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(54) Title: FLOW CONTROL FAUCET FOR A BEVERAGE DISPENSING SYSTEM

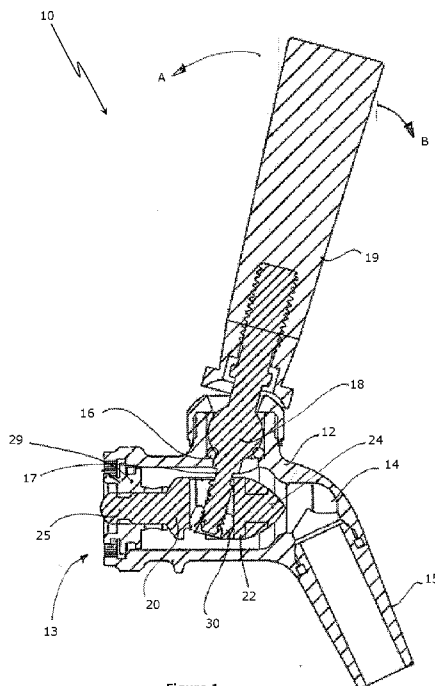


Figure 1

(57) Abstract: A faucet for a beverage dispensing system comprising: a body having a first opening connectable to a beverage supply and a second opening connectable to a spout for dispensing the beverage; a shuttle member mounted within the body to extend between the first opening and the second opening, the shuttle member being movable between a closed position that closes the second opening and an open position that opens the second opening for delivering the beverage to the spout for dispensing; a handle mounted with respect to the body, the handle being connected to the shuttle member by way of a lever member, wherein the shuttle member is configured such that pivotal movement of the handle will cause the shuttle member to move between the open and closed position and rotational movement of the handle will cause the shuttle member to move to provide control of the flow rate of the beverage dispensed from the spout.



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FLOW CONTROL FAUCET FOR A BEVERAGE DISPENSING SYSTEM

FIELD OF INVENTION

The present invention relates generally to faucet for dispensing beverages, and in particular, to a faucet for dispensing beverages under pressure having an integral flow control means.

BACKGROUND OF THE INVENTION

A variety of different types and sizes of faucets exist for dispensing beverages, such as beer, cider and the like. Such faucets typically dispense the beverage under pressure from a beverage source, with the dispensing pressure having a significant effect on the drinking experience. In this regard, different dispensing pressures may be necessary to dispense types of beers at different temperatures, with the manner in which the beverage flows from the faucet being responsible for the amount of foam generated in the glass or drinking receptacle.

Typically, the flow rate of the beverage being dispensed from the faucet is an important factor to control to ensure the correct foam in a beer. In systems where the type of beer being dispensed and the pressure of the beer being supplied may vary, there is a need to provide a mechanism within the faucet to provide adjustment of the flow rate of the beer exiting the faucet.

For this reason, faucets having flow control features have been proposed. Such faucets typically comprise a dedicated lever on a side of the faucet that can be manipulated by the pourer to adjust the flow rate of the beverage being dispensed from the faucet to ensure that the beverage does not excessively foam during the pouring process. Thus, to regulate the flow rate of the beverage to a desirable flow rate using such a flow control

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faucet requires the pourer to use both hands, one hand to manipulate the standard faucet handle and the other to manipulate the flow control lever mounted to the side of the faucet handle. In such a situation, the pourer is unable to hold the glass at the same time, thus resulting in beverage wastage whenever the flow rate requires regulation.

Thus, there is a need to provide a faucet for a beverage dispensing system that has an integrated flow control feature and which can be manipulated by a user as the user controls the handle of the faucet.

The above references to and descriptions of prior proposals or products are not intended to be, and are not to be construed as, statements or admissions of common general knowledge in the art. In particular, the above prior art discussion does not relate to what is commonly or well known by the person skilled in the art, but assists in the understanding of the inventive step of the present invention of which the identification of pertinent prior art proposals is but one part.

STATEMENT OF INVENTION

The invention according to one or more aspects is as defined in the independent claims. Some optional and/or preferred features of the invention are defined in the dependent claims.

