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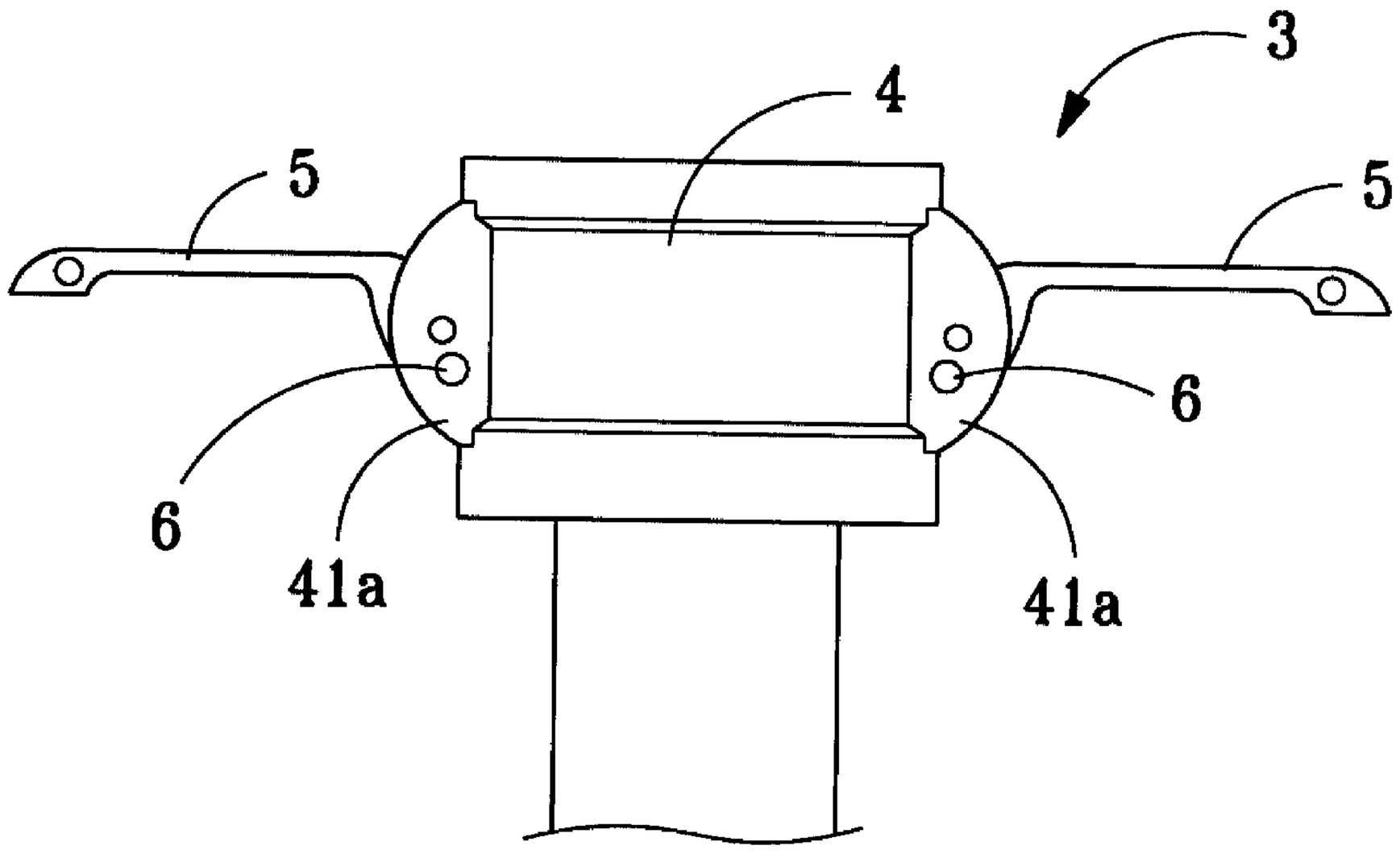
(54) **COUPLAGE RAPIDE**

(54) **QUICK COUPLING**



(57) An improved structure of quick coupling comprises mainly a main connecting body, press rods, stoppers and flange press portions. Each of two lateral sides of the main connecting body is extended to form a pair of flanges, which is provided with circular holes. A traverse pin is used to penetrate these two flanges and the press rod to fix the press rod at the main connecting body. When another connector is jointed to the improved quick coupling, the press rods are in parallel with the main body and meanwhile, an arc head at front end of the press rod is fastened to another connector for consolidating the combination, and the stopper in a reception cavity at front end of the press rod will insert in a circular hole that accommodating the flange press portion to ensure the press rod will not bounce up owing to pressure of flowing liquid in pipe or external vibration. When detachment of the connectors is desired, the flange press portion must be pressed firstly, so that the press rods can be pulled up to separate the jointed connectors.

