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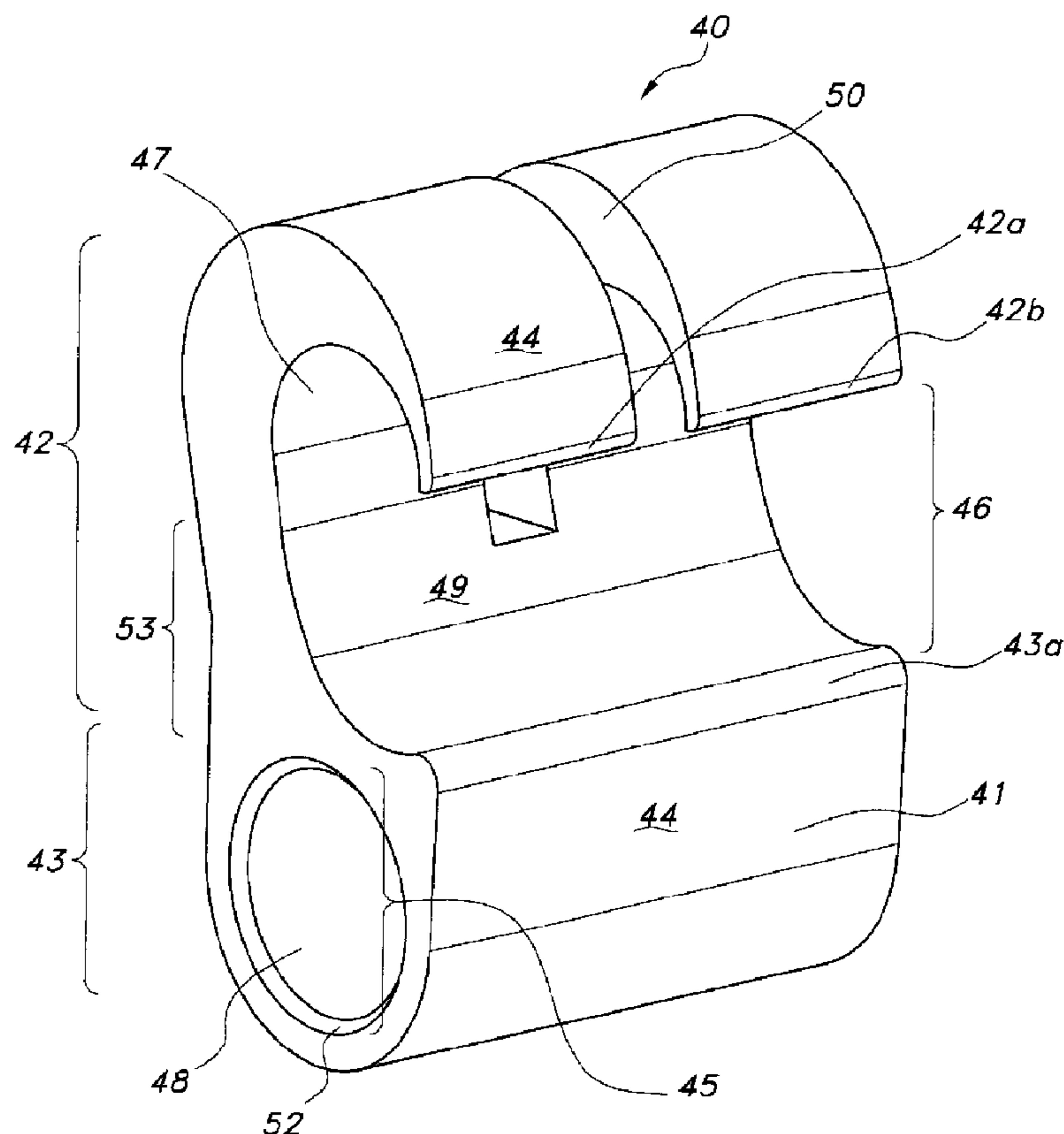
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(54) Title: WIRE COMPRESSION CONNECTOR



(57) Abrégé/Abstract:

An improved compression connector for connecting two electrical conductors and methods of using the same are disclosed. The compression connector is made of a single partially bifurcated connector body and then crimped. A partially bifurcated c- tap portion of the connector body allows for a crimping act on each side of the compression connector slot, resulting in a more reliable compression connection. The compression connector that results is much more resistant to failure compared to known C- shaped compression connectors.

ABSTRACT

An improved compression connector for connecting two electrical conductors and methods of using the same are disclosed. The compression connector is made of a single partially bifurcated connector body and then crimped. A partially bifurcated c-tap portion of the connector body allows for a crimping act on each side of the compression connector slot, resulting in a more reliable compression connection. The compression connector that results is much more resistant to failure compared to known C-shaped compression connectors.

WIRE COMPRESSION CONNECTOR

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This application is a Continuation-in-Part of co-pending U.S. Application No. 14/212,626, filed March 14, 2014, through which this application claims the benefit of U.S. Provisional Application No. 61/790,742, filed March 15, 2013, both of which are incorporated herein by reference in their entirety.

FIELD OF THE INVENTION

[0002] The present invention is generally directed toward a compression connector for connecting wires.

BACKGROUND OF THE INVENTION

[0003] Compression connectors are used to connect wires together to ensure that an electric current will flow without interruption through the wires. The connectors also provide a mechanical connection that prevents the wires from being pulled apart. In the case of grounding wires, compression connectors can also be used to connect a grounding wire to a grounding rod. Compression connectors are typically installed through the use of a crimping tool that applies pressure to the outside of the compression connector causing it to deform around the wires.

[0004] Under circumstances of high voltage or mechanical tension on the wires, a standard C-tap connector will fail as it opens up from its crimped state. As a result, the wires may become disconnected, creating a potential hazard.

SUMMARY OF THE INVENTION

[0005] A compression connector is disclosed herein that can withstand greater pullout tensions compared to previous compression connectors. The compression connector consists of a single, partially bifurcated connector body having a c-tap portion through which a first wire can be passed and a thru-hole portion for connecting a second wire. When crimped individually, the bifurcated clamp members are resistant to failure. It should be appreciated that it is simple to manufacture, and can be used with existing crimping dies.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Further advantages of the invention will become apparent by reference to the detailed description of preferred embodiments when considered in conjunction with the drawings:

[0007] FIG. 1A is a perspective view of the disclosed compression connector.

[0008] FIG. 1B is a perspective view of the first connector component.

[0009] FIG. 1C is a perspective view of the second connector component.

[0010] FIG. 2 is a front elevation view of the compression connector.

[0011] FIG. 3 is a perspective view of an embodiment of the compression connector where the first connector component has a wire cradle for a smaller wire than the wire cradle of the second connector component.

[0012] FIG. 4 depicts a compression connector component being installed onto wires.

[0013] FIG. 5 depicts a compression connector component as installed onto wires prior to crimping.

[0014] FIG. 6 depicts a front elevation view of the compression connector as installed onto wires and placed into a crimper prior to crimping.

[0015] FIG. 7 depicts the forces applied to the receivers of the compression connector and resultant deformation that will occur.

[0016] FIG. 8 shows a compression connector on wires after crimping.

[0017] FIG. 9 depicts a slotted embodiment of the compression connector.

[0018] FIG. 10A is a perspective view from the outer surface side of a single-piece embodiment of the compression connector with slots.

[0019] FIG. 10B is a perspective view from the inner surface side of a single-piece embodiment of the compression connector with slots.

[0020] FIG. 10C depicts a single piece compression connector as installed onto wires prior to crimping.

[0021] FIG. 10D depicts a single piece compression connector as installed onto wires after crimping.

[0022] FIG. 11A is a perspective view facing the wire opening 46 side of a single-piece embodiment of the compression connector with a partially bifurcated connector body having c-tap portion 42 and a thru-hole portion 43.

[0023] FIG. 11B is a perspective view from the side 51 of a single-piece embodiment of the compression connector shown in FIG. 11A.

[0024] FIG. 11C shows a perspective view from the side 51 of a single-piece embodiment of the compression connector shown in FIG. 11A placed within a portable crimper tool 200.

[0025] FIG. 11D shows a perspective view facing the wire opening 46 side of a single-piece embodiment of the compression connector shown in FIG. 11A after crimping with two copper strand electrical conductors 47a, 48a.

[0026] FIG. 12 is a perspective view facing the wire opening 46 side of a single-piece embodiment of the compression connector with a partially bifurcated connector body having an angled rear area between a c-tap portion 42 and a thru-hole portion 43.

DETAILED DESCRIPTION

[0027] The following detailed description is presented to enable any person skilled in the art to make and use the invention. For purposes of explanation, specific details are set forth to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that these specific details are not required to practice the invention. Descriptions of specific applications are provided only as representative examples. Various modifications to the preferred embodiments will be readily apparent to one skilled in the art, and the general principles defined herein may be applied to other embodiments and applications without departing from the scope of the invention. The present invention is not intended to be limited to the embodiments shown, but is to be accorded the widest possible scope consistent with the principles and features disclosed herein.

[0028] As will be appreciated from **FIG. 1**, compression connector **1**, is comprised of two connector components: a first connector component **2** and a second connector component **3**. Each of these connector components are configured to couple with each other, thus forming a wire opening **10** through which the wires to be connected are positioned. The connector components are each made of a single piece of an electrically conductive material, such as conductive metal, and generally have a similar appearance in shape and size. In some embodiments, the two connector components may actually be identical shapes, such as those shown in **FIG. 1B** and **FIG. 1C**, which, when coupled together, result in the embodiment shown in **FIG. 1A**.

[0029] Each of the connector components has a concave area for receiving a wire, referred to herein as a wire cradle. Although the description refers to wires, it will be appreciated that the disclosed invention may also be applied to the connection of wires to grounding rods or other conductors. In a preferred embodiment, the wire cradle is a curved surface with a radius slightly larger than that of the wire it receives. As shown in **FIG. 2**, first connector component **2** has a first wire cradle **4** configured to receive a first wire, and second connector component **3** has a second wire cradle **5** configured to receive a second wire. When coupled together, first connector component **2** and second connector component **3** form wire opening **10** that contains the section of both wires to be crimped. In some embodiments, such as that depicted in **FIG. 3**, the two connector components are different sizes to accommodate differently sized wires.

[0030] Corresponding structures on each of the two connector components allow them to couple together. The structures form complementary shapes that allow one

end of a connector component to fit within the opposite end of the other connector component.

[0031] In the embodiment shown in **FIG. 2**, at one end of first connector component **2** lies a first appendage **8** that is configured to nestle within second receiver **7** located on second connector component **3**. At the other end of first connector component **2**, across the first wire cradle **4**, is first receiver **6** that is configured to receive second appendage **9** located on second connector component **3**. First receiver **6** is a u-shaped structure having an internal cavity that can receive second appendage **9**. Similarly, second receiver **7** is a u-shaped structure having an internal cavity that can receive first appendage **8**.

[0032] In a preferred embodiment, first appendage **8** and second appendage **9** have identical shapes, and first receiver **6** and second receiver **7** have identical shapes. The shape of the appendages is simply a portion of the connector component that extends away from the wire cradle. However, it is anticipated that the appendage could have any shape that fits within the interior cavity of the receiver.

[0033] To couple the first connector component **2** to the second connector component **3**, the first connector component **2** is placed alongside second connector component **3** such that first appendage **8** is aligned with the second receiver **7**, and the second appendage **9** is aligned with first receiver **6**, as shown in **FIG. 4**. Once aligned, the first connector component **2** can slide into second connector component **3**, thus coupling them together. It should be appreciated that the coupling of the first connector

component **2** and second connector component **3** can be performed before or after positioning the wires within their respective wire cradles.

[0034] In the coupled state with wires positioned in the wire opening **10**, as depicted in **FIG. 5**, compression connector **1** is ready to be crimped. Structural features of the compression connector **1** will make crimping easier, and will result in a stronger attachment compared to prior known compression connectors.

[0035] As will be appreciated from **FIG. 6**, the compression connector **1** is affixed to the wires by using a crimper. The compression connector **1** is designed to fit into existing crimping dies that are currently in use for crimping wires and lugs, and does not require any special equipment. The compression connector **1** is designed such that, as it is compressed by the crimping die, it will deform in a specific manner such that each receiver locks its appendage within it in place. **FIG. 7** depicts the forces that are applied to the first receiver **6** and second receiver **7**. The crimper forces the first receiver **6** and the second appendage **9** to bend toward the second wire cradle **5**, locking the second appendage **9** in place. The crimper also forces the second receiver **7**, as well as the first appendage **8**, within it to bend toward the first wire cradle **4**, locking the first appendage **8** in place. **FIG. 8** depicts a compression connector **1** in a deformed state with wires **4a** and **5a** after crimping. In this deformed state, neither appendage can easily slide out and past the collapsed receiver to allow the compression connector **1** to open, as can be appreciated in **FIG. 8** by the folding of first appendage **8** and second receiver **7**.

