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(54) **A tape device**

(57) The present invention relates to a tape device, more particularly to a tape device for applying concealing layer onto a surface, comprising a casing (30) for accommodating a spool (10) which provides the tape having a film layer. An applicator (20) of the present invention guides the tape (11) onto a surface on which the film

layer is applied. The present invention is characterized in that the casing (30) is fabricated integrally with the shaft (32) and the tape guide (34), and further comprises an opening (39), wherein the spool (10) is accessible from external of the casing and is removably attached to the shaft (32) via a fastener from the opening (39).

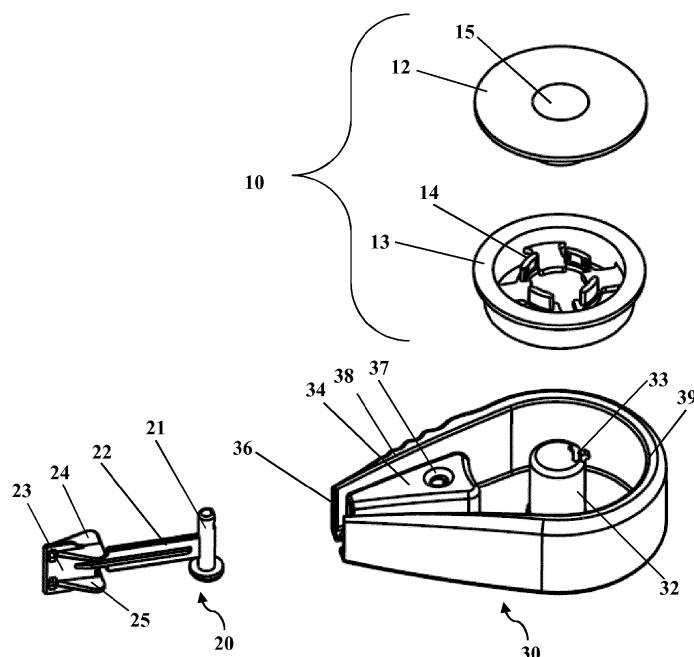


Figure 2

## Description

### TECHNICAL FIELD

[0001] The present invention relates to a tape device for dispensing correction tape and more particularly, the present invention relates to a device for applying concealing layer from the correction tape onto a surface for covering markings on a document.

### BACKGROUND OF INVENTION

[0002] Numerous types of correction tape devices are known and have been in use for correcting clerical or typographical error made on a surface. Basically, a correction tape device comprises a correction tape coated with opaque concealing layer which will be applied onto the surface for covering the error. By applying pressure on the device, the concealing layer coated on the tape will be adhered to the surface so that the error could be covered and texts could be rewritten on top of the concealing layer. Most of the correction tape devices comprise at least one rotatable spool for rolling the correction tape to an applicator tip external of the device, where the concealing layer will be transferred onto the surface by applying pressure. The spool with the correction tape therefore needs to be retained in a confined space of a casing to allow for rotation without the spool falling out of the supporting shaft. Furthermore, the casing is required for preventing the external interference such as hands holding the device.

[0003] United States Patent No. US 5942036 discloses a correction tape device which comprises a casing having one opened end and two sides, a main body having a tape guide which can protrude via the opening of the case and a roll mounting portion for placing the spool. The device requires an inscribed plate for providing the unused tape and a pinion for collecting the used tape, both of which are rotatably supported via separate shafts. As such the device requires an enclosed casing for holding the inscribed plate and the pinion. Furthermore, the main body needs to be properly engaged with the casing to allow functioning of the device. Therefore, when the tape has been used up and needs to be replaced, the casing needs to be detached from the main body for the replacement of a new spool.

[0004] United States Patent No. US 6582514 B1 describes a correction tape device which includes a housing formed of a bottom cover shell and a top cover shell, a tape reel mounted on an upright axle in the housing, the tape reel having an upper reel portion and a lower reel portion, a nose wheel mounted in a peripheral opening of the housing, a tape of correction material wound round the upper reel portion and lower reel portion of the tape reel and extended through the nose wheel. The construction of the device requires that the correction tape reel to be enclosed in the top cover shell and the bottom cover shell so that the correction tape reel does not move out

of its designated place during its rotation on the shaft. This tightening of the tape reel is not feasible without opening the casing in the event that the tape has been loosened. Further, the replacement of the used tape reel would also require removing the top cover shell.

