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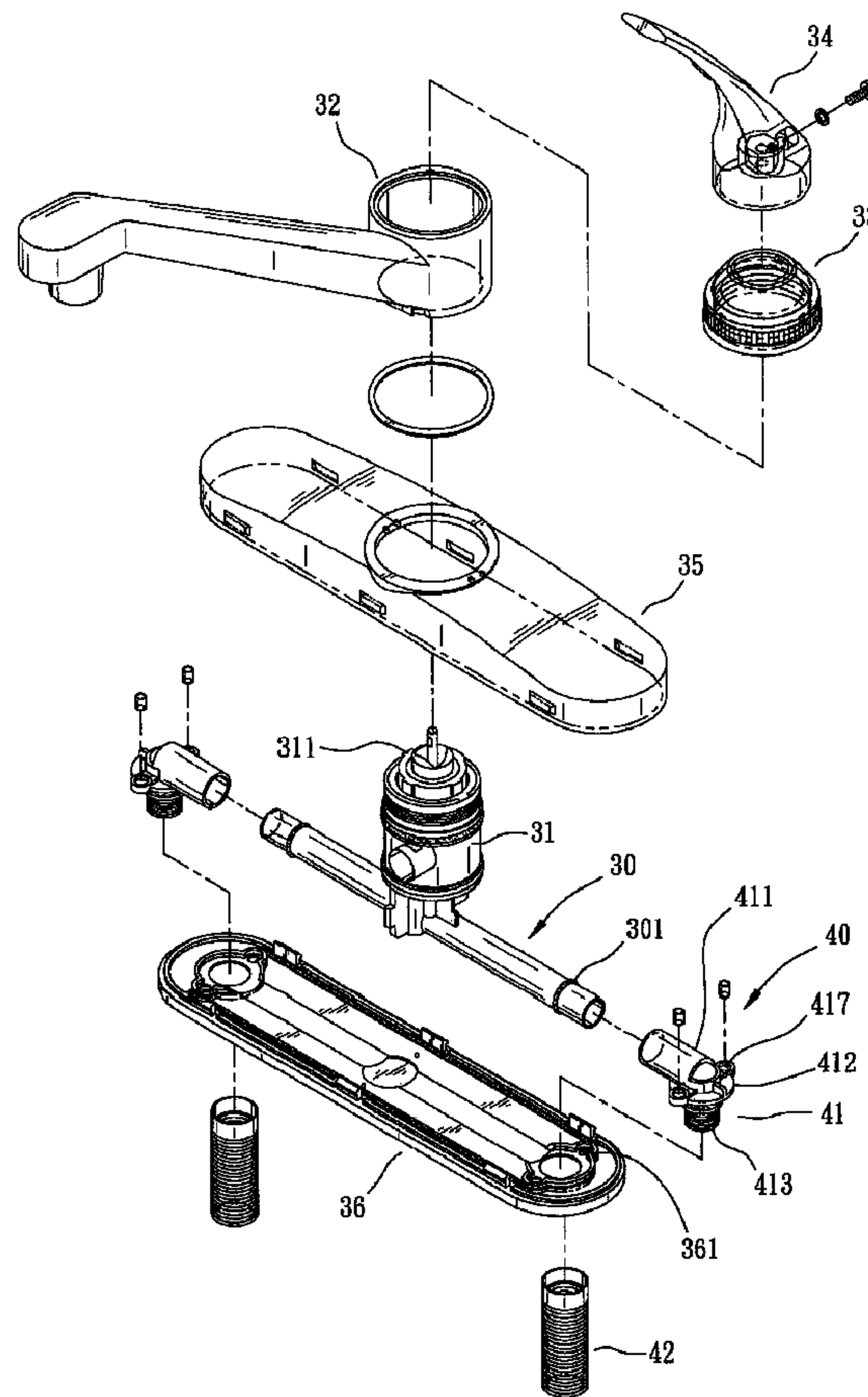
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(54) Titre : TUBE DE RACCORDEMENT D'EAU FROIDE ET D'EAU CHAUDE POUR ROBINETS EN PLASTIQUE

(54) Title: COLD AND HOT WATER CONNECTING TUBE STRUCTURE FOR PLASTIC FAUCETS



(57) Abrégé/Abstract:

A cold and hot water connecting tube structure for plastic faucets comprises a connector and an inlet duct. The connector includes a tubular portion and a larger-diameter stop flange with a smaller-diameter threaded tube integrally molded to protrude downwards



(57) **Abrégé(suite)/Abstract(continued):**

at the other end. The threaded tube has a watertight ring mounted to an annular groove defining an appropriate position thereon to form a set of abutment flanges at both sides. The inlet duct has an oblique guide slope cut at one end edge to abut tight against a water-sealing ring mounted inside a locking head of a cold/hot water pipe, and a conjoining section with an internal-threaded section defining the internal surface of the other end. Therefore, the connecting tube can be accurately joined without any chinks caused by cold-contraction to ensure secure connection thereby. And the separate-type design thereof also permits easy assembly and replacement of the present invention.

