



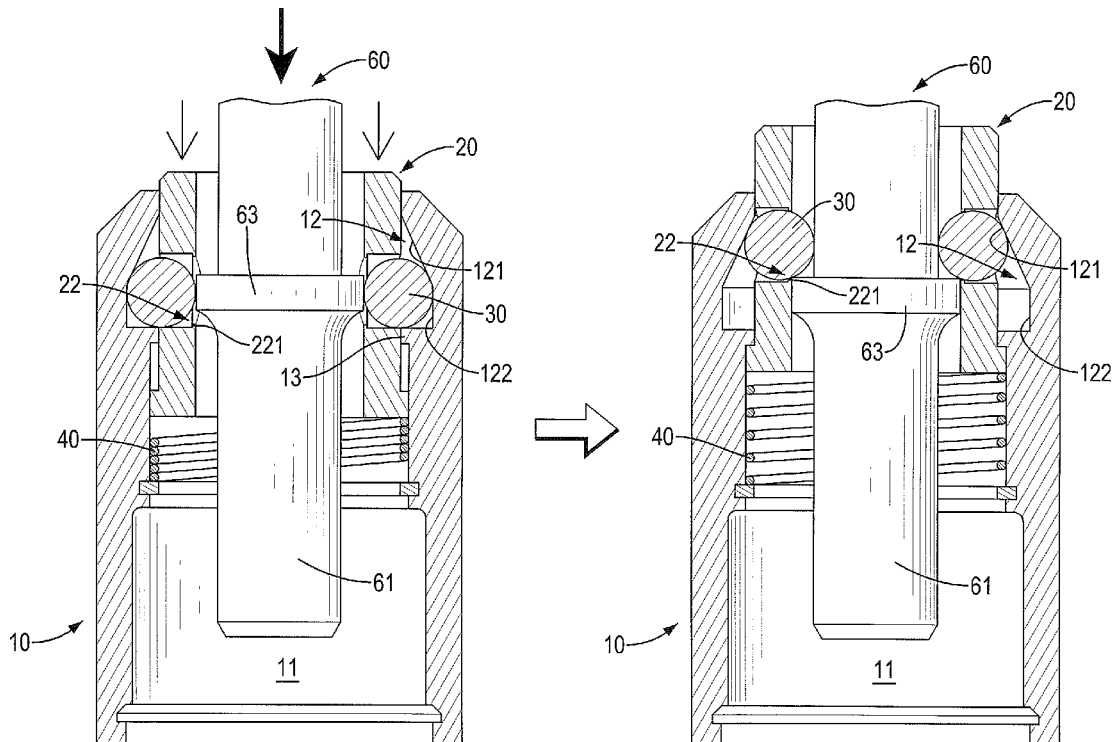
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Liaw (43) **Pub. Date: Oct. 19, 2017**(54) **CHISEL HOLDER**(71) Applicant: **Jian-Shiou Liaw**, Taichung City (TW)(72) Inventor: **Jian-Shiou Liaw**, Taichung City (TW)(21) Appl. No.: **15/131,090**(22) Filed: **Apr. 18, 2016****Publication Classification**(51) **Int. Cl.**
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(57)

ABSTRACT

A chisel holder has an outer sleeve, a holding member, multiple positioning members, a resilient member, and a limiting ring. The outer sleeve has an assembling space, a receiving chamber, and an abutting rib. The receiving chamber is defined in the outer sleeve at a position adjacent to the top of the outer sleeve and is conical. The holding member is mounted in the outer sleeve and has a central hole, a limiting rib, and multiple holding holes. The positioning members are mounted respectively in the holding holes in the holding member, selectively extend into the central hole in the holding member, and abut an inner surface of the receiving chamber. The resilient member is mounted in the assembling space in the outer sleeve and abuts the bottom of the holding member.