ABSTRACT OF THE DISCLOSURE

An improved structure of quick coupling comprises mainly a main connecting body, press rods, stoppers and flange press portions. Each of two lateral sides of the main connecting body is extended to form a pair of flanges, which is provided with circular holes. A traverse pin is used to penetrate these two flanges and the press rod to fix the press rod at the main connecting body. When another connector is jointed to the improved quick coupling, the press rods are in parallel with the main body and meanwhile, an arc head at front end of the press rod is fastened to another connector for consolidating the combination, and the stopper in a reception cavity at front end of the press rod will insert in a circular hole that accommodating the flange press portion to ensure the press rod will not bounce up owing to pressure of flowing liquid in pipe or external vibration. When detachment of the connectors is desired, the flange press portion must be pressed firstly, so that the press rods can be pulled up to separate the jointed connectors.

QUICK COUPLING

BACKGROUND OF THE INVENTION

1. Field of the invention

This invention relates to a quick coupling, particularly to an improved structure of quick coupling, wherein a stopper in reception cavity at front end of a press rod will insert in a circular hole that accommodates a flange press portion when two connectors are jointed together; and the flange press portion must be pressed to detach the combined connectors.

2. Description of the prior art

As shown in Fig. 1A and 1B, main connecting body **11** of a prior quick coupling is extended to form a pair of flanges **111a** and **111b** at each of two lateral sides, and a press rod **14** is indirectly connected to each pair of flanges **111a**, **111b** respectively via a traverse pin **13.** The front end of the press rod **14** is in arc shape to serve as a snap fastening portion **141** when a connector **2** is collar-jointed, and an insertion pin **12** is cross-connected with the flanges **111a** and **111b** in series to suppress the press rod **14** in order not to let go of the same.

When connector 1 and 2 are jointed together, the press rod **14** is in parallel with the main connecting body **11,** meanwhile, the snap fastening portion **141** at the front end of the press rod **14** is retained at a ring groove **21** at bottom end of the connector **2**. And when separating the connector **2** from the connector **1** is desired, all a user has to do is extract the insertion pin **12** and pull up the press rods **14**.

As foregoing described, the connector **2** is retained in the connector **1** merely by virtue of the snap fastening portion **141** at the front end of the press rods **14,** and it is for sure after a long-term period, the snap fastening portion **141** will be affected by liquid pressure in pipe and external vibration to loosen the press rod **14** and degrade connection quality between connector **1** and **2** to result in an oozy flow of the liquid through the joint.

In view of the above-described imperfections, after years of constant effort in research, the inventor of this invention finally manages to propose an improved mechanism pertaining to the subject matter.

SUMMARY OF THE INVENTION

This invention is proposed to provide an improved structure of quick coupling, wherein two lateral press rods will clamp to the main connecting body stably in parallel without loosening despite of pressure of flowing liquid in pipe or external vibration when two connectors are jointed. The consolidated joint cannot be detached easily even after a long-term period to effectively prevent liquid in pipe from overflowing through the joint.

Another object of this invention is to provide an improved structure of quick

coupling, wherein a flange press portion must be pressed for pulling up the press rods to detach combined connectors. The improved structure of quick coupling benefited with above merits comprises:

a main connecting body with a pair of lateral flanges respectively at two opposite sides, wherein plural circular holes are formed at the flanges;

a press rod with an arc head at its front end, a circular hole, and a reception cavity;

a press portion having a groove;

a stopper composed of a latch and a spring to be disposed in the reception cavity at front end of the press rod, wherein each end of the spring is put in the latch and in the reception cavity respectively.

In practical assembling, the circular hole at front end of the press rod must be in alignment with each hole in two flanges, then a traverse pin is used to penetrate the circular hole one by one, so that the press rod can be fixed movable on the main connecting body. The flange press portion is inserted in a flange of each pair of flanges at both opposite sides of the main connecting body, then a pin is plugged in a groove of the press portion to from a semi-fixed structure. Before pulling up the press rods, the flange press portion must be pressed first to squeeze the stopper out of the circular hole that accommodates the flange press portion. On the contrary, when the press rods are pushed downward to become parallel with the main connecting body, the stopper will again be inserted in the circular hole.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding to the present invention, together with further advantages or features thereof, at least one preferred embodiment will be elucidated below with reference to the annexed drawings in which:

Fig. 1A~1B are three-dimension lateral views of structure of a prior quick coupling;

Fig. 2 is a three-dimension elevational view showing an improved structure of a quick coupling of this invention;

Fig. 3 is a partly exploded view showing an improved structure of a quick coupling of this invention;

Fig. 4A~4B are schematic views showing an improved structure of a quick coupling of this invention in connection with another connector;

Fig. 5 is a schematic view showing operation of improved structure of a quick coupling of this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in Fig. 2 and 3 - a three dimension elevational view and a partly exploded view of an improved quick coupling of this invention, a connector **3** is composed of a main connecting body **4**, press rods **5**, flange press portion **6**, and a stopper **9.** A pair of flanges **41a**, **41b** are formed laterally to the main connecting body **4**, and a circular hole **413** is arranged in the flange **41b**, circular hole **411**, **412**, **414** are provided to the other flange **41a**.