[0036] Structural features of the compression connector **1** ensure that the compression connector **1** deforms in a prescribed manner resulting in enhanced locking

of the connector components in place. First, as seen in **FIG. 6**, the shape of compression connector **1** ensures that the force of the crimper will initially be applied directly to the receivers. Two outer surfaces of first receiver **6** come together at first receiver edge **11** that has an angle that matches the inner angles of the crimp die. Similarly, two outer surfaces of second receiver **7** come together at second receiver edge **12** that has an angle that matches the inner angles of the crimp die. As a result, the compression connector **1** can be oriented in the crimp die as shown in **FIG. 6** with one surface of the first receiver **6** receiving pressure from upper half crimp die **100** in a perpendicular direction, and one surface of the second receiver **7** receiving pressure from below from lower half crimp die **101** in a perpendicular direction. The surfaces may be textured **18** to aid in identification and to prevent slippage. As pressure is applied to first receiver **6** from the upper half crimp die **100**, second connector component **3** will start to deform at second appendage divot **14**. As pressure is applied to second receiver **7** from lower half crimp die **101**, first connector component **2** will start to deform at first appendage divot **13**.

[0037] The first connector component **2** may additionally have an indentation on its outer surface near the first receiver **6** to ensure that the first connector component **2** will bend at the proper location. This first receiver indentation **15** serves as a flex point as the whole first receiver **6** is pushed by the upper half crimp die **100**. Likewise, second connector component **3** may additionally have an indentation on its outer surface near the second receiver **7** to ensure that the second connector component **3** will bend at the proper location. This second receiver indentation **16** serves as a flex point as the whole second receiver **7** is pushed by the lower half crimp die **101**.

[0038] The deformed shape of the compression connector **1** provides much greater resistance to failure compared to standard C-shaped compression connectors. Typically, these C-shaped connectors fail by opening up at their entrance point. However, the currently disclosed compression connector **1** does not easily open up due to the deformation of the appendage and receiver. Pull tests indicate that the claimed device can withstand at least three times the force that C-taps can.

[0039] In circumstances where it is desired to have an even greater mechanical strength and resistance to failure, a slotted embodiment may be used, as shown in **FIG. 9**. This embodiment operates similarly to the embodiments described above, however, each of the two connector components are partially separated along their length, forming a slot **17** running down the middle. Due to the partial separation, the compression connector **1** may be crimped twice on either side of the slot **17**. Each of these crimps will act independently to hold the wires firmly together, thus greatly increasing the resistance to failure of the compression connector **1**. The slot **17** additionally provides a location through which a nylon cable tie such as a TY-RAP® cable tie manufactured by Thomas & Betts Corporation may be used to hold the compression connector **1** in place. This may be particularly useful where the wires are oriented vertically, and the connector components are sliding off of each other prior to crimping.

[0040] The disclosed invention provides several advantages over other compression connectors. First, as previously stated, the compression connector **1** has been shown to be more resistant to failure due to the locked state of the receiver and

appendage once crimped. Unlike standard C-tap connectors, there is no opening which provides a location for failure. Instead, the wires are fully surrounded by the compression connector **1**. Also, a tighter connection can be made through the use of appropriately sized connector components. As depicted in **FIG. 3**, in circumstances where the wires have different sizes, a connector component having a smaller wire cradle may be used on the smaller wire. This allows the installer to combine various connector components to match the characteristics of the wire and provide a customized connector that will bind the wires more tightly. Finally, it should be appreciated that no special crimping dies are required. The installer can use existing dies to achieve the much stronger connection.

[0041] Referring now to **FIG. 10**, a single piece embodiment of the compression connector **20** of the present invention is shown. As will be appreciated from **FIG. 10A** and **FIG. 10B**, compression connector **20**, is comprised of a single (one) connector body **21**. The connector body **21** has a first terminal end **22** and a second terminal end **23**. The connector body **21** further has an outer surface **24** and an inner surface **25**. The compression connector **20** has a single wire or conductor opening **26** formed between the terminal ends **22** and **23**. It is anticipated that compression connector **20** could be configured to have more than one inner surface **25** and outer surface **24**, e.g., in an “S” shape, such that two wire openings are formed, and such configurations are within the scope of the present invention. The connector body **21** is made of a single piece of an electrically conductive material, such as conductive metal, and more particularly iron, an iron alloy, aluminum, an aluminum alloy, copper, or a copper alloy. In preferred embodiments, the connector body **21** is made of copper.

[0042] The inner surface **25** at each of the terminal ends **22** and **23** has a concave area for receiving a wire, referred to herein as a wire cradle. Although the description refers to wires, it will be appreciated that the disclosed invention may also be applied to the connection of wires to grounding rods or other conductors. First wire cradle **27** is located at the inner surface **25** near first terminal end **22**, and second wire cradle **28** is located at the inner surface **25** near second terminal end **23**. The inner surface **25** also includes a ridge **29** separating first wire cradle **27** and second wire cradle **28**. In a preferred embodiment, the wire cradles **27** and **28** are each a curved surface with a radius slightly larger than that of the wire it receives. As shown in **FIG. 10C**, connector body **21** has a first wire cradle **27** configured to receive a first wire **27a**, and connector body **21** has a second wire cradle **28** configured to receive a second wire **28a**. As stated above, the terminal ends **22** and **23** form wire opening **26** that will contain the sections of both wires **27a** and **28a** to be crimped. In some embodiments, not shown, the wire cradles **27** and **28** are different sizes to accommodate differently sized wires.

[0043] Once wires **27a** and **28a** are positioned in the wire opening **26** and placed in corresponding wire cradles **27** and **28**, as depicted in **FIG. 10C**, compression connector **20** is ready to be crimped using a crimper tool. The first terminal end **22** and the second terminal end **23** are configured to close the wire or conductor opening upon an act of compression, such as being crimped. The compression connector **20** is designed to fit into existing crimping dies that are currently in use for crimping wires and lugs, and does not require any special equipment. The compression connector **20** is designed such that, as it is compressed by the crimping die, it will deform in a specific manner such that

the terminal ends **22** and **23** are compressed together, which closes wire opening **26**. The surfaces may be textured to aid in identification and to prevent slippage. **FIG. 10D** depicts a compression connector **20** in a deformed state with wires **27a** and **28a** in wire cradles **27** and **28**, respectively.

[0044] To provide greater mechanical strength and resistance to failure, compression connector **20** also contains slots **30**. As can readily be seen in all panels of **FIG. 10**, connector body **21** of compression connector **20** is partially separated along its length, forming slots **30** running down the middle from each terminal end **22** and **23** to near ridge **29**. Slots **30** create a separation at each terminal end **22** and **23**, which is shown in **FIG. 10B** as first terminal ends **22a** and **22b** and second terminal ends **23a** and **23b**. Due to the partial separation or bifurcation of each end up to near ridge **29**, the compression connector **20** may be crimped twice on either side of the slot **30**, as shown in **FIG. 10D**. Each of these crimps will act independently to hold the wires firmly together, thus greatly increasing the resistance to failure of the compression connector **20**. The slots **30** additionally provide a location through which a nylon cable tie such as a TY-RAP® cable tie manufactured by Thomas & Betts Corporation may be used to hold the compression connector **20** in place. This may be particularly useful where the wires to be crimped are oriented vertically. This embodiment provides several advantages over other known compression connectors, particularly other C-tap connectors. A tighter connection can be made through the use of appropriately sized compression connectors **20**, i.e., compression connectors with the wire cradles appropriately sized for the wires to be crimped. The compression connector **20** also has slots **30**, which provide greater mechanical strength and resistance to failure. Finally, it should be appreciated

that no special crimping dies are required. The installer can use existing dies to achieve the much stronger connection.

[0045] Referring now to **FIGS. 11-12**, a single piece embodiment of the compression connector **40** is shown. As will be appreciated from **FIG. 11A** and **FIG. 11B**, compression connector **40**, is comprised of a single (one) connector body **41**. The connector body **41** has a first portion **42** (c-tap portion) configured to have a c-tap shape with conductor opening **46** for receiving an electrical conductor **47a** and a second portion **43** (thru-hole portion) configured to have a thru-hole tap **45** for receiving an electrical conductor **48a**. The connector body **41** further has an outer surface **44** and a first inner surface **49** associated with the c-tap portion **42** and a second inner surface **48** associated with the thru-hole portion **43**. In a preferred embodiment, outer surface **44** of connector body **41** is angled or curved at rear area **53** located between c-tap portion **42** and thru-hole portion **43** (as can be appreciated in **FIG. 12**) for material savings, which decreases product weight and manufacturing costs for compression connector **40**. The c-tap portion **42** has a single wire or conductor opening **46** formed between the terminal ends **42a**, **42b** and **43a**. The thru-hole tap **45** is positioned to be open on each side **51** of connector body **41**, thus the inserted wires in c-tap portion **42** and thru-hole portion **43** are oriented to run parallel to each other. The connector body **41** is preferably made of a single piece of an electrically conductive material, such as conductive metal, and more particularly iron, an iron alloy, aluminum, an aluminum alloy, copper, or a copper alloy. In preferred embodiments, the connector body **41** is made of copper by extrusion techniques known in the field.

[0046] The inner surface **49** of c-tap portion **42** has a curved area for receiving a wire, referred to herein as a wire cradle **47**. Although the description refers to wires, it will be appreciated that the disclosed invention may also be applied to the connection of cables/wires to grounding rods or other conductors (e.g., rebar). More specifically, wire cradle **47** is located at the inner surface **49** near first terminal ends **42a, 42b**. In a preferred embodiment, wire cradle **47** has a curved surface with a diameter slightly larger than that of the wire it receives. The wire cradle **47** of c-tap portion **42** can be configured to receive various sizes of wires. In preferred embodiments, c-tap portion **42** has a wire cradle **47** configured to receive wires with diameters ranging from about one fourth inch to about one inch. The inner surface **48** of thru-hole portion **43** has a substantially circular thru-hole for receiving a wire, referred to herein as a thru-hole tap **45**. To aid in the insertion of a wire into thru-hole tap **45**, the edges **52** on sides **51** are tapered. The inwardly tapered edges **52** allow for a wire to be inserted on either side of thru-hole tap **45** while limiting an edge or strand of that wire from being caught at the edge **52** during insertion. Although the description refers to wires, it will be appreciated that the disclosed invention may also be applied to the connection of cables/wires to grounding rods or other conductors (e.g., rebar). In a preferred embodiment, thru-hole tap **45** has a diameter slightly larger than that of the wire it receives. The thru-hole tap **45** of thru-hole portion **43** can be configured to receive various sizes of wires. In preferred embodiments, thru-hole portion **43** has a thru-hole tap **45** configured to receive wires with diameters ranging from about one fourth inch to about one inch. In some embodiments, the wire cradle **47** and thru-hole tap **45** are different sizes to accommodate differently sized wires, based on need and application.

[0047] A user can prepare the electrical conductors **47a/b**, **48a** prior to inserting them into position in the compression connector **40**, such as cleaning away dirt, polishing with a wire brush or similar tool, and/or scoring with a knurling tool or other device (especially on smooth solid grounding rods). When positioning the wires into the compression connector **40**, the wires should protrude beyond the compression connector **40** by about $\frac{3}{4}$ inch or more. Once wire **47b** (as shown here, a solid copper grounding rod) is positioned in the wire opening **46** and placed in corresponding wire cradle **47** and wire **48a** is positioned in the thru-hole tap **45**, as depicted in **FIG. 11C**, compression connector **40** is ready to be compressed/crimped using a crimper tool, such as portable crimper tool **200**. The compression connector **40** is designed to fit into existing crimping dies that are currently in use for crimping wires and lugs, and does not require any special equipment. The compression connector **40** is designed such that, as it is compressed by the crimping dies **201**, **202**, it will deform in a specific manner such that the terminal ends **42a**, **42b** and **43a** are compressed together, which closes wire opening **46**. Thus, the terminal ends **42a**, **42b** and **43a** are configured to close the wire opening **46** of the c-tap portion **42** and tighten thru-hole tap **45** upon an act of compression, such as being crimped. Preferably, terminal ends **42a**, **42b** and **43a** are configured to close the wire opening **46** such that terminal ends **42a**, **42b** are in physical contact with inner surface **49** of c-tap portion **42** and terminal end **43a** is in physical contact with outer surface **44** of the thru-hole portion **43**. This closing configuration more securely closes the wire opening **46** because the thinner c-tap portion **42** is protected from being caught or pulled by other objects or machinery after the compression is complete. The inner surfaces **48** and **49** may be textured to aid in identification (such as size or suggested application, i.e.,

$\frac{5}{8}$ inch stranded wire conductor or $\frac{3}{4}$ inch solid copper grounding rod) and/or to prevent slippage of the wire after or during compression. **FIG. 11D** depicts a compression connector **40** in a deformed state with wires **47a** and **48a** (as shown here, multi-strand copper conductor cables) in wire cradle **47** and thru-hole tap **45**, respectively, after a being compressed (discussed further below).

