



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
26.06.2024 Bulletin 2024/26

(51) International Patent Classification (IPC):
A45D 40/06 (2006.01)

(21) Application number: **23219161.9**

(52) Cooperative Patent Classification (CPC):
A45D 40/06

(22) Date of filing: **21.12.2023**

(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 ME MK MT NL
NO PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

(72) Inventors:
• **YATES, David**
Nottingham, NG6 8WR (GB)
• **ASANTE, Ernest**
Nottingham, NG6 8WR (GB)
• **DAVIS, Nigel**
Nottingham, NG6 8WR (GB)

(30) Priority: **22.12.2022 GB 202219586**

(74) Representative: **Dehns**
St. Bride's House
10 Salisbury Square
London EC4Y 8JD (GB)

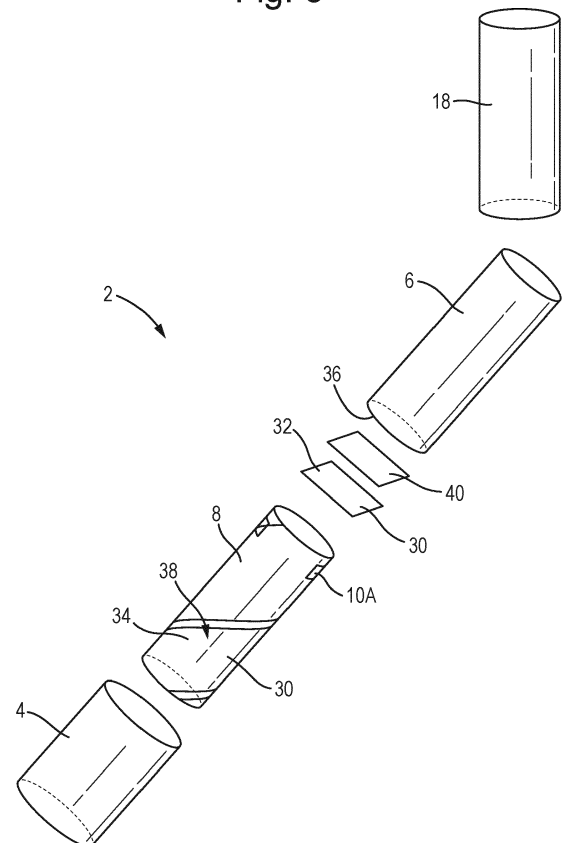
(71) Applicant: **Multi Packaging Solutions UK Limited**
Nottingham, Nottinghamshire NG6 8WR (GB)

(54) **PRODUCT DISPENSERS**

(57) From one aspect, there is provided a dispenser 2 for a product in stick form. The dispenser 2 includes a product stick carrier 8, an outer sleeve 4 and a product concealing sleeve 6. The product stick carrier 8 is in the form of a cylindrical tube including a product stick support 10 for supporting a product stick 16 in use. The outer sleeve 4 is in the form of a cylindrical tube disposed radially outwardly of the product stick carrier 8. The product stick carrier 8 is fixed relative to the outer sleeve 4. The product concealing sleeve 6 is in the form of a cylindrical tube disposed radially inwardly of the outer sleeve 4. The product concealing sleeve 6 is retractable from an extended position relative to the outer sleeve 4 and product stick carrier 8 for concealing the product stick 16 supported by the product stick support 10 in use in order to expose the product stick 16. The product concealing sleeve 6 is disposed radially outwardly of the product stick carrier 8 between the product stick carrier 8 and the outer sleeve 4. The outer sleeve 4, product concealing sleeve 6 and product stick carrier 8 are each formed of a paper-based or card-based material, such as paper-board or cardboard. The product concealing sleeve 6 is rotatable relative to the outer sleeve 4 and product stick carrier 8. The product concealing sleeve 6 includes a lug 32 fixed to an interior surface thereof, wherein the lug 32 cooperates with a helical recess 34 in an exterior surface of the product stick carrier 8 for guiding movement of the product concealing sleeve 6 as it moves relative to the product stick carrier 8 and outer sleeve 4. The lug 32 moves within the helical recess 34 as the product concealing sleeve 6 moves relative to the product stick carrier 8 and outer sleeve 4. A method of forming the dispenser

2 is also provided.

Fig. 3



Description

TECHNICAL FIELD

[0001] The present invention relates to dispensers for products in stick form, for example cosmetics, lipsticks, lip balms, deodorants, adhesives and other products for topical application to a surface, for example to a person's skin or lips. The product in stick form may be any consumer or personal care product, for example. The invention extends to an assembly comprising a dispenser in accordance with the invention in any of its aspects or embodiments in combination with a product in stick form, and to a package comprising a dispenser or assembly in accordance with the invention in any of its aspects or embodiments.

BACKGROUND

[0002] Stick products such as lipsticks are supplied in a number of dispensers. The most common dispensers comprise components made of plastics.

[0003] It is desirable to reduce the amount of plastic material used in the dispenser, and provide a more sustainable dispenser.

[0004] A number of dispensers avoiding plastic material by using paperboard and cardboard have been made available. However, it is desirable to improve these dispensers with regard to their operation mechanisms, their longevity and structural integrity, and manufacturing ease thereof.

SUMMARY

[0005] From a first aspect, there is provided a dispenser for a product in stick form that includes: a product stick carrier in the form of a cylindrical tube comprising a product stick support for supporting a product stick in use; an outer sleeve in the form of a cylindrical tube disposed radially outwardly of the product stick carrier, wherein the product stick carrier is fixed relative to the outer sleeve; and a product concealing sleeve in the form of a cylindrical tube disposed radially inwardly of the outer sleeve, the product concealing sleeve being retractable from an extended position relative to the outer sleeve and product stick carrier for concealing a product stick supported by the product stick support in use in order to expose the product stick. The product concealing sleeve is disposed radially outwardly of the product stick carrier between the product stick carrier and the outer sleeve. The outer sleeve, product concealing sleeve and product stick carrier are each formed of a paper-based or card-based material, such as paperboard or cardboard. The product concealing sleeve is rotatable relative to the outer sleeve and product stick carrier. The product concealing sleeve includes a lug fixed to an interior surface thereof, wherein the lug cooperates with a helical recess in an exterior surface of the product stick carrier for guiding movement

of the product concealing sleeve as it moves relative to the product stick carrier and outer sleeve, wherein the lug moves within the helical recess as the product concealing sleeve moves relative to the product stick carrier and outer sleeve.

[0006] This aspect provides for a reveal-type product dispenser with relatively simple construction achieving a degree of ease of manufacture, and also provides a dispenser with an effective mechanism for smooth helical movement of the product concealing sleeve (or reveal sleeve, or reveal tube) to be reversibly retracted to reveal a product therein.

[0007] In examples, the lug may extend less than 2 cm in an axial direction, and optionally less than 1 cm in the axial direction. In some examples, the lug may extend further in the axial direction, or less far, for example more than 2cm, or less than 0.5 cm. The minimum axial extension of the lug may be determined by manufacturing and structural capabilities, and may, for example be about 0.2 cm, or about 0.4 cm.

[0008] The ratio of the axial length of the lug to the axial length of the track may be from about 0.05 to 0.3, for example, from about 0.1 to 0.2, or about 0.15. This may substantially correspond to the ratio of the axial length of the lug to the axial length of the product stick carrier.

[0009] The small size of the lug ensures a simple step of inserting the lug into the interior of product concealing sleeve and fixed thereto. In examples where the lug is at the end of the sleeve, e.g., the proximal end, the small size of the lug means the machine inserting the lug into the produce concealing sleeve needs not extend so far into the sleeve.

[0010] In examples, the lug may extend in a circumferential direction less than half of the circumference of the product concealing sleeve.

[0011] This ensures that the lug is simple to insert and also means that the log, or multiple lugs, and, where present, as described below, a stop element, may be cut from a precursor tube and accordingly have the required curvature to fit effectively round the product stick carrier.

[0012] In some examples, the lug may include a first pair of opposed edges, wherein each of the first pair of opposed edges extends helically at the same angle as edges of the helical recess with respect to an axial direction.