The front end of the press rod **5** is an arc head **51,** wherein a circular hole **511** and a reception cavity **512** are formed. A spring **92** is put in the reception cavity **512** before a latch **91** to form the stopper **9** in the arc head **51**.

The press rod **5** is combined to the main connecting body **4** by setting the circular hole **511** of the arc head **51** in alignment with the circular hole **411** and **413** between the flange **41a** and **41b**, then using a traverse pin **7** to penetrate circular hole **411**, **511**, and **413** to fix the press rod **5** at the main connecting body **4**. The stopper **9** will slide on inner wall of the flange **41a** following movement of the press rod **5**.

The flange press portion **6** having a groove **61** is inserted in the circular hole **412** of the flange **41a**, wherein the groove **61** must be arranged to face the circular hole **414** to permit a pin **8** to be inserted in the groove **61**, so that the press portion **6** is semi-fixed and movable in the circular hole **414** of the flange **41a**.

As shown in Fig. 4A, B and Fig. 5A, B, when a connector **10** is to be combined with another connector **3**, press rods **5** have to be pulled up to permit the connector **10** to enter the connector **3**, where the arc head **51** serves as a snap fastening portion. After the connector **10** enters the connector **3**, a user then push the press rods **5** downward to become parallel to the main connecting body **4**, the arc heads **51** of the press rods **5** will be retained in a ring groove **101** at lower end of the connector **10** to provide a tight embrace of connector **10** and **3**. Meanwhile, the latch **91** in the reception cavity **512** will plug in the circular hole **412** that accommodates the press portion **6** by virtue of elastic force of the spring **92** to refrain the press rods **5** from bouncing up owing to pressure of flowing liquid in pipe or external vibration. When detaching the connectors **3**, **10**, the user has to push the press portion **6** to squeeze the spring **92**, so that the latch **91** will be released from the circular hole **412** and the press rods **5** can be pulled up to drive the stopper **9** to slide along inner wall of the flange **41a** following movement of the press rods **5**.

In comparison with prior skill, the improved structure of a quick coupling of this invention is benefited with merits:

1. When two connectors are combined, a stopper in the press rod will insert in a circular hole of a flange to set the press rod fixed at the main connecting body that refrains the press rod from bouncing up after a long-term period despite of pressure of

flowing liquid in pipe or external vibration.

2. The consolidated joint cannot be detached easily in virtue of this invention.

Although, this invention has been described in terms of preferred embodiments, it is apparent that numerous variations and modifications may be made without departing from the true spirit and scope thereof, as set forth in the following claims.

What is claimed is:

1. An improved structure of quick coupling, comprising:

a main connecting body , wherein each of two lateral sides is extended to form a pair of flanges, which are provided with a plurality of circular holes for different functions;

a press rod having an arc head at its front end, wherein said arc head is provided with a circular hole and a reception cavity;

a flange press portion having a groove;

a stopper further comprising a latch and a spring being inserted in said reception cavity at the front end of said press rod, wherein one end of said spring is put in said reception cavity, while the other end in said latch; and

in practical assembling, said press rod being placed between the pair of flanges at each of two lateral sides of said main connecting body, wherein the circular hole in said press rod must be in alignment with the circular holes in said flanges, then a traverse pin is used to penetrate the circular holes to fix said press rod movable at said main connecting body; said flange press portion is inserted in one flange, then an insertion pin is plugged and retained in the groove of said flange press portion to form a pressable mechanism; when said press rod is pressed down, said stopper will slide following movement of said press rod to insert in the circular hole accommodating said flange press portion to thus fix said press rod at said main connecting body; when pulling up said press rod is desired, said flange press portion must be pressed firstly to squeeze said stopper to depart from the circular hole and slide along inner wall of said flange subsequent to pulling up said press rod.