Accordingly, in one aspect of the invention there is provided a faucet for a beverage dispensing system comprising:

- a body having a first opening connectable to a beverage supply and a second opening connectable to a spout for dispensing the beverage;

- a shuttle member mounted within the body to extend between the first opening and the second opening, the shuttle member being movable between a closed position

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that closes the second opening and an open position that opens the second opening for delivering the beverage to the spout for dispensing;

a handle mounted with respect to the body, the handle being connected to the shuttle member by way of a lever member,

wherein the shuttle member is configured such that pivotal movement of the handle will cause the shuttle member to move between the open and closed position and rotational movement of the handle will cause the shuttle member to move to provide control of the flow rate of the beverage dispensed from the spout.

In one embodiment, the shuttle member comprises a bore for receiving the lever member therethrough.

A core member may be mounted on an end of the lever member and the core member may be configured to be received within the bore such that rotational movement of the handle may cause the core member to move in a vertical manner within the bore.

Wherein, vertical movement of the core member within the bore of the shuttle member may cause the shuttle member to move in small increments between the open and closed positions to provide finite adjustment of the flow rate of the beverage dispensed from the spout.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention may be better understood from the following non-limiting description of preferred embodiments, in which:

Fig. 1 is a cross-sectional side view of a faucet arrangement in accordance with an embodiment of the present invention;

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Fig. 2 is a perspective view of a shuttle member in accordance with an embodiment of the present invention;

Fig. 3 is a perspective view showing the lever member and the core member of the faucet of claim 1 in pre-assembled form;

Fig. 4 is a perspective view of the core member of Fig. 3;

Fig. 5 is an enlarged cross sectional view of the faucet of Fig. 1 in an open position; and

Fig. 6 is an enlarged cross sectional view of the faucet of Fig. 1 in a flow control adjusted position.

DETAILED DESCRIPTION OF THE DRAWINGS

Preferred features of the present invention will now be described with particular reference to the accompanying drawings. However, it is to be understood that the features illustrated in and described with reference to the drawings are not to be construed as limiting on the scope of the invention.

The present invention will be described below in relation to a faucet for a beer dispensing system that dispenses beer under pressure. However, it will be appreciated that the faucet arrangement of the present invention may be used for dispensing a variety of different beverages, such as cider and a variety of carbonated beverages, such as carbonated cocktails and kombucha.

Referring to Fig. 1, a faucet 10 in accordance with an embodiment of the present invention is depicted. The faucet 10 comprises a main body 12 having a first end 13 that

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is configured to be mounted to a fixture (not shown) that is in fluid communication with the source of the beverage to be dispensed. The body 12 has a second end 14 having a spout 15 extending therefrom for dispensing the beverage. The spout 15 may be formed integral with the main body 12 or may be detachably connected to the second end 14 of the main body 12, by way of a threaded or similar connection.

The main body 12 is substantially hollow so as to provide a path extending from the first end 13 to the second end 14 for the beverage to flow. An upper portion of the main body 12 has a seat 16 formed therein that has a recess 17 for receiving a lever member 18. A lower portion of the lever member 18 extends through the recess of the seat 16 and into the internal space of the main body 12. An upper portion of the lever member 18 projects beyond the seat 16 in an upward manner to be received within a bore of a handle 19. The distal end of the upper portion of the lever member 18 may have an external thread that engages with an internal thread provided on the bore of the handle 19 to facilitate secure engagement between the lever member 18 and the handle 19.

A shuttle member 20 is mounted within the hollow bore of the main body 12 so as to extend between the first end 13 and the second end 14. The shuttle member 20 is shown in isolation in Fig. 2 and comprises a central body 22 having a bore 23 formed therein that extends from an upper surface of the central body 22 to a lower surface of the central body 22. The bore 23 has a stadium shape when viewed from a top surface, and comprises a pair of straight and parallel sides extending between curved ends.

A head portion 24 extends from one end of the central body 22 to project beyond the central body 22. The head portion 24 comprises an elongate neck 24a having a tip member 24b mounted to the distal end thereof. The tip member 24b has a conically shaped external surface that is shaped to be received within an internal opening of the second end 14 of the main body 12 to form a sealed engagement that prevents beverage from entering the spout 15.