[0048] To provide greater mechanical strength and resistance to failure, compression connector **40** also contains slot **50**. As can readily be seen in all panels of **FIGS. 11** and **12**, connector body **41** of compression connector **40** is partially separated (or bifurcated) along its length in c-tap portion **42**, forming slot **50** running down the middle of connector body **41** from terminal ends **42a**, **42b** to near terminal end **43a**. Slot **50** creates a separation in c-tap portion **42** between terminal ends **42a**, **42b**, which is shown in **FIGS. 11A** and **11B** as terminal ends **42a** and **42b**. Due to the partial separation or bifurcation of each end up to near terminal end **43a**, the compression connector **40** may be crimped on either side of the slot **50** as shown in **FIG. 11D**. Each of these crimps will act independently to hold the wires firmly together, thus greatly increasing the resistance to failure of the compression connector **40**. As with traditional c-tap connectors, the tonnage of portable crimping machine is not sufficient to crimp to the best level as copper material from the compression connector **40** will flow around strands in a wire when used in large connector bodies. The crimps on each side of slot **50** will compress the compression connector **40** and wires with more force per area due to slot **50**. The slot **50** additionally provides a location through which a nylon cable tie such as a TY-RAP® cable tie manufactured by Thomas & Betts Corporation may be used to hold the compression connector **40** in place. This may be particularly useful where the

wires to be crimped are oriented vertically, e.g., vertically installed copper grounding rods. This embodiment provides several advantages over other known compression connectors, particularly known C-tap connectors. A tighter connection can be made through the use of appropriately sized compression connectors **40**, i.e., compression connectors **40** with the wire cradle **47** and thru-hole tap **45** appropriately sized for the wires to be crimped. Finally, it should be appreciated that no special crimping dies are required. The installer can use existing dies to achieve the much stronger connection.

[0049] The terms "comprising," "including," and "having," as used in the claims and specification herein, shall be considered as indicating an open group that may include other elements not specified. The terms "a," "an," and the singular forms of words shall be taken to include the plural form of the same words, such that the terms mean that one or more of something is provided. The term "one" or "single" may be used to indicate that one and only one of something is intended. Similarly, other specific integer values, such as "two," may be used when a specific number of things is intended. The terms "preferably," "preferred," "prefer," "optionally," "may," and similar terms are used to indicate that an item, condition or step being referred to is an optional (not required) feature of the invention.

[0050] The invention has been described with reference to various specific and preferred embodiments and techniques. However, it should be understood that many variations and modifications may be made while remaining within the spirit and scope of the invention. It will be apparent to one of ordinary skill in the art that methods, devices, device elements, materials, procedures and techniques other than those specifically

described herein can be applied to the practice of the invention as broadly disclosed herein without resort to undue experimentation. All art-known functional equivalents of methods, devices, device elements, materials, procedures and techniques described herein are intended to be encompassed by this invention. Whenever a range is disclosed, all subranges and individual values are intended to be encompassed. This invention is not to be limited by the embodiments disclosed, including any shown in the drawings or exemplified in the specification, which are given by way of example and not of limitation.

[0051] While the invention has been described with respect to a limited number of embodiments, those skilled in the art, having benefit of this disclosure, will appreciate that other embodiments can be devised which do not depart from the scope of the invention as disclosed herein. Accordingly, the scope of the invention should be limited only by the attached claims.

[0052] All references throughout this application, for example patent documents including issued or granted patents or equivalents, patent application publications, and non-patent literature documents or other source material, are hereby incorporated by reference herein in their entireties, as though individually incorporated by reference, to the extent each reference is at least partially not inconsistent with the disclosure in the present application (for example, a reference that is partially inconsistent is incorporated by reference except for the partially inconsistent portion of the reference).

CLAIMS:

I Claim:

1. A compression connector comprising a connector body having a c-tap portion and a thru-hole portion.
2. The compression connector of claim 1, wherein said connector body is partially bifurcated by a slot in said c-tap portion.
3. The compression connector of claim 2, wherein said slot facilitates two separate crimps of the partially bifurcated connector body on either side of said slot.
4. The compression connector of claim 2, further comprising a wire cradle associated with said c-tap portion and a thru-hole tap associated with said thru-hole portion.
5. The compression connector of claim 4, wherein said thru-hole tap has an inwardly tapered edge.
6. The compression connector of claim 4, wherein said wire cradle and said thru-hole tap are configured to receive electrical conductors oriented parallel to each other.
7. The compression connector of claim 4, wherein said wire cradle and said thru-hole tap are configured to receive electrical conductors of different diameters.
8. The compression connector of claim 1, further comprising an outer surface wherein said outer surface has a curved rear area located between said c-tap portion and said thru-hole portion.
9. The compression connector of claim 1, wherein said bifurcated body is made of a conductive metal.
10. The compression connector of claim 9, wherein said conductive metal is copper.

11. A compression connector for connecting two conductors comprising a partially bifurcated connector body having a c-tap portion and a thru-hole portion.
12. The compression connector of claim 11, wherein said c-tap portion has a slot.
13. The compression connector of claim 12, further comprising a first inner surface associated with said c-tap portion, a second inner surface associated with said thru-hole portion, and an outer surface.
14. The compression connector of claim 13, wherein said outer surface has a curved rear area located between said c-tap portion and said thru-hole portion.
15. The compression connector of claim 14, further comprising a wire cradle associated with said c-tap portion and a thru-hole tap associated with said thru-hole portion.
16. The compression connector of claim 14, wherein said partially bifurcated body is made of a conductive metal.
17. The compression connector of claim 16, wherein said conductive metal is copper.

