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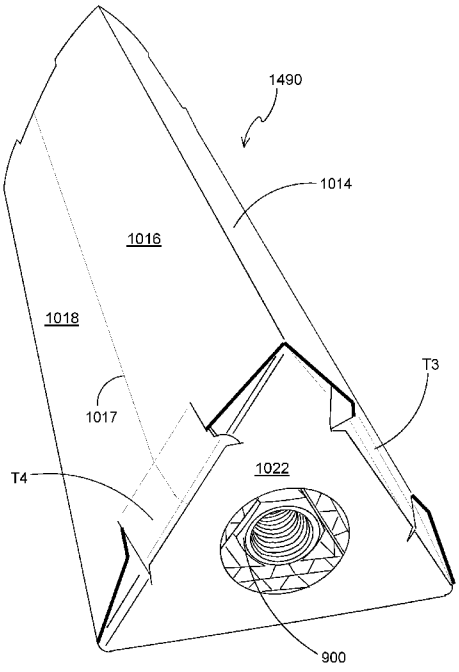

FIGURE 29

(57) Abstract: Aspects of the disclosure relate to a tap handle system (300), a tap handle (490) for a beverage dispenser, to a blank (10) for forming the tap handle (490), methods of use and erecting the tap handle (490). The tap handle (490) for a beverage dispenser comprising a core (90) formed from a plurality of plies of sheet material, wherein each of the plies is disposed in face contacting relationship to at least one other ply.

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HANDLE AND BLANK THEREFOR

TECHNICAL FIELD

The present invention relates to a handle and to a blank for forming the handle. More specifically, but not exclusively, the invention relates to a tap handle for a beverage dispenser.

BACKGROUND

Bar taps are well known, and are traditionally used in conjunction with a beverage dispenser to control the release of the beverage. Normally, the beverage dispenser will have one or more tap stems, to which a decorative tap handle may be attached. Decorative tap handles are designed and used to let customers know that a certain beverage is available and to entice them to try that beverage.

Specifically, and in one non-limiting example, beer breweries create tap handles of all shapes and sizes to brand their product, to lure new customers to try their beer and/or to let existing customers know which of their particular beverages are available at a given establishment. Indeed, decorative beer tap handles are often the primary marketing vehicle for some smaller scale breweries, such as micro and craft breweries. These breweries often rely on the eye-catching ability of their decorative tap handle to generate business and enlarge their customer base.

It is desirable to provide a low-cost tap handle which can provided a branding or information display region. It is also desirable that the tap handle is easily transported for example to temporary points of sale such as but not limited to outdoor events, festivals.

The present invention seeks to overcome or at least mitigate the problems of the prior art.

SUMMARY

Aspects of the disclosure relate to a tap handle system, a tap handle for a beverage dispenser, to a blank for forming the tap handle a tap handle sleeve and blank therefor, to methods of use and to methods of erecting the tap handle.

According to a first aspect of the present disclosure there is provided a tap handle for a beverage dispenser comprising a core formed from a plurality of plies of sheet material, wherein each of the plies is secured in face contacting relationship to at least one adjacent ply.

The present invention may be advantageously employed at temporary points of sale or distribution of a beverage for example but not limited to outdoor events, festivals, exhibitions, concerts, market stalls, the invention may be employed with jockey boxes or other portable beverage coolers.

The present invention provides a low cost or disposable tap handle which may be readily recycled. This may be advantageous where the required use of a particular, branded tap handle is temporary or short term.

The present invention may be advantageously employed at a point of sale or distribution (for example, but not limited to, in licenced premises such as a bar, restaurant, public house, nightclub) at which the beverage being dispensed from a particular beverage dispenser frequently or regularly changes.

Optionally, two or more of the plies of sheet material comprise cutaways, the cutaways being disposed in registry with each other, the cutaways each defining, in part, opposing side walls of a receptacle for receiving a portion of a tap assembly.

Optionally, a connection apparatus is provided in the receptacle for receiving said portion of the tap assembly.

Optionally, the receptacle comprises a keyway for aligning the tap handle with respect to the tap assembly.

Optionally, the receptacle comprises a keyway and the connection apparatus comprises a key mated with the keyway so as to inhibit rotation of the connection apparatus with respect to the tap handle.

Optionally, each one of the plurality of plies of sheet material is hingedly connected to another one of the plurality of plies of sheet material.

Optionally, the plurality of plies of sheet material are hingedly connected to one another in a linear series.

According to a second aspect of the present disclosure there is provided a tap handle for a beverage dispenser comprising a core formed from a plurality of plies of sheet material and an outer sleeve.

According to a third aspect of the present disclosure there is provided a tap handle for a beverage dispenser comprising a core formed from folded sheet material and an outer sleeve.

According to a fourth aspect of the present disclosure there is provided a tap handle for a beverage dispenser comprising a core, an outer sleeve mounted about the core, the outer sleeve having one or more surface for providing an information display region, and a connector for coupling the tap handle to a tap assembly.

Optionally, the core provides a lever for operation of a valve in the tap assembly.

Optionally, the tap assembly is a beer tap.

According to a fifth aspect of the present disclosure there is provided a sleeve removably mountable to a tap handle comprising a plurality of panels forming a tubular structure, at least one of plurality of panels providing an information display region.

Optionally, the tubular structure comprises an opening at one end for receiving the tap handle.

Optionally, the sleeve comprises at least one end closure panel for at least partially closing a first end of the tubular structure.

Optionally, the tubular structure is open at a second end for receiving at least a portion of the tap handle.

A sixth aspect of the present disclosure provides use of a sleeve, the sleeve having a plurality of panels forming a tubular structure, at least one of plurality of panels providing an information display region wherein use of the sleeve comprises removably mounting the sleeve to a tap handle of a beverage dispenser so as to provide information, said information being characteristic of the identity of a beverage being dispensed therefrom.

According to a seventh aspect of the present disclosure there is provided a method of mounting a tap handle to a tap assembly comprising:

stacking a plurality of panels in face to face relationship to form a stacked core;

aligning the plurality of panels with respect to each other;

securing the stacked core together;

receiving a tap stem in a receptacle defined by the stacked core.

Optionally, stacking the plurality of panels comprises folding a blank comprising a plurality of panels hingedly connected together.

Optionally, securing the stacked core comprises folding a strap about a portion of the stacked core.

Optionally, securing the stacked core comprises adhering the strap to at least one of the plurality of panels.

Optionally, the method further comprises:

erecting a sleeve to form a tubular structure; and

receiving the stacked core into the sleeve.

According to an eighth aspect of the present disclosure there is provided a blank for forming a tap handle comprising a plurality of panels for forming a multi-ply structure, wherein at least one of the plurality of panels comprises a securing strap hingedly connected thereto for securing the plurality of panels in face to face relationship with each other.

Optionally, at least one of the plurality of panels comprises a cutaway defining a recess for receiving at least a part of the securing strap.

According to a ninth aspect of the present disclosure there is provided a blank for forming a tap handle comprising a plurality of panels for forming a multi-ply structure, wherein one or more of the plurality of panels comprises a cutaway for forming a receptacle for receiving a component of a tap assembly.

Optionally, two or more of the plurality of panels each comprise a cutaway, wherein the cutaways are arranged to be in registry with each other when the blank is in an assembled condition so as to form the receptacle for receiving a component of a tap assembly.

Optionally, the plurality of panels are hinged one to the next in a linear series.

Optionally, each of the cutaways is defined in an end edge of the two or more of the plurality of panels so as to form a recess in the respective one of said two or more of the plurality of panels, wherein in set up condition each recess defines in part a pair of opposing side walls of the receptacle.

Optionally, the blank comprises a first outer panel and second outer panel for defining opposing end walls of the receptacle.

According to a tenth aspect of the present disclosure there is provided a blank forming a tap handle sleeve comprising:

a plurality of panels for forming walls of a tubular structure; and

at least one end closure panel for closing one end the tubular structure.

According to an eleventh aspect of the present disclosure there is provided a tap handle sleeve comprising a plurality of panels forming a tubular structure, at least one of plurality of panels providing an information display region.

According to a twelfth aspect of the present disclosure there is provided a handle system for a beverage dispenser comprising:

a support member formed from a plurality of plies of sheet material, wherein each of the plies is secured in face contacting relationship to at least one adjacent ply, the support member defining a receptacle;

an outer sleeve comprising a plurality of walls forming a tubular structure for receiving the support member, and wherein at least one of plurality of panels provides an information display region;

a connection apparatus mountable in the receptacle and comprising an attachment device for coupling the handle system to a tap stem of a beverage dispenser.

According to a thirteenth aspect of the present disclosure there is provided a tap handle for a beverage dispenser comprising a frame formed from a plurality of panels forming a tubular structure, the frame comprising at least one strut panel having a first cutaway forming a receptacle for coupling the frame to a tap stem.

Optionally, the at least one strut panel comprises a strut reinforcing panel hingedly connected thereto, the strut reinforcing panel comprising a second cutaway disposed in registry with the first cutaway and forming a part of the receptacle for coupling the frame to a tap stem.

According to a fourteenth aspect of the present disclosure there is provided a blank for forming a frame of a tap handle the blank comprising plurality of frame panels for forming a tubular structure, the plurality of frame panels hingedly connected to each other in a linear series, the blank comprising at least one strut panel hingedly connected to one of the plurality of frame

panels, the at least one strut panel having a first cutaway for forming a receptacle for coupling the frame to a tap stem.

Optionally, the blank comprises a strut reinforcing panel hingedly connected to the at least one strut panel, the strut reinforcing panel comprising a second cutaway disposed configured to be in registry with the first cutaway in a setup condition.

Optionally, the first and second cutaway are formed form an aperture struck in part from the at least one strut panel and in part from the strut reinforcing panel.

According to a fifteenth aspect of the present disclosure there is provided a tap handle for a beverage dispenser comprising a core formed from a plurality of plies of sheet material, wherein each of the plies is disposed in face contacting relationship with at least one other ply.

Optionally, the plurality of plies of sheet material define at least in part a receptacle for receiving a connection apparatus.

Optionally, the tap handle comprises at least one cutaway provided in at least one of the plurality of plies of sheet material, the at least one cutaway defining at least a portion of the receptacle for receiving a connection apparatus.

Optionally, the connection apparatus comprises an orifice for receiving a portion of a tap assembly.

Optionally, the connection apparatus comprises an anchor which is greater in lateral size than the remainder of the connection apparatus such that the anchor is received in the at least one cutaway so as to inhibit relative movement between connection apparatus and the core.

Optionally, the at least one cutaway comprises an aperture defined in at least one of the plurality of plies of sheet material.

Optionally, the at least one cutaway comprises a recess defined in at least one of the plurality of plies of sheet material.

Optionally, the at least one cutaway comprises at least one cutline defined in at least one of the plurality of plies of sheet material.

Optionally, the at least one cutline defines one or more displaceable tabs foldably coupled to the at least one of the plurality of plies of sheet material.

Optionally, the tap handle comprises a connection apparatus located within the receptacle, wherein a surface of at least one of the plurality of plies of sheet material is disposed in face contacting relationship with a surface of the connection apparatus so as to inhibit rotation of the connection apparatus with respect to the core.

Optionally, the connection apparatus is secured to the at least one of the plurality of plies of sheet material.

Optionally, the plurality of plies of sheet material are folded to form a spiral structure.

Optionally, the plurality of plies of sheet material are wrapped about the connection apparatus.

Optionally, the plurality of plies of sheet material form a tubular structure having a plurality of walls, at least one wall comprising at least two plies of sheet material.

Optionally, the connection apparatus comprises six external faces and the plurality of plies of sheet material are disposed in face contacting relationship with three of the external faces.

Optionally, the connection apparatus comprises a plurality of external faces and the plurality of plies of sheet material are disposed in face contacting relationship with alternating ones of the plurality of external faces.

Optionally, the connection apparatus comprises at least one detent for inhibiting rotation of the connection apparatus with respect to the core.

Optionally, the at least one detent comprises a lug extending from the connection apparatus.

Optionally, the at least one detent comprises a notch provided in the connection apparatus.

Optionally, the anchor comprises a head having a non-circular shape.

According to a sixteenth aspect of the present disclosure there is provided a method of mounting a tap handle to a tap assembly comprising:

wrapping a plurality of panels in about a connection apparatus to form a multi-ply tubular structure;

securing the tubular structure together;

receiving a tap stem in the connection apparatus.

Optionally, stacking the plurality of panels comprises folding a blank comprising a plurality of panels hingedly connected together.

Optionally, securing the tubular structure comprises adhering a first one of the plurality of panels to another one of the plurality of panels.

Optionally, the method further comprises:

erecting a sleeve to form a tubular structure; and

mounting the sleeve upon the tubular structure.

According to a seventeenth aspect of the present disclosure there is provided a handle system for a beverage dispenser comprising:

a support member formed from a plurality of plies of sheet material, wherein each of the plies is disposed in face contacting relationship with at least one other ply, the support member defining a receptacle;

an outer sleeve comprising a plurality of walls forming a tubular structure for receiving the support member, and wherein at least one of plurality of walls provides an information display region;

a connection apparatus mountable in the receptacle and comprising an attachment device for coupling the handle system to a tap stem of a beverage dispenser.

Within the scope of this application it is envisaged and intended that the various aspects, embodiments, examples, features and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings may be taken independently or in any combination thereof. For example, features described in connection with one embodiment are applicable to all embodiments unless there is incompatibility of features.

BRIEF DESCRIPTION OF THE DRAWINGS

Exemplary embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a plan view from above of a blank for forming a support member according to a first embodiment;

Figure 2 is a perspective view from above of a connection apparatus;

Figure 3 is a perspective view of a support member formed from the blank of Figure 1;

Figure 4 is a plan view from above of a blank for forming a sleeve according to a first embodiment;

Figure 5 is a perspective view of a sleeve formed from the blank of Figure 4;

Figures 6 and 7 illustrate an exemplary beverage dispenser to which the support member may be attached;

Figure 8 is a perspective view of a partially assembled sleeve formed from the blank of Figure 4;

Figure 9 is a perspective view of a tap handle formed from the support member of Figure 1 and the connection apparatus of Figure 2;

Figure 10 is a perspective view of a tap handle formed from the support member of Figure 1, the connection apparatus of Figure 2 and the sleeve of Figure 5;

Figure 11 is a perspective view of the tap handle of Figure 10 mounted to the beverage dispenser of Figures 6 and 7;

Figure 12 is a plan view from above of a blank for forming a sleeve according to a second embodiment;

Figure 13 is a plan view from above of a blank for forming a support member according to a second embodiment;

Figure 14 is a perspective view of a sleeve and a support member formed from the blanks of Figures 12 and 13 respectively, wherein they are coaxially aligned with each other so that the support member is ready to be inserted into the sleeve; and

Figure 15 is an alternative perspective view of a sleeve and a support member formed from the blanks of Figures 12 and 13, wherein they are coaxially aligned with each other; and

Figure 16 is a plan view from above of a blank for forming a support member according to a third embodiment;

Figure 17 is a perspective view of the support member in a partially assembled form wherein a connection apparatus is placed into the support member;

Figure 18 is a perspective view of the support member in its fully assembled form;

Figure 19 is a plan view from above of a blank for forming a sleeve according to the third embodiment;

Figure 20 is a view of a tap handle formed from the support member of Figure 16, the connection apparatus in Figure 17 and the sleeve of Figure 19, showing the form wherein the lower end closure flaps of the sleeve are in their opened positions;

Figure 21 is a plan view from above of a blank for forming a support member according to a fourth embodiment;

Figure 22A is a perspective view from above of a connector member;

Figure 22B is a perspective view from above of an anchor for use with the connector member of Figure 22A;

Figure 22C is a perspective view from above of a partially assembled connection apparatus formed from the anchor of Figure 22B and the connector member of Figure 22A;

Figure 22D is a perspective view from above of a fully assembled connection apparatus formed from the anchor of Figure 22B and the connector member of Figure 22A;

Figure 22E is a perspective view from above of an alternative anchor for use with the connector member of Figure 22A;

Figure 23 is a perspective view of a tap handle comprising a support member formed from the blank of Figure 1 and the connection apparatus of Figure 22D;

Figure 24 is a plan view from above of a blank for forming a sleeve according to a fourth embodiment;

Figure 25 and 26 illustrate stage of construction of a sleeve from the blank of Figure 24;

Figure 27 is a perspective view from above of a sleeve formed from the blank of Figure 24;

Figure 28 is a view of a tap handle formed from the support member of Figure 23, the connector apparatus of Figure 22D and the sleeve of Figure 27, showing the form wherein the lower end closure panel of the sleeve is in its opened position; and

Figure 29 is a view of a tap handle formed from the support member of Figure 23, the connector apparatus of Figure 22D and the sleeve of Figure 27, showing the form wherein the lower end closure panel of the sleeve is in its closed position.

DETAILED DESCRIPTION OF EMBODIMENTS

Detailed descriptions of specific embodiments of a tap handle, a support member, a sleeve, blanks, methods of use, methods of assembly, a connection apparatus and a tap handle system are disclosed herein. It will be understood that the disclosed embodiments are merely examples of the way in which certain aspects of the disclosure can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. As used herein, the word “exemplary” is used expansively to refer to embodiments that serve as illustrations, specimens, models, or patterns. Indeed, it will be understood that the tap handle, support member, sleeve, blanks, methods of use, methods of assembly, connection apparatus and the tap handle system described herein may be embodied in various and alternative forms. The Figures are not necessarily to scale and some features may be exaggerated or minimised to show details of particular components. Well-known components, materials or methods are not necessarily described in great detail in order to avoid obscuring the present disclosure. Any specific structural and functional details disclosed herein are not to be

interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the invention.

Referring to Figure 1, there is shown a plan view of a blank 10 capable of forming a core or support member 90, as shown in Figure 4, for forming at least part of a tap handle. Figure 4 shows a plan view of a blank 110 capable of forming a sleeve 190, as shown in Figure 5, for forming a part of a tap handle.

The blanks 10, 110 are formed from a sheet of suitable substrate. It is to be understood that, as used herein, the term "suitable substrate" includes all manner of foldable sheet material such as paperboard, corrugated board, cardboard, plastic, combinations thereof, and the like. It should be recognized that one or other numbers of blanks may be employed, where suitable, for example, to provide the carrier structure described in more detail below.

Referring to Figure 1, there is shown a first blank 10, first blank 10 comprises a plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 hinged one to the next in a linear series. The blank 10 comprises a first outer panel 12 hinged to a first inner panel 14 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 13. The first inner panel 14 is hinged to a second inner panel 16 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 15. The second inner panel 16 is hinged to a third inner panel 18 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 17. The third inner panel 18 is hinged to a fourth inner panel 20 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 19. The fourth inner panel 20 is hinged to a fifth inner panel 22 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 21. The fifth inner panel 22 is hinged to a sixth inner panel 24 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 23. The sixth inner panel 24 is hinged to a seventh inner panel 26 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 25. The seventh inner panel 26 is hinged to a second outer panel 28 by a hinged connection in the form of a pair of parallel, spaced apart fold lines 27.

Optionally, upper and lower end portions of the first outer panel 12 may be separated from upper and lower end portions of the first inner panel 14 by severance lines C1. Upper and lower end portions of the first inner panel 14 may be separated from upper and lower end portions of the second inner panel 16 by severance lines C2. Upper and lower end portions of the second inner panel 16 may be separated from upper and lower end portions of the third inner panel 18 by severance lines C3. Upper and lower end portions of the third inner panel 18 may be separated from upper and lower end portions of the fourth inner panel 20 by

severance lines C4. Upper and lower end portions of the fourth inner panel 20 may be separated from upper and lower end portions of the fifth inner panel 22 by severance lines C5. Upper and lower end portions of the fifth inner panel 22 may be separated from upper and lower end portions of the sixth inner panel 24 by severance lines C6. Upper and lower end portions of the sixth inner panel 24 may be separated from upper and lower end portions of the seventh inner panel 26 by severance lines C7. Upper and lower end portions of the seventh inner panel 26 may be separated from upper and lower end portions of the second outer panel 28 by severance lines C8.

Optionally, each of the pairs of parallel, spaced apart fold lines 15, 17, 19, 21, 23, 25 may be interrupted by a first cutaway or aperture A3.

Optionally, each of the pairs of parallel, spaced apart fold lines 13, 27 may be interrupted by a second cutaway or aperture A2.

Optionally, the first blank 10 comprises a first pair of tabs 30a, 32a hinged to the first outer panel 12 along a first side edge thereof. The first side edge opposes the hinged connection defined by the pair of fold lines 13. The first pair of tabs 30a, 32a comprises a first tab 30a hinged to a second tab 32a by a hinged connection in the form of a fold line 31a. The second tab 32a is hinged to the first outer panel 12 by a hinged connection in the form of a fold line 11.

Optionally, the first blank 10 comprises a second pair of tabs 30b, 32b hinged to the second outer panel 28 along a first side edge thereof. The first side edge opposes the hinged connection defined by the pair of fold lines 27. The second pair of tabs 30b, 32b comprises a third tab 30b hinged to a fourth tab 32b by a hinged connection in the form of a fold line 31b. The fourth tab 32b is hinged to the second outer panel 28 by a hinged connection in the form of a fold line 29.

The second inner panel 16 comprises a cutaway in the form of a first recess R1. The first recess R1 extends from a first or lower end of the second inner panel 16 towards the opposing second or upper end.

The third inner panel 18 comprises a cutaway in the form of a second recess R2. The second recess R2 extends from a first or lower end of the third inner panel 18 towards the opposing second or upper end.

The fourth inner panel 20 comprises a cutaway in the form of a third recess R3. The third recess R3 extends from a first or lower end of the fourth inner panel 20 towards the opposing second or upper end.

The fifth inner panel 22 comprises a cutaway in the form of a fourth recess R4. The fourth recess R4 extends from a first or lower end of the fifth inner panel 22 towards the opposing second or upper end.

The sixth inner panel 24 comprises a cutaway in the form of a fifth recess R5. The fifth recess R5 extends from a first or lower end of the sixth inner panel 24 towards the opposing second or upper end.

The first and fifth recesses R1, R5 may be narrower in width than the second, third and fourth recesses R2, R3, R4.

The first, second, third, fourth and fifth recesses R1, R2, R3, R4, R5 are arranged such that when the first blank 10 is in an assembled condition the first, second, third, fourth and fifth recesses R1, R2, R3, R4, R5 are aligned. In the assembled condition, the second, third, fourth, fifth and sixth panels 16, 18, 20, 22, 24 are in overlapping relationship; the second, third and fourth recesses R2, R3, R4 are in registry with each other so as to be aligned with each other in the direction of the thickness of the overlapping panels 16, 18, 20, 22, 24 (i.e., the “thickness direction”). Similarly, first and fifth recesses R1, R5 are in registry with each other so as to be aligned with each other in the thickness direction. The first and fifth recesses R1, R5 may be aligned centrally with respect to the second, third and fourth recesses R2, R3, R4.

Together the first, second, third, fourth and fifth recesses R1, R2, R3, R4, R5 form a receptacle or receiver in the support member 90 for holding a connection apparatus in the form of a connector member 200 (shown in Figure 2). The first, second, third, fourth and fifth recesses R1, R2, R3, R4, R5 in combination have the effect of defining or forming an orifice in the base of the support member 90.

Figure 2 shows a fitment or connector member 200, connector member 200 takes the form of a threaded insert or nut. The connector member 200 comprises an orifice or bore having an internal or female screw thread.

The connector member 200 may comprise a key in the form of a hexagonal screw drive which is provided by external faces of side walls of the connector member 200. The key mates with

the receptacle in the support member 90. The key may prevent or inhibit rotation of the support member 90 with respect to the connector member 200 when inserted in the receptacle. The key may allow the support member to serve as a driver or tool for mounting or screwing the connector member 200 onto a tap assembly 300 shown in Figures 6 and 7.

The key may also serve as an alignment device to align the support member 90 with respect to the connector member 200 and /or the tap assembly 300.

In other embodiments, the key may be omitted or may take alternative forms such as, but not limited to, a square or a pentagon drive, the connector member 200 may comprise an external or male screw thread as to fasten the connector member 200 to the support member 90 which provides a substrate into which the connector member 200 threads.

In yet other embodiments, the connector member 200 may be secured in the receptacle by glue or other adhesive treatment.

In some embodiments, the receptacle provided by the support member 90 may directly receive the male threaded portion 310 of the tap stem 330, the connector member 200 may be omitted. It will be appreciated that in alternative embodiments the screw thread may be omitted from the upper portion of the tap stem 330. The upper portion of the tap stem 330 may form a friction or interference fit with the support member 90.

