) to receive a disk-shaped customization element (6) and a transparent holding element (7)

which closes said housing seat (5) by interference fit which closes said housing seat by interference fit (5) to removably retain said customization element (6) captively housed in said housing seat (5).



**Fig. 2**

## Description

**[0001]** The present invention relates to a device as defined in the preamble of claim 1 for application of interchangeable customization elements to objects.

**[0002]** As used herein, the term "object" generally refers, by way of example and without limitation, to objects such as pens, pencils, bags, briefcases, wallets, buttons, cufflinks, watches, costume jewelry, jewelry, leather, fabric or polymeric items, handles or else.

**[0003]** Also, it should be noted that, as used herein, the term "pen" generally refers to fountain pens, ball-point pens, rollerball pens and/or propelling pencils.

**[0004]** For simplicity, the present disclosure is given by way of example and without limitation with particular reference to a fountain pen as an example of an object designed to have an interchangeable customization element applied thereto.

**[0005]** With fountain pens, especially valuable fountain pens, the need is strongly felt to customize the product for sale, with customization elements, most simply consisting in customer's initials, a date or a phrase, affixed thereto.

**[0006]** There is the need of affording in-store fountain pen customization without requiring the customer to come by again a few days after the purchase to collect the customized product.

**[0007]** It shall be noted in this respect that as a rule no tools and/or equipment for customization are provided at points of sale and salespeople do not have the requested manual engraving skills or the like.

**[0008]** Therefore, a further need is felt in that the application of customization elements must ensure that such customization elements be done quickly, by personnel with no remarkable manual skills and without using highly complex, bulky and expensive tools and/or equipment.

**[0009]** Finally, it should be also noted that a further need is to allow customers to change, even after a few months, the type of customization applied to the fountain pen, without having to buy a new pen.

**[0010]** The aforementioned needs have been addressed by the provision of fountain pens having at least one magnet whereby interchangeable customization elements can be releasably retained.

**[0011]** Nevertheless, this solution was found to be not entirely satisfactory, as it can only use ferromagnetic customization elements, or elements having a ferromagnetic support, which entails certain limitations.

**[0012]** Furthermore, the use of fountain pens having magnets is not appreciated by users due to problems deriving from the presence of a magnetic field, e.g. demagnetization of the magnetic stripes of credit cards and the like, a problem existing even when the customized object is a bag, a wallet and the like.

**[0013]** This invention is based on the problem of providing a device for application of interchangeable customization elements to objects which has such structural

and functional characteristics as to fulfill the above need, while obviating the above prior art drawbacks.

**[0014]** This problem is solved by a device as defined in the preamble of claim 1 for application of interchangeable customization elements to objects as defined in the characterizing part of claim 1.

**[0015]** Further features and advantages of the device of the present invention for application of interchangeable customization elements to object will result from the following description of one preferred embodiment thereof, which is given by way of illustration and without limitation with reference to the accompanying figures, in which:

- Figure 1 shows a plan view of a fountain pen according to a first embodiment comprising the device of the invention;
- Figure 2 shows a longitudinal sectional view of the pen of Figure 1, in which the device of the invention is enclosed within the circular area P outlined by the dashed circumference;
- Figure 3 shows an enlarged view of the detail enclosed within the circular area P outlined by the dashed circumference of Figure 2;
- Figure 4 shows a perspective view of the detail enclosed within the circular area P outlined by the dashed circumference of Figure 2;
- Figure 5 shows a perspective view of the detail enclosed within the circular area P outlined by the dashed circumference of Figure 2 with the omission of certain parts of the device of the invention;
- Figure 6 shows a longitudinal sectional view of a fountain pen according to a second embodiment comprising the device of the invention;
- Figure 7 shows a partially exploded perspective view of the fountain pen of Figure 6;
- Figure 8 shows an enlarged view of the detail enclosed within the circular area P outlined by the dashed circumference of Figure 6;
- Figure 9 shows a perspective view of the detail enclosed within the circular area P outlined by the dashed circumference of Figure 6;
- Figure 10 shows a perspective view of the detail enclosed within the circular area P outlined by the dashed circumference of Figure 6 with the omission of certain parts of the device of the invention.

**[0016]** Referring to the accompanying figures, numeral 1 generally designates a device of the invention for application of interchangeable customization elements to objects such as fountain pens, ballpoint pens, rollerballs, mechanical pencils, pencils, bags, briefcases, wallets, buttons, cufflinks, watches, costume jewelry, jewelry, handles, leather, fabric or polymeric items.

**[0017]** In the examples of the figures, the object is a fountain pen 101 which comprises, as is known per se, a body extending between one end having a nib 102 and an opposite barrel end 103.

**[0018]** Moreover, the fountain pen 101 comprises a

cap 104 comprising a head 105, which is removably applied to the body of the fountain pen 1 to protect the end with the nib 102.

