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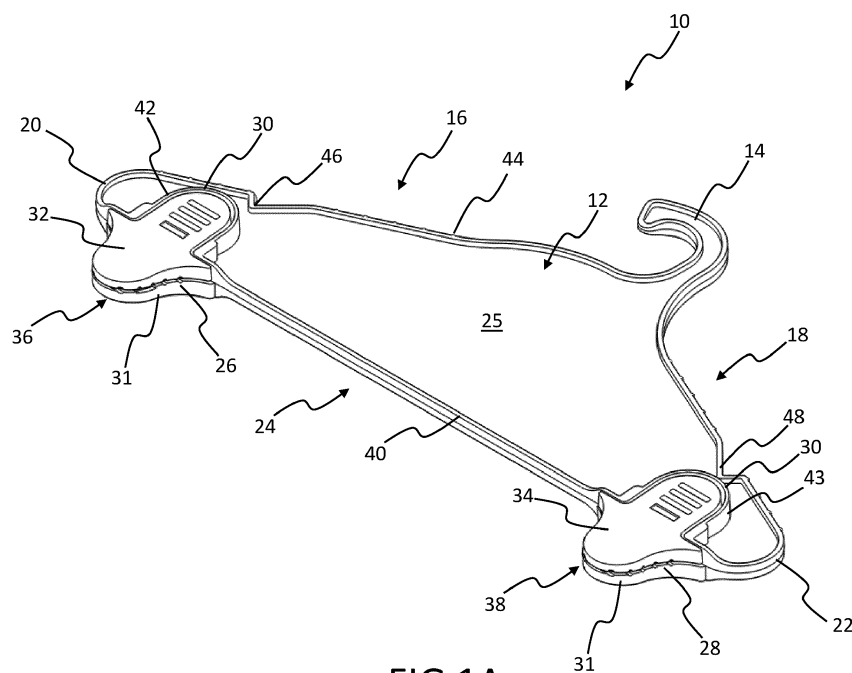
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(54) **CLOTHES HANGER**

(57) A clothes hanger (10) comprises a unitary body (12) having an integral hook (14) for suspending the clothes hanger from a rail. The unitary body (12) further comprises first and second inclined sides (16,18) for supporting shoulder regions of an item of clothing. The first and second sides (16,18) extend away from the integral hook to respective distal ends (20,22). A third side (24) extends between the distal ends (20,22) of the first and second sides. An integral panel (25) infills the region between the first, second and third sides (16,18,24). The unitary body (12) further comprises first and second in-

tegral clip bodies (26,28) at or towards respective ends of the third side (24). The clothes hanger (10) further comprises first and second clip actuators (32,34) respectively mounted to the first and second clip bodies (26,28) to form first and second clips (36,38) for suspending a further item of clothing. The clothes hanger (10) can be used to store a variety of types of clothes, exhibits a lower risk of entanglement with other clothes hangers, and can be assembled from relatively fewer and simpler component parts.



**FIG 1A**

## Description

### FIELD OF THE INVENTION

**[0001]** The present invention relates to a clothes hanger and to a method of manufacturing a clothes hanger.

### BACKGROUND OF THE INVENTION

**[0002]** Clothes hangers can take a wide variety of forms. For example, a known clothes hanger may comprise a horizontal bar having a pair of clips from which an item of clothing, such as a pair of trousers or a skirt, can be suspended. However, it is generally not possible to support the shoulders of an item of clothing, such as a shirt or jacket, adequately with such clothes hangers. Consequently, such clothes hangers tend to be used in the clothing retail industry only for particular types of clothes.

**[0003]** For another example, a known clothes hanger may comprise an open frame having first and second inclined sides for supporting the shoulder regions of an item of clothing, such as a shirt or jacket. In these arrangements, the known clothes hanger may further comprise a horizontal bar extending between the first and second sides over which a further item of clothing, such as a pair of trousers, can be draped. The first and second inclined sides may further comprise prongs for retaining shoulder straps or hanging straps incorporated into a further item of clothing. Such clothes hangers are generally more flexible in terms of the types of clothes that may be stored on the clothes hanger. However, it is generally not possible to clip an item of clothing, such as a pair of trousers or a skirt, to these clothes hangers unless a separate pair of clips is also provided on the horizontal bar. Such clips tend to have a complex construction and can be difficult to fit to the horizontal bar during manufacture and difficult to remove if it is later desired to recycle the components of the clothes hanger.

**[0004]** In any of the above examples, the known clothes hanger will typically comprise a hook for suspending the clothes hanger from a rail. The hook may either be integral to the frame or bar or, in the case of a plastic frame or bar, may be a separate metallic part. A separate metallic part can again be difficult to fit to a clothes hanger during manufacture and difficult to remove if it is later desired to recycle the components of the clothes hanger.

**[0005]** The known clothes hangers have a number of significant disadvantages. For example, in the clothing retail industry, clothes hangers are often stored together in large containers, and the stored clothes hangers can easily become entangled with one another via the hooks, clips, prongs, frames, etc.. Disentangling the clothes hangers can be extremely frustrating and time consuming. Furthermore, the known clothes hangers can often bend or snap, and can be difficult to disassemble, and are then discarded without recycling, and this can be damaging to the environment. Furthermore, the known

clothes hangers can lack flexibility in terms of the types of clothes that may be stored on the clothes hanger or, if greater flexibility is provided, tend to be made from a significant number of complex component parts which must be separately manufactured and then assembled together. Providing a larger number of component parts can make manufacturing and recycling a clothes hanger time consuming, expensive, complex, and damaging to the environment, due to the significant resources required to make, distribute, assemble and then disassemble the component parts.

**[0006]** It is therefore desired to provide an improved clothes hanger and an improved method of manufacturing a clothes hanger.

### SUMMARY OF THE INVENTION

**[0007]** According to an aspect of the present invention, there is provided a clothes hanger comprising:

a unitary body having:

- an integral hook for suspending the clothes hanger from a rail;
- first and second inclined sides for supporting shoulder regions of an item of clothing, the first and second sides extending away from the integral hook to respective distal ends;
- a third side extending between the distal ends of the first and second sides;
- an integral panel infilling the region between the first, second and third sides; and
- first and second integral clip bodies at or towards respective ends of the third side;

the clothes hanger further comprising:

- first and second clip actuators respectively mounted to the first and second clip bodies to form first and second clips for suspending a further item of clothing.

**[0008]** According to another aspect of the present invention, there is provided a method of manufacturing a clothes hanger, the method comprising:

providing a unitary body having:

- an integral hook for suspending the clothes hanger from a rail;
- first and second inclined sides for supporting shoulder regions of an item of clothing, the first and second sides extending away from the integral hook to respective distal ends;
- a third side extending between the distal ends of the first and second sides;
- an integral panel infilling the region between the first, second and third sides; and
- first and second integral clip bodies at or towards respective ends of the third side;

the method further comprising:

mounting first and second clip actuators respectively to the first and second clip bodies to form first and second clips for suspending a further item of clothing.

**[0009]** The present invention can provide a clothes hanger which can be used to store a variety of types of clothes, which exhibits a lower risk of entanglement with other clothes hangers, and which can be assembled from relatively fewer and simpler component parts. In particular, the inclined first and second sides can be used to support the shoulder regions of an item of clothing, such as a shirt or jacket, and the first and second clips can be used to suspend a further item of clothing, such as a pair of trousers or skirt. Furthermore, by providing a unitary body having an integral panel infilling the region between three sides of the clothes hanger, the likelihood of entanglement with other clothes hangers, e.g. hook to frame or hook to clip, can be reduced. Furthermore, by providing a clothes hanger having a unitary body to which clip actuators are mounted, the components of the clothes hanger can be rapidly and easily manufactured and assembled for use, and then rapidly and easily disassembled for replacing or recycling the component parts.

**[0010]** As will be appreciated, the expressions "unitary" and "integral" are intended to mean that the various integral parts of the unitary body of the clothes hanger are provided as a single component, rather than as plural components which must then be assembled together.

**[0011]** In embodiments, the unitary body may be formed of a (e.g. injection) moulded or 3D printed material. Thus, providing the unitary body may comprise (e.g. injection) moulding or 3D printing a material so as to form the unitary body. These embodiments provide a particularly convenient way to manufacture the clothes hanger. The unitary body may be formed of a plastics or polymer material, such as polypropylene or polystyrene. Polypropylene is particularly advantageous to the environment in that it generally has a density less than water, and thus will generally float on water and can more easily be recovered from the environment if discarded carelessly.

**[0012]** In embodiments, the unitary body may be generally triangular, chevron or arch shaped. Thus, the first, second and third sides may form the sides of a generally triangular shape, chevron shape or arch shape. The generally triangular shape may be that of an isosceles triangle. The angle between the first and second sides may be in the range 120° to 140°, for example approximately 130°. The angle between the first and third side and/or the angle between the second and third side may be in the range 20° to 30°, for example approximately 25°. These angles can allow an item of clothing to be supported on the first and second sides with minimal distortion of the shoulders of the item of clothing.

**[0013]** In embodiments, the unitary body may have an integral peripheral flange. The peripheral flange may be perpendicular to the plane of the integral panel. The peripheral flange may be substantially continuous around

the unitary body. The peripheral flange may extend along the inner and outer profiles of the integral hook, along the first side and its distal end, along the second side and its distal end, and/or along the third side. In embodiments, the peripheral flange may have a span in the range 4mm to 17mm, such as approximately 8mm. The peripheral flange can provide rigidity to the unitary body. Nevertheless, the unitary body may still have sufficient flexibility/resilience such that the integral hook can be twisted out of the general plane of the unitary body when a force is applied and will realign with the general plane of the unitary body when the force is released. The elasticity/resilience may be provided by compression and tension forces in the peripheral flange that arise upon twisting the integral hook out of the general plane of the unitary body. This can allow the hanger to be suspended from the (untwisted) integral hook on a rail, and can also allow the hanger to be suspended from the (twisted) integral hook on structures such as doors or door frames, as desired. The peripheral flange can also provide a wider surface on which to support the shoulders of an item of clothing and can help to reduce the amount of crumpling of the item of clothing when placed next to other items of clothing on a rail. The peripheral flange can also encourage the clothes hanger to hang perpendicular to the rail. The peripheral flange on the inner profile of the hook can also encourage the hook of the clothes hanger to rotate up and off a hook of a similar clothes hanger.

**[0014]** In embodiments, the hook may comprise a hook end having a substantially planar surface which slopes generally inwardly to the hook and/or which tapers generally inwardly to the hook. The hook end can assist with guiding a rail into the hook should the rail contact the hook end. The hook end can also reduce the likelihood of entanglement with hooks of other clothes hangers by assisting with the final stages of lifting the hook of another clothes hanger out of the integral hook. The hook may comprise an inner profile having a radius of curvature in the range 3mm to 8mm. The inner profile may have a radius of curvature that decreases from 8mm internally to the hook to 3mm adjacent the hook end. The hook profile can assist with retaining the clothes hanger tightly on a round rail whilst also helping to reduce the likelihood of entanglement with hooks of other clothes hangers by creating inertia as the hook of the other clothes hanger rotates relative to the integral hook and the hook of the other clothes hanger interacts with the peripheral flange of the integral hook, thereby lifting the hook of the other clothes hanger out of the integral hook.

**[0015]** In embodiments, the first and second sides may be substantially straight. Notwithstanding this, the integral hook may be open towards the first side, and the first side may comprise a convex curved section adjacent the integral hook. The convex curved section can assist with guiding a rail into the hook should the rail contact the first side.

**[0016]** In embodiments, the third side may be substantially straight or may be concavely curved or arched. The

distal ends of the first and second sides may be rounded. These embodiments can help to reduce the likelihood of entanglement with other clothes hangers.

**[0017]** In embodiments, the first and second sides may each comprise plural lateral ribs. The lateral ribs can assist with retaining the shoulders of an item of clothing thereon. The lateral ribs may be provided across the peripheral flange.

**[0018]** In embodiments, the first and second sides may each comprise a notch for retaining a shoulder strap or hanging strap incorporated into an item of clothing. The notch may be substantially V-shaped. The notch may have a substantially curved V profile (e.g. cusp-shaped profile) which can help to reduce the likelihood of entanglement with other clothes hangers. The angle of the V-shape may be in the range 80° to 100°, for example approximately 90°. These angles can again help to reduce the likelihood of entanglement with other clothes hangers whilst still suitably retaining a shoulder strap or hanging strap incorporated into an item of clothing.

**[0019]** In embodiments, the integral panel may be a substantially solid or entirely solid panel. The integral panel may be substantially planar. The integral panel may have a thickness in the range 1.6mm to 2.4mm, such as approximately 2mm. These thicknesses can help to provide a lightweight clothes hanger whilst maintaining structural integrity.

**[0020]** In embodiments, the first and second clip actuators may be pivotably mounted respectively to the first and second clip bodies. A pivotable mounting may allow the first and second clip actuators to be moved between a closed state, in which an item of clothing may be retained by the clips, and an open state, in which an item of clothing may be inserted into or removed from the clips. The pivotable mounting may be provided by a fulcrum on a clip body and a corresponding bearing surface on a clip actuator, or *vice versa*.

**[0021]** In embodiments, the first and second clip actuators may be resiliently pivotably mounted respectively to the first and second clip bodies. A resilient pivotable mounting may bias the first and second clip actuators in a closed state, in which an item of clothing may be retained by the clips, but may also allow the first and second clip actuators to be moved (e.g. by pressing) against the bias to an open state, in which an item of clothing may be inserted into or removed from the clips. The resilient mounting may be provided by a resilient member, such as a spring, provided between a clip body and a corresponding clip actuator.

**[0022]** In embodiments, the first and second clip actuators may be removably mounted respectively to the first and second clip bodies. This can allow the clothes hanger to be readily disassembled for repairing or recycling.

**[0023]** In embodiments, the first and second clip bodies may have the same shape as each other. The first and second clip bodies may each comprise an inner portion within the unitary body and/or an outer portion that protrudes outwardly from the unitary body. The inner portion

may have a substantially curved shape, such as substantially D-shaped. This curved shape can reduce the likelihood of entanglement with other clothes hangers. The first and second clip bodies may each comprise a clip wall which may surround the inner portion of that clip body. The clip wall may be contiguous with the peripheral flange. The span of the peripheral flange may increase adjacent to the clip body, e.g. so as to transition into the clip wall. The clip wall may substantially prevent the insertion of hooks of other clothes hangers into the clip body. This can reduce the likelihood of entanglement with other clothes hangers. The outer portion may protrude outwardly from the third side. The outer portion may comprise a serrated edge to assist with gripping an item of clothing. The outer portion may have a substantially curved shape, such as substantially bell-shaped. Again, this curved shape can reduce the likelihood of entanglement with other clothes hangers.

**[0024]** In embodiments, the first and second integral clip bodies may each comprise a set of internal teeth to assist with gripping an item of clothing. The first and second integral clip bodies may each comprise a fulcrum about which the first and second clip actuators may be pivotally moved.

**[0025]** In embodiments, the first and second integral clip bodies may each comprise a pair of recesses (e.g. pair of dog-houses) for receiving and retaining a corresponding pair of spindles on a clip actuator. The first and second integral clip bodies may each comprise a spigot for receiving an end of a resilient member, the resilient member being provided between the spigot on the clip body and a corresponding spigot on a clip actuator. These embodiments can allow the clothes hanger to be readily assembled and disassembled for repairing or recycling.

**[0026]** In embodiments, the first and second clip actuators may have the same shape as each other. The first and second clip actuators may each have a shape that is complementary to the shape of the first and second clip bodies. The first and second clip actuators may each have an actuatable (e.g. pressable) portion corresponding to the inner portion of the first and second clip bodies. The actuatable portion may have one or more surface features, such as grooves, ribs, indents, bumps, etc., to assist the user with moving (e.g. by pressing) the clip actuator from a closed state, in which an item of clothing may be retained by the clips, to an open state in which an item of clothing may be inserted into or removed from the clips. The actuatable portion may have a substantially curved shape, such as substantially D-shaped. Again, this curved shape can reduce the likelihood of entanglement with other clothes hangers. The first and second clip actuators may each have a gripping portion corresponding to the outer portion of the first and second clip bodies. The gripping portion may have a serrated edge to assist with retaining an item of clothing. The gripping portion may have a substantially curved shape, such as bell-shaped. Again, this curved shape can reduce the

likelihood of entanglement with other clothes hangers.