Referring to Figure 4, there is shown a second blank 110 for forming the sleeve 190 of Figure 5. The blank 110 comprises a plurality of main panels 112, 114a, 114b, 116, 118a, 118b, 120 for forming walls of a tubular structure. The plurality of main panels 112, 114a, 114b, 116, 118a, 118b, 120 may be hinged one to the next in a linear series as shown. The blank 110 comprises a first side panel 112 hinged to a first end panel 114a by a hinged connection in the form of a fold line 113. The first end panel 114 is hinged to a second end panel 114a by a hinged connection in the form of a fold line 115. The first and second end panel 114a, 114b together form a first end wall of the tubular structure. The second end panel 114b is hinged to a second side panel 116 by a hinged connection in the form of a fold line 117. The second side panel 116 is hinged to a third end panel 118a by a hinged connection in the form of a fold line 119. The third end panel 118a is hinged to a fourth end panel 118b by a hinged connection in the form of a fold line 121. The third and fourth end panel 118a, 118b together form a second end wall of the tubular structure. A securing panel 120 is hinged to the fourth end panel 118b by a fold line 123.

Optionally, the second side panel 116 is tapered so as to be an isosceles trapezoid in shape. Similarly, the first side panel 112 may be tapered so as to be an isosceles trapezoid in shape. Optionally, the securing panel 120 may tapered so as to be an isosceles trapezoid in shape

The plurality of main panels 112, 114a, 114b, 116, 118a, 118b, 120 of the blank 110 form an open ended tubular structure in a set-up condition.

A first, upper, end of the tubular structure is at least partially closed by end closure panels. In the illustrated embodiment, the first end of the tubular structure is fully closed by end closure panels 124a, 124b, 126, 128, 130a, 130b.

A first end closure panel 124a is hinged to a first end of first end panel 114a by a hinged connection in the form of a fold line 123. A second end closure panel 124b is hinged to a first end of second end panel 114b by a hinged connection in the form of a fold line 123. A third end closure panel 126 is hinged to a first end of second side panel 116 by a hinged connection in the form of a fold line 125. A securing or tuck flap 128 is hinged to an end edge of the third end closure panel 126 by a hinged connection in the form of a fold line 127; said end edge opposes the hinged connection between the third end closure panel 126 and the second side panel 116. A fifth end closure panel 130a is hinged to a first end of third end panel 118a by a hinged connection in the form of a fold line 129. A sixth end closure panel 130b is hinged to a first end of fourth end panel 118b by a hinged connection in the form of a fold line 129. Together the first and second end closure panels 124a, 124b form a first minor end closure flap 124a/124b or dust flap. Together the fifth and sixth end closure panels 130a, 130b form a second minor end closure flap 130a/130b or dust flap.

Referring to the Figures, Figures 6 and 7 depict a perspective and side view respectively of one specific embodiment of a tap assembly 300 for use with the tap handle 490 according to the present disclosure. As shown in Figure 6 and 7, the tap handle 490 is adapted to work in conjunction with the tap stem 330. The tap stem 330 is an existing tap stem 330 as known to one of ordinary skill in the art, and as such controls the flow of a beverage through a tap 320 such as, without limitation, a pressure-dispense bar tap used to dispense beer or some other draught beverage. The upper portion 310 of standard tap stems are typically substantially cylindrical in shape and are threaded with a male thread. The tap stem 330 may comprise a 3/8 inch diameter, and have standard, male thread (typically 16 UNC (16 threads per inch, American Standard, Unified Coarse Thread Series, as defined under ANSI B 1.1)). In alternative embodiments, the tap stem 330 may comprise a 10mm diameter and have standard, male thread such as M10 x1.5mm (as defined under ISO 261: ISO general purpose

metric screw threads). The tap stem 330 may comprise such a standard upper tap stem portion, though it may also comprise any non-standard tap stem, including a tap stem with an alternative diameter or threading.

Turning to the construction of the support member 90 as illustrated in Figures 3 and 9, the support member 90 can be formed by a series of sequential folding operations so that the support member 90 is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 are folded to form a concertina fold, also known as a zig-zag fold, accordion fold or z-fold. The concertina fold is a continuous parallel folding of the material forming the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 in an accordion-like fashion, which is with folds alternatively made to the front and back in zig-zag folds.

The plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 are folded such that the first outer panel 12 forms a first side wall of the support member 90. The blank 10 comprises a first surface and a second opposing surface. The first surface of the first outer panel 12 provides a first outer surface of the support member 90. The second outer panel 28 forms a second side wall of the support member 90, the second surface of the second outer panel 28 provides a second, opposing, outer surface of the support member 90.

The second surface of the first outer panel 12 is disposed in face to face relationship with the second surface of the first inner panel 14.

The first surface of the second outer panel 28 is disposed in face to face relationship with the first surface of the seventh inner panel 26.

Opposing edges of each of the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 define or form opposing end walls E1, E2 of the support member 90.

The first apertures A3 form a tab recess in each of the opposing end walls E1, E2 of the support member 90. The second apertures A2 form further tab recesses in each of the first and second outer panels 12, 28.

The first pair of tabs 30a, 32a is folded about the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28. The second tab 32a is folded so as to be received in a first one of the tab recesses defined by the first apertures A3. The first tab 30a is folded with respect to the second tab 32a such that the first tab 30a is received in a first of the further tab recesses formed in the second outer panel 28.

The second pair of tabs 30b, 32b is folded about the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28. The fourth tab 32b is folded so as to be received in a second one of the tab recesses defined by the first apertures A3; the second one of the tab recesses is disposed on an opposing side of the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 to the first one of the tab recesses. The third tab 30b is folded with respect to the fourth tab 32b such that the third tab 30b is received in a second of the further tab recesses formed in the first outer panel 12.

The second tab 32a and the fourth tab 32b each form a bundling or securing strap. The second tab 32a and the fourth tab 32b maintain alignment of the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28.

The first tab 30a and the third tab 30b form securing tabs.

Glue G or other adhesive treatment may be applied to each of the first and third tabs 30a, 30b, in alternative embodiments, to a corresponding portion of the first and seventh inner panels 14, 26 exposed through the further tab recesses.

The first and third tabs 30a, 30b, may be secured to the first and seventh inner panels 14, 26 exposed through the further tab recesses.

Alternatively, the first and third tabs 30a, 30b may form a friction or interference fit within the further tab recesses.

In this way the first and second pairs of tabs 30a, 32a, 30a, 32a serve as securing devices for holding the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 in a folded condition.

Thus, each of the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 is held in face to face relationship with it adjacent neighbours.

In some embodiments the first and third tabs 30a, 30b may be omitted, the second tab 32a and the fourth tab 32b may be sufficient to hold the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28 in a folded or bundled condition. The second tab 32a and the fourth tab 32b may form a friction or interference fit in the tab recesses in the end walls E1, E2, in some embodiments glue or other adhesive treatment may be employed.

Turning to the construction of the sleeve 190 as illustrated in Figures 5 and 8, the sleeve 190 can be formed by a series of sequential folding operations in a straight-line machine so that the sleeve 190 is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The blank 110 is folded about the fold line 121 such that the fourth end panel 118b is brought into face contacting relationship with an inside surface of the third end panel 118a and the securing panel 120 is brought into face contacting relationship with an inside surface of the second side panel 116.

Glue or other adhesive treatment is applied to an outer surface of the securing panel 120 or, in alternative embodiments, to a corresponding portion of an inner surface of the first side panel 112.

The blank 110 is folded about fold line 115 such that the first end panel 114a is brought into face contacting relationship with an inside surface of the second end panel 114b and the first side panel 112 is brought into face contacting relationship with an outer surface of the securing panel 120.

The first side panel 112 is secured to the securing panel 120. In this way, a flat collapsed tubular structure or sleeve is formed. The sleeve 190 may be shipped or distributed in this flat collapsed form. The flat collapsed sleeve 190 may be erected into a tubular structure by separating the first and second side panel 112, 116.

The sleeve 190, in its open ended tubular form, may be loaded with the support member 90 through the second or upper end of the sleeve 190. It will be appreciated that in other embodiments the sleeve may be arranged such that the support member 90 is insertable into the sleeve 190 through either of the first and second ends.

Due to the tapered shape of the sleeve 190 and the tapered shape of the support member 90 the support member 90 is prevented or at least inhibited from being withdrawn or unintentionally exiting through the first, lower, open end of the sleeve 190.

Once the sleeve 190 is loaded with the support member 90 the second, upper end of the sleeve 190 is closed.

The second, upper end of the sleeve 190 is closed by folding the first minor end closure flap 124a/124b and the second minor end closure flap 130a/130b, about the fold lines 123, 129 respectively.

The third end closure panel 126 is folded about the fold line 125 and the securing flap 128 is folded about the fold line 127. The securing flap 128 is inserted into the interior of the tubular structure of the sleeve 190, between the first side panel 112 and the support member 90. The third end closure panel 126 at least partially closes the second, upper end of the sleeve 190.

The connector member 200 is inserted into the receptacle in the base or lower end of the support member 90.

The connector member 200 may be inserted into the support member 90 prior to loading the support member 90 in the sleeve 190.

The connector member 200 may be inserted into the support member 90 after loading the support member 90 in the sleeve 190.

The support member 90, sleeve 190 and connector member 200 form component parts of a tap handle system.

An assembled tap handle 490 is shown in Figure 10. The tap handle 490 may be mounted to a tap assembly 300 such as that illustrated in Figures 6 and 7 to form a beverage dispenser.

A beverage dispenser is shown in Figure 11. An operator may engage the tap handle 490 employing it as a lever to open a valve in the tap assembly 300 such that a beverage is dispensed therethrough.

In alternative embodiments, the connector member 200 may be mounted to the tap assembly 300 prior to being inserted into the receptacle in the support member 90.

Referring now to Figures 12 to 15B, there is shown a second embodiment of the present disclosure. The second embodiment shares many common features with the first embodiment and therefore only the differences from the embodiment illustrated in Figures 1 to 3 will be described in detail.

Referring to Figure 12, there is shown an alternative second blank 510 for forming a sleeve 590 according to a second illustrated embodiment as shown in Figure 14A and 15A. The blank 510 comprises a plurality of main panels 512, 514, 516 for forming walls of a tubular structure. The plurality of main panels 512, 514, 516 may be hinged one to the next in a linear series as shown. The blank 510 comprises a first wall panel 512 hinged to a second wall panel 514 by a hinged connection in the form of a fold line 513. The second wall panel 514 is hinged to a third wall panel 516 by a hinged connection in the form of a fold line 515.

A securing panel 518 is hinged to the first wall panel 512 by a hinged connection in the form of a fold line 517. The securing panel 518 is hinged along a first side edge of the first wall panel 512, the first side edge opposes a second side edge of the first wall panel 512 along which the second wall panel 514 is hinged thereto.

The second blank 510 comprises at least one locking tab for engaging the securing panel 518. The illustrated embodiment comprises three locking tabs 520A, 520B, 520C. The locking tabs 520A, 520B, 520C are hinged to a side edge of the third wall panel 516 by respective hinged connections in the form of fold lines 519A, 519B, 519C. The securing panel 518 comprises at least one locking tab receiver. The illustrated embodiment comprises three locking tab receivers S3, S4, S5. Each of the locking tab receivers S3, S4, S5 is arranged to receive a respective one of the locking tabs 520A, 520B, 520C. In the illustrated embodiment, the locking tab receivers S3, S4, S5 take the form of slits or cut lines. The slits are dimensioned to receive one of the locking tabs 520A, 520B, 520C. The slits may interrupt the fold line 517 between the first wall panel 512 and the securing panel 518.

The plurality of main panels 512, 514, 516 of the blank 510 form an open ended tubular structure in a set-up condition which is secured in position by engaging each of the locking tabs 520A, 520B, 520C in a respective one of the locking tab receivers S3, S4, S5.

A first, upper, end of the tubular structure is at least partially closed by an end closure structure comprising end closure panels. In the illustrated embodiment, the first end of the tubular structure is fully closed by end closure panels 524, 526, 530.

A first end closure panel 524 is hinged to a first end of first wall panel 512 by a hinged connection in the form of a fold line 523. A second end closure panel 526 is hinged to a first end of second wall panel 514 by a hinged connection in the form of a fold line 525. A third end closure panel 530 is hinged to a first end of third wall panel 516 by a hinged connection in the form of a fold line 527.

A first securing or tuck flap 528a is hinged to a first free edge of the second end closure panel 126 by a hinged connection in the form of a fold line 527a. A second securing or tuck flap 528b is hinged to a second free edge of the second end closure panel 126 by a hinged connection in the form of a fold line 527b. A third end closure panel 530 is hinged to a first end of third wall panel 516 by a hinged connection in the form of a fold line 527.

The first end closure panel 524 comprises a first securing flap receiver S1. The first securing flap receiver S1 is arranged to receive the first securing flap 528a. The second end closure panel 530 comprises a second securing flap receiver S2. The second securing flap receiver S2 is arranged to receive the second securing flap 528b. In the illustrated embodiment, the first and second securing flap receivers S1, S2 take the form of slits or cut lines. The slits are dimensioned to receive a respective one of the first and second securing flaps 528a, 528b. A slit may interrupt each of the fold lines 523, 527.

Turning to the construction of the sleeve 590 as illustrated in Figures 14A and 15A, the sleeve 590 can be formed by a series of sequential folding operations in a straight-line machine so that the sleeve 590 is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The securing panel 518 is folded about fold line 517 with respect to the first wall panel 512. The locking tabs 520A, 520B, 520C are folded about fold lines 519A, 519B, 519C respectively. The first wall panel 512 is folded about fold line 517, the third wall panel 516 is folded about fold line 515 towards the first wall panel 512. Each of the locking tabs 520A, 520B, 520C are inserted into a respective one of the locking tab receivers S3, S4, S5.

In this way, a tubular structure is formed having a triangular cross-sectional shape.

An end of the tubular structure is closed by folding the first and third end closure panel 524, 530 about fold lines 523, 527.

The first and second securing flaps 528a, 528b are folded about fold lines 529a, 529b respectively.

The second end closure panel 526 is then folded about fold line 525 towards the first and third end closure panel 524, 530. The first and second securing flaps 528a, 528b are inserted into the first and second securing flap receivers S1, S2 so as to secure the end closure structure in closed condition, as shown in Figure 15A.

Turning to Figure 13, there is shown an alternative first blank 610 for forming a support member or frame 690 according to a second illustrated embodiment as shown in Figure 14B and 15B. The first blank 610 comprises a plurality of main panels 612, 614, 616, 618, 620, which may be hinged one to the next in a linear series. The blank 610 comprises a first strut panel 612 hinged to a first frame panel 614 by a hinged connection in the form of a plurality (three) parallel, spaced apart fold lines 613. The first frame panel 614 is hinged to a second frame panel 616 by a hinged connection in the form of a plurality (three) parallel, spaced apart fold lines 615. The second frame panel 616 is hinged to a third frame panel 618 by a hinged connection in the form of a plurality (three) parallel, spaced apart fold lines 617. The third frame panel 618 is hinged to a second strut panel 620 by a hinged connection in the form of a plurality (three) parallel, spaced apart fold lines 619.

A first strut reinforcing panel 622 is hinged to the first strut panel 612 by a hinged connection in the form of a plurality (three) parallel, spaced apart fold lines 621.

A second strut reinforcing panel 624 is hinged to the second strut panel 620 by a hinged connection in the form of a plurality (three) parallel, spaced apart fold lines 623.

A first aperture A1 is struck in part from the first strut reinforcing panel 622 and in part from the first strut panel 612. The first aperture A1 interrupts the hinged connection between the first strut reinforcing panel 622 and the first strut panel 612.

A second aperture A2 is struck in part from the second strut reinforcing panel 624 and in part from the second strut panel 620. The second aperture A2 interrupts the hinged connection between the second strut reinforcing panel 624 and the second strut panel 620.

The first aperture A1 defines a first cutaway or recess C1 in a lower end edge of the first strut panel 612.

The first aperture A1 defines a second cutaway or recess C2 in a lower end edge of the first strut reinforcing panel 622, when the first strut reinforcing panel 622 is folded about fold line 621 into face to face relationship with the first strut panel 612.

The second aperture A2 defines a third cutaway or recess C3 in a lower end edge of the second strut panel 620.

The second aperture A2 defines a fourth cutaway or recess C4 in a lower end edge of the second strut reinforcing panel 624, when the second strut reinforcing panel 624 is folded about fold line 623 into face to face relationship with the second strut panel 620.

Turning to the construction of the frame 690 as illustrated in Figures 14B and 15B, the frame 690 can be formed by a series of sequential folding operations. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The first and second strut reinforcing panels 622, 624 are folded about fold lines 621, 623 so as to be brought into face to face relationship with a lower portion of the respective one of the first and second strut panels 612, 620.

The first frame panel 614 is folded about fold line 615 and the first strut panel 612 is folded about fold line 613 so as to bring a free side edge of the first strut panel 612 into contact with an inner surface of the second wall panel 614.

The third frame panel 618 is folded about fold line 617 and the second strut panel 620 is folded about fold line 619 so as to bring a free side edge of the second strut panel 620 into contact with an inner surface of the second wall panel 614.

In this way first strut panel 612 and the second strut panel 620 space distal side edges of the first and third frame panels 614, 618 from the second frame panel. The first and the second strut panels 612, 620 form braces maintaining the frame 690 in a tubular structure.

The first and the second strut panels 612, 620 together with the first and second strut reinforcing panels 622, 624 define or provide a receptacle R for receiving the connector member 200 of Figure 2.

It will be appreciated that the frame 690 comprises a triangular cross-sectional shape, however in other embodiments the cross-sectional shape may be different. This may require the inclusion of additional frame panels.

The frame 690 is arranged such that is can be inserted into the sleeve 590 through an open end thereof, as indicated by direction arrow D1 in Figure 14A.

Referring now to Figures 16 to 20, there is shown a third embodiment of the present disclosure. The third embodiment shares many common features with the first embodiment and therefore only the differences from the embodiment illustrated in Figures 1 to 11 will be described in detail.

Referring to Figure 16, there is shown an alternative first blank for forming a support member or frame 790 according to a third illustrated embodiment as shown in Figure 18 and 20. Figure 16 shows a blank 710 capable of forming a core or support member 790, shown in Figure 18, for forming a part of a tap handle. Figure 19 shows a blank 810 capable of forming a sleeve 890, as partially shown in Figure 20, for forming a part of the tap handle.

Referring to Figure 16, there is shown a first blank 710 which includes a plurality of main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 hinged one to the next in a linear series. The blank 710 includes a first outer panel 712 hinged to a first inner panel 714 by a hinged connection in the form of a fold line 713. The first inner panel 714 is hinged to a second inner panel 716 by a hinged connection in the form of a fold line 715. The second inner panel 716 is hinged to a third inner panel 718 by a hinged connection in the form of a fold line 717. The third inner panel 718 is hinged to a fourth inner panel 720 by a hinged connection in the form of a fold line 719. The fourth inner panel 720 is hinged to a fifth inner panel 722 by a hinged connection in the form of a fold line 721. The fifth inner panel 722 is hinged to a sixth inner panel7 24 by a hinged connection in the form of a fold line 723. The sixth inner panel 724 is hinged to a seventh inner panel 726 by a hinged connection in the form of a fold line 725. The seventh inner panel 726 is hinged to an eighth inner panel 728 by a hinged connection in the form of a fold line 727. The eighth inner panel 728 is hinged to a ninth inner panel 734 by a hinged connection in the form of a fold line 733. The ninth inner panel 734 is hinged to a second outer panel 736 by a hinged connection in the form of a fold line 735.

References “C1” through “C10” denote optional severance lines each for separating the respective one of upper and lower end portions of one of the adjacent panels from the respective one of upper and lower end portions of the other adjacent panel.

Optionally, each of the fold lines 715, 717, 719, 721, 723, 725, 727, 733 may be interrupted by a respective one of first cutaways or apertures A3-A10.

Optionally, each of the fold lines 713, 735 may be interrupted by a respective one of second cutaways or apertures A2, A2.

Optionally, the first blank 710 comprises a first pair of tabs 730a, 732a hinged to the first outer panel 712 along a first side edge thereof. The first side edge opposes the hinged connection defined by the fold lines 713. The first pair of tabs 730a, 732a comprises a first tab 730a hinged to a second tab 732a by a hinged connection in the form of a fold line 731a. The second tab 732a is hinged to the first outer panel 712 by a hinged connection in the form of a fold line 711.

Optionally, the first blank 710 comprises a second pair of tabs 730b, 732b hinged to the second outer panel 736 along a first side edge thereof. The first side edge opposes the hinged connection defined by the fold lines 735. The second pair of tabs 730b, 732b comprises a third tab 730b hinged to a fourth tab 732b by a hinged connection in the form of a fold line 731b. The fourth tab 732b is hinged to the second outer panel 736 by a hinged connection in the form of a fold line 729.

The first and second outer panels 712, 736 each has a slot R6, R9 while the second and eighth inner panels 716, 728 each has a slot R7, R8. Those slots are R6-R9 are aligned with each other in the direction of the length of the blank 710 (i.e., the “longitudinal direction”). The slots R6, R9 are shorter in length than the slots R7, R8.

The first and ninth inner panels 714, 734 each has means for defining at least one engaging tab in the form of an inverted “T” shaped cut C11, C12. The shaped cuts C11, C12 each defines a pair of engaging tabs 740, 742; and 744, 746 in the respective one of the first and ninth inner panels 714, 734. The shaped cuts C11, C12 each is formed at a position generally aligned with the slots R6-R9 in the longitudinal direction of the blank 710.

The third, fourth, fifth, sixth and seventh inner panels 718, 720, 722, 724, 726 each has a receiving means in the form of a T-shaped recess R1, R2, R3, R4, R5. Each of the recesses R1-R5 extends from a first or lower end of the respective inner panel 718, 720, 722, 724, 726 towards the opposing second or upper end. All those recesses R1-R5 may be equal in size

and shape. Optionally, the recesses R1, R5 may be narrower in width than the second, third and fourth recesses R2, R3, R4.

When the first blank 710 is in an assembled condition wherein the first and second outer panels 712, 736 and the first, second, third, fourth, fifth, sixth, seventh, eighth and ninth inner panels 714, 716, 718, 720, 722, 724, 726, 728, 734 are in overlapping relationship, the recesses R1, R2, R3, R4, R5 are in registry with each other so as to be aligned with each other in the direction of the thickness of the overlapping panels 712, 736, 714, 716, 718, 720, 722, 724, 726, 728, 734 (i.e., the "thickness direction"). Similarly, the slots R6, R7, R8, R9 and cuts C11, C12 are in general alignment with each other in the thickness direction. The slots R6-R9 and cuts C11, C12 may be aligned with the respective portions of the T-shaped recesses R1-R5 which extend in the longitudinal direction.

Together the recesses R1, R2, R3, R4, R5 and the slots and cuts R6, R7, R8, R9, C11, C12 form a receptacle or receiver in the support member 790 for holding a connection apparatus 800, 802 (shown in Figure 17). The connection apparatus 800, 802 used with the third embodiment includes a connector member 800 that may be similar, if not identical, to the connector member 200 in the first embodiment and an anchor 802. The connector member 800 may be a threaded nut while the anchor 802 may be a wider or bulged member which is greater in diameter or otherwise in lateral size than the connector member 800. The anchor 802 illustrated in Figure 17 is a flanged or otherwise headed screw in the form of an elevator bolt 802 that is threadedly engageable with the connector member 800. The recesses R1, R2, R3, R4, R5 in combination have the effect of defining or forming, in the base of the support member 790, an orifice for receiving the connector member 800 while the slots and cuts R6-R9, C11, C12 in combination define, in the base of the support member 790, means for receiving the anchor 802. The cuts C11, C12, in particular, define the engaging tabs 740, 742, 744, 746 in the panels 714, 734 for stabilizing the position of the connector member. When the connector apparatus 800, 802 is received in the support member 790, those engaging tabs 740, 742, 744, 746 press down on the anchor 802 to prevent the connector member from playing or otherwise moving within the receptacle of the support member 790 in the direction perpendicular to the length of the blank 710 (i.e., the "vertical direction").

Optionally, the connection apparatus 800, 802 may be secured to the support member 790 by glue or other adhesive treatment.

Optionally, the connection apparatus 800, 802 may be of a one-piece construction wherein the anchor 802 is formed as an integral part of the connector member 800. Such a one-piece

apparatus may be formed of metal or plastic although any material may be used to form the connection apparatus as long as the material is suitable for connecting a tap handle to a tap assembly and capable of tolerating repetitive stress while the tap handle is operation.

The support member 790 of the third illustrated embodiment takes the form of a hyper-rectangle, also known as a right rectangular prism, a rectangular cuboid, or a rectangular parallelepiped. The plurality of main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 are each rectangular in shape. In contrast the plurality of main panels 12, 14, 16, 18, 20, 22, 24, 26, 28, of the blank 10 of the first illustrated embodiment (Figure 1) are each isosceles trapezoid in shape, such that the support member 90 of the first illustrated embodiment takes the form of a trapezoidal prism or truncated rectangular based pyramid.