**[0019]** It should be noted that the fountain pen 101 of the first embodiment (Figures 1-5) and the fountain pen 101 of the second embodiment (Figures 6-10) are substantially identical, and only differ in that the device 1 of the invention:

- is applied to the barrel end 103 of the fountain pen 1 in the first embodiment (Figures 1-5), and
- is applied to the head 105 of the cap 104 in the fountain pen of the second embodiment (Figures 6-10), the head 105 being the top of the cap 104.

**[0020]** In view of this, the same numerals will be used hereinbelow to designate structurally or functionally matching parts of the two described embodiments, and the description of the fountain pens will not be repeated, with the differences between the two different embodiments being only pointed out as needed.

**[0021]** Each fountain pen 101 comprises a respective inventive device 1 for application of interchangeable customization elements which comprises:

- a body 2 having a first portion 3 intended to be fixed to or integrated in the structure of the fountain pen 101 and a second portion comprising a housing seat 5 which is accessible from outside the device 1 when said device 1 is fixed to the fountain pen 101 as shown in the figures;
- a customization element 6 housed in said housing seat 5 and
- means for removably retaining said customization element 6 stably housed in said housing seat 5.

**[0022]** According to the illustrated embodiments, the aforementioned housing seat 5 defines a recess comprising a bottom wall delimited by an edge wall 8 that extends beyond said bottom wall.

**[0023]** Preferably, referring to a section perpendicular to the axis of the fountain pen 101, the housing seat has a circular shape, whereby the aforementioned edge wall 8 defines an annular wall.

**[0024]** Preferably, the aforementioned first portion 3 and the housing seat 5 are located at two opposite ends of the body 2 of the device 1. Therefore when the device 1 is applied to the ballpoint pen 101, the opening of the housing seat 5 delimited by the edge wall 8 is facing and accessible from the outside.

**[0025]** Preferably, the aforementioned first portion 3 of the body 2 of the device 1 comprises a threaded portion for screw coupling with a corresponding threaded portion of the fountain pen 1 at:

- the barrel end 103 (Figure 3) in the fountain pen of the first embodiment and
- the head 105 of the cap 104 in the second embodi-

ment, respectively.

**[0026]** Whether the device if the invention is fixed to the base or the head of a pen does not entail any change to the part of the device that is designed to house the interchangeable element 6, dimensional differences being at most provided between the two solutions in view of the differences in size and shape between the barrel end and the head.

**[0027]** Conversely, there may be differences concerning the aforementioned first portion 3 of the body 2 of the device 1, whose shape may change depending on whether that part is designed to be applied to the barrel end or the head.

**[0028]** Also, it shall be noted that aforementioned first portion 3 of the device 1 can be fixed to the fountain pen 101 or to another object, with methods differing from the above discussed screw coupling arrangement, with fixing methods being possibly envisaged such as bonding, riveting, caulking, crimping, welding, interlocking and else.

**[0029]** Namely, the method used to fix the first portion 3 of the device 1 to a generic object may be advantageously selected according to the type of object considered.

**[0030]** It should be also noted that the body 2 of the device 1 of the invention may be also formed of one piece with the structure of the object to be customized 101.

**[0031]** Concerning the customization element 6, it should be noted that it can have different sizes and shapes, obviously as long as it can be housed within the housing seat 5.

**[0032]** In the illustrated embodiments, the customization element 6 consists of a thin disk-shaped element bearing the initials "L" and "R" on one side. Of course, for these initials to be visible from outside the fountain pen 101, the disk-shaped element 6 shall be inserted in the housing seat 5 with the side bearing the initials facing the opening of the housing seat 5.

**[0033]** Advantageously, the aforementioned means for removably retaining the customization element 6 stably housed in the aforementioned housing seat 5:

- comprise a holding element 7 coupled so as to close and by interference with said housing seat 5 to removably retain the customization element 6 housed in said housing seat 5 in a captive manner, in the illustrated embodiment in a position proximate the bottom of the housing seat 5 and
- said holding element 7 is at least partially transparent to allow the underlying customization element 6 housed in the housing seat 5, in this example in a position proximate to the bottom of the housing seat 5, to be viewed from outside the device 1.

**[0034]** Concerning the aforementioned holding element 7, which is plugged into the housing 4 to retain the customization element 6 in a captive manner, as mentioned above this element must be at least partially trans-

parent to light, therefore it must not be completely opaque, otherwise it would hide the underlying customization element 6 from view.

**[0035]** Preferably, the aforementioned holding element 7 has a degree of opacity of less than 70%, more preferably, said holding element 7 has a degree of opacity to light of less than 50% and even more preferably said holding element 7 has a degree of opacity of less than 15%, to be as transparent as possible to light.

**[0036]** Preferably, the aforementioned holding element 7 comprises, and more preferably consists of, an optical lens, to afford improved viewing, namely enlargement of the underlying customization element 6 housed in the housing seat 5 proximate to its bottom.