A tail portion 25 extends from an opposing end of the central body 22 when compared to the head portion 24, to project rearwardly with respect to the central body 22. The tail portion 25 comprises an elongate stem member 25a that terminates in a bulb member 25b. The stem member 25a and the bulb member 25b are configured to be received within a gate member 29 that is mounted 35 within an opening of the first end 13 of the main body. The stem member 25a has elongate ridges 26 extending along a length thereof towards the bulb member 25b. The ridges 26 are equispaced around the circumference of the stem member 25a and have a radial projection substantially the same as the radial projection of the bulb member 25b. The ridges 26 terminate before the bulb member 25b to provide a gap between the distal end of the ridges 26 and the bulb member. This gap enables the beverage to flow, in a manner as will be discussed in more detail below.

Referring again to Fig. 1, the shuttle member 20 is positioned within the bore of the main body 12 such that the tail portion 25 is received within the gate member 29, and the head portion 24 extends toward the opening of the second end 14. In this position, the lower portion of the lever member 18 extends through the bore 23 of the central body 22 of the shuttle member 20, in the manner as shown in Fig. 1.

The stadium shaped bore 23 of the central body 22 of the shuttle member 20 is substantially larger than the diameter of the lower portion of the lever member 18 such that the lever member 18 can extend into the bore 23 in an angular manner as shown. The distal end of the lower portion of the lever member 18 that is received in the bore 23 has a helical thread 28 formed along its length, as is shown more clearly in Fig. 3.

A core member 30 is mounted to the distal end of the lever member 18. As is shown more clearly in Fig. 4, the core member 30 has a shape that substantially conforms to the shape of bore 23, namely a stadium shape. As a result, the core member 30 is able

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to move vertically within the bore 23 and is prevented from any rotational movement therein due to the shape conformity. Due to the rounded ends of the core member 30, the core member 30 is able to pivot within the bore 23 to accommodate pivotal movement of the lever member 18. The core member 30 has a hole 32 formed therethrough for receiving the distal end of the lever member 18. The hole 32 has an internal thread 33 that mates with the helical thread 28 formed along the surface of the distal end of the lever member 18. In such an arrangement, rotational movement of the lever member 18 will result in the core member moving vertically within the bore 23, depending on the direction of such rotational movement.

When the system is configured in the manner as depicted in Fig. 1, the lever member 18 extends through the bore 23 of the shuttle member 20 and engages with the core member 30. The faucet 10 will be in a closed position when the handle 19 is positioned in the direction of arrow A (Fig. 1) such that the head portion 24 of the shuttle member 20 is seated within the opening of the second end 14 of the main body 12. In this position, beverage is prevented from flowing from the first end 13 of the main body 12 and out of the spout 13.

To open the faucet 10 the handle 19 is pulled in the direction of arrow 'B' causing the lever member 18 to pivot about the seat 16 and move the shuttle member 20 in a rearward manner, such that the head portion 24 is remote from the opening to the second end 14. This is depicted in Fig. 5.

In this fully open position, the bulb member 18 extends beyond the gate member 29 to enable the beverage to flow from the supply and through the first end 13 into the body member 12. The beverage is able to flow around the shuttle member 20 in the direction of the arrows and out through the opening of the second end and through the spout 15.

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If the flow rate of the faucet 10 in the fully open position of Fig. 5 is too high and results in foaming of the beverage when poured, the user is able to make finite adjustments to the flow rate by applying a rotational motion to the handle 19. By rotating the handle 19, the rotational motion will be transferred to the lever member 18. Rotation of the lever member 18 within the bore 23 will cause the core member 30 mounted to the end thereof to travel in a vertical manner within the bore 23 of the shuttle member 20. Upward movement of the core member 30 within the bore 23 will cause the shuttle member 20 to move in a forward manner, such that the head portion 24 is moved in smaller increments toward the opening of the second end 14. This will also result in the tail portion of the shuttle member 20 becoming retracted into the gate member 29. If the shuttle member 20 is retracted enough by the movement of the bore member 30 within the bore 23 of the shuttle member 20, the bulb member 25b will at least partially block the opening of the gate member 29, reducing the flow, as is depicted in Fig. 6. It will be appreciated that the user will be able to rotate the handle 19 to an appropriate position to adjust the flow rate of the faucet 19 to the desired level to ensure the desired pour result.

As described above, the faucet member 10 of the present invention can be simply adjusted through the handle that opens and closes the faucet by applying a rotational motion to the handle when in the open position. By utilising the same handle to perform the open/close motion and the flow rate control, a user can adjust the flow rate with a same hand and can use the other hand to hold the receptacle for receiving the beverage. Such a simple and effective mechanism substantially simplifies the faucet design and enables faucets to be supplied at a lower cost and to be easier to use. This obviates the need to provide an additional flow control mechanism mounted to the tap and minimises the components of the faucet requiring cleaning and maintenance.