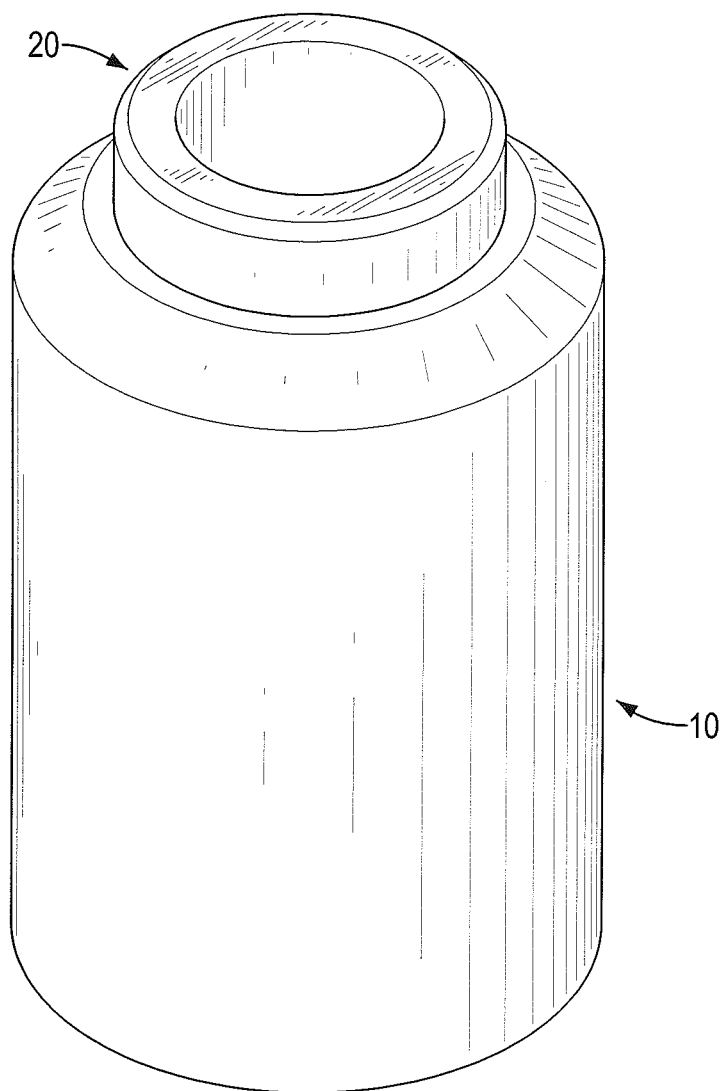


FIG. 1

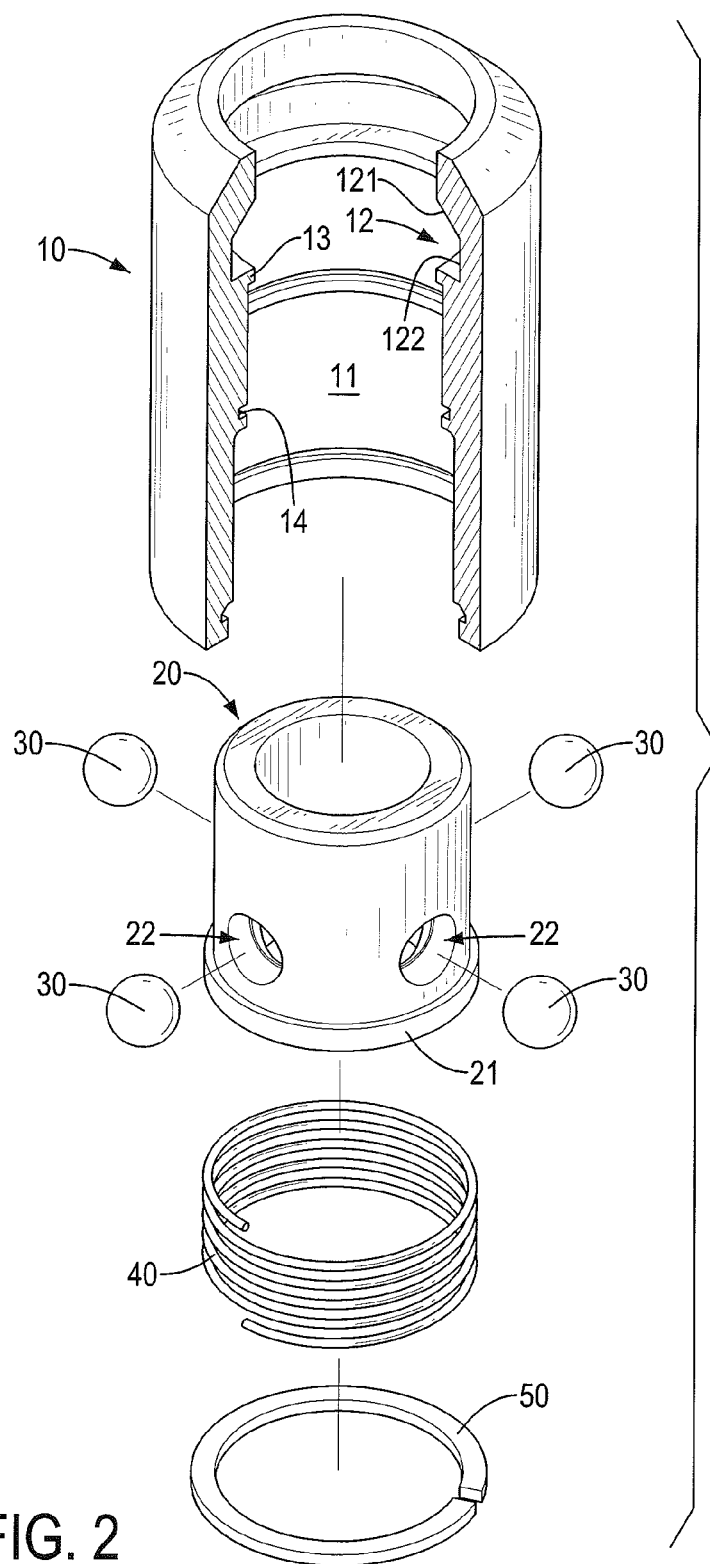


FIG. 2