[0005] United States Patent Publication No. US 20090159217 A1 discloses a correction tape device comprising a casing, a tape holder, a first and second assembly, a tape exporting device, and an applicator head. The casing is provided with an accommodating space, an upper covering, a lower covering, and an assembling covering. The applicator head can be moved out of the opening of the casing by pushing the poles of the tape holder and thereby forcing the tape holder to move forwards. As a result, the tape holder would experience a compression elastic force, which would bring the applicator head to the outside the circular opening of the casing. The device requires a number of components, including the tape holder, the first and second assembly to be placed within the device. Therefore the device needs to be enclosed by a casing, and opening of the casing is required before the tape can be replaced.

[0006] In view of the above, there is therefore a need to provide a tape device which allows fast and easy replacement of the spool as well as allowing tightening of the tape by adjusting the spool without removing an external cover from the main body of the device.

[0007] Further, it is also desirable to provide a correction tape device which is built with simple and minimalistic construction for reducing the associated manufacturing costs.

### SUMMARY OF INVENTION

[0008] It is an objective of the present invention to provide a tape device which is built on the basis of a single piece casing.

[0009] It is also an objective of the present invention to provide a tape device which has an exposed side for allowing the adjusting of the spool therein and the replacement of the spool.

[0010] It is yet another objective of the present invention to provide a tape device with a single piece casing for holding the components in a functional position.

[0011] Accordingly, the present invention is provided for overcoming the disadvantages and drawbacks of the prior arts as well as to achieve the above objectives. The present invention relates to a tape device for applying a film layer onto a surface, comprising a spool for providing a tape having a film layer, a casing for accommodating the spool, a shaft extended from a portion of the casing for removably retaining the spool, a tape guide mounted on the casing for directing the tape provided from and received by the spool, and an applicator with a tip for guiding the tape onto a surface on which the film layer is applied. The casing further comprises an opening, wherein the spool is accessible from external of the casing and is removably attached to the shaft via a fastener

from the opening.

**[0012]** In an aspect of the present invention, the casing comprising the shaft and the tape guide are fabricated integrally and produced as a single article.

**[0013]** In another aspect of the present invention, the shaft of the casing has a free end and comprises a fastener at the free end for removably holding the spool at the shaft and allowing replacement of the spool from the shaft, without having to remove the casing or any covering means thereof.

**[0014]** In a further aspect of the present invention, the tape device is provided with a connecting member for preventing unintentional contact with external objects interrupting the rotation of the spool in use, said external objects include, for example, the fingers of a user holding the device.

**[0015]** In yet a further aspect of the present invention, the spool of the present invention comprises a supply reel for providing the tape coated with concealing layer and a take-up reel for collecting the used tape without concealing layer. Further, the supply reel and the take-up reel are coaxially engaged to each other and rotatably supported on the same shaft.

## BRIEF DESCRIPTION OF DRAWINGS

**[0016]** The present invention is further described hereinafter with reference to the embodiments shown in the accompanying drawings in which:

Figure 1 is a perspective view of a tape device according to an embodiment of the present invention.

Figure 2 is an exploded view of a tape device comprising an applicator head, a spool, and a casing according to an embodiment of the present invention.

Figure 3 is a perspective view of tape device according to a second embodiment of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0017]** The present invention will now be described in more detail with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as being limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

**[0018]** The present invention relates to a tape device, more particularly to a correction tape device for applying the film layer onto a surface. The correction tape device comprising a spool (10) for providing a tape (11) having film layer, an applicator (20) for guiding the tape (11) onto

a surface on which the film layer is applied, and a casing (30) for accommodating the spool (10).

**[0019]** In a preferred embodiment, the film layer is configured as a translucent layer, which is used for the purpose of highlighting an area of the surface. In yet another embodiment, the film layer is configured as an opaque layer for concealing an area of the surface. Further, new texts can be written on top of the film layer. Besides that, the film layer, in a further embodiment of the invention, is configured with a printed matter for decorative purposes when applied to a surface. The film layer may also be configured as an adhesives layer such as a layer of glue for binding other materials to the surface.