**[0027]** In embodiments, the first and second clip actuators may each comprise a set of internal teeth to assist with gripping an item of clothing. The first and second clip actuators may each comprise a bearing surface about which the first and second clip actuators may be pivotally moved. The first and second clip actuators may each comprise a pair of spindles to be received and retained within a corresponding pair of recesses (e.g. pair of dog-houses) of a clip body. The first and second clip actuators may each comprise a spigot for receiving an end of a resilient member, the resilient member being provided between the spigot on the clip actuator and a corresponding spigot on a clip body.

**[0028]** In a similar manner to the unitary body, the first and second clip actuators may be formed of a (e.g. injection) moulded or 3D printed material. Thus, the method may further comprise providing the first and second clip actuators by (e.g. injection) moulding or 3D printing a material so as to form the first and second clip actuators. The first and second clip actuators may be formed of a plastics or polymer material, such as polypropylene or polystyrene. Again, polypropylene is preferred.

**[0029]** In embodiments, the clothes hanger may further comprise a separate trouser bar which can be inserted into and retained by the first and second clips, the trouser bar comprising an elongate section over which an item of clothing may be draped. These embodiments can allow the clothes hanger to be used to store a wider variety of clothes, including folded trousers, scarves, etc.. The separate trouser bar can also be placed on an item of clothing, such as folded trousers, prior to clipping the trouser bar to the clothes hanger. This can assist with neatly draping the item of clothing over the trouser bar prior to clipping the trouser bar to the clothes hanger. Although the term "trouser bar" is used herein, it will be appreciated that the bar could be used to store other items of clothing.

**[0030]** In embodiments, the trouser bar may comprise one or more longitudinal ribs. The longitudinal ribs can assist with retaining an item of clothing when draped over the trouser bar. The trouser bar may comprise first and second ends for inserting respectively into the first and second clips. The first and second ends of the trouser bar may each comprise a (curved) peripheral flange for seating within the first and second clip bodies. The peripheral flange may help to locate and retain the trouser bar in the first and second clips, and can help to prevent tilting of the trouser bar when retained in the first and second clips. The first and second ends of the trouser bar may each comprise a (planar) concave curved section for respectively seating around (inner portions of) the first and second clip bodies. The concave sections can provide a compact storage arrangement for the trouser bar when not in use and stored on the clothes hanger.

**[0031]** In a similar manner to the unitary body, the trouser bar may be formed of a (e.g. injection) moulded or 3D printed material. Thus, the method may further com-

prise providing the trouser bar by (e.g. injection) moulding or 3D printing a material so as to form the trouser bar. The trouser bar may be formed of a plastics or polymer material, such as polypropylene or polystyrene. Again, polypropylene is preferred.

**[0032]** In embodiments, the unitary body may further comprise an integral bar holder for storing a trouser bar when not in use. The bar holder may comprise a bar holder channel in which to store the trouser bar when not in use. The bar holder may comprise one or more bar holder clips for retaining the trouser bar when not in use. The bar holder may be provided on the integral panel. The bar holder may be substantially parallel to the third side. The bar holder may extend between the first and second distal ends of the first and second sides. The bar holder may extend between (inner portions of) the first and second clip bodies.

**[0033]** In embodiments, the clothes hanger may further comprise a display sign for removable attachment to the unitary body. The display sign may be removably attachable to the integral panel of the unitary body. This can allow the display sign to be readily removed and replaced, if desired. The display sign may comprise a substantially planar structure having a front face onto which text and/or an image may be applied. The display sign may comprise a rear face having one or more (e.g. mechanical) fixings for attaching the display sign to the unitary body. The one or more fixings may comprise one or more retaining pegs. The unitary body may comprise one or more apertures for removably receiving the one or more fixings of the display sign.

**[0034]** In a similar manner to the unitary body, the display sign may be formed of a (e.g. injection) moulded or 3D printed material. Thus, the method may further comprise providing the display sign by (e.g. injection) moulding or 3D printing a material so as to form the display sign. The display sign may be formed of a plastics or polymer material, such as polypropylene or polystyrene. Again, polypropylene is preferred.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0035]** By way of example only, embodiments of the invention will now be described in detail with reference being made to the accompanying drawings in which:

**Figures 1A and 1B** show a clothes hanger according to an embodiment of the present invention;

**Figures 2A, 2B and 2C** show further details of an integral hook of the clothes hanger of Figures 1A and 1B;

**Figures 3A and 3B** show the clothes hanger of Figures 1A and 1B with clips in an open state;

**Figures 4A and 4B** show the clothes hanger of Figures 1A and 1B with clip actuators removed;

**Figures 5A and 5B** show further details of the clip actuators of the clothes hanger of Figures 1A and 1B;

**Figure 6** shows a method of assembling the clothes

hanger of Figures 1A and 1B;

**Figures 7A and 7B** show a trouser bar for use with the clothes hanger of Figures 1A and 1B;

**Figure 8** shows further details of the ends of the trouser bar of Figures 7A and 7B;

**Figure 9** shows a method of inserting the trouser bar of Figures 7A and 7B into the clips of the clothes hanger of Figures 1A and 1B;

**Figures 10A and 10B** show the trouser bar of Figures 7A and 7B inserted into the clips of the clothes hanger of Figures 1A and 1B;

**Figures 11A and 11B** show the trouser bar of Figures 7A and 7B retained in the clips of the clothes hanger of Figures 1A and 1B;

**Figures 12A and 12B** show a trouser bar holder of the clothes hanger of Figures 1A and 1B for storing the trouser bar of Figures 7A and 7B;

**Figure 13** shows a method of inserting the trouser bar of Figures 7A and 7B into the trouser bar holder of the clothes hanger of Figures 1A and 1B;

**Figures 14A and 14B** show the trouser bar of Figures 7A and 7B stored in the trouser bar holder of the clothes hanger of Figures 1A and 1B;

**Figure 15** shows further details of one end of the trouser bar of Figures 7A and 7B when stored in the trouser bar holder of the clothes hanger of Figures 1A and 1B;

**Figures 16A and 16B** show the trouser bar holder of the clothes hanger of Figures 1A and 1B when in an empty state and the trouser bar of Figures 7A and 7B when retained in the clips of the clothes hanger;

**Figures 17A, 17B and 17C** show a display sign for use with the clothes hanger of Figures 1A and 1B; and

**Figure 18** shows a method of mounting the display sign of Figures 17A, 17B and 17C onto the clothes hanger of Figures 1A and 1B.

## DETAILED DESCRIPTION

**[0036]** Figures 1A and 1B show a clothes hanger 10 according to an embodiment of the present invention. The clothes hanger 10 comprises a unitary body 12, which is formed of plastics or polymer material, such as polypropylene, by injection moulding. The unitary body 12 has an integral hook 14 for suspending the clothes hanger 10 from a rail. The unitary body 12 also has first and second inclined sides 16, 18 for supporting shoulder regions of an item of clothing, such as a shirt or jacket. The first and second sides 16, 18 are substantially straight and extend away from the integral hook 14 to respective rounded first and second distal ends 20, 22. The unitary body 12 also has a third substantially straight side 24 which extends between the first and second distal ends 20, 22 of the first and second sides 16, 18. The unitary body 12 also has an entirely solid integral panel 25 infilling the region between the first, second and third sides 16, 18, 24. In this embodiment, the integral panel 25 is

approximately 2mm thick. In other embodiments not illustrated in the drawings, the third side 24 may be concavely curved or arched to help to reduce the likelihood of entanglement and to reduce the area of the integral panel 25, and hence the amount of material being used.

**[0037]** The unitary body 12 also has first and second integral clip bodies 26, 28 towards respective ends of the third side 24. The first and second clip bodies 26, 28 each comprise a D-shaped inner portion 30 within the unitary body 12 and a bell-shaped outer portion 31 that protrudes outwardly from the unitary body 12. The clothes hanger 10 further comprises first and second clip actuators 32, 34 respectively mounted to the first and second clip bodies 26, 28 to form first and second clips 36, 38. The first and second clips 36, 38 can be used to suspend a further item of clothing, such as a pair of trousers or a skirt. Figures 1A and 1B show the clothes hanger 10 with the first and second clips 36, 38 in a closed state in which an item of clothing may be retained by the clips 36, 38.

**[0038]** In this embodiment, the unitary body 12 generally has the shape of an isosceles triangle with the angle between the first side 16 and second side 18 being approximately 130° and the angles between the first side 16 and third side 24 and between the second side 18 and third side 24 being approximately 25°. The unitary body 12 also has an integral peripheral flange 40 which is perpendicular to the plane of the integral panel 25 and, for the most part, has a span of approximately 8mm. The peripheral flange 40 extends substantially continuously around the unitary body 12, i.e. along the inner and outer profiles of the integral hook 14, along the first side 16 and its distal end 20, along the second side 18 and its distal end 22, and along the third side 24. The inner portions 30 of the first and second clip bodies 26, 28 are respectively surrounded by first and second clip walls 42, 43, which are contiguous with the peripheral flange 40. The clip walls 42, 43 prevent the insertion of hooks of other clothes hangers into the first and second clip bodies 26, 28, and this reduces the likelihood of entanglement with other clothes hangers.

**[0039]** The first and second sides 16, 18 each comprise lateral ribs 44 (only one indicated) which assist with retaining the shoulders of an item of clothing thereon. The first and second sides 16, 18 also respectively comprise first and second notches 46, 48 having a V-shape with an angle of approximately 90°. The first and second notches 46, 48 are shaped to retain a shoulder strap or hanging strap incorporated into a further item of clothing, but are also shaped such that there is a low risk of entanglement with other clothes hangers. In other embodiments not illustrated in the drawings, the notches may have a substantially curved cusp-shaped V profile, which can further help to reduce the likelihood of entanglement with other clothes hangers.

**[0040]** In this embodiment, for the most part, the span of the peripheral flange 40 is approximately 8mm. However, the span of the peripheral flange 40 increases to 17mm adjacent the first and second clip bodies 26, 28 to

transition into the clip walls 42,43. In some embodiments, the span of the peripheral flange 40 may also increase at the first and second notches 46,48, which can help to conceal a trouser bar when not in use and when stored on the clothes hanger 10 (such a trouser bar is discussed in more detail below).

**[0041]** Figures 2A, 2B and 2C show further details of the integral hook 14 of the clothes hanger 10. As is shown in Figures 2A, 2B and 2C, the integral hook 14 is open towards the first side 16, and the first side 16 comprises a convex curved section 50 adjacent the integral hook 14 which assists with guiding a rail into the hook 14 should the rail contact the first side 16 when placing the clothes hanger 10 on the rail. The hook also comprises a hook end 52 having a substantially planar surface which slopes generally inwardly to the hook 14, thereby assisting with guiding a rail into the hook 14 should the rail contact the hook end 52 when placing the clothes hanger 10 on the rail. The hook 14 also has an inner profile 54 having a radius of curvature that decreases from 8mm internally to the hook to 3mm adjacent the hook end 52. The inner profile 54 can assist with retaining the clothes hanger 10 tightly on a round rail whilst also helping to reduce the likelihood of entanglement with hooks of other clothes hangers by creating inertia as the hook of the other clothes hanger rotates relative to the integral hook 14 and the hook of the other clothes hanger interacts with the peripheral flange of the integral hook 14, thereby lifting the hook of the other clothes hanger out of the integral hook 14. The hook end 52 also tapers generally inwardly to the hook 14, which further helps with the final stages of lifting the hook of the other clothes hanger out of the integral hook 14.

**[0042]** Figures 3A and 3B show the clothes hanger 10 with the first and second clips 36,38 in an open state. In this regard, the first and second clip actuators 32,34 are pivotally and resiliently mounted to the first and second clip bodies 26,28, such that the first and second clip actuators 32,34 are biased in the closed state, and can then be pressed against the resilient bias so as to pivot between the closed state and the open state, and then will return to the closed state when no longer pressed. Figures 3A and 3B also show that the first and second clip bodies 26,28 have serrated edges 55 and internal teeth 56 to help to retain an item of clothing when gripped by the first and second clips 36,38. Figures 3A and 3B also show that the first and second clip actuators 32,34 have surface features in the form of grooves 58 which increase friction and help the user to apply a pressing force to the first and second clip actuators 32,34. In other embodiments, the one or more surface features may comprise one or more circular or annular indents rather than grooves 58.

**[0043]** Figures 4A and 4B show the clothes hanger 10 with the first and second clip actuators 32,34 removed. As is shown in Figures 4A and 4B, the first and second clip bodies 26,28 further comprise a fulcrum 60 about which the first and second clip actuators 32,34 can be

pivotally moved. The first and second clip bodies 26,28 each further comprise a pair of recesses 62 (dog-houses) for receiving and retaining a corresponding pair of spindles on a clip actuator 32,34. The first and second clip bodies 26,28 each further comprise a spigot 64 for receiving an end of a resilient member, which in this embodiment takes the form of a spring.

**[0044]** Figures 5A and 5B show further details of the first and second clip actuators 32,34 of the clothes hanger 10. Figure 5A is an external view and Figure 5B is an internal view of the clip actuators 32,34. As is shown in Figures 5A and 5B, the first and second clip actuators 32,34 each have a shape that is complementary to the shape of the first and second clip bodies 26,28. Thus, the first and second clip actuators 32,34 each have a D-shaped actuatable portion 65 having the grooves 58 and pair of spindles 66, and each have a bell-shaped gripping portion 67. As is shown in Figures 5A and 5B, the first and second clip actuators 32,34 also have a spigot 68 for receiving the other end of the above-mentioned spring. The first and second clip actuators 32,34 also have a bearing surface 70 about which the first and second clip actuators 32,34 can be pivotally moved. Figures 5A and 5B also show that the first and second clip actuators 32,34 each have a serrated edge 71 and internal teeth 72 to help to retain an item of clothing when gripped by the first and second clips 36,38.

**[0045]** Figure 6 shows a method of assembling the clothes hanger 10. As is shown in Figure 6, the first and second clip actuators 32,34 can readily be pushed onto their respective first and second clip bodies 26,28, with the pairs of spindles 66 being received and retained in the corresponding pairs of recesses 62 and springs 73 being provided between the spigots 68 on the clip actuators 32,34 and the corresponding spigots 64 on the clip bodies 26,28. The first and second clip actuators 32,34 can also readily be removed from their respective first and second clip bodies 26,28 in order to disassemble the clothes hanger 10 for recycling.

**[0046]** Figures 7A and 7B show a separate trouser bar 74 for use with the clothes hanger 10. The trouser bar 74 is again formed of plastics or polymer material, such as polypropylene, by injection moulding. The trouser bar 74 can be inserted into and retained by the first and second clips 36,38 of the clothes hanger 10. The trouser bar 74 comprises an elongate section 76 over which a further item of clothing, such as folded trousers, scarves, etc., can be draped. The trouser bar 74 also comprises first and second ends 78,80 for inserting respectively into the first and second clips 36,38. The trouser bar 74 can be placed on an item of clothing, such as folded trousers, prior to clipping the trouser bar 74 to the clothes hanger 10, and this can facilitate placing the item of clothing on the trouser bar 74 without creasing the item of clothing. The trouser bar 74 also comprises plural longitudinal ribs 82 which assist with retaining an item of clothing when draped over the trouser bar 74.

**[0047]** Figure 8 shows further details of the ends 78,80

of the trouser bar 74. As is shown in Figure 8, the ends 78,80 of the trouser bar 74 each comprise a peripheral flange 84 that helps to locate and retain the trouser bar 74 in the first and second clips 36,38, and helps to prevent tilting of the trouser bar 74 when retained in clips 36,38. The shape of the peripheral flange 84 corresponds to that of the outer portions 31 of the first and second clip bodies 26,28. As will be discussed in more detail below, the ends 78,80 of the trouser bar 74 also each comprise a concave curved section 86 for respectively seating around inner portions of the first and second clip bodies 26,28. This can provide a compact storage arrangement for the trouser bar 74 when not in use and when stored on the clothes hanger 10. The planar surface of the curved section 86 is also clamped in place by the above-mentioned internal teeth 56,72.