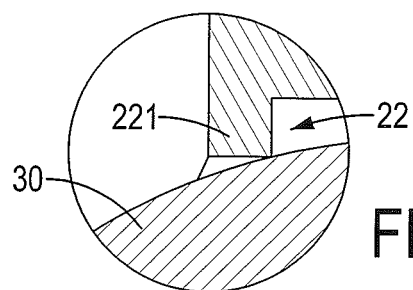


FIG. 3A

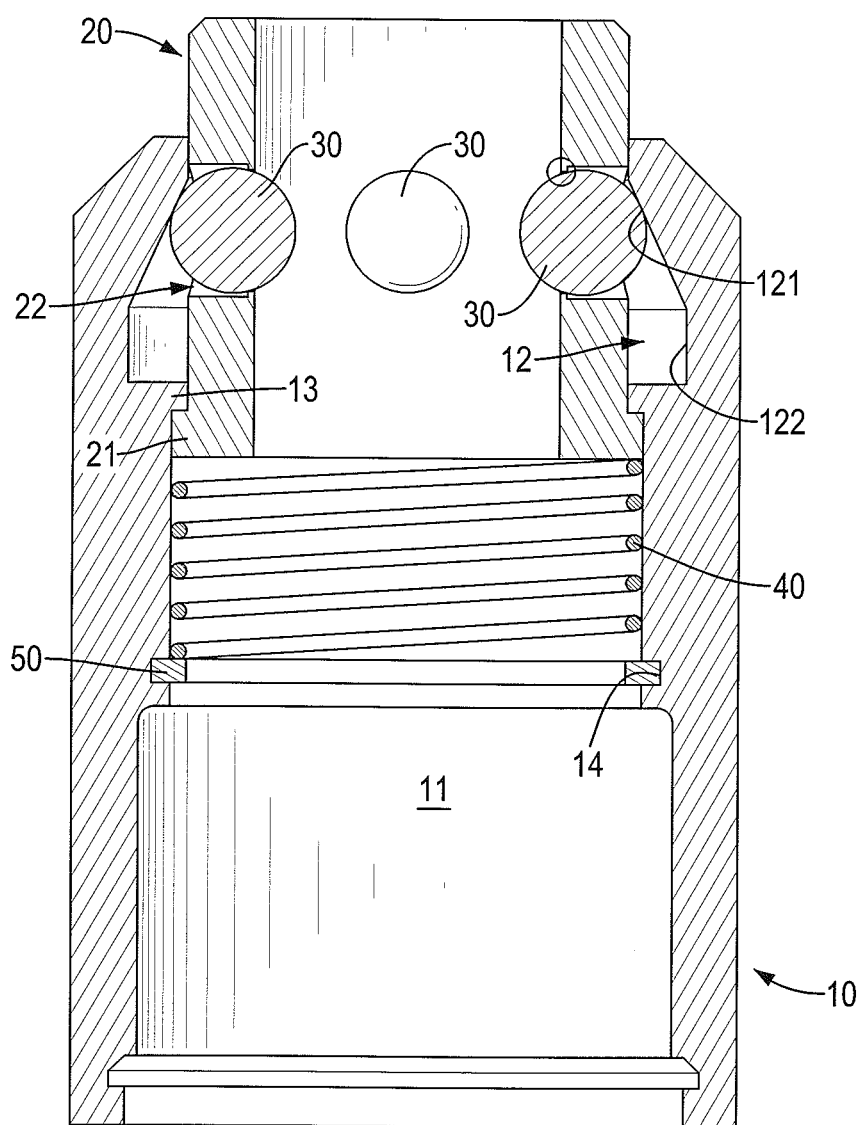
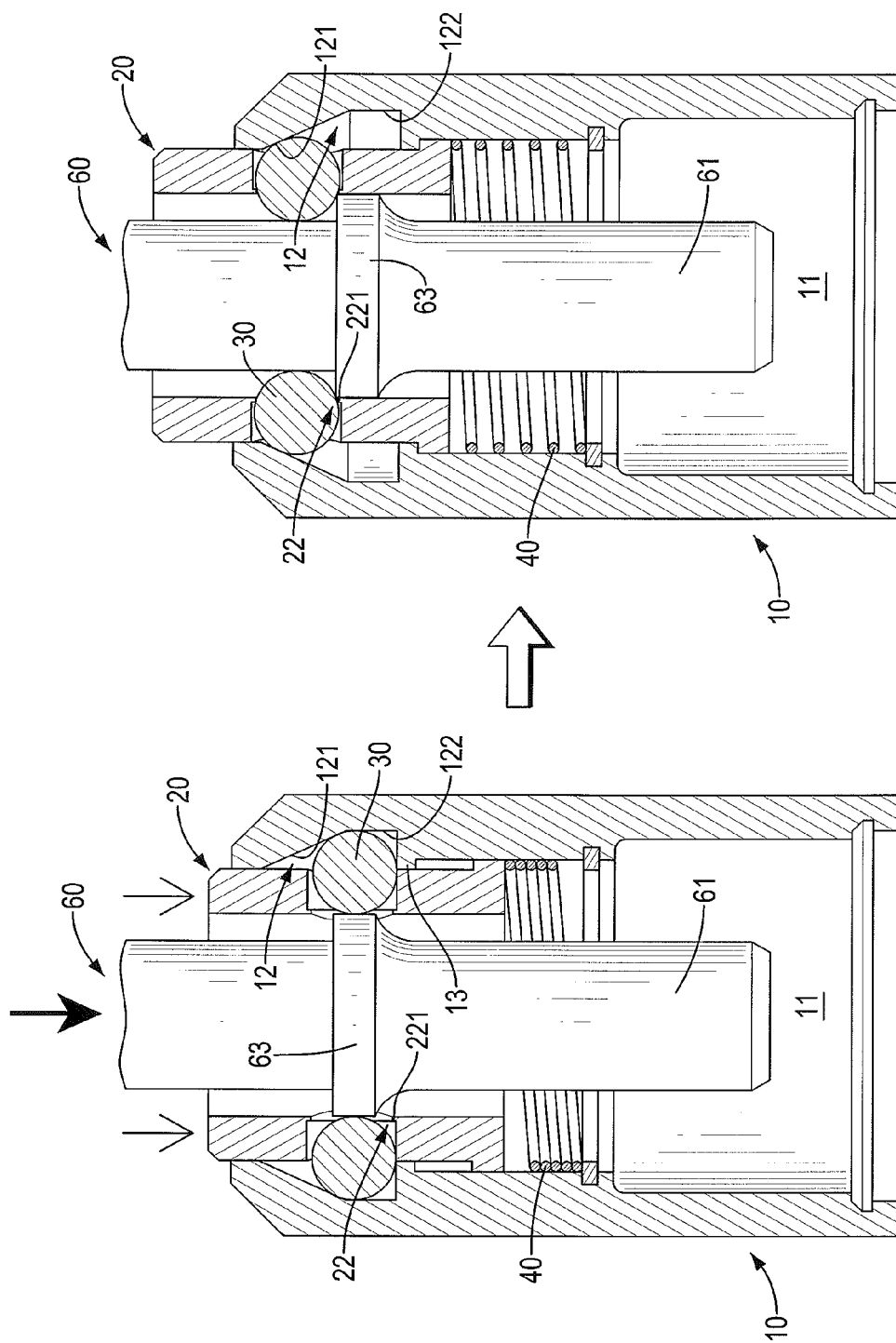