[0013] The extent of the circumferential extension of the lug may be defined by edges of the helical recess, such that the lug fills the space between each edge of the recess. As will be understood, this is designed to fall within machining tolerances of the tubes. The lug will therefore engage each of the edges of the helical recess without circumferential play. That is, without circumferential movement between a first position when a first edge (one of the first pair of opposed edges) of the lug will engage with a slide up a first edge of the helical recess, causing a helical movement (circumferential and axial) of the lug and accordingly the product concealing tube, and a second position when a second edge (the

other of the first pair of opposed edges) of the lug, opposite the first edge thereof will engage a second edge of the helical recess, opposite the first edge thereof and cause an opposing helical movement. This causes a smooth action, without substantial play during a transition between an extending and retracting movement.

[0014] In some examples, the lug may include a second pair of opposed edges, wherein each of the second pair of opposed edges extends along a circumference of the product stick carrier, with no axial extension. That is, in use, with the dispenser held vertically, the second pair of opposed edges each extend horizontally.

[0015] The second pair of opposed edges may extend parallel to one another and between respective ones of the first pair of opposed edges.

[0016] When used with stops from either a base of the outer sleeve, or of another stop element, the horizontally, or circumferentially extending edges ensure that minimal wear occurs during use from the stopping of the product concealing sleeve by abutment of the lug against another element.

[0017] In some examples, the lug is formed from a blank having a parallelogram shape when flat.

[0018] As will be understood, this is not necessarily to mean that the material for forming the lug is cut from a flat blank and then rolled into the correct shape as a lug. The lug could be cut from a tube already having such a rounded shape. In that case, the lug, if it were to be flattened would have a parallelogram shape. Naturally, the lug, when it is curled so as to match the appropriate shape in the helical recess, does not have a parallelogram shape but rather a contoured 3D shape having opposing helically extending edges and opposing circumferentially extending edges between each of the helically extending edges.

[0019] While described as having this particular shape, which is preferable due to the engagement with the edges of the helical recess, and the stop action of the lug when it provides abutment with other stop features, it is to be understood that the lug could have alternative shapes, such as a circular shape when flat, a oval shape when flat, a teardrop shape, or indeed any other shape, provided the dimensions are capable of fitting within the helical recess.

[0020] The lug may include an inner surface conforming to an outer surface of the product stick carrier within the helical recess. In this way the lug may have a curved shape, corresponding to part of a surface of a cylinder.

[0021] In examples, the helical recess associated with the exterior of the product stick carrier may be defined between turns of a helical element associated with the exterior of the product stick carrier. This helical element may be spirally wound round the exterior of the product stick carrier, or may be made by any other suitable method.

[0022] In examples, the helical recess extends along the full axial length of the product stick carrier. This extension is in a helical direction, that is, including both an

axial component and a circumferential component. The top and bottom (or distal and proximal ends) of the helical recess may be flush with the top and bottom (or distal and proximal ends) of the product stick carrier.

[0023] In examples, the lug may be bonded to the interior surface of the product concealing sleeve with adhesive. PVA adhesive may be used. Other adhesives or means of bonding the lug to the interior surface of the product concealing sleeve may be used. PVA adhesive is one preferred simple example.

[0024] In examples, the dispenser may further include a stop element fixed to the product stick carrier within the helical recess at a distal end of the helical recess, wherein the stop element is configured to engage the lug when the product concealing tube is at the extended position, wherein the engagement of the stop element with the lug prevents further movement of the product concealing tube in a distal direction away from and out of the dispenser.

[0025] This ensures that the product concealing sleeve does not detach from the dispenser, but is held in place at the extended position when a distal edge of the lug abuts a proximal edge of the top element. The stop element being within the helical recess means that the dispenser does not need to be made larger to accommodate elements providing such a stop function. The stop element may, similarly to the lug, be fixed using adhesive, for example PVA adhesive, or by any other suitable method.

[0026] In some examples, the stop element is formed from a blank having a parallelogram shape when flat so as to fill an axial portion of the helical recess and thereby provide a flush external surface round an entire circumference of the product stick carrier at its distal end.

[0027] As for the lug, the top element having such a shape does not necessarily mean it has been cut from a flat piece and then rolled up, but rather that, if it were to be flattened, the stop element would have a parallelogram shape. When having the shape of the stop element in situ in the dispenser, the stop element has a pair of horizontal, or circumferential opposed edges, and a pair of helical opposed edges, which are immediately adjacent the edges of the helical recess at a distal end thereof.

[0028] The flush external surface provides additional support for the product concealing sleeve with regard to radial movement, or play, thereof. The flush surface may also be used to provide a neat top or distal end of the product stick carrier. This may be useful in preventing product ingress into the mechanism of the dispenser, when the product gets warm, for example.

[0029] Of course, other shapes, such as circular, oval, or other shapes, of stop element are envisaged and are achievable; however, a parallelogram shape as above is preferred.

[0030] In examples, the helical recess, lug and stop element are configured such that during the movement from a fully extended position and a fully retracted position of the product concealing sleeve, the product con-

cealing sleeve rotates relative to the product stick carrier by at least 180°.

[0031] Rotation of at least 180° is desirable to ensure sufficient control of the height of the product stick compared to an amount of rotation input from a user, for a satisfying motion.

[0032] The rotation may in some examples be at least 270°.

[0033] An upper limit to the amount of rotation is also envisaged, for example 720°, 540° or 360°.

[0034] In order to achieve the desired amount of rotation Ω in degrees, the axial extent of the helical recess X_H together with the axial extents of the lug X_L and the stop element X_S may be selected in addition to the angle α of the helical recess relative to the axial direction and the radius R of the product stick carrier according to the following formula.

$$\Omega = \frac{360(X_H - X_L - X_S)}{2\pi R \tan^{-1}(\alpha)}$$

[0035] Optionally, in any of the examples or aspects above, the dispenser may include a cap in the form of a tube with a closed end having the same radius as the outer tube, and configured to sit over and around the product concealing tube. Proximal edges of the cap may be configured to abut distal edges of the outer tube.

[0036] The product stick carrier is fixed relative to the outer sleeve. The product stick carrier may be fixed directly or indirectly to the outer sleeve. The product stick carrier may be fixed to the outer sleeve in any manner which does not impede the intended movement of the product concealing sleeve. In embodiments the product stick is fixed e.g. bonded to a base of the outer sleeve. A base of the product stick carrier may be fixed to a base of the outer sleeve. The product stick carrier may be fixed to the outer sleeve only through bonding of the product stick carrier to a base of the outer sleeve. This may permit the product concealing sleeve to move freely relative to the outer sleeve (and product stick carrier) between fully extended and fully retracted positions. The product carrier may be bonded to the outer sleeve so as to be centred in the transverse direction with respect to the outer sleeve.

[0037] The product stick carrier may include a product stick support. The product stick support may include a platform for supporting the base of a product stick. The product stick support preferably additionally provides support to the sides of a base of a product stick. The platform may be recessed from the distal end of the product stick support. The platform may be a continuous platform. The platform may close a distal end of the product stick support.

[0038] The outer sleeve is disposed radially outwardly of the product stick carrier. The product concealing sleeve is disposed radially inwardly of the outer sleeve. For example, the product concealing sleeve may be dis-

posed directly (radially) outwardly of the product stick carrier. The outer sleeve may be disposed directly (radially) outwardly of the product concealing sleeve.

[0039] The product concealing sleeve is freely movable in a helical direction between the first, fully extended and second, fully retracted positions for covering and exposing the product stick in use. Thus the concealing sleeve may be retracted and advanced helically to expose and cover the product stick respectively. The concealing sleeve is mounted for reciprocating movement between the first, fully extended and second, fully retracted positions relative to the outer sleeve and product stick carrier. The first, fully extended position is a predefined, set position. The second, fully retracted position is also a predefined, set position. The product concealing sleeve may have a predetermined range of travel relative to the outer sleeve and product stick carrier defined between the set positions corresponding to the first, fully extended and second, fully retracted positions.

[0040] The product concealing sleeve is movable manually by a user. Thus, the product concealing sleeve is retracted or advanced by a user in a helical direction between the first, fully extended and second, fully retracted positions.