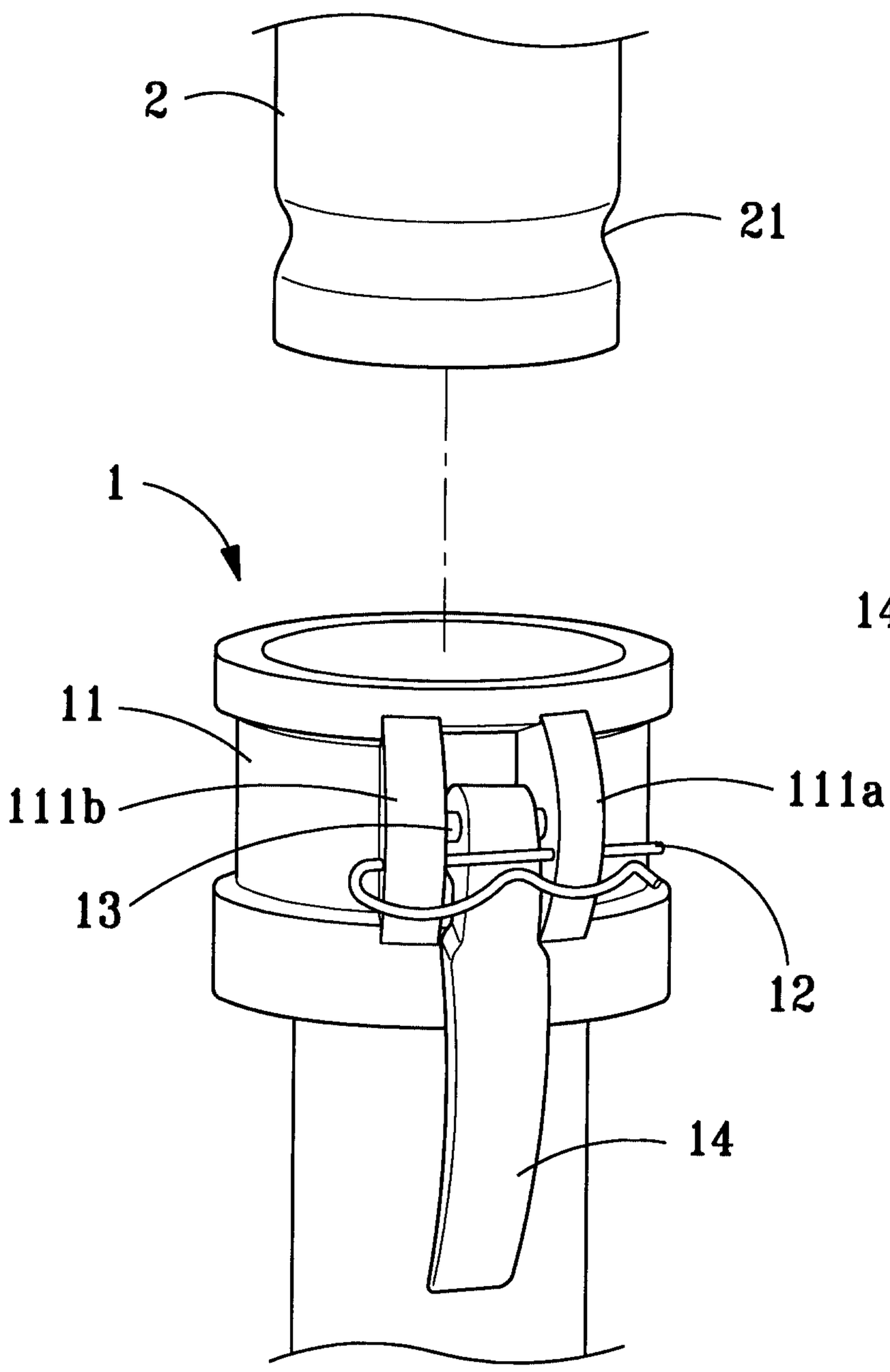


FIG. 1A

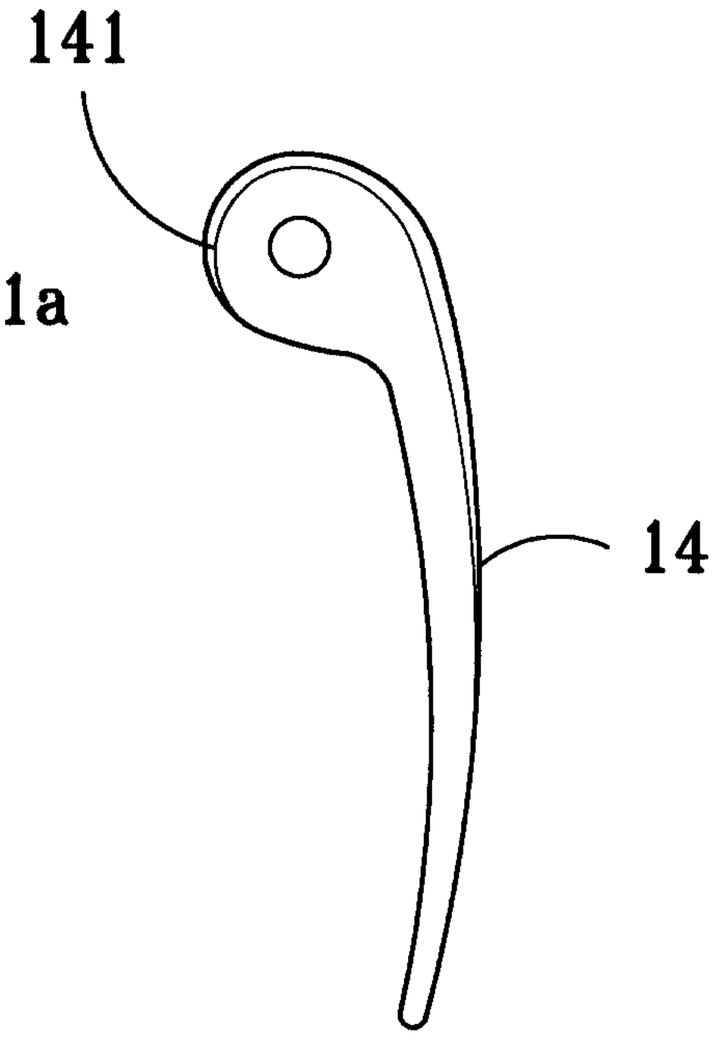