FIG. 3



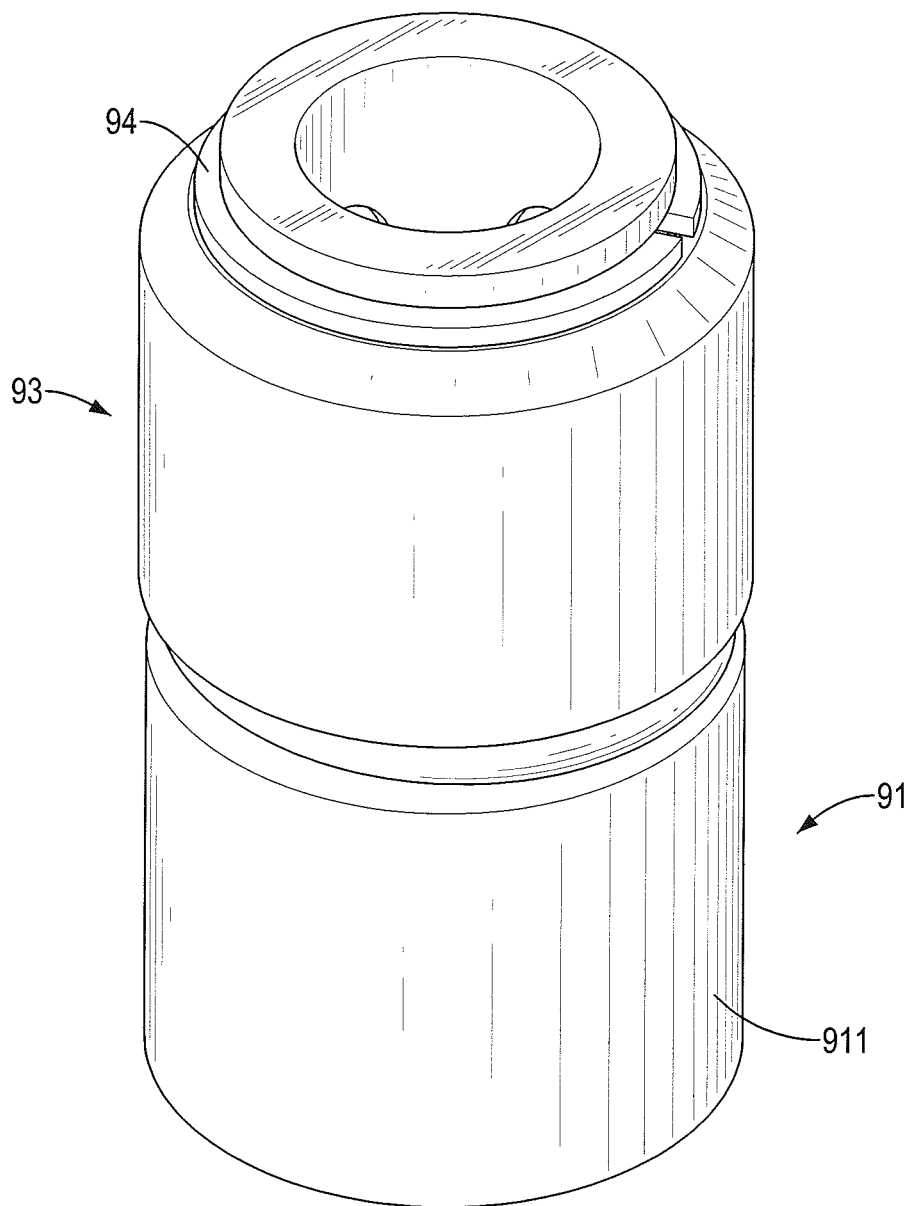


FIG. 5
PRIOR ART

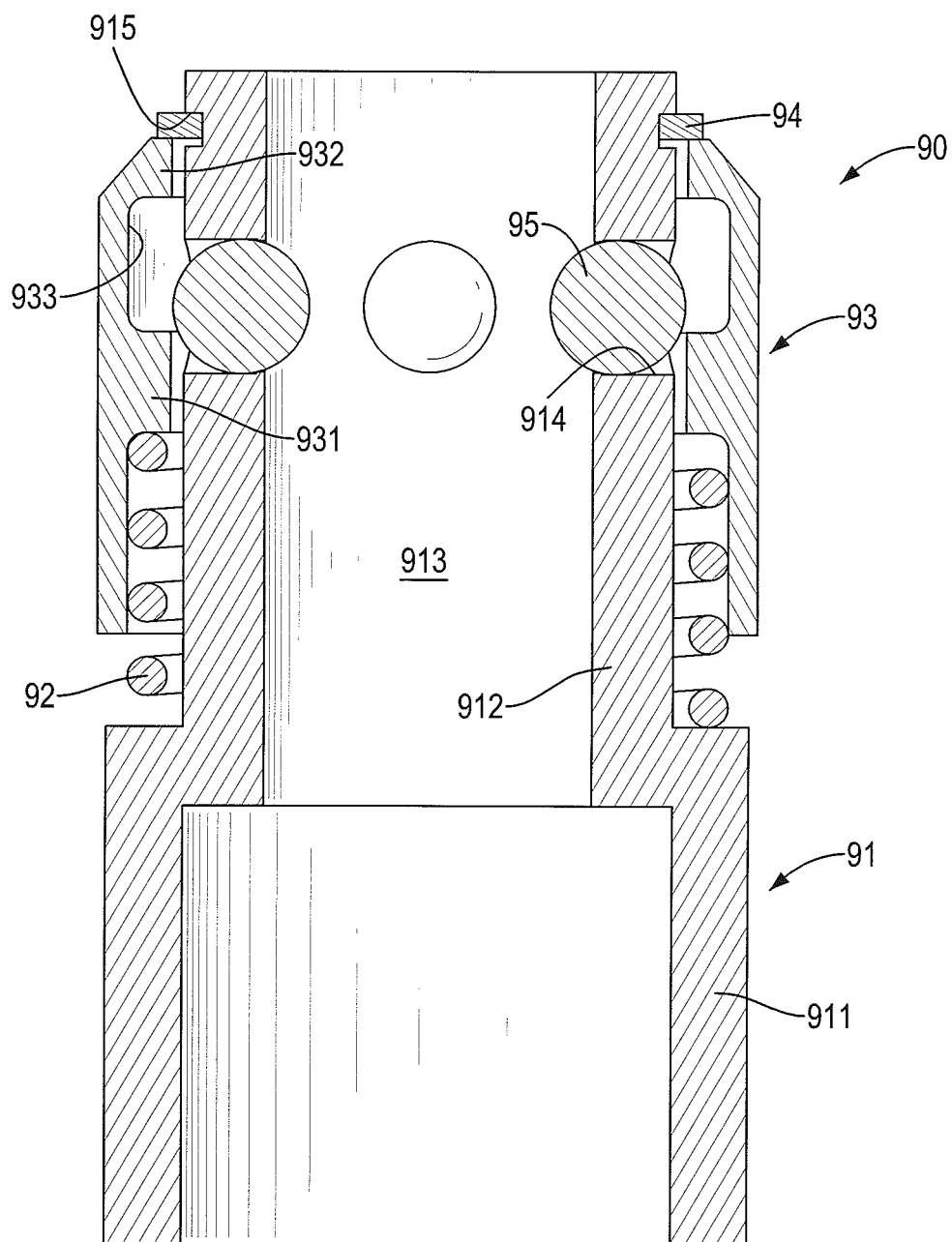


FIG. 6
PRIOR ART

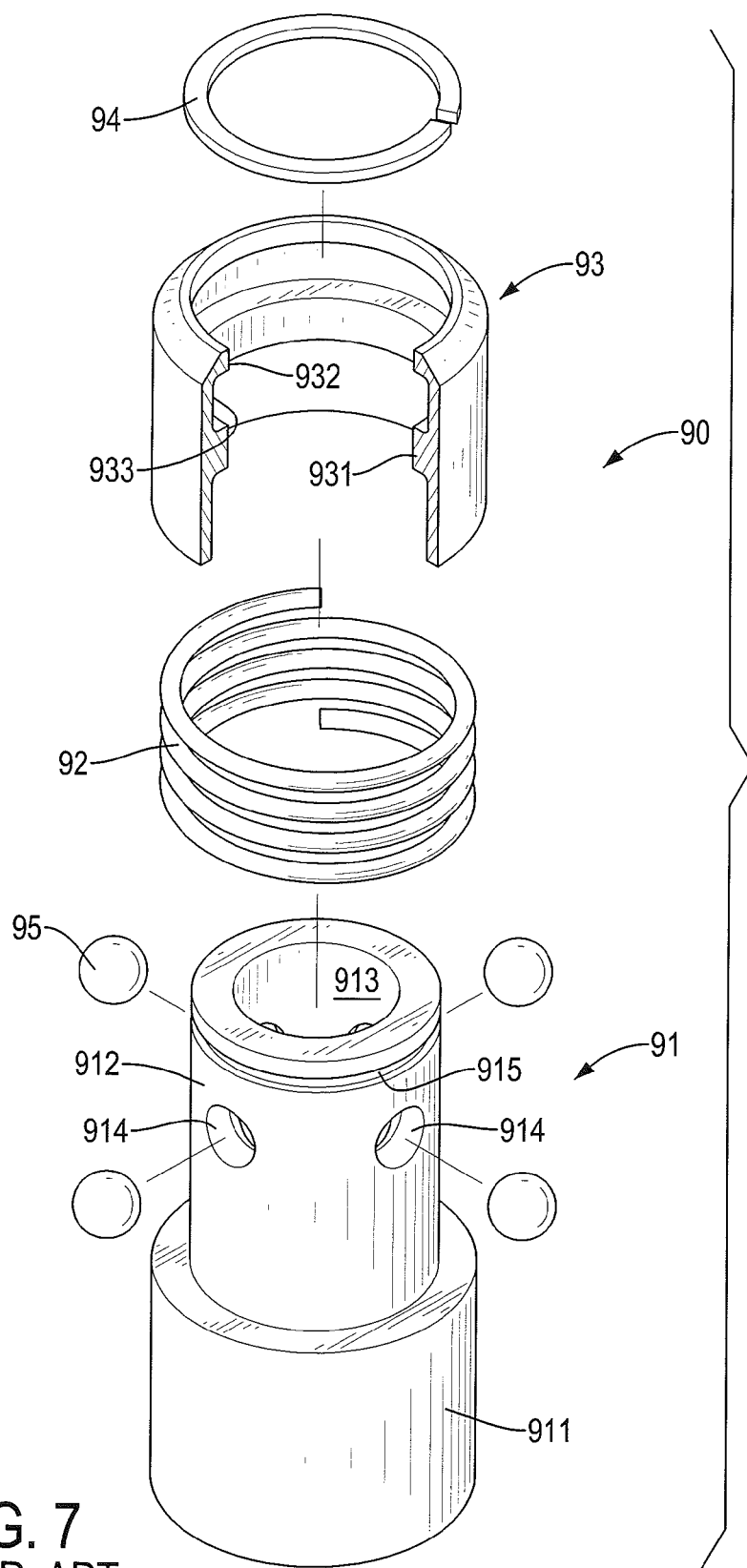
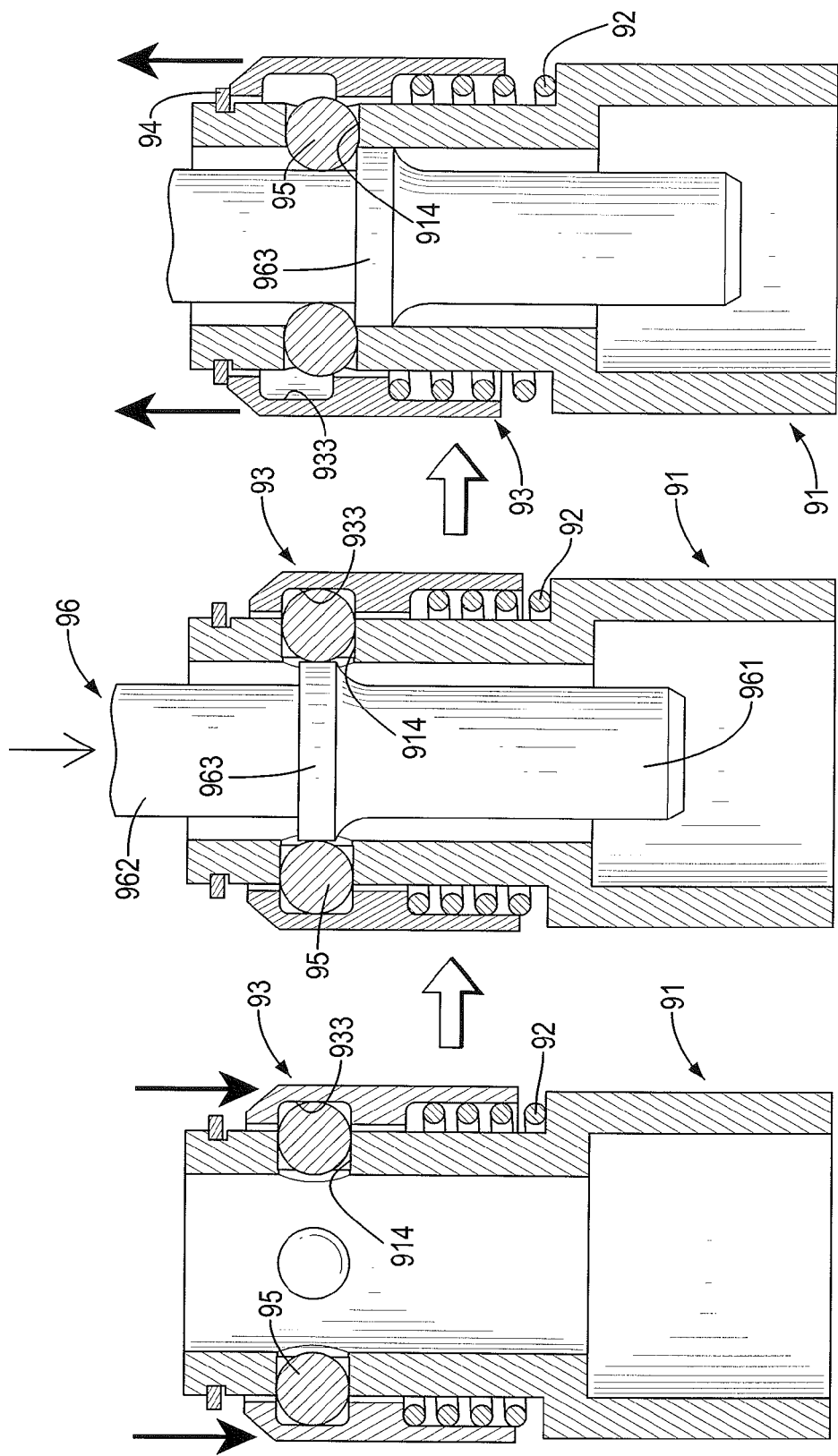


FIG. 7
PRIOR ART



CHISEL HOLDER

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a holder, and more particularly to a chisel holder that can be connected with a chisel conveniently.

2. Description of Related Art

[0002] With reference to FIGS. 5 to 8, a conventional chisel holder 90 comprises an inner sleeve 91, a resilient member 92, an outer sleeve 93, a limiting ring 94, and multiple positioning members 95. The inner sleeve 91 comprises a base 911 and a holding member 912. The base 911 is tubular and hollow. The holding member 912 is formed on and protrudes from a top of the base 911, is hollow, and has an assembling space 913 defined in the holding member 912. The holding member 912 has a diameter smaller than a diameter of the base 911 to form a shoulder between the holding member 912 and the base 911. The holding member 912 further has multiple holding holes 914 radially defined in the holding member 912 and communicating with the assembling space 913. An annular groove 915 is defined around an outer surface of the holding member 912 at a position adjacent to a top of the holding member 912. The resilient member 92 is mounted around the holding member 912 and may be a spring. The resilient member 92 has a bottom end abutting the top of the base 911.