[0041] The product stick carrier is fixed relative to the outer sleeve. The product stick carrier is fixed relative to the outer sleeve so that neither rotational nor sliding movement of the product stick carrier relative to the outer sleeve is possible. Thus, movement of the product concealing sleeve relative to the outer sleeve will correspond to movement of the product concealing sleeve relative to the product stick carrier. The product concealing sleeve is thus retractable from a first, fully extended position relative to the outer sleeve and the product stick carrier for concealing a product stick supported by the product stick support in order to expose a product stick supported by the product stick support of the product stick carrier in use. The product concealing sleeve may be retractable from the first, fully extended position to a second fully retracted position relative to the outer sleeve and product stick carrier in order to expose the product stick. The outer sleeve and product stick carrier may of course extend to different extents relative to a proximal end of the dispenser.

[0042] A distal end of the product concealing sleeve may extend beyond a distal end of the outer sleeve when the product concealing sleeve is in the second, fully retracted position. This may enable the user to more easily grasp the product concealing sleeve in order to advance the product concealing sleeve when it is desired to advance the product concealing sleeve toward the first, fully extended position once more. The distal end of the product concealing sleeve may or may not additionally extend beyond a distal end of the product stick carrier when the product concealing sleeve is in the second, fully retracted position.

[0043] The product stick carrier is fixed relative to the outer sleeve. A distal end of the product stick carrier may

project beyond a distal end of the outer sleeve. The distal end of the product stick carrier will then project beyond the distal end of the outer sleeve in all operative conditions of the dispenser.

[0044] The product concealing sleeve may be snugly received in the outer sleeve. The product stick carrier may be snugly received within the product concealing sleeve.

[0045] The helical recess associated with the exterior of the product stick carrier does not extend fully through the thickness of the product stick carrier. In other words, the helical recess is not an opening in the wall of the product stick carrier. The product stick carrier tube may be devoid of openings extending through the entire thickness thereof from one side to the other.

[0046] In accordance with any of the above, the product stick may be a stick of any product that may be provided in stick form. The product stick is a stick of solid material. The product may be any consumer product. The product may be a personal care product, such as a cosmetic product, skin care product, hair care product, or toothcare product, but is not limited thereto. A personal care product includes any product used in grooming or dressing, as well as products used at other times, and may include products for providing a medicinal benefit. The product is not limited to personal care product, and may be any type of consumer product that is provided in stick form, such as a stick of adhesive, or paint. The product stick may be selected from any one of; a stick of cosmetic, lipstick, lip balm, deodorant, adhesive product or of any product for topical application to a surface, for example to a person's skin or lips.

[0047] There is also provided an assembly that includes the dispenser in accordance with any of the above and a product in stick form supported by the product stick carrier. The product in stick form is fixed relative to the product stick carrier.

[0048] In accordance with any of the above, the extent of the possible travel of the product concealing sleeve relative to the outer sleeve may be selected as desired, depending e.g. upon a length of a product stick with which the dispenser is to be used. In some embodiments the product concealing sleeve is moveable relative to the outer sleeve over a distance corresponding to at least 5% or at least 40% or at least 50% of a length of the outer sleeve. Alternatively, or additionally the product concealing sleeve may be moveable relative to the product stick carrier, where provided, over a distance corresponding to at least 5%, or at least 30% or at least 35% of a length of the product stick carrier. In some embodiments at least 5%, or at least 30% or at least 40% or at least 45% or at least 50% of a length of the product concealing sleeve may extend beyond a distal end of the outer sleeve when in the first, fully extended position. Alternatively, or additionally, no more than 95% or no more than 85% or no more than 60% of a length of the product concealing sleeve may extend beyond the distal end of the outer sleeve when in a first, fully extended position. In general,

the range of travel of the product concealing sleeve may be selected within a broad range of values, depending upon the desired properties and intended use of the dispenser. For example, ranges of movement of the product concealing sleeve relative to the outer sleeve might range from over 5% to over 95% of a length of the outer sleeve.

[0049] The dimensions of the dispenser may be selected as desired to house a given type of product stick. For example, the dispenser may have a width of less than 30cm, or less than 20cm, such as less than 10cm or less than 5cm, or less than 3cm, or less than 2cm, and/or the dispenser may have a length with the product concealing sleeve in the first, fully extended position, of less than 50cm, or less than 30cm or less than 20cm, or less than 15cm. The width of the dispenser is a maximum dimension thereof in the transverse direction. The above ranges are particularly suitable for use with a personal care type product. However, depending upon the type and configuration of product stick, whether for personal care products or otherwise, different dimensional ranges may be appropriate.

[0050] From another aspect, there is provided a method of forming the dispenser of any of the above. The method includes: providing the product stick carrier having the helical recess; providing the product concealing sleeve; providing the lug; applying adhesive to a radially outer surface of the lug; inserting the lug into the product concealing sleeve and fixing the lug to the interior surface of the product concealing sleeve; threading the product stick carrier into the product concealing sleeve from a proximal end of the product concealing sleeve so that the lug aligns with the helical recess; providing the outer sleeve; and placing the assembled product concealing sleeve and product stick carrier within the outer sleeve and bonding the product stick carrier to the outer sleeve.

[0051] This method provides a simple and effective way of forming the dispenser described hereinbefore.

[0052] In particular as compared to dispensers having a long helically extending strip in place of the lug, the method is simple. Such helically extending strips may require more complicated methods of construction, such as lining the strip and the helical recess round a mandrel in order to ensure correct alignment thereof. The dispenser described herein also ensures that the alignment is better, because the tolerance required to align a short lug with a small part of a helical recess is lower than that required for a longer, helically extending strip.

[0053] In examples, the steps of applying adhesive to the radially outer surface of the lug and of inserting the lug into the product concealing sleeve and fixing the lug to the interior surface of the product concealing sleeve may be performed by machine.

[0054] This allows for an even faster manufacturing process, which is enabled by the arrangement described herein.

[0055] In some examples, where the stop element is present, prior to the step of threading the product stick carrier into the product concealing sleeve, the stop ele-

ment is fixed to the exterior surface of the product concealing sleeve.

[0056] The stop element also provides a simple construction, even more so that the lug, which is bonded to an interior of the product concealing sleeve, because the stop element is bonded to the exterior of the product stick support.

[0057] The dispenser defines a longitudinal axis. This defines an axial direction with respect to the dispenser and its components. The outer sleeve, product concealing sleeve and, where provided, product stick each define a respective longitudinal axis. The outer sleeve, product concealing sleeve and, where provided, product stick share the same longitudinal axis in the dispenser i.e. they are concentric. The product stick carrier may also share the same longitudinal axis. The dispenser (and the product stick carrier, outer sleeve, product concealing sleeve and, where provided, product stick) each define a transverse direction. The product stick carrier (and, where provided, product stick) may be fixed to the outer sleeve so as to be centred in the transverse direction with respect to the outer sleeve.

[0058] The term "bonded" as used herein means joined by adhesive, heat sealing or any suitable bonding method. In exemplary embodiments, adhesive is used. Any reference to bonding herein may refer to adhesive bonding.

[0059] The product concealing sleeve, outer sleeve, product stick carrier and lug may each be formed from a paper-based or card-based material. Any such paper-based or card-based material may be used, for example cardboard or paperboard. Any additional component of the dispenser e.g. a cap, or where provided, stop element, is preferably also formed of a paper-based or card-based material. Each component of the dispenser may be made from a card or paper-based material. Any reference to card-based or paper-based material herein may refer to a card-based or paper-based material such as cardboard or paperboard.

[0060] References to concealing a product stick refer to concealing the sides of the product stick. The distal end of the product stick may be visible through an open end of the base part of the dispenser when a cap is not provided over the base part of the dispenser. The product concealing sleeve may extend around the entire circumference of a product stick.

[0061] The distal and proximal directions referred to herein correspond to directions toward the top and bottom of the dispenser respectively. That is, the distal end is the end in the same direction from which the product stick is configured to protrude in use. The proximal end is the end from which the product stick never protrudes.

[0062] The term "free edge" refers to an edge of a component e.g. flap or panel which is not connected to another component along a foldline. The component having the free edge may or may not be bonded down.

[0063] A fold line as referred to herein refers to any line about which components have been folded. The fold line

may comprise a line of weakness, crease line and/or perforations. If not explicitly stated, and unless inconsistent therewith, any connection described herein may be about a fold line.