Figure 19 shows a second blank 810 for forming the sleeve 890 a part of which is shown in Figure 20. The blank 810 comprises a plurality of main panels 812, 814, 816, 818, 820 for forming walls of a tubular structure. The plurality of main panels 812, 814, 816, 818, 820 may be hinged one to the next in a linear series as shown. The first side panel 812 is hinged to a first end panel 814 by a hinged connection in the form of a fold line 813. The first end panel 814 is hinged to a second side panel 816 by a hinged connection in the form of a fold line 815. The second side panel 816 is hinged to a second end panel 818 by a hinged connection in the form of a fold line 817. The second end panel 818 is hinged to a securing panel 820 by a fold line 819.

Optionally, the first and second side panels 812, 816 each is rectangular. Similarly, and optionally, the securing panel 820 may be rectangular. Optionally, the first and second end panels 814, 818 each is rectangular. The main panels 812, 814, 816, 818, 820 of the blank 810 form an open ended tubular structure in a set-up condition.

A first, upper, end of the tubular structure is at least partially closed by end closure flaps. In the illustrated embodiment, the first end of the tubular structure is fully closed by upper end closure flaps 824, 826, 828, 830.

The first upper end closure flap 824 is hinged to a first end of the first end panel 814 by a hinged connection in the form of a fold line 823. The second upper end closure panel 826 is hinged to a first end of the second side panel 816 by a hinged connection in the form of a fold line 825. The third upper end closure flap 830 is hinged to a first end of the second end panel 818 by a hinged connection in the form of a fold line 829. The securing or tuck flap 828 is hinged to an end edge of the second upper end closure panel 826 by a hinged connection in

the form of a fold line 827. The end edge of the tuck flap 828 opposes the hinged connection 825.

A second, lower, end of the tubular structure is at least partially closed by end closure flaps. In the illustrated embodiment, the second end of the tubular structure is partially closed by lower end closure flaps 832, 834, 836, 838.

The first lower end closure flap 832 is hinged to a second end of the first end panel 814 by a hinged connection in the form of a fold line 831. The second lower end closure panel 834 is hinged to a second end of the second side panel 816 by a hinged connection in the form of a fold line 833. The third lower end closure flap 838 is hinged to a second end of the second end panel 818 by a hinged connection in the form of a fold line 835. The securing or tuck flap 836 is hinged to an end edge of the second lower end closure panel 834 by a hinged connection in the form of a fold line 837. The end edge of the tuck flap 834 opposes the hinged connection 833. The second lower end closure panel 844 has a centrally located access aperture 840. The access aperture 840 allows the threaded upper portion 310 of the tap assembly 300 (see Figures 6 and 7) to access the connector member 800 in the support member 790 so that the upper portion 310 may be threadedly connected to the connection apparatus 800, 802.

Turning to the construction of the support member 790 as illustrated in Figures 17 and 18, the support member 790 can be formed by a series of sequential folding operations so that the support member 790 is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The plurality of main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 are folded to form a concertina fold, also known as a zig-zag fold, accordion fold or z-fold. The main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 are alternatively folded about their fold lines 713, 715, 717, 719, 721, 723, 725, 727, 733, 735 continuously in an accordion-like fashion to make the front and back in zig-zag folds. The plurality of main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 are folded such that the first outer panel 712 forms a first side wall of the support member 790. The blank 710 comprises a first surface and a second opposing surface. The first surface of the first outer panel 712 provides a first outer surface of the support member 790. The second outer panel 736 forms a second side wall of the support member 790. The second surface of the second outer panel 736 provides a second, opposing, outer surface of the support member 790. The second surface of the first

outer panel 712 is disposed in face to face relationship with the second surface of the first inner panel 714. The first surface of the second outer panel 736 is disposed in face to face relationship with the first surface of the ninth inner panel 734.

During the above described folding process, optionally, prior to the step of bringing the inner panel 722 into face to face contacting relationship with the inner panel 724, the connection apparatus 800, 802 is placed in the partially formed or half-formed receptacle in the base or lower end of the support member 790, as best illustrated in Figure 17 in which the anchor 802 is pre-connected to the connector member 800. After placing the connection apparatus 800, 802 in position, the other part of the support member 790 including the panels 722, 720, 718, 716, 714, 712 are folded over the connector member 800.

When all the main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 of the support member 790 are properly folded in the accordion fashion, the opposing edges of each of the main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 define or form the opposing end walls of the support member 71. The first apertures A3-A10 form a tab recess in each of the opposing end walls of the support member 790. The second apertures A2, A2 form further tab recesses in each of the first and second outer panels 712, 736. Then, the first pair of tabs 730a, 732a is folded about the main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736. The proximal tab 732a is folded so as to be received in a first one of the tab recesses defined by the first apertures A3, A5, A7, A9 and the first aperture A2 in the second outer panel 736. The distal tab 730a is folded with respect to the proximal tab 732a such that the distal tab 730a is received in the second aperture A2 in the second outer panel 736 where the distal tab 730a is glued or secured to the first surface of the ninth inner panel 734. The second pair of tabs 730b, 732b is folded about the main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736. The proximal tab 732b is folded so as to be received in a second one of the tab recesses defined by the first apertures A4, A6, A8, A10 and the first aperture A2 in the first outer panel 712. The second one of the tab recesses is disposed on the opposing side of the main panels 712, 714, 716, 718, 720, 722, 724, 726, 728, 734, 736 to the first one of the tab recesses. The distal tab 730b is folded with respect to the proximal tab 732b such that the distal tab 730b is received in the second aperture A2 in the first outer panel 712 where the distal tab 730b is glued or secured to the second surface of the first inner panel 714. The folding process for the support member 790 is thus complete, and the support member 790 in its fully assembled form is shown in Figure 18.

Turning to the construction of the sleeve 890 as illustrated in Figure 20, the sleeve 890 can be formed by a series of sequential folding operations in a straight-line machine so that the

sleeve 890 is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The blank 810 is folded about the fold line 813 such that the side panel 812 is brought into face contacting relationship with an inside surface of the end panel 814 and that of the side panel 816. The, the securing panel 820 and the end panel 818 are folded about the fold line 817 so that the securing panel 820 is brought into face contacting relationship with the outside surface of the side panel 812 where the securing panel 820 is glued or secured to the side panel 812. In this way, a flat collapsed tubular structure or sleeve 890 is formed. The sleeve 809 may be shipped or distributed in this flat collapsed form. The flat collapsed sleeve 890 may be erected into a tubular structure by separating the first and second side panels 812, 816 to allow them to be positioned in a spaced parallel relationship.

The erected sleeve 890, in its open ended tubular form, may be loaded with the fully assembled support member 790 through either end of the sleeve 890. Once the sleeve 890 is loaded with the support member 790, both the ends of the sleeve 890 is closed by means of the respective end closure flaps 824, 826, 828, 830, 832, 834, 836, 838 -thus preventing or inhibiting separation of the sleeve 890 from the support member 790. When the lower end closure flaps 832, 834, 836, 838 are closed, the outer end of the connector member 800 is exposed through the access aperture 840 so that connector member 800 is connectable to the upper portion 310 of the tap assembly 300 as shown in Figures 6 and 7.

In the tap handle of the third embodiment, the connector member 800 is prevented from slipping out of the receptacle of the support member 790 because of the anchor 802 which is stuck on the inside surface of the receptacle of the “T” configuration. For this reason, the connection apparatus 800, 802 may optionally be received in the receptacle without being adhered to the support assembly 790.

Referring now to Figures 21 to 29, there is shown a fourth embodiment of the present disclosure. The fourth embodiment shares many common features with the foregoing embodiments and therefore only the differences from the embodiments illustrated in Figures 1 to 20 will be described in detail.

Referring to Figure 21, there is shown an alternative first blank 910 for forming a support member or frame 990 according to a fourth illustrated embodiment as shown in Figure 23. Figure 21 shows a blank 910 capable of forming a core or support member 990, shown in

Figure 23, for forming a part of a tap handle 1490 (see Figure 29). Figure 24 shows a blank 1010 capable of forming a sleeve 1010, as shown in Figure 26, for forming a part of the tap handle.

Referring to Figure 21, there is shown a first blank 910 which includes a plurality of main panels 912, 914, 916, 918, 920, 922, 924, 926, 928, 934, 936, 938 hinged one to the next in a linear series. The blank 910 includes a first panel 912 hinged to a second panel 914 by a hinged connection in the form of a fold line 913. The second panel 914 is hinged to a third panel 916 by a hinged connection in the form of a fold line 915. The third panel 916 is hinged to a fourth panel 918 by a hinged connection in the form of a fold line 917. The fourth panel 918 is hinged to a fifth panel 920 by a hinged connection in the form of a fold line 919. The fifth panel 920 is hinged to a sixth panel 922 by a hinged connection in the form of a fold line 921. The sixth panel 922 is hinged to a seventh panel 924 by a hinged connection in the form of a fold line 923. The seventh panel 924 is hinged to an eighth panel 926 by a hinged connection in the form of a fold line 925. The eighth panel 926 is hinged to a ninth panel 928 by a hinged connection in the form of a fold line 927. The ninth panel 928 is hinged to a tenth panel 934 by a hinged connection in the form of a fold line 933. The tenth panel 934 is hinged to an eleventh panel 936 by a hinged connection in the form of a fold line 935. The eleventh panel 936 is hinged to a twelfth panel 938 by a hinged connection in the form of a fold line 937.

Optionally, each of the fold lines 915, 917, 919, 921, 923, 925, 927, 933, 935, 937 may be interrupted by a cutaway such as but not limited to a slit or slot at one or both ends thereof.

The first, second and third panels 912, 914, 916 each comprises a cutaway in the form of a slot R1, R2, R3 respectively. The slots R1, R2, R3 are aligned with each other in the direction of the length of the blank 910 (i.e., the “longitudinal direction”).

The fourth, fifth and sixth panels 918, 920, 922 each comprises a means for defining at least one engaging tab in the form of an inverted “T” shaped cut C1, C2, C3. Each of the shaped cuts C1, C2, C3 defines a pair of engaging tabs 940, 942; 944, 946 and 948, 950 in the respective one of the fourth, fifth and sixth panels 918, 920, 922. Each of the shaped cuts C1, C2, C3 is formed at a position generally aligned with the slots R1, R2, R3 in the longitudinal direction of the blank 910.

When the first blank 910 is in an assembled condition wherein the plurality of main panels 912, 914, 916, 918, 920, 922, 924, 926, 928, 934, 936, 938 are wrapped about each other to

form a spiral having a triangular shape. The first panel 912 is disposed innermost, the twelfth panel 938 is disposed outermost.

The plurality of main panels 912, 914, 916, 918, 920, 922, 924, 926, 928, 934, 936, 938 are wrapped about a connection apparatus 903 shown in Figure 22D. The connection apparatus 903 used with the fourth embodiment includes a connector member 900, see Figure 22A, that may be similar, if not identical, to the connector member 200 in the first embodiment and an anchor 902 that may be similar, if not identical, to the anchor 802 of the third embodiment.

The slots R1, R2, R3 each receive a portion of the anchor 902.

The anchor 902, shown in Figure 22B, comprises a flange or projection F optionally at a first end. The anchor 902 comprises a shaft SH extending from the flange. The shaft SH comprises an external screw thread TH2. Optionally, the anchor 902 comprises a screw drive SD; the illustrated embodiment comprises an external square screw drive, in other embodiments other suitable external or internal screw drives may be employed such as but not limited to Hex, pentagon, Torx, Pozidriv, Phillips, Slot. The screw drive SD facilitates tightening of the anchor 902 to the connector member 900. The shaft SH of the anchor 902 is received in an orifice or bore in the connector member 900, the bore of connector member 900 having an internal screw thread TH1 adapted to mate with the external screw thread TH2 of the shaft SH. The anchor 902 and the connector member 900 may be permanently or semi-permanently secured to each other. For example, but not limited to, the anchor 902 may be secured to the connector member 900 by the application of a thread-locking fluid, alternatively the connector member 900 may take the form of a locking nut. For example, but not limited to, the connector member 900 may comprise a nylon or other suitable plastic insert, optionally at one end thereof, for applying friction against the screw thread of the anchor 902. In other embodiments, the anchor 902 may be integral with connector member 900, that is to say, the connector member 900 may comprise a flange or radially extending projection or detent. Figure 22C illustrates the connection apparatus 903 in a partially assembled state, the connector member 900 is rotated with respect to the anchor 902, as indicated by direction arrow D1, to couple the anchor 902 to the connector member 900.

The connector member 900 may be a threaded nut while the anchor 902 may be a wider or bulged member which is greater in lateral size or diameter than the connector member 900. The anchor 902 illustrated in Figure 22B is a flanged or headed screw in the form of an elevator bolt 902 that is threadedly engageable with the connector member 900.

Together the slots R1, R2, R3 and the cuts C1, C2, C3 form a receptacle or receiver in the support member 990 for holding the connection apparatus 903 (shown in Figure 22D).

The slots R1, R2, R3 each receive a portion of the flange of the anchor 902 when the first, second and third panels 912, 914, 916 are wrapped about the connection apparatus 903. The first, second and third panels 912, 914, 916 form tubular structure having a substantially triangular cross-sectional shape. The inner surface of each of the first, second and third panels 912, 914, 916 may be brought into face contacting relationship with an external face of the connector member 900, best shown in Figure 23. This may prevent or inhibit rotation of the connection apparatus 903 with respect to the support member 990.

The fourth, fifth and sixth panels 918, 920, 922 are folded about the first, second and third panels 912, 914, 916 in a spiral fashion such that an inner surface of the fourth panel 918 is brought into contact with an outer surface of the first panel 912. An inner surface of the fifth panel 920 is brought into contact with an outer surface of the second panel 914. An inner surface of the sixth panel 922 is brought into contact with an outer surface of the third panel 916.

The cuts C1, C2, C3 in the fourth, fifth and sixth panels 918, 920, 922 when folded about the first, second and third panels 912, 914, 916 are brought into registry with a respective one of the slots R1, R2, R3 and in combination have the effect of defining or forming a means for receiving the anchor 902. The cuts C1, C2, C3, in particular, define the engaging tabs 940, 942, 944, 946, 948, 950 in the panels 918, 920, 922 for stabilizing the position of the connection apparatus 903. When the connection apparatus 903 is disposed within in the support member 990, those engaging tabs 940, 942, 944, 946, 948, 950 press down on the anchor 902 to prevent the connector member 900 from playing or otherwise moving within the receptacle of the support member 990 in the direction perpendicular to the length of the blank 910 (i.e., the “vertical direction”).

Optionally, the connector member 900 and or the anchor 902 may be secured to the support member 990 by glue or other adhesive treatment.

The seventh, eighth and ninth panels 924, 926, 928 are folded about the fourth, fifth and sixth panels 918, 920, 922 in a spiral fashion such that an inner surface of the seventh panel 924 is brought into contact with an outer surface of the fourth panel 918. An inner surface of the eighth panel 926 is brought into contact with an outer surface of the fifth panel 926. An inner

surface of the ninth panel 928 is brought into contact with an outer surface of the sixth panel 922.

The tenth, eleventh and twelfth panels 934, 936, 938 are folded about the seventh, eighth and ninth panels 924, 926, 928 in a spiral fashion such that an inner surface of the tenth panel 934 is brought into contact with an outer surface of the seventh panel 924. An inner surface of the eleventh panel 936 is brought into contact with an outer surface of the eighth panel 926. An inner surface of the twelfth panel 938 is brought into contact with an outer surface of the ninth panel 928. The twelfth panel 938 may be secured to the ninth panel 928 by for example, but not limited to, adhesive or mechanical fixing means such as a staple or by a complementary locking means including locking tabs and receivers.

The tenth, eleventh and twelfth panels 934, 936, 938 form outermost panels of the support member 990 shown in Figure 23.

The connector member 900 comprises a plurality of external faces, in the illustrated embodiment six faces, and comprises a hexagonal cross-sectional shape. The plurality of main panels 912, 914, 916, 918, 920, 922, 924, 926, 928, 934, 936, 938 are wrapped about the connector member 900 and innermost panels 912, 914, 916 are disposed in face contacting relationship with alternating ones of the plurality of external faces of the connector member 900.

The plurality of main panels 912, 914, 916, 918, 920, 922, 924, 926, 928, 934, 936, 938 define a tubular structure. The tubular structure comprises a plurality of walls, in the illustrated embodiments the tubular structure comprises three walls. In other embodiments an alternative number of walls may be provided, for example but not limited to four, five or six walls; in such embodiments the connector member 900 may have an alternative number of external faces and or cross-sectional shape which may or may be equal to the number of walls of the tubular structure. Each of the plurality of walls of the tubular structure comprises a plurality of plies or layers. In the illustrated embodiment, each wall of the tubular structure comprises four plies.

Referring to Figure 24, there is shown a further alternative second blank 1010 for forming a sleeve 1090 according to the fourth illustrated embodiment as shown in Figure 27. The blank 1010 comprises a plurality of main panels 1012, 1014, 1016, 1018, 1020 for forming walls of an outer tubular structure. The plurality of main panels 1012, 1014, 1016, 1018, 1020 may be hinged one to the next in a linear series as shown. The blank 1010 comprises a first wall panel 1012 hinged to a second wall panel 1014 by a hinged connection in the form of a fold line

1013. The second wall panel 1014 is hinged to a third wall panel 1016 by a hinged connection in the form of a fold line 1015. The third wall panel 1016 is hinged to a fourth wall panel 1018 by a hinged connection in the form of a fold line 1017.

The first wall panel 1012 forms a first side wall of the tubular structure. The second wall panel 1014 forms a second side wall of the tubular structure. The third wall panel 1016 and the fourth wall panel 1018 together form a third side wall of the tubular structure.

A securing panel 1020 is hinged to the fourth wall panel 1018 by a hinged connection in the form of a fold line 1019.

The plurality of main panels 1012, 1014, 1016, 1018, 1020 of the blank 1010 form an open ended tubular structure in a set-up condition which is secured in position by securing the securing panel 1020 to the first wall panel 1012.

A first, upper, end of the tubular structure is at least partially closed by an end closure structure comprising end closure panels. In the illustrated embodiment, the first end of the tubular structure is fully closed by a first end closure panel 1022.

The first end closure panel 1022 is hinged, along a first edge, to a first end of first side wall panel 1012 by a hinged connection in the form of a fold line 1021C. The first end closure panel 1022 is substantially triangular in shape.

A first securing or tuck flap 1022A is hinged to a second edge of the first end closure panel 1022 by a hinged connection in the form of a fold line 1021A. A second securing or tuck flap 1022B is hinged to a third edge of the first end closure panel 1022 by a hinged connection in the form of a fold line 1021B.

The first end closure panel 1022 comprises a first securing flap receiver S1. The first securing flap receiver S1 is arranged to receive a second securing flap T2. The first end closure panel 1022 comprises a second securing flap receiver S2. The second securing flap receiver S2 is arranged to receive a first securing flap T1. In the illustrated embodiment, the first and second securing flap receivers S1, S2 take the form of slits or cut lines. The slits are dimensioned to receive a respective one of the first and second securing flaps T1, T2. A slit may interrupt each of the fold lines 1021A, 1021B.

The first securing flap T1 comprises a first portion 1030A extending from the first end of the second side wall panel 1014. The first securing flap T1 comprises a second portion 1030B struck from the second side wall panel 1014. The second portion 1030B is hinged to the second side wall panel 1014 by a hinged connection in the form of a fold line 1031B. The second portion 1030B is hinged to the first portion 1030A by a hinged connection in the form of a fold line 1031A.

The second securing flap T2 comprises a first portion 1032A extending from the first end of the third and fourth side wall panels 1016, 1018. The second securing flap T2 comprises a second portion 1032B struck in part from each of the third and fourth side wall panels 1016, 1018. The second portion 1032B is hinged to the each of the third and fourth side wall panels 1016, 1018 by a hinged connection in the form of a fold line 1033B. The second portion 1032B is hinged to the first portion 1032A by a hinged connection in the form of a fold line 1033A.

The fold line 1017 extends across both the first and second portions 1032A, 1032B of the second securing flap T2.

A second, lower, end of the tubular structure is at least partially closed by an end closure structure comprising end closure panels. In the illustrated embodiment, the second end of the tubular structure is fully closed by a second end closure panel 1024.

The second end closure panel 1024 is hinged, along a first edge, to a second end of first side wall panel 1012 by a hinged connection in the form of a fold line 1025C. The second end closure panel 1024 is substantially triangular in shape. The second end closure panel 1024 comprises an aperture A13 for receiving the threaded portion 310 of the tap stem 330.

A third securing or tuck flap 1026A is hinged to a second edge of the second end closure panel 1024 by a hinged connection in the form of a fold line 1025A. A fourth securing or tuck flap 1024B is hinged to a third edge of the second end closure panel 1024 by a hinged connection in the form of a fold line 1025B.

The second end closure panel 1024 comprises a third securing flap receiver S3. The third securing flap receiver S3 is arranged to receive a fourth securing flap T4. The second end closure panel 1024 comprises a fourth securing flap receiver S4. The fourth securing flap receiver S4 is arranged to receive a third securing flap T3. In the illustrated embodiment, the third and fourth securing flap receivers S3, S4 take the form of slits or cut lines. The slits are

dimensioned to receive a respective one of the third and fourth securing flaps T3, T4. A slit may interrupt each of the fold lines 1025A, 1025B.

The third securing flap T3 comprises a first portion 1034A extending from the second end of the second side wall panel 1014. The third securing flap T3 comprises a second portion 1034B struck from the second side wall panel 1014. The second portion 1034B is hinged to the second side wall panel 1014 by a hinged connection in the form of a fold line 1035B. The second portion 1034B is hinged to the first portion 1034A by a hinged connection in the form of a fold line 1035A. The first portion 1034A may comprise a shaped or contoured free edge, opposing the hinged edge defined by fold line 1035A, the free edge may be shaped so as to complement the aperture A13 thereby avoiding obstructing the aperture A13.

The fourth securing flap T4 comprises a first portion 1036A extending from the second end of the third and fourth side wall panels 1016, 1018. The fourth securing flap T4 comprises a second portion 1036B struck in part from each of the third and fourth side wall panels 1016, 1018. The second portion 1036B is hinged to the each of the third and fourth side wall panels 1016, 1018 by a hinged connection in the form of a fold line 1037B. The second portion 1036B is hinged to the first portion 1036A by a hinged connection in the form of a fold line 1037A. The first portion 1036A may comprise a shaped or contoured free edge, opposing the hinged edge defined by fold line 1037A, the free edge may be shaped so as to complement the aperture A13 thereby avoiding obstructing the aperture A13.

The fold line 1017 extends across both the first and second portions 1036A, 1036B of the fourth securing flap T4.

Turning to the construction of the sleeve 1090 as illustrated in Figures 25 to 27, the sleeve 1090 can be formed by a series of sequential folding operations in a straight-line machine so that the sleeve 1090 is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and may be altered according to particular manufacturing requirements.

The fourth side wall panel 1018 and the securing panel 1020 are folded about fold line 1017 with respect to the third side wall panel 1016 as indicated by direction arrow D3 in Figure 25. The second and fourth securing flaps T2, T4 are folded about fold line 1017.

Glue G or other adhesive treatment is applied to the securing panel 1020, in alternative embodiments, to a corresponding portion of the first side wall panel 1012.

The first side wall panel 1012 is folded about fold line 1013 with respect to the second side wall panel 1014 as indicated by direction arrow D4 in Figure 26. The first side wall panel 1012 is brought into overlying relationship with the second side wall panel 1014 and into face to face contacting relationship with the securing panel 1020. The first side wall panel 1012 is secured to the securing panel 1020. In this way a flat collapsed structure is formed.

The flat collapsed structure can be erected into a tubular structure is having a triangular cross-sectional shape.

A first end of the tubular structure is closed by folding the first and second tuck flaps 1022A, 1022B about fold lines 1021A, 1021B and then by folding the first end closure panel 1022 about fold line 1021C.

The first securing flap T1 is folded about fold lines 1031A, 1031B such that the first portion 1030A can be inserted in an opening defined by the slot of the second securing flap receiver S2.

The second securing flap T2 is folded about fold lines 1033A, 1033B such that the first portion 1032A can be inserted in an opening defined by the slot of the first securing flap receiver S1.

In this way the first and second securing flaps T1, T2 hold the first end closure panel 1022 in a closed condition as shown in Figure 27.

The support member 990 including the connection apparatus 903, as shown in Figure 23 is inserted through the second, open, end of the sleeve 1090 as shown in Figure 28. The connection apparatus 903 is arranged to be disposed adjacent to the second end of the sleeve 1090.