ABSTRACT OF THE DISCLOSURE

A cold and hot water connecting tube structure for plastic faucets comprises a connector and an inlet duct. The connector includes a tubular portion and a larger-diameter stop flange with a smaller-diameter threaded tube integrally molded to protrude downwards at the other end. The threaded tube has a watertight ring mounted to an annular groove defining an appropriate position thereon to form a set of abutment flanges at both sides. The inlet duct has an oblique guide slope cut at one end edge to abut tight against a water-sealing ring mounted inside a locking head of a cold/hot water pipe, and a conjoining section with an internal-threaded section defining the internal surface of the other end. Therefore, the connecting tube can be accurately joined without any chinks caused by cold-contraction to ensure secure connection thereby. And the separate-type design thereof also permits easy assembly and replacement of the present invention.

COLD AND HOT WATER CONNECTING TUBE STRUCTURE FOR PLASTIC FAUCETS

BACKGROUND OF THE INVENTION

The present invention relates to a cold and hot water connecting tube structure for plastic faucets, comprising a connector and an inlet duct wherein the connector having a threaded tube with abutment flanges extending thereon is securely locked to the inlet duct having an internal-threaded section with a conjoining section defining thereon to form a separate-type design and provide secure engagement without any chinks caused by cold-contraction, facilitating easier assembly and replacement to achieve both economical and environmental benefits thereby.

A conventional plastic faucet 10 as shown in Fig. 1 includes a cold and hot water connecting tube 11 that is ejection molded and integrally bound with a metallic outer tube 111 having a threaded section defining thereon to form a plastic-metallic layer of an inner tube 112 at the internal wall thereby. However, during the process of production, the finished inner tube 112 will cool off and become deformed due to the phenomena of heat-expansion and cold-contraction. As a result, the inner tube 112 will contract inwards and fail to keep an even surface with the opening edge of the outer tube 111 thereof. And when a locking head 21 of a cold/hot water pipe 20 is fixed to the outer tube 111, a sealing ring 22 can simply abut against the end edge of the outer tube 111, which relatively reduces the sealing area and affects secure engagement there-between. Thus, the cold and hot water connecting tube 11 cannot accurately bear the force of water pressure and can easily result in water leakage. Furthermore, the inner tube 112, contracted and deformed after cooling off, is poorly combined with the outer tube 111, which can cause a chink A revealed there-between

and fail to provide secure connection thereof. Finally, the inner and outer tubes 112, 111 of the cold and hot water connecting tube 11 are integrally bound and coupled with a set of perpendicular-extending tubular portion 113 and a water-guiding duct B. Thus, for maintenance, the cold and hot water connecting tube 11 must be dismantled and replaced as a whole, which is quite uneconomical and eco-unfriendly.

SUMMARY OF THE PRESENT INVENTION

It is, therefore, the primary purpose of the present invention to provide a cold and hot water connecting tube structure for plastic faucets wherein a connector having a threaded tube with abutment flanges extending thereon is securely locked to an inlet duct having an internal-threaded section with a conjoining section defining thereon to form a separate-type design, which can not only provide securer connection to avoid any chinks caused by cold-contraction thereof, but also facilitate easier assembly and replacement to achieve both economical and environmental benefits thereby.

It is, therefore, the second purpose of the present invention to provide a cold and hot water connecting tube structure for plastic faucets wherein the inlet duct has an oblique guide slope cut at one end edge thereon to abut tight against a water-sealing ring mounted inside a locking head of a cold/hot water pipe; whereby, the water-sealing ring will simultaneously contact tight and close both the end edge and the oblique guide slope of the inlet duct, efficiently boosting the water-sealing area and reinforcing secure connection so as to accurately bear the force of water pressure and ensure watertight benefit thereby.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an assembled flat view of a conventional cold and hot water connecting tube for plastic faucets.

Fig. 2 is an exploded perspective view of the present invention.

Fig. 3 is an exploded perspective view of a cold/hot water connecting tube of the present invention.

Fig. 4 is an assembled perspective view of the present invention.

Fig. 5 is an assembled cross sectional view of the present invention.

Fig. 6 is an assembled cross sectional view of Fig. 3.

Fig. 7 is an exploded perspective view of another cold/hot water connecting tube of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to Fig. 2 showing an exploded perspective view of the present invention (accompanied by Figs. 3 to 5 inclusive). The present invention relates to a cold and hot water connecting tube structure for plastic faucets, comprising a coupling tube 30 equipped with a valve seat 31 for the accommodation of a control valve 311 therein, a spout 32 mounted to the outer side of the valve seat 31, a locking cap 33, and a handle 34 to regulate the discharge and shutoff of water flow thereby. The coupling tube 30 has both end sides respectively mounted with a waterproof ring 301 thereon and joined to a cold/hot water connecting tube 40 thereby. The cold/hot water connecting tube 40 is composed of a connector 41 and an inlet duct 42. The connector 41, molded into an L shape, is made up of a tubular portion 411 extending at one side to mount to the coupling tube 30 thereby, and a larger-diameter stop flange 412 with a smaller-diameter threaded tube 413 integrally molded to protrude downwards at the other end thereon. The threaded tube 413 has an annular groove

