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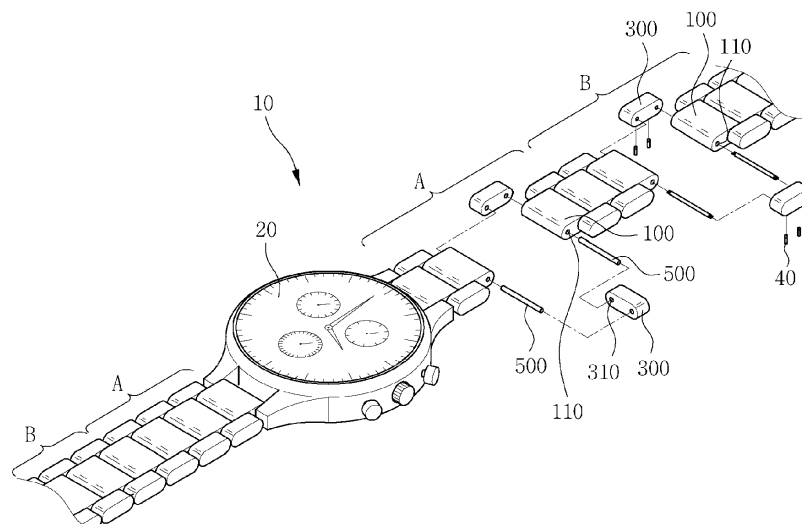
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(54) CERAMIC WATCH CHAIN

(57) A ceramic watch chain (10) is disclosed. The ceramic watch chain includes a central connecting piece (100) having on both sides thereof a pair of through holes (110), an outer connecting piece (300) located outside the central connecting piece and having on both sides thereof insert holes (310) corresponding to the through holes, with a fastening groove (300) being formed outside each of the insert holes and having a diameter larger

than that of the insert hole, a fastening pin (500) passing through the through holes to be inserted into the insert holes, and a fixing member (400) coupled to a lower surface of the fastening groove. The invention has no pin insert hole on the back of the outer connecting piece of the watch chain, thus providing an attractive appearance, and reducing the manufacturing cost of the watch chain.

【FIG. 2】



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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a ceramic watch chain, and, more particularly, to a ceramic watch chain that is configured such that no pin insert hole is formed on a back of an outer connecting piece constituting the watch chain, thus providing an attractive appearance and reducing manufacturing cost thereof.

BACKGROUND OF THE INVENTION

[0002] Korean Patent No. 10-0998505 relates to a ceramic watch chain that is made of a special material such as ceramics and is configured such that a fastening pin is forcibly inserted, thus making it easy to secure the pin, providing high fastening force, and realizing a permanent fixing structure. The ceramic watch chain includes outer connecting pieces, central connecting pieces, connecting pins, and fastening pins. Each outer connecting piece has a pair of pin grooves formed on a surface thereof, and a pair of insert holes formed on a back thereof to communicate with the corresponding pin grooves. Each central connecting piece has a pair of pin holes formed to pass through left and right sides thereof to correspond to the pin grooves of the outer connecting piece. Each connecting pin is provided with a fastening portion that has on both ends thereof fastening holes. Each fastening pin has a locking step that is stepped at an end thereof. The fastening portion of the connecting pin passing through the pin hole of the central connecting piece is inserted into the pin groove of the outer connecting piece, the fastening pin is press-fitted into the fastening hole of the connecting pin through the insert hole of the outer connecting piece and then is supported on the connecting pin by the locking step.

[0003] The recent style trend of ceramic watch chains is to simplify the coupling structure. That is, a coupling member is mounted in such a way that the coupling member such as a pin hole, a screw or the like is invisible from an outside of the watch chain, thus providing an attractive appearance.

[0004] In contrast, Korean Patent No. 10-0998505 that is the related art is problematic in that an insert hole for accommodating a fastening pin is formed on a back of an outer connecting piece, so that, when one wears a watch on his or her wrist, the insert hole is visible from the back of the outer connecting piece when the watch chain is seen, and thereby appearance is poor and is unstylish.

[0005] Further, the conventional watch chain is problematic in that the fastening pin is separately manufactured and the insert hole is separately formed, so that the manufacturing cost of the watch chain is increased.

SUMMARY OF THE INVENTION

[0006] In order to solve the problems occurring in the related art, the present invention is intended to accomplish the following objects.

[0007] First, an object of the present invention is to provide a ceramic watch chain, in which a fastening member or the like is coupled to an interior of a connecting piece of the watch chain, thus allowing a coupling structure of the watch chain to be simplified.

[0008] Second, another object of the present invention is to provide a ceramic watch chain, in which no pin insert hole is formed on a back of an outer connecting piece of the watch chain, thus providing an attractive appearance.

[0009] Third, a further object of the present invention is to provide a ceramic watch chain, in which a separate pin or a separate groove is not formed, thus reducing the manufacturing cost of the watch chain.

[0010] The present invention is not limited to the above-mentioned objects, and those skilled in the art will clearly understand other objects that are not mentioned herein by reading the following description.

[0011] According to one aspect of the present disclosure, there provides a ceramic watch chain, including a central connecting piece having on both sides thereof a pair of through holes; an outer connecting piece located outside the central connecting piece, and having on both sides thereof insert holes corresponding to the through holes, with a fastening groove being formed outside each of the insert holes and having a diameter larger than that of the insert hole; a fastening pin passing through the through holes to be inserted into the insert holes; and a fixing member coupled to a lower surface of the fastening groove.

[0012] According to another aspect of the present disclosure, there provides a ceramic watch chain, including a central connecting piece having on both sides thereof a pair of through holes; an inner connecting piece located outside the central connecting piece, and having on both sides thereof connecting holes corresponding to the through holes; an outer connecting piece located outside the inner connecting piece, and having on both sides thereof insert holes corresponding to the connecting holes, with a fastening groove being formed outside each of the insert holes and having a diameter larger than that of the insert hole; a fastening pin passing through the through holes and the connecting holes to be inserted into the insert holes; and a fixing member coupled to a lower surface of the fastening groove.

[0013] According to a further aspect of the present disclosure, the fixing member may include a cylindrical body portion; and a conical inclined portion provided on an upper portion of the body portion, and the body portion may have a diameter corresponding to that of the insert hole, and the body portion may be lower in height than the insert hole.

[0014] According to another aspect of the present disclosure, the fastening pin may be a cylindrical shell hav-

ing on both ends thereof a plurality of cut slits, and outer circumferences of both ends of the fastening pin may be bent outwards in an inclination direction of the inclined portion to be caught by an interior of the fastening groove.

[0015] According to another aspect of the present disclosure, an adhesive member may be inserted in a space between an outer circumference of the body portion and an inner circumference of the fastening groove.