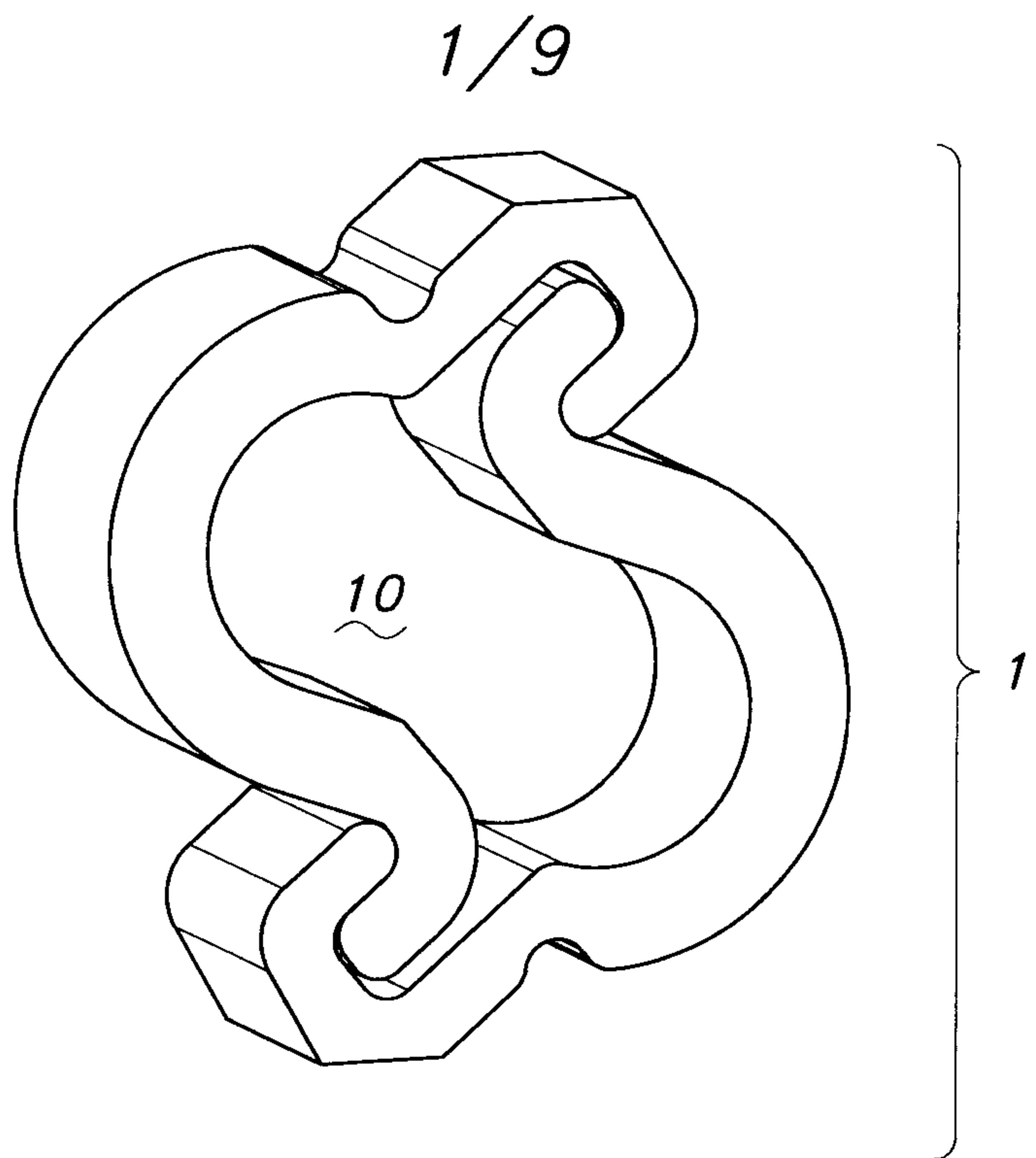


FIG. 1A

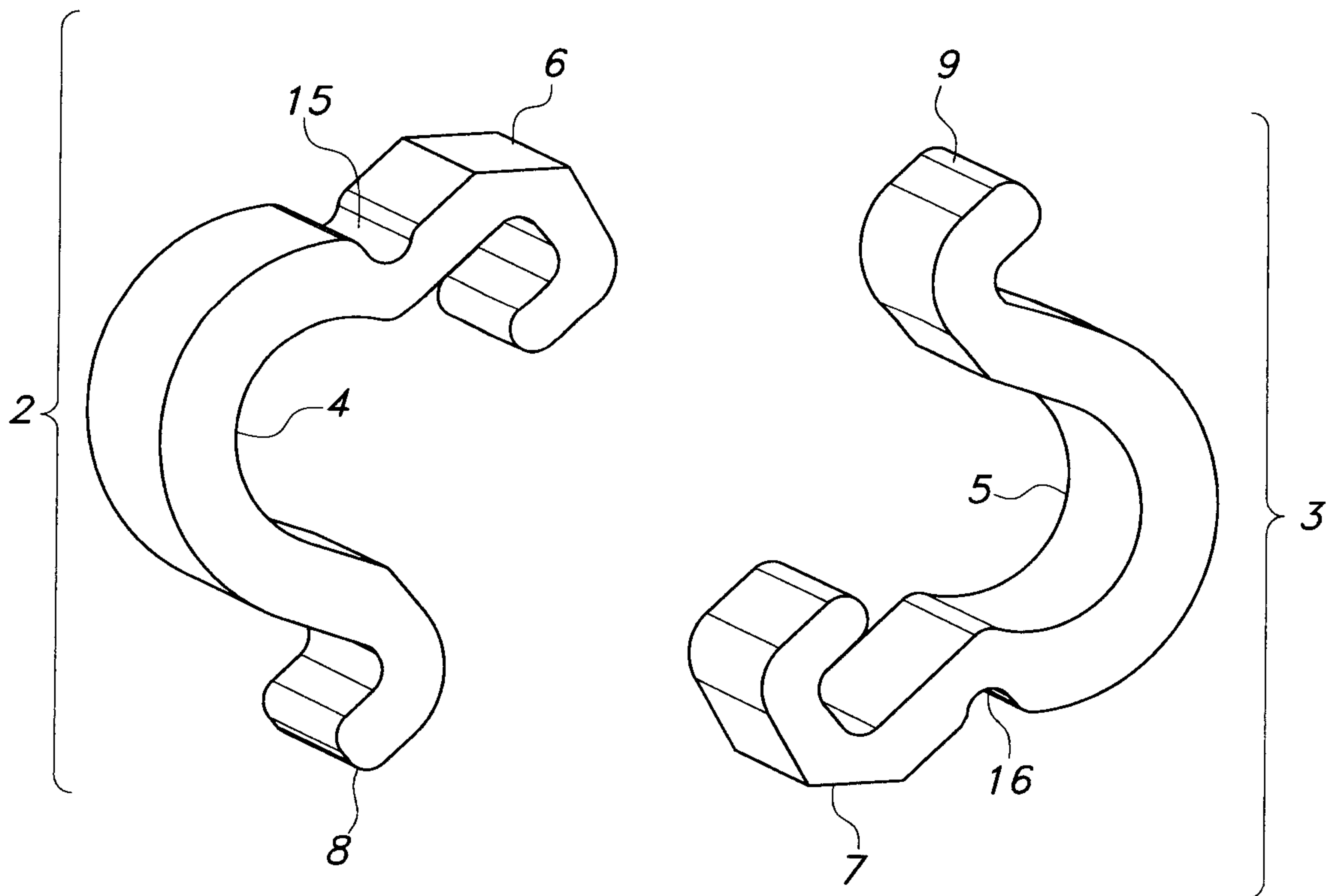


FIG. 1B

FIG. 1C

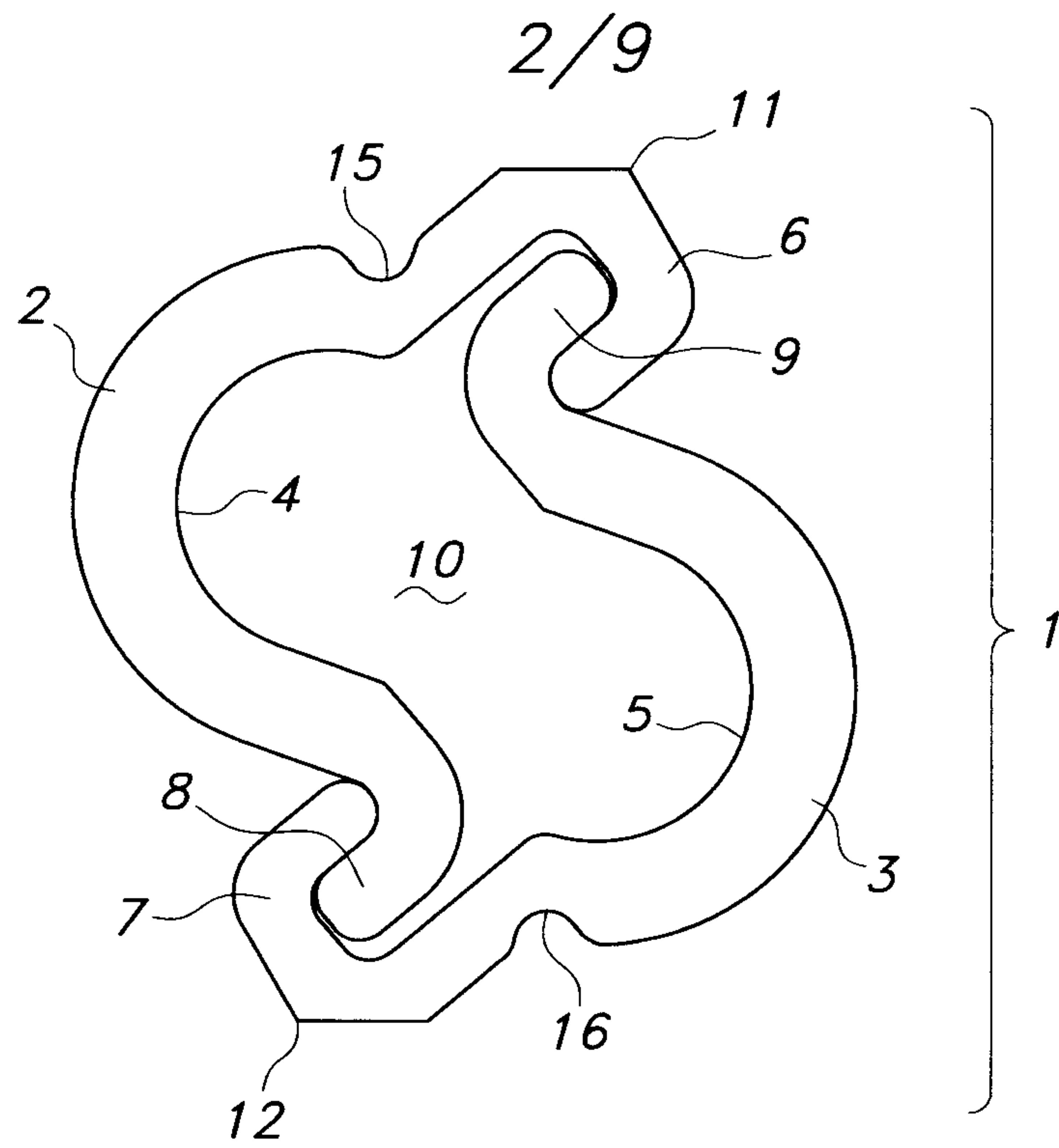


FIG. 2

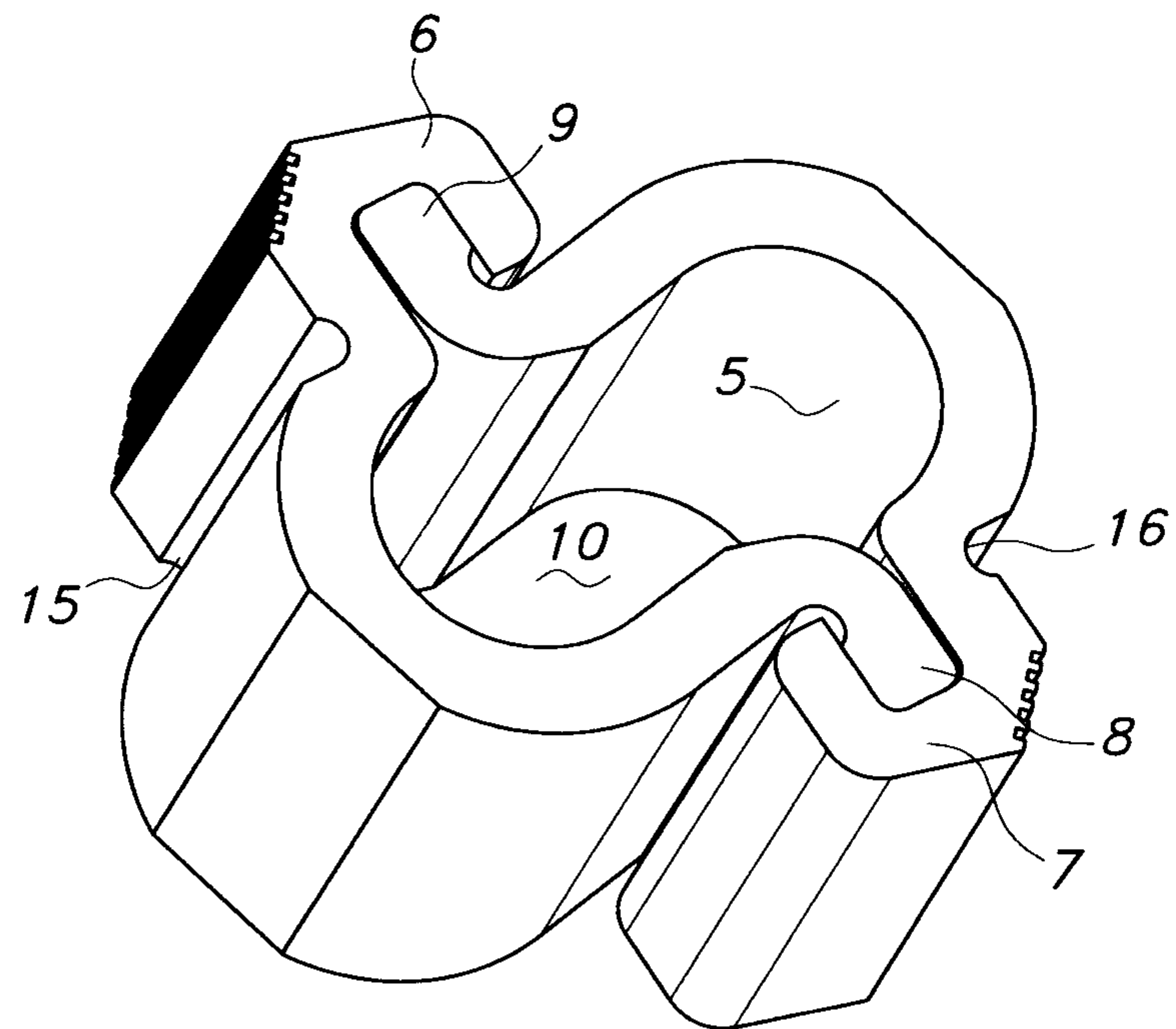