414 indented at an appropriate position thereon for the accommodation of a watertight ring 415 therein, and a set of abutment flanges 416 symmetrically protruding to define both sides of the annular groove 414 thereby. The stop flange 412 has multiple assembly holes 417 extending through the outer periphery thereon to match to through holes 361 disposed at a base board 36 of a mount 35 and rivet-join thereto. The inlet duct 42, molded of copper element, is equipped with a polygonal tool notch 421 defining the internal surface of one end thereon, and an oblique guide slope 422 cut at the internal end edge thereon. The inlet duct 42 has the internal surface of the other end equipped with a conjoining section 423, an internal-threaded section 424, and an oblique tapered guide surface 425 disposed between the conjoining section 423 and the internal-threaded section 424 thereon. Therefore, the threaded tube 413 of the connector 41 (referring to Fig. 6) can be guided from top to bottom to accommodate into the inlet duct 42, sliding smoothly along the guide surface 425 to securely lock to the internal-threaded section 424 and form the first layer of connection thereby. Then, the abutment flanges 416 of the threaded tube 413 can also be tightly mounted into the conjoining section 423 till restrained in position by the guide surface 425 to form the second layer of connection, achieving better and securer engagement thereby. Meanwhile, the watertight ring 415 is limited in place by the abutment flanges 416 to accurately seal tight and close onto the inner wall of the conjoining section 423. Moreover, when the inlet duct 42 is fixed to a locking head 51 of a cold/hot water pipe 50, a water-sealing ring 52 will closely abut against both the end edge and the oblique guide slope 422 thereof, reinforcing secure connection thereof to bear the force of water pressure and ensure the watertight benefit thereby.

Please refer to Fig. 7. The threaded tube 413 of the connector 41 can also be equipped with cross-shaped reinforcing ribs 418 extending at the internal surface thereon so as to strengthen the assembly of the inlet duct 42 and the threaded tube 413

as a whole and boost their durability thereby.

CLAIMS

What is claimed is:

1. A cold and hot water connecting tube structure for plastic faucets, comprising a coupling tube equipped with a valve seat for the accommodation of a control valve therein, a spout mounted to the outer side of the valve seat, a locking cap, and a handle to regulate the discharge and shutoff of water flow thereby wherein the coupling tube has both end sides respectively mounted with a waterproof ring thereon and joined to a cold/hot water connecting tube thereby; the present invention being characterized by that,

--the cold/hot water connecting tube being composed of a connector and an inlet duct wherein the connector, molded into an L shape, is made up of a tubular portion extending at one side to mount to the coupling tube thereby, and a larger-diameter stop flange with a smaller-diameter threaded tube integrally molded to protrude downwards at the other end thereon; the threaded tube having an annular groove indented at an appropriate position thereon for the accommodation of a watertight ring therein, and a set of abutment flanges symmetrically protruding to define both sides of the annular groove thereby;

--the inlet duct having an oblique guide slope cut at one internal end edge thereon to abut tight and close against a water-sealing ring mounted inside a locking head of a cold/hot water pipe; the inlet duct also has the internal surface of the other end equipped with a conjoining section, an internal-threaded section, and an oblique tapered guide surface disposed between the conjoining section and the internal-threaded section thereon; therefore, the threaded tube of the connector can be led along the guide surface to lock to the internal-threaded section till the abutment flanges of the threaded tube are securely coupled with the conjoining section and restricted in position by the guide surface thereof.

2. The cold and hot water connecting tube structure for plastic faucets as claimed in Claim 1 wherein the stop flange of the connector has multiple assembly holes extending through the outer periphery thereon to match to through holes disposed at a base board of a mount and securely rivet-join thereto.
3. The cold and hot water connecting tube structure for plastic faucets as claimed in Claim 1 wherein the inlet duct is molded of copper element thereof.
4. The cold and hot water connecting tube structure for plastic faucets as claimed in Claim 1 wherein the inlet duct is equipped with a polygonal tool notch defining the interior of one end thereon.
5. The cold and hot water connecting tube structure for plastic faucets as claimed in Claim 1 wherein the threaded tube of the connector is equipped with reinforcing ribs extending at the internal surface thereon.
6. The cold and hot water connecting tube structure for plastic faucets as claimed in Claim 5 wherein the reinforcing ribs extending inside the threaded tube thereof can be molded in cross-shaped configuration.