Throughout the specification and claims the word “comprise” and its derivatives are intended to have an inclusive rather than exclusive meaning unless the

contrary is expressly stated or the context requires otherwise. That is, the word “comprise” and its derivatives will be taken to indicate the inclusion of not only the listed components, steps or features that it directly references, but also other components, steps or features not specifically listed, unless the contrary is expressly stated or the context requires otherwise.

It will be appreciated by those skilled in the art that many modifications and variations may be made to the methods of the invention described herein without departing from the spirit and scope of the invention.

The claims defining the invention are as follows:

1. A faucet for a beverage dispensing system comprising:
 - a body having a first opening connectable to a beverage supply and a second opening connectable to a spout for dispensing the beverage;
 - a shuttle member mounted within the body to extend between the first opening and the second opening, the shuttle member being movable between a closed position that closes the second opening and an open position that opens the second opening for delivering the beverage to the spout for dispensing;
 - a handle mounted with respect to the body, the handle being connected to the shuttle member by way of a lever member, wherein the shuttle member is configured such that pivotal movement of the handle will cause the shuttle member to move between the open and closed position and rotational movement of the handle will cause the shuttle member to move to provide control of the flow rate of the beverage dispensed from the spout.
2. A faucet according to claim 1, wherein the shuttle member comprises a bore for receiving the lever member therethrough.
3. A faucet according to claim 2, wherein a core member is mounted on an end of the lever member and the core member is configured to be received within the bore such that rotational movement of the handle will cause the core member to move in a vertical manner within the bore.
4. A faucet according to claim 3, wherein vertical movement of the core member within the bore of the shuttle member will cause the shuttle member to move in small increments between the open and closed positions to provide finite adjustment of the flow rate of the beverage dispensed from the spout.