[0003] The outer sleeve 93 is hollow, is mounted around the holding member 912 and the resilient member 92, and abuts a top end of the resilient member 92. The outer sleeve 93 has an abutting rib 931, a top flange 932, and a holding recess 933. The abutting rib 931 is formed on and protrudes inwardly from an inner surface of the outer sleeve 93 and has a bottom surface abutting the top end of the resilient member 92. The top flange 932 is formed on and protrudes inwardly from a top of the outer sleeve 93. The holding recess 933 is formed in the outer sleeve 93 between the abutting rib 931 and the top flange 932 and corresponds in position to the holding holes 914 in the holding member 912. The limiting ring 94 is mounted in the annular groove 915 and has a bottom surface selectively abutting a top surface of the top flange 932. The positioning members 95 are mounted respectively in the holding holes 914 and preferably may be steel balls. Each positioning member 95 partially extends into the holding recess 933.

[0004] To connect a chisel 96 with the holder 90, the outer sleeve 93 has to be firstly moved downward relative to the holding member 912 to compress the resilient member 92. The chisel 96 is inserted into the assembling space 913 via the top of the holding member 912 to enable the bottom end of the chisel 96 to extend into the base 911. The chisel 96 substantially comprises a connection segment 961, a blade segment 962 and a connection rib 963 formed between the connection segment 961 and the blade segment 962. The positioning members 95 will be pushed outward to move into the holding recess 933 by the connection segment 961 while the chisel 96 is moved downward. Accordingly, the connection segment 961 of the chisel 96 can enter the assembling space 913, and the resilient member 92 is compressed. When the connection rib 963 is moved to a

position below the holding members 95, the outer sleeve 93 is released and is moved upward with the recoil force provided by the resilient member 92. At this time, the positioning members 95 are pushed to engage with the connection rib 963 on the chisel 96 by the abutting rib 931 on the outer sleeve 93. Accordingly, the chisel 96 is connected securely with the holder 90.

[0005] However, to connect a chisel 96 with the conventional holder 90, the outer sleeve 93 has to be moved downward first to allow the chisel 96 to be inserted into the holder 90, such that the operation of the conventional chisel holder 90 is inconvenient.

[0006] To overcome the shortcomings, the present invention tends to provide a chisel holder to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0007] The main objective of the invention is to provide a chisel holder that can be connected with a chisel conveniently.

[0008] The chisel holder has an outer sleeve, a holding member, multiple positioning members, a resilient member, and a limiting ring. The outer sleeve has a top, a bottom, an assembling space, a receiving chamber, and an abutting rib. The assembling space is defined in the bottom of the outer sleeve. The receiving chamber is defined in the outer sleeve at a position adjacent to the top of the outer sleeve, communicates with the assembling space, is conical, and has a top end and a bottom end. The top end is adjacent to the top of the outer sleeve and has an inner diameter. The bottom end is away from the top of the outer sleeve and has an inner diameter larger than the inner diameter of the top end of the receiving chamber. The abutting rib is formed on and protrudes from an inner surface of the outer sleeve at a position of the bottom end of the receiving chamber. The annular groove is defined in the inner surface of the outer sleeve at a position between the abutting rib and the bottom of the outer sleeve. The holding member is mounted in the outer sleeve, abuts the inner surface of the outer sleeve, and has a top, a bottom, a central hole, a limiting rib, and multiple holding holes. The top of the holding member extends out from the top of the outer sleeve. The central hole is axially defined through the holding member. The limiting rib is annularly formed around and protrudes from the bottom of the holding member and has a top surface selectively abutting a bottom surface of the abutting rib. The holding holes are radially defined in the holding members and communicate with the central hole of the holding member and the receiving chamber in the outer sleeve. The positioning members are mounted respectively in the holding holes in the holding member, selectively extend into the central hole in the holding member, and abut an inner surface of the receiving chamber. The resilient member is mounted in the assembling space in the outer sleeve and abuts the bottom of the holding member. The limiting ring is mounted in the annular groove in the outer sleeve and has a top surface abutting a bottom end of the resilient member.

[0009] Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a perspective view of a chisel holder in accordance with the present invention;

[0011] FIG. 2 is an exploded perspective view in partial section of the chisel holder in FIG. 1;

[0012] FIG. 3 is a cross sectional side view of the chisel holder in FIG. 1;

[0013] FIG. 3A is an enlarged cross sectional side view of the chisel holder in FIG. 3;

[0014] FIG. 4 shows operational side views in partial section of the chisel holder in FIG. 1;

[0015] FIG. 5 is a perspective view of a conventional chisel holder;

[0016] FIG. 6 is a cross sectional side view of the conventional chisel holder in FIG. 5;

[0017] FIG. 7 is an exploded perspective view in partial section of the conventional chisel holder in FIG. 5; and