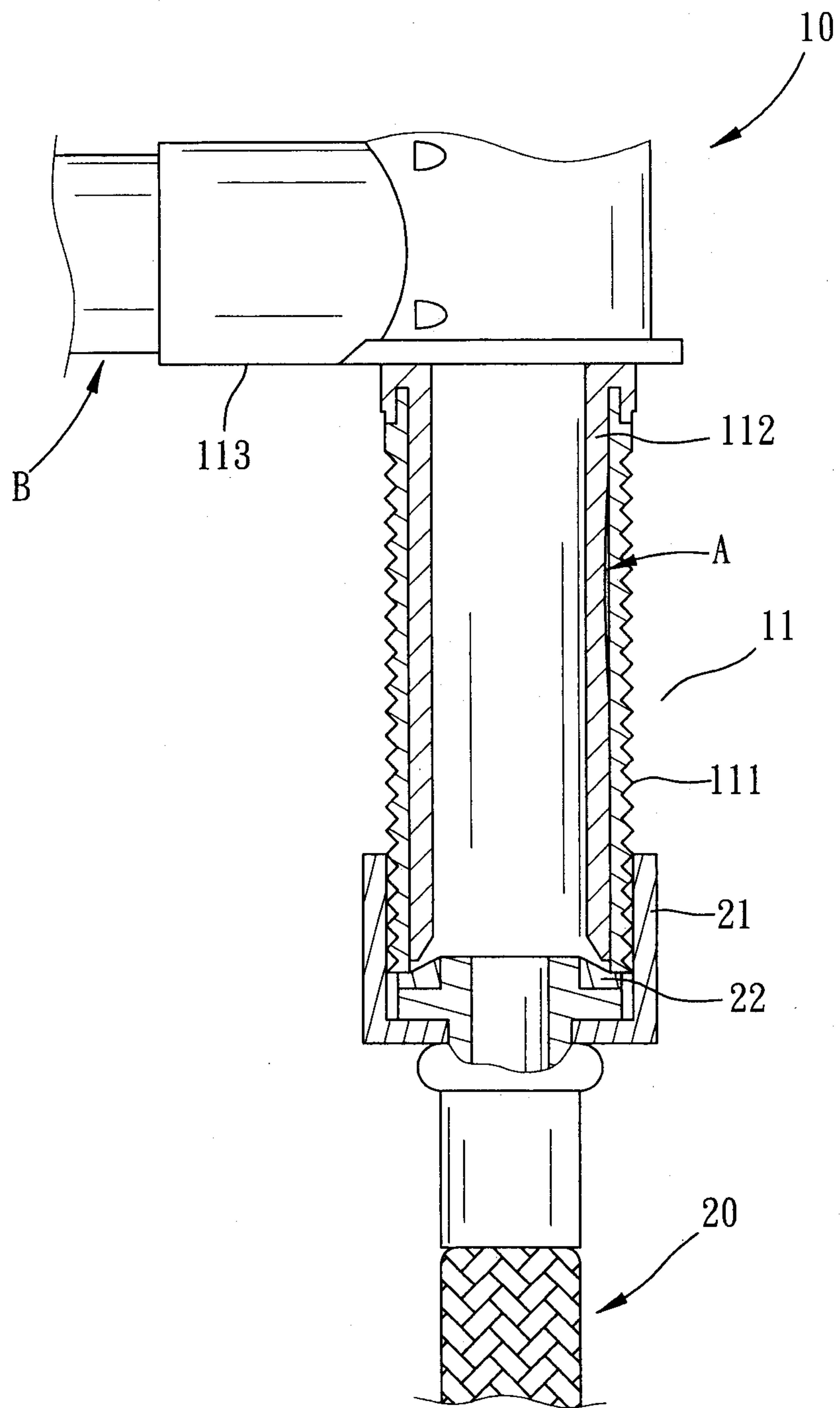


FIG. 1
PRIOR ART