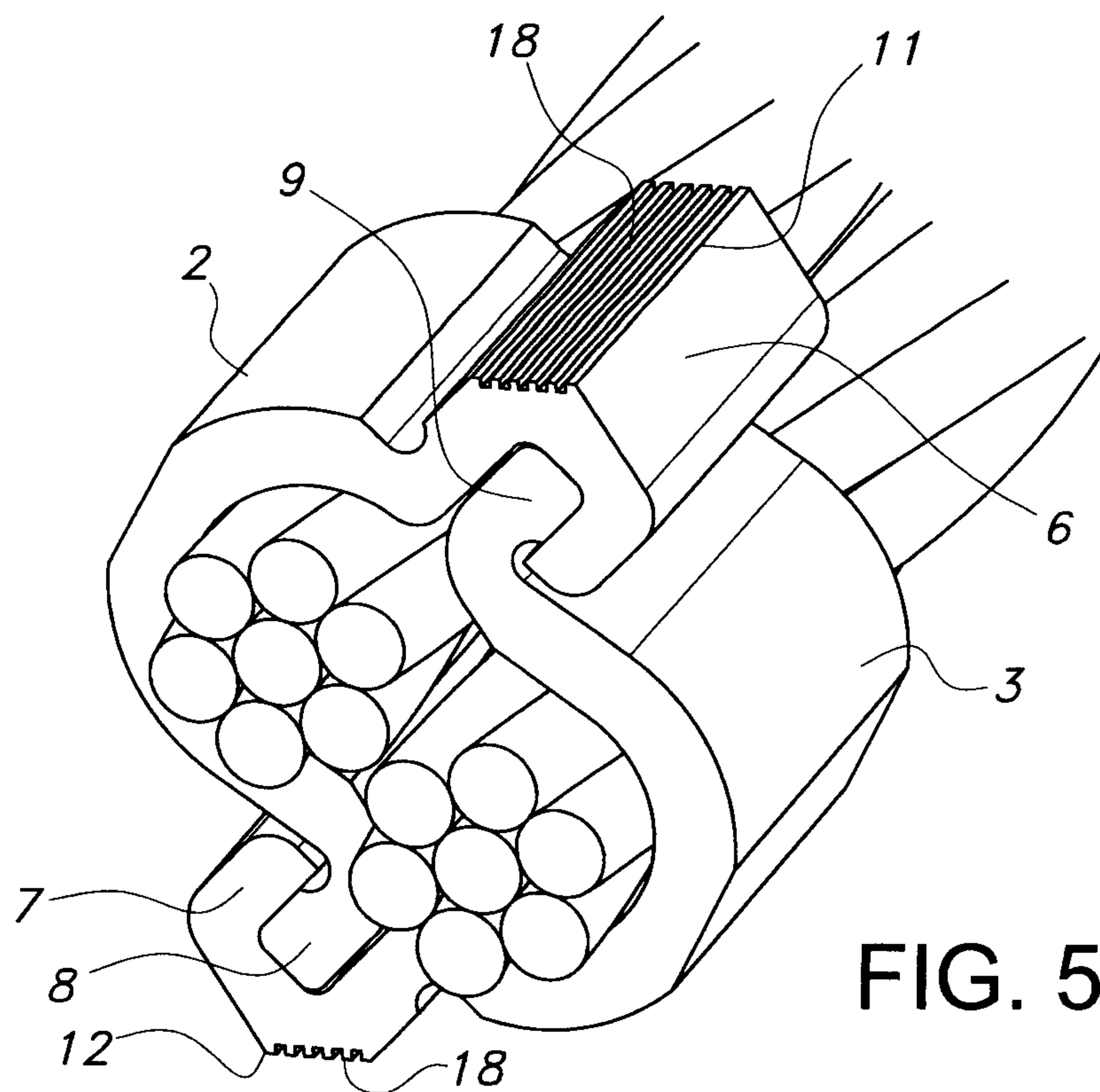
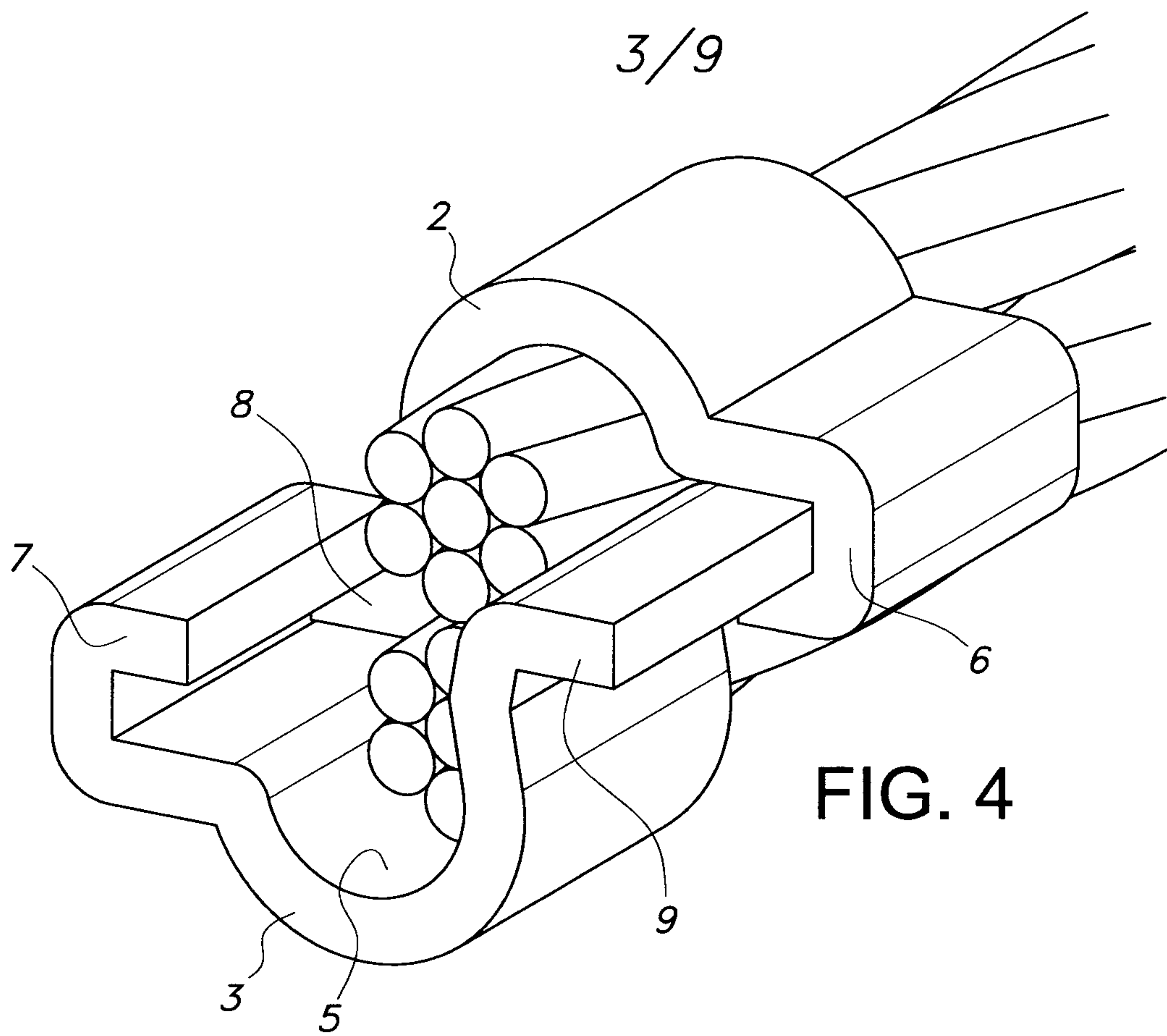
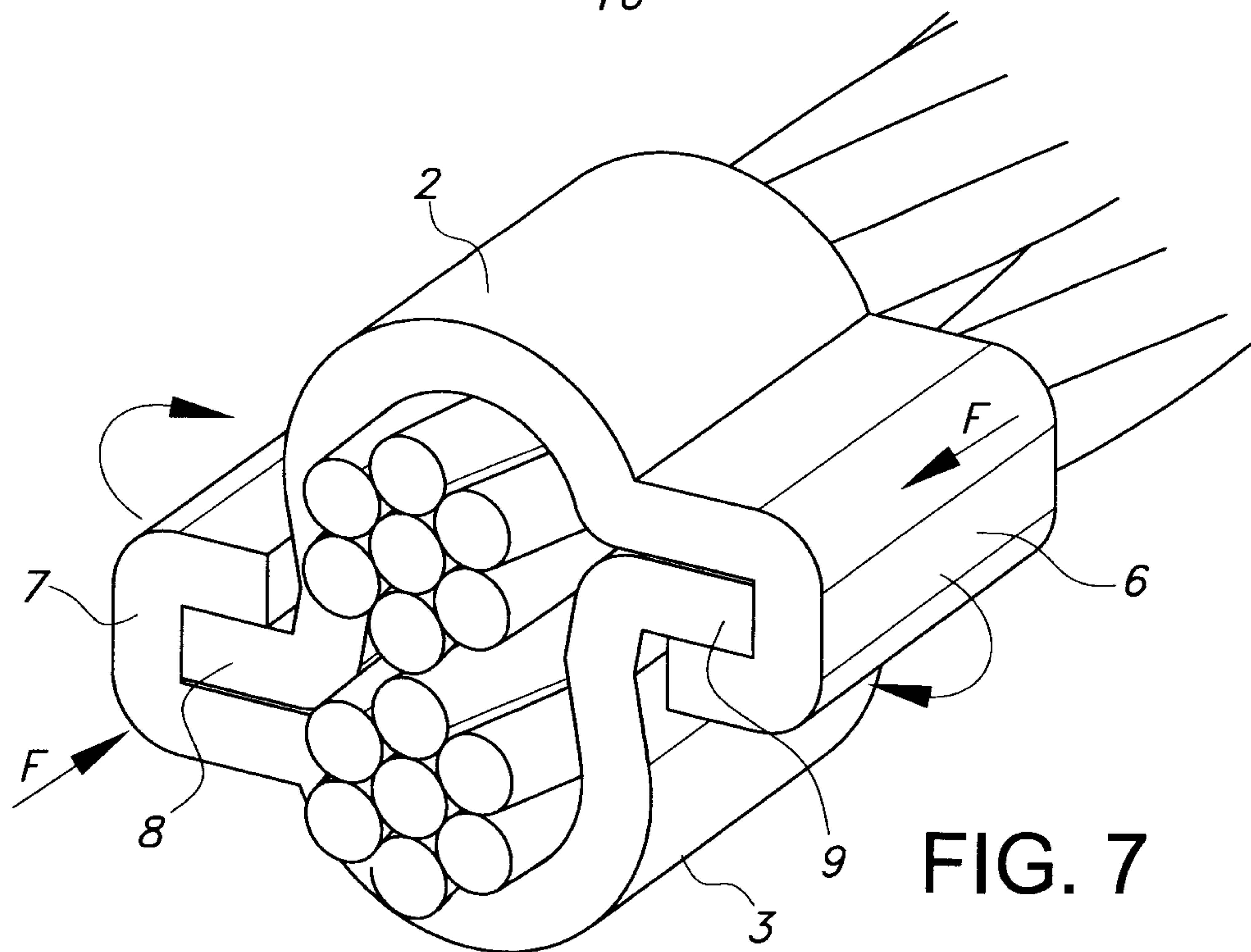
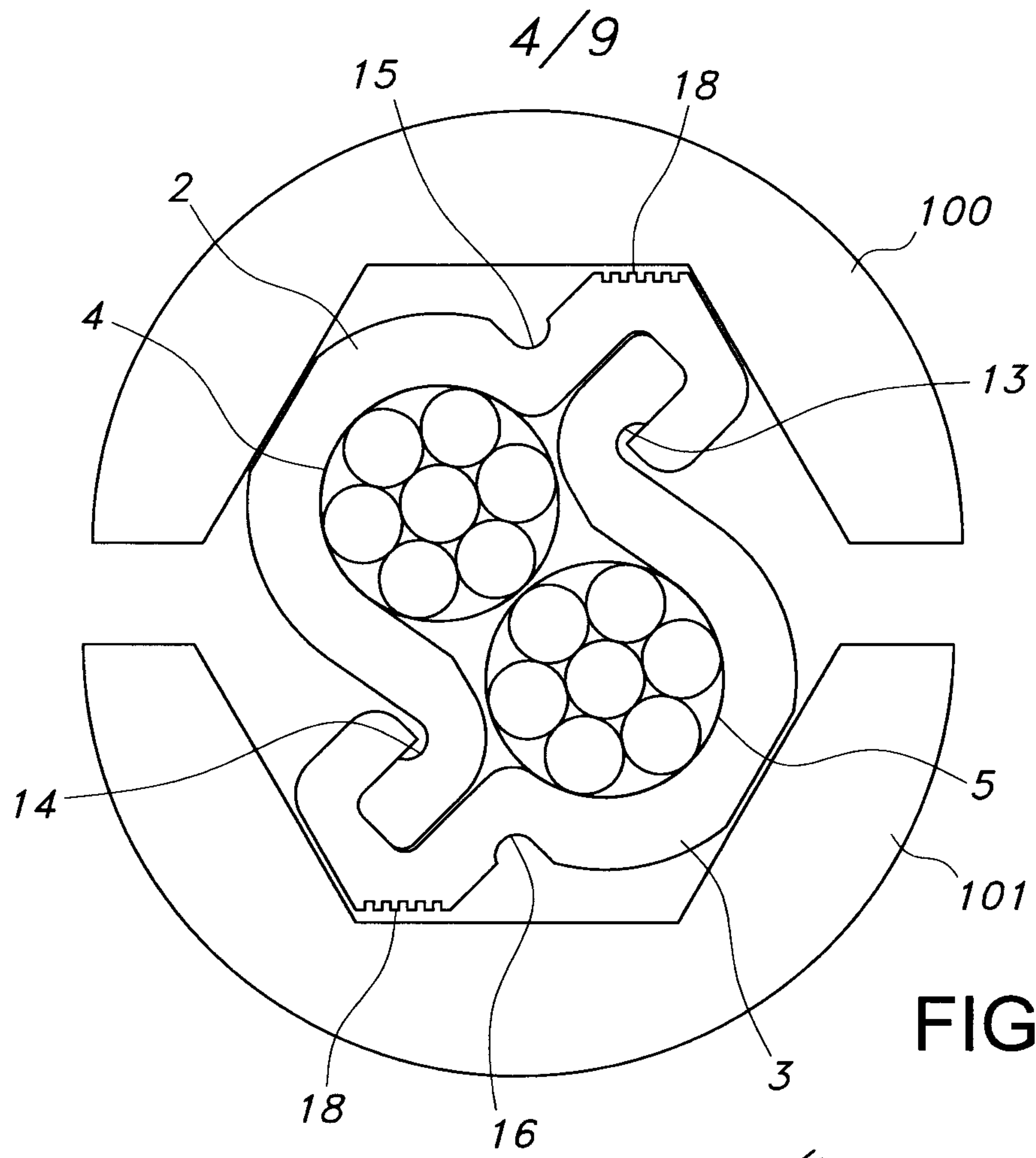