**[0037]** According to the illustrated embodiment, the holding element 7 comprises a first side facing towards the customization element 6 and an opposite convex side that acts as a magnifying lens.

**[0038]** Preferably, the aforementioned convex side of the holding element 7 entirely or partially projects out of the housing seat 5 beyond the edge wall 8 that delimits the housing 5.

**[0039]** According to one embodiment that is not shown, the holding element 7 comprises images, writings, logos and/or 3D objects inserted inside it and visible from the outside of the device 1.

**[0040]** Preferably, the aforementioned holding element 7 is made of a material which is softer and more elastically deformable than the material of the housing seat 5, for example a polymer, silicone and the like, so that, as said holding element 7 is inserted into the housing seat 5, it can be elastically deformed, preferably from its outer surface, thereby providing the required seal by forcing said holding element 7 into said housing seat 5.

**[0041]** Preferably, said holding element 7 is coupled by forced interference into the housing seat 5, more preferably with said edge wall 8 delimiting the housing 5.

**[0042]** Preferably, the aforementioned holding element 7 extends in a prevalent longitudinal direction X-X and comprises a side wall 9 coupled by interference with said edge wall 8 of said housing seat 5, between the side wall 9 of the holding element 7 and the edge wall 8 of the housing seat 5, a shape coupling being thus provided between complementary profile sections.

**[0043]** Preferably, the aforementioned side wall (9) of the holding element (7) comprises bosses projecting towards the outside of the holding element 7 in a direction transverse to the longitudinal direction X.X. These bosses identify centering and sealing elements for said holding element 7 in said housing seat 5.

**[0044]** It should be noted that, in view of ensuring easy deformability and a proper locking function, the aforementioned bosses have a very small size, indicatively protruding from the wall by 0.15-0.40 mm, whereby they are not easily detectable and have not been shown in the attached figures.

**[0045]** Preferably, the aforementioned protruding bosses are arranged so as to identify at least three dis-

tinct centering and sealing elements circumferentially spaced apart from each other along the side wall 9 of the holding element 7.

**[0046]** Preferably the aforementioned at least three distinct centering and sealing elements are no more than five, more preferably are three or four, to prevent the self-centering function of the holding element 7 in the housing seat 5 from being impaired.

**[0047]** Preferably, the aforementioned bosses are three bosses or four bosses.

**[0048]** Preferably the aforementioned protruding bosses identify at least three distinct centering elements, preferably no more than five centering elements, longitudinally extending along said side wall 9 of said holding element 7 and circumferentially spaced apart from each other.

**[0049]** Furthermore, said holding element 7 comprises a conical profile section to facilitate insertion into said housing seat 5 and ensure the necessary interference with said edge wall 8 of said housing seat 5.

**[0050]** In view of the above discussed features, the holding element 7 defines a plug adapted to hold the customization element 6 in position inside the housing 5.

**[0051]** Since the holding element 7 is fixed in the housing seat 5 by interference, when needed, i.e. when the customization element housed in the housing seat is intended to be replaced for another customization element, the holding element may be easily removed for such replacement, and replaced for a new holding element if it is damaged.

**[0052]** As clearly shown in the above description, the device of the present invention for application of interchangeable customization elements to objects fulfills the aforementioned need and also obviates prior art drawbacks as set out in the introduction of this disclosure. The steps of inserting a customization element into the housing seat, fixing it by interference of the holding element in the housing seat, and possibly removing it may be also carried out by a salesperson with no special tools and outstanding manual skills.

**[0053]** Also, the device of the invention does not imply the undesired presence of permanent magnets and does not require the customization element to be made of ferromagnetic material or supported by a ferromagnetic base.

**[0054]** An additional advantage of the inventive device for application of interchangeable customization elements to objects is its high structural simplicity, which ensures a long life thereof.

**[0055]** Yet another advantage of the inventive device for application of interchangeable customization elements to objects according to the present invention is the possibility of manufacturing it at a low cost.

**[0056]** Those skilled in the art will obviously appreciate that a number of changes and variants may be made to the device of the present invention as described hereinbefore to meet specific needs, without departure from the scope of the invention, as defined in the following

claims.

## Claims

1. **Device for the application of interchangeable customization elements to an object**, said device comprising:

- a body (2) having a first portion (3) intended to be secured, integrated or manufactured in one piece with the structure of an object to be customized (101) and a second portion that includes an housing seat (5) accessible from the outside of said device (1) when said device (1) is secured to an object;

- a customization element (6) housed in said housing seat (5) and

- means for removably retaining said customization element (6) stably housed in said housing seat (5),

**characterized in that** said means for removably retaining said customization element (6) stably housed in said housing seat (5):

- comprise a holding element (7) coupled so as to close said housing seat (5) by interference to removably retain said customization element (6) captively housed in said housing seat (5) and

- said holding element (7) is at least partially transparent to make the customization element (6) housed in said housing seat (5) visible from the outside of said device (1).