**[0048]** Figure 9 shows a method of inserting the trouser bar 74 into the first and second clips 36,38 of the clothes hanger 10 and Figures 10A and 10B show the trouser bar 74 when inserted into the first and second clips 36,38 of the clothes hanger 10. As is shown, the first and second ends 78,80 of the trouser bar 74 are respectively inserted into and received in the first and second clips 36,38. Figures 11A and 11B then show the trouser bar 74 when retained in the first and second clips 36,38 of the clothes hanger 10.

**[0049]** Figures 12A and 12B show an integral trouser bar holder 88 for storing the trouser bar 74 when not in use. As is shown, the trouser bar holder 88 comprises an elongate channel having bar holder clips 90 located on the rear face of the integral panel 25 of the clothes hanger 10.

**[0050]** Figure 13 shows a method of inserting the trouser bar 74 into the trouser bar holder 88 of the clothes hanger 10 and Figures 14A and 14B show the trouser bar 74 when inserted into and retained by the trouser bar holder 88 of the clothes hanger 10. As is shown, the first and second ends 78,80 of the trouser bar 74 are respectively inserted into and received in first and second regions 92,94 on the rear face of the integral panel 25.

**[0051]** Figure 15 then shows further details of one end 80 of the trouser bar 74 when stored in the trouser bar holder 88 of the clothes hanger 10. As is shown in Figure 15, the concave curved section 86 of the end 80 of the trouser bar 74 fits neatly around the inner portion 30 of the clip body 26. This provides an extremely compact arrangement. The end 80 of the trouser bar 74 is further positioned and held in place by a friction fit between the first notch 46 (which contacts the peripheral flange 84) and the inner portion 30 of the clip body 26 (which contacts the concave curved section 86).

**[0052]** Figures 16A and 16B show the trouser bar holder 88 of the clothes hanger 10 when in an empty state and the trouser bar 74 when retained in-use in the first and second clips 36,38 of the clothes hanger 10. The trouser bar 74 can be quickly and easily moved between the stored and in-use positions.

**[0053]** Figures 17A, 17B and 17C show a display sign

96 for use with the clothes hanger 10. The display sign 96 has a planar structure, which is formed of plastics or polymer material, such as polypropylene, by injection moulding. The display sign 96 has a first face onto which text or an image 97 can be applied, either by direct printing or with an adhesive label. The text or image 97 can provide information relating to clothing on the clothes hanger 10, such as the retailer's logo, clothing manufacturer's logo, the size of the clothing, the price of the clothing, etc.. The display sign 96 also has a second face having mechanical fixings in the form of retaining pegs 98 for removably attaching the display sign 96 to the unitary body 12 of the clothes hanger 10.

**[0054]** Figure 18 then shows a method of mounting the display sign 96 onto the clothes hanger 10. As is shown, the retaining pegs 98 are removably received in apertures 99 provided in the integral panel 25 of the unitary body 12 of the clothes hanger 10. The display sign 96 can be readily removed and replaced as desired.

## Claims

### 1. A clothes hanger comprising:

a unitary body having:

- an integral hook for suspending the clothes hanger from a rail;
- first and second inclined sides for supporting shoulder regions of an item of clothing, the first and second sides extending away from the integral hook to respective distal ends;
- a third side extending between the distal ends of the first and second sides;
- an integral panel infilling the region between the first, second and third sides; and
- first and second integral clip bodies at or towards respective ends of the third side;

the clothes hanger further comprising:

- first and second clip actuators respectively mounted to the first and second clip bodies to form first and second clips for suspending a further item of clothing.

### 2. A clothes hanger as claimed in claim 1, wherein the unitary body is generally triangular, chevron or arch shaped.

### 3. A clothes hanger as claimed in claim 1 or 2, wherein the unitary body has an integral peripheral flange.

### 4. A clothes hanger as claimed in any one of the preceding claims, wherein the hook comprises a hook end having a substantially planar surface which slopes generally inwardly to the hook and/or which



tapers generally inwardly to the hook, and/or wherein the integral hook is open towards the first side and the first side comprises a convex curved section adjacent the integral hook.

5 5. A clothes hanger as claimed in any one of the preceding claims, wherein the first and second clip actuators are pivotably mounted respectively to the first and second clip bodies, and/or wherein the first and second clip actuators are resiliently pivotably mounted respectively to the first and second clip bodies.

10 6. A clothes hanger as claimed in any one of the preceding claims, wherein the first and second clip actuators are removably mounted respectively to the first and second clip bodies.

15 7. A clothes hanger as claimed in any one of the preceding claims, wherein the first and second clip bodies each comprise an inner portion within the unitary body, wherein optionally the inner portion is substantially D-shaped, wherein optionally the first and second clip bodies each comprise a clip wall which surrounds the inner portion of that clip body.

20 8. A clothes hanger as claimed in any one of the preceding claims, wherein the first and second clip bodies each comprise an outer portion that protrudes outwardly from the unitary body, wherein optionally the outer portion is substantially bell-shaped.

25 9. A clothes hanger as claimed in any one of the preceding claims, wherein the clothes hanger further comprises a separate trouser bar which can be inserted into and retained by the first and second clips, the trouser bar comprising an elongate section over which an item of clothing may be draped, wherein optionally the trouser bar comprises one or more longitudinal ribs.

30 10. A clothes hanger as claimed in claim 9, wherein the trouser bar comprises first and second ends for inserting respectively into the first and second clips.

35 11. A clothes hanger as claimed in claim 10, wherein the first and second ends of the trouser bar each comprise a peripheral flange for seating respectively within the first and second clip bodies.

40 12. A clothes hanger as claimed in claim 10 or 11, wherein the first and second ends of the trouser bar each comprise a concave curved section for seating respectively around the first and second clip bodies.

45 13. A clothes hanger as claimed in any one of the preceding claims, wherein the unitary body further comprises an integral bar holder for storing a trouser bar when not in use, wherein optionally the bar holder

comprises a bar holder channel in which to store the trouser bar when not in use, and/or wherein optionally the bar holder comprises one or more bar holder clips for retaining the trouser bar when not in use, and/or wherein optionally the bar holder extends between the first and second clip bodies.

14. A clothes hanger as claimed in any one of the preceding claims, wherein the clothes hanger further comprises a display sign for removable attachment to the unitary body.

15. A method of manufacturing a clothes hanger, the method comprising:

providing a unitary body having:

an integral hook for suspending the clothes hanger from a rail;

first and second inclined sides for supporting shoulder regions of an item of clothing, the first and second sides extending away from the integral hook to respective distal ends;

a third side extending between the distal ends of the first and second sides;

an integral panel infilling the region between the first, second and third sides; and

first and second integral clip bodies at or towards respective ends of the third side;

the method further comprising:

mounting first and second clip actuators respectively to the first and second clip bodies to form first and second clips for suspending a further item of clothing.

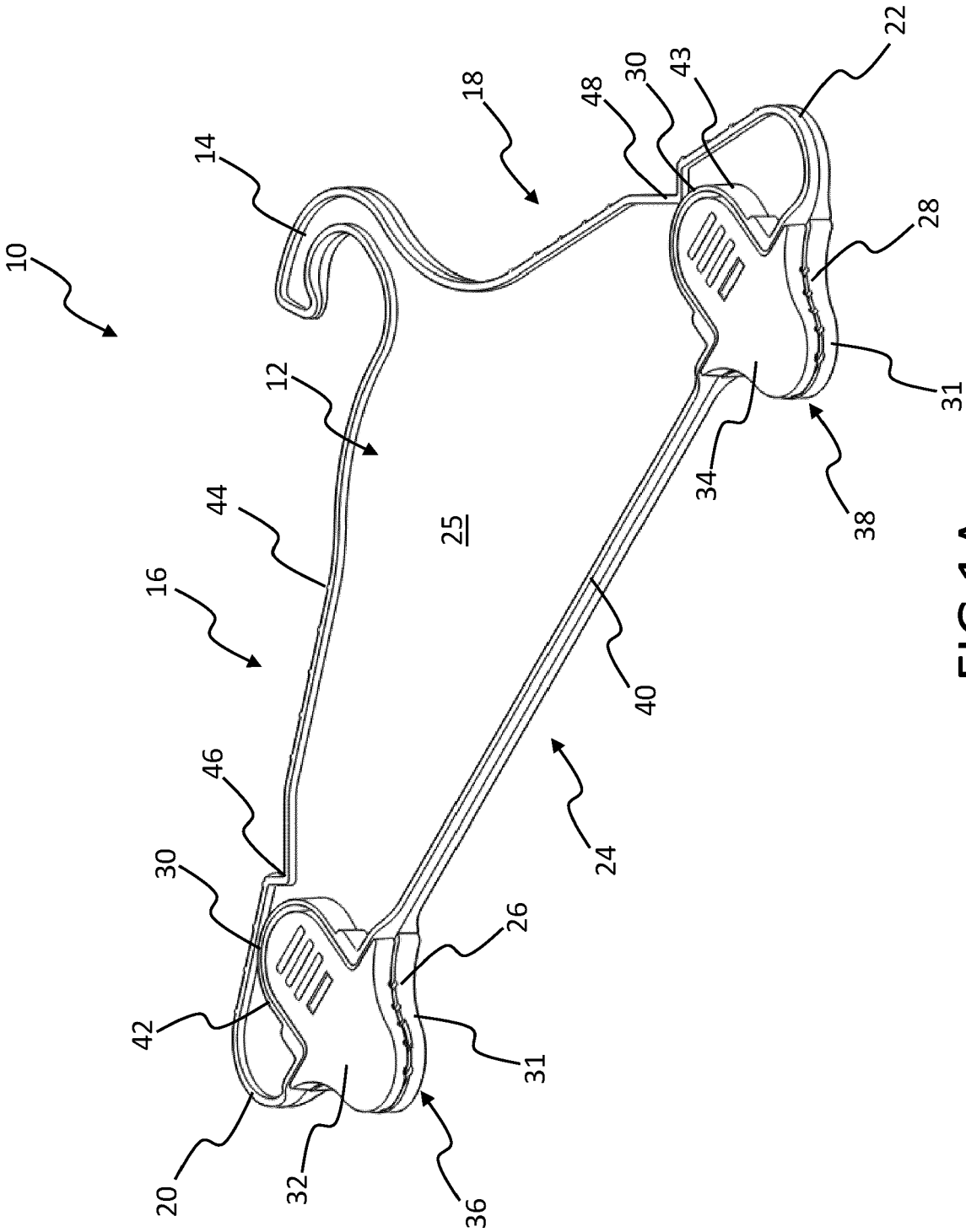
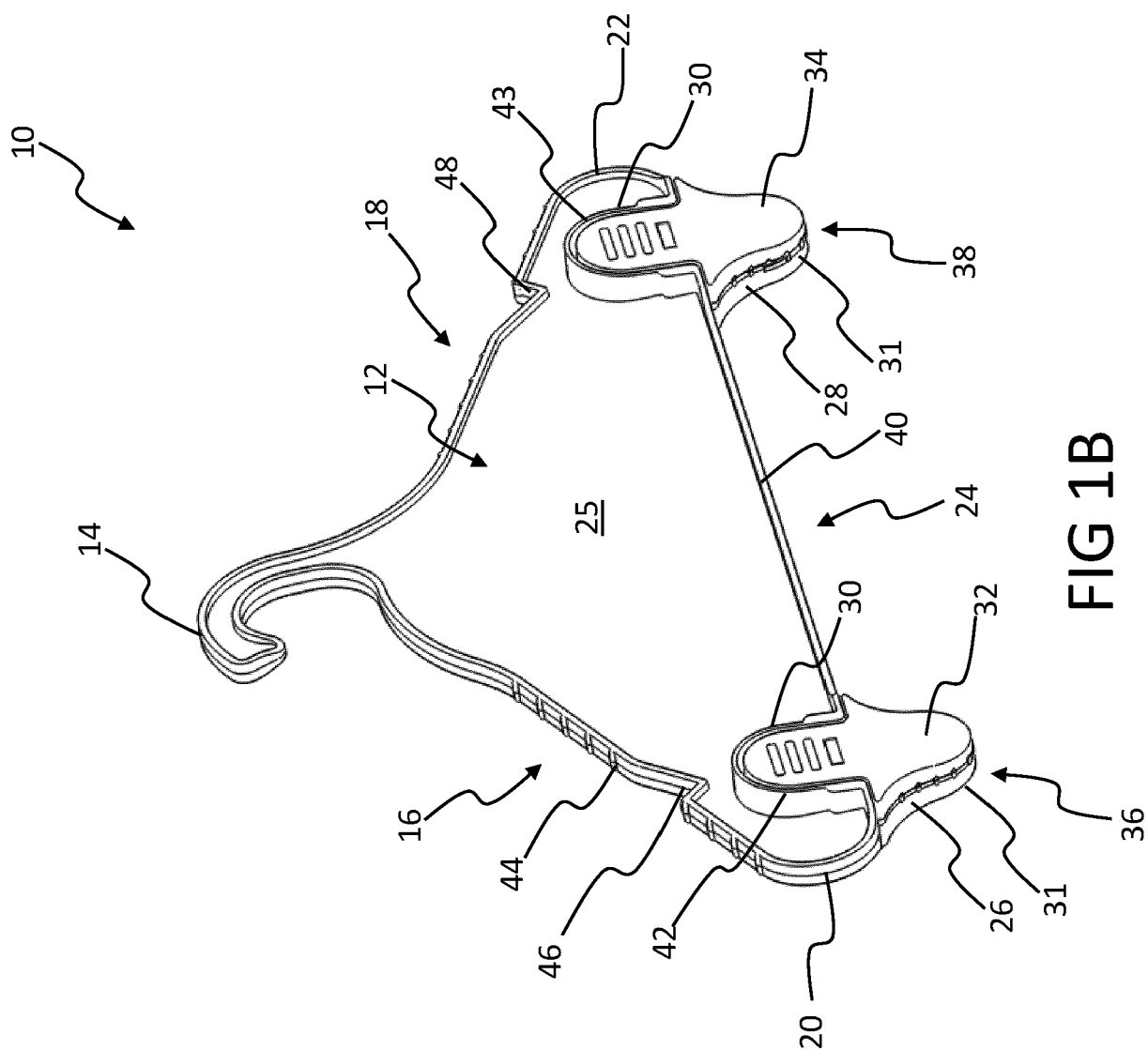