FIG. 1B

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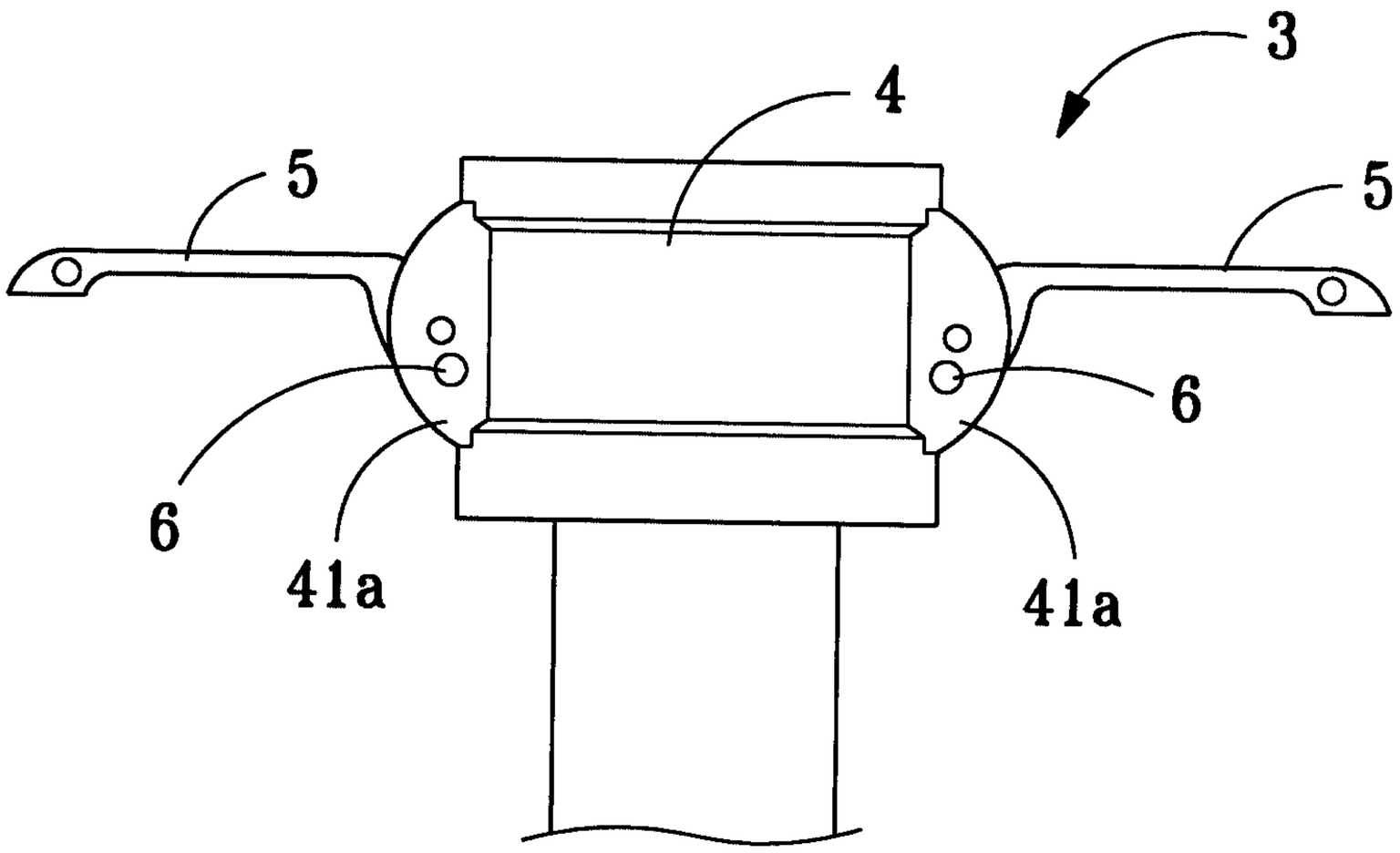