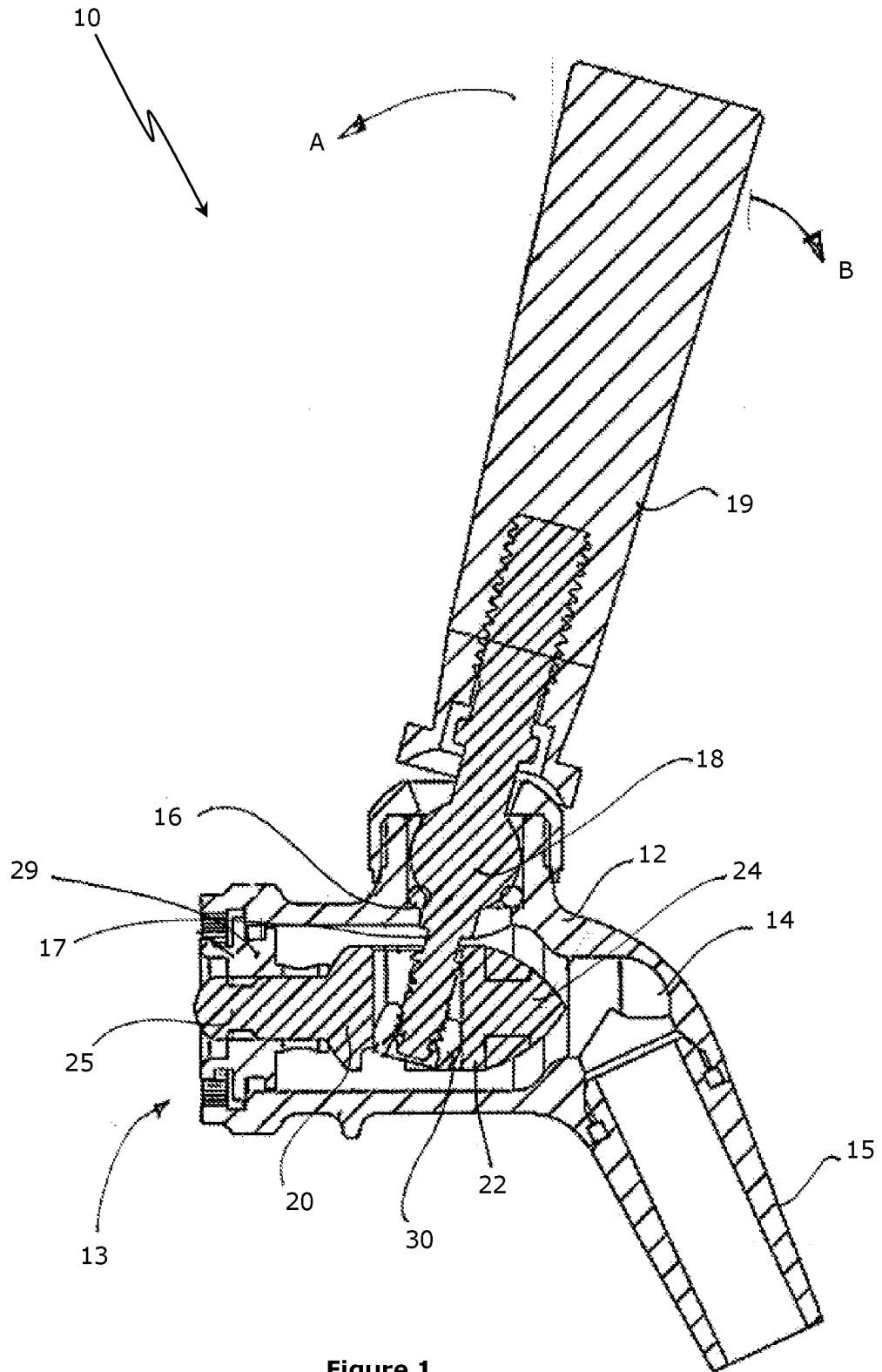


Figure 1