FIG 1A



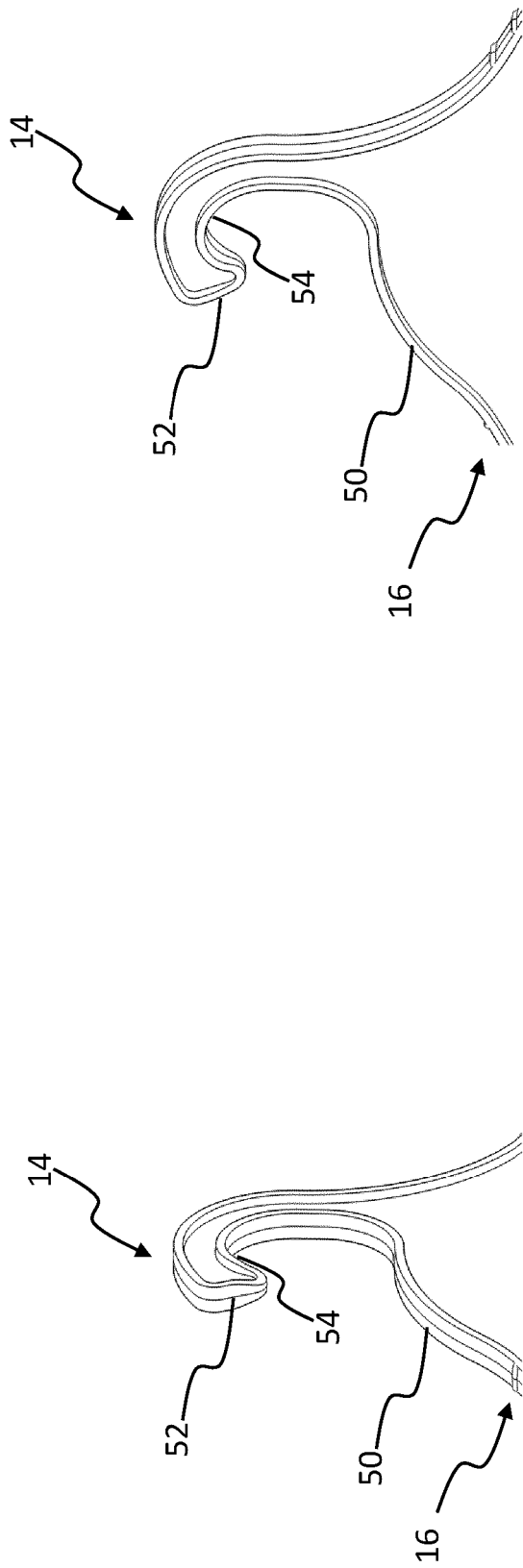


FIG 2A

FIG 2C

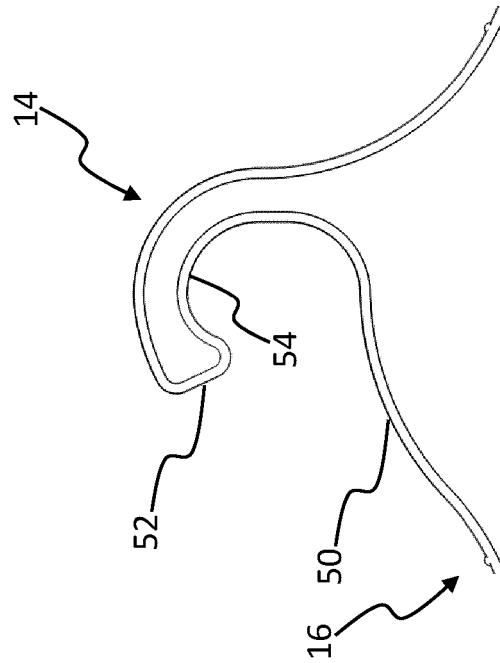


FIG 2B

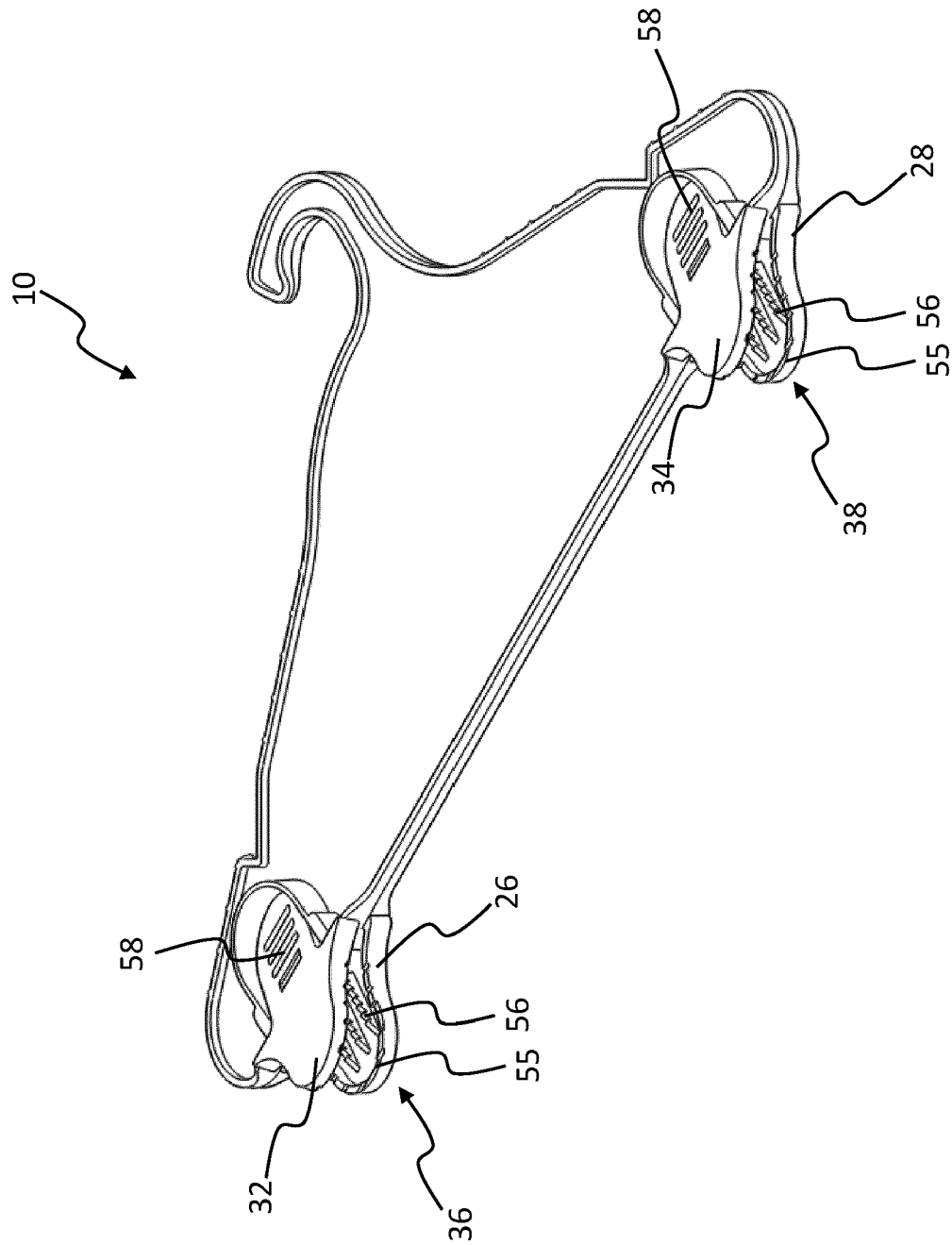
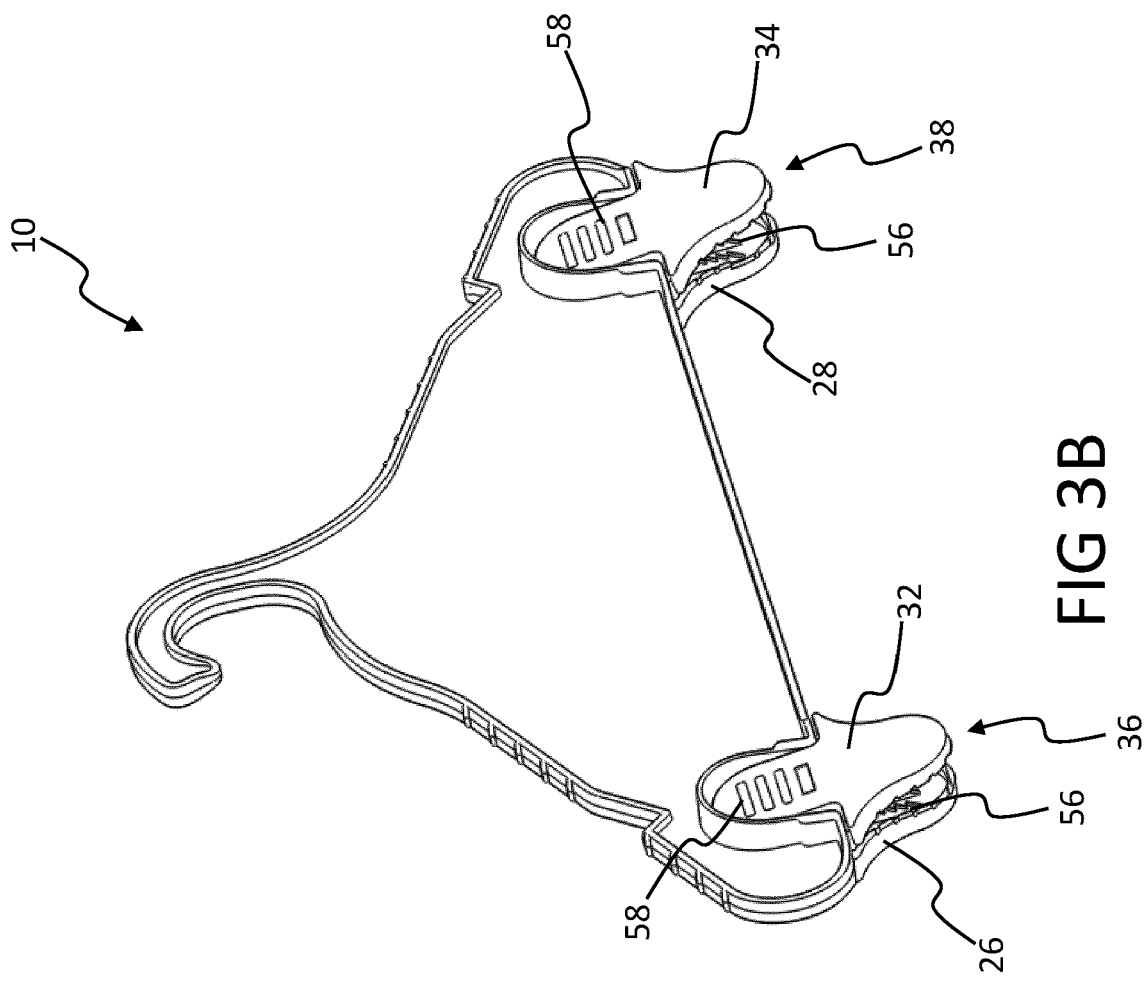