2. Device according to claim 1, wherein said holding element (7) has a degree of opacity lower than 70%, preferably said holding element (7) has a degree of opacity lower than 50% and more preferably said holding element (7) has a degree of opacity of less than 15%.
3. Device according to claim 1 or 2, wherein said holding element (7) comprises an optical lens to allow a better visualization of said customization element (6) housed in said housing seat (5), preferably said holding element (7) consists of an optical lens.
4. Device according to any one of claims 1 to 3, wherein said holding element (7) comprises a first side facing towards said customization element (6) and an opposite convex side that acts as a magnifying lens.
5. Device in accordance with claim 3 or 4, wherein said holding element (7) includes images, writings, logos and/or 3D objects inserted inside it and visible from the outside of said device (1).

6. Device according to any one of claims 1 to 5, wherein said holding element (7) is made of a softer and more elastically deformable material than the material of said housing seat (5), so that said holding element (7) is suitable for elastically deforming, thus ensuring the necessary tightness by forcing said holding element (7) in said housing seat (5).

7. Device according to any one of claims 1 to 6, wherein said customization element (6) is coupled by interference with forcing in said housing seat (5).

8. Device according to any one of claims 1 to 7, wherein:

- said housing seat (5) defines a recess comprising a bottom wall delimited by an edge wall (8) that extends beyond said bottom wall and

- said holding element (7) extends in a prevalent longitudinal direction (X-X) and comprises a side wall (9) coupled by interference with said edge wall (8) of said housing seat (5),

between said side wall (9) of said holding element (7) and said edge wall (8) of said housing seat (5), a shape coupling is made between complementary profile sections.

9. Device according to claim 8, wherein said side wall (9) of said holding element (7) comprises bosses projecting towards the outside of said holding element (7) in a direction transverse to said longitudinal direction, said bosses identifying centering and sealing elements of said holding element (7) in said housing seat (5).

10. Device according to claim 8, wherein said protruding bosses are arranged so as to identify at least three distinct centering and sealing elements circumferentially spaced from each other along said side wall (9) of said holding element (7), preferably said at least three distinct centering and sealing elements are no more than five.

11. Device according to claim 10, wherein said protruding bosses identify at least three distinct centering elements, preferably no more than five centering elements, extending longitudinally along said side wall (9) of said holding element (7) and circumferentially spaced between them.

12. Device according to any one of claims 8 to 11, wherein said side wall (9) of said holding element (7) comprises a conical profile section to facilitate insertion into said housing seat (5) and ensure the necessary interference with said edge wall (8) of said housing seat (5).

13. Device according to any one of claims 1 to 12, wherein:

- said customization element (6) is a discoidal element housed at the bottom of said housing seat (5) and/or
- said first portion (3) of said body (2) comprises a threaded portion for making a screw coupling with a corresponding thread portion of an object.

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14. **Object intended to be customized by means of a customization element, characterized in that** it comprises a device for the application of interchangeable customization elements in accordance with any one of claims 1 to 13, said device (1) being secured to said object (101) in correspondence with said first portion (3) of the body (2).

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15. Object according to claim 14, wherein said object is selected from the group comprising: fountain pens, ballpoint pens, rollerballs, mechanical pencils, pencils, bags, briefcases, wallets, buttons, cufflinks, watches, costume jewelry, jewelry, handles, leather, fabric or polymeric material.

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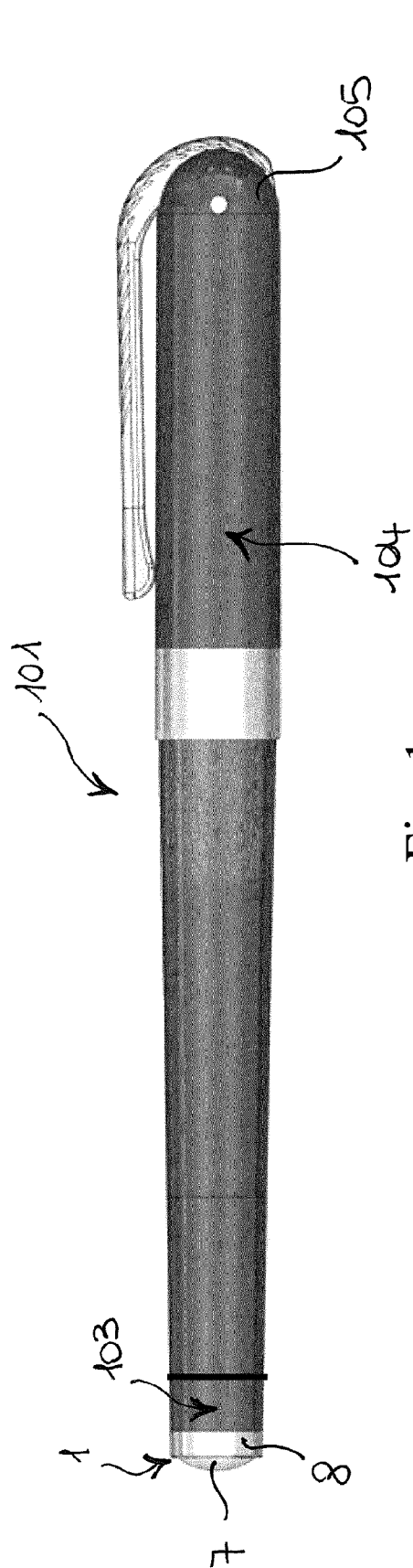