The second end of the sleeve 1090 is closed by folding the third and fourth tuck flaps 1026A, 1026B about fold lines 1025A, 1025B and then by folding the second end closure panel 1024 about fold line 1025C.

The third securing flap T3 is folded about fold lines 1035A, 1035B such that the first portion 1034A can be inserted in an opening defined by the slot of the fourth securing flap receiver S4.

The fourth securing flap T4 is folded about fold lines 1037A, 1037B such that the first portion 1036A can be inserted in an opening defined by the slot of the third securing flap receiver S3.

In this way the third and fourth securing flaps T3, T4 hold the second end closure panel 1024 in a closed condition.

The assembled tap handle 1490 is shown in Figure 29, the connection member 900 is accessible through the aperture A13; the tap stem 330 can pass through the aperture A13. The tap handle 1490 can be mounted to the tap assembly 300 shown in Figures 6 and 7.

The anchor 902 prevents or inhibits the connector member 900 from being separated from the core or support member 990 by sliding with respect to each other. The inner surfaces of the first, second and third panels 912, 914, 916 engage with surface of the connector member 900 to prevent or inhibit rotation of the core or support member 990 with respect to the connector member 900.

In a further alternative embodiment, the anchor 904 may be shaped so as to prevent or inhibit rotation of the core or support member 990 with respect to the anchor 904. Figure 22E illustrates an embodiment of such an anchor 904. The head or projection of the anchor 904 is non-circular in shape.

In the illustrated embodiment, the head or projection of the anchor 904 is shaped to be complementary to the cross-sectional shape of the core or support member 990. In the illustrated embodiment the head of the anchor 904 is substantially triangular in shape so as to be mountable within the support member 990 of Figure 23.

The head of the anchor 904 may comprise one or more lugs L extending outwardly therefrom.

The lugs L may be received in slot or cuts provided in the panels of the support member 990.

In other embodiments the lugs L may be replaced with notches or recesses which may be configured to receive a portion of one of the panels of support member 990.

The tap handle 1490 may comprise a detent for preventing or inhibiting movement of connector member 900 with respect to the support member 990.

It can be appreciated that various changes may be made within the scope of the present invention. For example, the size and shape of the panels and apertures may be adjusted to accommodate support members of differing size or shape.

In some embodiments, the support members 90, 790, 990 each may be employed as a tap handle without the sleeve component.

In the forgoing embodiments, the support members 90, 690, 790, 990 each may be formed from a sheet of corrugated board folded into a multi-ply or layered structure.

In some embodiments, the support members 90, 710 each may be provided by a plurality of separate component panels disposed in face to face relationship to form a multi-ply structure.

Adhesive may be employed with the multi-ply structure to secure the panels together in a laminated manner.

In alternative embodiments, the support members 90, 690, 7190, 990 each may be formed from an alternative material such as, but not limited to wood, plastic, metal, or ceramics materials. The support members 90, 690, 790 each may provide a core as a single body, it may be a solid body or a hollow body.

The support members 90, 690, 790, 990 each may form a chassis, frame or body to which the respective sleeve 90, 590, 890, 1090 may be mounted.

The sleeve members 190, 590, 890, 1090 each may be mounted to the respective support member 90, 690, 790 to provide an interchangeable branding or display medium.

It will be recognised that as used herein, directional references such as "top", "bottom", “base”, "front", "back", "end", "side", "inner", "outer", "upper" and "lower" do not necessarily limit the respective panels to such orientation, but may merely serve to distinguish these panels from one another.

As used herein, the terms “hinged connection” and “fold line” refer to all manner of lines that define hinge features of the blank, facilitate folding portions of the blank with respect to one another, or otherwise indicate optimal panel folding locations for the blank. Any reference to “hinged connection” should not be construed as necessarily referring to a single fold line only; indeed, a hinged connection can be formed from two or more fold lines wherein each of the

two or more fold lines may be either straight/linear or curved/curvilinear in shape. When linear fold lines form a hinged connection, they may be disposed parallel with each other or be slightly angled with respect to each other. When curvilinear fold lines form a hinged connection, they may intersect each other to define a shaped panel within the area surrounded by the curvilinear fold lines. A typical example of such a hinged connection may comprise a pair of arched or arcuate fold lines intersecting at two points such that they define an elliptical panel therebetween. A hinged connection may be formed from one or more linear fold lines and one or more curvilinear fold lines. A typical example of such a hinged connection may comprise a combination of a linear fold line and an arched or arcuate fold line which intersect at two points such that they define a half moon-shaped panel therebetween.

As used herein, the term “connection apparatus” refers to any device which is configured to receive a portion of a tap assembly for the purpose of mounting a tap handle onto the tap assembly. A connection assembly may be just a connector member which is a nut or otherwise a threaded insert which is formed with an orifice or bore having an internal or female screw thread. Optionally, a connection assembly may have anchor which is greater in lateral size than the remainder (e.g., a connector member) of the connection assembly such that the anchor may cause the connection assembly to be stuck on the inside surface of a receptacle of the tap handle. Such an anchor member formed as an integral part of the respective connector member or it may be formed separately from the connector member and detachably connected to the connector member.

As used herein, the term “fold line” may refer to one of the following: a scored line, an embossed line, a debossed line, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, an interrupted cutline, a line of aligned slits, a line of scores and any combination of the aforesaid options.

It should be understood that hinged connections and fold lines can each include elements that are formed in the substrate of the blank including perforations, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, a cutline, an interrupted cutline, slits, scores, any combination thereof, and the like. The elements can be dimensioned and arranged to provide the desired functionality. For example, a line of perforations can be dimensioned or designed with degrees of weakness to define a fold line and/or a severance line. The line of perforations can be designed to facilitate folding and resist breaking, to facilitate folding and facilitate breaking with more effort, or to facilitate breaking with little effort.

The phrase “in registry with” as used herein refers to the alignment of two or more elements in an erected carton, such as an aperture formed in a first of two overlapping panels and a second aperture formed in a second of two overlapping panels. Those elements in registry with each other may be aligned with each other in the direction of the thickness of the overlapping panels. For example, when an aperture in a first panel is “in registry with” a second aperture in a second panel that is placed in an overlapping arrangement with the first panel, an edge of the aperture may extend along at least a portion of an edge of the second aperture and may be aligned, in the direction of the thickness of the first and second panels, with the second aperture.

CLAIMS

1. A tap handle for a beverage dispenser comprising a core formed from a plurality of plies of sheet material, wherein each of the plies is secured in face contacting relationship to at least one adjacent ply.

2. A tap handle according to claim 1 wherein two or more of the plurality of plies of sheet material comprise cutaways, each of the cutaways being disposed in registry with each other, the cutaways each defining in part opposing side walls of a receptacle for receiving a portion of a tap assembly.

3. A tap handle according to claim 2 wherein a connection apparatus is provided in the receptacle for receiving said portion of the tap assembly.

4. A tap handle according to claim 2 wherein the receptacle comprises a keyway for aligning the tap handle with respect to the tap assembly.

5. A tap handle according to claim 3 wherein the receptacle comprises a keyway and the connection apparatus comprises a key mated with the keyway so as to inhibit rotation of the connection apparatus with respect to the tap handle.

6. A tap handle according to claim 1 wherein each one of the plurality of plies of sheet material is hingedly connected to another one of the plurality of plies of sheet material.

7. A tap handle according to claim 6 wherein the plurality of plies of sheet material are hingedly connected to one another in a linear series.

8. A tap handle for a beverage dispenser comprising a core formed from a plurality of plies of sheet material and an outer sleeve.

9. A tap handle for a beverage dispenser comprising a core formed from folded sheet material and an outer sleeve.

10. A tap handle for a beverage dispenser comprising a core and an outer sleeve mounted about the core, the outer sleeve having one or more surfaces for providing an information display region, and a connection apparatus for coupling the tap handle to a tap assembly.

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11. A tap handle according to claim 10 wherein the core provides a lever for operation of a valve in the tap assembly.

12. A tap handle according to claim 10 wherein the tap assembly is a beer tap.

13. A sleeve removably mountable to a tap handle comprising a plurality of panels forming a tubular structure, at least one of plurality of panels providing an information display region.

14. A sleeve according to claim 13 wherein the tubular structure comprises an opening at one end for receiving the tap handle.

15. A sleeve according to claim 13 comprising at least one end closure panel for at least partially closing a first end of the tubular structure.

16. A sleeve according to claim 13 wherein the tubular structure is open at a second end for receiving at least a portion of the tap handle.

17. Use of a sleeve according to claim 13 comprising removably mounting the sleeve to a tap handle of a beverage dispenser so as to provide information characteristic of the identity of a beverage being dispensed therefrom.

18. A method of mounting a tap handle to a tap assembly comprising:
stacking a plurality of panels in face to face relationship to form a stacked core;
aligning the plurality of panels with respect to each other;
securing the stacked core together;
receiving a tap stem in a receptacle defined by the stacked core.

19. A method according to claim 18 wherein stacking the plurality of panels comprises folding a blank comprising a plurality of panels hingedly connected together.

20. A method according to claim 18 wherein securing the stacked core comprises folding a strap about a portion of the stacked core.

21. A method according to claim 20 wherein securing the stacked core comprises adhering the strap to at least one of the plurality of panels.

22. A method according to claim 18 comprising:
erecting a sleeve to form a tubular structure; and
mounting the sleeve upon the stacked core.

23. A blank for forming a tap handle comprising a plurality of panels for forming a multi-ply structure, wherein at least one of the plurality of panels comprises a securing strap hingedly connected thereto for securing the plurality of panels in face to face relationship with each other.

24. A blank according to claim 23 wherein at least one of the plurality of panels comprises a cutaway defining a recess for receiving at least a part of the securing strap.

25. A blank for forming a tap handle comprising a plurality of panels for forming a multi-ply structure, wherein one or more of the plurality of panels comprises a cutaway for forming a receptacle for receiving a component of a tap assembly.

26. A blank according to claim 25 wherein two or more of the plurality of panels each comprise a cutaway, wherein the cutaways are arranged to be in registry with each other when the blank is in an assembled condition so as to form the receptacle for receiving a component of a tap assembly.

27. A blank according to claim 25 wherein the plurality of panels are hinged one to the next in a linear series.

28. A blank according to claim 25 wherein each of the cutaways is defined in an end edge of the two or more of the plurality of panels so as to form a recess in the respective one of said two or more of the plurality of panels, wherein in set up condition each recess defines in part a pair of opposing side walls of the receptacle.

29. A blank according to claim 25 wherein the blank comprises a first outer panel and second outer panel for defining opposing end walls of the receptacle.

30. A blank forming a tap handle sleeve comprising:
    a plurality of panels for forming walls of a tubular structure; and
    at least one end closure panel for closing one end the tubular structure.

31. A tap handle sleeve comprising a plurality of panels forming a tubular structure, at least one of plurality of panels providing an information display region.

32. A handle system for a beverage dispenser comprising:

a support member formed from a plurality of plies of sheet material, wherein each of the plies is secured in face contacting relationship to at least one adjacent ply, the support member defining a receptacle;

an outer sleeve comprising a plurality of walls forming a tubular structure for receiving the support member, and wherein at least one of plurality of walls provides an information display region;

a connection apparatus mountable in the receptacle and comprising an attachment device for coupling the handle system to a tap stem of a beverage dispenser.

33. A tap handle for a beverage dispenser comprising a frame formed from a plurality of panels forming a tubular structure, the frame comprising at least one strut panel having a first cutaway forming a receptacle for coupling the frame to a tap stem.

34. A tap handle according to claim 33 wherein the at least one strut panel comprises a strut reinforcing panel hingedly connected thereto, the strut reinforcing panel comprising a second cutaway disposed in registry with the first cutaway and forming a part of the receptacle for coupling the frame to a tap stem.

35. A blank for forming a frame of a tap handle the blank comprising plurality of frame panels for forming a tubular structure, the plurality of frame panels hingedly connected to each other in a linear series, the blank comprising at least one strut panel hingedly connected to one of the plurality of frame panels, the at least one strut panel having a first cutaway for forming a receptacle for coupling the frame to a tap stem.

36. A blank according to claim 35 wherein the blank comprises a strut reinforcing panel hingedly connected to the at least one strut panel, the strut reinforcing panel comprising a second cutaway disposed configured to be in registry with the first cutaway in a setup condition.

37. A blank according to claim 36 wherein the first and second cutaway are formed form an aperture struck in part from the at least one strut panel and in part from the strut reinforcing panel.

38. A tap handle according to claim 3 wherein the connection apparatus comprises an anchor which is greater in lateral size than the remainder of the connection apparatus such that the anchor is stuck on an inside surface of the receptacle.

39. A tap handle according to claim 38 wherein the connection apparatus further comprises a connector member connected to the anchor, the anchor being greater in lateral size than the connector member, the connector member being connectable to the portion of the tap assembly.

40. A tap handle for a beverage dispenser comprising a core formed from a plurality of plies of sheet material, wherein each of the plies is disposed in face contacting relationship with at least one other ply.

41. A tap handle according to claim 40 wherein the plurality of plies of sheet material define at least in part a receptacle for receiving a connection apparatus.

42. A tap handle according to claim 41 comprising at least one cutaway provided in at least one of the plurality of plies of sheet material, the at least one cutaway defining at least a portion of the receptacle for receiving a connection apparatus.

43. A tap handle according to claim 41 wherein the connection apparatus comprises an orifice for receiving a portion of a tap assembly.

44. A tap handle according to claim 41 wherein the connection apparatus comprises an anchor which is greater in lateral size than the remainder of the connection apparatus such that the anchor is received in the at least one cutaway so as to inhibit relative movement between connection apparatus and the core.

45. A tap handle according to claim 42 wherein the at least one cutaway comprises an aperture defined in at least one of the plurality of plies of sheet material.

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46. A tap handle according to claim 42 wherein the at least one cutaway comprises a recess defined in at least one of the plurality of plies of sheet material.

47. A tap handle according to claim 42 wherein the at least one cutaway comprises at least one cutline defined in at least one of the plurality of plies of sheet material.

48. A tap handle according to claim 47 wherein the at least one cutline defines one or more displaceable tabs foldably coupled to the at least one of the plurality of plies of sheet material.

49. A tap handle according to claim 41 comprising a connection apparatus located within the receptacle, wherein a surface of at least one of the plurality of plies of sheet material is disposed in face contacting relationship with a surface of the connection apparatus so as to inhibit rotation of the connection apparatus with respect to the core.

50. A tap handle according to claim 49 wherein the connection apparatus is secured to the at least one of the plurality of plies of sheet material.

51. A tap handle according to claim 40 wherein the plurality of plies of sheet material are folded to form a spiral structure.

52. A tap handle according to claim 49 wherein the plurality of plies of sheet material are wrapped about the connection apparatus.

53. A tap handle according to claim 52 wherein the plurality of plies of sheet material form a tubular structure having a plurality of walls, at least one wall comprising at least two plies of sheet material.

54. A tap handle according to claim 49 wherein the connection apparatus comprises six external faces and the plurality of plies of sheet material are disposed in face contacting relationship with three of the external faces.

55. A tap handle according to claim 49 wherein the connection apparatus comprises a plurality of external faces and the plurality of plies of sheet material are disposed in face contacting relationship with alternating ones of the plurality of external faces.

56. A tap handle according to claim 49 wherein the connection apparatus comprises at least one detent for inhibiting rotation of the connection apparatus with respect to the core.

57. A tap handle according to claim 49 wherein the at least one detent comprises a lug extending from the connection apparatus.

58. A tap handle according to claim 49 wherein the at least one detent comprises a notch provided in the connection apparatus.

59. A tap handle according to claim 44 wherein the anchor comprises a head having a non-circular shape.

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60. A method of mounting a tap handle to a tap assembly comprising:

wrapping a plurality of panels in about a connection apparatus to form a multi-ply tubular structure;

securing the tubular structure together;

receiving a tap stem in the connection apparatus.

61. A method according to claim 60 wherein stacking the plurality of panels comprises folding a blank comprising a plurality of panels hingedly connected together.

62. A method according to claim 60 wherein securing the tubular structure comprises adhering a first one of the plurality of panels to another one of the plurality of panels.

63. A method according to claim 60 comprising:

erecting a sleeve to form a tubular structure; and

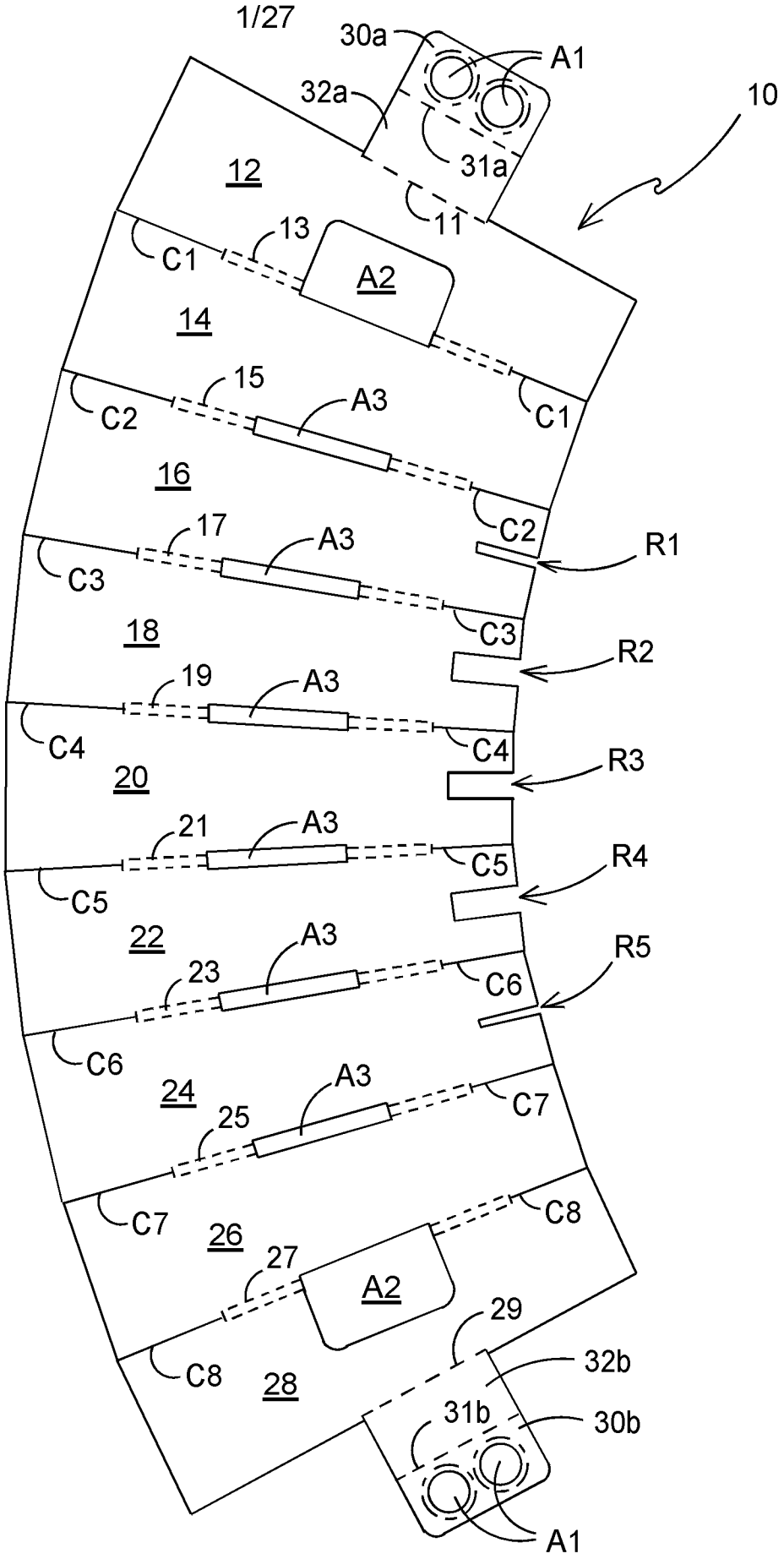
mounting the sleeve upon the tubular structure.

64. A handle system for a beverage dispenser comprising:

a support member formed from a plurality of plies of sheet material, wherein each of the plies is disposed in face contacting relationship with at least one other ply, the support member defining a receptacle;

an outer sleeve comprising a plurality of walls forming a tubular structure for receiving the support member, and wherein at least one of plurality of walls provides an information display region;

a connection apparatus mountable in the receptacle and comprising an attachment device for coupling the handle system to a tap stem of a beverage dispenser.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R1
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A3
C3
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R2
19
A3
C4
C4
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R3
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A3
C5
C5
R4
22
A3
23
C6
R5
C6
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29
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30b
A1

FIGURE 1

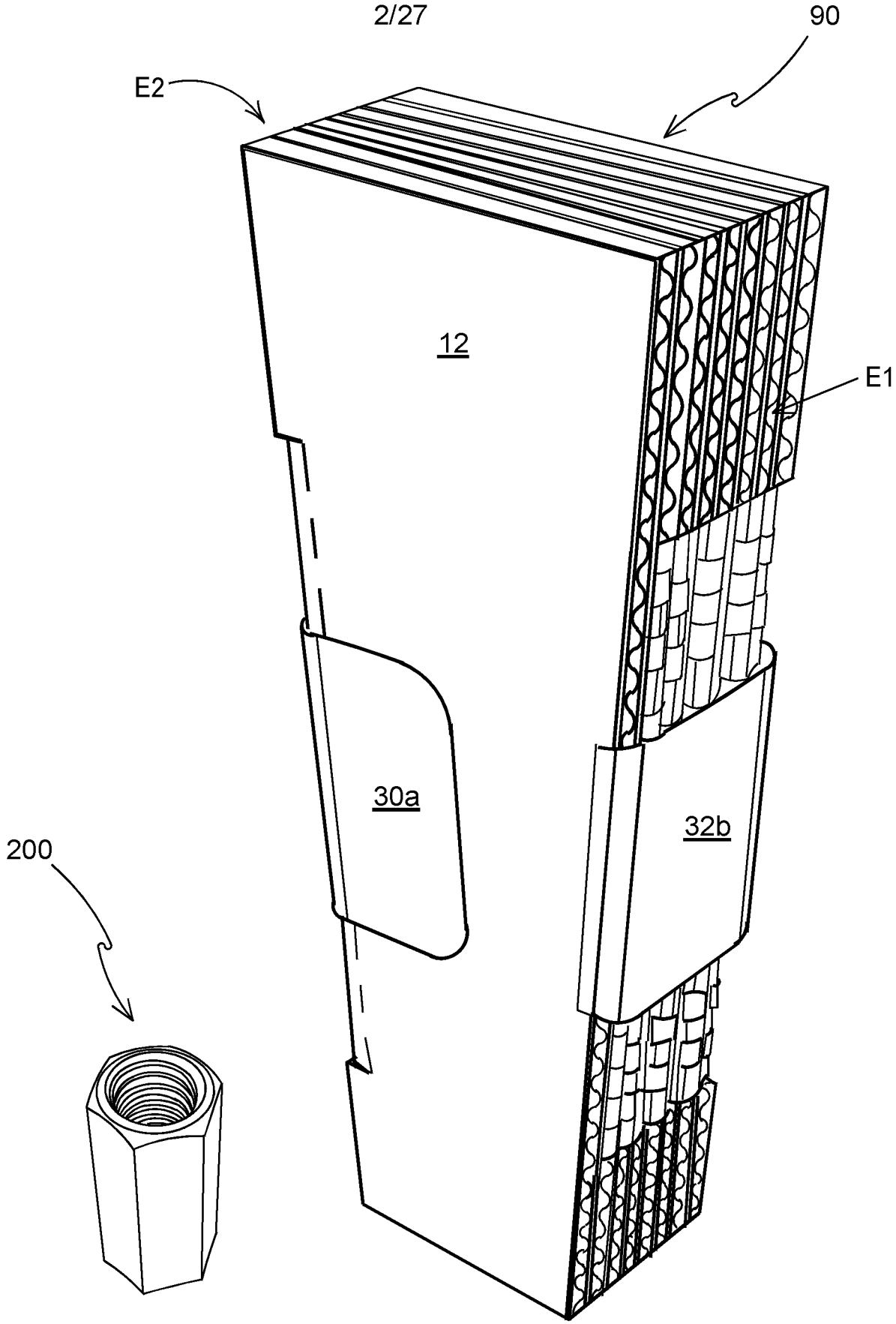
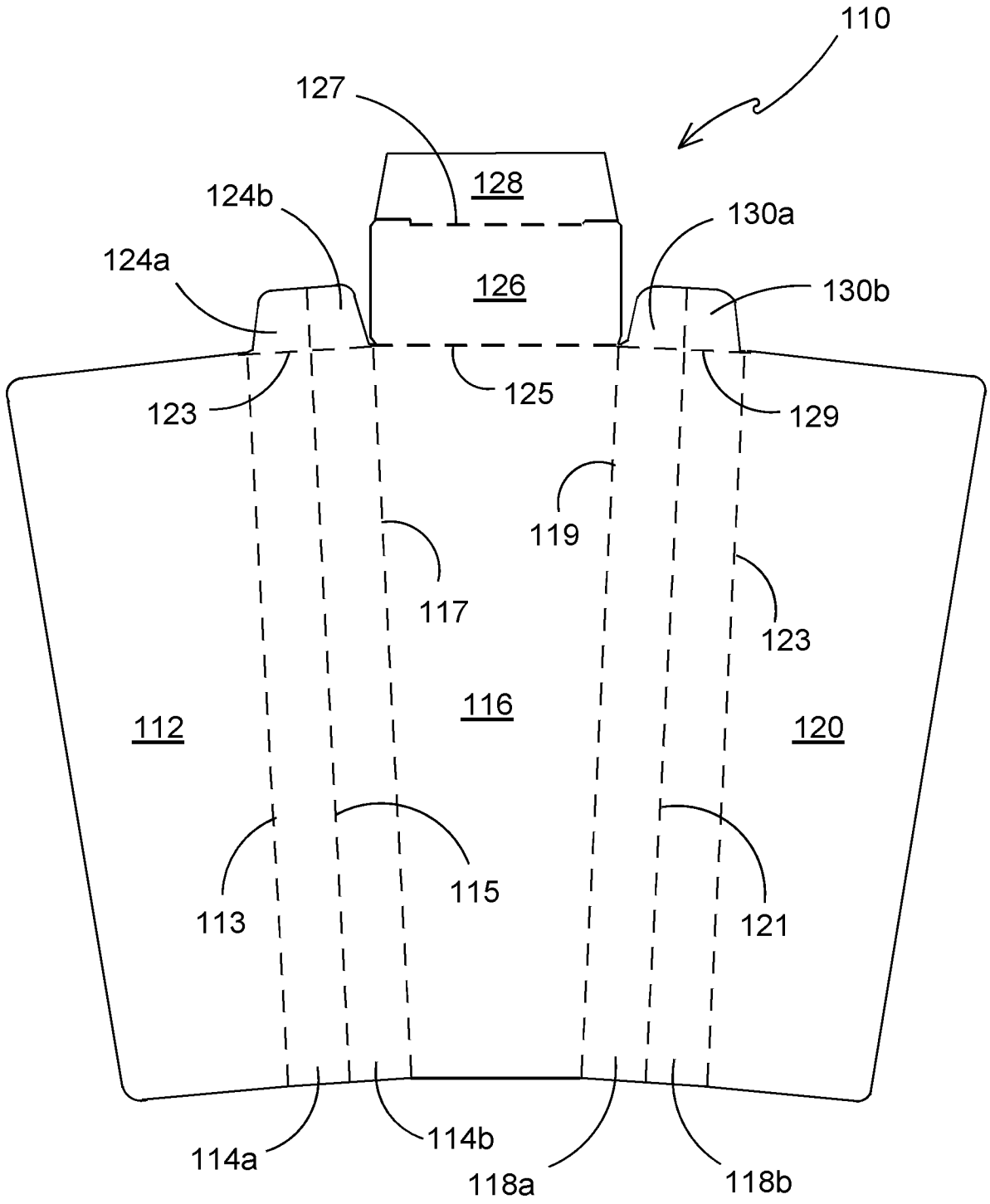


