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(54) **FOLDABLE PLASTIC COATHANGER**

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CINTRE PLASTIQUE PLIABLE

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Description

[0001] The invention relates to a foldable plastic coat hanger which can assume at least an extended condition and a substantially folded condition, consisting of an unmovable portion comprising a hook, a wing, a first hinge half and first locking means, and a movable portion, comprising a wing, a second hinge half equipped to engage the first hinge half, second locking means, equipped to engage the first locking means for locking the coat hanger in its extended condition, the first hinge half comprising two disc-like plastic parts, between which the second hinge half comprising one disk-like plastic part is rotatable about a point of rotation or the second hinge half comprising two disc-like plastic parts, between which the first hinge half comprising one disk-like plastic part is rotatable about a point of rotation.

[0002] A plastic coat hanger of this type is known from US 2 926 823 A. The disadvantage of the known coat hanger is that the hinge and the locking means are constructed separately, which increases the amount of plastic needed for obtaining a specified loading capability.

[0003] The plastic coat hanger according to the invention obviates this disadvantage and is characterized in that the point of rotation is located off centre in the disk-like plastic parts and that the locking means are provided in the disk-like plastic parts, substantially diagonally to the point of rotation,such that the disc-like hinge halves form at the upper side a substantially closed surface when in the extended, when in the folded, and in any intermediate condition . In this way, a foldable coat hanger is obtained in which the locking means have been integrated in the hinge and in which the torque on the point of rotation and on the locking means will be as small as possible.

[0004] An additional advantage of the inventive coat hanger as compared with the known coat hanger is that it significantly reduces the likelihood of damaging the clothing to be hung.

[0005] From FR 783 806 an adjustable coat hanger with a substantially closed upper side is known, but this known coat hanger is provided with a multitude of locking means, positioned symmetrically around the point of rotation.

[0006] An essential aspect of the foldable coat hanger according to the invention is the asymmetric construction, so that the hinge is not located in the middle of the coat hanger. This makes it possible to save material, which is important because it is in fact a disposable product, but especially because it allows the original design of the coat hanger to be maintained. This is important, because the wholesalers in the fashion world have their own long-established designs and they are usually not waiting for something new. Therefore, according to the invention there is an inventive foldable replacement for each existing coat hanger, which practically does not interfere with the original design. A favourable embodiment according to this aspect of the invention, in which a favourable compromise is reached with respect to the amount of material, the strength and the visual aspect, is characterised in that in the extended condition, the centres of the disc-like plastic parts substantially coincide at a point 1-3 cm from the centre of the coat hanger.

[0007] A particularly favourable embodiment of the coat hanger according to the invention is characterized in that the first locking means are a depression in the unmovable portion and the second locking means are a projection on the movable portion, which projection in the extended condition falls into the depression, or that the first locking means are a depression in the movable portion and the second locking means are a projection on the unmovable portion, which projection in the extended condition falls into the depression, wherein projection and depression are preferably embodied such that unlocking is not possible without applying a special manoeuvre.

[0008] A further favourable embodiment according to an aspect of the invention is characterized in that a locking or unlocking depends on an elasticity of the plastic.

[0009] A further favourable embodiment according to an aspect of the invention is characterized in that a locking or an unlocking depends on a translation of the movable portion in relation to the unmovable portion while bringing the coat hanger from the folded condition into the extended condition or from the extended condition into the folded condition.

[0010] A further favourable embodiment of the coat hanger according to the invention is characterized in that the unmovable portion and the movable portion are injection-moulded pieces. This has the advantage that both injection-moulded pieces can be designed such that by one movement of the hand and without additional parts, they can be assembled into a coat hanger.

[0011] The invention also relates to a method of hanging clothes that have a neck opening, wherein a plastic coat hanger in a folded condition is inserted into the neck opening, after which it is extended and locked.