FIG. 2

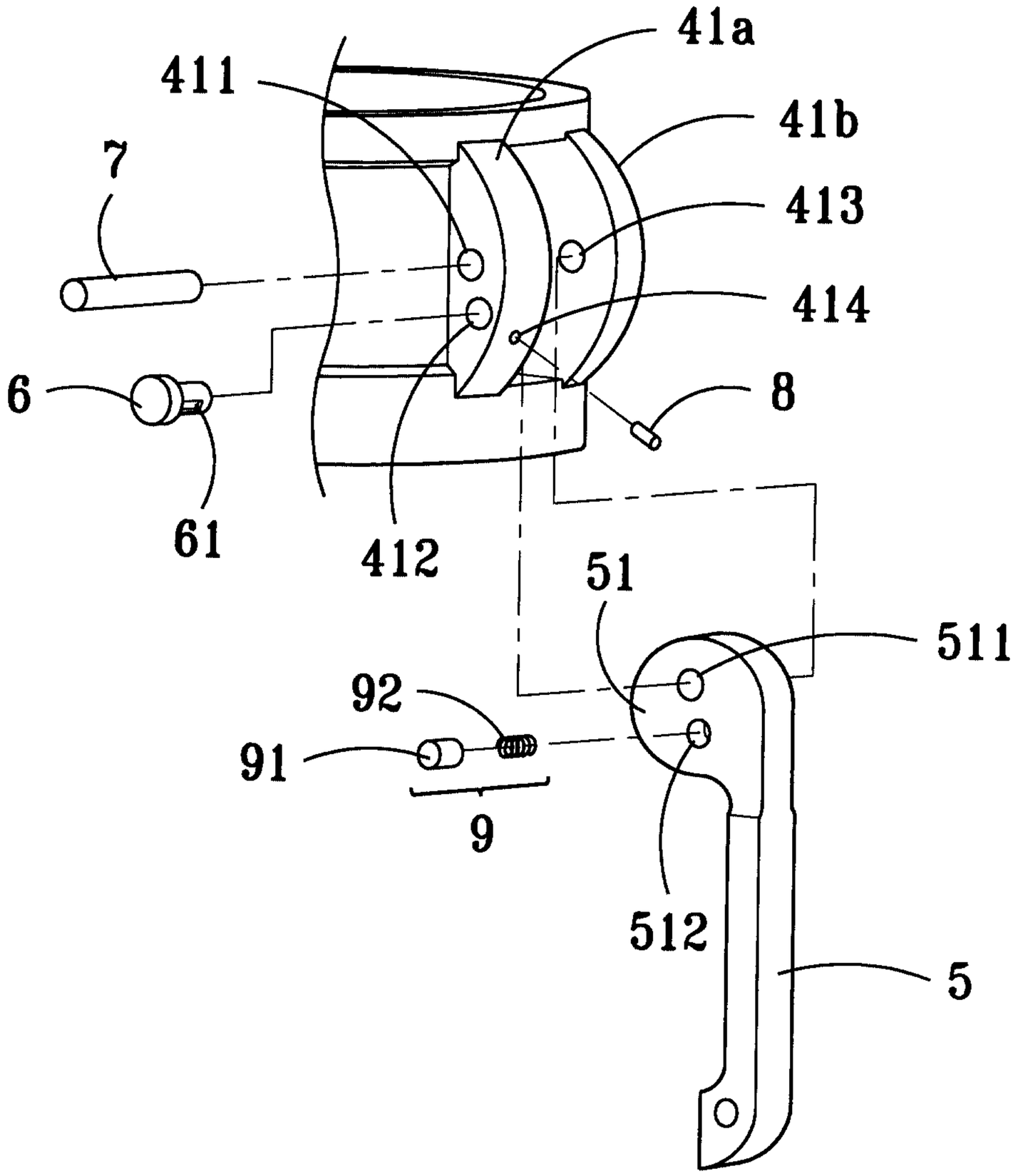

FIG. 3

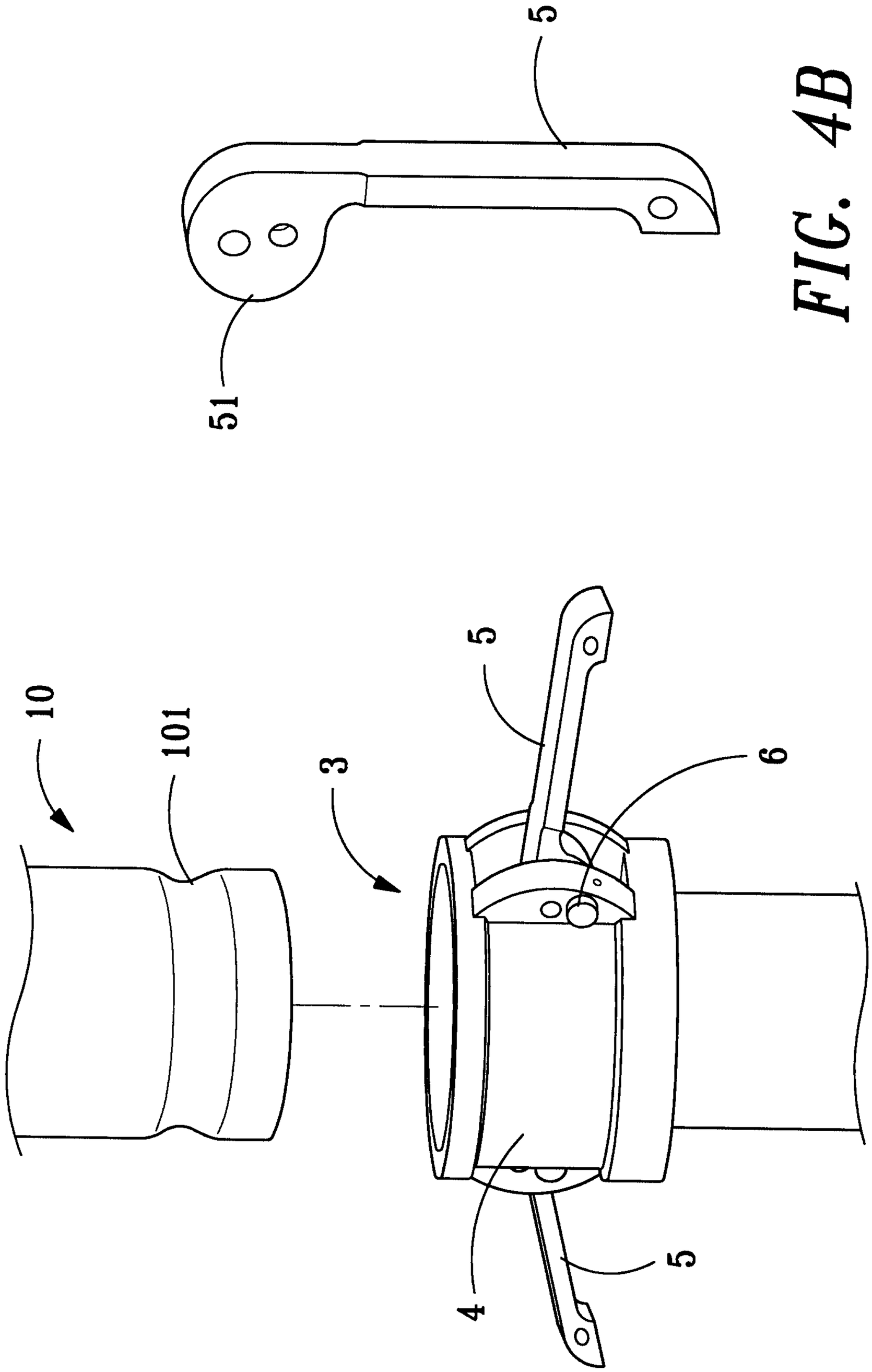