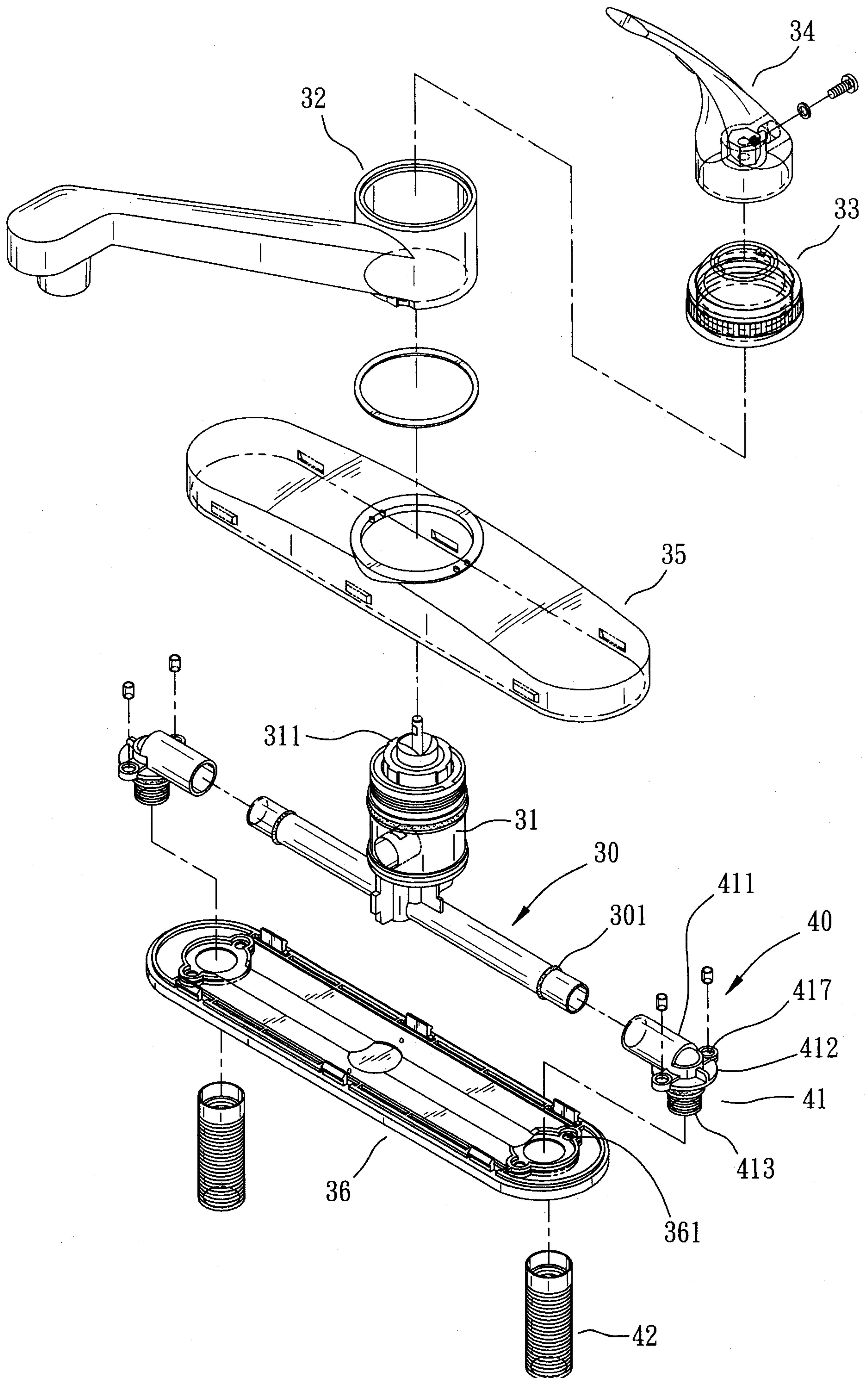
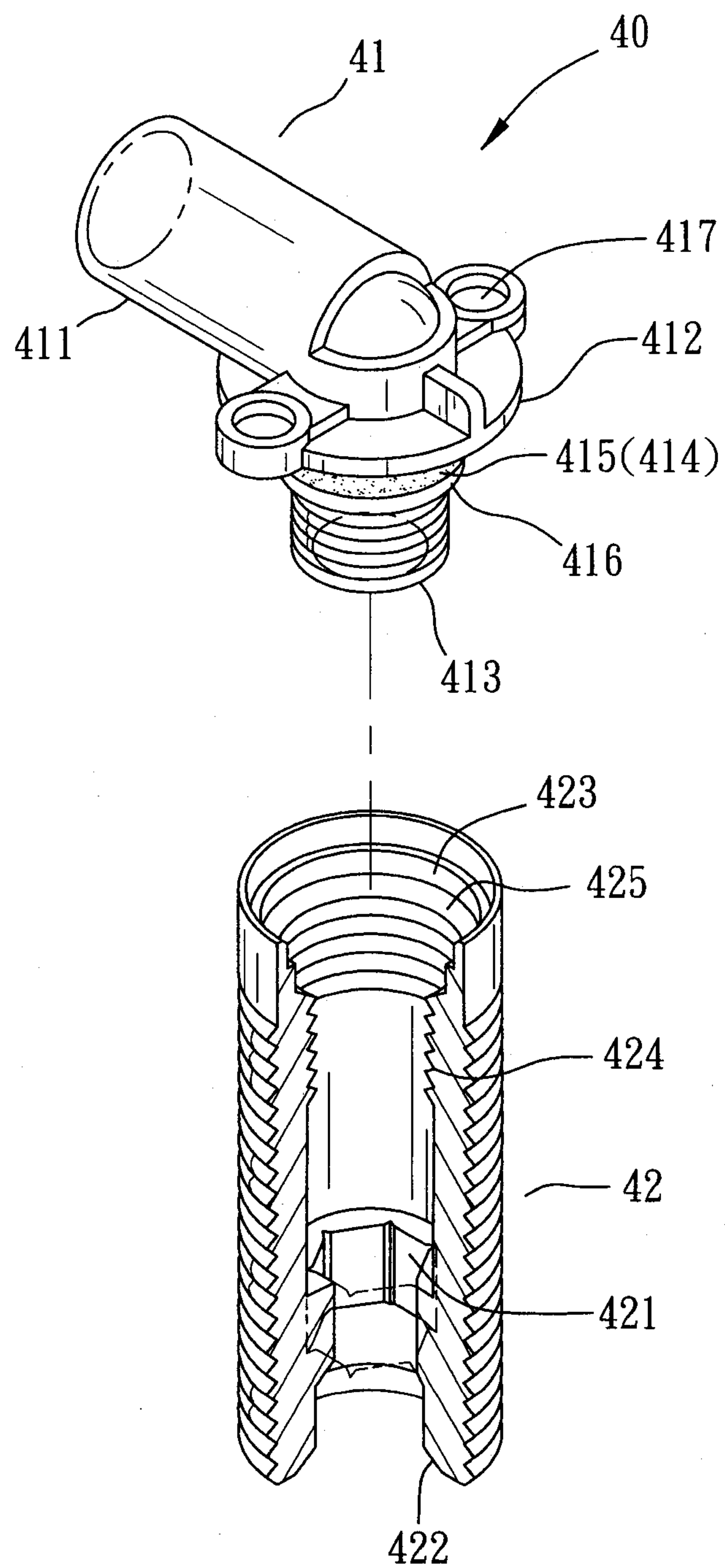