FIG. 3





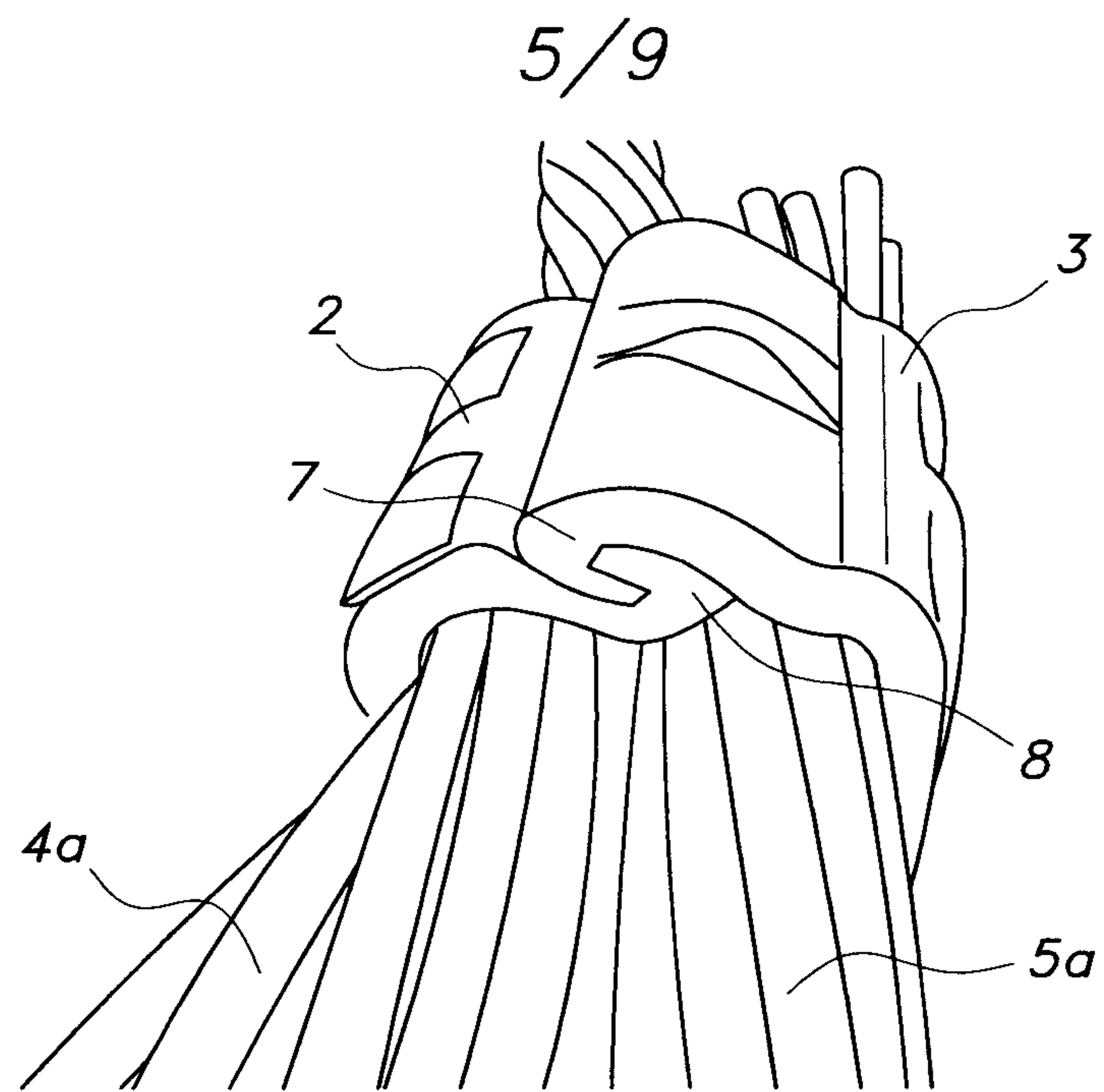


FIG. 8

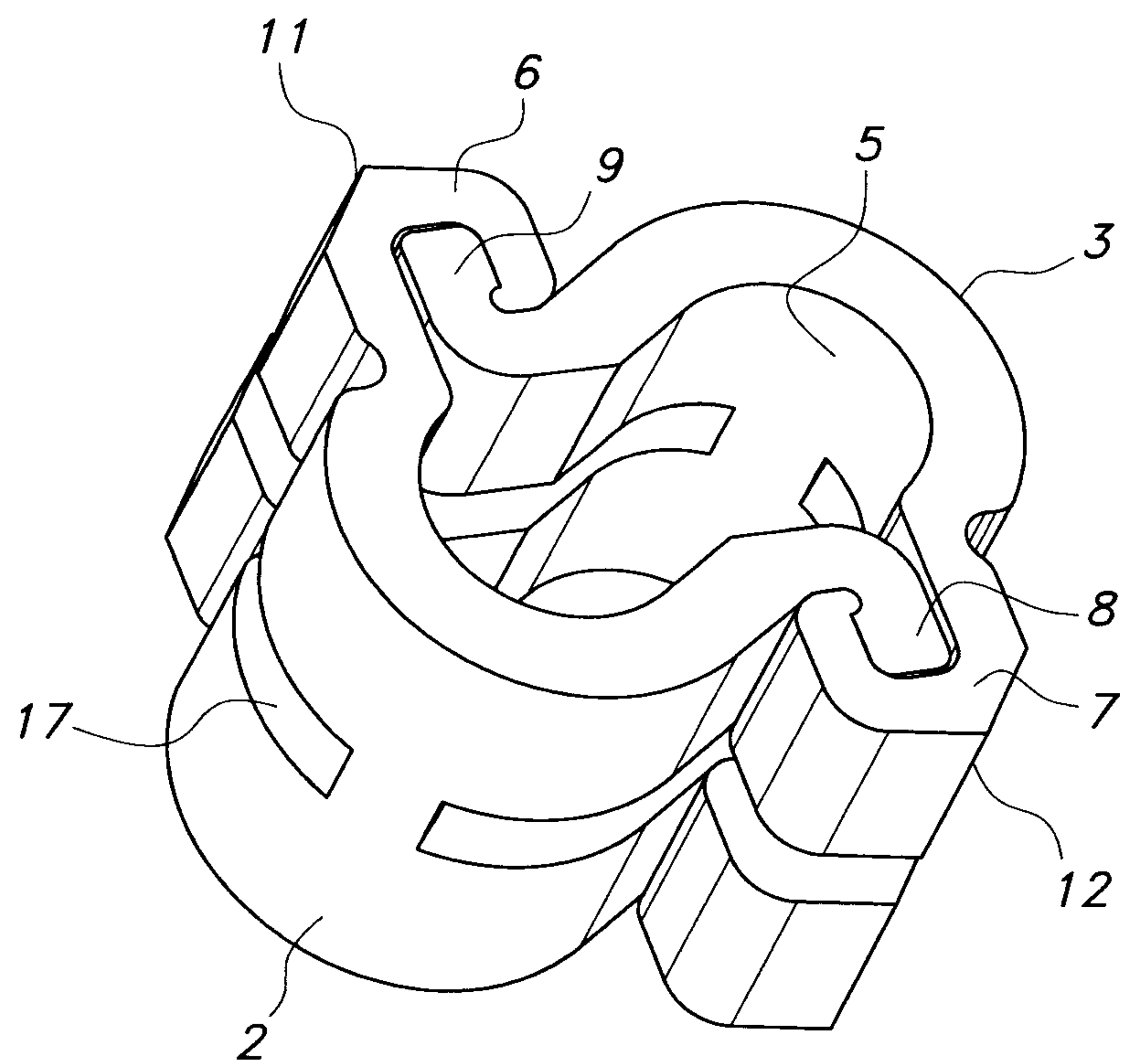


FIG. 9

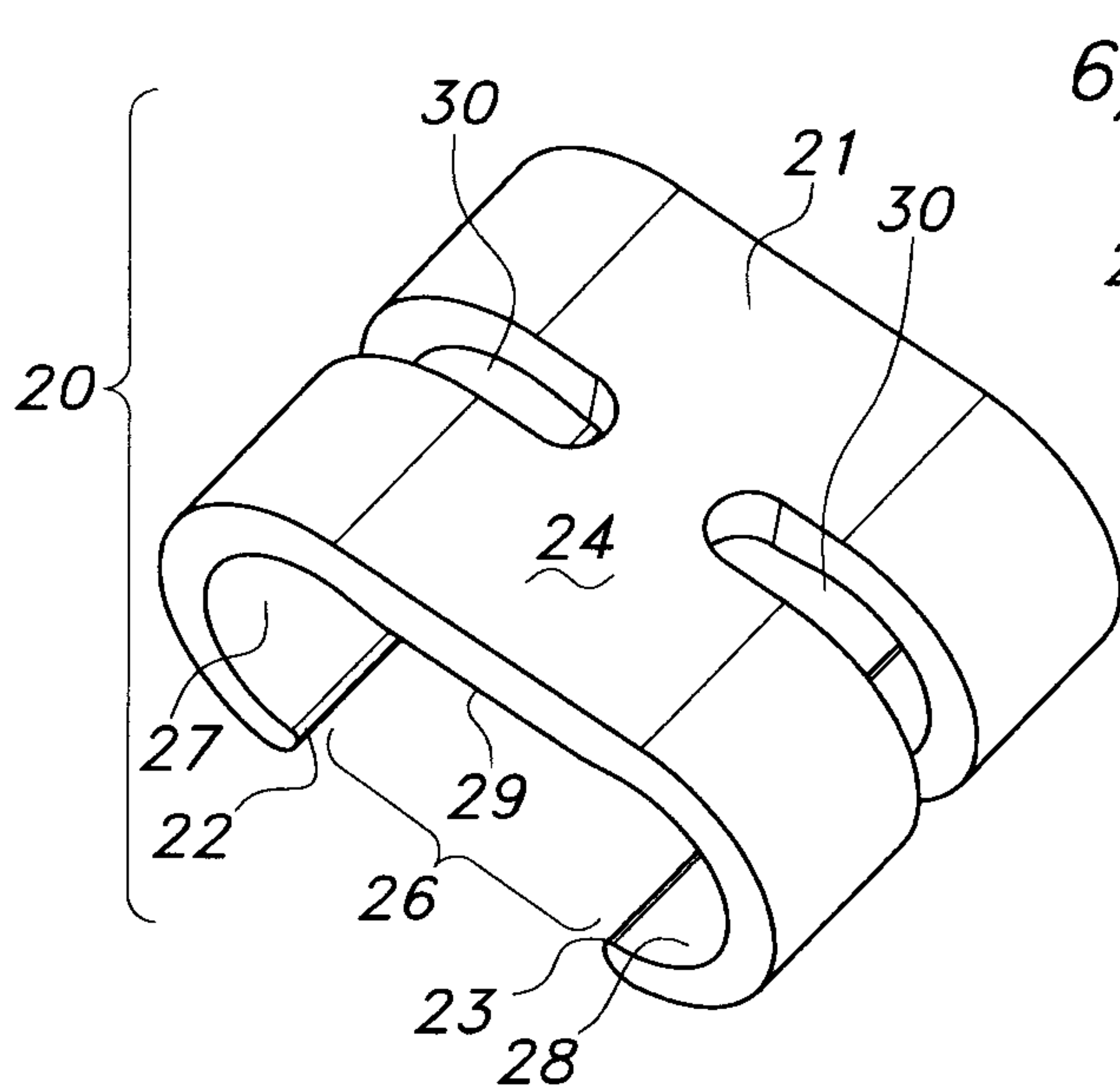


FIG. 10A

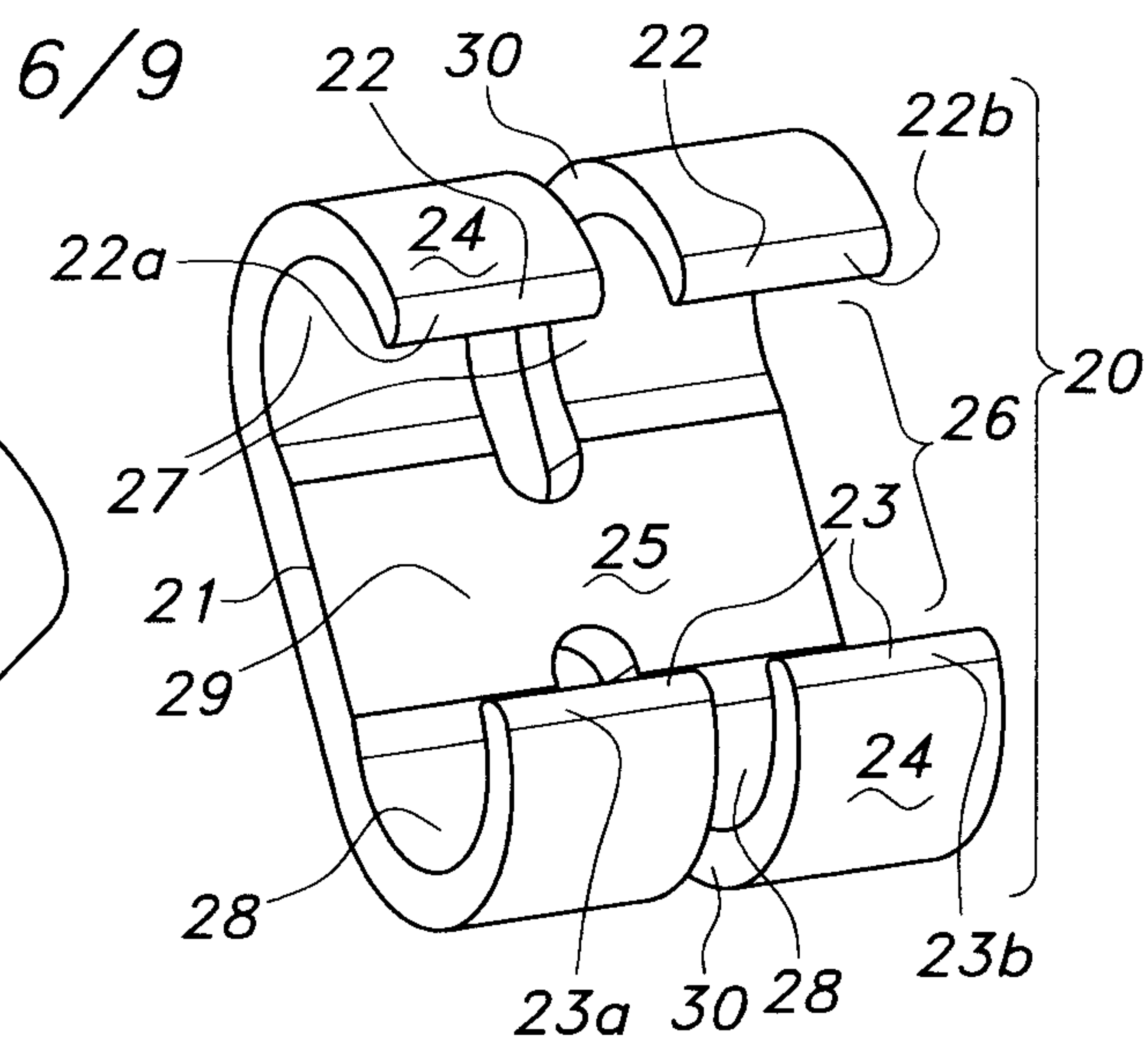