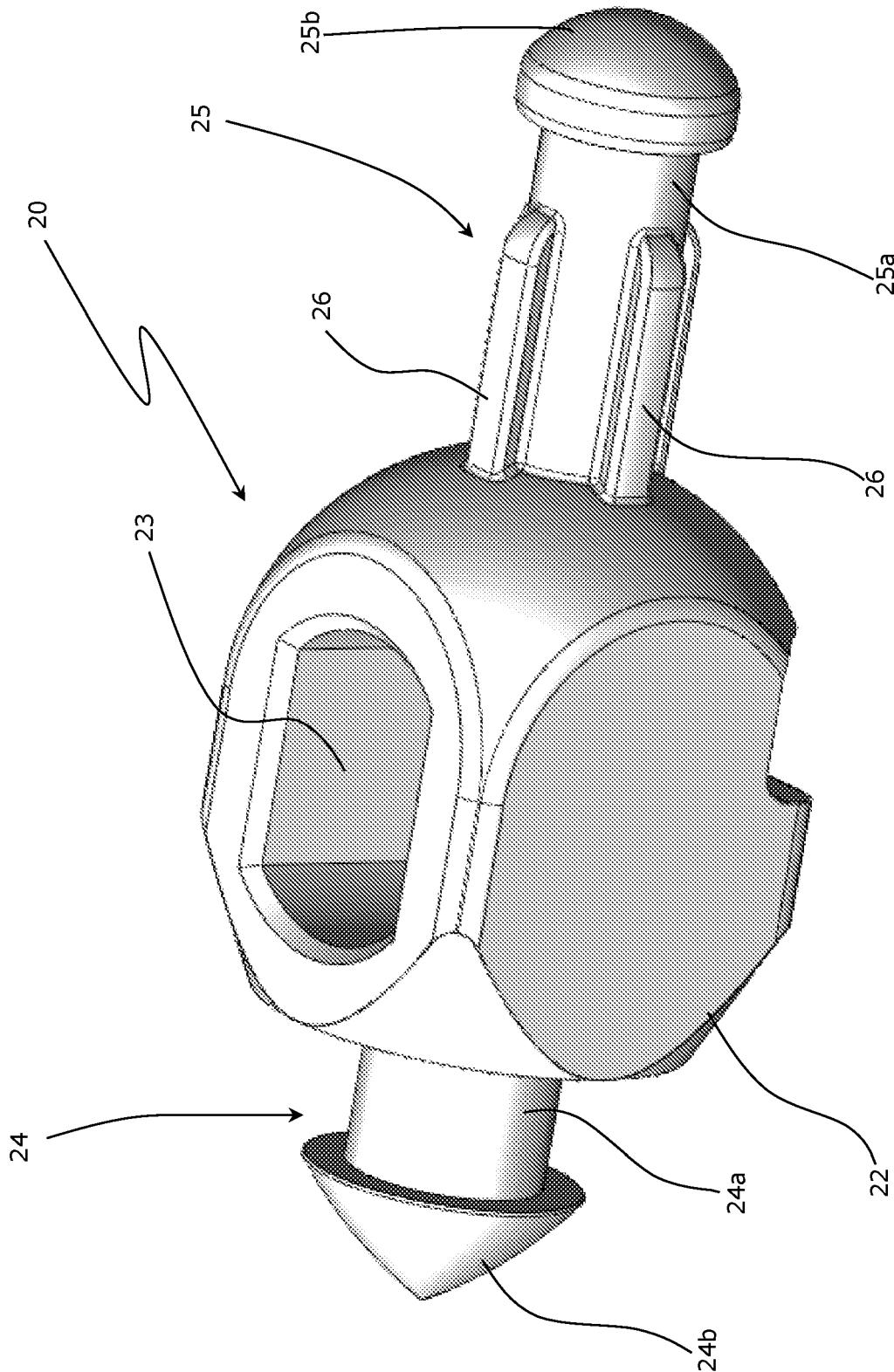


Figure 2

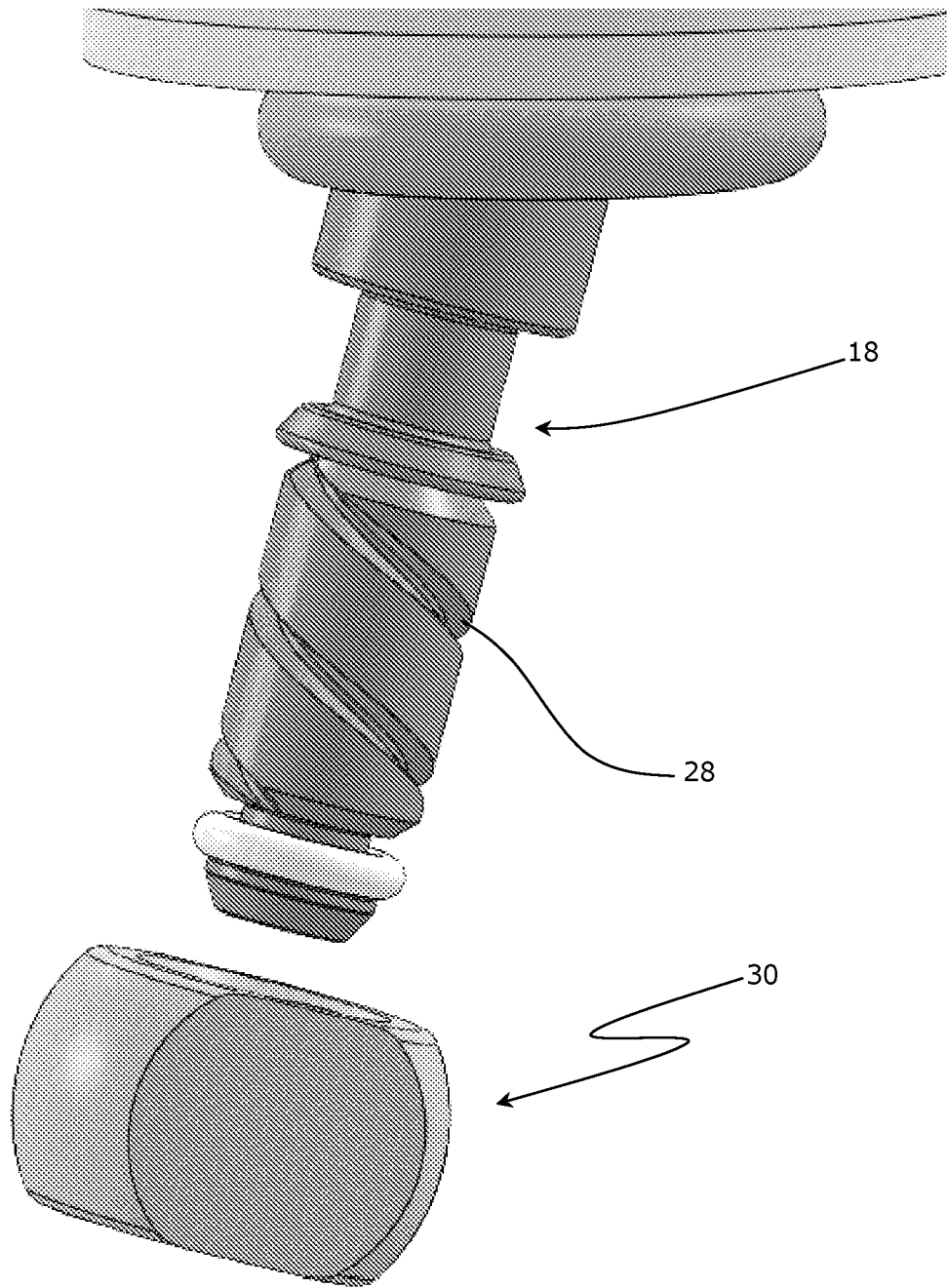