[0012] The invention will now be further elucidated with reference to the following figures, wherein:

Fig. 1 shows a schematic side view of a possible embodiment of a coat hanger according to the invention;
Fig. 2A shows a more detailed schematic side view of a possible embodiment of a hinge;
Fig. 2B shows a more detailed top view of the same hinge;
Fig. 3A shows a schematic side view of an alternative embodiment of a hinge;
Fig 3B shows a more detailed top view of the same hinge;
Fig. 4 shows a schematic side view of a possible embodiment of a coat hanger provided with spring means.

[0013] Fig. 1 shows a schematic side view of a pos-

sible embodiment of a coat hanger according to the invention, without specifying whether the coat hanger is I-shaped or U-shaped in cross section. The coat hanger consists of an unmovable portion 1, comprising a wing 2, a hook 3, a first hinge half 4 which is unmovably connected with the unmovable portion 1 and a second hinge half 5 unmovably connected with a movable portion 6. The first hinge half 4 comprises two plastic discs, between which a disc-like second hinge portion 5 can slide, or the second hinge half 5 comprises two plastic discs between which the disc-like first hinge half 4 can slide. A point of rotation is provided off-centre at the underside of the hinge. The movable portion 6 is illustrated in two conditions, in a first, extended condition in which the coat hanger can carry a piece of clothing and in a second, folded condition in which the coat hanger can be inserted through a neck opening into a piece of clothing. Further, locking means 8 are indicated, which lock a coat hanger once it is in the extended condition. For the solidity of the coat hanger it is important that the locking means 8 are located closely to the top edge in order to be able to properly absorb the forces on the movable portion 6.

[0014] In the embodiment shown it is of no real importance whether the coat hangers are U-shaped or I-shaped in cross section. At the hinge, the cross section has to be brought back to the form described above. In the case of the U-shaped coat hange this means that practically nothing needs to be done with the hinge half having two discs, while for the other hinge half the two sides of the U-profile at the hinge half enclosing the single disc, have to taper toward each other and have in fact to form one whole, or at least have to be practically adjacent thereto. This is easily realised when injection moulding is used. In the case of the coat hanger having an I-shaped cross section, this means that practically nothing needs to be done with the hinge half having the single disc while for the other hinge half the plate-shaped portion of the I-profile at the place of the double disc has to taper away from each other in order to finally form two plate-like portions. This, too, is easily realised when injection-moulding is applied.

[0015] Fig. 2A shows more detailed a schematic side view of a possible embodiment of a hinge in which the locking and the unlocking depends on the elasticity of the plastic from which the hinge is made. The first hinge half 4, here embodied as single disc, is provided at the point of rotation with two notches 7, one at each side of the disc, and the locking means with two bevelled notches 8, also one at each side of the disc. The second hinge half 5, which is in this case embodied as a double disc, is provided at the point of rotation with two openings 7a and at the place of the locking means with two openings 8a. It is immediately obvious that when the notches fall into the openings, the coat hanger is locked in the extended position. If only the notches 7 are positioned in the openings 7a, then the coat hanger can be folded up. When assembling the coat hanger, the notches 7 are put into the openings 7a by slightly bending the double disc open and then sliding the single disc between the double disc until the notches 7 fall into the openings 7a.

[0016] Fig. 2B shows a more detailed schematic top view of the same hinge, with the first hinge half 4, second hinge half 5 tapering 9 out from the plate-like portion 10 of the I-profile. Further, the notches 7 can be seen which, together with the openings 7a form the point of rotation, and the bevelled notches 8 which together with the openings 8a form the locking means. In this embodiment the notches 8 are bevelled in one direction, to allow a transition from a folded condition into an extended condition to proceed smoothly, due to the fact that the double disc is bent open gradually by the bevel of the notches 11. It goes without saying that the position of the notches and openings may be interchanged without altering the priciple of the workings.