[0016] According to another aspect of the present disclosure, each of the outer connecting piece and the central connecting piece may be made of a ceramic material.

[0017] According to another aspect of the present disclosure, the fastening pin may be made of a stainless steel material.

[0018] As described above, the present invention provides a ceramic watch chain, in which no pin insert hole is formed on a back of an outer connecting piece of the watch chain, thus providing an attractive appearance.

[0019] Further, the present invention provides a ceramic watch chain, in which a separate pin or a separate groove is not formed, thus reducing the manufacturing cost of the watch chain.

[0020] The present invention is not limited to the above-mentioned effects, and those skilled in the art will clearly understand other effects that are not mentioned herein by reading the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021]

FIG. 1 is an exploded perspective view illustrating a conventional ceramic watch chain;

FIG. 2 is an exploded perspective view illustrating a ceramic watch chain according to an embodiment of the present invention;

FIG. 3 is a perspective view illustrating the ceramic watch chain according to the embodiment of the present invention;

FIG. 4 is an exploded perspective view illustrating the ceramic watch chain according to the embodiment of the present invention; and

FIGS. 5 to 12 are sectional views illustrating a coupling process for a ceramic watch chain according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0022] Reference will now be made in detail to embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings. While the present disclosure will be described in conjunction with the following embodiments, it will be understood that they are not intended to limit the present disclosure to these embodiments alone. On the contrary, the present disclosure is intended to cover alternatives, modifications, and equivalents which may be included within the spirit and scope of the present disclosure as defined by the ap-

pended claims. Furthermore, in the following detailed description of the present disclosure, numerous specific details are set forth in order to provide a thorough understanding of the present disclosure. However, embodiments of the present disclosure may be practiced without these specific details.

[0023] Hereinafter, a preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

[0024] Referring to FIGS. 2 and 3, a ceramic watch chain 10 according to the present invention is schematically configured such that a plurality of central connecting pieces 100 and a plurality of outer connecting pieces 300 located externally above and below the central connecting pieces 100 are connected to each other to be flexibly bent or extended.

[0025] Hereinafter, a "watch chain of a first embodiment" will be described with reference to FIG. 2.

[0026] A pair of through holes 110 is formed on both sides of each central connecting piece 100.

[0027] Further, the outer connecting pieces 300 are located externally above and below the central connecting piece 100 and have insert holes 310 formed on both sides thereof to correspond to the through holes 110. A fastening pin 500 passes through the through hole 110 on one side of the central connecting piece 100 and is inserted into the through groove 310 on the other side of the outer connecting piece 300.

[0028] That is, the central connecting pieces 100 and the outer connecting pieces 300 are alternately connected to each other via a fastening pin 500 like a stacked brick structure.

[0029] Hereinafter, a "watch chain of a second embodiment" will be described with reference to FIG. 4.

[0030] A pair of through holes 110 is formed on both sides of each central connecting piece 100.

[0031] Inner connecting pieces 200 are located externally above and below the central connecting piece 100, and each have connecting holes 210 formed on both sides thereof to correspond to the through holes 110. Outer connecting pieces 300 are located externally above and below the inner connecting pieces 200, and each have insert holes 310 formed on both sides thereof to correspond to the connecting holes 210.

[0032] Further, a fastening pin 500 passes sequentially through the through hole 110 formed on one side of the central connecting piece 100 and the connecting hole 210 formed on the other side of the inner connecting piece 200 to be inserted into the insert hole 310 formed on one side of the outer connecting piece 300.

[0033] That is, as in the stacked brick structure of the above-mentioned "watch chain of the first embodiment", the central connecting pieces 100, the inner connecting pieces 200 and the outer connecting pieces 300 are alternately connected by the fastening pins 500.

[0034] The central connecting pieces 100, the inner connecting pieces 200, and the outer connecting pieces 300 are preferably made of a ceramic material, particu-

larly, zirconia ceramic.

[0035] Since zirconia ceramic is the second hardest material after diamond, is excellent in terms of gloss, and is not scratched, it is used as a material for luxury watch chains.

[0036] Referring to FIG. 5, the fastening pin 500 is a cylindrical shell having on both ends thereof a plurality of cut slits 520. In other words, the fastening pin 500 has the shape of a slender pipe that is hollow therein.

[0037] In the case of the "watch chain of the first embodiment", the fastening pin 500 passes through the through hole 110 of the central connecting piece 100 and the insert hole 310 of the outer connecting piece 300 (see FIG. 2). Meanwhile, in the case of the "watch chain of the second embodiment", the fastening pin 500 passes through the through hole 110 of the central connecting piece 100, the connecting hole 210 of the inner connecting piece 200, and the insert hole 310 of the outer connecting piece 300 (see FIG. 4). Thereby, the fastening pin may connect the connecting pieces to each other to allow them to be flexibly bent or extended.

[0038] Moreover, as shown in FIGS. 5 and 7, the plurality of cut slits 520 is formed on the both ends of the fastening pin 500, so that outer circumferences of the both ends of the fastening pin 500 are cut along the cut slits 520 and then bent outwards during the manufacture of the watch chain 10 to be caught by an interior of a fastening groove 330. The coupling structure will be described below.

[0039] Referring to FIGS. 2, 4 and 5, the pair of insert holes 310 is formed in the outer connecting piece 300. Here, each insert hole has a diameter corresponding to the through hole 110 of the central connecting piece 100 or the connecting hole 210 of the inner connecting piece 200.

[0040] Further, the fastening groove 330 that is slightly larger in diameter than the insert hole 310 is formed outside the insert hole 310.

[0041] A fixing member 400 is coupled to a lower surface of the fastening groove 330.

[0042] The fixing member 400 includes a body portion 410 having a cylindrical shape, with a conical inclined portion 430 being formed on an upper portion of the body portion 410.

[0043] The body portion 410 has a diameter corresponding to that of the insert hole 310, and the height of the body portion 410 is formed to be slightly lower than the insert hole 310 by a length corresponding to a thickness of the fastening pin 500. Such a configuration is made because the outer circumferences of the both ends of the fastening pin 500 are bent outwards and thereby the both ends of the fastening pin 500 are fitted between the inclined portion 430 formed on the upper portion of the body portion 410 and the inner side of the fastening groove 330, as shown in FIGS. 5 and 7.

[0044] Hereinafter, the coupling structure and the coupling method of the ceramic watch chain 10 according to the present invention will be described.

[0045] Referring to FIG. 5, first, an adhesive member 600 is applied to a lower surface and an inner circumference of the fastening groove 330 of the outer connecting piece 300. The adhesive member 600 is thinly applied to the lower surface and is slightly thickly applied to the inner circumference.