**[0020]** Figure 1 illustrates the tape device with the spool (10) and the applicator (20) assembled into the casing (30). In a preferred embodiment, the casing (30) is ergonomically shaped for the comfort of holding the device. In a more preferred embodiment, the casing (30) is formed substantially in a teardrop shape such that it has an accommodating space therein for occupying the spool (10).

**[0021]** With reference to Figure 2 which illustrates the spool (10) and the applicator (20) detached from the casing (30), it is now clearly shown that the casing (30) further comprises a surface (31), a shaft (32) extended from the surface (31), and a tape guide (34). It can be seen that the casing (30) further comprises an opening (39) which is an exposed area of the casing (30), for providing accessibility to the spool (10), so that the spool (10) can be removed from the casing (10). In a preferred embodiment, the opening (39) of the casing (30) provides the exposed area to the spool (10) and the tape guide (34) so that the spool (10) together with the tape placed around the tape guide (34) is externally accessible for replacement of the spool (10). Further, the exposed area of the opening (39) also provides accessibility to rotate the spool (10) to tighten the tape.

**[0022]** The shaft (32) is a tubular structure extended from the surface (31) for rotatably holding the spool (10) via an annular bore (15) of the spool (10). Therefore, it will be appreciated that the outer diameter of the shaft (32) is substantially same with the inner diameter of the annular bore (15) to allow rotation without excessive movement. It will be apparent that one end of the shaft (32) facing the opening (39) is a free end and is not attached or covered with any other components.

**[0023]** On the free end of the shaft (32), there is provided with a fastener, preferably but not limited to a clip (33) such that the spool (10) can be detachably held by the shaft (32). In a preferred embodiment, the clip (33) is biased outward from the shaft (32) such that the clip (33) engages an inner circumference of the annular bore (15) of the spool (10), and keeps the engagement between the spool (10) and the shaft (32) tight. In the event that the spool (10) is required to be removed from the shaft (32), the clip (33) is pressed inward to loosen the engagement between the spool (10) and the shaft (32) so that the spool (10) can be slid outward and removed

from the shaft (32). It will be appreciated therefore that the fast removal of the spool (10) from the shaft (32) is possible with the casing (30) having the opening (39). In a preferred embodiment, the clip (33) is integral to the surface (31) and the shaft (32). In a preferred embodiment, the clip (33) is formed by having a cut-out area extending from the surface (31) to the free end of the shaft (32), for example in the shape of "n".

**[0024]** In a preferred embodiment, the shaft (32) further comprises a plurality of gear teeth at the shaft (32) for providing frictions to the rotation of the spool (10). The friction conferred by the plurality of gear teeth is required to cease the rotation of the spool (10) once the user has stopped dragging the correction tape device. In a preferred embodiment, the plurality of gear teeth is configured in a manner which restricts the rotation of the spool (10) in a single direction. This feature therefore allows adjustment on the spool (10) to tighten the tape and prevents loosening of the tape.

**[0025]** In the embodiment where the casing (30) is formed in a teardrop shape, the shaft (32) is therefore provided at the rounded portion to allow the accommodation of the spool (10) which is also in round shape. The pointed portion of the casing (30), on the other hand, is therefore provided with the tape guide (34). The tape guide (34) is substantially a triangular configuration mounted on the casing (30) and pointing towards an aperture (36) of the casing (30). The function of the tape guide (34) is for directing the tape (11) provided by the spool (10) to the applicator (20) via one side of the tape guide (34) and from the applicator (20) back to the spool (10) via another side of the tape guide (34).

**[0026]** In addition, the tape guide (34) also acts as a structural support for the applicator (20). In a preferred embodiment, the tape guide (34) is hollow such that the applicator (20) is supported from within the tape guide (34).

**[0027]** It is therefore apparent that the casing (30) having the opening (39) at one side of the casing (30) does not fully enclose the device. The casing (30) is essential in providing a frame for placing the spool (10) and the applicator (20) in a functional position, and at the same time allowing a user to hold the tape device. In a preferred embodiment, the shape of the casing (30) is rounded for the comfort of the user holding the device. While not affecting the functionality of the casing (30), the opening (39) of the casing (30) provides accessibility to allow the spool (10) to be changed and adjusted by the user in the event that the tape has been loosened.