[0017] Fig. 3A shows a more detailed schematic side view of an alternative embodiment of the hinge, in which a locking or an unlocking depends on a translation of the movable portion in relation to the unmovable portion during the movement from the folded to the extended position or from the extended position to the folded position of the coat hanger. The first hinge half 4, being embodied here as a single disc, is at the point of rotation provided with two notches 11, one at each side of the disc, and at the place of the locking means with a recess 13. At the second hinge half 5, which in this case is embodied as a double disc, each disc is at the point of rotation provided with an L-shaped opening 12, and at the locking means with a bar 14, connecting the insides of the double disc.

When only the notches 11 are in the L-shaped opening 12, then the coat hanger can assume the folded condition. When the coat hanger is moved from the folded condition to the extended condition, rod 14 will move along the outside of the first hinge half 4 with the notches 11 being in the bottom of the long legs of the L-shaped openings 12. When the rod 14 falls into recess 13, the notches 11 translate upward and then into the short legs of the L-shaped openings 12 thereby locking the coat hanger. When assembling the coat hanger, the notches 11 are again placed into the L-shaped openings 12 by slightly bending the double disc open and then sliding the single disc between until the notches 11 fall into the L-shaped openings 12.

[0018] Fig. 3B shows a more detailed schematic top view of the same hinge, comprising the first hinge half 4, second hinge half 5, which again tapers from out from the plate-like portion 10 of the I-profile. Also visible are the notches 11, which together with the L-shaped opening 12 forms the point of rotation 7 and the rod 14, which together with the recess 13 forms the locking means 8. It goes without saying that notches 11, L-shaped openings 12, recess 13 and rod 14 can be arranged in other combinations. For example, the positions of recess 13 and rod 14 may be interchanged with L-shaped openings 12 then having to be positioned in mirror image in

order to effectuate locking.

[0019] Fig. 4 shows a schematic side view of a possible embodiment of a coat hanger according to the invention, in which spring means 15 are provided, which in this case are embodied as an elastic band fitted into two grooves 16,17.

[0020] On the one hand the spring means 15 keep the coat hanger in the folded condition, but on the other hand they assist in bringing the coat hanger into the extended position, thereby saving time.

Claims

1. A foldable plastic coat hanger which can assume at least an extended condition and a substantially folded condition, consisting of an unmovable portion (1) comprising a hook (3), a wing (2), a first hinge half (4) and first locking means (8), and a movable portion (6), comprising a wing, a second hinge half (5) equipped to engage the first hinge half (4), second locking means (8a), equipped to engage the first locking means (8) for locking the coat hanger in its extended condition, the first hinge half (4) comprising two disc-like plastic parts, between which the second hinge half (8a) comprising one disk-like plastic part is rotatable about a point of rotation or the second hinge half (5) comprising two disc-like plastic parts, between which the first hinge half (4) comprising one disk-like plastic part is rotatable about a point of rotation, **characterized in that** the point of rotation (7) is located off centre in the disk-like plastic parts and that the locking means (8,8a) are provided in the disk-like plastic parts, substantially diagonally to the point of rotation (7), such that the disc-like hinge halves (4,5) form at the upper side a substantially closed surface when in the extended, when in the folded, and in any intermediate condition.

2. A foldable plastic coat hanger according to claim 1, **characterized in that** in the extended condition, the centres of the disc-like plastic parts substantially coincide at a point 1-3 cm from the centre of the coat hanger.

3. A foldable plastic coat hanger according to claim 1, **characterized in that** the first locking means (8) are a depression in the unmovable portion and the second locking means are a projection (8a) on the movable portion, which projection in the extended condition falls into the depression, or that the first locking means (8) are a depression in the movable portion and the second locking means (8a) are a projection on the unmovable portion, which projection in the extended condition falls into the depression.

4. A foldable plastic coat hanger according to claim 3, **characterized in that** a locking or unlocking depends on an elasticity of the plastic.

5. A foldable plastic coat hanger according to claim 1, **characterized in that** a locking or an unlocking depends on a translation of the movable portion in relation to the unmovable portion while bringing the coat hanger from the folded condition into the extended condition or from the extended condition into the folded condition.

6. A foldable plastic coat hanger according to claim 3 or 5, **characterized in that** the unmovable portion and the movable portion are injection-moulded pieces.