FIG. 10B

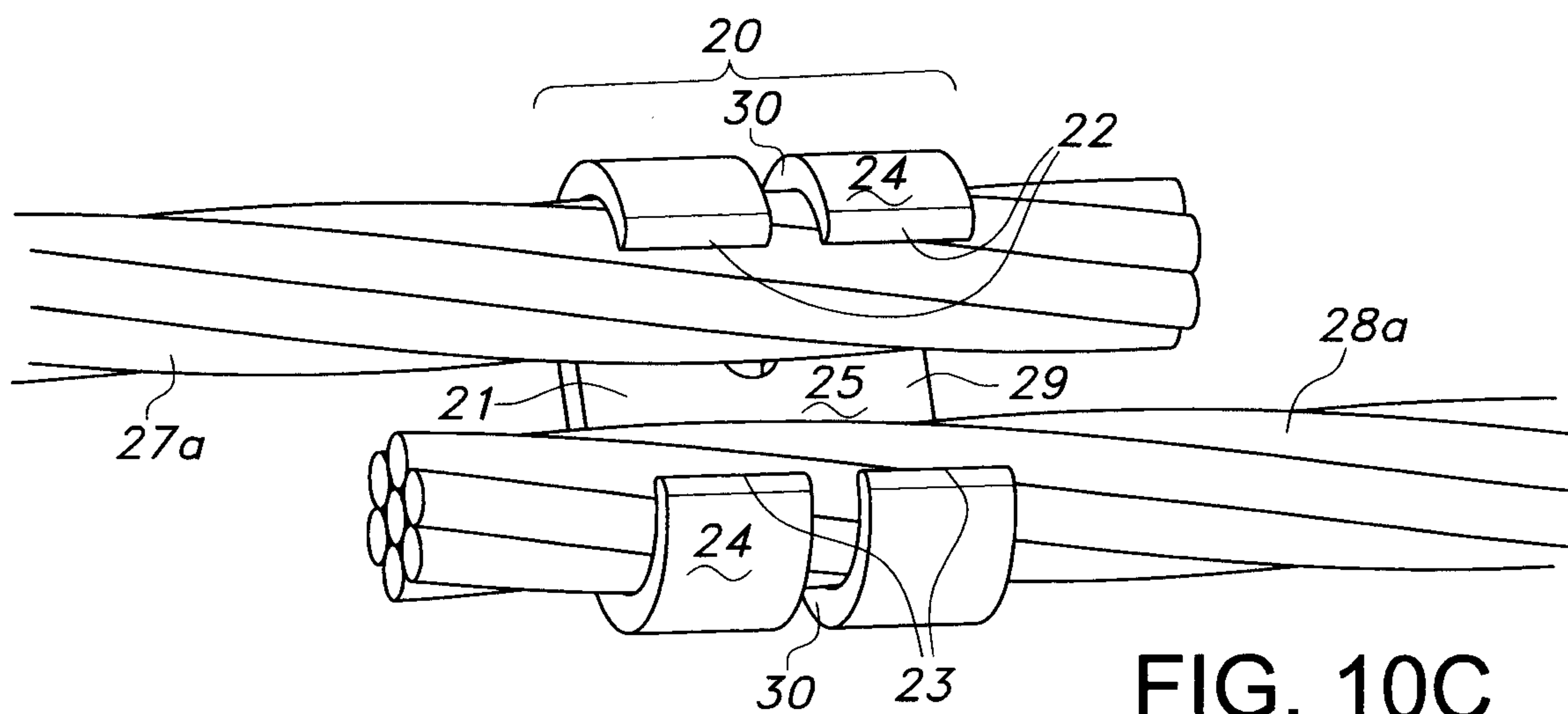


FIG. 10C

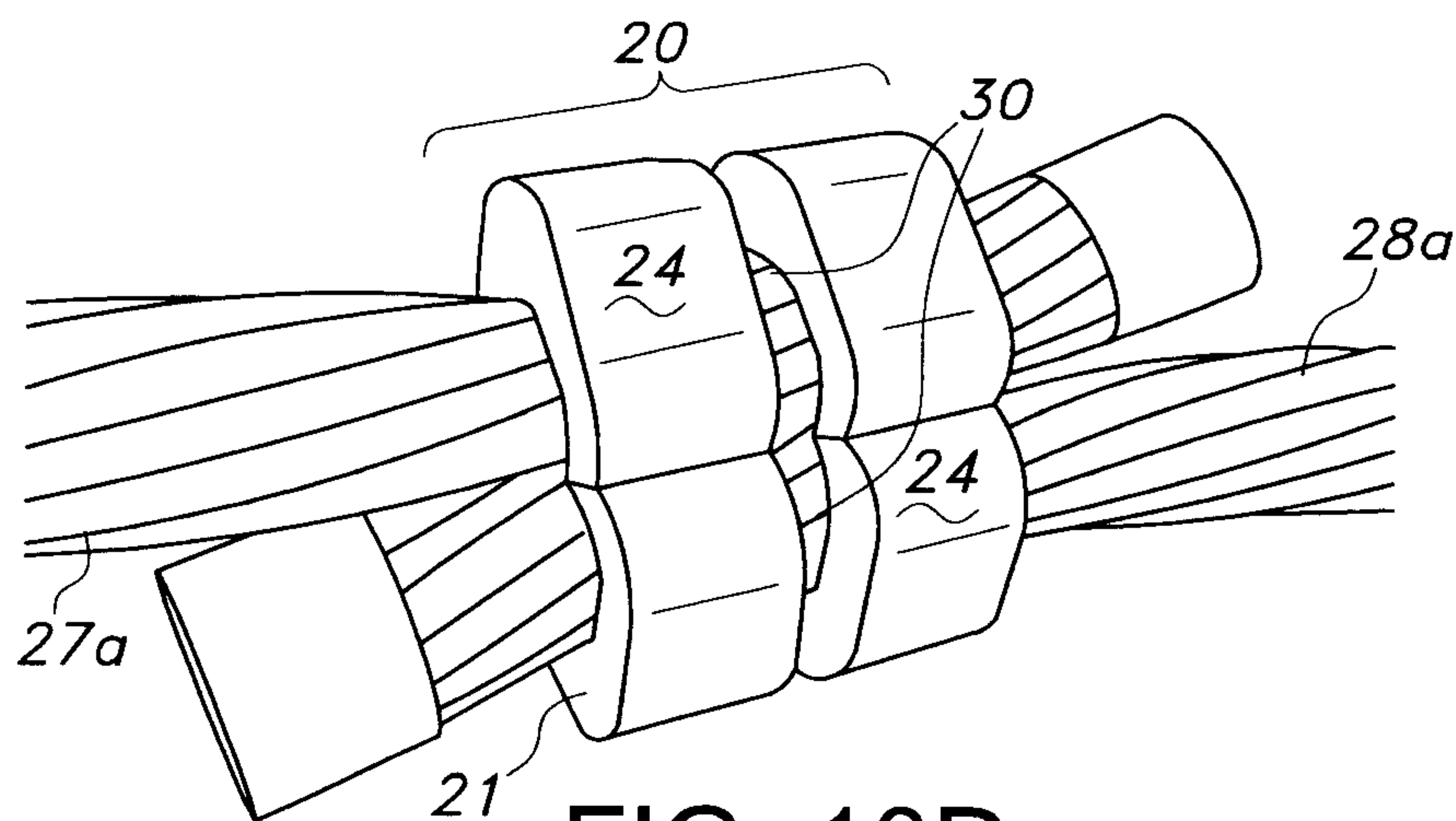


FIG. 10D

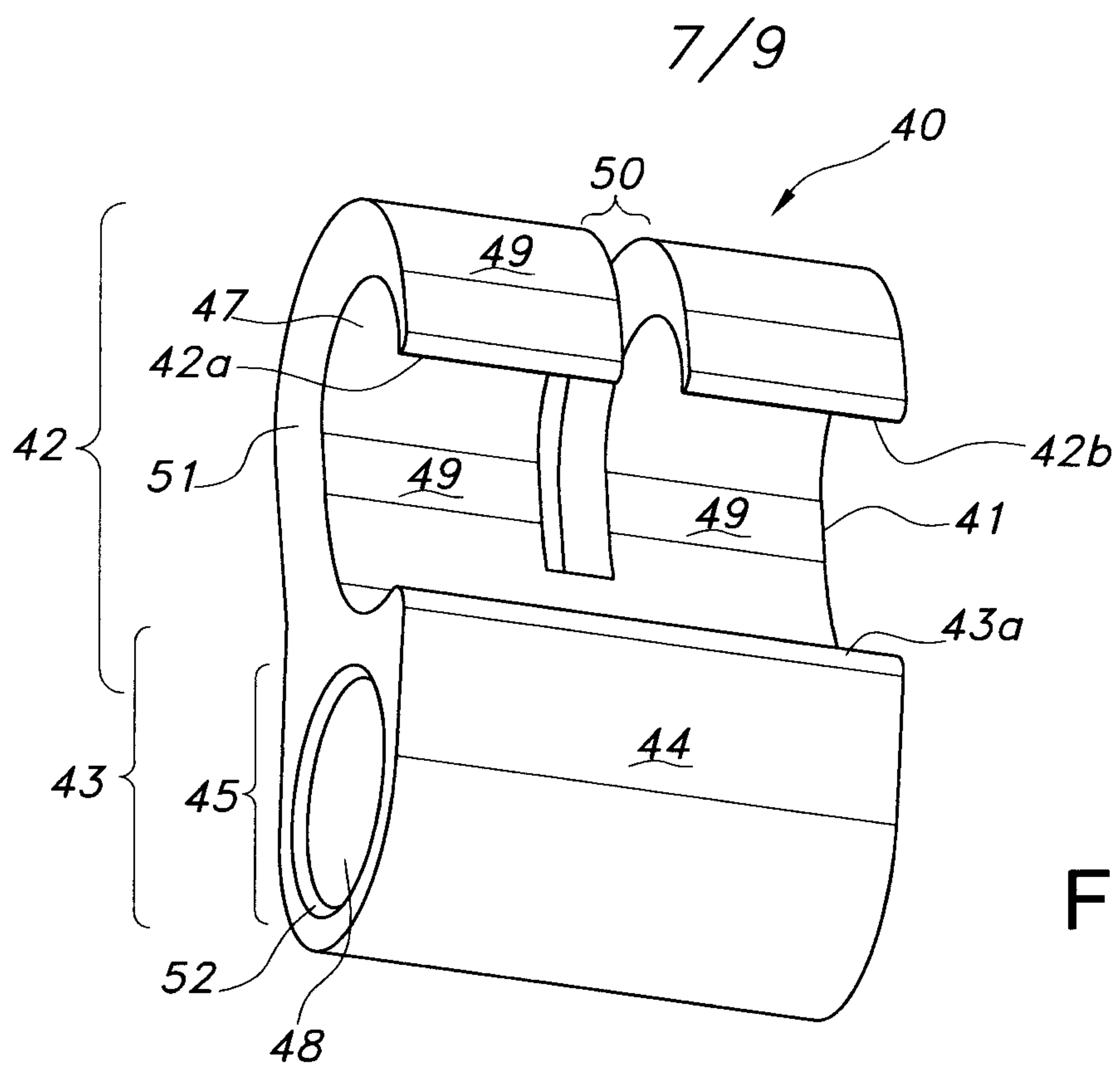


FIG. 11A

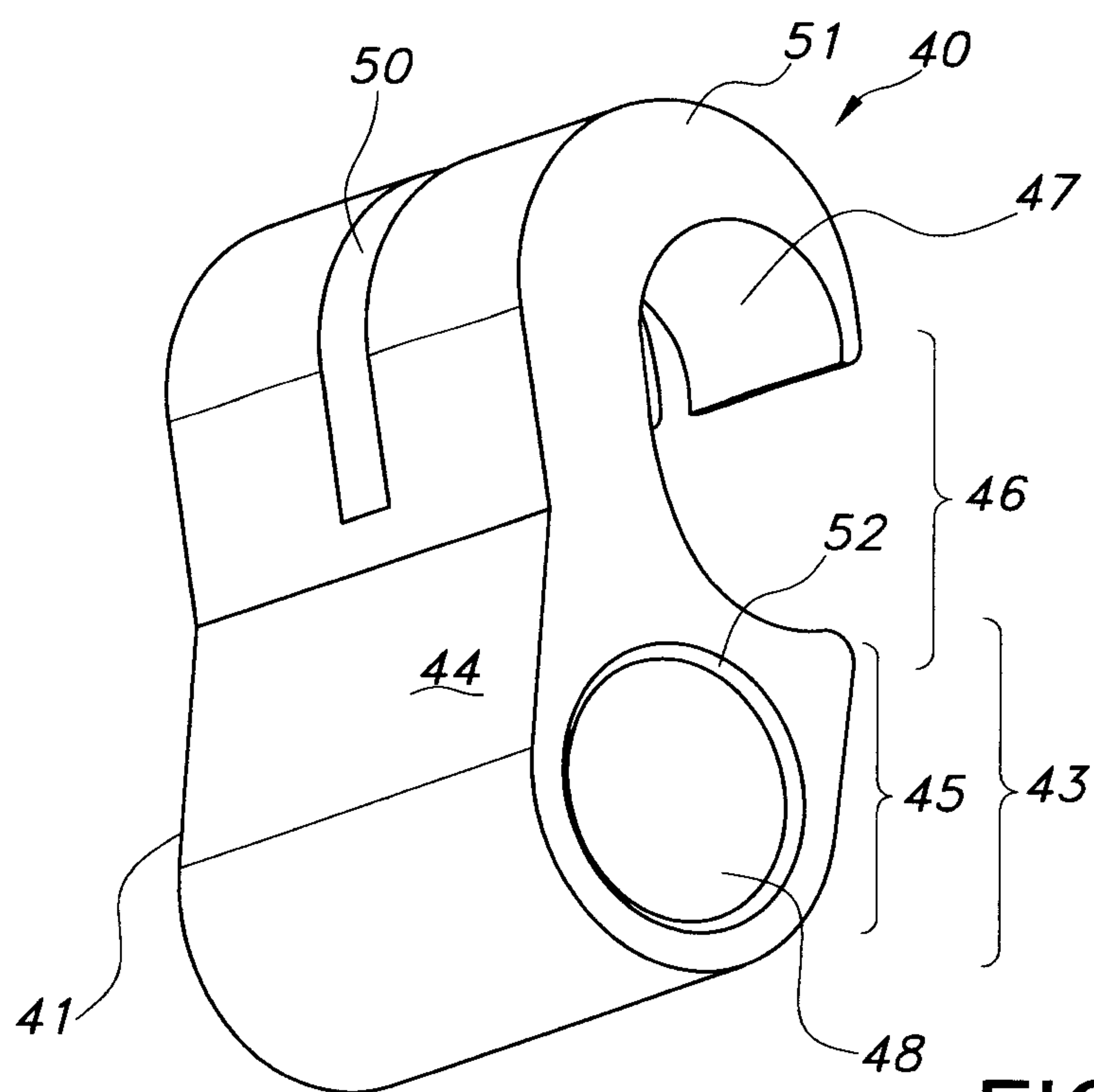


FIG. 11B