**[0028]** Having described the shaft (32), the tape guide (34), it is preferred that the shaft (32), the tape guide (34), are integral components of the casing (30). As shown in Figure 2, the casing (30) together with the shaft (32), the clip (33), and the tape guide (34) are preferably fabricated as a single article. This feature of the device is advantageous in simplifying the manufacturing process and reducing the associated cost.

**[0029]** Also, the casing (30) comprises at least a ridge

(38) configuration for the ease of gripping the tape device. Said at least a ridge (38) provides friction between the tape device and a user's thumb, such that the tape device is provided with a restriction from slipping off the user's hand while using the tape device. The ease of gripping the tape device provides improved manageability of the tape device.

**[0030]** The applicator (20) is provided exterior to the pointed end of the casing (30) for guiding the tape (11) onto a surface onto which the concealing layer is applied. In a preferred embodiment, the applicator (20) further comprises an attachment pin (21), a connector (22), a tip (23), a left side wall (24), and a right side wall (25). In a preferred embodiment, the applicator (20) is fabricated from flexible material, such as but not limited to elastomeric material. The flexibility of the applicator (20) allows movement of the applicator head to a certain extent. This is to ease the use of the device when pressure is applied to slightly bend the applicator (20) and to drag the device over a certain distance.

**[0031]** In a preferred embodiment, the attachment pin (21) of the applicator (20) allows the attachment of the applicator (20) in the tape guide by engaging with a bore (37) of the tape guide (34). The connector (22) connects the tip (23) to the attachment pin (21) so that the tip (23) is placed at the aperture (36) of the casing (30) adjacent to the tape guide (34).

**[0032]** The tip (23) of the applicator (20) provides a planar surface for placing the tape (11) so that the concealing layer can be applied onto a surface of a substrate. The tip (23) is provided with the left side wall (24) and the right side wall (25) to prevent the sliding of the tape to the sides. In a preferred embodiment, the left side wall (24) and the right side wall (25) are both perpendicular to the plane of the tip (23) and are formed in triangular shape with the pointed end facing outward, so as to facilitate the ease of applying pressure at the edge of the tip (23).

**[0033]** The spool (10) for providing the tape with film layer will now be described. In a preferred embodiment, the spool (10) further comprises a supply reel (12) for providing tape with concealing layer and a take-up reel (13) for collecting and retaining the used tape. In a preferred embodiment, the supply reel (12) has a diameter smaller than the diameter of the take-up reel (13), so that loosening of the tape is avoided under normal circumstances.

**[0034]** It is preferred that the both the supply reel (12) and the take-up reel (13) rotates coaxially so that both can be rotated via the same shaft (32) and thereby achieving efficient use of space. As such, it would be appreciated that the rotation of the spool in one direction unwinds the tape with concealing layer towards the applicator (20), and at the same time the used tape is pulled towards the take-up reel (13) and wound onto the take-up reel (13).

**[0035]** In a preferred embodiment, the take-up reel (13) comprises a plurality of friction elements (14) for engag-

ing with the supply reel (12) and allow slipping between the take-up reel (13) and the supply reel (12). This feature is required to prevent the tape from being stuck as the take-up reel (13) diameter is larger than that of the supply reel (12), given that both the supply reel (12) and the take-up reel (13) are rotated at the same rate.

**[0036]** In yet another preferred embodiment, the supply reel (12) is disposed at the exposed side of the casing (30). The supply reel (12) has a round plate on which the decorative graphics or illustrations can be printed for the aesthetic purposes. In a more preferred embodiment, the decorative graphics or illustrations comprises rotational design which has enhanced visual effects when the correction tape device is being used and the spool being rotated.

**[0037]** With reference to Figure 3 which shows an embodiment of the device, the shaft (32) is connected to the tape guide (34) by a connecting member (40) at the opening (39) of the casing (30) for securing the spool (10) from contacting with an external object during rotation of the spool (10). The external objects such as fingers of the user holding the device may unintentionally contact the spool (10) when using the device thereby causing interruption to the rotation of the spool (10). The connecting member (40) partially covers the spool (10) leaving an exposed area of the spool for accessibility to tighten the tape. In a preferred embodiment, the connecting member (40) also provides support to the spool (10).

**[0038]** In a further embodiment, the connecting member (40) is coupled to the spool (10) to facilitate removal of the spool (10). The connecting member (40) is configured to engage the spool (10) so that the removal of connecting member (40) also brings the spool (10) outwards.