Figure 3

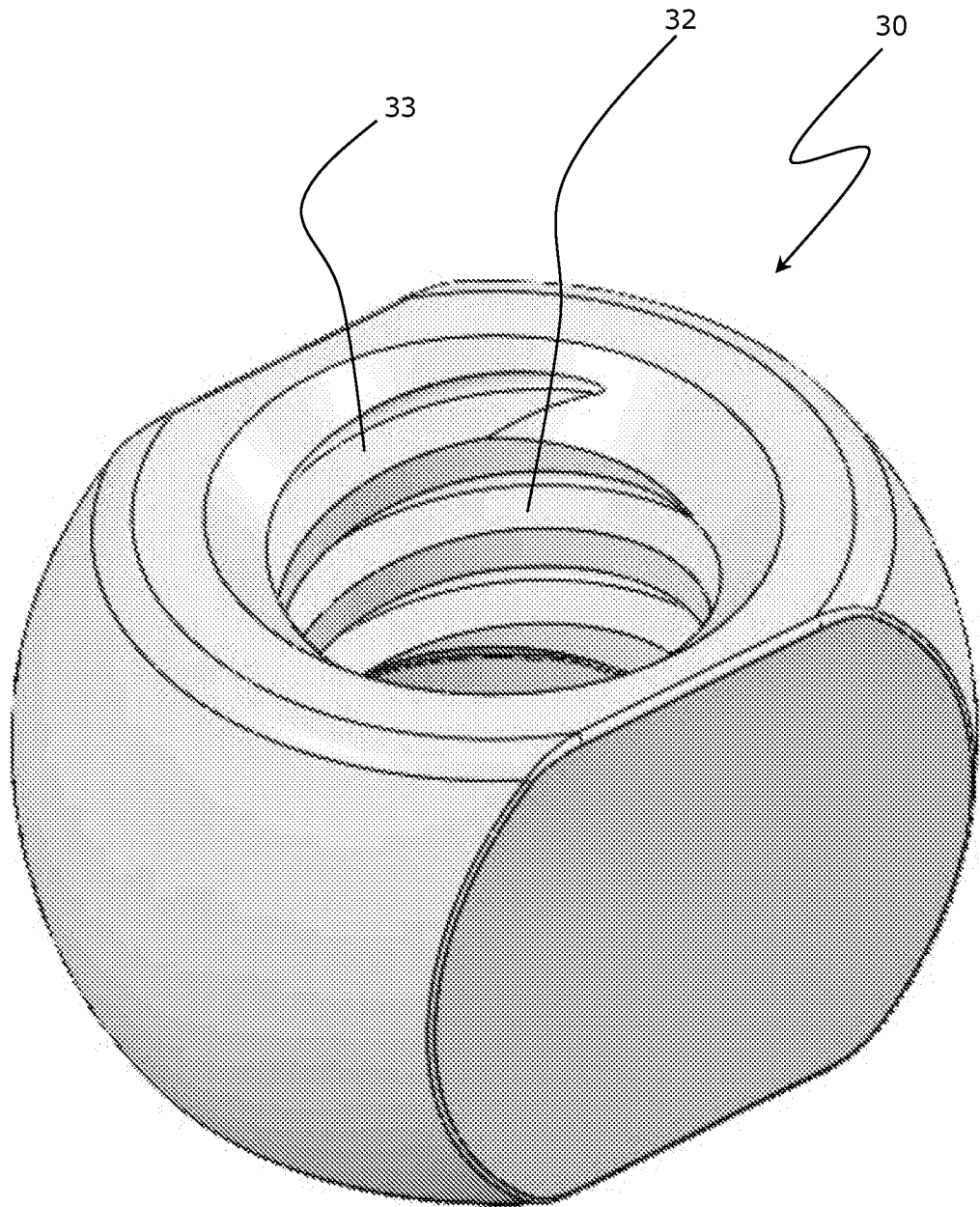