[0046] Further, the fixing member 400 is attached to the lower surface of the fastening groove 330. Since the diameter of the body portion 410 of the fixing member 400 corresponds to the diameter of the insert hole 310, the fixing member 400 has only to be pushed into the insert hole 310 and then attached to the lower surface of the fastening groove 330.

[0047] As shown in FIG. 6, a lower end of the fastening pin 500 is inserted into the insert hole 310 to come into close contact with the inclined portion 430 of the fixing member 400.

[0048] Thereafter, as shown in FIG. 7, an upper end of the fastening pin 500 is struck by a rubber hammer or the like, so that an outer circumference of the lower end of the fastening pin 500 is cut and flared along the cut slits 520 to be bent outwards relative to the conical inclined portion 430. The reason why the plurality of cut slits 520 are formed on the both ends of the fastening pin 500 as such is as follows: because the body of the slender fastening pin 500 may be bent when being struck by the rubber hammer or the like, the cut slits 520 are formed on the fastening pin 500 to allow the both ends of the fastening pin 500 to be easily bent outwards.

[0049] Moreover, since the cut slits 520 are also formed on the upper end of the fastening pin 500, it is preferable that the upper end of the fastening pin 500 is covered by a member capable of absorbing shocks that acts on the upper end and then is struck by the rubber hammer or the like so as to prevent the upper end of the fastening pin 500 from being cut.

[0050] Thereby, the lower end of the fastening pin 500 is caught by the inner side of the fastening groove 330, and a surface of the lower end is attached to the adhesive member 600. Consequently, the lower end of the fastening pin 500 is fixedly coupled to the fastening groove 330, namely, the outer connecting member 300.

[0051] As such, the lower end of the fastening pin 500 is coupled to one of the pair of fastening grooves 330 of the outer connecting piece 300. Subsequently, as shown in FIG. 8, the lower end of the fastening pin 500 is coupled to the other fastening groove 330 in the same manner.

[0052] In order to prevent the fastening pin 500 from being corroded and allow the both ends of the fastening pin 500 to be bent outwards, the fastening pin 500 should possess certain ductility and rigidity. For this reason, the fastening pin 500 is preferably made of a stainless steel material.

[0053] Subsequently, the following process will be performed.

[0054] As shown in FIG. 9, in the case of the "watch chain of the first embodiment", the fastening pin 500 passes through the through hole 110 of the central con-

necting piece 100. In this case, the upper end of the fastening pin 500 protrudes from the through hole 110.

[0055] Further, although not shown in the drawings, as for the "watch chain of the second embodiment", the upper end of the fastening pin 500 protrudes from the connecting hole 210 in the above-mentioned case.

[0056] Referring to FIG. 10, after the adhesive member 600 is applied to the lower surface and the outer circumference of the fastening groove 330 of the outer connecting piece 300 that is to be coupled to an upper portion and the fixing member 400 is attached to the fastening groove 330, the upper end of the fastening pin 500 is inserted into the insert hole 310 of the outer connecting piece 300. Thereafter, if the upper portion of the outer connecting piece 300 is struck by a rubber hammer or the like, the outer circumference of the upper end of the fastening pin 500 is cut and flared along the cut slits 520 and is bent outwards relative to the inclined portion 430 of the fixing member 400, so that the upper end of the fastening pin 500 is caught by the inner side of the fastening groove 330, and a surface of the upper end of the fastening pin 500 is attached to the adhesive member 600. Therefore, the outer connecting piece 300 and the fastening pin 500 are secured to each other.

[0057] Referring to FIGS. 10 and 11, the following process is carried out similarly to the above-mentioned manner. The fastening pin 500 passes through the through hole 110 of the central connecting piece 100 (first embodiment) or passes through the connecting hole 210 of the inner connecting piece 200 (second embodiment), and then the outer connecting piece 300 is coupled to the upper end of the fastening pin 500.

[0058] Referring to FIG. 12, another embodiment where the fastening pin 500 is coupled to the outer connecting piece 300 is illustrated.

[0059] The structure of the fastening pin 500 is the same as the above-mentioned structure.

[0060] On both sides of the outer connecting piece 300, vertical grooves 335 corresponding to the thickness of the outer circumference of the fastening pin 500 and inclined grooves 340 obliquely extending from the corresponding vertical grooves 335 are formed.

[0061] The coupling manner is as follows: the lower end of the fastening pin 500 is inserted into each vertical groove 335 and the upper end of the fastening pin 500 is struck by the rubber hammer or the like. In this case, while the lower end of the fastening pin 500 is cut along the cut slits 520 and is flared in the inclination direction of the inclined groove 340, the fastening pin 500 is bent. Thereby, the fastening pin 500 is secured to the inclined groove 340, namely, the outer connecting piece 300.

[0062] As such, the lower end of the fastening pin 500 is coupled to one of the pair of inclined grooves 340 of the outer connecting piece 300. Thereafter, the lower end of the fastening pin 500 is coupled to the other inclined groove 340 in the same manner.

[0063] Thereafter, as shown in FIG. 10, the central connecting piece 100 is inserted into the fastening pin 500,

and the outer connecting piece 300 is coupled to the upper end of the fastening pin 500 in the same manner.

[0064] FIG. 1 illustrates a conventional ceramic watch chain.

[0065] In the case of the general ceramic watch chain 10, holes 30 into which pins 40 are inserted are separately formed on a back of the outer connecting piece 60. Thus, this watch chain is problematic in that, whenever a person wears a watch on his or her wrist and looks at the watch chain 10, the holes 30 are seen from the back of the outer connecting piece 60 and thereby appearance is poor.

[0066] In contrast, as shown in section A of FIG. 2, section A of FIG. 3 and FIG. 7, the ceramic watch chain 10 according to the present invention is configured such that both ends of the fastening pin 500 are bent outwards and secured to the fastening groove 330 of the outer connecting piece 300. Thus, this obviates the necessity of forming the holes 30 on the back as in the general ceramic watch chain 10 of FIG. 1. Therefore, the watch chain of the present invention provides an attractive appearance and is stylish.

[0067] The ceramic watch chain 10 according to the present invention may be applied to only the watch chain connected to a watch body 20 like section A of FIGS. 2 and 3, but may not be applied to a watch-chain fastener (not shown) like section B of FIGS. 2 and 3.

[0068] The reason is as follows: each person who wears the watch has a different wrist circumference. Thus, in the case where some of the central connecting pieces 100 and some of the outer connecting pieces 300 should be removed from section B, the ceramic watch chain 10 according to the present invention is configured such that the fastening pin 500 is fixedly coupled to the outer connecting piece 300 and thereby it is impossible to separate the connecting pieces 100 and 300. For this reason, the connecting pieces of section B should take a separable structure like the existing watch-chain connecting pieces 50 and 60 shown in FIG. 1.