**[0039]** In a more preferred embodiment, the connecting member (40) is detachably attached to the shaft (32) and the tape guide (34), for example, by having an indent underneath the connecting member (40) for fitting onto the shaft (32) and the tape guide (34). The connecting member (40) is configured to facilitate placement of the tape on the tip (23) by having the connecting member (40) connected to the tip (23) forming a subassembly. Although the present invention has been described in a specific embodiment as in the above description, it is understood that the above description does not limit the invention to the above given details. It will be apparent to those skilled in the art that various changes and modification may be made therein without departing from the principle of the invention or from the scope of the appended claims.

## Claims

### 1. A tape device comprising:

- a spool (10) for providing a tape (11) having a film layer;
- a casing (30) for accommodating the spool (10);

a shaft (32) extended from the casing (30) for removably retaining the spool (10);  
a tape guide (34) mounted on the casing (30) for directing the tape (11) provided from and received by the spool (10); and  
an applicator (20) with a tip (23) for guiding the tape (11) onto a surface on which the film layer is applied;

**characterized in that** the casing (30) is fabricated integrally with the shaft (32) and the tape guide (34), and further comprises an opening (39), wherein the spool (10) is accessible from external of the casing and is removably attached to the shaft (32) via a fastener from the opening (39).

2. A tape device according to claim 1, wherein the film layer is configured as any one or combination of a translucent layer, opaque layer, and adhesive layer.
3. A tape device according to claim 1, wherein the film layer is configured with a printed matter.
4. A tape device according to claim 1, wherein the opening (39) of the casing (30) provides an exposed area to the spool (10) and the tape guide (34) for accessibility for tightening the tape or replacing the spool (10).
5. A tape device according to claim 1, wherein the spool (10) comprises a supply reel (12) for providing the tape (11) having the film layer and a take-up reel (13) for collecting used tape.
6. A tape device according to claim 5, wherein the take-up reel (13) comprises a plurality of friction elements (14) to engage the supply reel (12).
7. A tape device according to claim 1, wherein the spool (10) is configured with decorative graphics.
8. A tape device according to claim 1, wherein the casing (30) comprises at least a ridge (38) configuration for the ease of gripping the tape device.
9. A tape device according to claim 1, wherein the applicator (20) is placed substantially external of the casing (30), adjacent to the tape guide (34) and is supported from within the tape guide (34).
10. A tape device according to claim 1, wherein the shaft (32) further comprises a plurality of gear teeth at the shaft (32) for providing frictions to the rotation of the spool (10), wherein the plurality of gear teeth is configured in a manner which restricts the rotation of the spool (10) to rotate in a single direction.
11. A tape device according to claim 1, wherein the fas-

tener is configured at a free end of the shaft (32) towards the opening (39) of the casing (30) for removably holding the spool (10) at the shaft (32) and allowing replacement of the spool (10) from the shaft (32).

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12. A tape device according to claim 1, wherein the fastener is a clip (33) which is biased outwards from the shaft (32) for engaging the spool (10).

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13. A tape device according to claim 1, wherein the shaft (32) is connected to the tape guide (34) by a connecting member (40) at the opening (39) of the casing (30) for securing the spool (10) from contacting with an external object during rotation of the spool (10) and providing support to the spool (10).

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14. A tape device according to claim 13, wherein the connecting member (40) is configured to facilitate placement of the tape on the tip (23).

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15. A tape device according to claim 13, wherein the connecting member (40) is coupled to the spool (10) to facilitate the removal of the spool (10).

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16. A tape device according to claim 13, wherein the connecting member (40) partially covers the spool (10) leaving an exposed area of the spool (10) for accessibility to tighten the tape.