5 **[0064]** It will be appreciated that any aspects, embodiments or example of the invention may include any or all of the features of the invention described in relation to any other aspects, embodiments or examples of the invention to the extent they are not mutually inconsistent therewith.

10 **[0065]** Various features of embodiments of the invention will be described in further detail below.

BRIEF DESCRIPTION OF FIGURES

15 **[0066]** Some preferred embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which:

20 Figures 1A and 1B show a dispenser with a product concealing sleeve in extended and retracted positions respectively;

25 Figure 2 shows a dispenser with a product stick in situ and a cap;

Figure 3 shows an exploded diagram showing the components of the dispenser;

30 Figure 4 shows a pair of views of part of the internal mechanism of the dispenser;

35 Figure 5 shows a view of part of the internal mechanism of the dispenser including a stop element;

Figure 6 shows a view of part of the internal mechanism of the dispenser with the product concealing sleeve included; and

40 Figure 7 shows a view of a blank for a lug or flattened lug.

DETAILED DESCRIPTION

45 **[0067]** With reference to the figures, a dispenser 2 with a lug-based mechanism is now described. As will be understood, features of the dispenser 2 described herein may be taken in various combinations with other features.

50 **[0068]** Figure 1A shows a view of a dispenser 2 in which can be seen an outer sleeve 4 in the form of a cylindrical tube and a product concealing sleeve 6, also in the form of a cylindrical tube. The external radius of the product concealing sleeve 6 is substantially the same as the internal radius of the outer sleeve 4 so as to provide a snug fit between the two sleeves 4, 6.

55 **[0069]** The product concealing sleeve 6 is shown in Figure 1A in an extended position, wherein it conceals, in a radial direction, a product stick, when present. The

product stick is not shown in this figure.

[0070] Figure 1B shows the dispenser 2 of Figure 1A, but with the product concealing sleeve 6 in a retracted position. In this view the top of the product stick carrier 8 can be seen. The top may be referred to as the distal end, and corresponds to the end of the dispenser 2 from which the product is dispensed in use. The product stick carrier 8 is also in the form of a cylindrical tube, as may be appreciated better from the other figures. The product stick carrier 8 has an external radius substantially equal to an internal radius of the product concealing sleeve 6, and thereby is provided with a snug fit inside the product concealing sleeve 6.

[0071] The outer sleeve 4, product concealing sleeve 6 and product stick carrier 8 are therefore provided in a concentric arrangement, with each element arranged snugly around the next.

[0072] The snug fit is close enough that the product concealing sleeve 6 may be slid by a user relative to the outer sleeve 4 and product stick carrier 8, but with a degree of resistance from frictional forces to overcome gravitational forces.

[0073] The product stick carrier 8 is fixed relative to the outer sleeve 4, such that by twisting or moving the outer sleeve 4 relative to the product concealing sleeve 6 the user also respectively twists or moves the product stick carrier 8 relative to the product concealing sleeve 6.

[0074] The product stick carrier illustrated includes a product stick support 10 near or at its distal end. As illustrated, the product stick support is slightly set back from a distal edge 12 of the product stick carrier 8, so that the sidewall of the product stick carrier 8 may provide additional support to the product stick.

[0075] The product stick support 10 illustrated is provided by a disc fixed in place with respect to the product stick carrier 8; however, it is envisaged that alternative product stick supports could be used, such as but not limited to a set of spikes or tabs, or strips of material.

[0076] Figure 2 illustrates a dispenser 2 with the product stick 16, such as a cosmetic lipstick product, supported by the product stick support 10 in the product stick carrier 8.

[0077] The dispenser 2 of Figure 2 also includes a cap 18, which may be placed on the remainder of the dispenser to cover the product stick 16. The cap 18 is also in the form of a cylindrical tube and may include a top cap disc 20 (or distal cap disc) and a rolled end edge 22. When the cap 18 is placed on the dispenser 2 it substantially seals off the product stick 16 and may prevent the product drying out as it would if open to the air.

[0078] As will be appreciated, although not visible in the figures, the outer sleeve 4 may also include a similar disc and rolled edge configuration at its bottom, or the proximal end thereof. Alternative arrangements are also envisaged.

[0079] The cap 18 has the same internal and external radii as the outer sleeve 4, so as to form a flush exterior surface when the cap 18 is in position on the dispenser

2. The cap 18 also includes a proximal edge 24, which is configured to abut a distal edge 26 of the outer sleeve 4 when the cap 18 is placed on the dispenser 2. The distal edge 26 thus acts as a shoulder to provide support for the cap 18 and thereby prevent the cap 18 making contact with either the product stick 16 or a distal edge 28 of the product concealing sleeve 6 when placed on the dispenser 2.

[0080] Turning to Figure 3, there is illustrated an exploded diagrammatic view of the dispenser 2 before assembly thereof.

[0081] In this view, the outer sleeve 4, product concealing sleeve 6, product stick carrier 8 and cap 18 described above can be seen. The product stick support 10A herein is provided by tabs 10A cut and folded into the product stick carrier 8 to impress into the product stick (not shown) and hold it in place. Of course, this is only exemplary, and alternative product stick supports 10A may be used, such as the disc described above.

[0082] The dispenser 2 includes an extension-retraction mechanism 30, which is provided by a lug 32 and a helical recess 34. The lug 32 is to be fixed to an interior surface 36 of the product concealing sleeve 6 and the helical recess 34 is in an external surface 38 of the product stick carrier 8. The helical recess 34 extends the whole way along the product stick carrier 8, although only part is visible in figure 3. The lug 32 is configured to be located within the helical recess 34 and may slide in a helical direction up and down the recess 34, to thereby enable the product concealing sleeve 6 to extend and retract in a helical direction as defined by the helical recess 34. The helical recess 34 and lug 32 are described in further detail below with reference to figures 4 to 7.

[0083] Also shown in figure 3 is a stop element 40, which may be similar to the lug 32 in form. The stop element 40 is attached to the product stick carrier 8 at the external surface 38 thereof at or toward a distal (or top) end of the product stick carrier 8, within the helical recess 34.

[0084] Each of the lug 32 and stop element 40 as shown are formed of card-based or paper-based material, such as cardboard or paperboard. They may be cut from part of a single precursor tube, which may have a diameter similar to the diameter of the tube of the product stick carrier 8 or of the product concealing sleeve 6 or a diameter between the two.

[0085] With reference to figure 4, the helical recess 34 and lug 32 are shown in isolation.

[0086] As can be seen the lug 32 is located within the helical recess 34. The lug 32 is fixed to the product concealing sleeve 6 (not shown in this figure), at an external surface 42 thereof, optionally by use of PVA adhesive, or by another suitable adhesive or means of fixing.

[0087] The lug 32 includes a first pair of opposed edges 44. The opposed edges 44 are helical edges which extend at a same angle α as a pair of opposed helical edges 46 of the helical recess 34, measured relative to the axial direction, or the longitudinal axis A of the dispenser 2,

which is the same as the longitudinal axis A of the product stick carrier 8. Each of the first pair of opposed edges 44 are configured to slidably engage with a corresponding one of the pair of opposed helical edges 46 of the helical recess 34.

[0088] A circumferential distance C between the opposed helical edges 46 of the helical recess 34 may be about 18 mm in some embodiments, although other distances, such as any between 5 mm and 25 mm are envisaged. This circumferential distance C is constant along the length of the product stick carrier 8.

[0089] Importantly, the circumferential distance C between the opposed helical edges 46 of the recess 34 is substantially equal to the circumferential length of the lug (that is equal to or very slightly larger than, e.g., by less than 1 mm, or similar, to allow for tolerance in manufacturing)

Accordingly, the lug 32 engages with each of the opposed helical edges 46 with little or no play, i.e., circumferential movement, between engagement with a first of the opposed helical edges 46 and a second of the opposed helical edges 46. As such, rotational movement of the product concealing sleeve 6, and therefore also of the lug 32 attached thereto, relative to the product stick carrier 8 results in an axial movement of the lug 32 and therefore of the product concealing sleeve 6 relative to the product stick carrier 8.