FIG. 2

**FIG. 3**

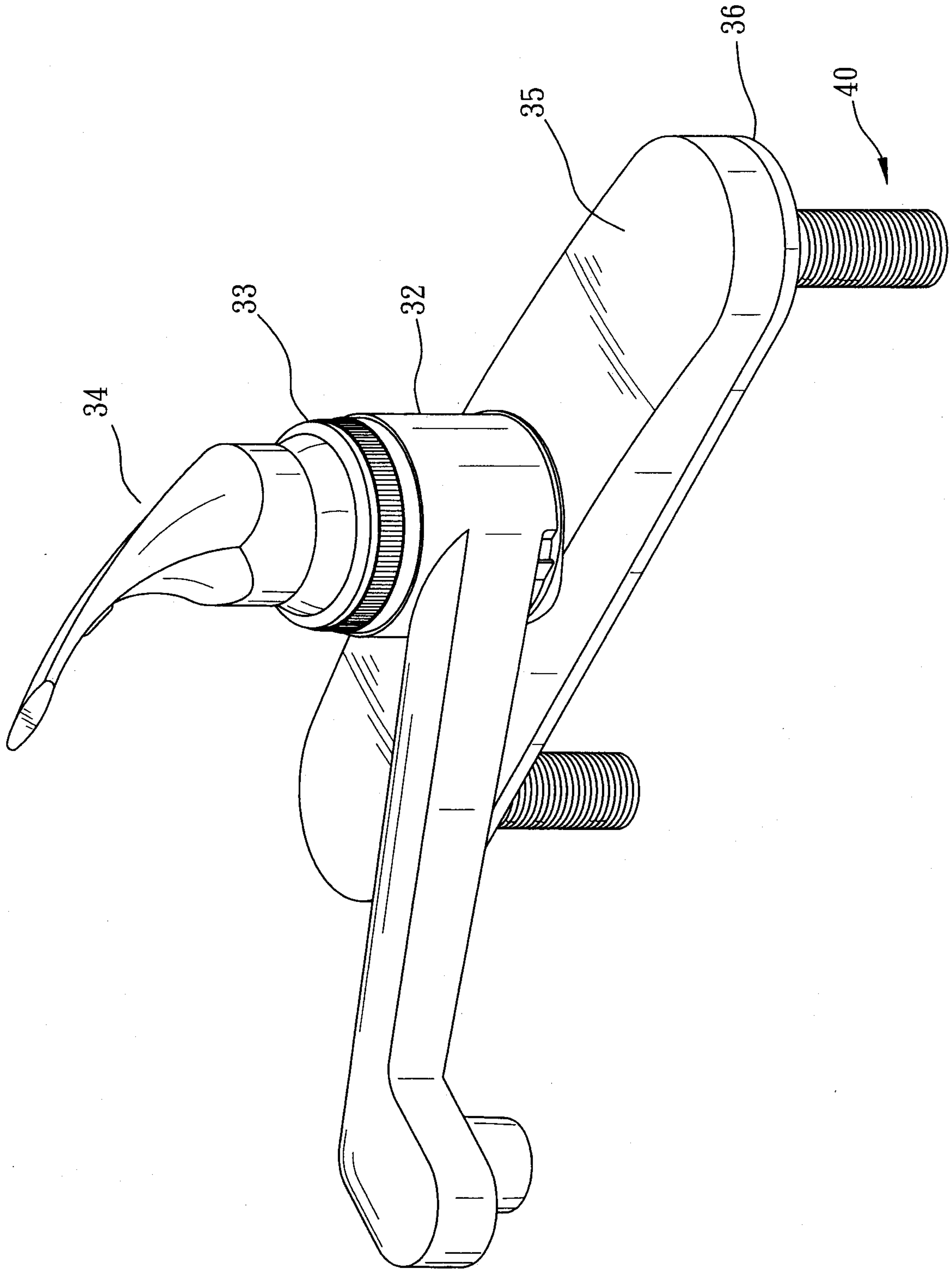


FIG. 4