Patentansprüche

1. Ein faltbarer Kleiderbügel aus Kunststoff, der zumindest eine gestreckte Form und eine im Wesentlichen zusammengeklappte Form einnehmen kann, bestehend aus einem unbeweglichen Teil (1), welches Teil einen Haken (3), einen Flügel (2), eine erste Scharnierhälfte (4) und erste Verriegelungsmittel (8) umfasst, und weiterhin bestehend aus einem beweglichen Teil (6), welches Teil einen Flügel, eine zweite für die zusammenarbeitende Funktion mit der ersten Scharnierhälfte (4) eingerichtete Scharnierhälfte (5), zweite für die zusammenarbeitende Funktion mit den ersten Verriegelungsmitteln (8) eingerichtete Verriegelungsmittel (8a) umfasst, für das Verriegeln des Kleiderbügels in gestreckter Form, wobei die erste Scharnierhälfte (4) zwei scheibenförmige Teile aus Kunststoff umfasst, zwischen denen die zweite Scharnierhälfte (5), die ein scheibenförmiges, rund um einen Rotationspunkt drehbares Teil umfasst, oder die zweite Scharnierhälfte (5) zwei scheibenförmige Teile aus Kunststoff umfasst, zwischen denen die erste Scharnierhälfte (4), die ein scheibenförmiges, rund um einen Rotationspunkt drehbares Teil umfasst, **dadurch gekennzeichnet, dass** der Rotationspunkt (7) exzentrisch in den scheibenförmigen Teilen aus Kunststoff angebracht worden ist, und dass die Verriegelungsmittel (8,8a) im Wesentlichen diagonal gegenüber dem Rotationspunkt (7) in den scheibenförmigen Teilen aus Kunststoff angebracht worden sind, und zwar so, dass die scheibenförmigen Scharnierhälften (4,5) an der Oberseite in der gestreckten, in der zusammengeklappten und in jeder dazwischen liegenden Form eine im Wesentlichen geschlossene Oberfläche bilden.

2. Ein faltbarer Kleiderbügel aus Kunststoff gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Mittelpunkte der scheibenförmigen Teile aus Kunst-

stoff in der gestreckten Form zumindest im Wesentlichen in einem 1 bis 3 cm außerhalb der Mitte des Kleiderbügels liegenden Punkt zusammenfallen.

3. Ein faltbarer Kleiderbügel aus Kunststoff gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die ersten Verriegelungsmittel (8) eine Vertiefung in dem unbeweglichen Teil und die zweiten Verriegelungsmittel (8a) einen Vorsprung am beweglichen Teil aufweisen, welcher Vorsprung in der gestreckten Form in die Vertiefung fällt, oder dass die ersten Verriegelungsmittel (8) eine Vertiefung in dem bewegliche Teil und die zweiten Verriegelungsmittel (8a) einen Vorsprung am unbeweglichen Teil aufweisen, welcher Vorsprung in der gestreckten Form in die Vertiefung fällt.

4. Ein faltbarer Kleiderbügel aus Kunststoff gemäß Anspruch 3, **dadurch gekennzeichnet, dass** eine Verriegelung oder eine Entriegelung auf einer Elastizität des Kunststoffes beruht.

5. Ein faltbarer Kleiderbügel aus Kunststoff gemäß Anspruch 1, **dadurch gekennzeichnet, dass** eine Verriegelung oder Entriegelung auf einer Parallelverschiebung des beweglichen Teiles hinsichtlich des unbeweglichen Teiles beruht, wenn der Kleiderbügel von der zusammengeklappten Form in die gestreckte Form oder von der gestreckten Form in die zusammengeklappte Form gebracht wird.

6. Ein faltbarer Kleiderbügel aus Kunststoff gemäß Anspruch 3 oder 5, **dadurch gekennzeichnet, dass** es sich bei dem unbeweglichen Teil und dem beweglichen Teil um Spritzgussteile handelt.