[0090] In the illustrated example, a clockwise motion of the product concealing sleeve 6 relative to the product stick carrier 8 leads to an axial motion in the proximal direction (or downward direction) of the product concealing sleeve 6 and an anticlockwise motion of the product concealing sleeve 6 relative to the product stick carrier 8 results in an axial motion in the distal direction. However, as will be appreciated, the orientation of the helical recess 34 and correspondingly of the opposed edges 44 of the lug 32 may be reversed or mirrored, to lead to proximal motion resulting from an anticlockwise motion and distal motion resulting from a clockwise motion.

[0091] A proximal motion moves the product concealing sleeve 6 toward the retracted position and a distal motion moves the product concealing sleeve 6 toward the extended position.

[0092] The helical recess 34 in the illustrated example is provided by turns of a helical element 48 associated with the exterior of the product stick carrier 8. For example, the helical element 48 is fixed or bonded to an underlaying tube 50 which provides the product stick carrier 8.

[0093] The helical recess 34 being in the external surface 38 of the product stick carrier 8 is thereby considered as a radially recessed portion relative the radially outer surface 52 of the helical element 48. The external surface 38 of the product stick carrier 8 includes both the radially outer surface 52 of the helical element 48 and the exterior of the underlaying tube 50.

[0094] The outer surface 42 of the lug 32 is flush with the outer surface 52 of the helical element 48.

[0095] The outer radius of the product stick carrier 8 is considered as the outer radius of the helical element 48 and the inner radius of the product stick carrier 8 is the inner radius of the underlaying tube 50.

5 **[0096]** The helical element 48, when flattened, may form a parallelogram shape, however, other forms and shapes are envisaged provided the helical element has the pair of opposed helical edges 46, configured to engage the lug 32.

10 **[0097]** The helical element 48 is considered part of the product stick carrier 8, and is also made of card-based or paper-based material, such as cardboard or paper-board.

15 **[0098]** The helical element 48 may be spirally wound round the exterior of the product stick carrier 8, or may be made by any other suitable method.

[0099] Illustrated in Figure 5 is a similar view of the extension-retraction mechanism 30, but also with a stop element 40 included.

20 **[0100]** The stop element 40 is shaped to fit within the helical recess 34, and may have a corresponding shape to the lug 32. That is, the stop element 40 may have a parallelogram shape when flat, and is curved round the underlaying tube 50 of the product stick carrier 8. The stop element 40 is bonded to the underlaying tube 50 of the product stick carrier 8, optionally by PVS adhesive, or any other suitable form of adhesive or bonding means.

25 **[0101]** The stop element 40 may have been cut from a single precursor tube along with the lug 32. They may alternatively have been cut from different precursor tubes, or rolled up from flat blanks. When cut from the single precursor tube, the lug 32 and stop element 40 may comprise the entire material of the single precursor tube, or may use up less than the entirety of the tube, leaving some left-over material. In some embodiments for example, multiple lugs and stop elements may be cut from a single precursor tube.

30 **[0102]** The stop element 40 as illustrated is affixed within the helical recess 34 at a distal end of the product stick carrier, such that a distal edge 56 of the stop element 40 is at the same axial position as the distal edge 12 of the product stick carrier 8. The stop element 40 may be considered to form part of the product stick carrier 8.

35 **[0103]** Opposite the distal edge 56 of the stop element 40, the stop element 40 also includes a proximal edge 58. The proximal edge 58 as illustrated extends in a circumferential direction around the product stick carrier 8 and has no axial component to its extension. That is, with the dispenser 2 held vertically, the proximal edge 58 is horizontal. The distal edge 56 is also horizontal.

40 **[0104]** The lug 32 has a second pair of opposed edges including a lug distal edge 60 and a lug proximal edge 62. Each of the lug distal edge 60 and lug proximal edge 62 extend in a circumferential direction around the product stick carrier 8 and has no axial component to its extension. That is, with the dispenser 2 held vertically, the lug distal edge 60 and lug proximal edge 62 are each horizontal.

[0105] The lug distal edge 60 is configured to abut the proximal edge 58 of the stop element 40 when the product concealing sleeve 6 is in the extended position, and to thereby stop further distal movement of the product concealing sleeve 6, maintaining the product concealing sleeve 6 with the remainder of the dispenser 2.

[0106] The lug proximal edge 62 is configured to abut a base of the outer sleeve 4 when the product concealing sleeve 6 is in the retracted position.

[0107] The axial distance between the lug proximal edge 62 and the lug distal edge 60 is the axial length X_L of the lug 32.

[0108] The axial distance between the proximal edge 58 of the stop element 40 and the distal edge 56 of the stop element 40 is the axial length X_S of the stop element 40.

[0109] The product stick carrier 8 has an axial length X_H .

[0110] The axial range of motion Y of the product concealing sleeve 8 is defined $Y = X_H - X_L - X_S$.

[0111] The angular range of motion Ω in degrees of the product concealing sleeve 8 between the extended and retracted positions is defined by

$$\Omega = \frac{360Y}{2\pi R \tan^{-1}(\alpha)}$$

where α is the angle of the opposed helical edges 46 relative to the axial direction, and R is the radius of to product stick carrier 8.

[0112] The angular range of motion Ω is at least 180° .

[0113] Figure 6 illustrates the arrangement with the product concealing sleeve 6 also in place over the product stick carrier 8. Part of the helical recess 34 and part of one of the opposed helical edges 46 are visible; however, other elements of the mechanism 30 are hidden from view. As will be appreciated, in the complete dispenser, even more parts are hidden from view by the presence of the outer sleeve 4.

[0114] Figure 7 illustrates a flattened lug 32, which, as can clearly be seen has a parallelogram shape having a first pair of opposed edges 44, which extend helically once arranged in the assembled dispenser 2 and having a second pair of opposed edges, provided by the distal edge 60 and the proximal edge 62.

[0115] The circumferential length C_L of the lug 32 as well as the axial length X_L can be appreciated from the view of Figure 7.

[0116] Each of the components of the dispenser 2 are made of paper-based or card-based material, such as, but not limited to paperboard or cardboard.

[0117] In use, a user may remove the cap 18 where present. Then the user may twist the concealing sleeve 6 relative to the outer sleeve 4 by holding each component and applying a twisting force in a helical direction. The concealing sleeve 6 will then move, under the action of such a force, in a helical direction, to thereby reveal

the product stick 16. Once the product stick has been accessed and used, in part, the product concealing sleeve 6 may be moved or slid in a helical direction back to the extended position by the application of force by the user. It will be appreciated that the product concealing sleeve 6 need not be moved all the way to the fully retracted position or the fully extended position in each movement, but only as far as is necessary to reveal the product stick 16 when retracting the sleeve 6, and to conceal the product stick 16 or what remains thereof when extending the sleeve 6.

[0118] The dispenser may be made by providing each component in turn. The lug 32 may have PVA adhesive (or another adhesive) applied to its external face, and then the lug 32 may be inserted into the product concealing sleeve 6 and glued into position by the adhesive. The stop element 40 may also be glued into position in the helical recess 34 on the product stick carrier 8 by use of PVA adhesive, or another suitable adhesive. Once the adhesive has cured, the product stick carrier 8 may then be inserted into the product concealing sleeve and lug 32 aligned with the helical recess 34 when doing so. A distal end of the product stick carrier 8 is fed into the proximal end of the product concealing sleeve 6. Once the lug 32 reaches the helical recess, the product stick carrier 8 can continue to be fed into the product concealing sleeve 6 in a helical motion as the lug 32 travels through the helical recess 34. The outer sleeve 4, for example at a base thereof, may then be placed around the product stick carrier 8 and product concealing sleeve 6 and attached to the product stick carrier 8.