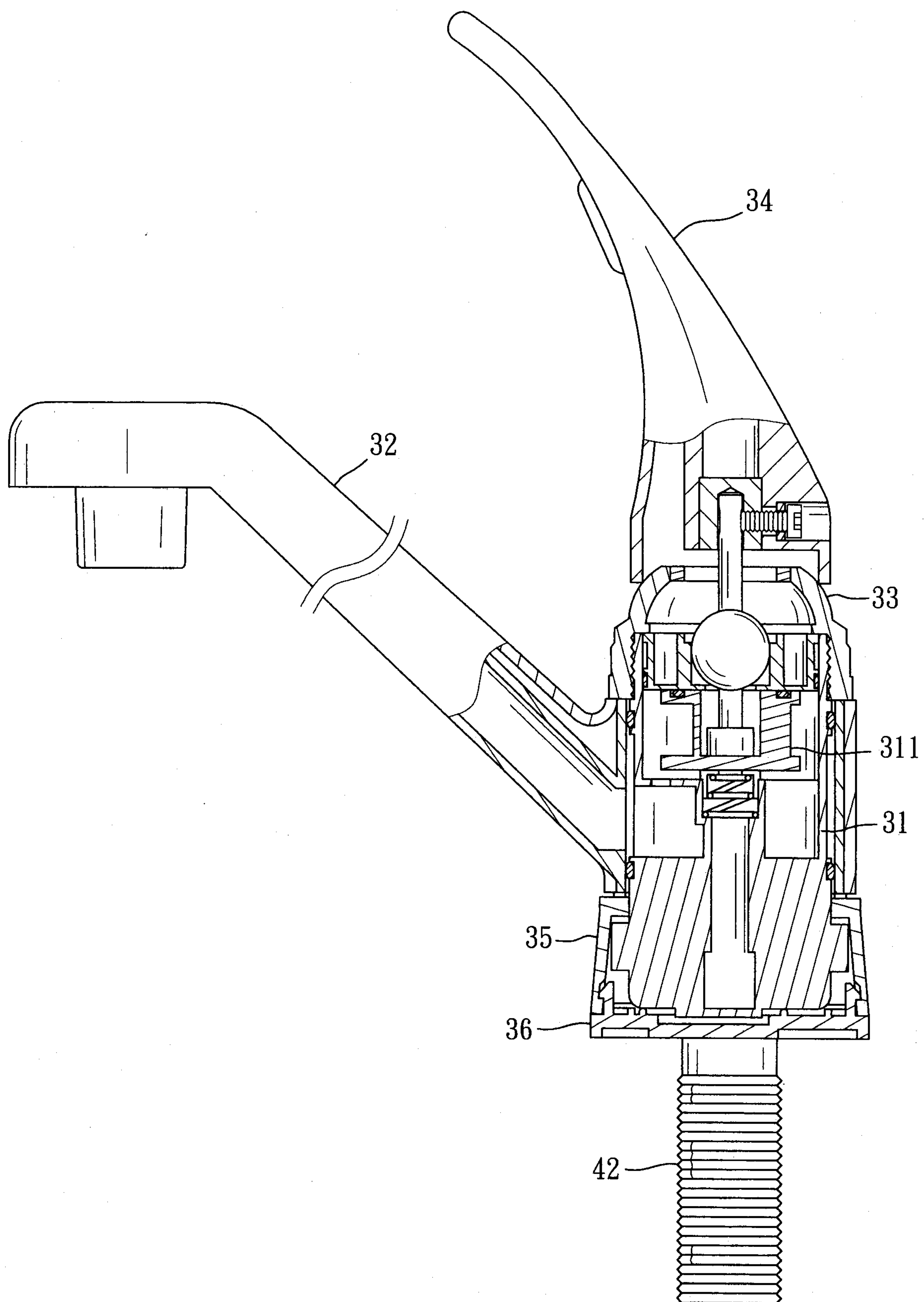
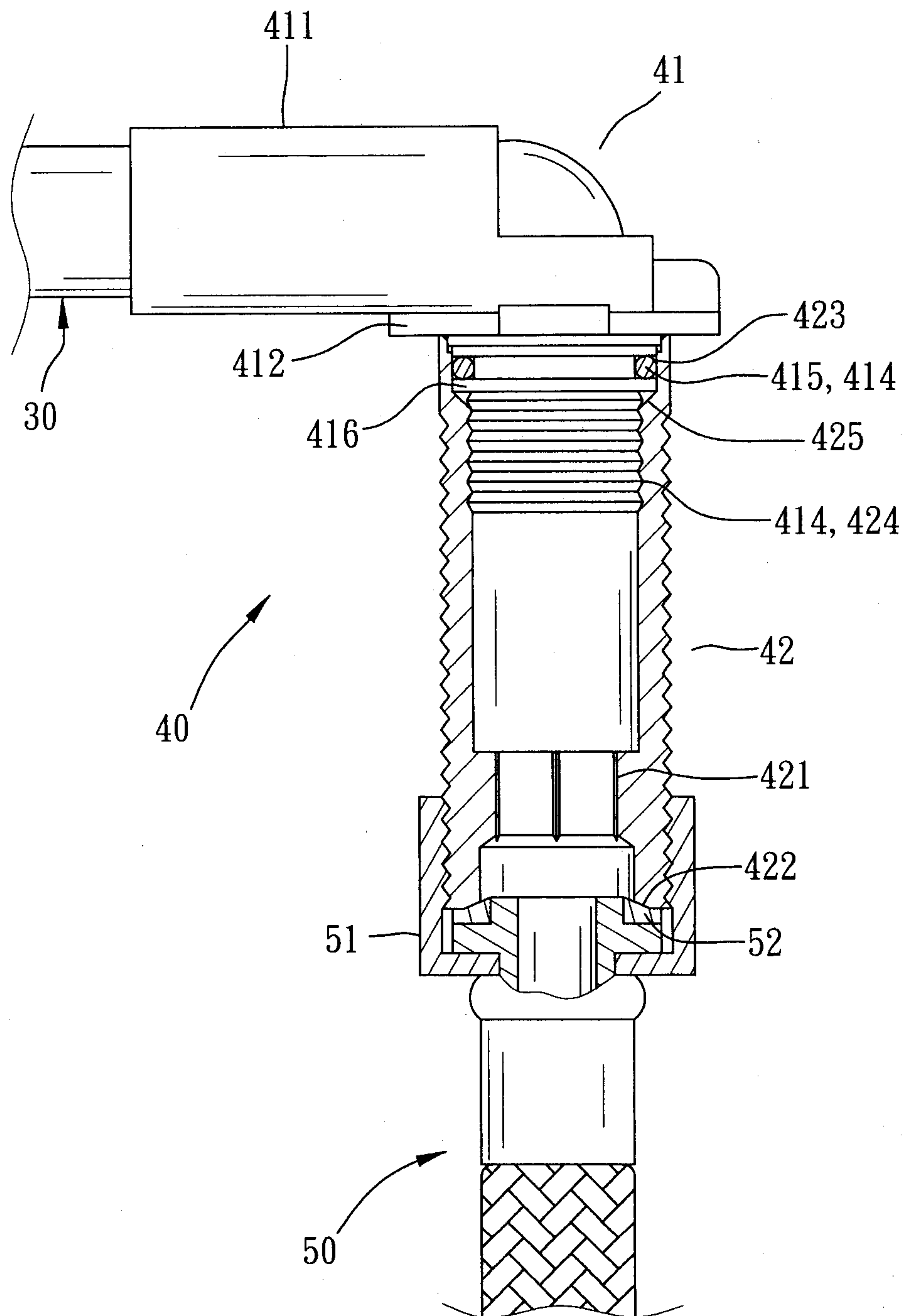