Fig. 1

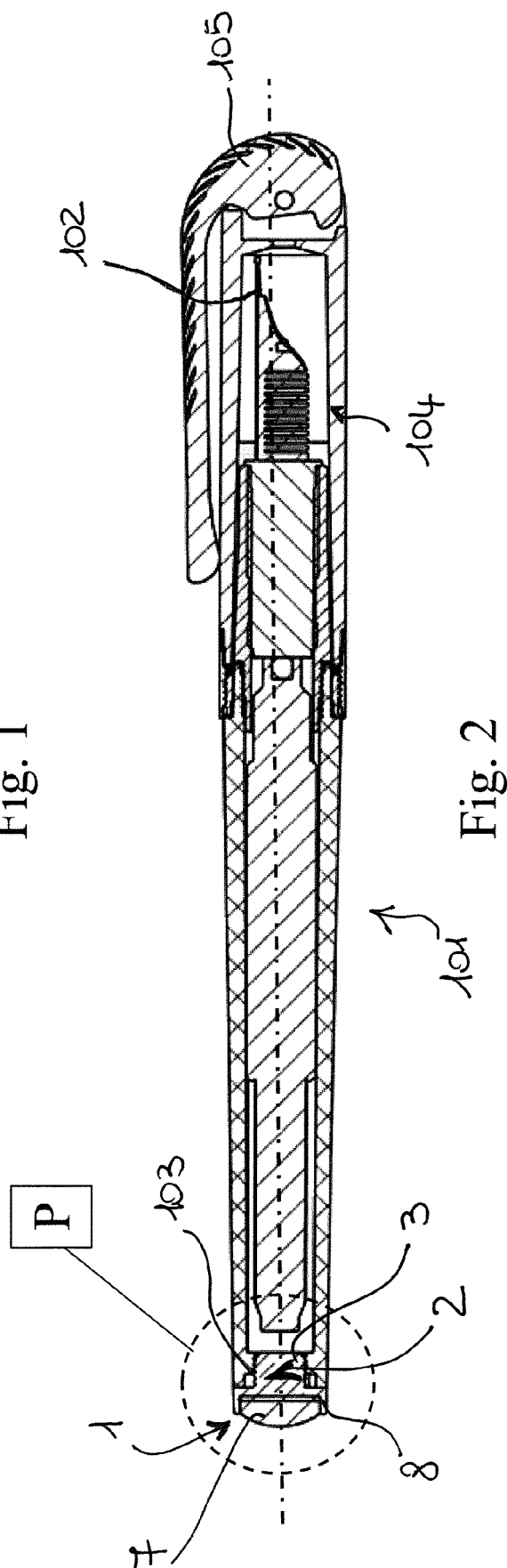
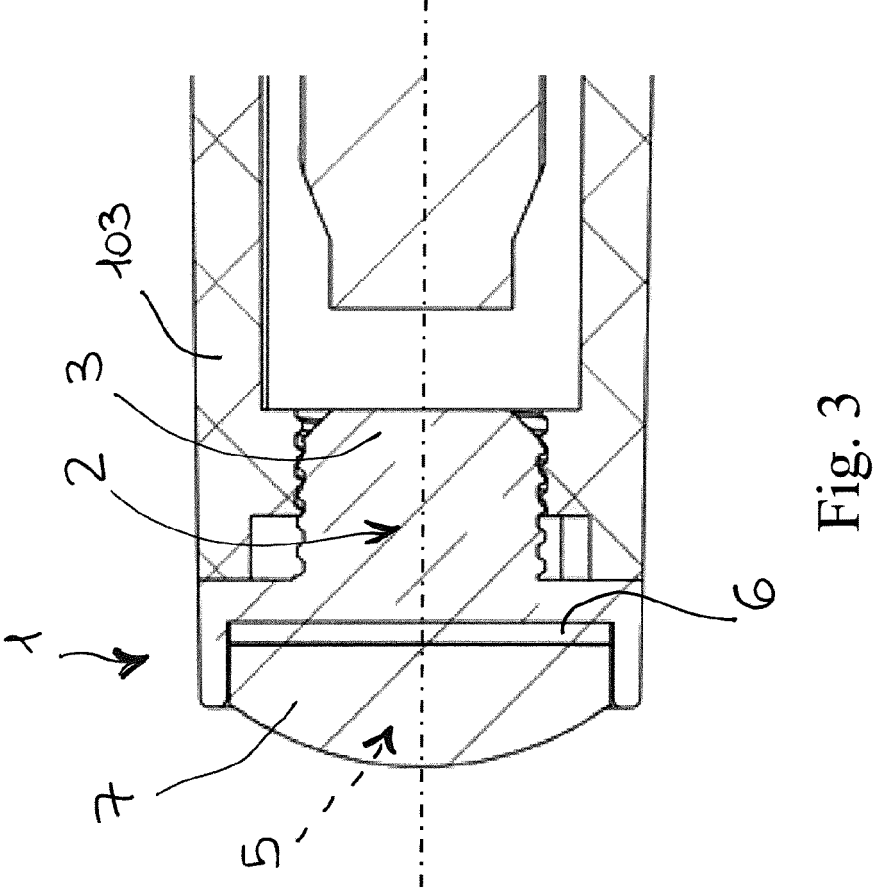