FIGURE 2

FIGURE 3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118a
118b

FIGURE 4

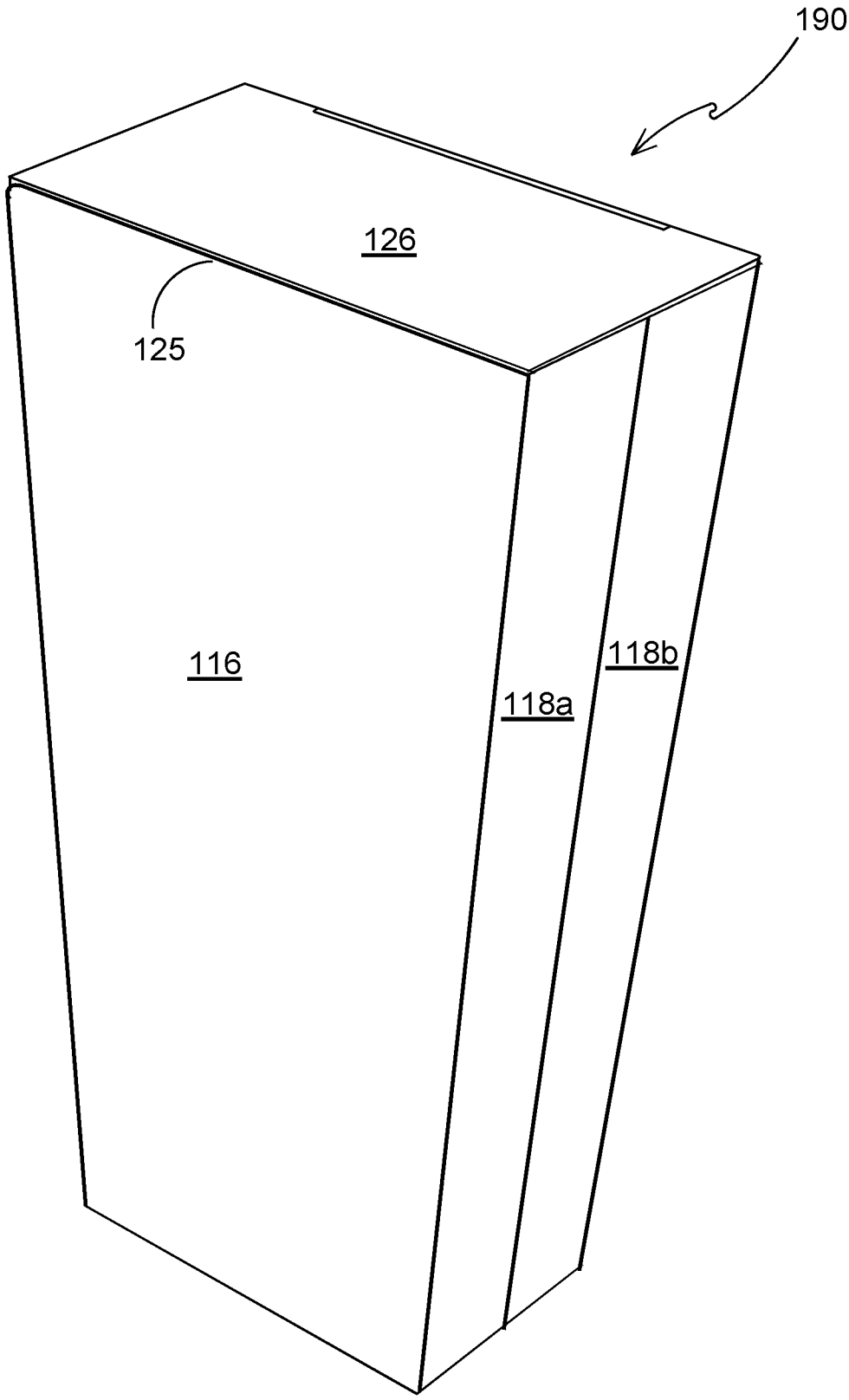


FIGURE 5

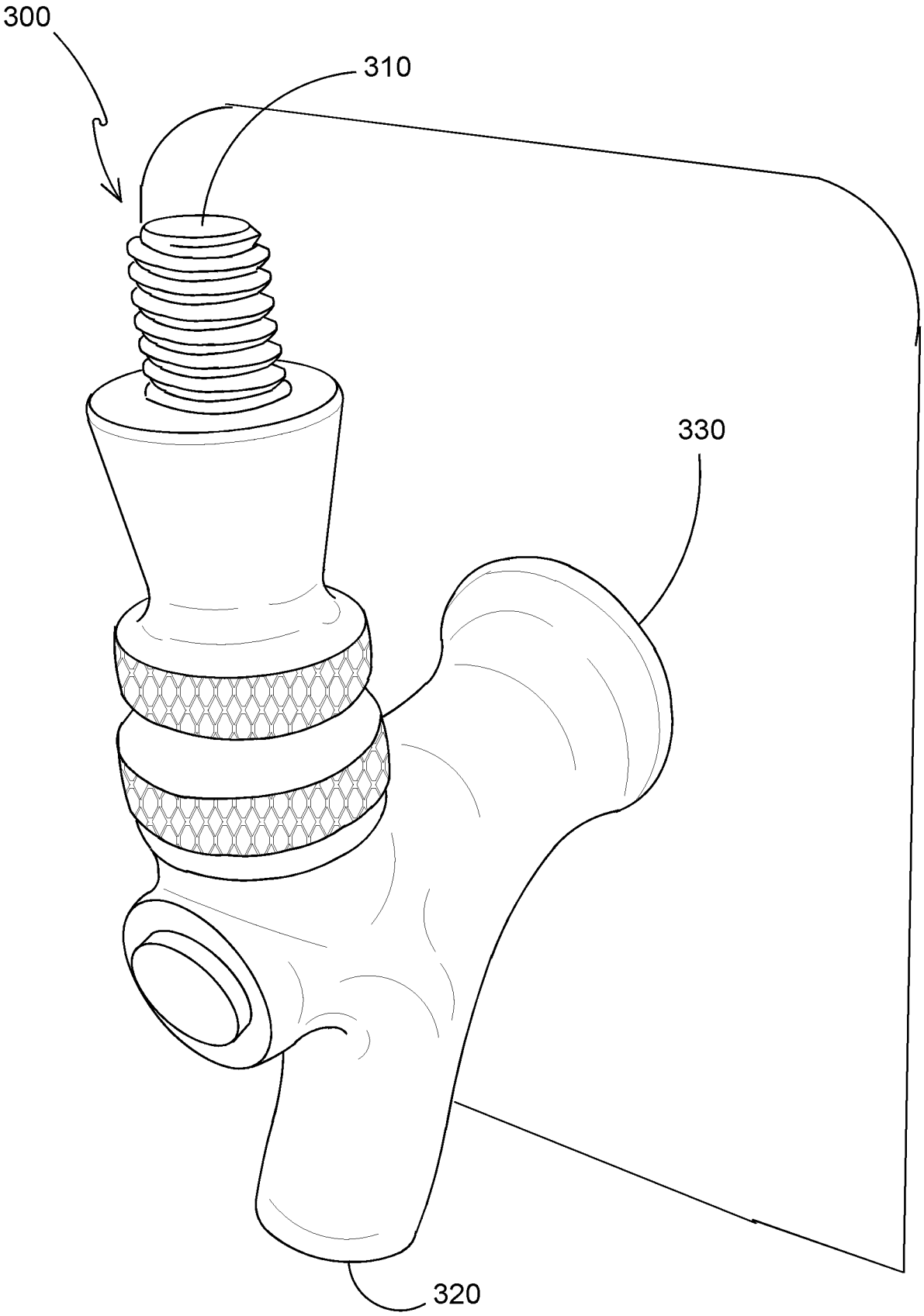


FIGURE 6

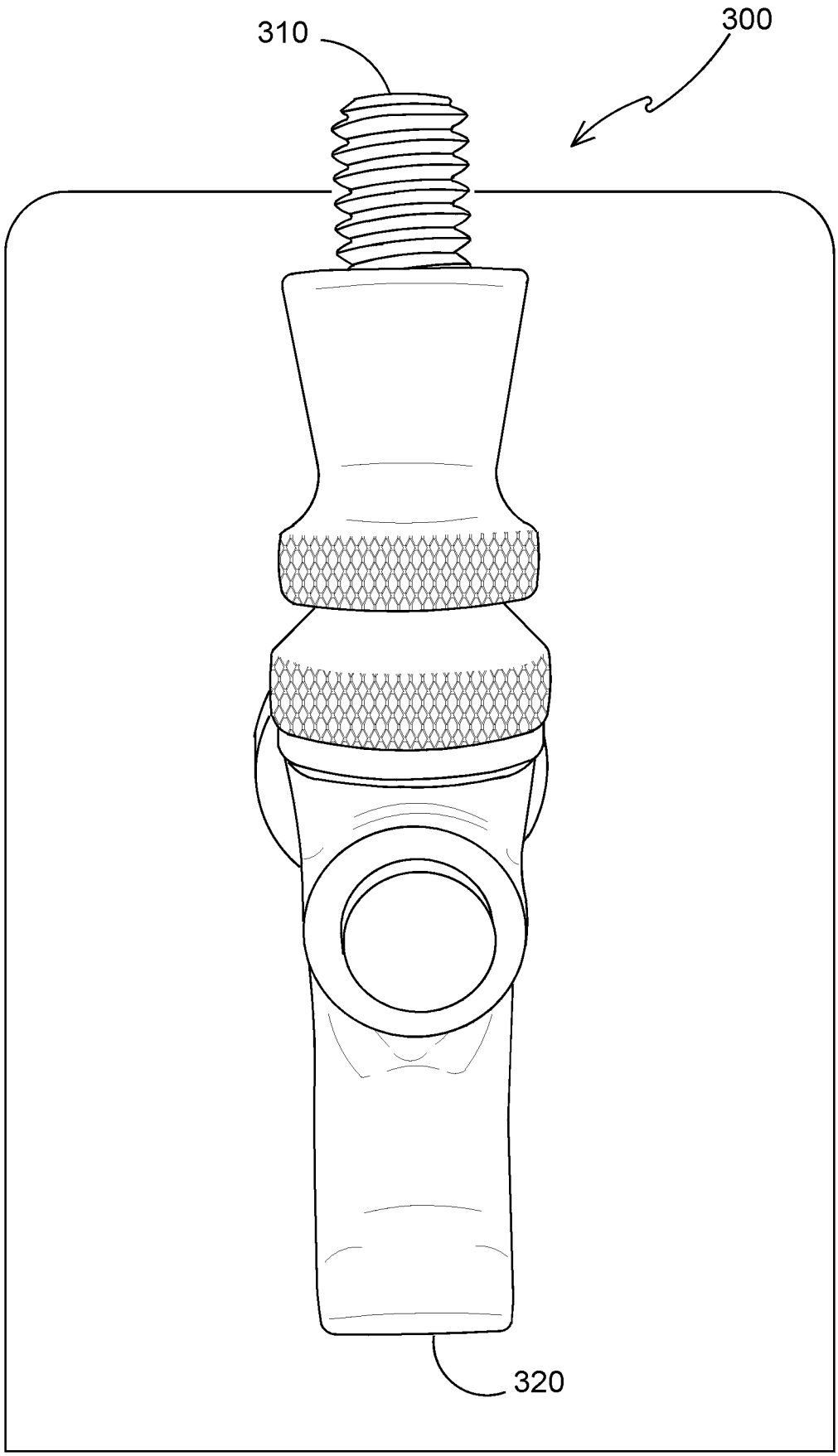


FIGURE 7

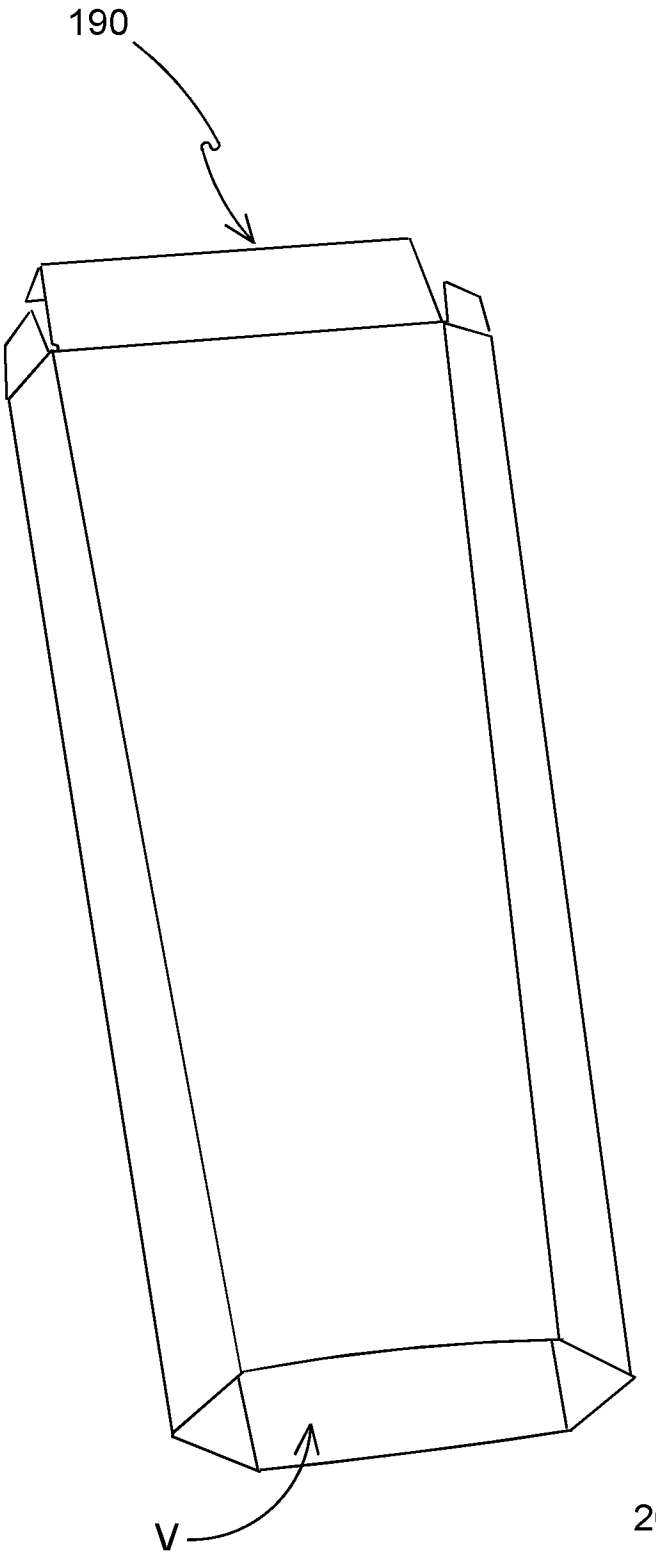


FIGURE 8

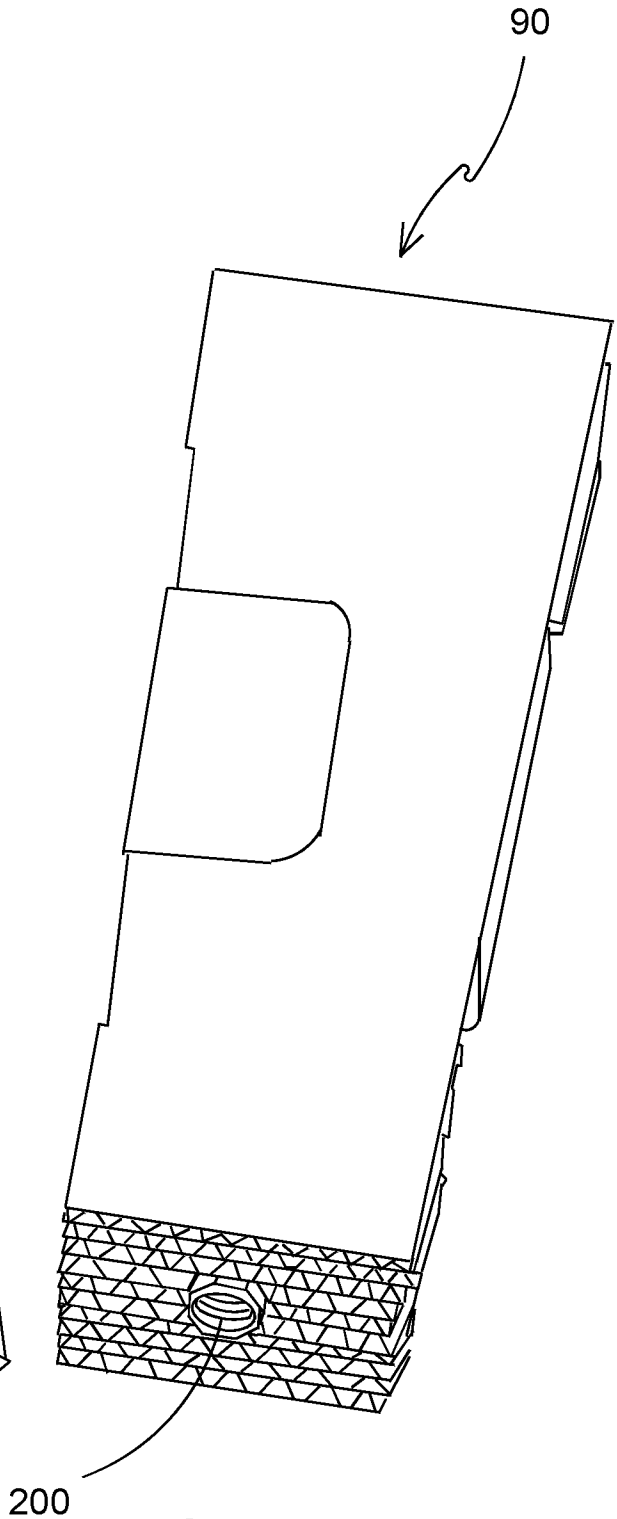


FIGURE 9

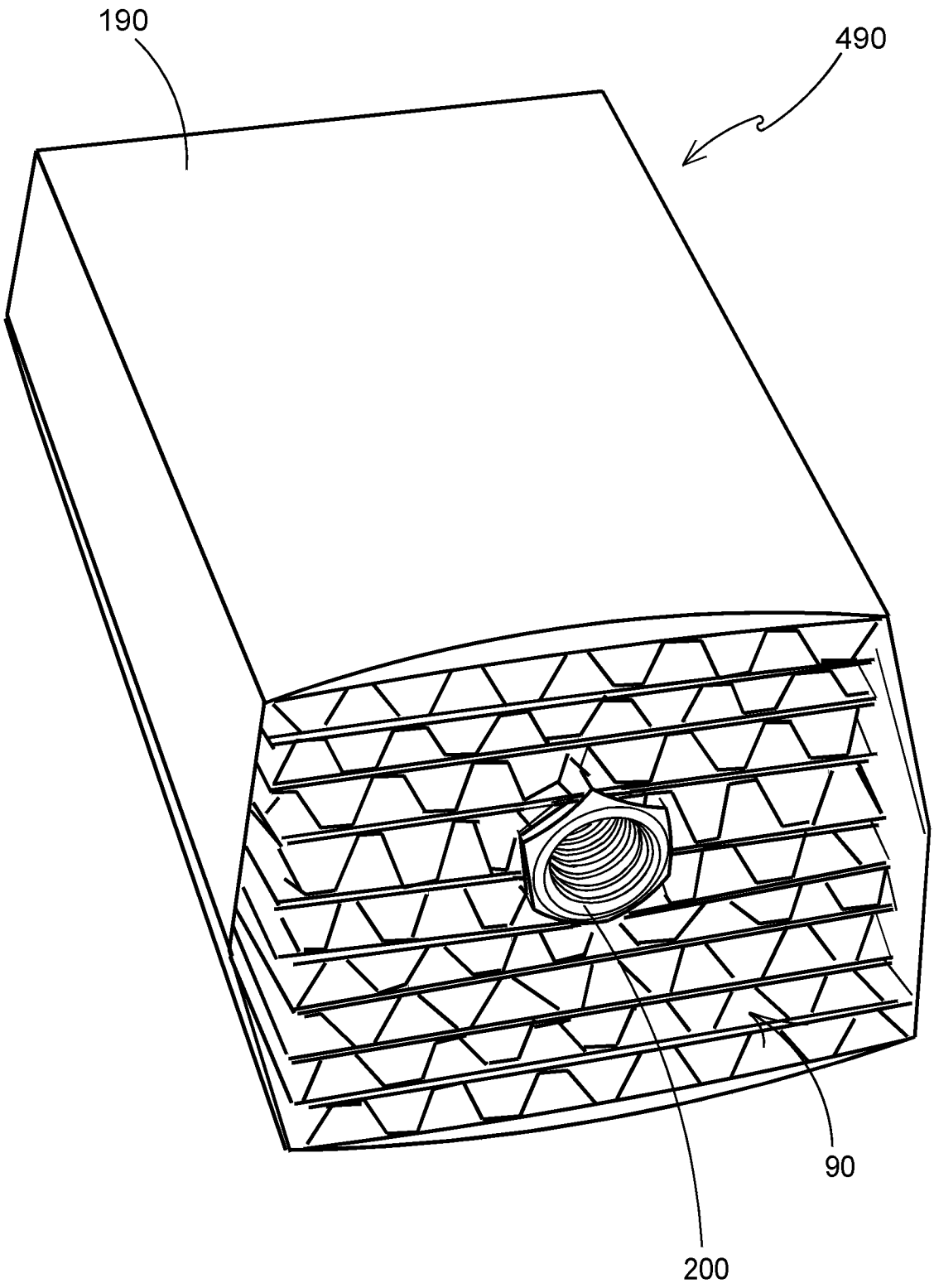


FIGURE 10

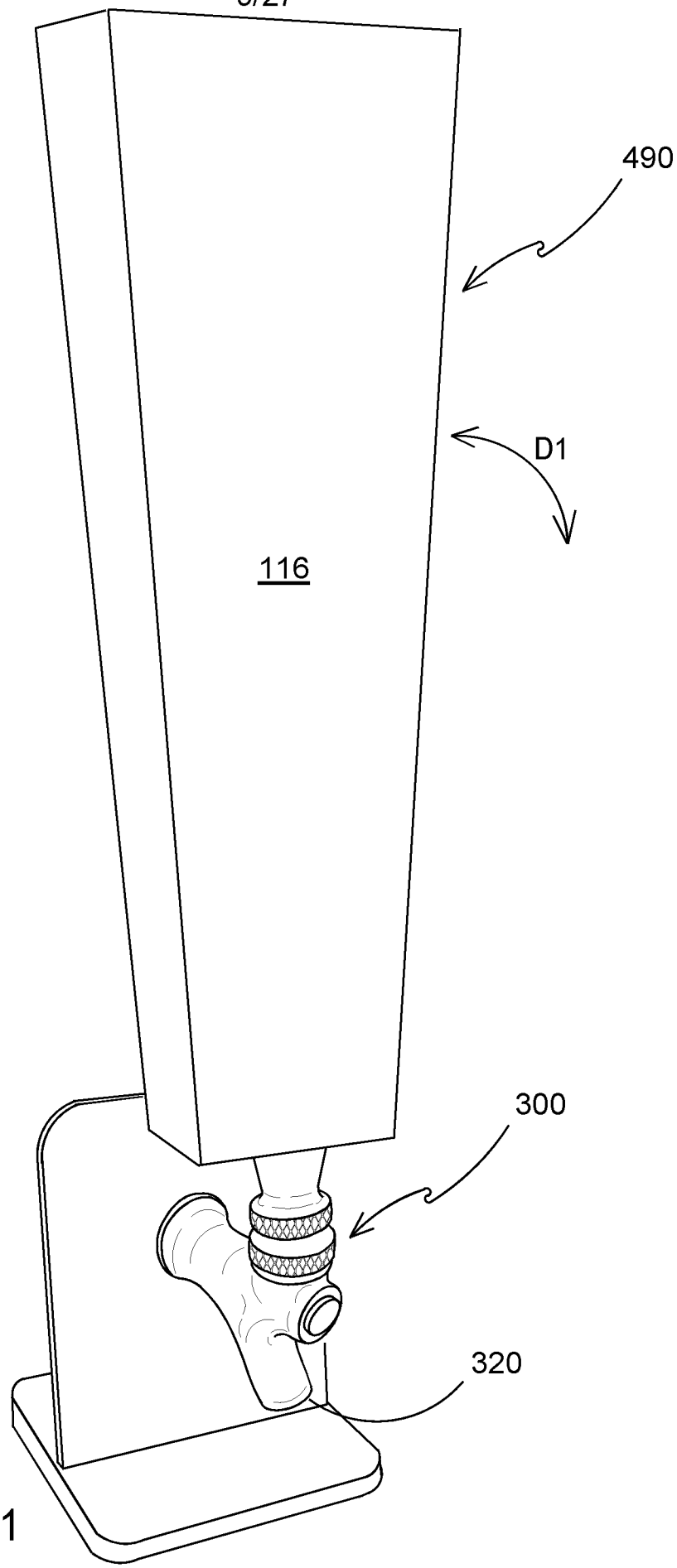
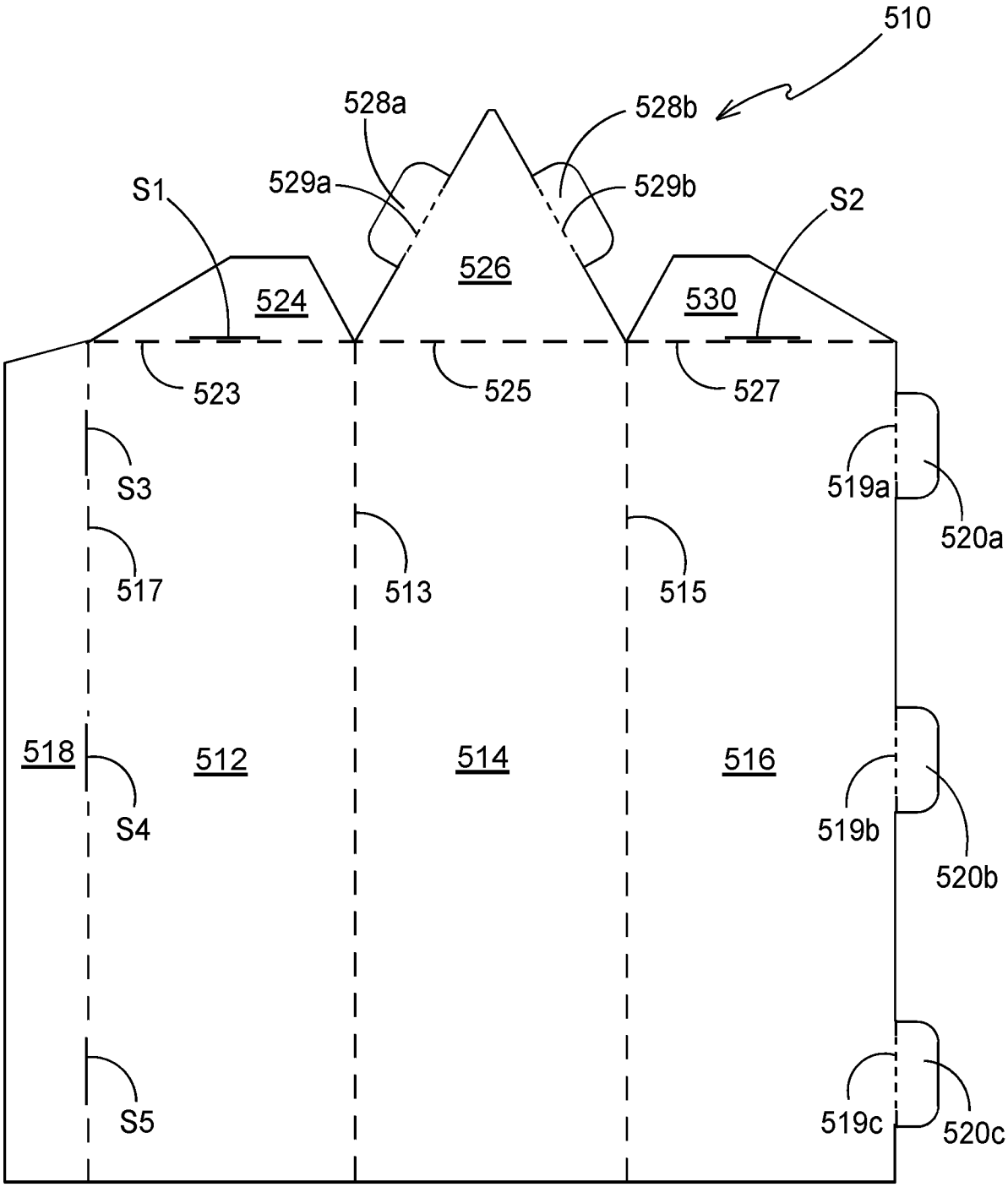


FIGURE 11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S1
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S3
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S4
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S5