FIG. 4A

FIG. 4B

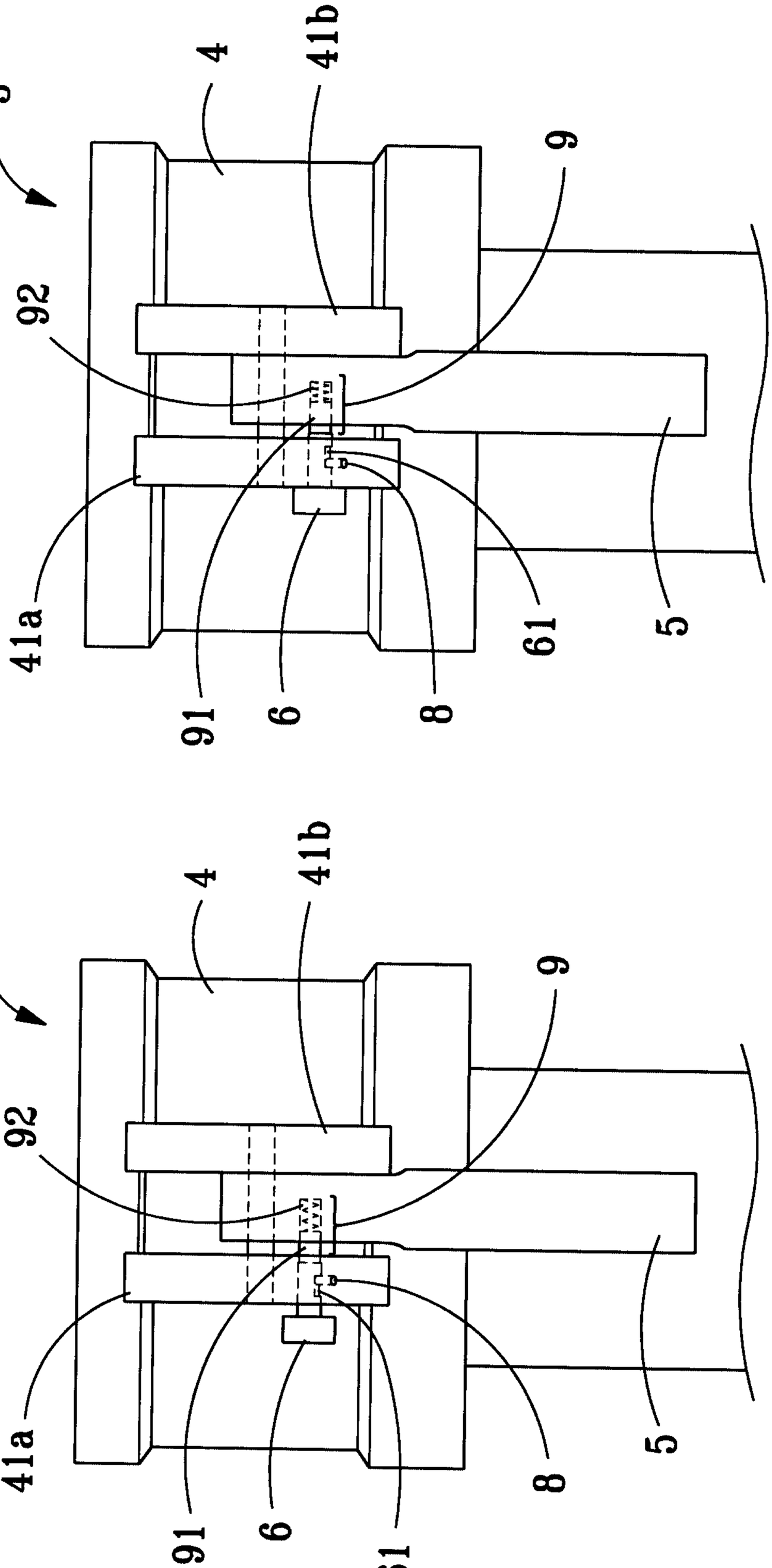

FIG. 5B

FIG. 5A