Revendications

1. Cintre plastique pliant apte à prendre au moins un état étendu et un état sensiblement plié, constitué d'une portion immobile (1) comprenant un crochet (3), une ailette (2), une première moitié d'articulation (4) et un premier moyen de verrouillage (8), et une portion mobile (6), comprenant une ailette, une seconde moitié d'articulation (5) équipée pour venir en prise avec la première moitié d'articulation (4), un second moyen de verrouillage (8a) , équipé pour venir en prise avec le premier moyen de verrouillage (8) pour bloquer le cintre dans son état étendu, la première moitié d'articulation (4) comprenant deux parties plastiques en forme de disque entre lesquelles la seconde moitié d'articulation (5) comprenant une partie plastique en forme de disque peut tourner autour d'un point de rotation, ou la seconde moitié d'articulation (5) comprenant deux parties plastiques en forme de disque entre lesquelles la première moitié d'articulation (4) comprenant une partie plastique en forme de disque peut tourner autour d'un point de rotation, **caractérisé en ce que** le point de rotation (7) est décentré dans les parties plastiques en forme de disque et que les moyens de verrouillage (8,8a) sont prévus dans les parties plastiques en forme de disque, sensiblement diagonalement au point de rotation (7) de telle sorte que les moitiés d'articulation en forme de disque (4,5) forment au côté supérieur une surface sensiblement fermée lorsqu'elles sont à l'état étendu, lorsqu'elles sont à l'état plié et dans n'importe quel état intermédiaire.

2. Cintre plastique pliant selon la revendication 1, **caractérisé en ce qu'**à l'état étendu, les centres des parties plastiques en forme de disque coïncident sensiblement à un point 1-3 cm du centre du cintre.

3. Cintre plastique pliant selon la revendication 1, **caractérisé en ce que** les premiers moyens de verrouillage (8) sont un creux dans la portion immobile, et les seconds moyens de verrouillage sont une saillie (8a) sur la portion mobile, cette saillie, à l'état étendu, tombe dans le creux, ou bien que les premiers moyens de verrouillage (8) sont un creux dans la portion mobile et les seconds moyens de verrouillage (8a) sont une saillie sur la portion immobile, cette saillie, à l'état étendu, tombe dans le creux.

4. Cintre plastique pliant selon la revendication 3, **caractérisé en ce que** le verrouillage ou le déverrouillage dépend d'une élasticité du matériau plastique.

5. Cintre plastique pliant selon la revendication 1, **caractérisé en ce qu'**un verrouillage ou déverrouillage dépend d'une translation de la portion mobile relativement à la portion immobile en amenant le cintre de l'état plié à l'état étendu ou de l'état étendu à l'état plié.

6. Cintre plastique pliant selon la revendication 3 ou 5, **caractérisé en ce que** la portion immobile et la portion mobile sont des pièces moulées par injection.