[0018] FIG. 8 shows operational side views in partial section of the conventional chisel holder in FIG. 5.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0019] With reference to FIGS. 1 to 3, a chisel holder in accordance with the present invention comprises an outer sleeve 10, a holding member 20, multiple positioning members 30, a resilient member 40, and a limiting ring 50. The outer sleeve 10 has a top, a bottom, an assembling space 11, a receiving chamber 12, an abutting rib 13, and an annular groove 14. The assembling space 11 is defined in the bottom of the outer sleeve 10. The receiving chamber 12 is defined in the outer sleeve 10 at a position adjacent to the top of the outer sleeve 10, communicates with the assembling space 11, is conical, and has a top end 121 and a bottom end 122. The top end 121 of the receiving chamber 12 is adjacent to the top of the outer sleeve 10 and has an inner diameter. The bottom end 122 of the receiving chamber 12 is away from the top of the outer sleeve 10 and has an inner diameter larger than the inner diameter of the top end 121 of the receiving chamber 12. The abutting rib 13 is formed on and protrudes from an inner surface of the outer sleeve 10 at a position of the bottom end 122 of the receiving chamber 12. The annular groove 14 is defined in the inner surface of the outer sleeve 10 at a position between the abutting rib 13 and the bottom of the outer sleeve 10.

[0020] The holding member 20 is mounted in the outer sleeve 10, abuts the inner surface of the outer sleeve 10, and has a top, a bottom, a central hole, a limiting rib 21, and multiple holding holes 22. The top of the holding member 20 extends out from the top of the outer sleeve 10. The central hole is axially defined through the holding member 20. The limiting rib 21 is annularly formed around and protrudes from the bottom of the holding member 20 and has a top surface selectively abutting a bottom surface of the abutting rib 13. The holding holes 22 are radially defined in the holding member 20 and communicate with the central hole of the holding member 20 and the receiving chamber 12 in the outer sleeve 10. With reference to FIG. 3A, each holding hole 22 has an inner end and an annular stopping rib 221. The inner end communicates with the central hole of the holding member 20. The annular stopping rib 221 is formed inwardly on the inner end of the holding hole 22.

[0021] The positioning members 30 may be steel balls, are mounted respectively in the holding holes 22 of the holding member 20, selectively extend into the central hole in the holding member 20, and abut an inner surface of the receiving chamber 12. In addition, the positioning members 30 selectively abut respectively the stopping ribs 221 of the

holding holes 22 to prevent the positioning members 30 from falling completely into the central hole of the holding member 20.

[0022] The resilient member 40 is mounted in the assembling space 11 in the outer sleeve 10 and abuts the bottom of the holding member 20. Preferably, the resilient member 40 is a spring. The limiting ring 50 is mounted in the annular groove 14 in the outer sleeve 10 and has a top surface abutting a bottom end of the resilient member 40.

[0023] With reference to FIGS. 3 and 4, to connect with a chisel 60, the connection segment 61 of the chisel 60 is inserted into the assembling space 11 of the outer sleeve 10, and the positioning members 30 are pushed outward relative to the holding holes 22 by the connection segment 61 of the chisel 60 to abut against the inner surface of the receiving chamber 12. Because the receiving chamber 12 is conical, the positioning members 30 and the holding member 20 will move downward along the conical inner surface of the receiving chamber 12 and the resilient member 40 is compressed.

[0024] When the connection rib 63 of the chisel 60 passes over the positioning members 30, the chisel 60 is released and the holding member 20 with the positioning members 30 is moved upward by the recoil force provided by the resilient member 40. The positioning members 30 will rotate along the conical inner surface of the receiving chamber 12 and extend partially into the central hole of the holding member 20 to abut against the top surface of the connection rib 63 of the chisel 60. Accordingly, the chisel 60 can be securely connected with the holder.

[0025] With such an arrangement, the positioning members 30 and the holding member 20 can be automatically pushed to move by the insertion of the chisel 60 into the outer sleeve 10, so to connect a chisel 60 with the holder in accordance with the present invention is convenient and time-saving.

[0026] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A chisel holder comprising:

an outer sleeve having

a top;

a bottom;

an assembling space defined in the bottom of the outer sleeve;

a receiving chamber defined in the outer sleeve at a position adjacent to the top of the outer sleeve, communicating with the assembling space, being conical, and having

a top end being adjacent to the top of the outer sleeve and having an inner diameter; and

a bottom end being away from the top of the outer sleeve and having an inner diameter larger than the inner diameter of the top end of the receiving chamber;

an abutting rib formed on and protruding from an inner surface of the outer sleeve at a position of the bottom end of the receiving chamber; and
an annular groove defined in the inner surface of the outer sleeve at a position between the abutting rib and the bottom of the outer sleeve;
a holding member mounted in the outer sleeve, abutting the inner surface of the outer sleeve, and having a top extending out from the top of the outer sleeve;
a bottom;
a central hole axially defined through the holding member;
a limiting rib annularly formed around and protruding from the bottom of the holding member and having a top surface selectively abutting a bottom surface of the abutting rib; and
multiple holding holes radially defined in the holding member and communicating with the central hole of the holding member and the receiving chamber in the outer sleeve;
multiple positioning members mounted respectively in the holding holes in the holding member, selectively

extending into the central hole in the holding member, and abutting an inner surface of the receiving chamber;
a resilient member mounted in the assembling space in the outer sleeve and abutting the bottom of the holding member; and
a limiting ring mounted in the annular groove in the outer sleeve and having a top surface abutting a bottom end of the resilient member.
2. The chisel holder as claimed in claim 1, wherein each holding hole has
an inner end communicating with the central hole of the holding member; and
an annular stopping rib formed inwardly on the inner end of the holding hole and selectively abutting a corresponding one of the positioning members.
3. The chisel holder as claimed in claim 2, wherein the resilient member is a spring.
4. The chisel holder as claimed in claim 1, wherein the resilient member is a spring.

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