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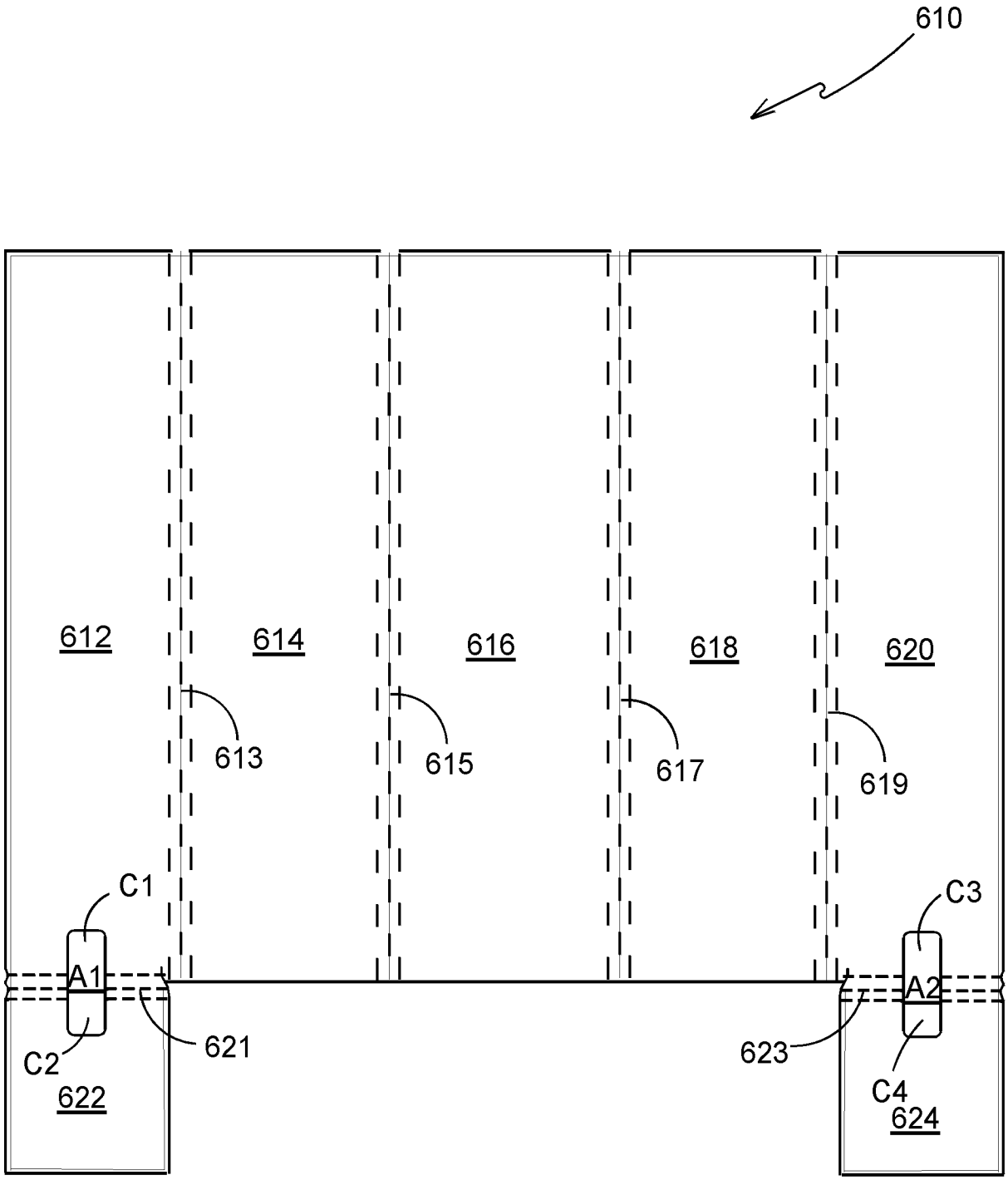
FIGURE 12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C2
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C4
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FIGURE 13

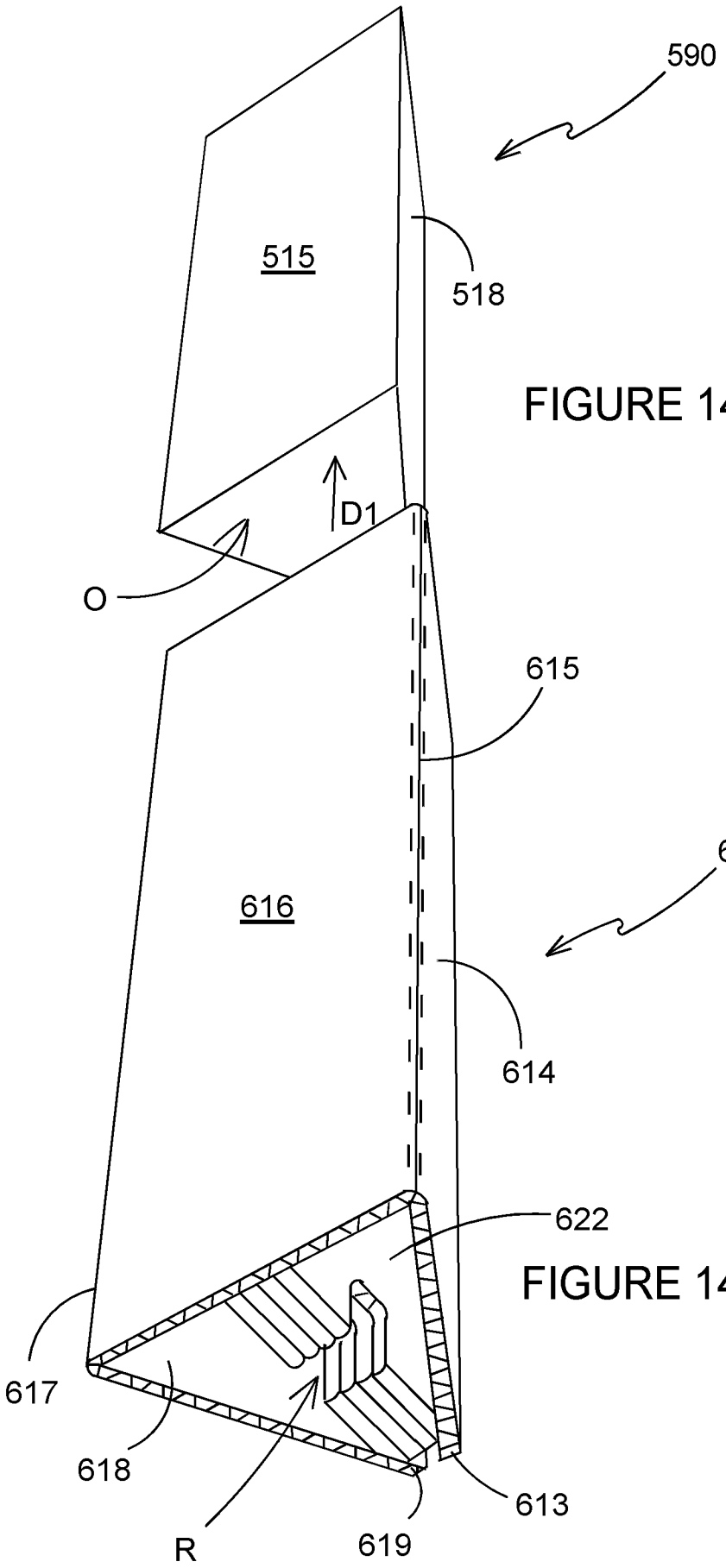


FIGURE 14A

FIGURE 14B

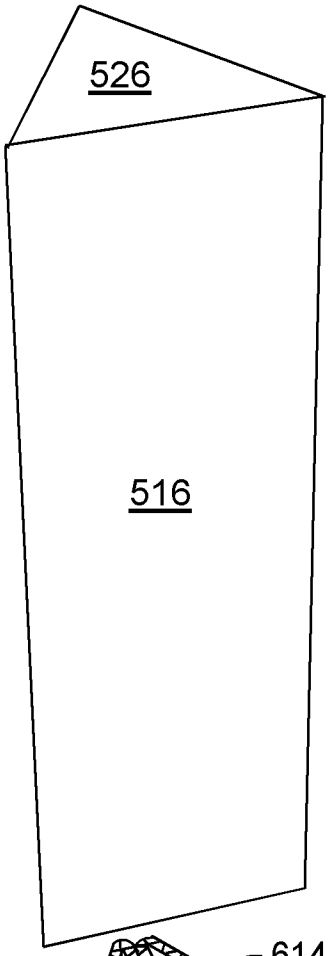


FIGURE 15A

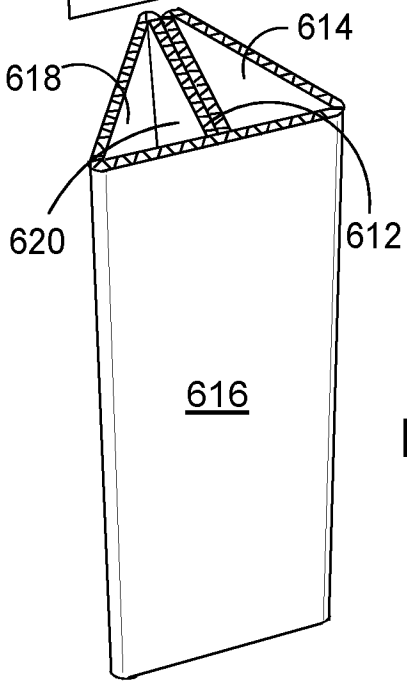
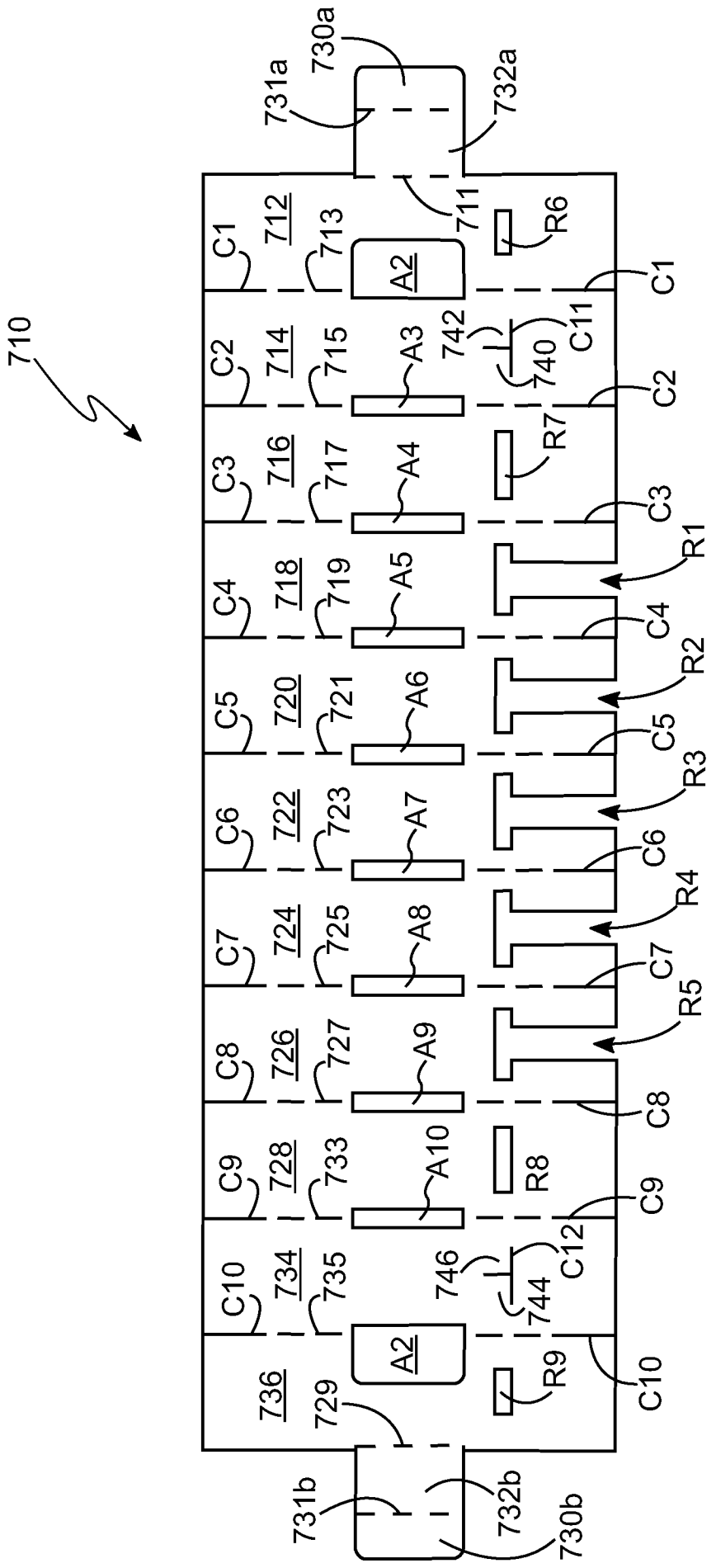


FIGURE 15B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C8
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C11
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FIGURE 16

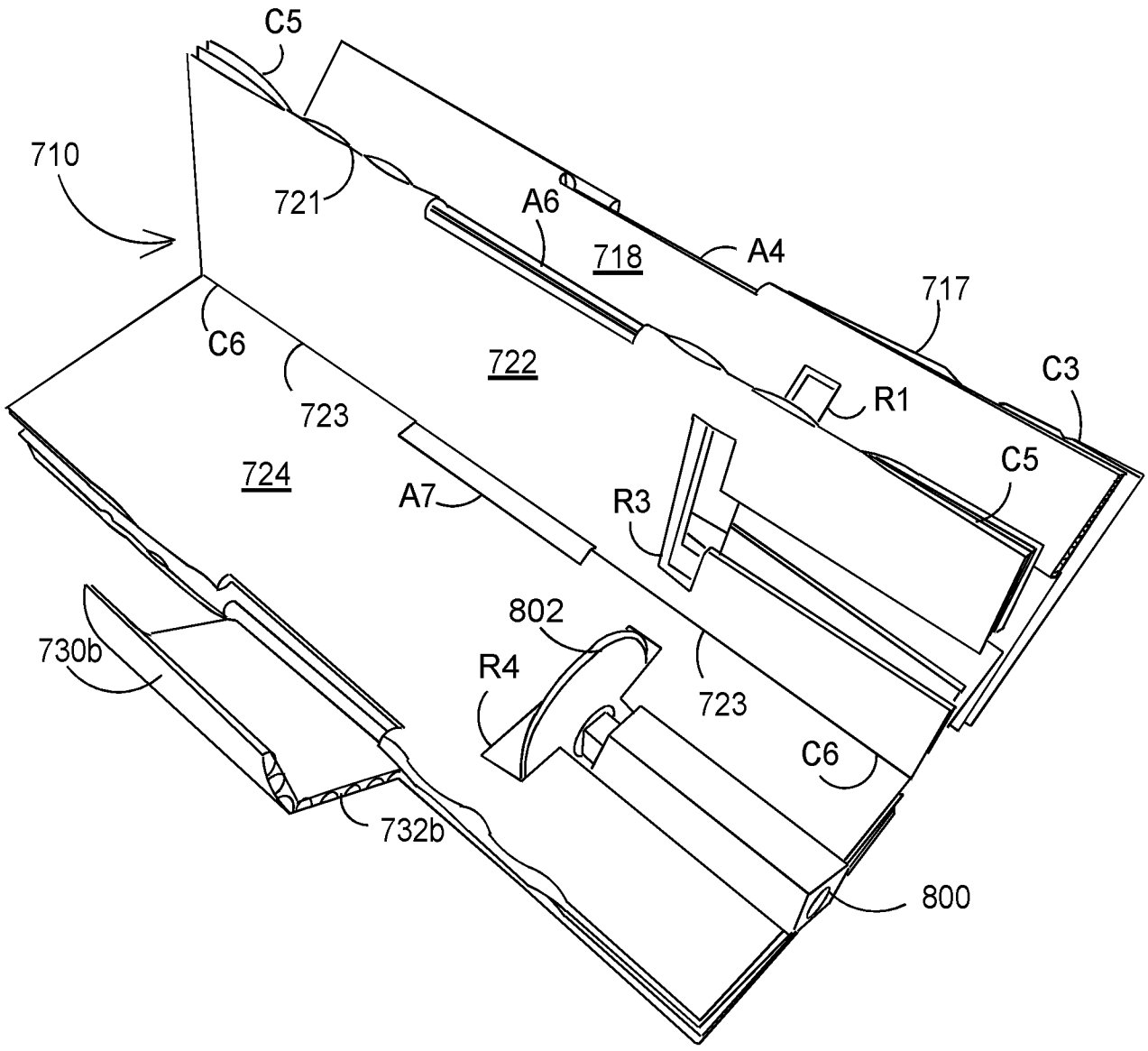
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FIGURE 17