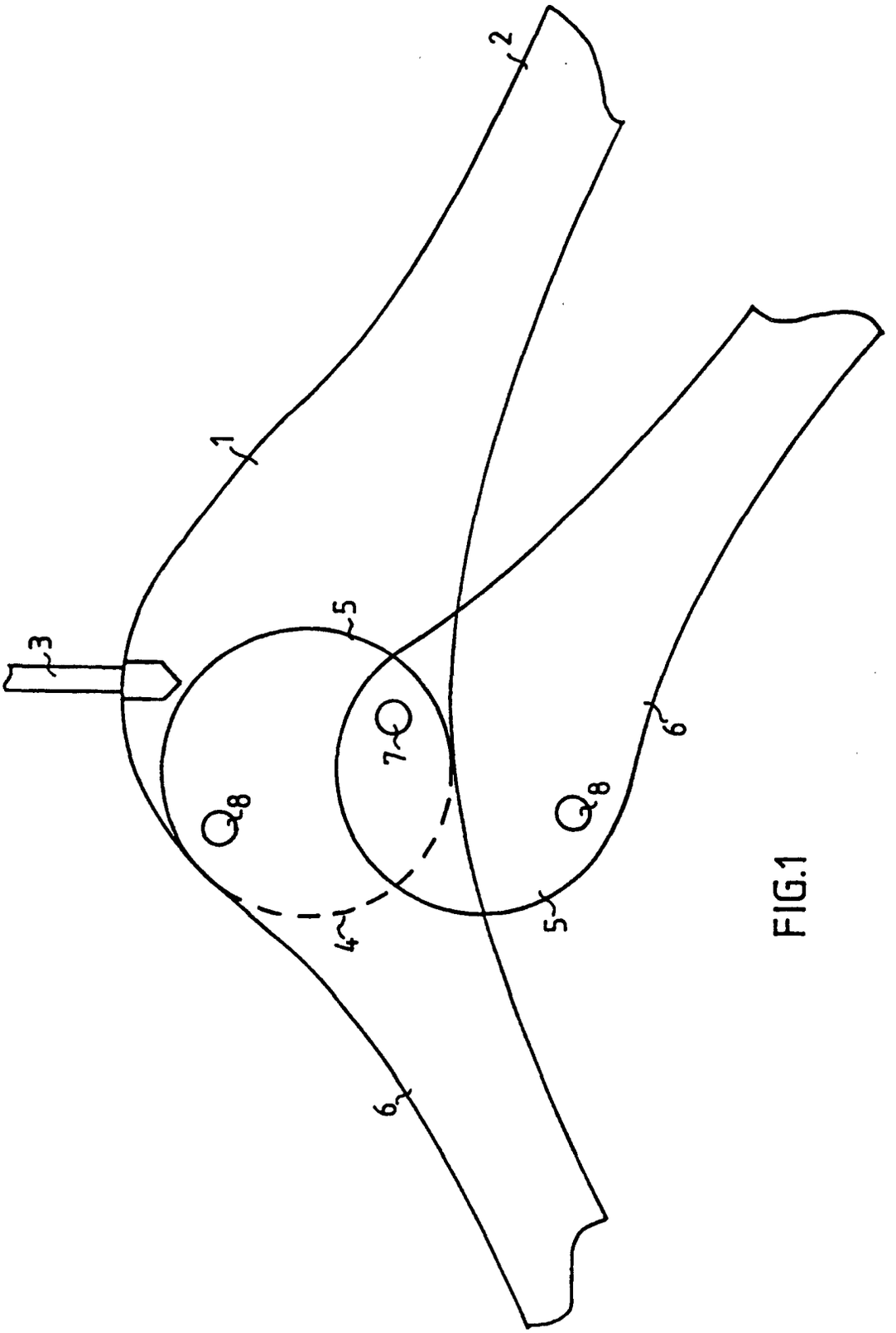

FIG.1

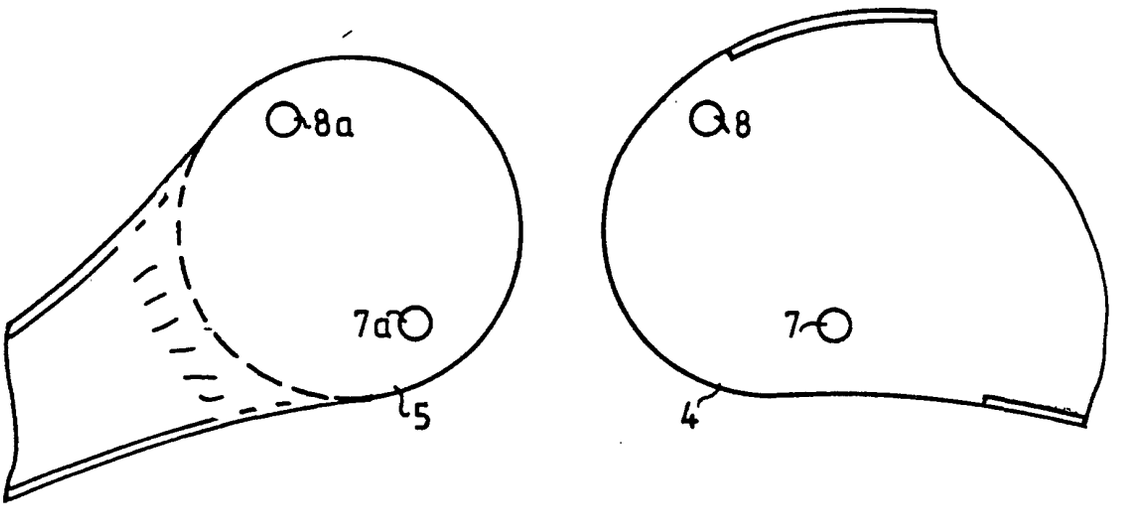

FIG.2A