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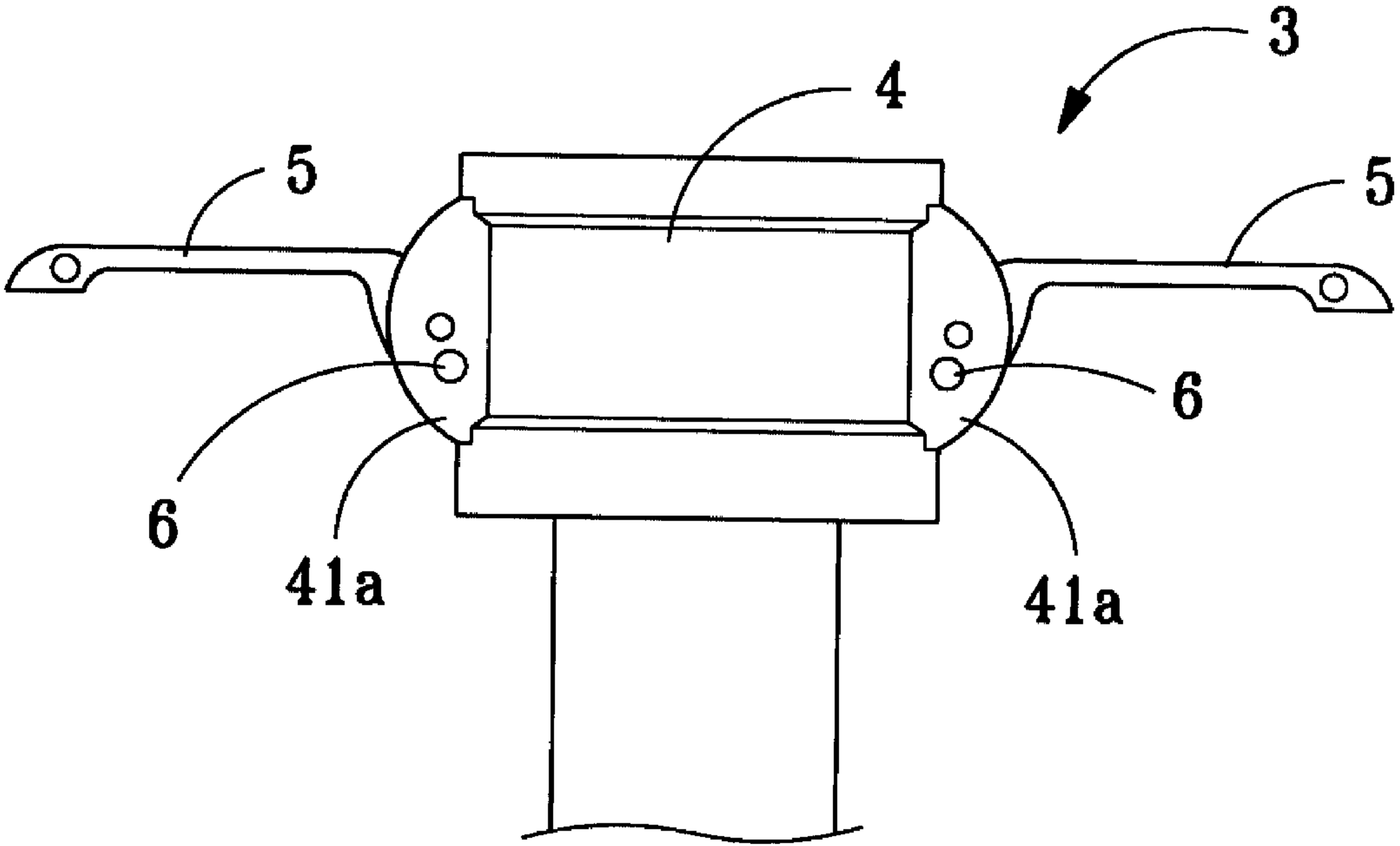
3
4
5
5
6
6
41a
41a