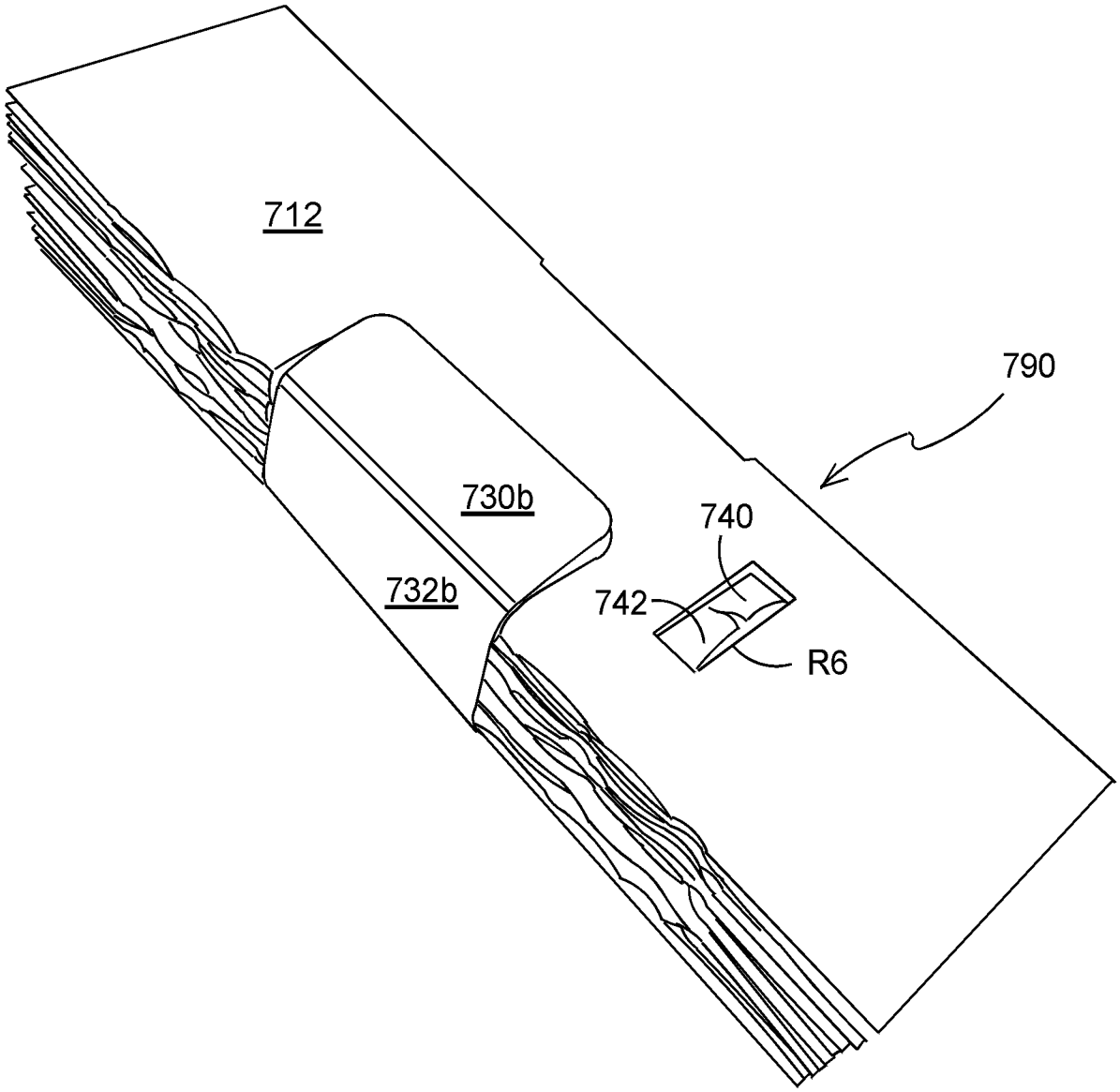

FIGURE 18

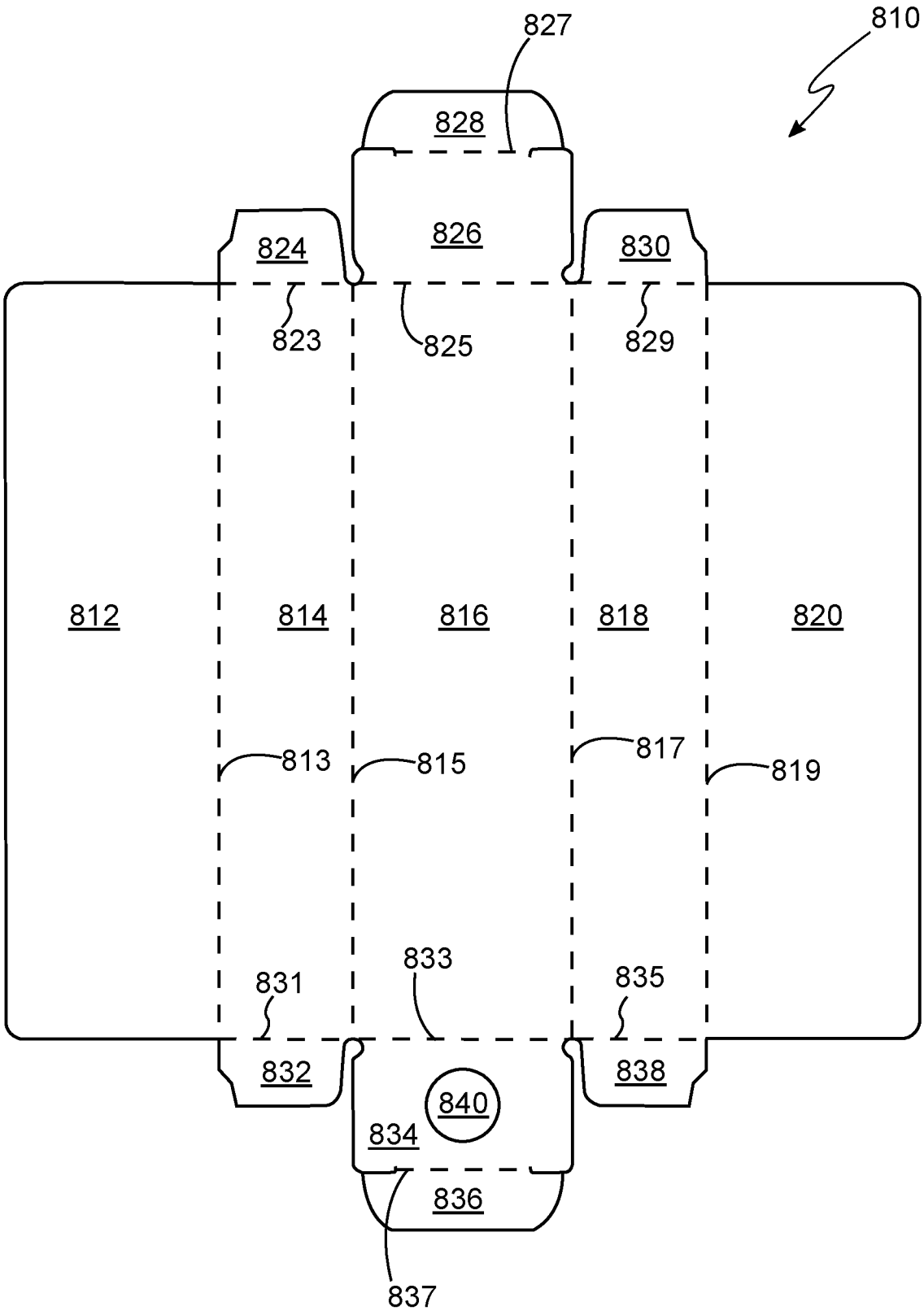
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FIGURE 19

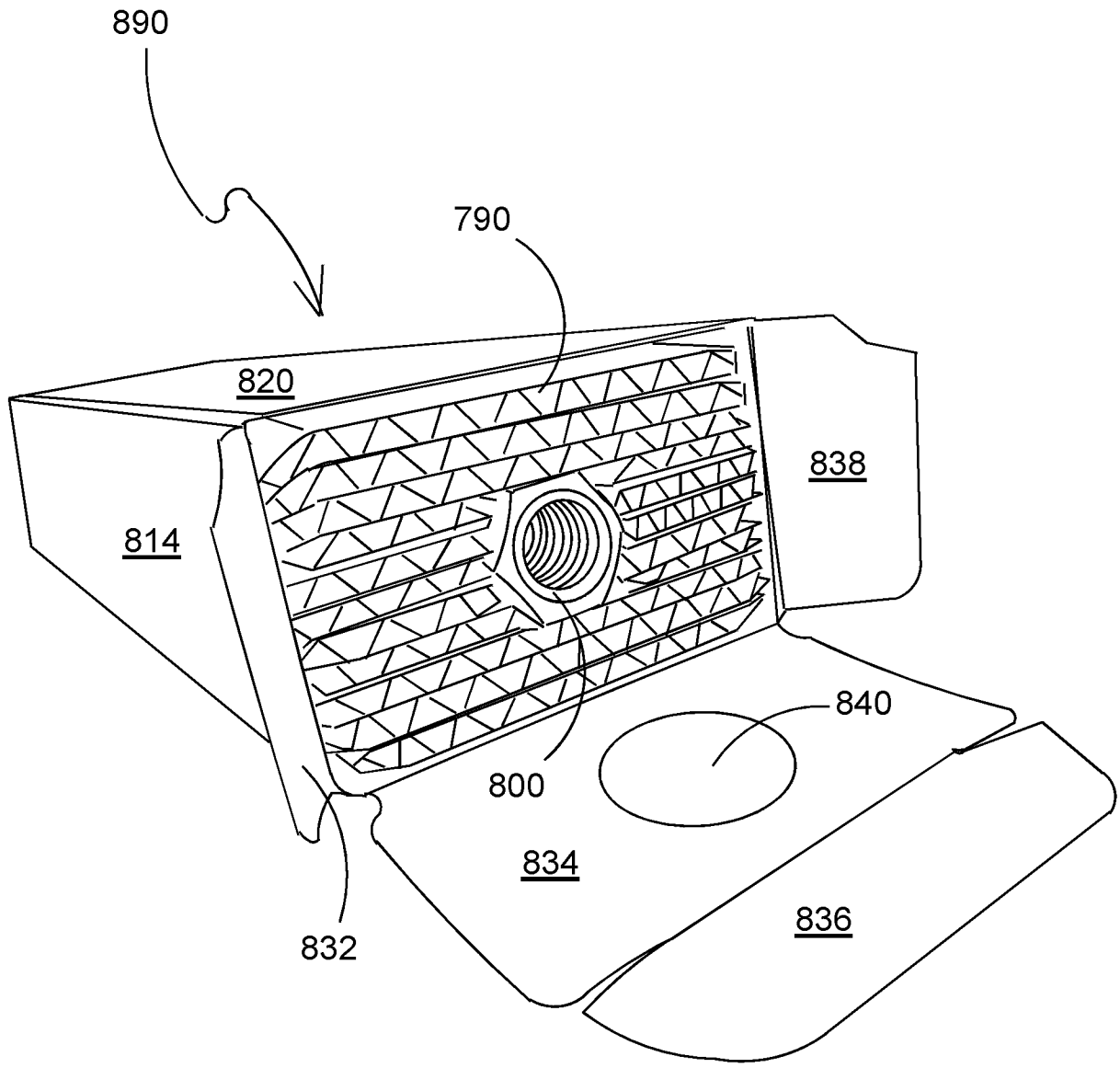

FIGURE 20

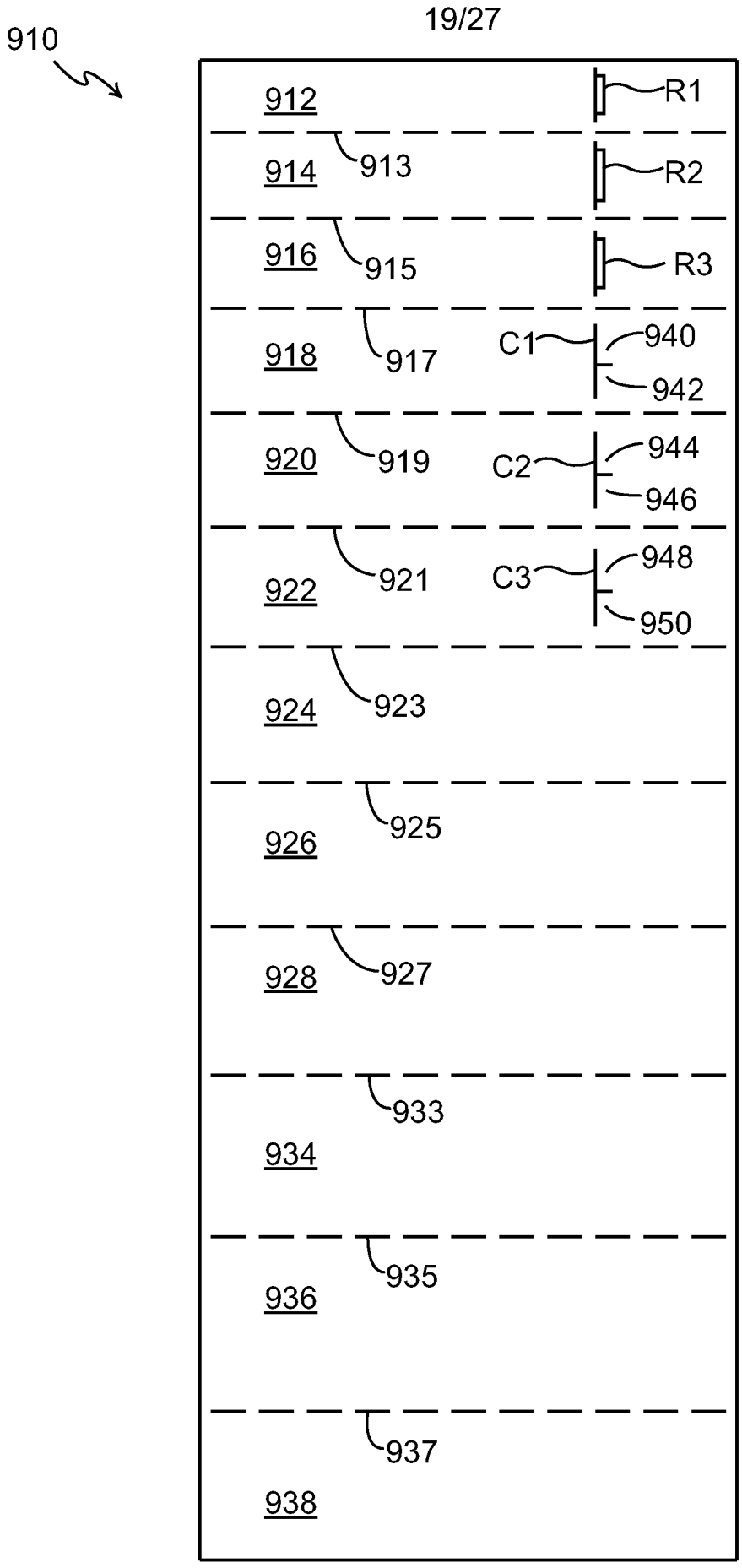
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FIGURE 21