Claims

1. A dispenser (2) for a product in stick form (16) comprising:

a product stick carrier (8) in the form of a cylindrical tube comprising a product stick support (10) for supporting a product stick (16) in use; an outer sleeve (4) in the form of a cylindrical tube disposed radially outwardly of the product stick carrier (8), wherein the product stick carrier (8) is fixed relative to the outer sleeve (4); and a product concealing sleeve (6) in the form of a cylindrical tube disposed radially inwardly of the outer sleeve (4), the product concealing sleeve (6) being retractable from an extended position relative to the outer sleeve (4) and product stick carrier (8) for concealing the product stick (16) supported by the product stick support (10) in use in order to expose the product stick (16); wherein the product concealing sleeve (6) is disposed radially outwardly of the product stick carrier (8) between the product stick carrier (8) and the outer sleeve (4); wherein the outer sleeve (4), product concealing

- sleeve (6) and product stick carrier (8) are each formed of a paper-based or card-based material, such as paperboard or cardboard; wherein the product concealing sleeve (6) is rotatable relative to the outer sleeve (4) and product stick carrier (8); and wherein the product concealing sleeve (6) includes a lug (32) fixed to an interior surface (36) thereof, wherein the lug (32) cooperates with a helical recess (34) in an exterior surface (38) of the product stick carrier (8) for guiding movement of the product concealing sleeve (6) as it moves relative to the product stick carrier (8) and outer sleeve (4), wherein the lug (32) moves within the helical recess (34) as the product concealing sleeve (6) moves relative to the product stick carrier (8) and outer sleeve (4).
2. The dispenser of claim 1, wherein the lug (32) extends less than 2 cm in an axial direction, and optionally less than 1 cm in the axial direction.
 3. The dispenser of any preceding claim, wherein the lug (32) extends in a circumferential direction less than half of the circumference (C) of the product concealing sleeve (6).
 4. The dispenser of any preceding claim, wherein the lug (32) includes a first pair of opposed edges (44), wherein each of the first pair of opposed edges (44) extends helically at the same angle (α) as edges (46) of the helical recess (34) with respect to an axial direction.
 5. The dispenser of any preceding claim, wherein the lug (32) includes a second pair of opposed edges (60, 62), wherein each of the second pair of opposed edges (60, 62) extends along a circumference of the product stick carrier (8).
 6. The dispenser of any preceding claim wherein the lug (32) is formed from a blank having a parallelogram shape when flat.
 7. The dispenser of any preceding claim, wherein the lug (32) includes an inner surface conforming to an outer surface (38) of the product stick carrier (8) within the helical recess (34).
 8. The dispenser of any preceding claim, wherein the helical recess (34) extends along the full axial length (X_H) of the product stick carrier (8), optionally, wherein the helical recess (34) associated with the exterior of the product stick carrier (8) is defined between turns of a helical element (48) associated with the exterior of the product stick carrier (8).
 9. The dispenser of any preceding claim, wherein the lug (32) is bonded to the interior surface (36) of the product concealing sleeve (6) with adhesive.
 10. The dispenser of any preceding claim, further comprising a stop element (40) fixed to the product stick carrier (8) within the helical recess (34) at a distal end of the helical recess (34), wherein the stop element (40) is configured to engage the lug (32) when the product concealing sleeve (6) is at the extended position, wherein the engagement of the stop element (40) with the lug (32) prevents further movement of the product concealing sleeve (6) in a distal direction away from and out of the dispenser (2).
 11. The dispenser of 10, wherein the stop element (40) is formed from a blank having a parallelogram shape when flat so as to fill an axial portion of the helical recess (34) and thereby provide a flush external surface round an entire circumference of the product stick carrier (8) at its distal end.
 12. The dispenser of claim 10 or 11, wherein the helical recess (34), lug (32) and stop element (40) are configured such that during the movement between a fully extended position and a fully retracted position of the product concealing sleeve (6), the product concealing sleeve (6) rotates relative to the product stick carrier (8) by at least 180°.
 13. A method of forming the dispenser (2) of any preceding claim, comprising:
 - providing the product stick carrier (8) having the helical recess (32);
 - providing the product concealing sleeve (6);
 - providing the lug (32);
 - applying adhesive to a radially outer surface of the lug (32);
 - inserting the lug (32) into the product concealing sleeve (6) and fixing the lug (32) to the interior surface (36) of the product concealing sleeve (6);
 - threading the product stick carrier (8) into the product concealing sleeve (6) from a proximal end of the product concealing sleeve (6) so that the lug (32) aligns with the helical recess (32);
 - providing the outer sleeve (4); and
 - placing the assembled product concealing sleeve (6) and product stick carrier (8) within the outer sleeve (4) and bonding the product stick carrier (8) to the outer sleeve (4).
 14. The method of claim 13, wherein the steps of applying adhesive to the radially outer surface of the lug (32) and of inserting the lug (32) into the product concealing sleeve (6) and fixing the lug (32) to the interior surface (36) of the product concealing sleeve (6) are performed by machine.

15. The method of claim 13 or 14 as dependent on claim 10, wherein, prior to the step of threading the product stick carrier (8) into the product concealing sleeve (6), the stop element (40) is fixed to the exterior surface of the product concealing sleeve (6).