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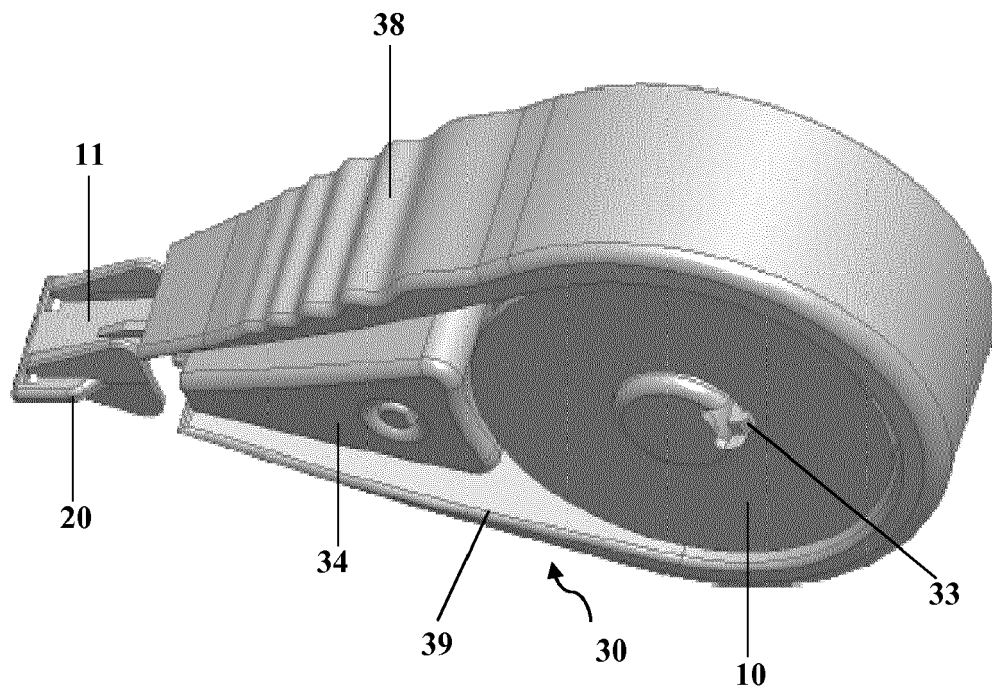
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### Figure 1