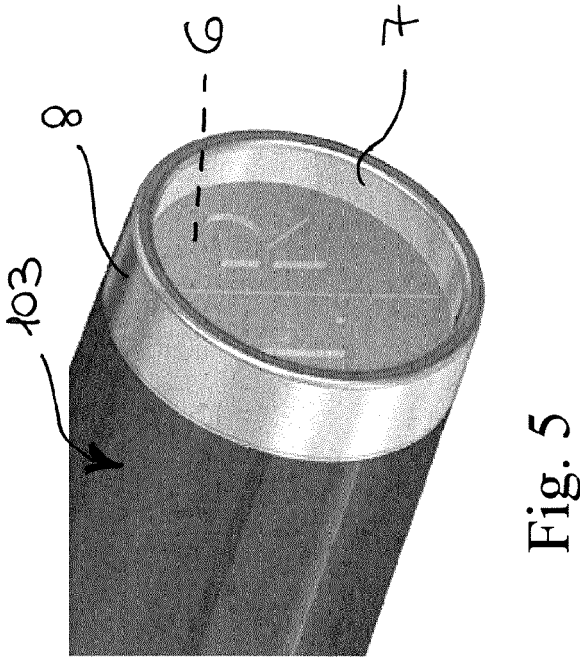
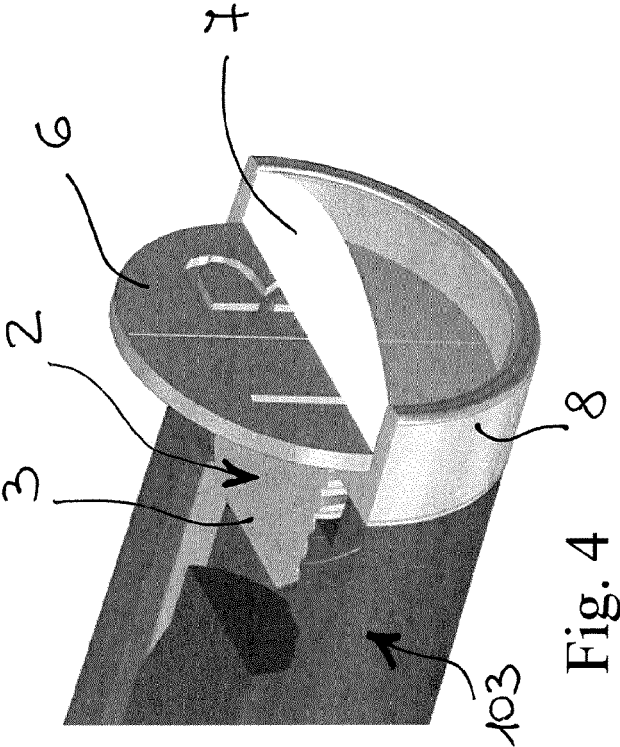