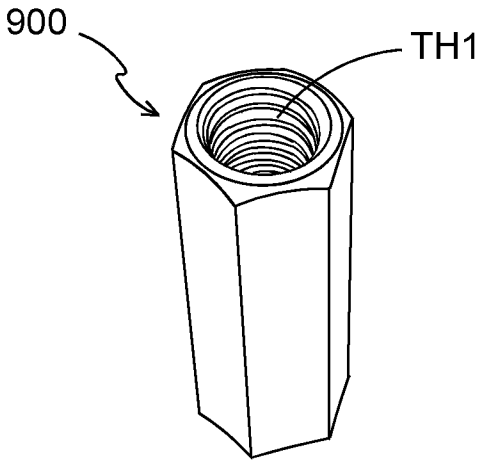

FIGURE 22A

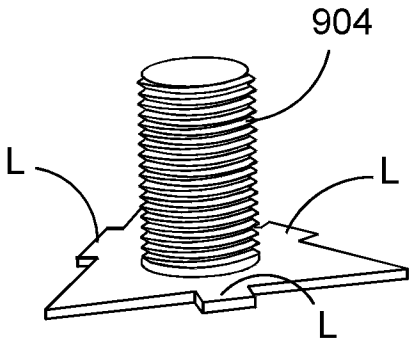

FIGURE 22E

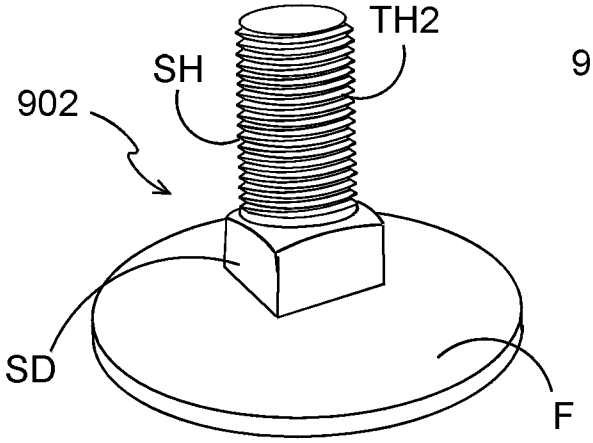

FIGURE 22B

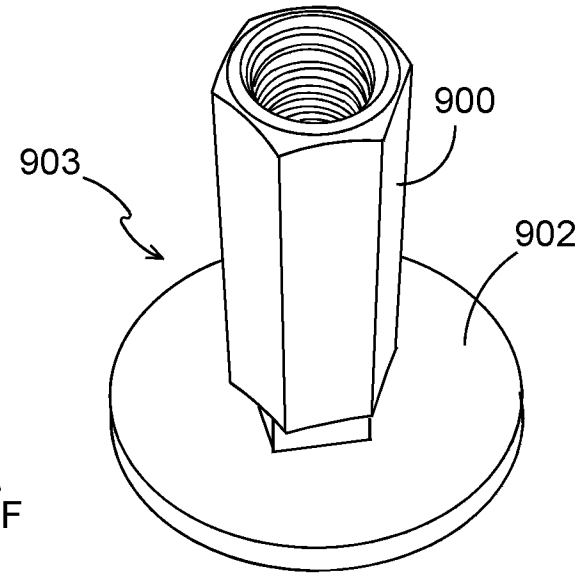

FIGURE 22D

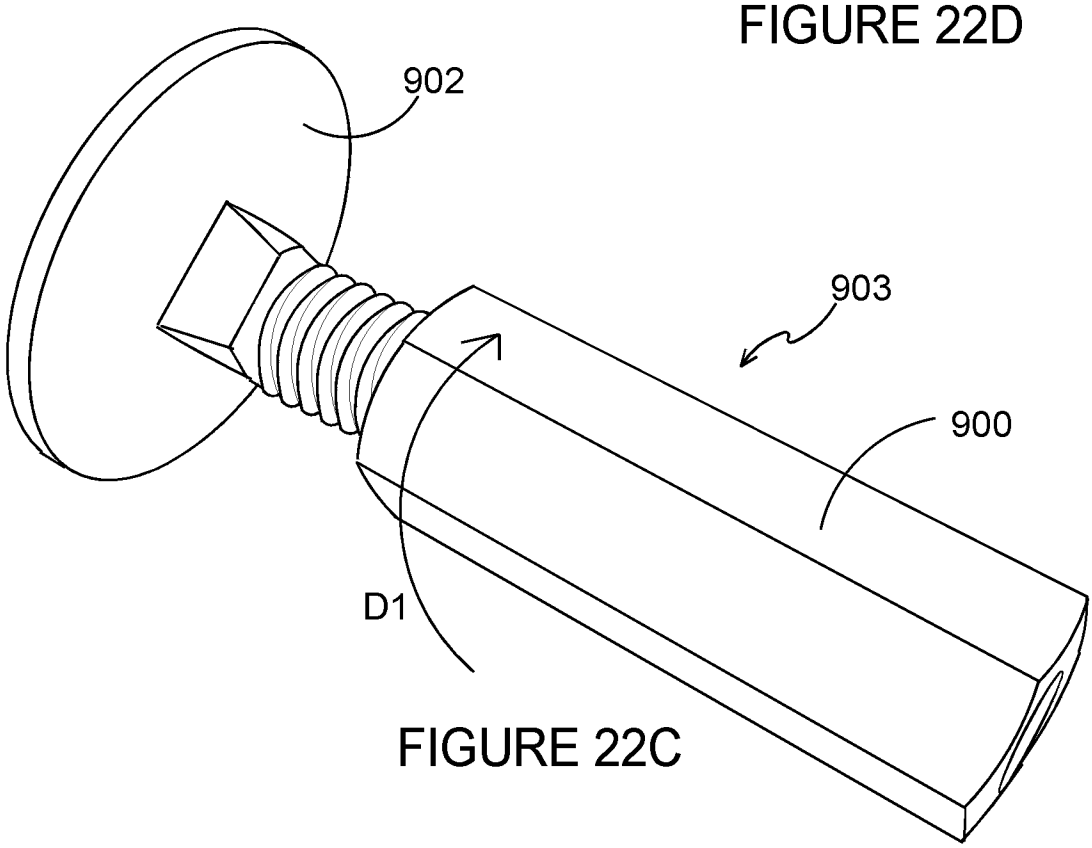

FIGURE 22C

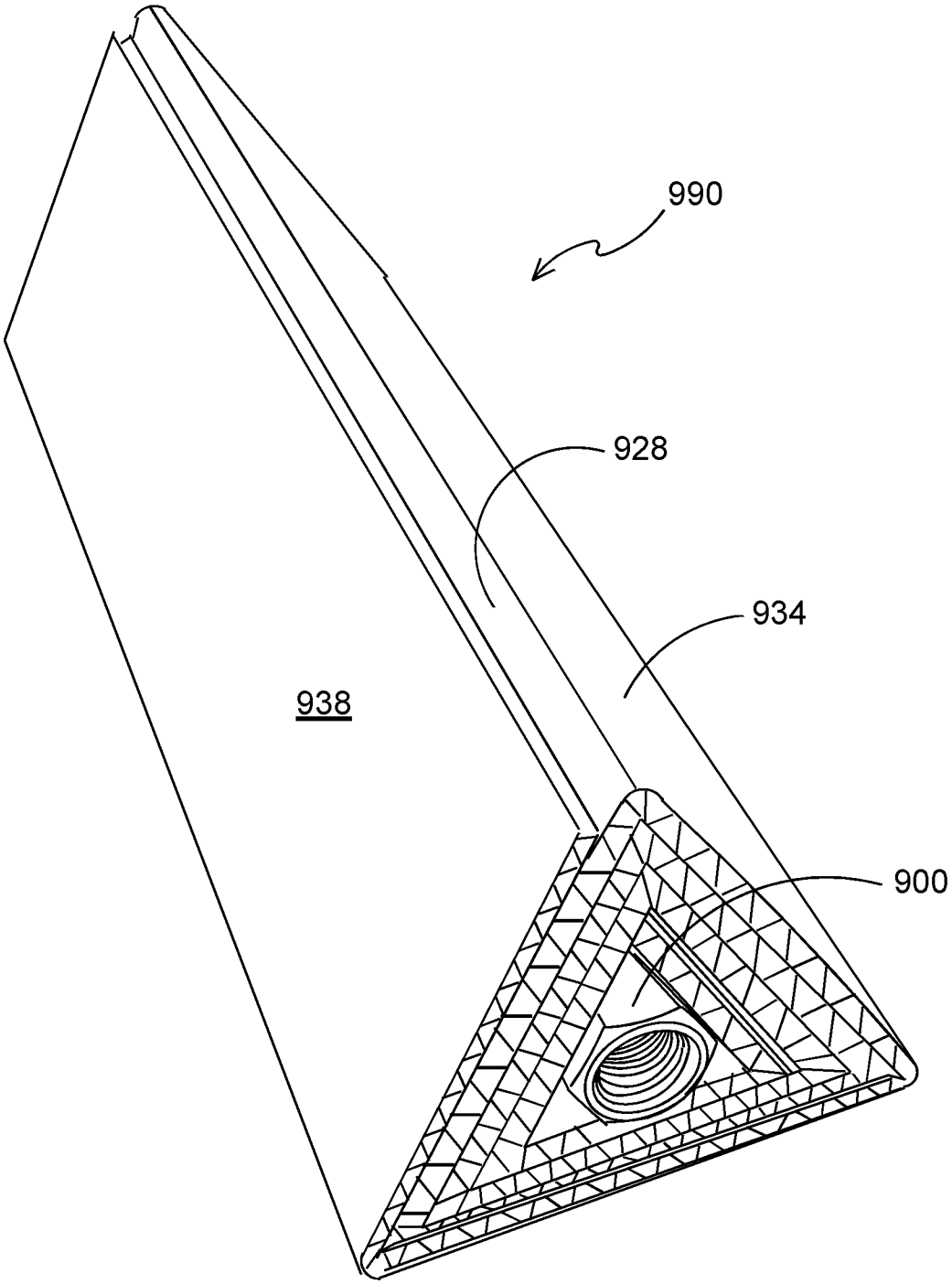

FIGURE 23

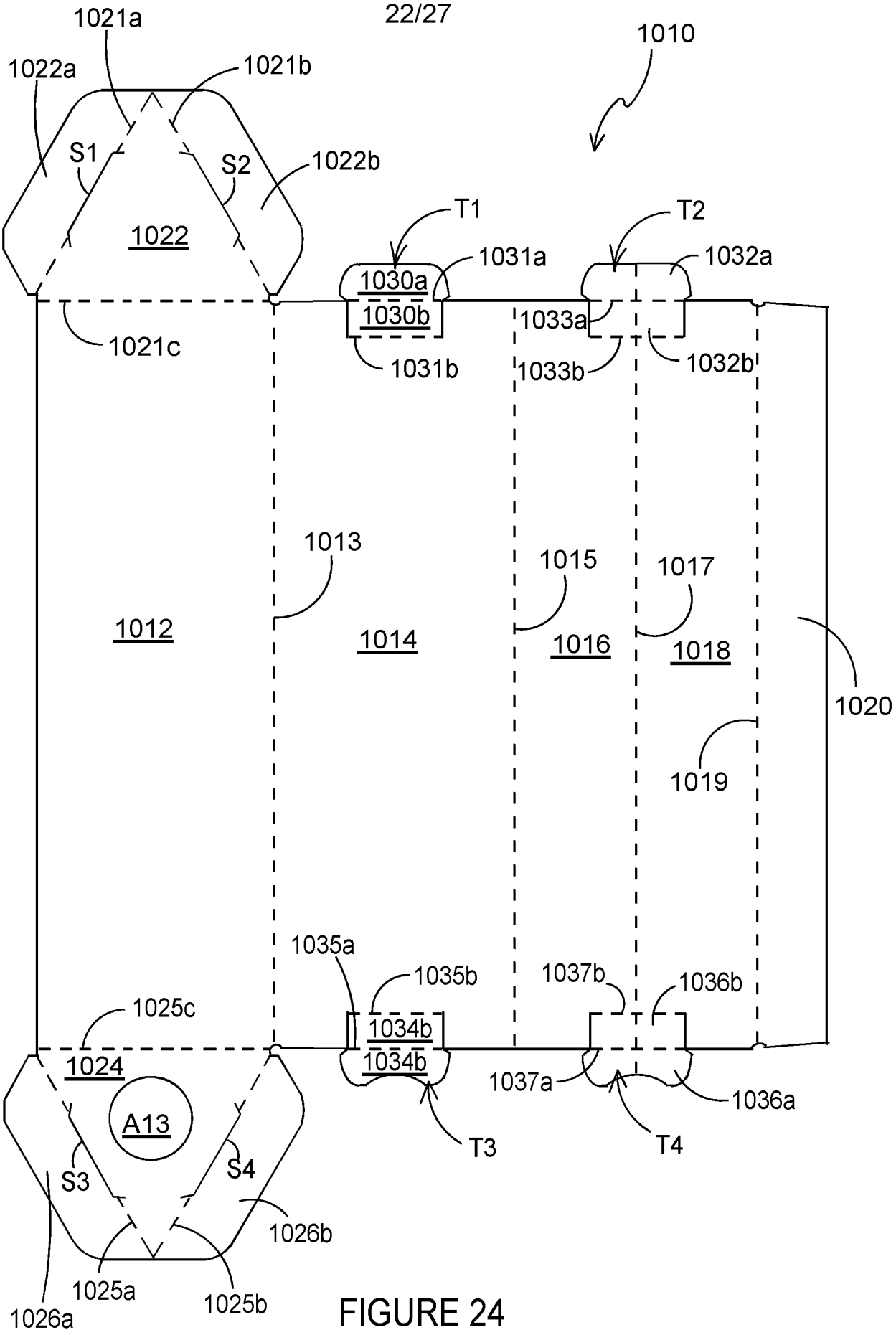
1021a
1022a
1021b
1010
S1
S2
1022b
T1
T2
1022
1030a
1031a
1032a
1030b
1033a
1021c
1031b
1033b
1032b
1013
1015
1017
1012
1014
1016
1018
1020
1019
1035a
1035b
1037b
1036b
1025c
1024
1034b
1034b
1037a
1036a
A13
T3
T4
S3
S4
1026b
1025a
1025b
1026a

FIGURE 24

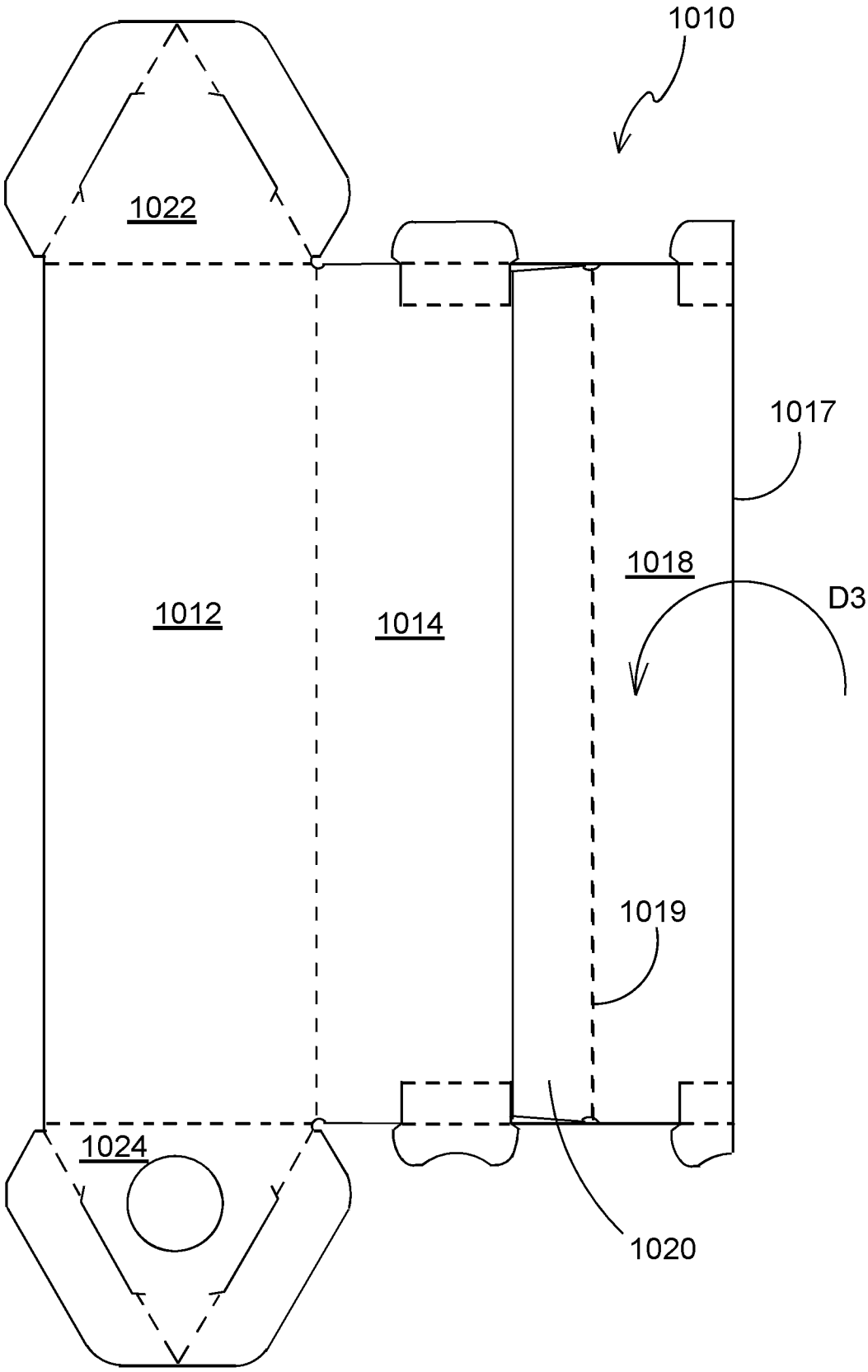

FIGURE 25

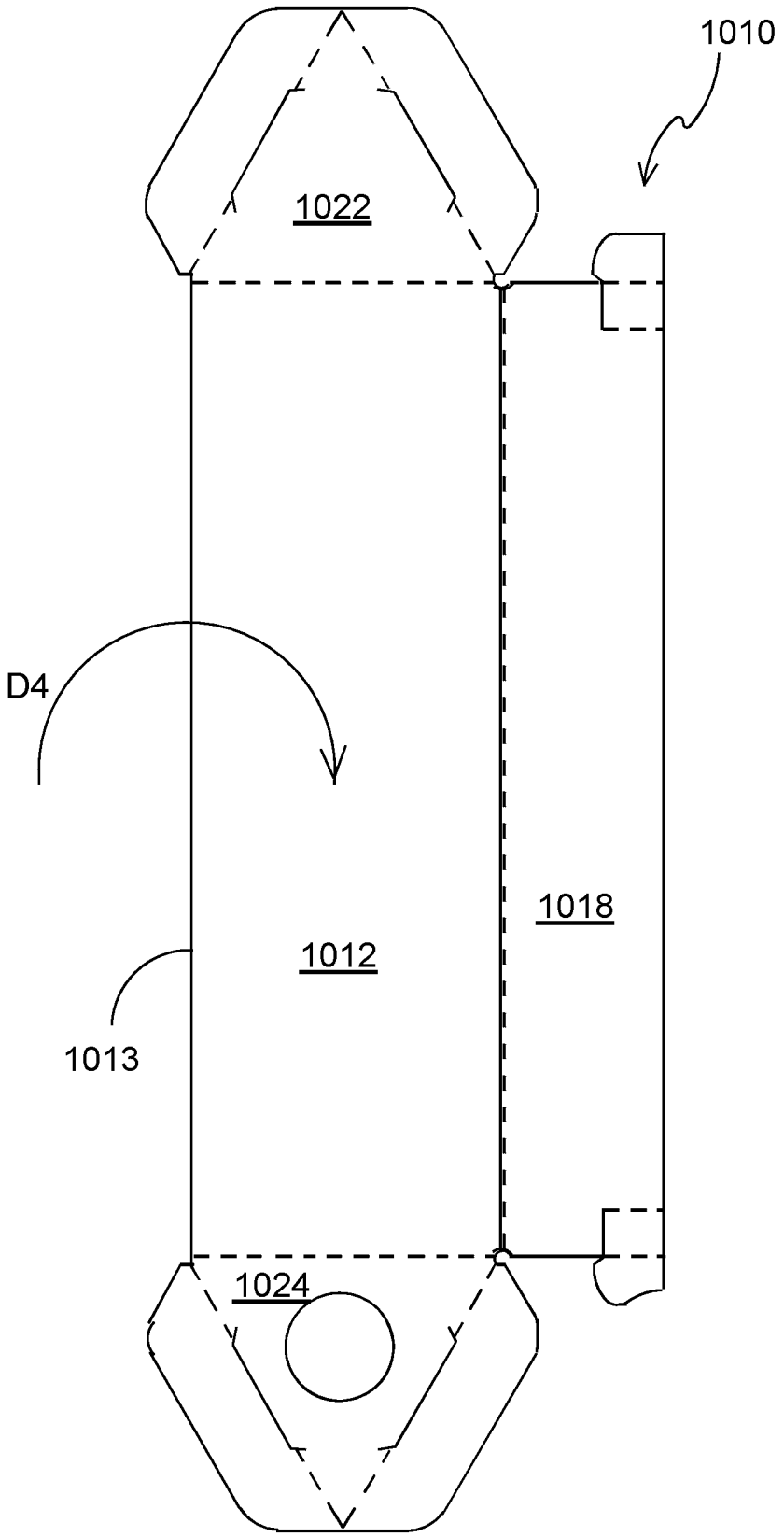

FIGURE 26

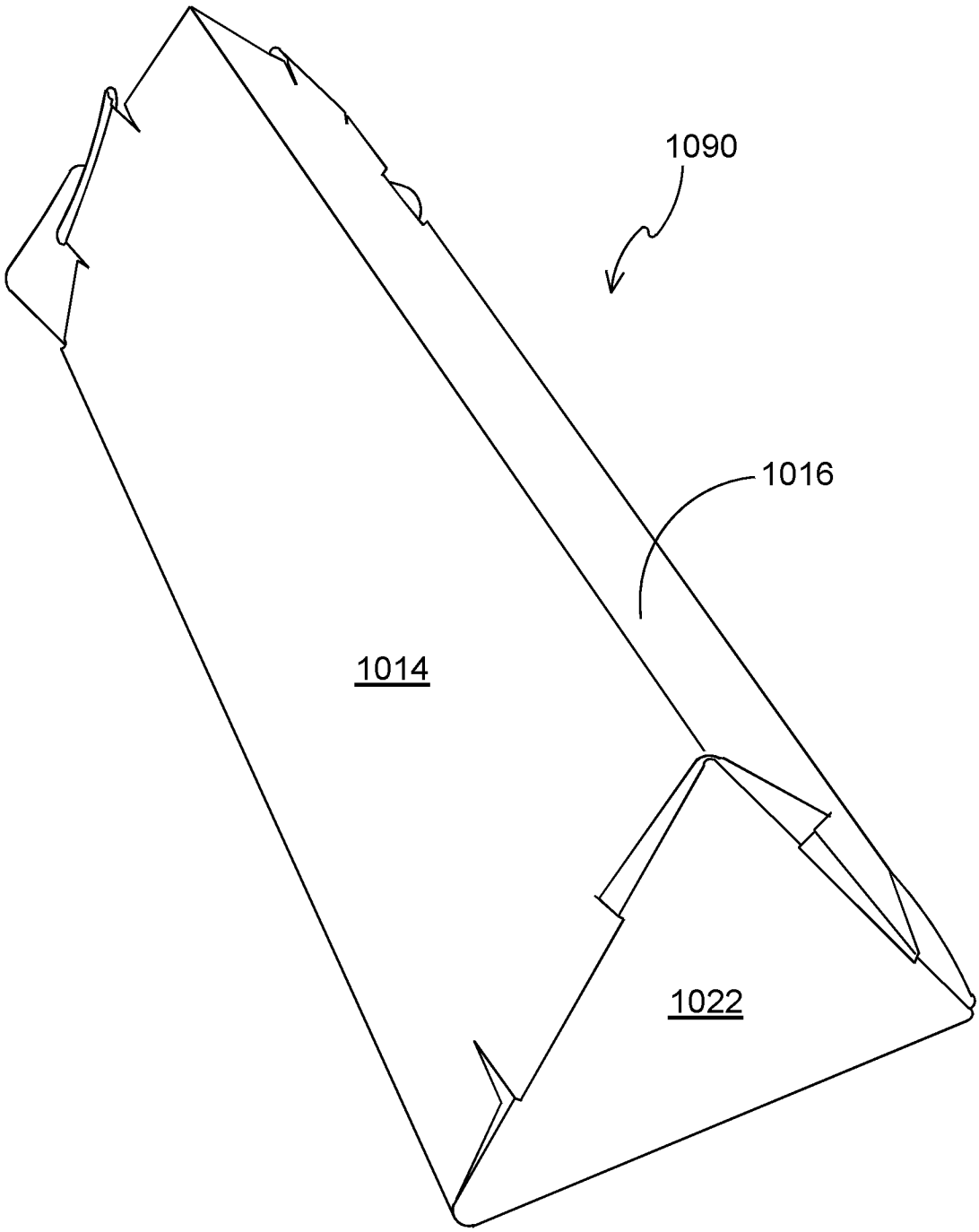

FIGURE 27

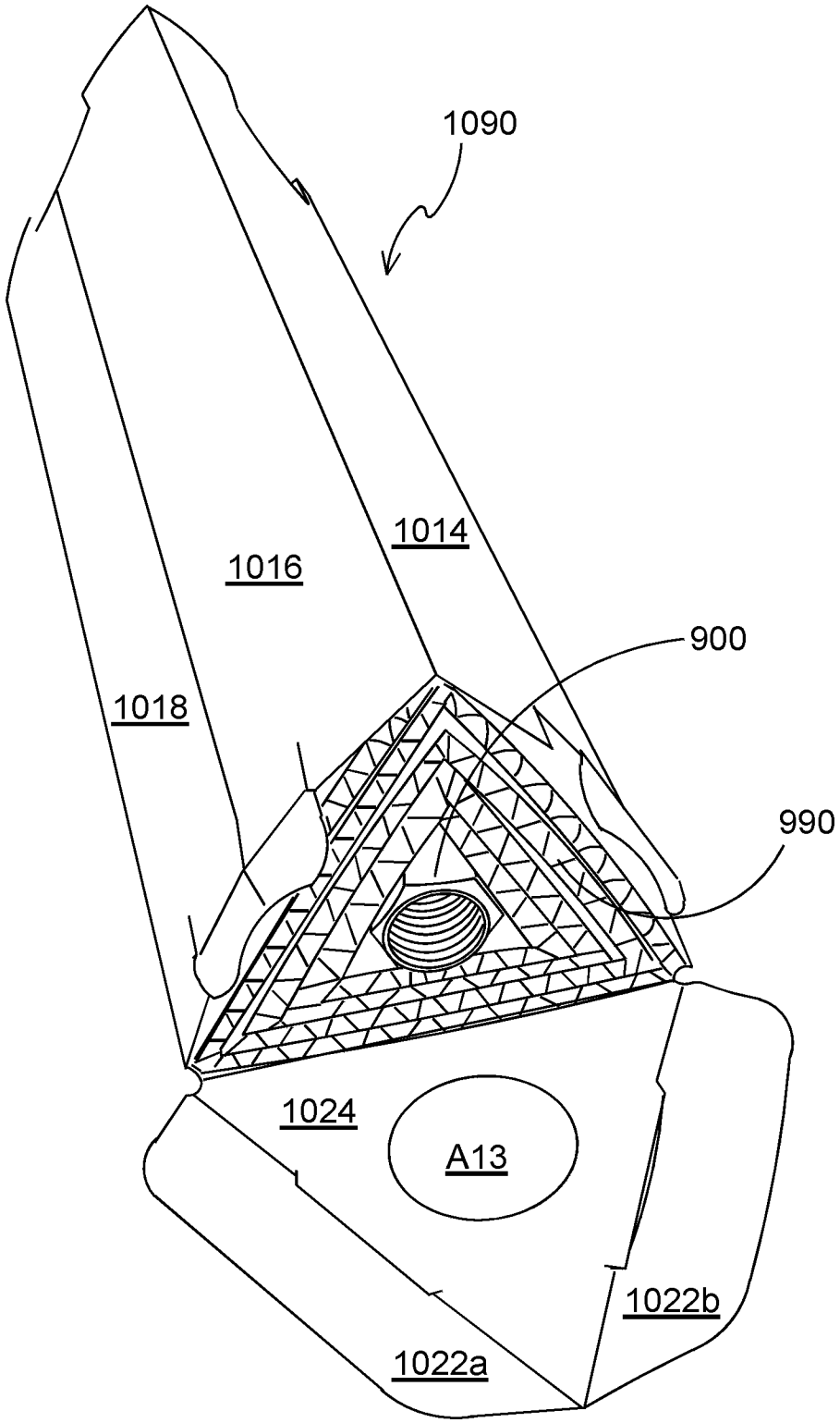

FIGURE 28

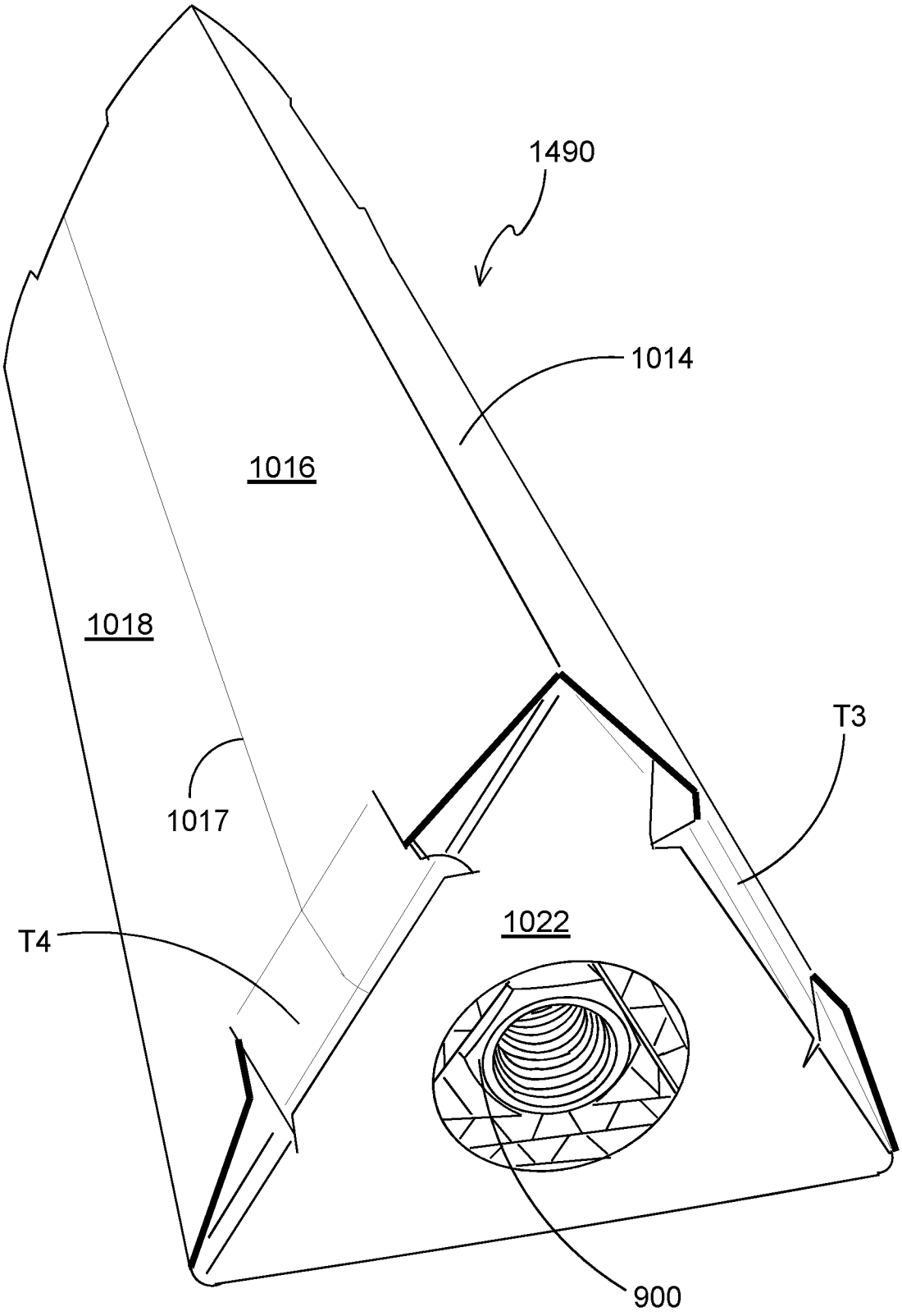

FIGURE 29

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2018/035797

A. CLASSIFICATION OF SUBJECT MATTER
INV. B67D1/14 B67D1/08
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/229687 A1 (MESSNER DAVID [US] ET AL) 17 September 2009 (2009-09-17) paragraphs [0002], [0003], [0021]; figures 2A, 3A, 3B, 4A, 4B, 5A, 5B	10-12
A	US 2011/005640 A1 (BENBARUJ MICHAEL [CA]) 13 January 2011 (2011-01-13) paragraphs [0020], [0021], [0022]; figure 2	1,8-10, 18,32, 33,40, 60,64
X	US 2013/087580 A1 (STEIN JOHN [US] ET AL) 11 April 2013 (2013-04-11)	13-17,31
A	figures 1A, 1B,	9,10,32

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
31 July 2018	26/09/2018

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Schultz, Tom

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2018/035797

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/262374 A1 (CHARGUERAUD VINCENT [FR]) 30 December 2004 (2004-12-30) paragraph [0032]; figure 1	23,25, 30,35,64
A	US 2005/029309 A1 (FORSYTH STEPHEN W [CA]) 10 February 2005 (2005-02-10) figures 2, 5, 6	10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2018/035797

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2011005640 A1	13-01-2011	NONE	
US 2013087580 A1	11-04-2013	NONE	
US 2004262374 A1	30-12-2004	US 2002079356 A1	27-06-2002
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US 2005029309 A1	10-02-2005	CA 2465719 A1	30-12-2004
		US 2005029309 A1	10-02-2005