[0069] Although the invention has been described with reference to the preferred embodiments in the attached figures, it is noted that equivalents may be employed and substitutions made herein without departing from the scope of the invention as recited in the claims.

Claims

1. A ceramic watch chain, comprising:

a central connecting piece having on both sides thereof a pair of through holes;
an outer connecting piece located outside the central connecting piece, and having on both sides thereof insert holes corresponding to the through holes, with a fastening groove being formed outside each of the insert holes and having a diameter larger than that of the insert hole;

a fastening pin passing through the through holes to be inserted into the insert holes; and a fixing member coupled to a lower surface of the fastening groove.

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2. A ceramic watch chain, comprising:

a central connecting piece having on both sides thereof a pair of through holes;

an inner connecting piece located outside the central connecting piece, and having on both sides thereof connecting holes corresponding to the through holes;

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an outer connecting piece located outside the inner connecting piece, and having on both sides thereof insert holes corresponding to the connecting holes, with a fastening groove being formed outside each of the insert holes and having a diameter larger than that of the insert hole;

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a fastening pin passing through the through holes and the connecting holes to be inserted into the insert holes; and

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a fixing member coupled to a lower surface of the fastening groove.

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3. The ceramic watch chain as claimed in claim 1 or 2, wherein the fixing member comprises:

a cylindrical body portion; and

a conical inclined portion provided on an upper portion of the body portion, the body portion has a diameter corresponding to that of the insert hole, and the body portion is lower in height than the insert hole.

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4. The ceramic watch chain as claimed in claim 3, wherein the fastening pin is a cylindrical shell having on both ends thereof a plurality of cut slits, and outer circumferences of both ends of the fastening pin are bent outwards in an inclination direction of the inclined portion to be caught by an interior of the fastening groove.

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5. The ceramic watch chain as claimed in claim 3, wherein an adhesive member is inserted in a space between an outer circumference of the body portion and an inner circumference of the fastening groove.

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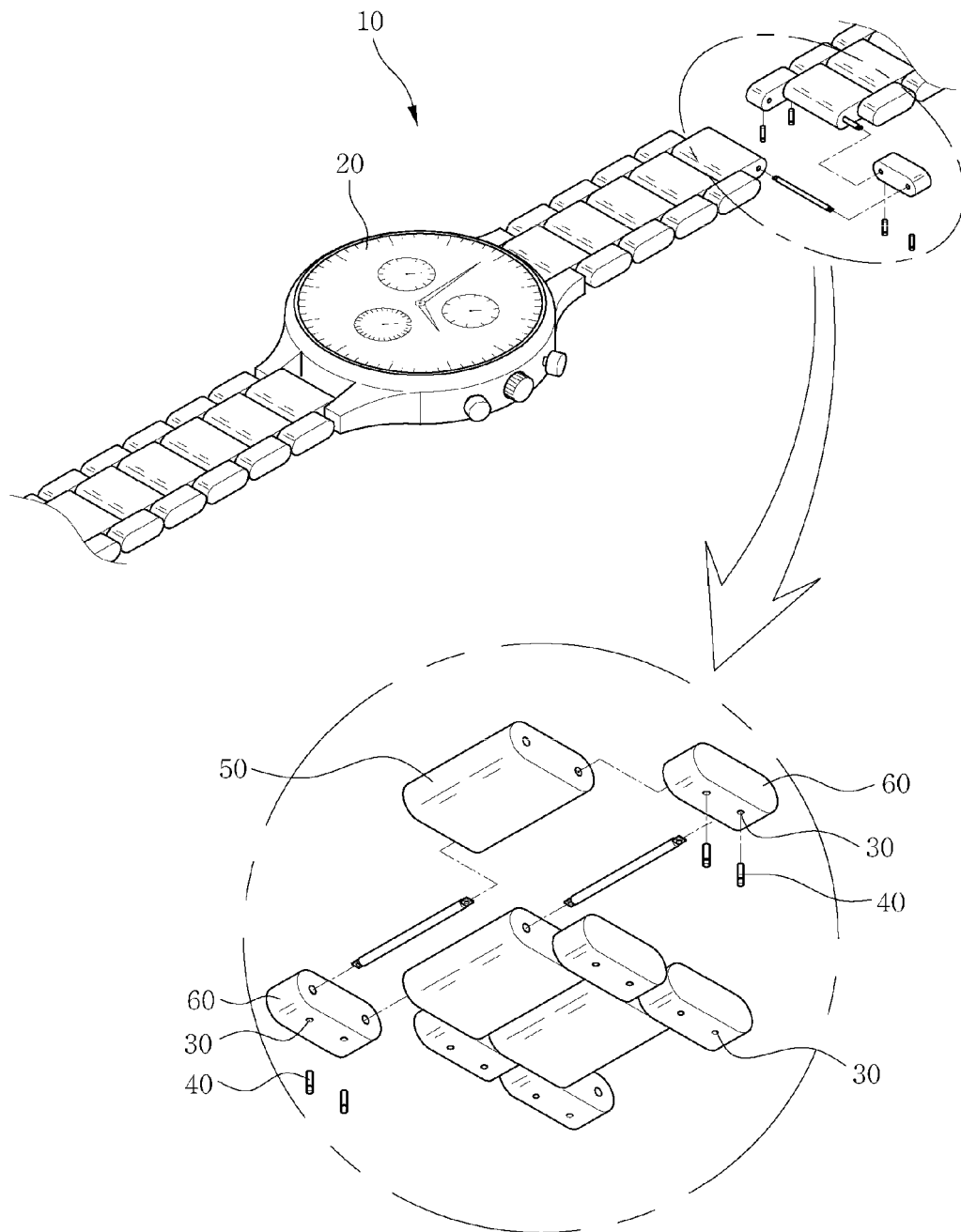
6. The ceramic watch chain as claimed in claim 1 or 2, wherein each of the outer connecting piece and the central connecting piece is made of a ceramic material.