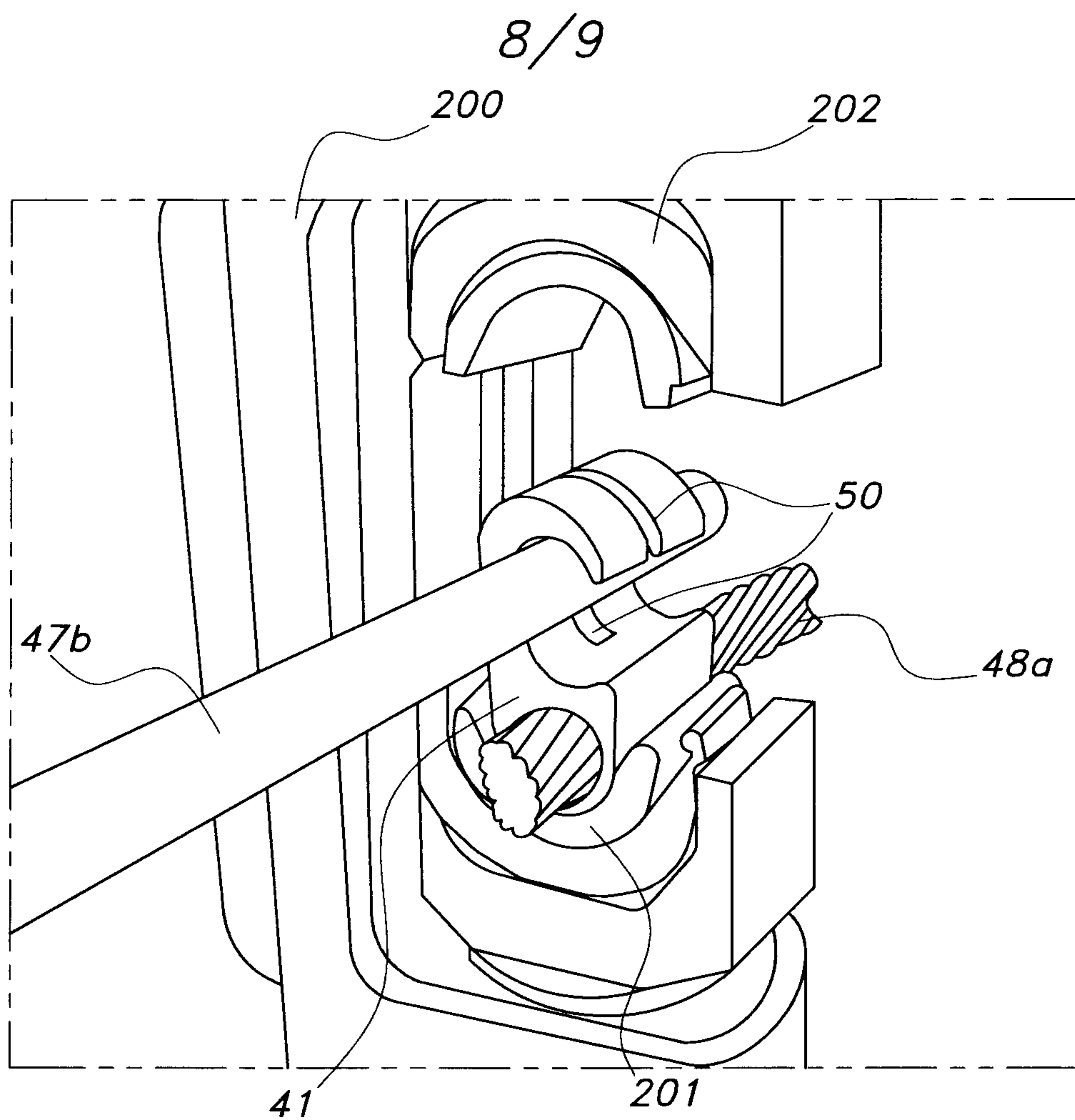


FIG. 11C

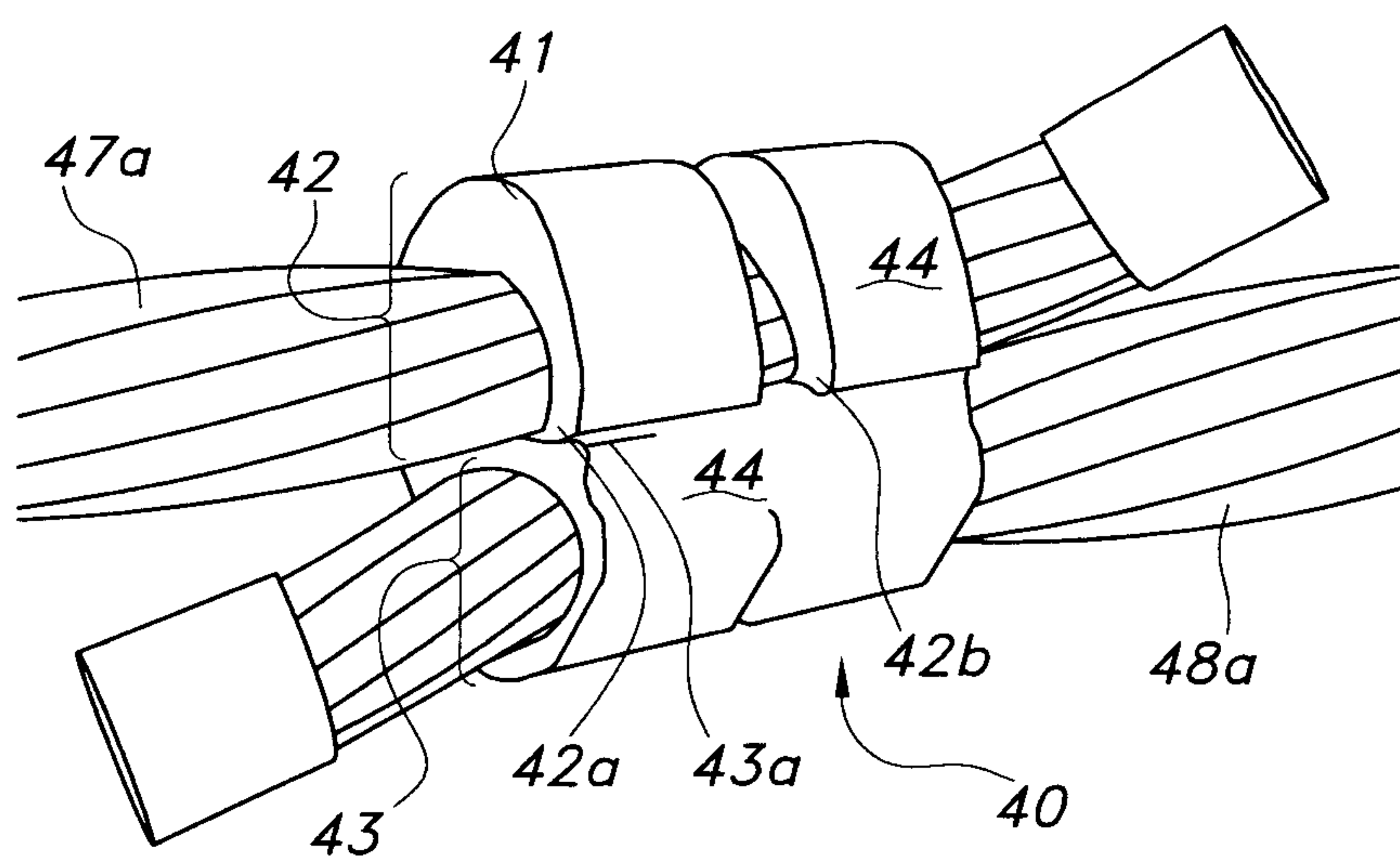


FIG. 11D

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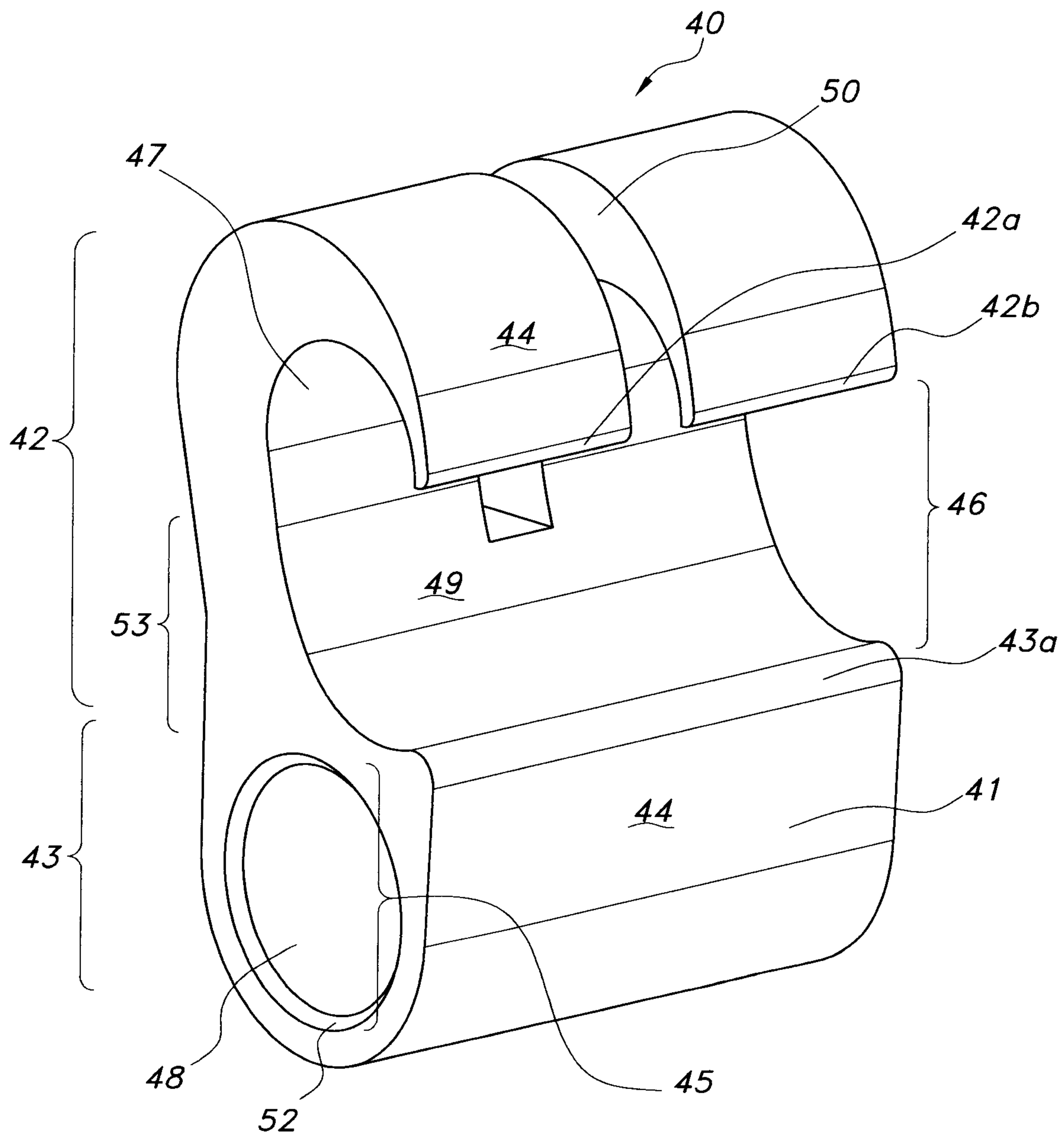


FIG. 12