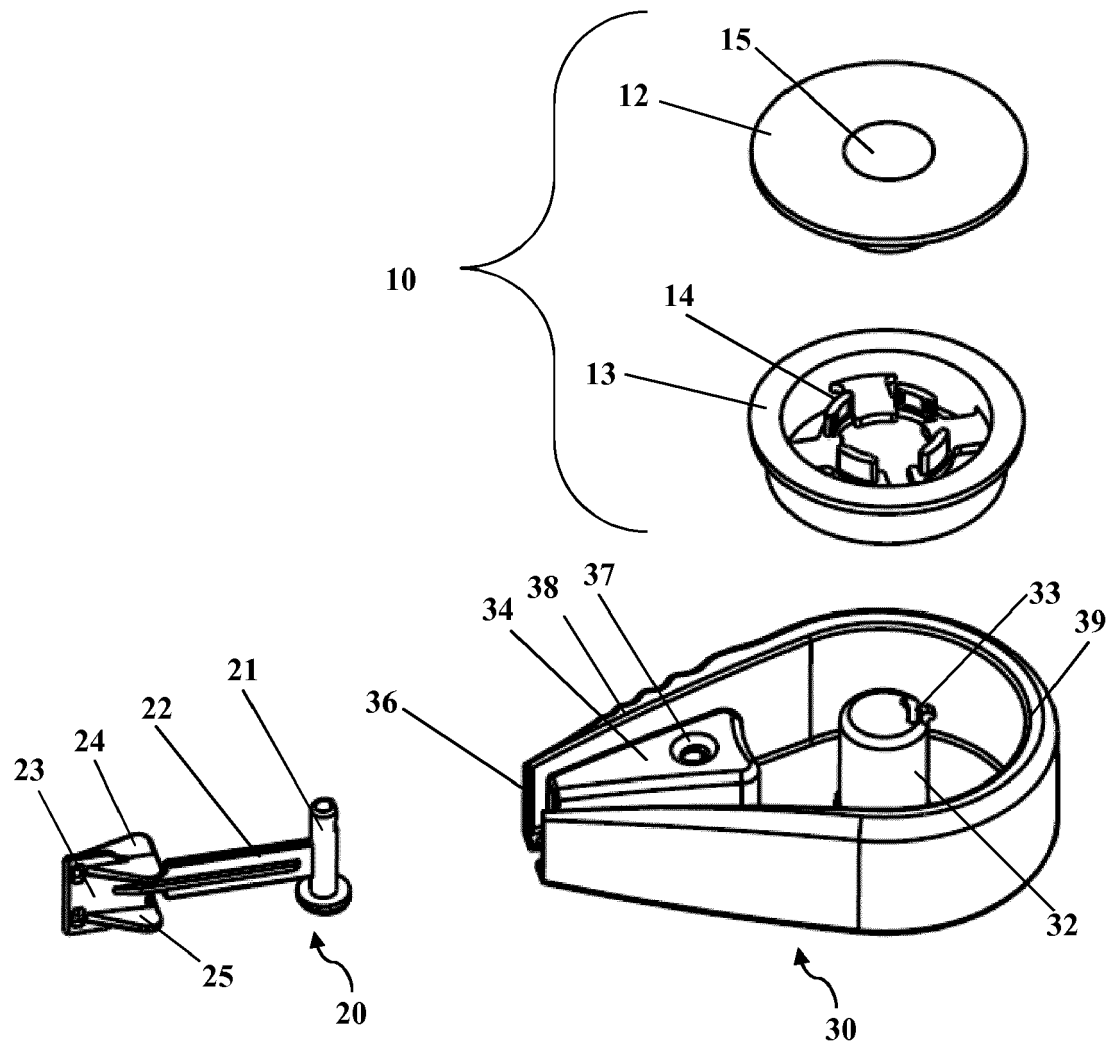


Figure 2



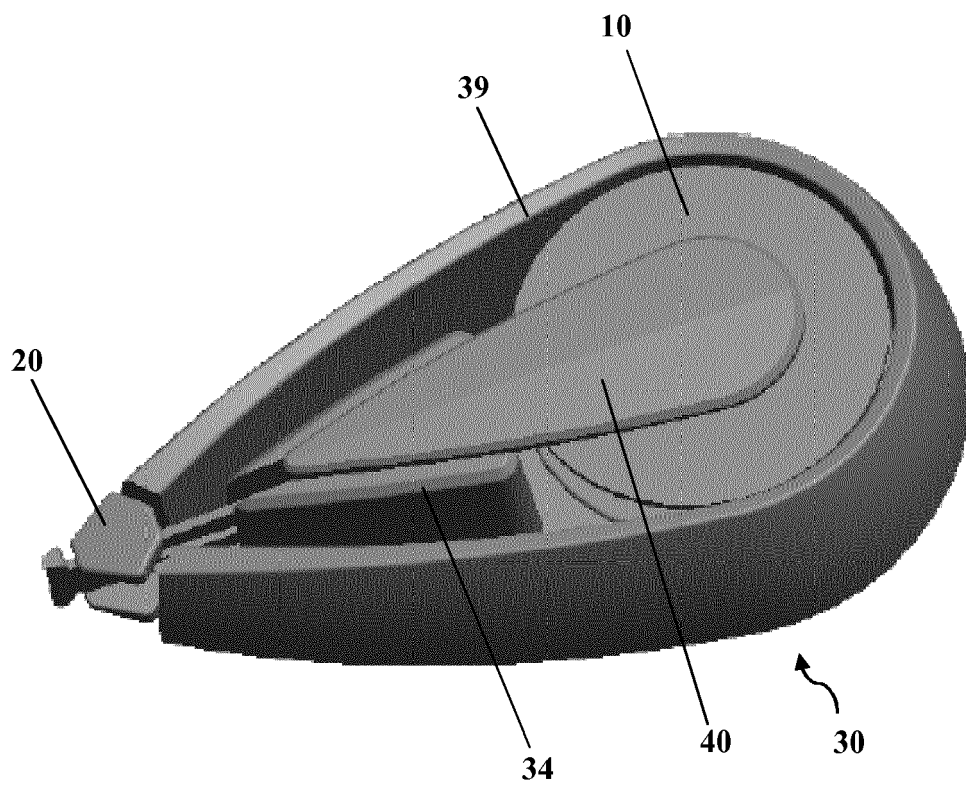


Figure 3



## EUROPEAN SEARCH REPORT

Application Number  
EP 14 16 7542

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                        |                                  |                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Citation of document with indication, where appropriate, of relevant passages                          | Relevant to claim                | CLASSIFICATION OF THE APPLICATION (IPC) |
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| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                        |                                  |                                         |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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30-07-2015

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

**REFERENCES CITED IN THE DESCRIPTION**

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