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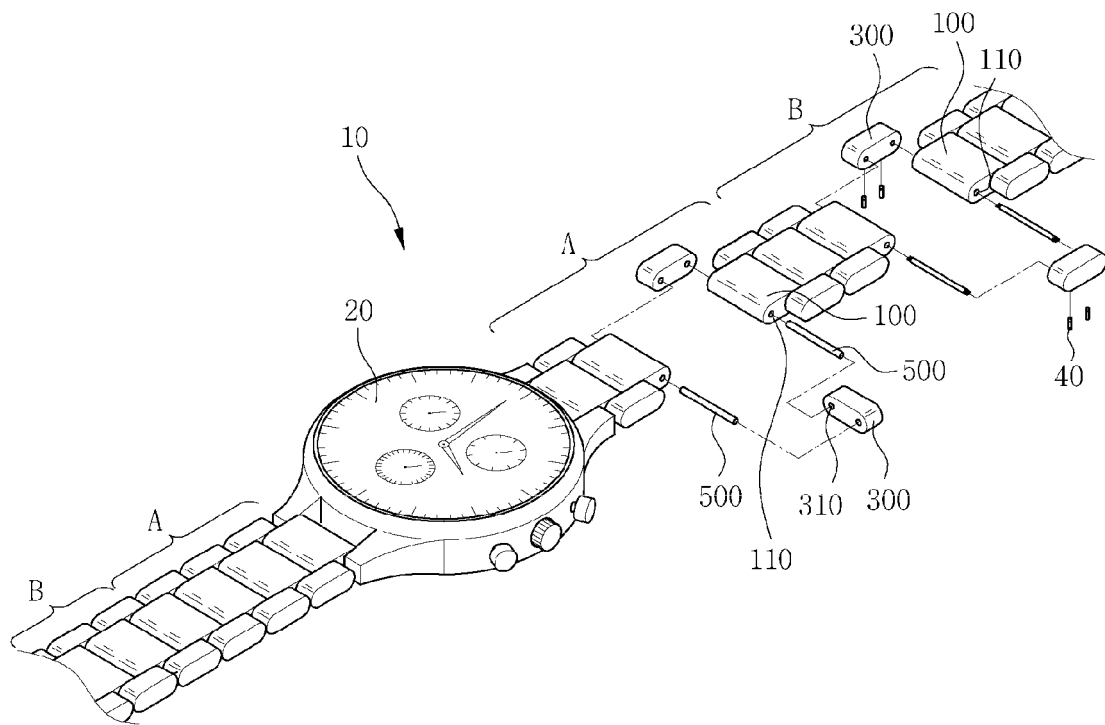
7. The ceramic watch chain as claimed in claim 1 or 2, wherein the fastening pin is made of a stainless steel material.

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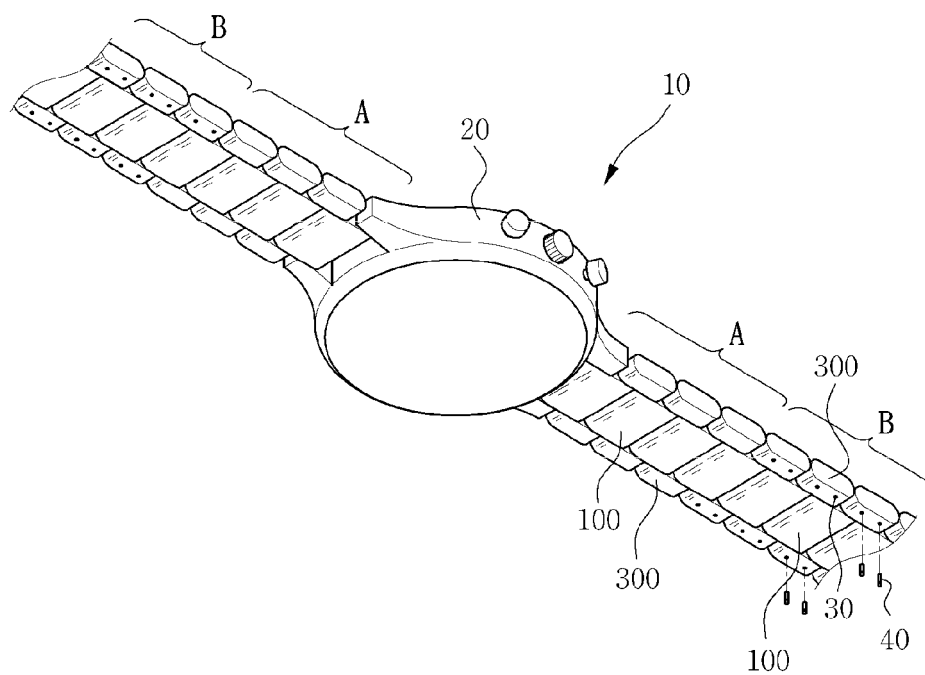
【FIG. 1】