FIG 3A



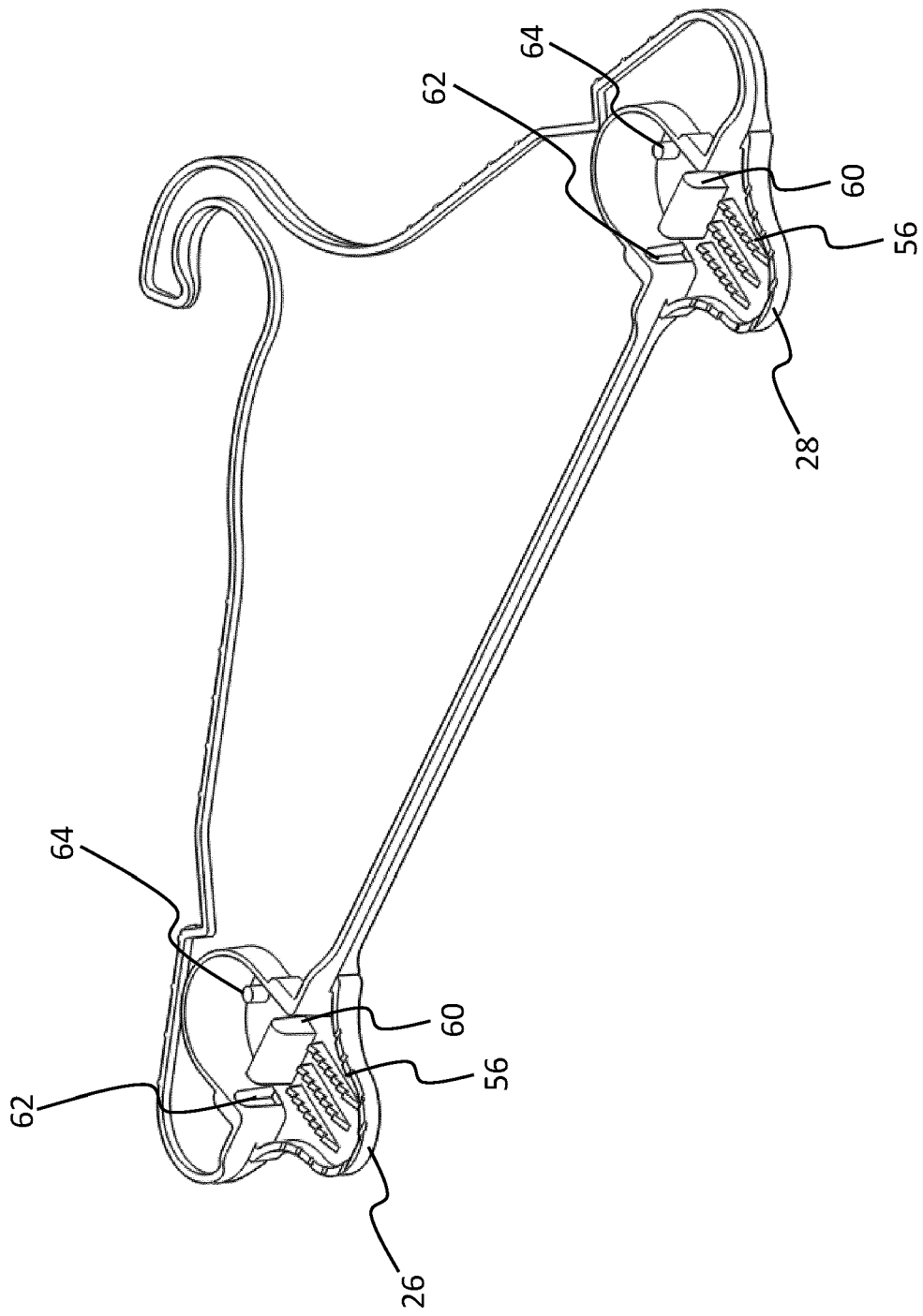


FIG 4A

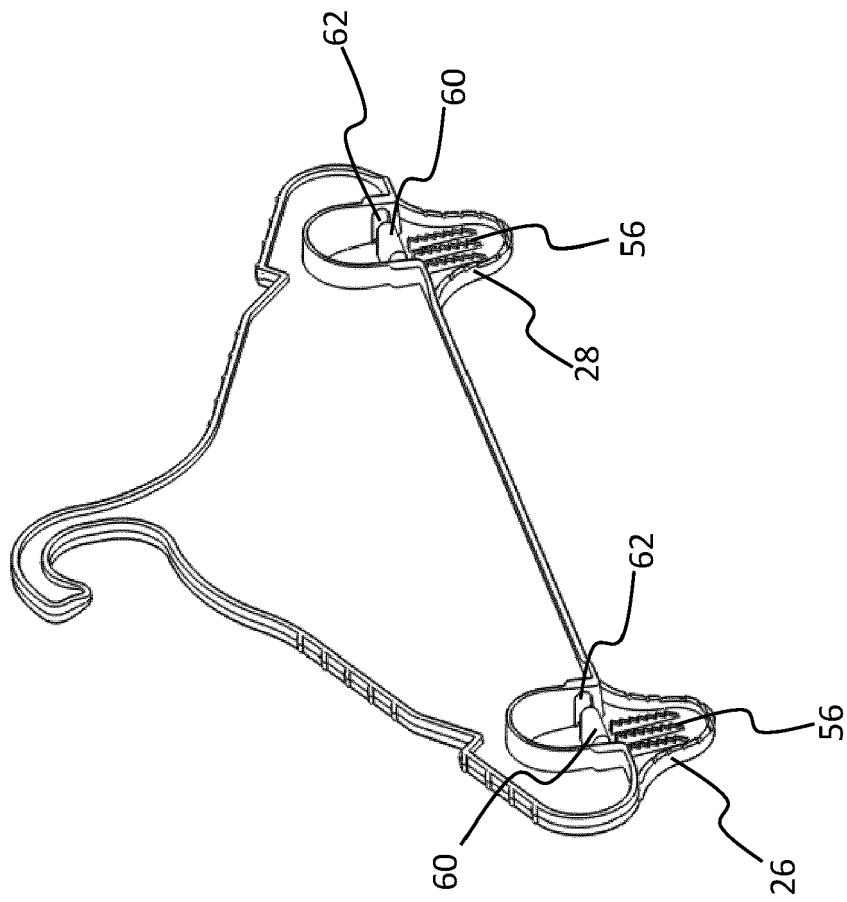


FIG 4B



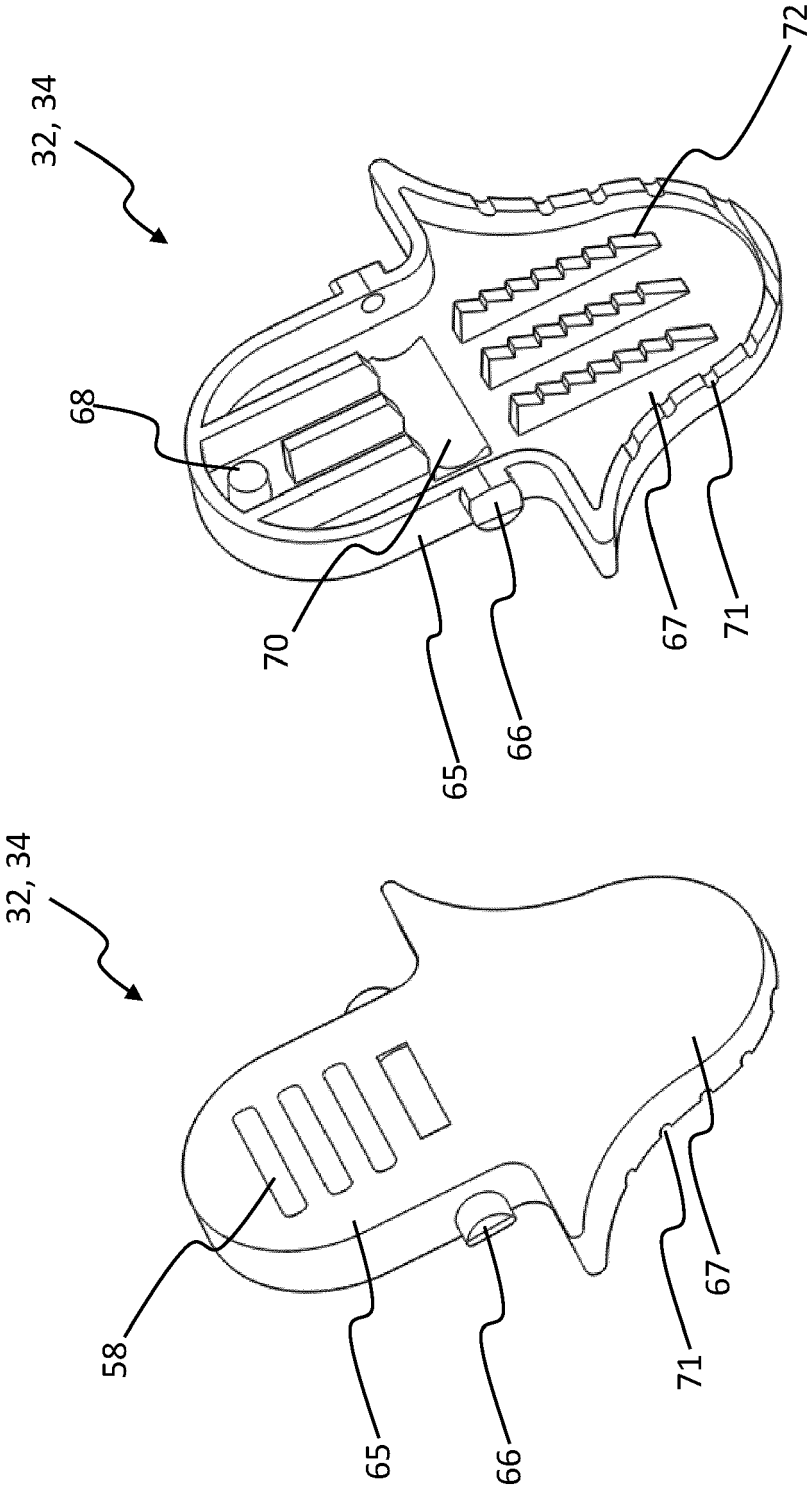


FIG 5A

FIG 5B

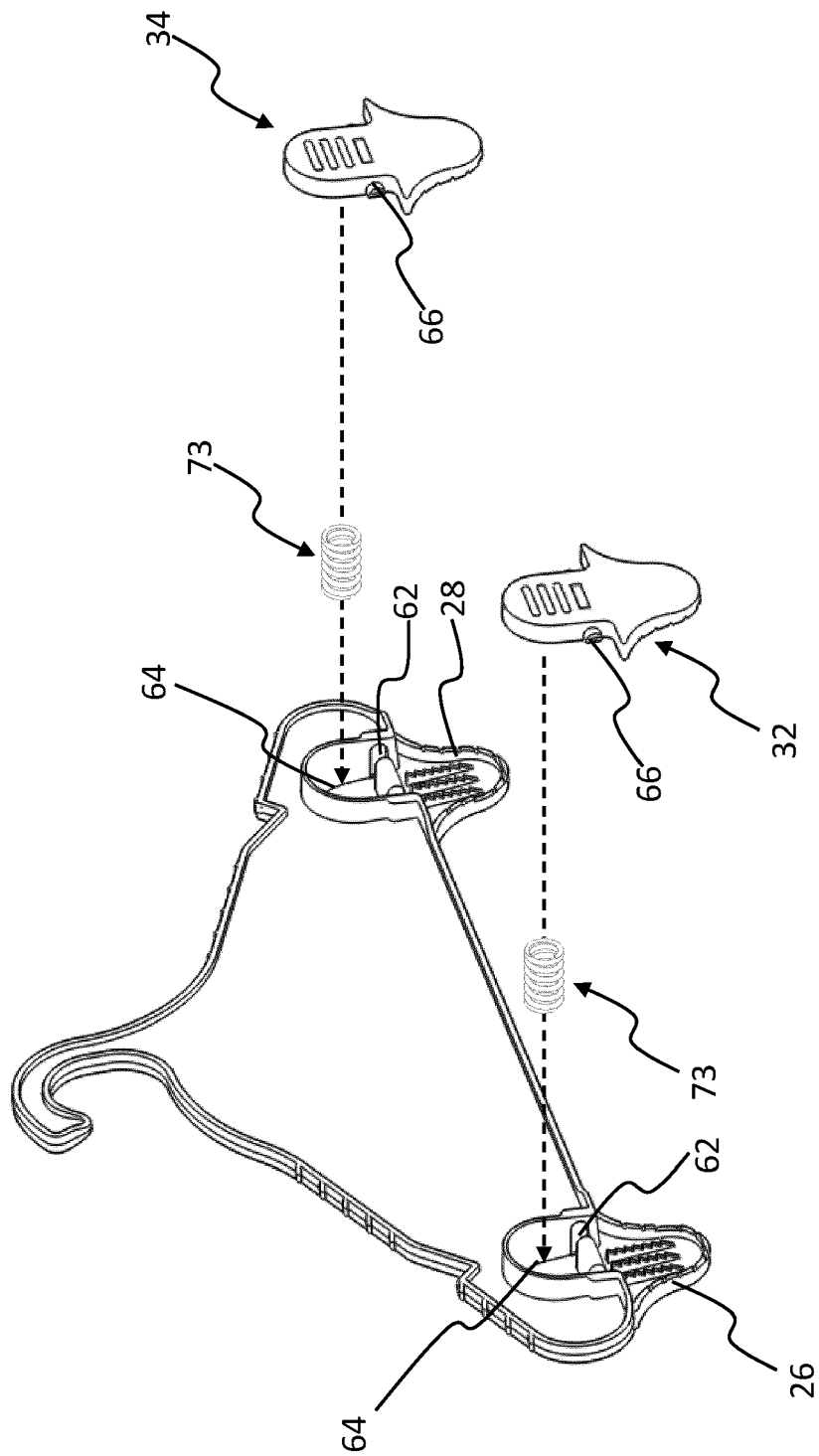
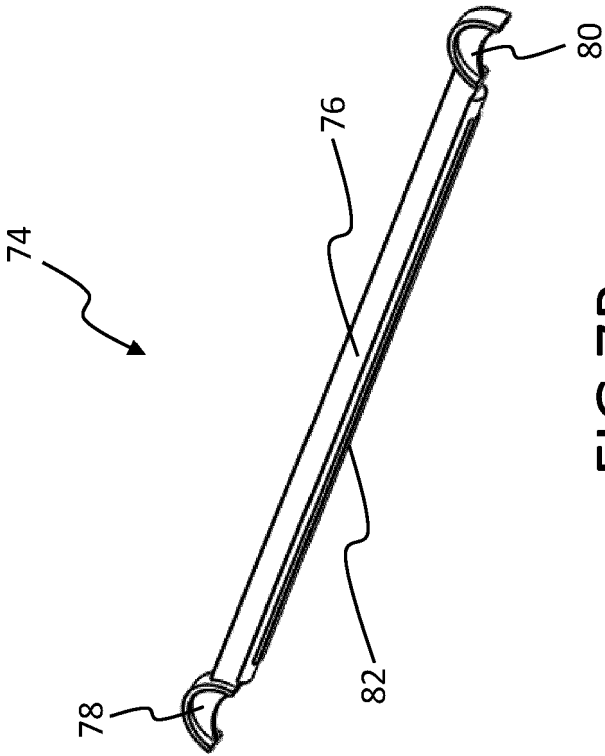
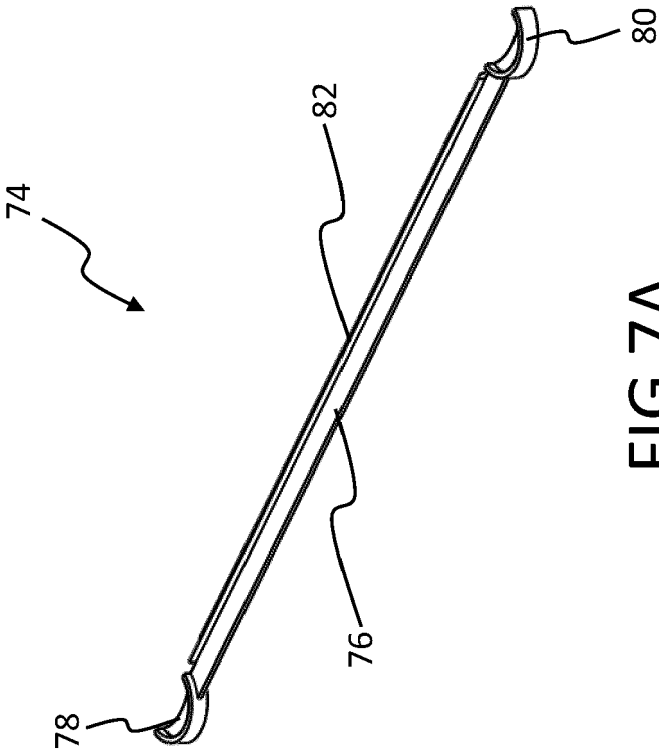


FIG 6



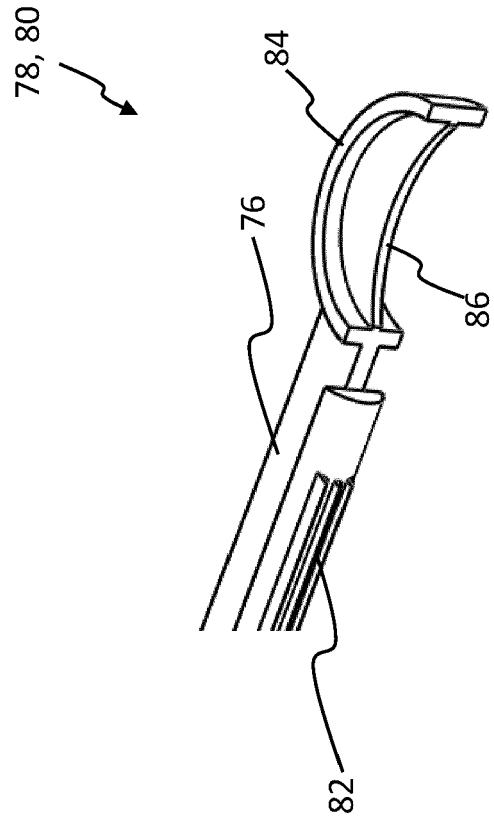
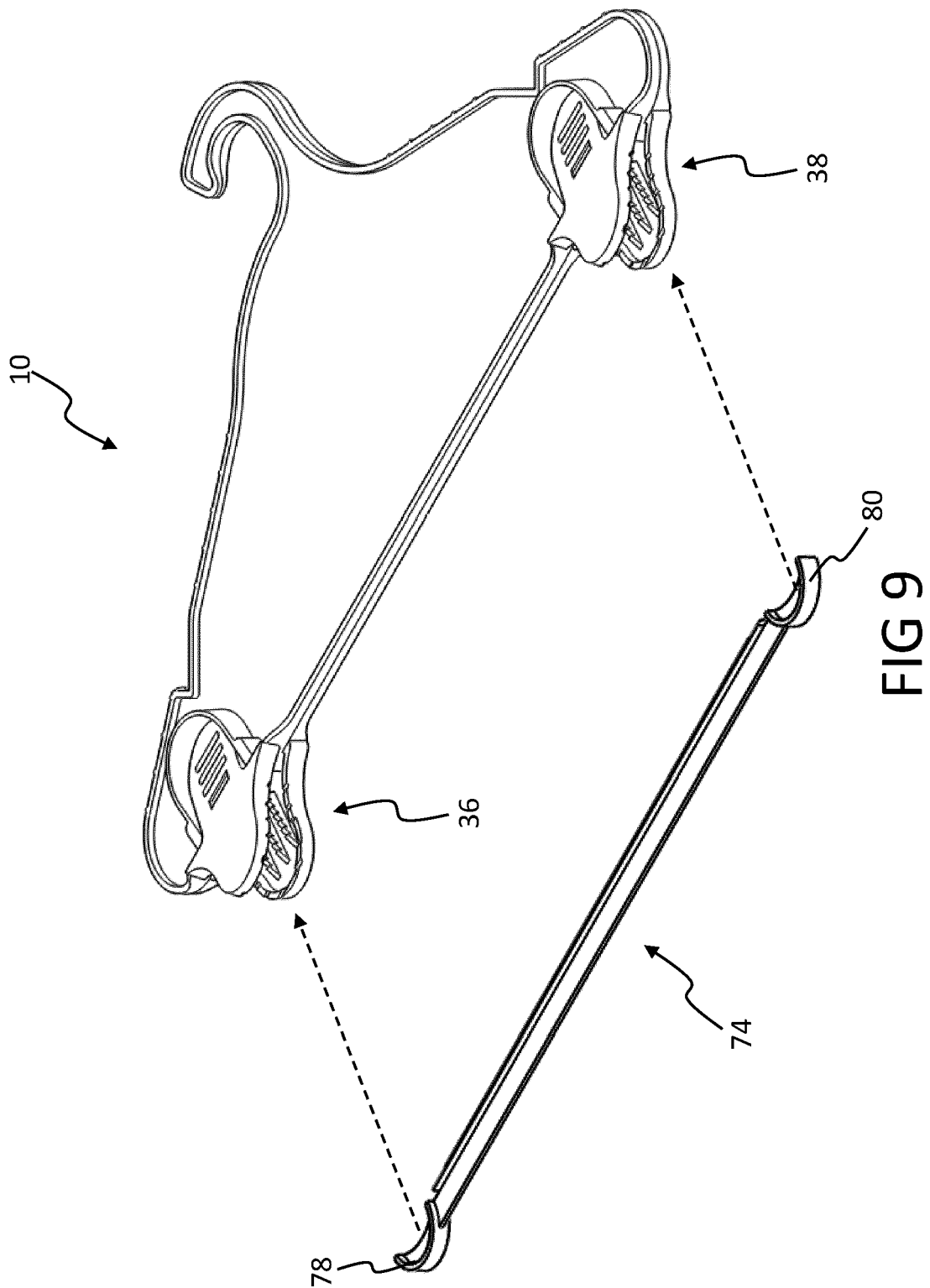