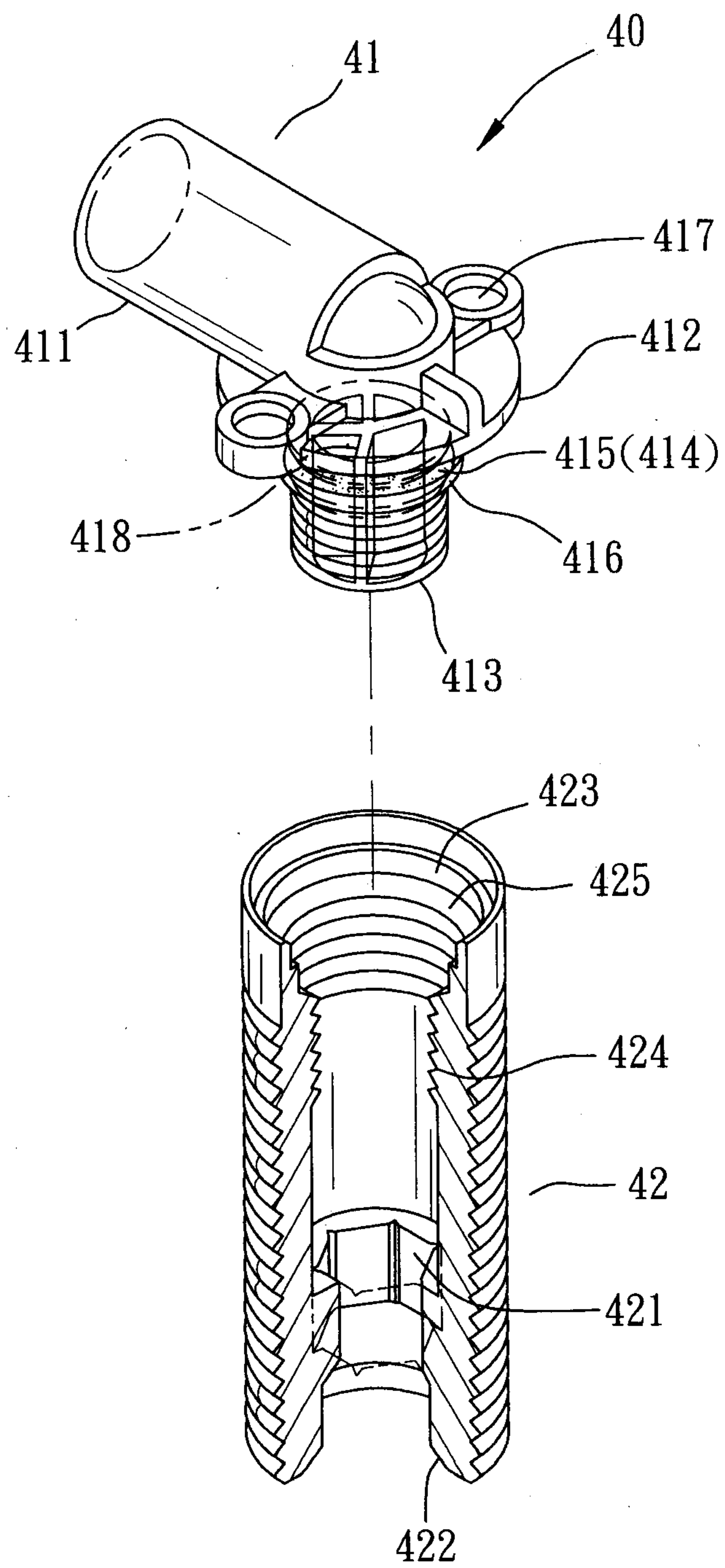


FIG. 5

**FIG. 6**

**FIG. 7**