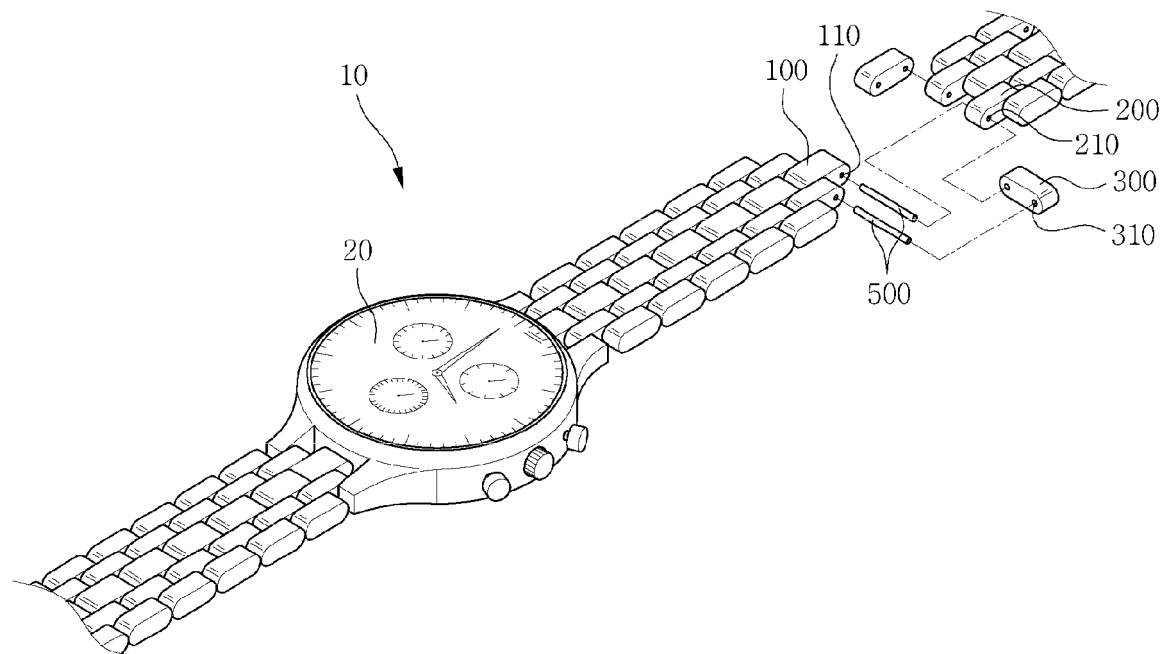
【FIG. 2】



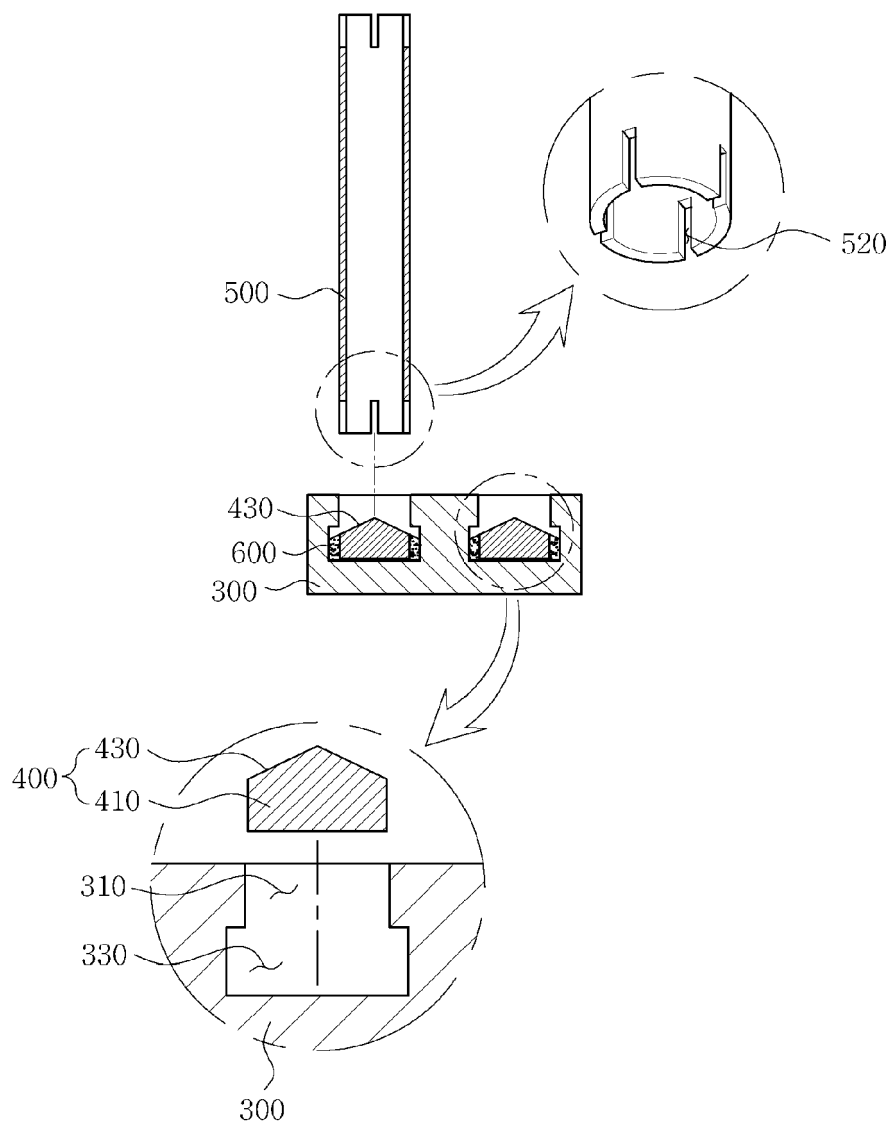
【FIG. 3】



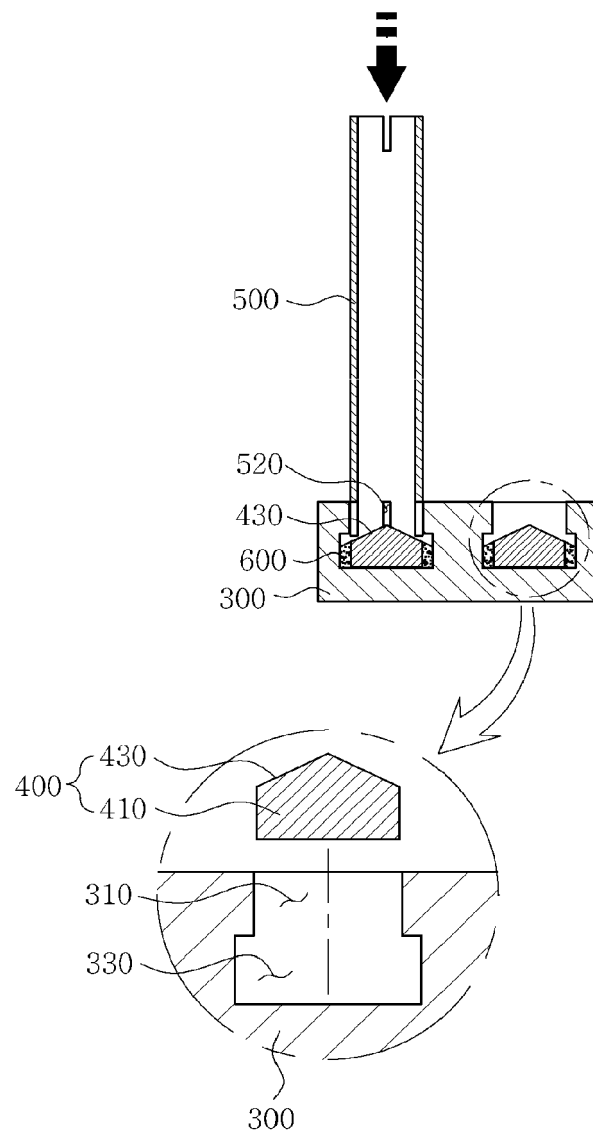
【FIG. 4】



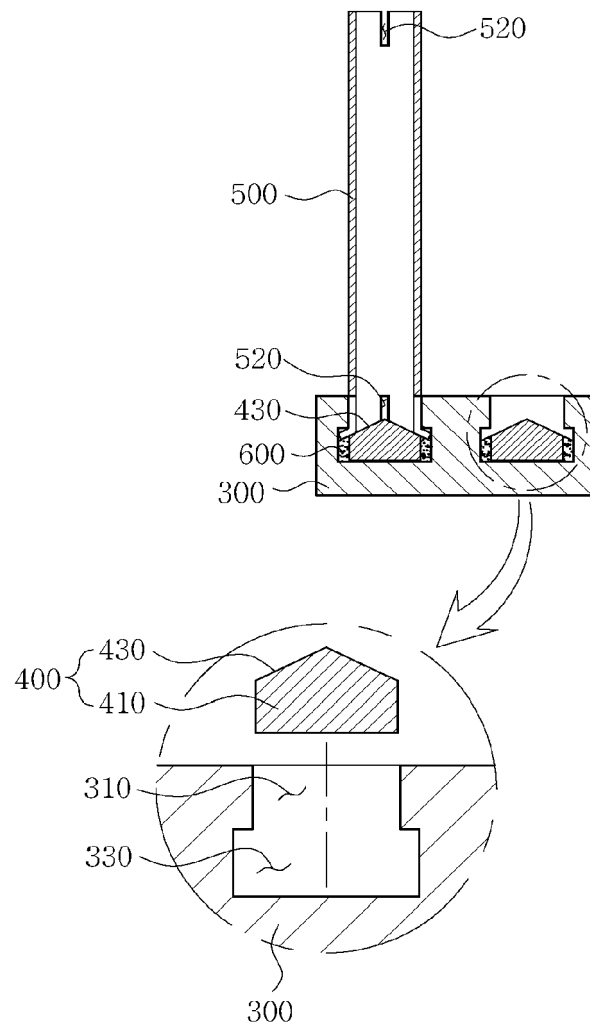
【FIG. 5】



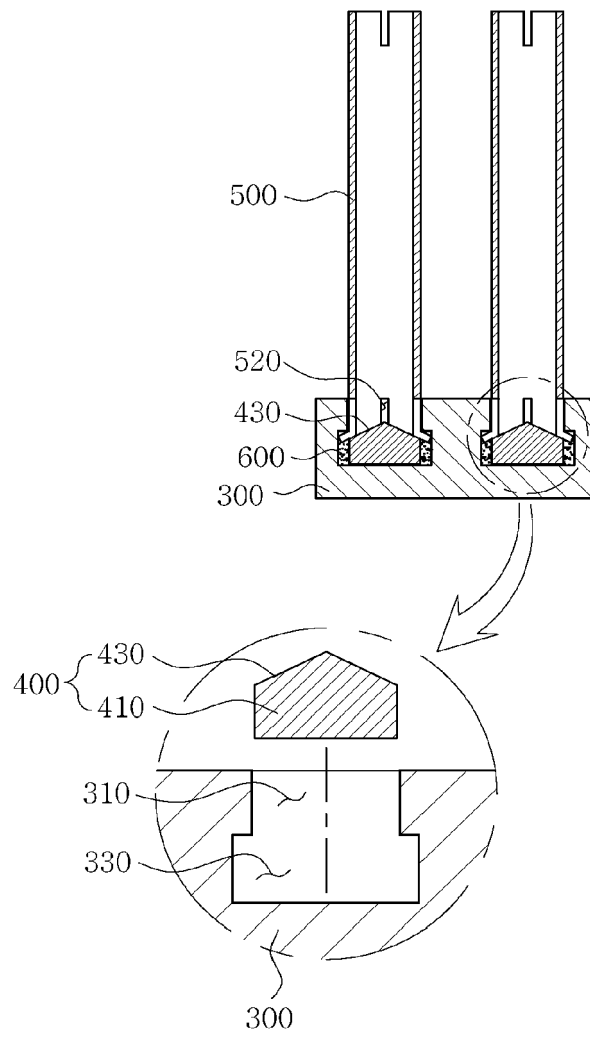
【FIG. 6】



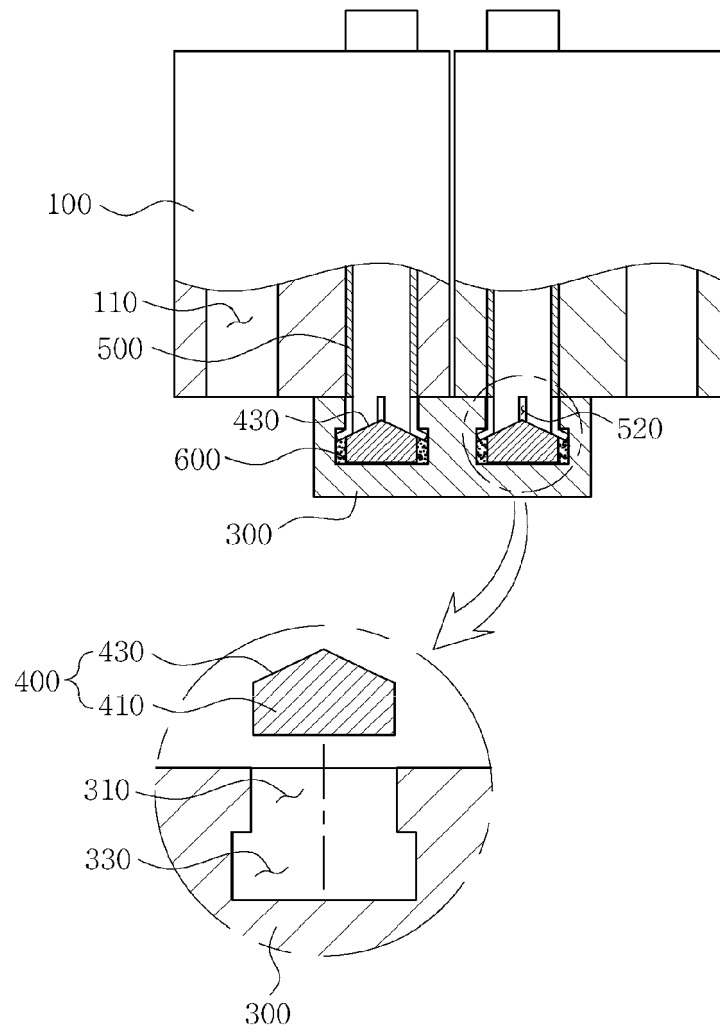