FIG 8



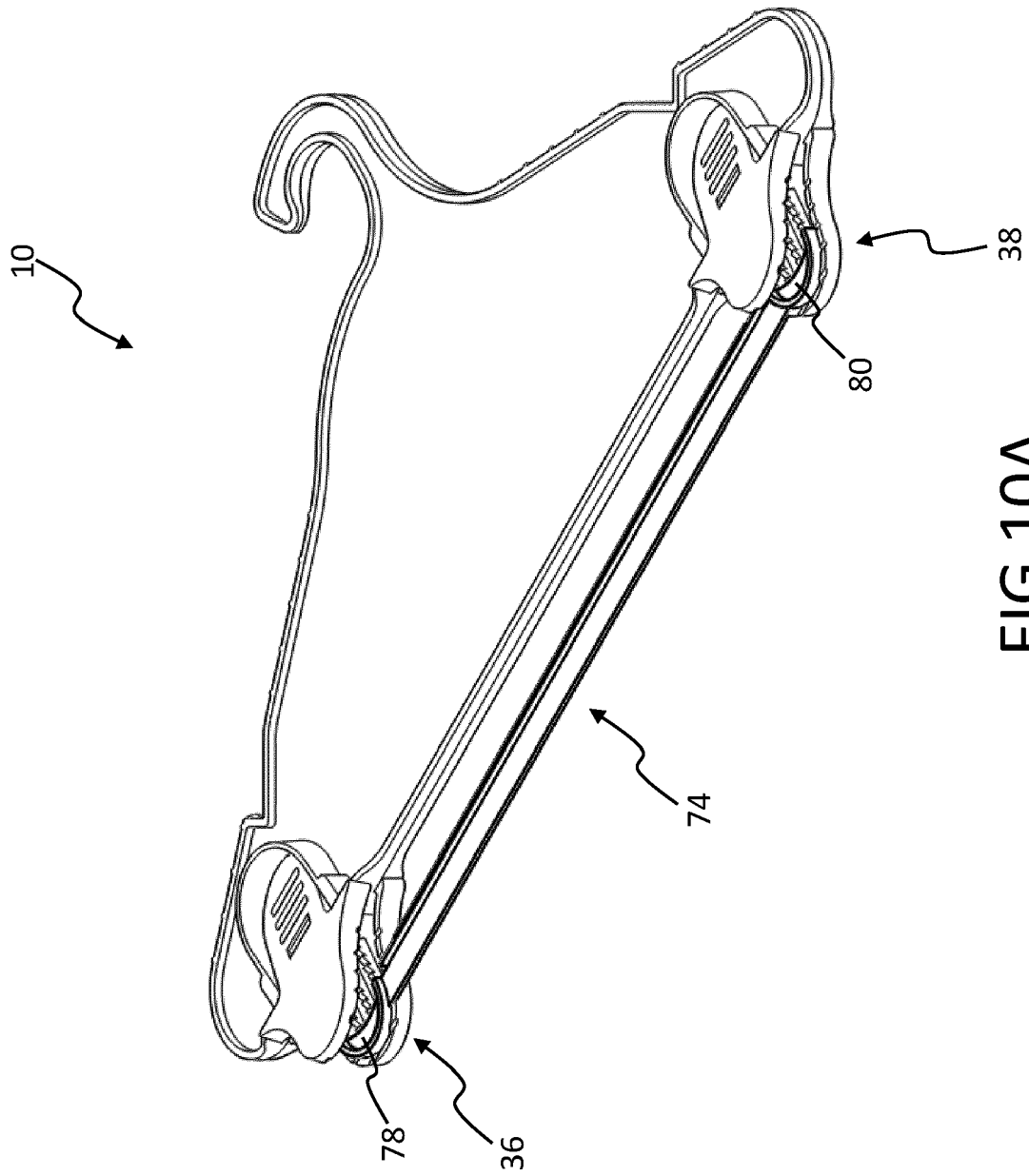


FIG 10A

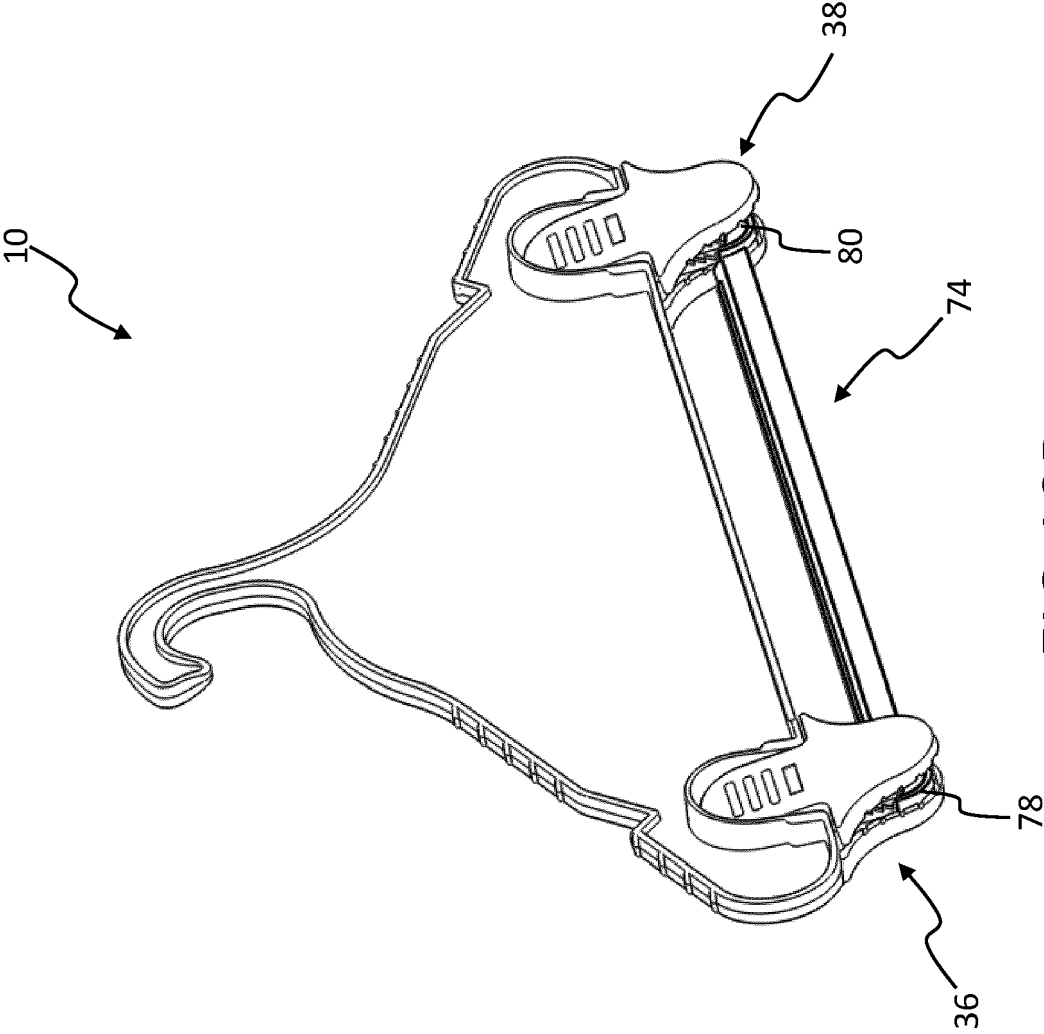


FIG 10B

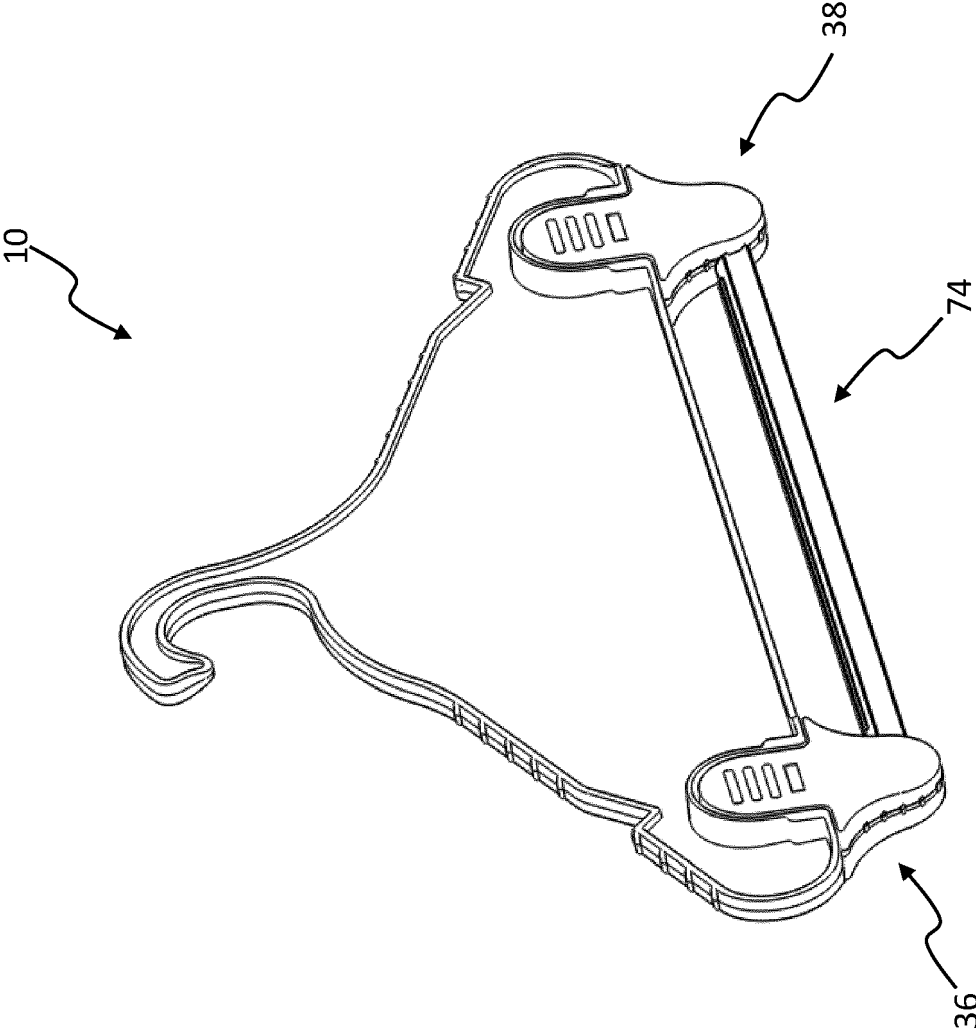
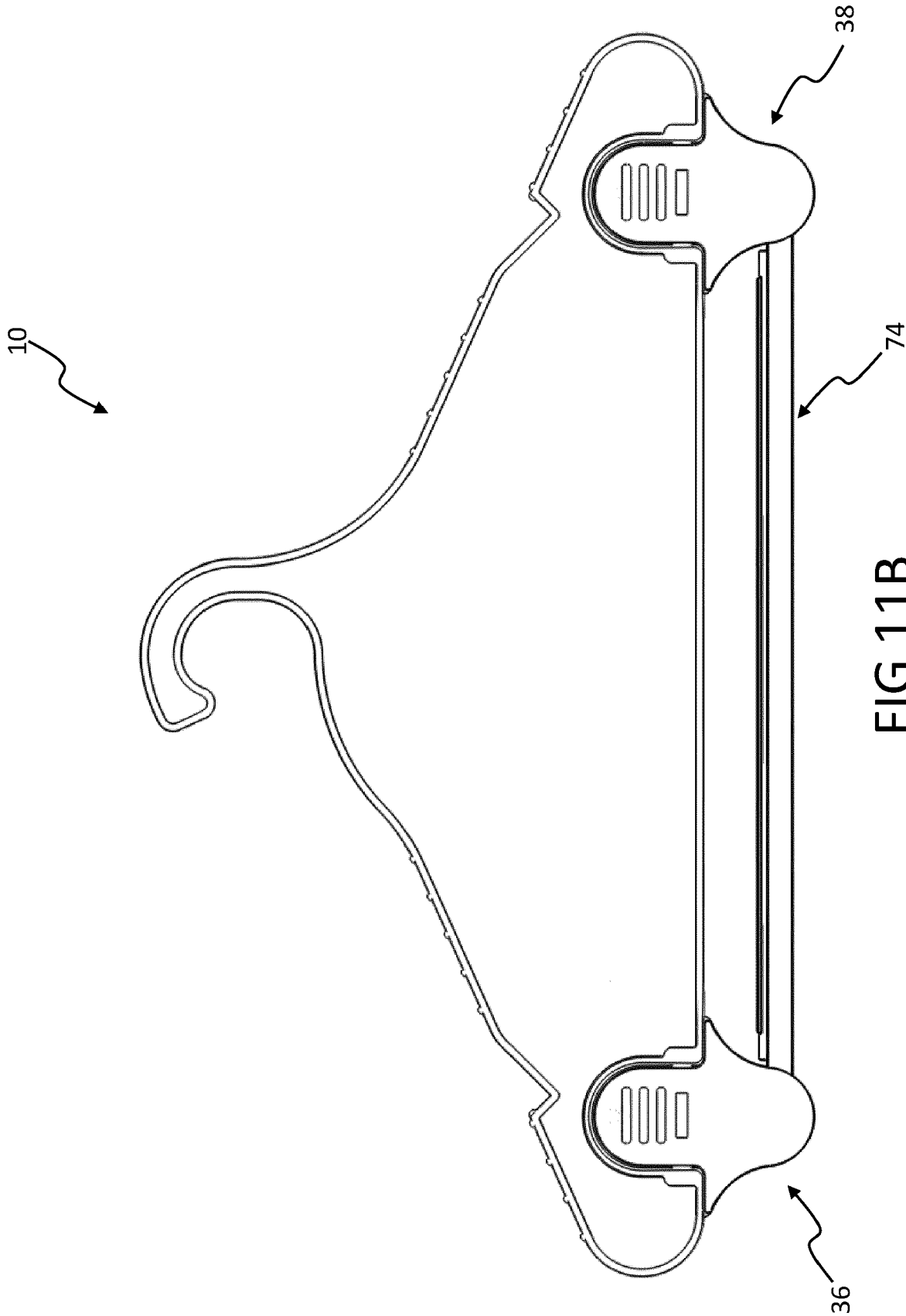