Fig. 2





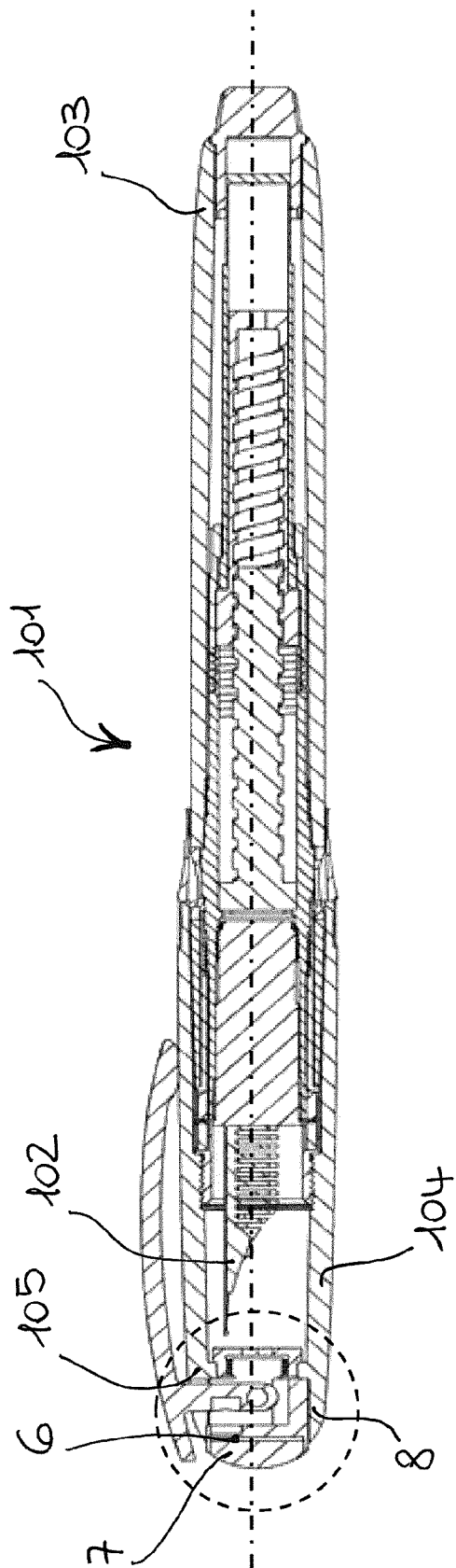


Fig. 6

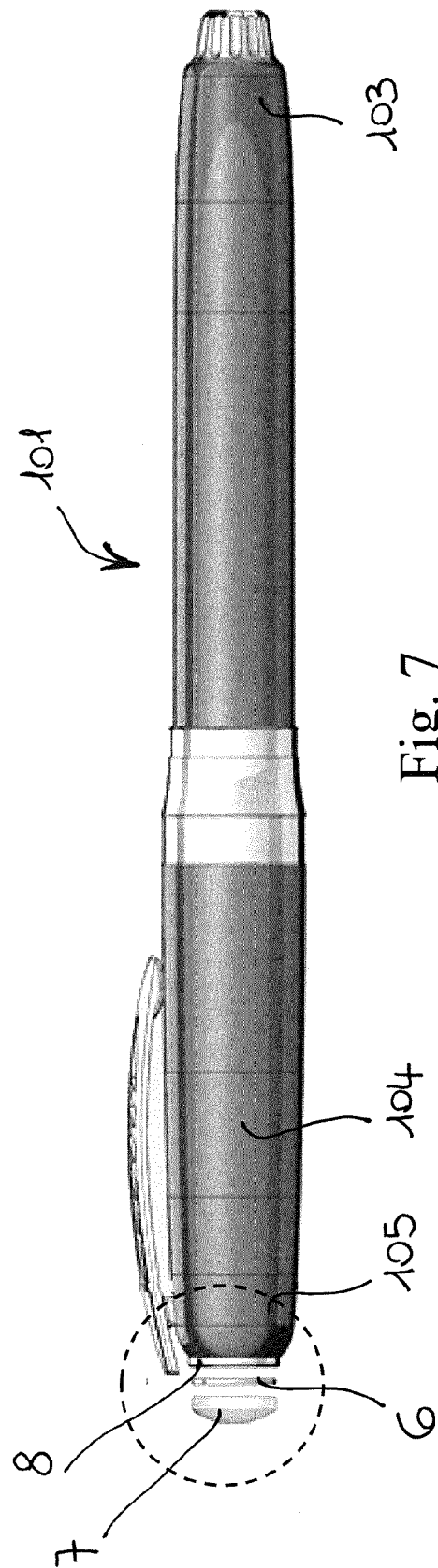
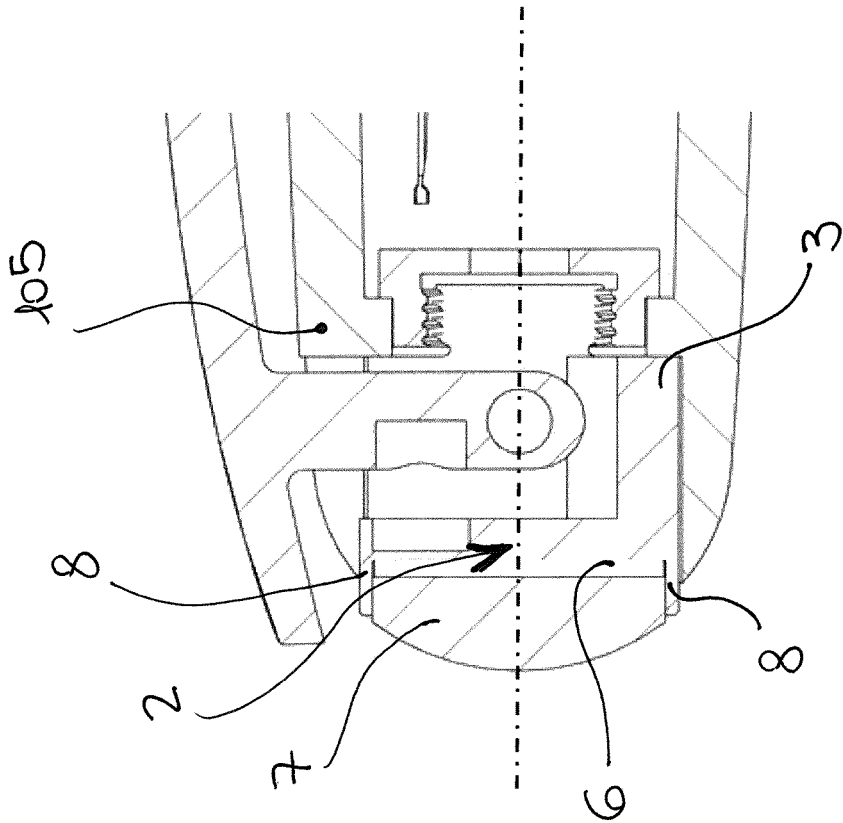
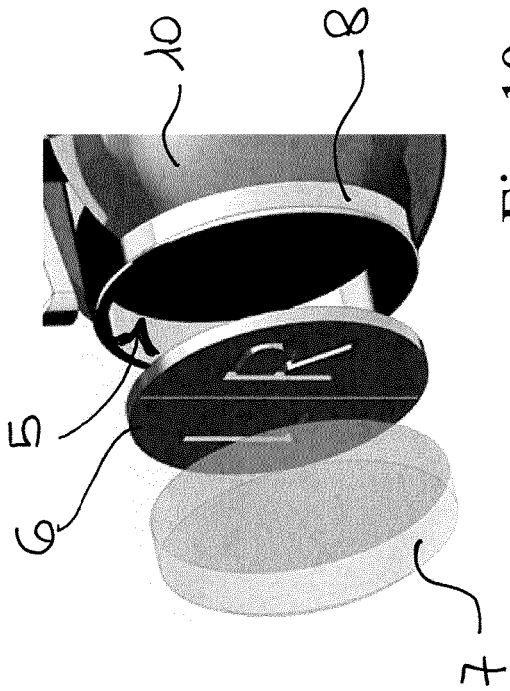
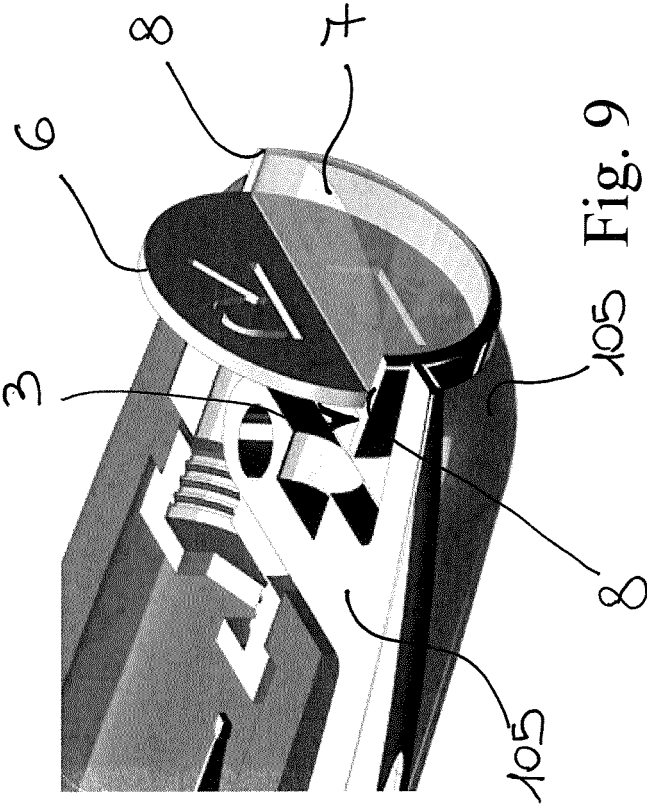


Fig. 7





## EUROPEAN SEARCH REPORT

Application Number

EP 22 15 5745

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| DOCUMENTS CONSIDERED TO BE RELEVANT   |  |   |   |
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|   |  |   | TECHNICAL FIELDS SEARCHED (IPC)                           |
|   |  |   | B43K  |
| The present search report has been drawn up for all claims  |  |   |   |
| Place of search   |  | Date of completion of the search  | Examiner  |
| Munich  |  | 10 June 2022  | Kelliher, Cormac  |
| CATEGORY OF CITED DOCUMENTS   |  |   |   |
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