5

10

15

20

25

30

35

40

45

50

55

Fig. 1A

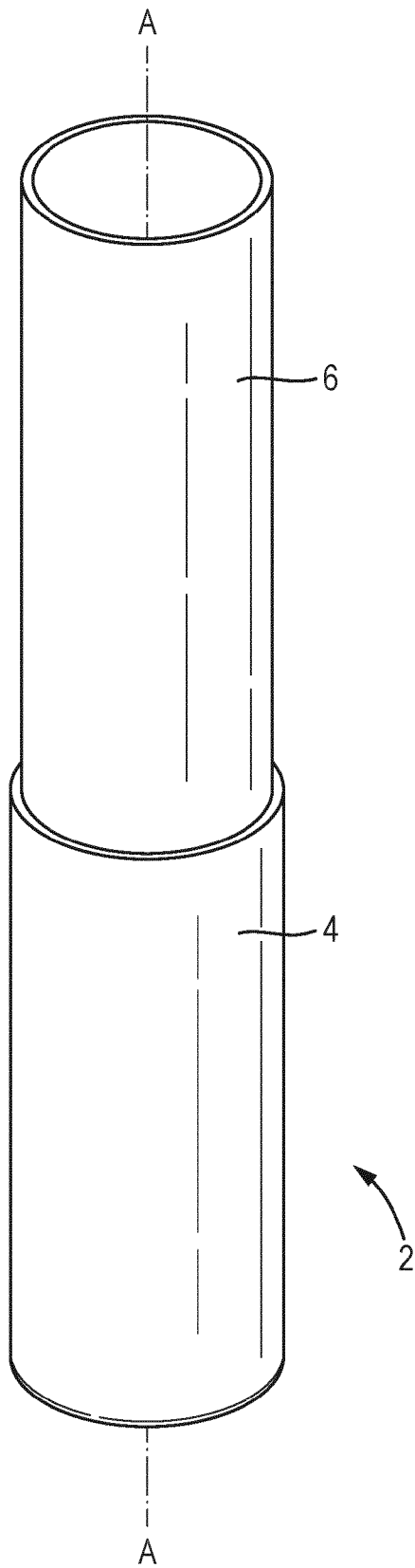


Fig. 1B

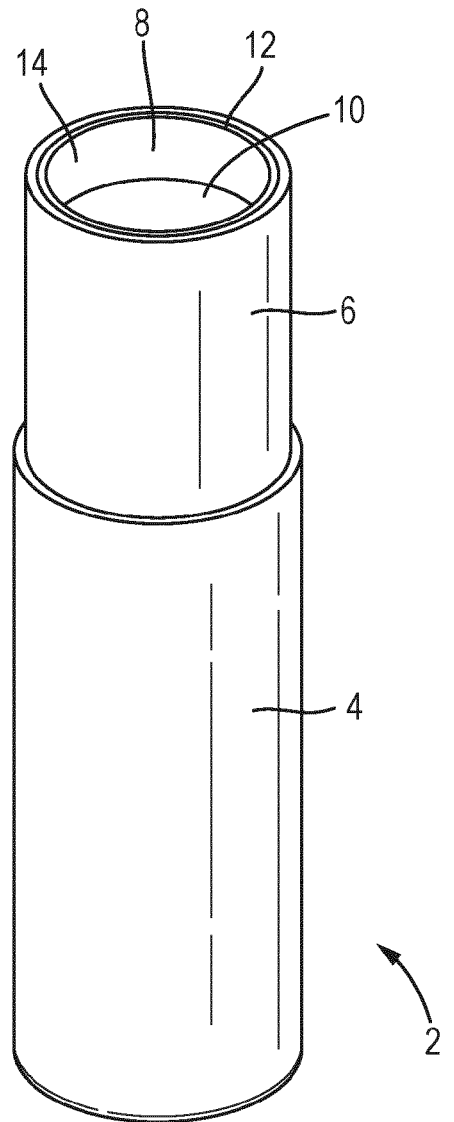


Fig. 2

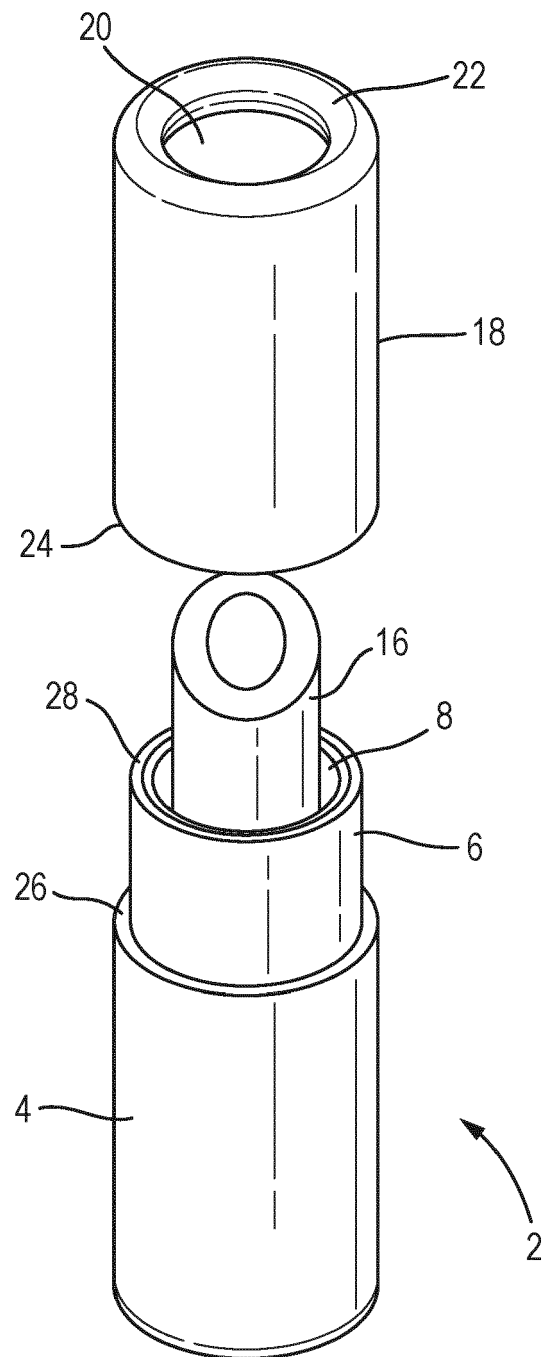


Fig. 3

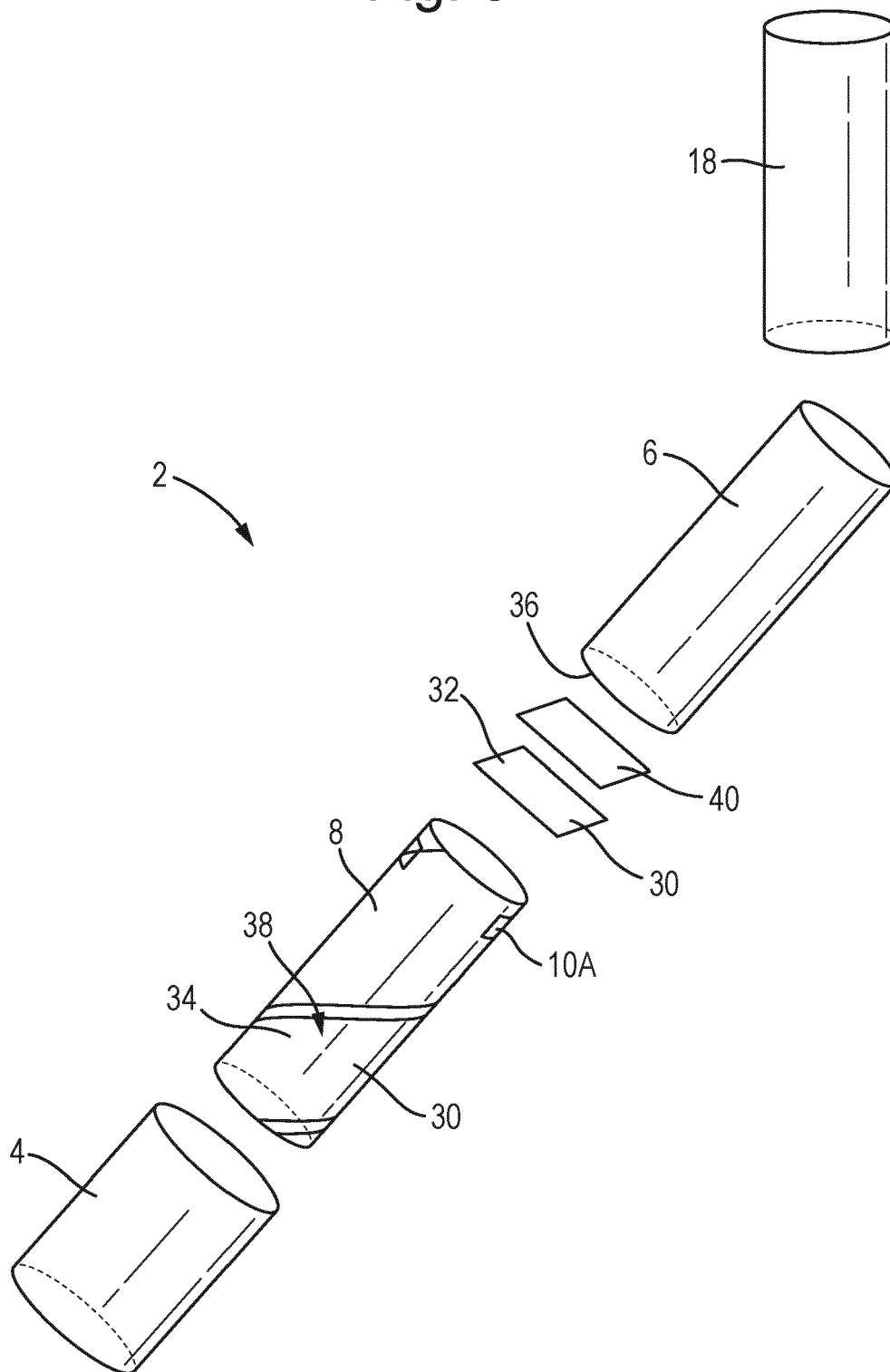


Fig. 4

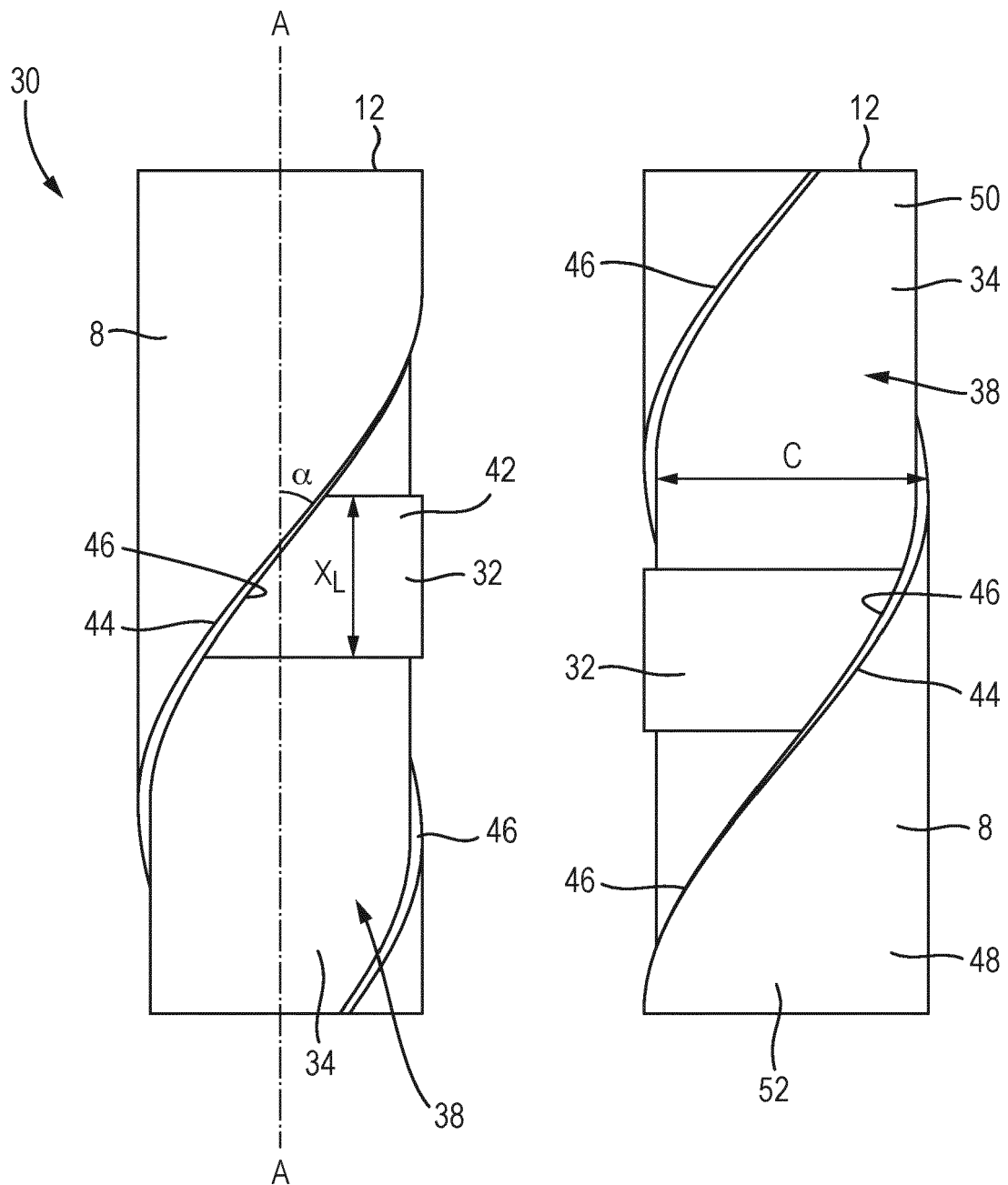


Fig. 5

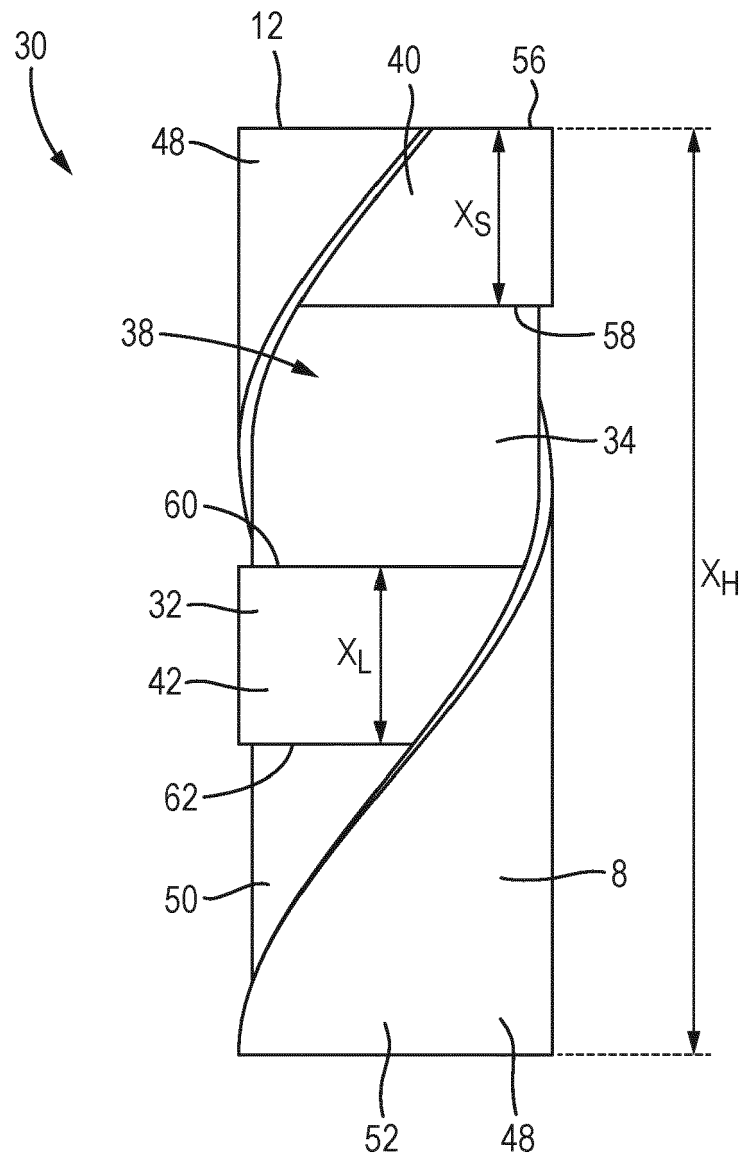


Fig. 6

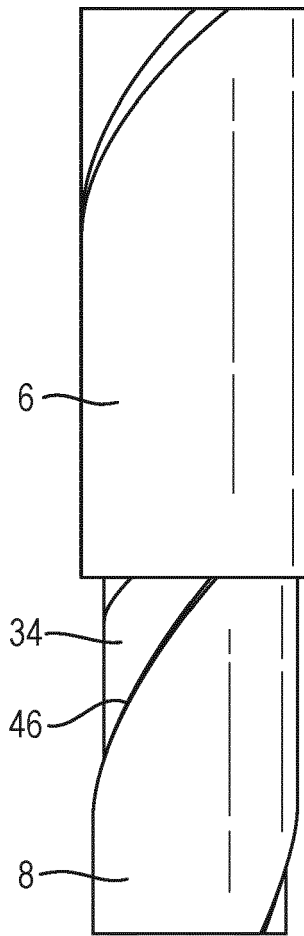
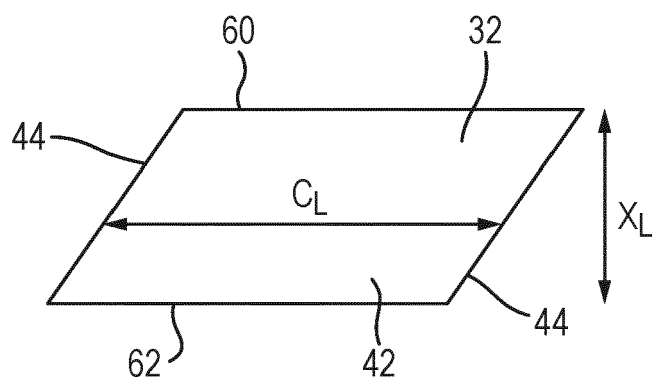


Fig. 7





EUROPEAN SEARCH REPORT

Application Number

EP 23 21 9161

5

10

15

20

25

30

35

40

45

50

55

2

EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 3 973 814 A1 (MULTI PACKAGING SOLUTIONS UK LTD [GB]) 30 March 2022 (2022-03-30) * paragraphs [0174] - [0275]; figures * -----	1-10, 12-14	INV. A45D40/06
A	KR 200 397 589 Y1 (-) 5 October 2005 (2005-10-05) * the whole document * -----	1-10, 12-14	
A	US 2022/395076 A1 (SKELTON JAMES [GB]) 15 December 2022 (2022-12-15) * paragraphs [0043] - [0069]; figures * -----	1-15	
A	WO 2021/084284 A1 (MULTI PACKAGING SOLUTIONS UK LTD [GB]) 6 May 2021 (2021-05-06) * pages 32-33; figures * -----	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 17 April 2024	Examiner Dinescu, Daniela
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 23 21 9161

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-04-2024

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 3973814 A1	30-03-2022	EP 3973814 A1	30-03-2022
		US 2022097335 A1	31-03-2022

KR 200397589 Y1	05-10-2005	NONE	

US 2022395076 A1	15-12-2022	EP 4051051 A1	07-09-2022
		US 2022395076 A1	15-12-2022
		WO 2021084281 A1	06-05-2021

WO 2021084284 A1	06-05-2021	EP 4051052 A1	07-09-2022
		EP 4205597 A1	05-07-2023
		US 2023011555 A1	12-01-2023
		WO 2021084284 A1	06-05-2021