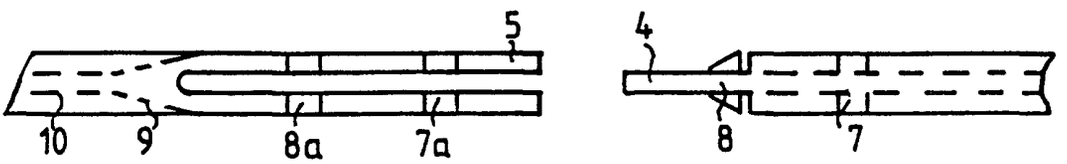

FIG.2B

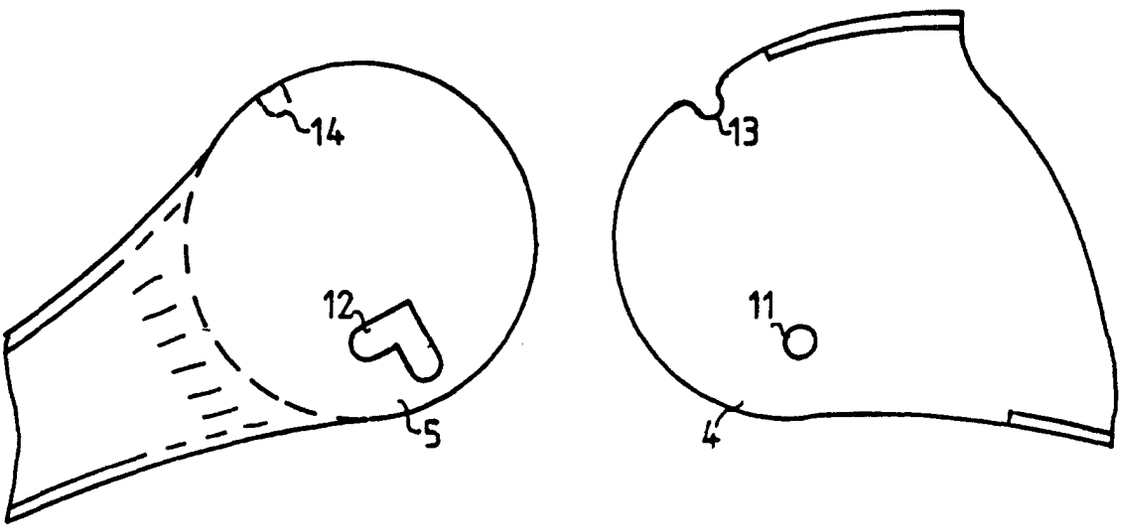

FIG. 3A