【FIG. 7】



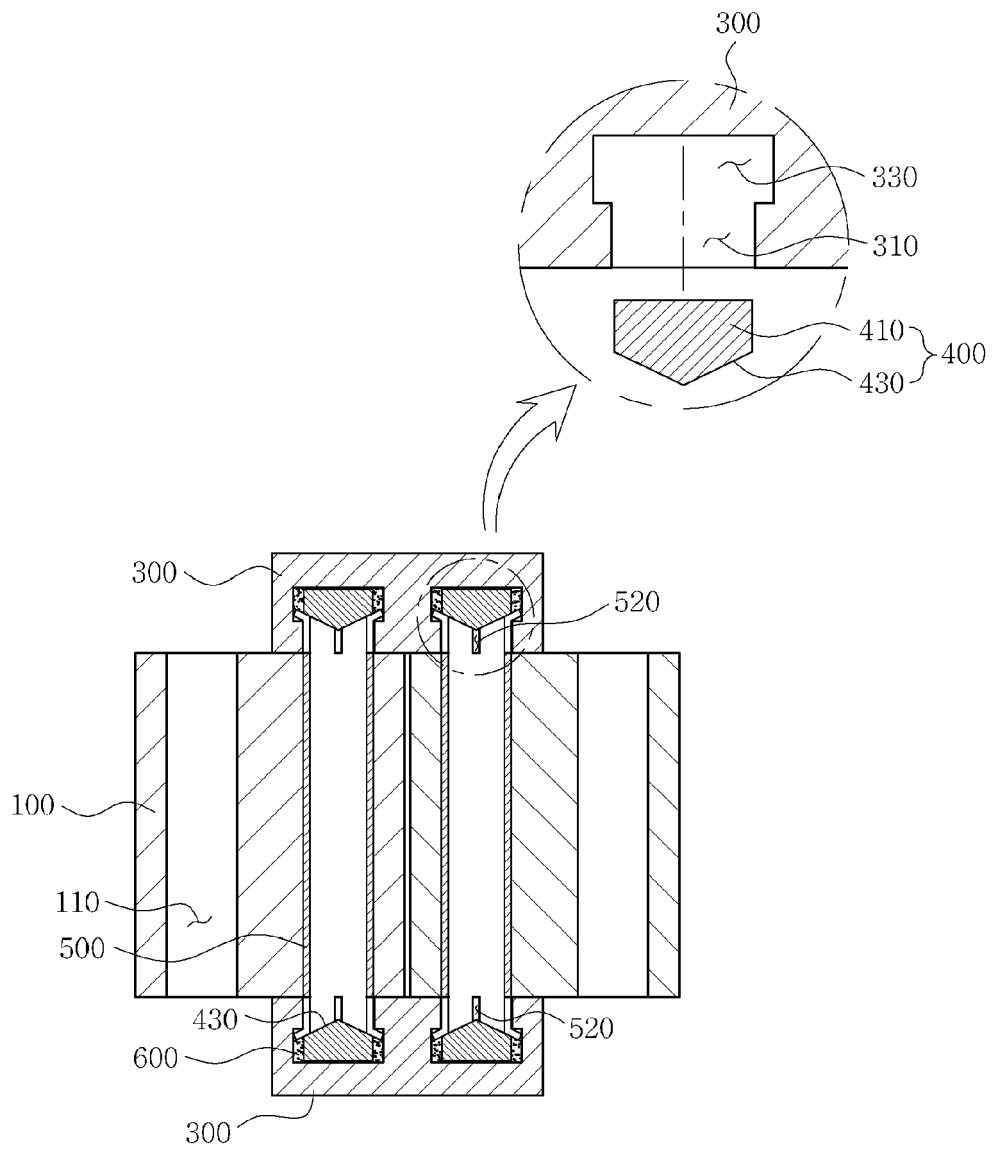
【FIG. 8】



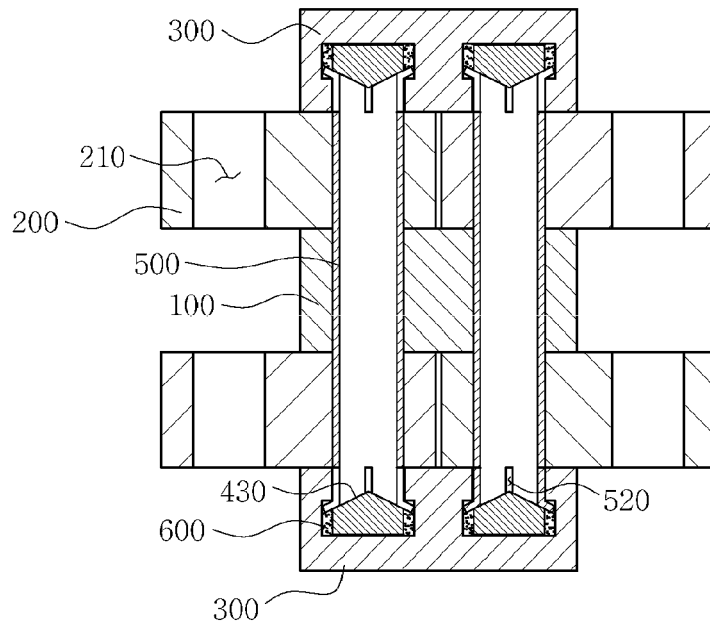
【FIG. 9】



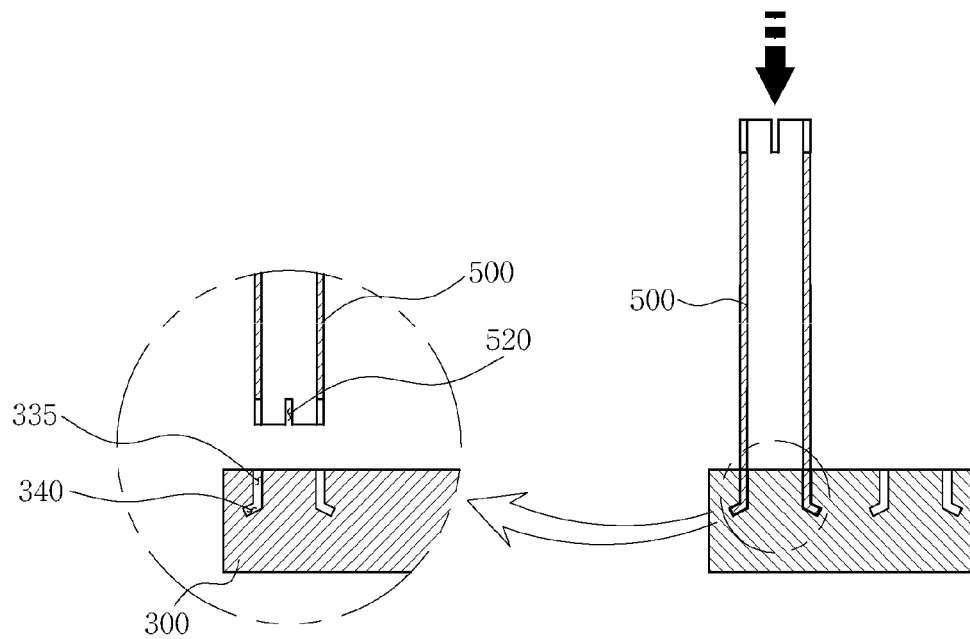
【FIG. 10】



【FIG. 11】



【FIG. 12】





EUROPEAN SEARCH REPORT

 Application Number
EP 15 19 0701

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 2 December 2016	Examiner da Silva, José
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EPO FORM 1503 03.02 (P04C01)

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REFERENCES CITED IN THE DESCRIPTION

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