FIG 11A





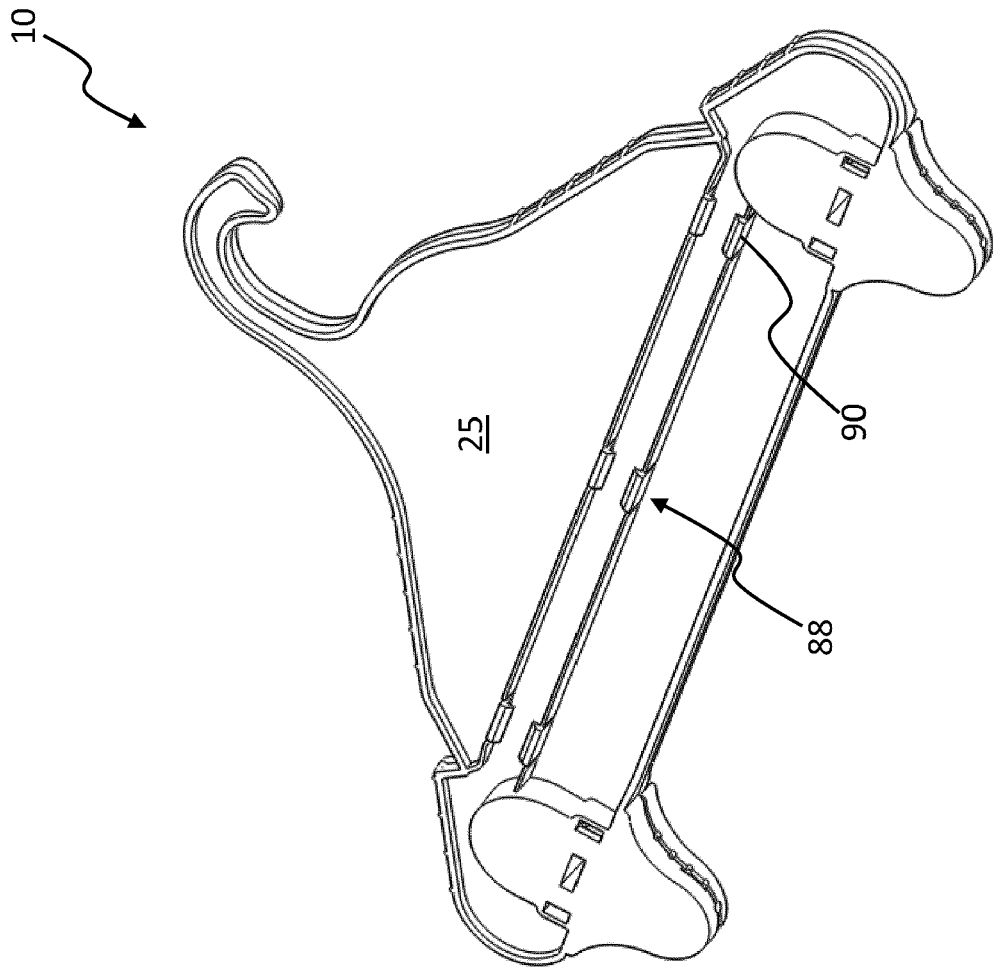


FIG 12A

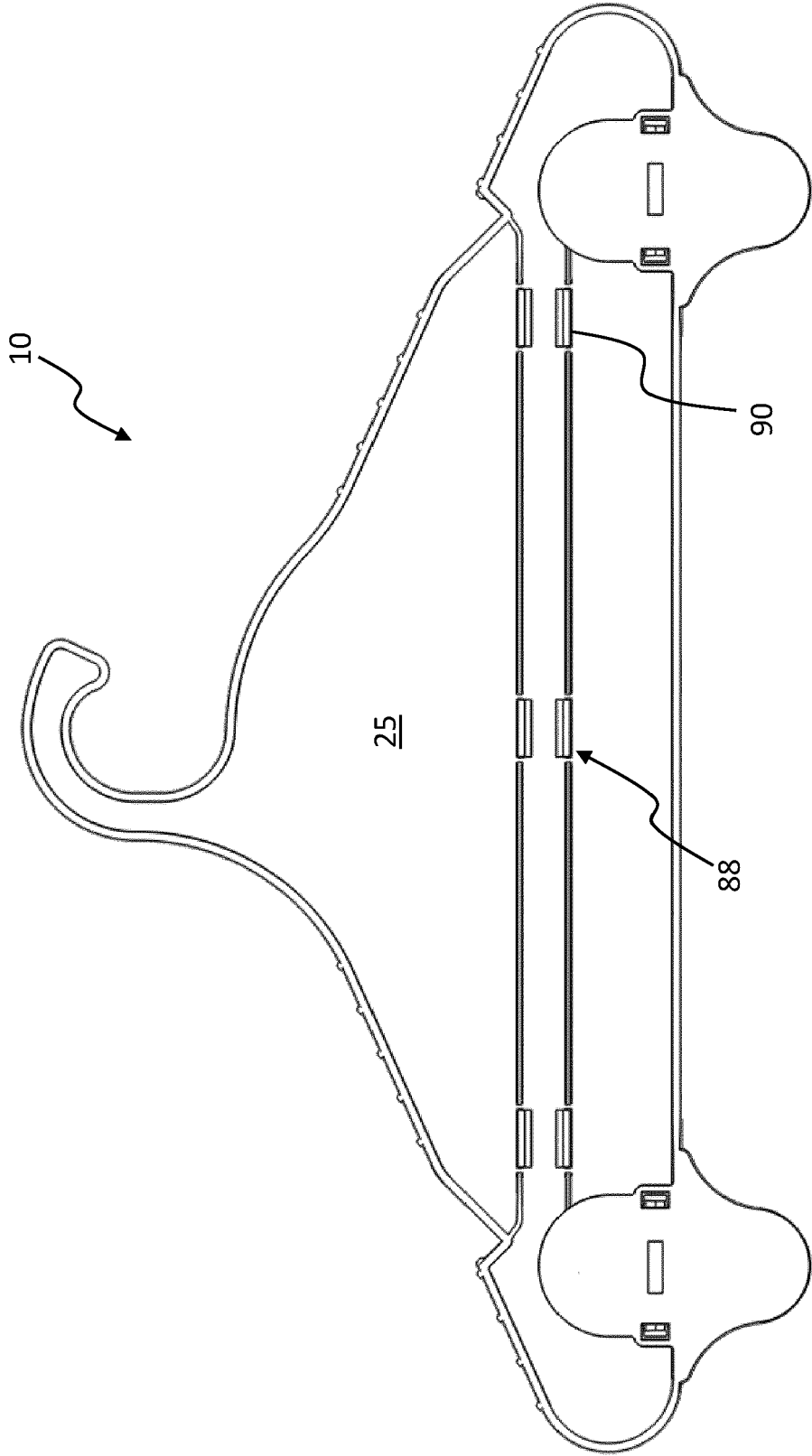


FIG 12B

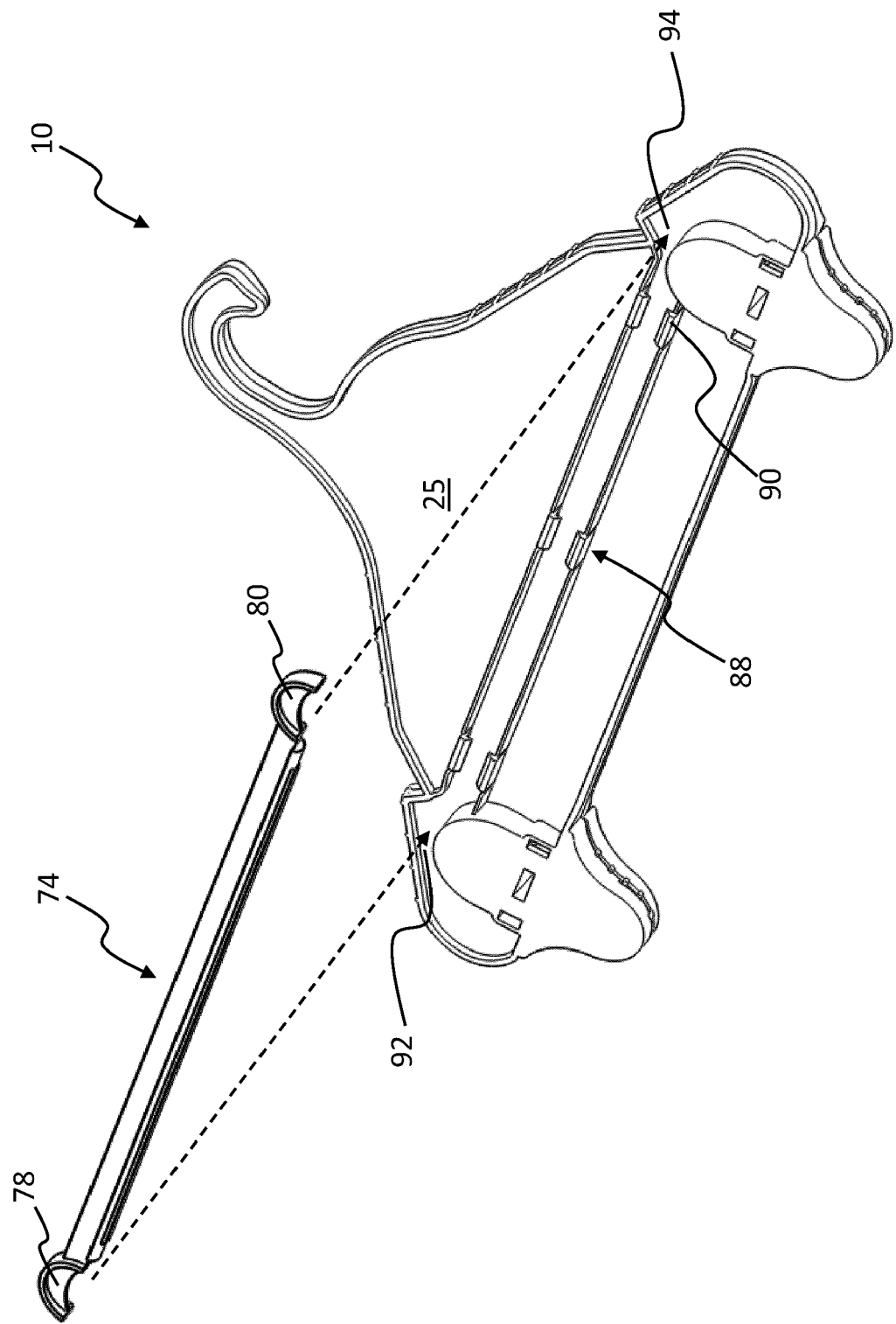


FIG 13

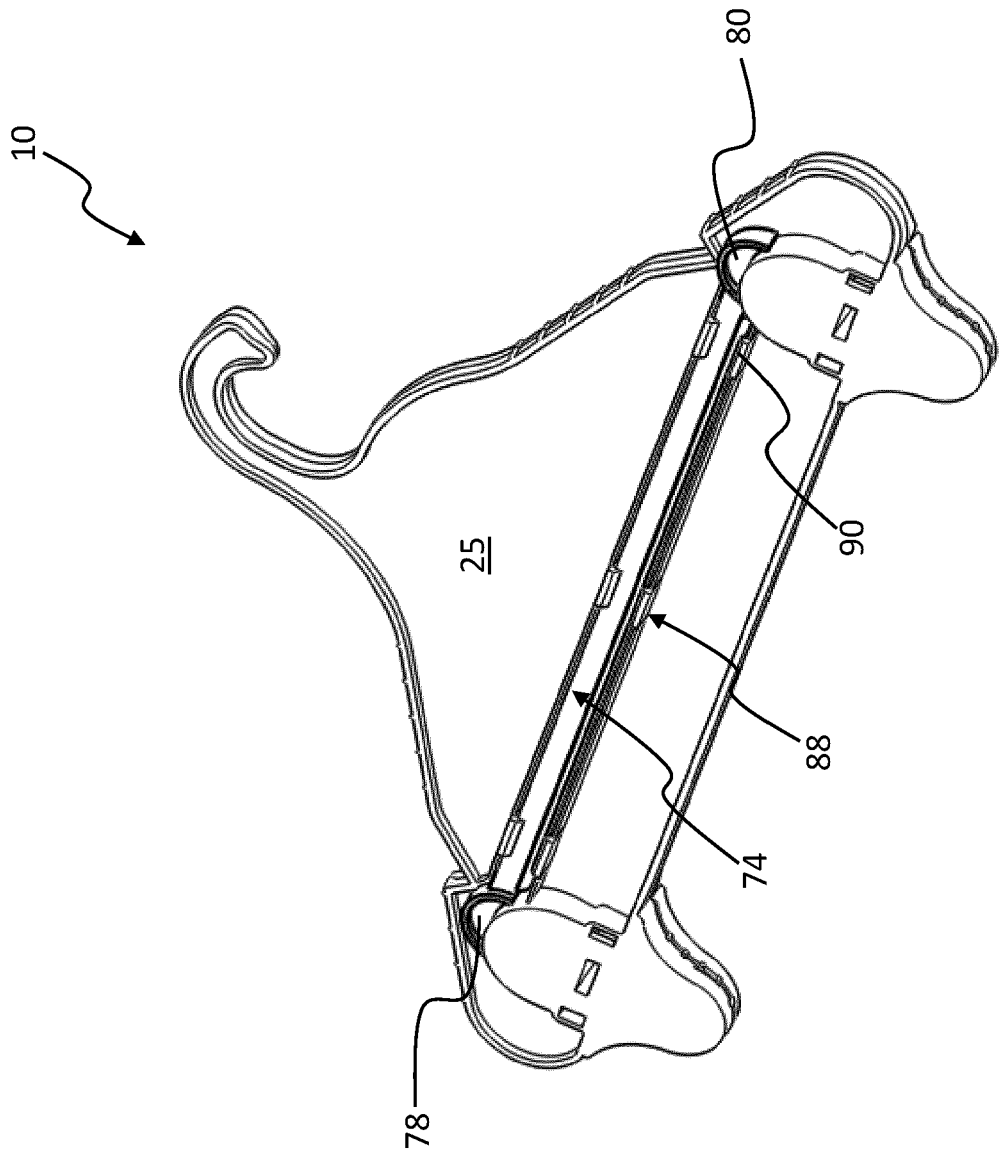


FIG 14A

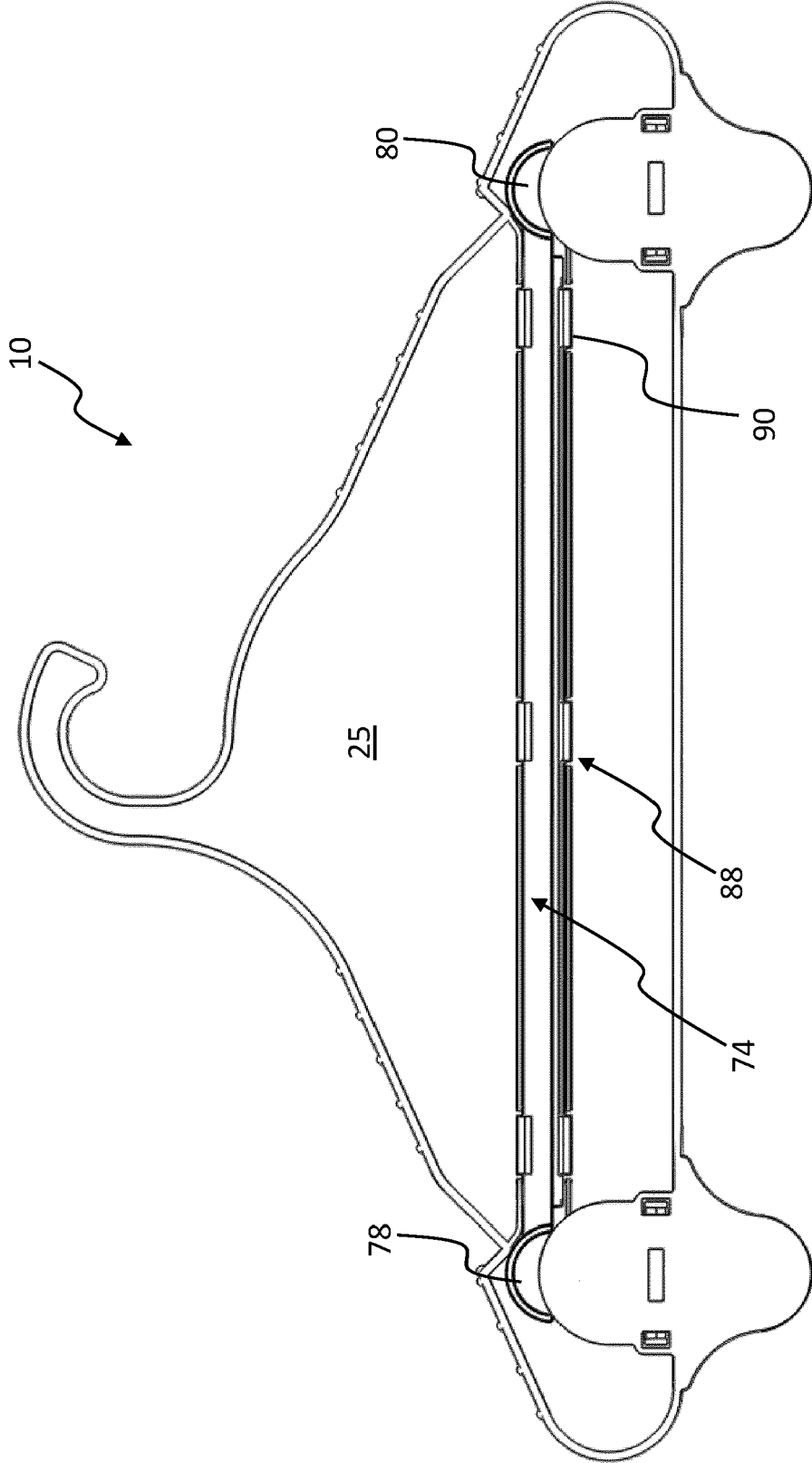


FIG 14B

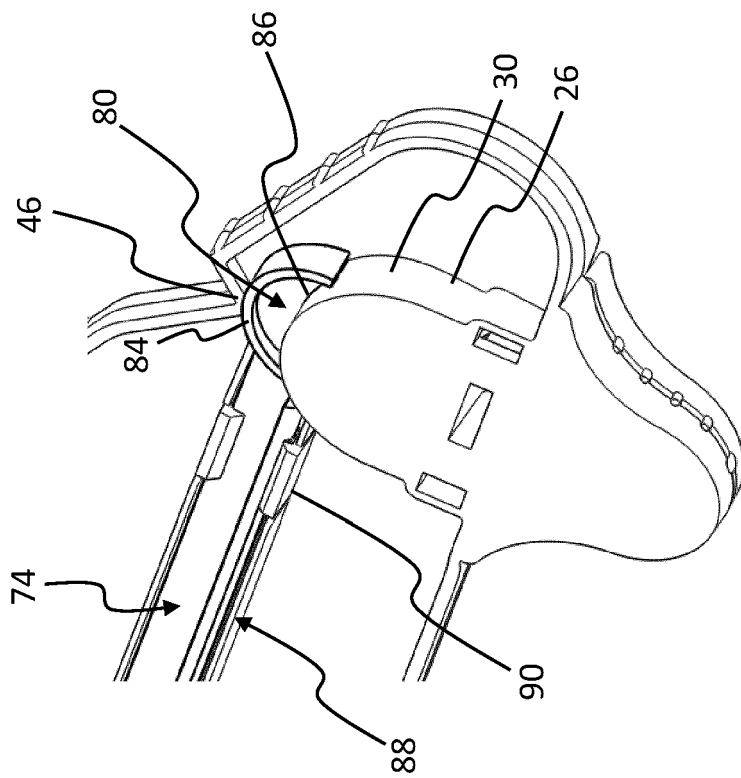


FIG 15

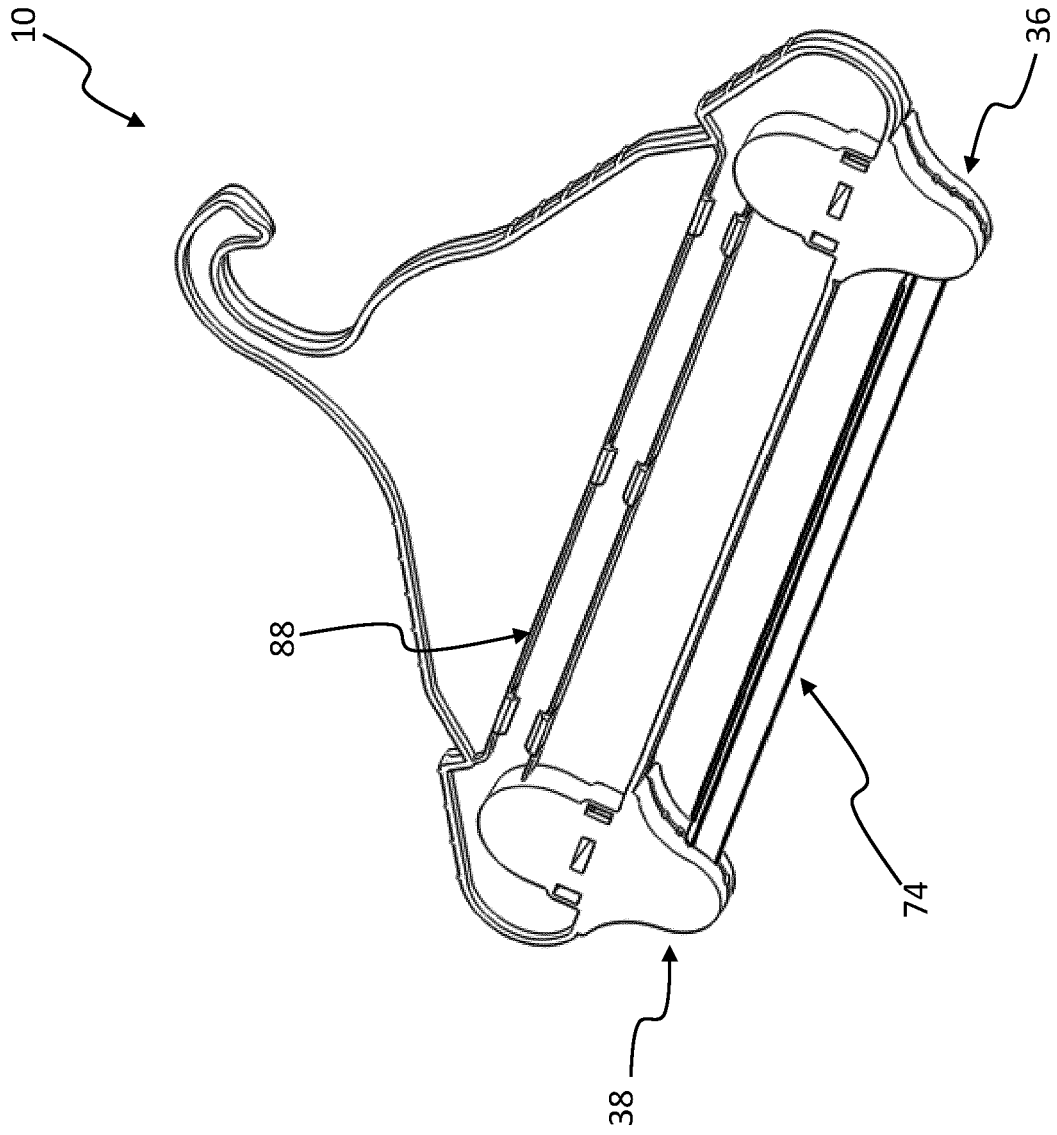


FIG 16A



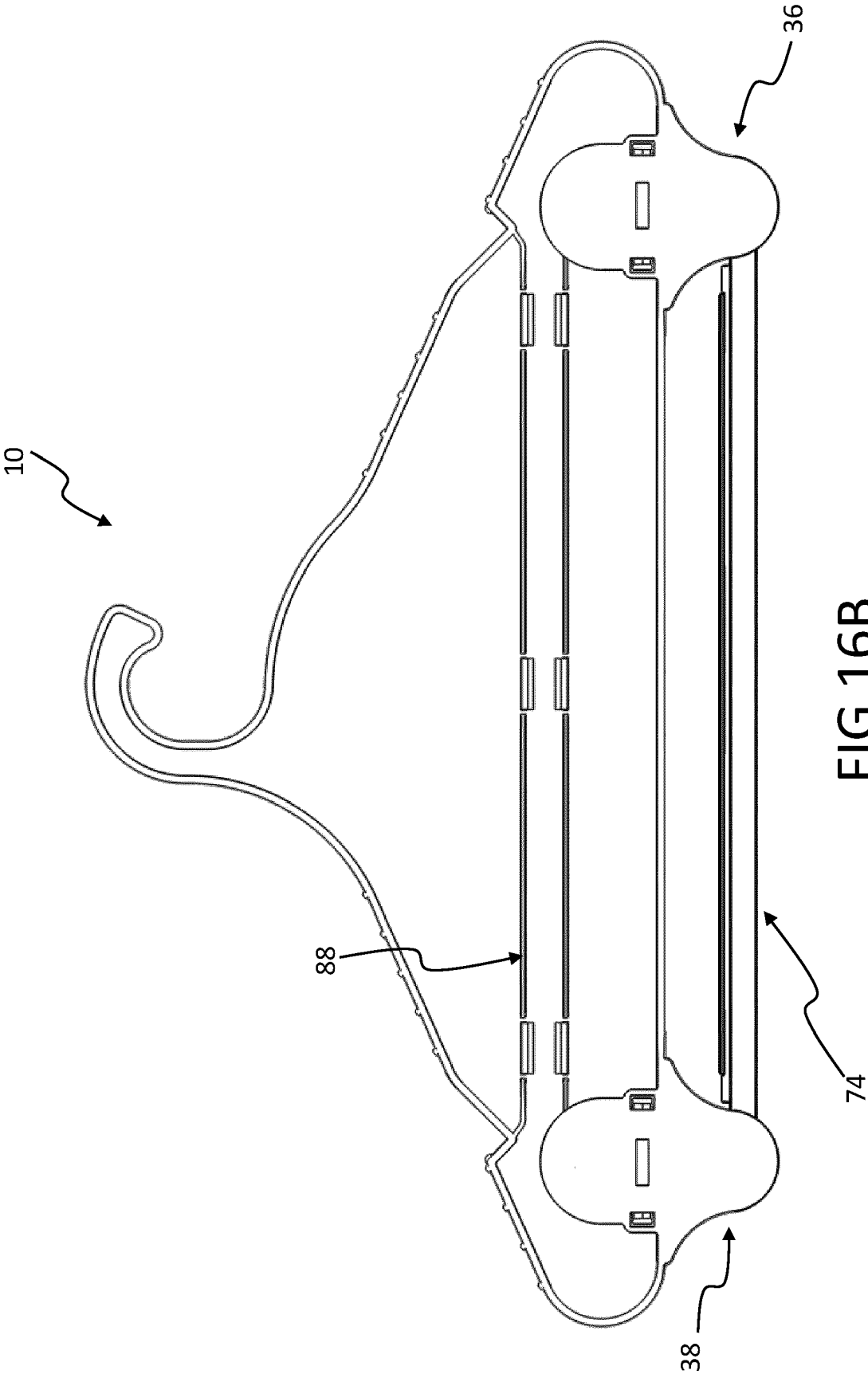


FIG 16B

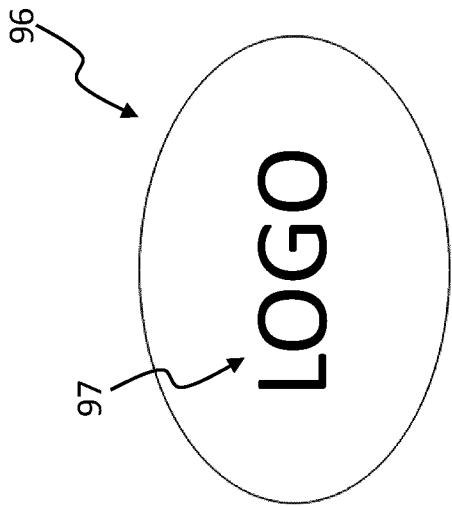


FIG 17A

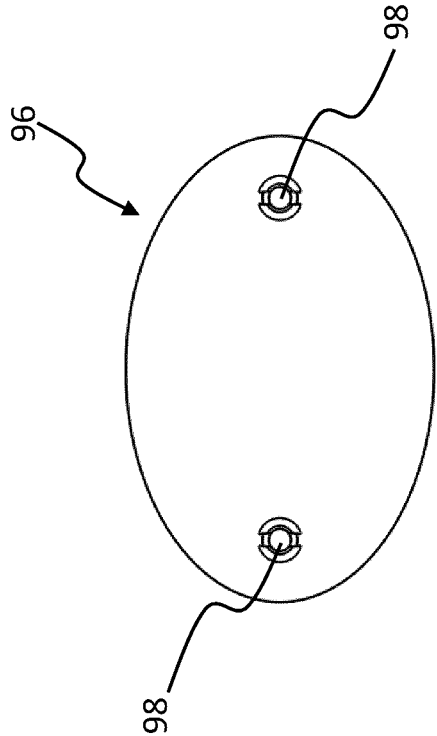


FIG 17B

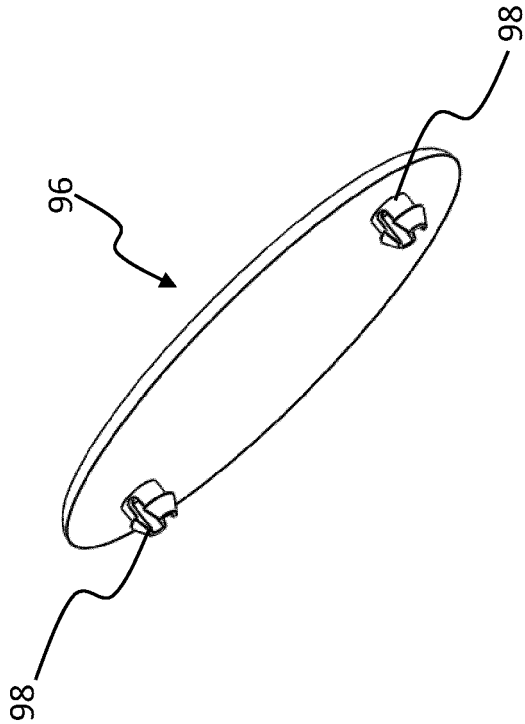


FIG 17C

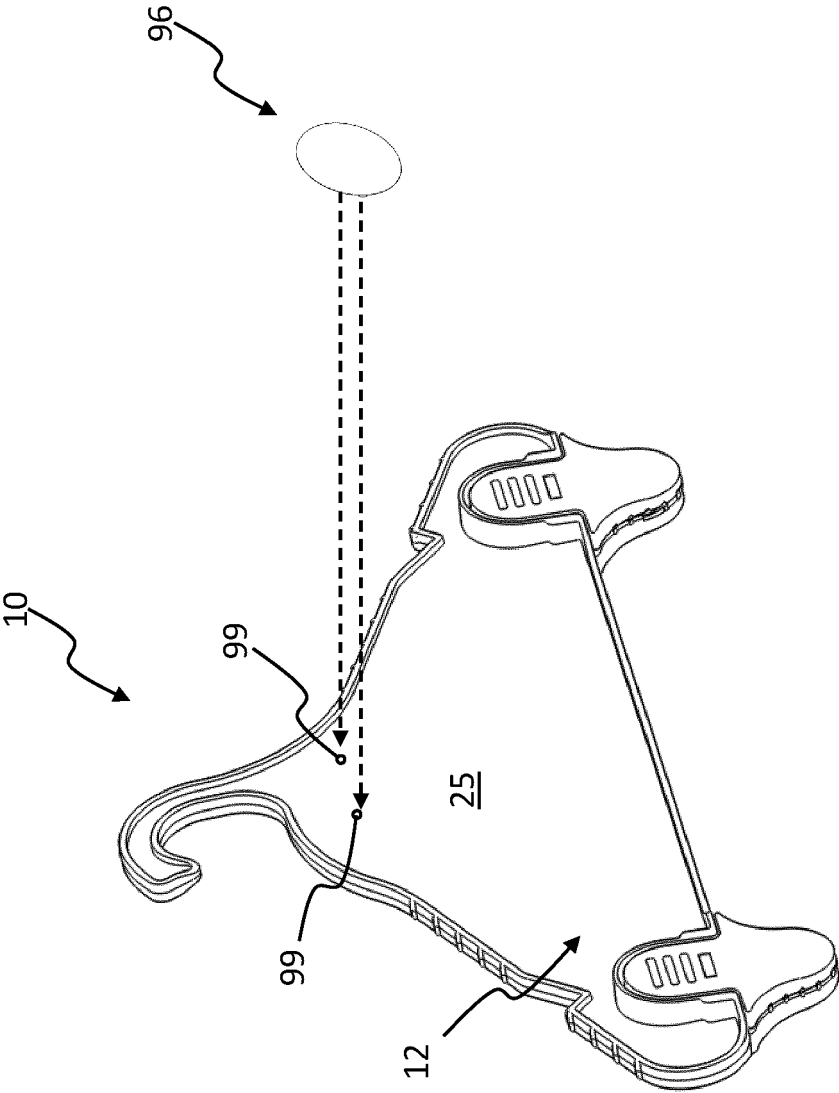


FIG 18



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 EP 20 15 6491

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Y	* abstract; figures 1-7 * * paragraphs [0007], [0024] *	9-11	A47G25/36 A47G25/48 A47G25/30 A47G25/32
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Y	* page 5, paragraph 4; figures 1-2 *	9-11	
X	US 2 408 344 A (WILLIAM SCURRAH) 24 September 1946 (1946-09-24)	1-8,14,15	
Y	* column 1, lines 39-55 - column 2, lines 1-12,43-46; figures 1-5 *	9-11	
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	* figure 1 *		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) A47G
Place of search The Hague		Date of completion of the search 24 July 2020	Examiner Longo dit Operti, T
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24-07-2020

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