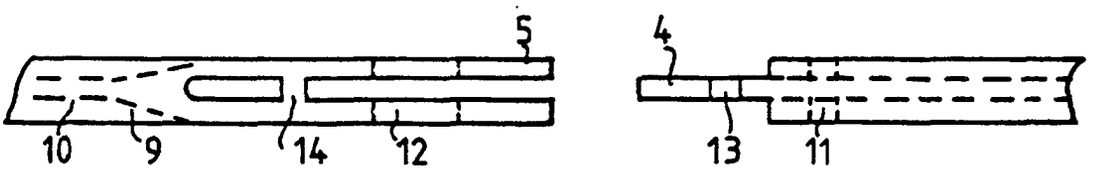

FIG. 3B

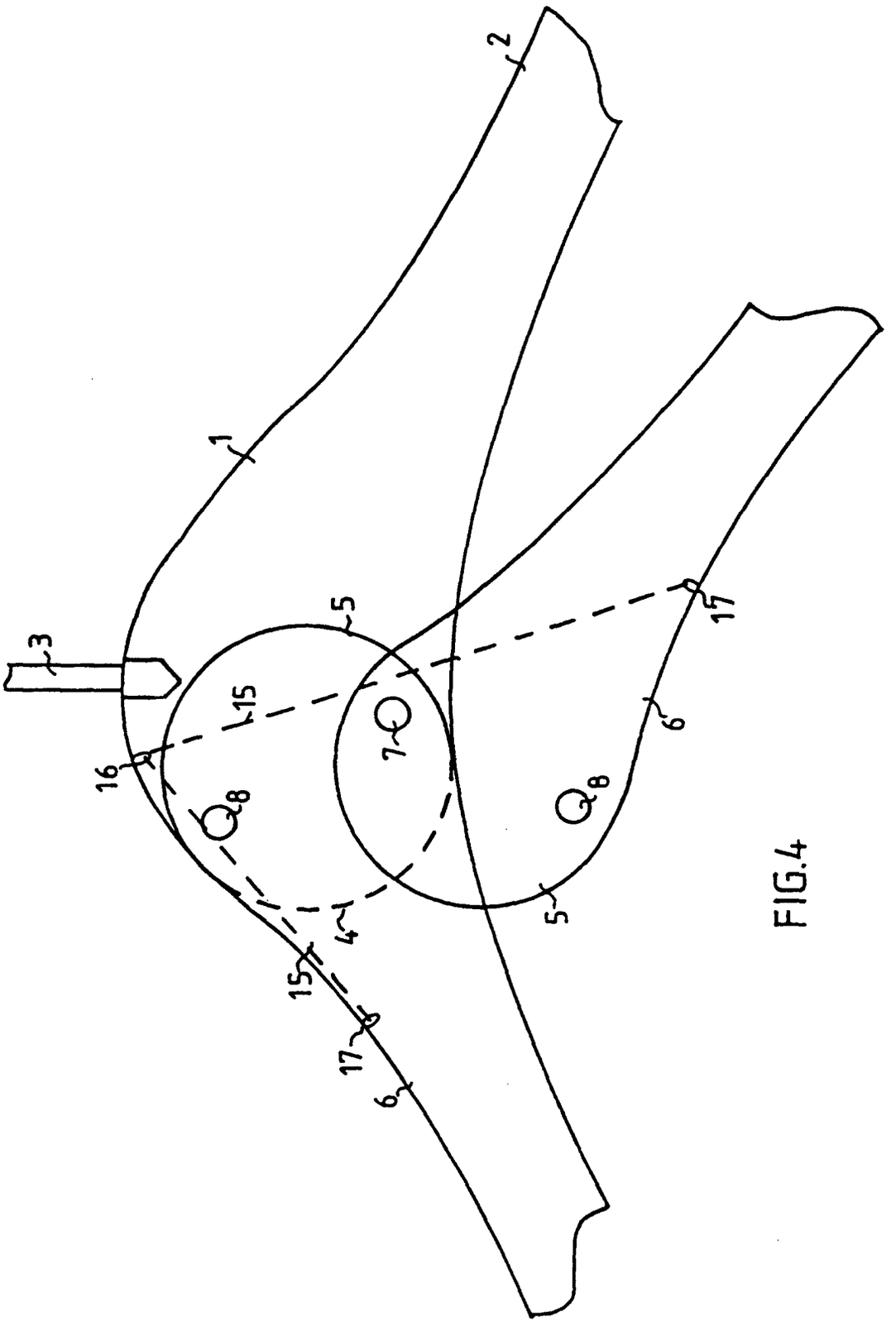

FIG.4