Figure 4

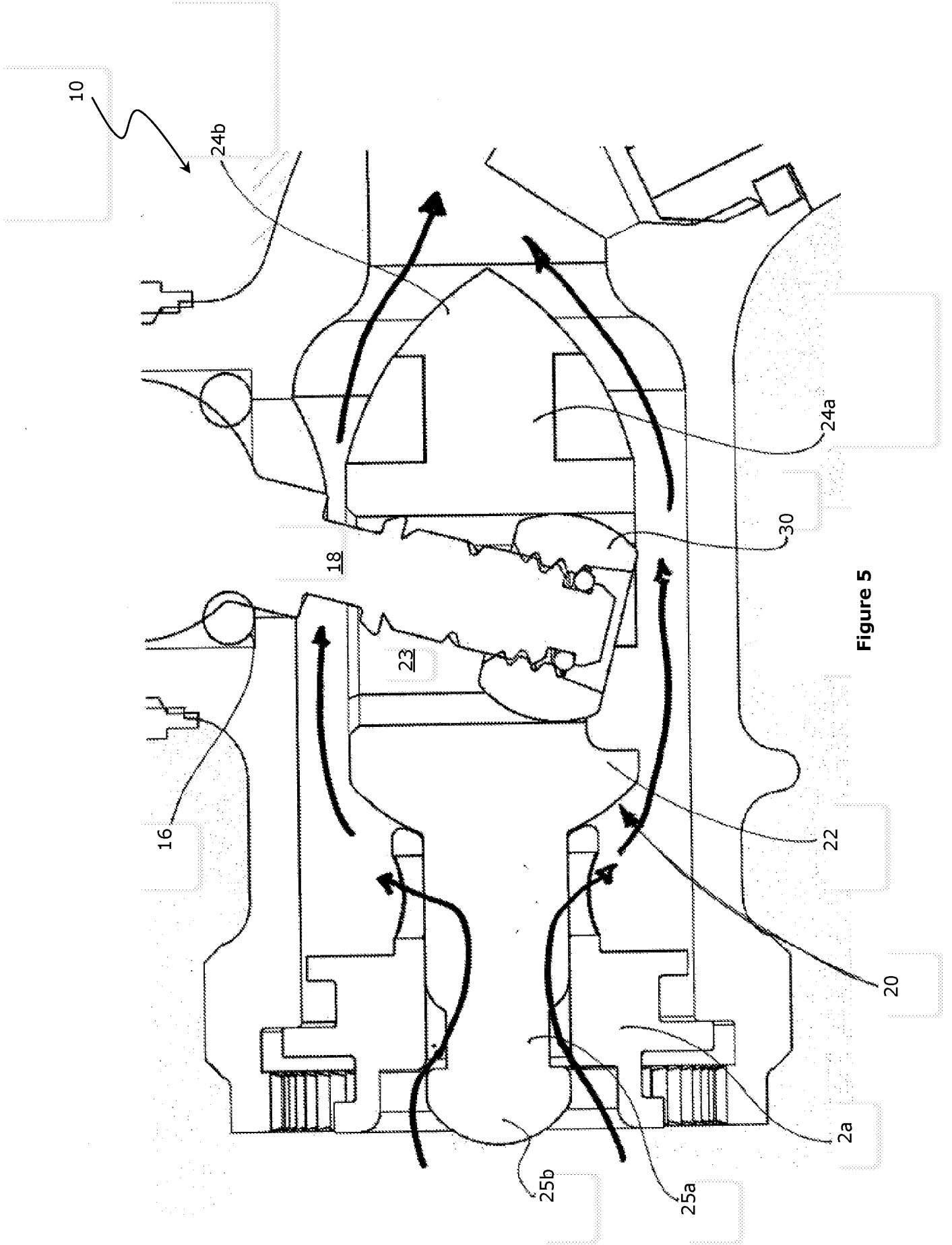


Figure 5

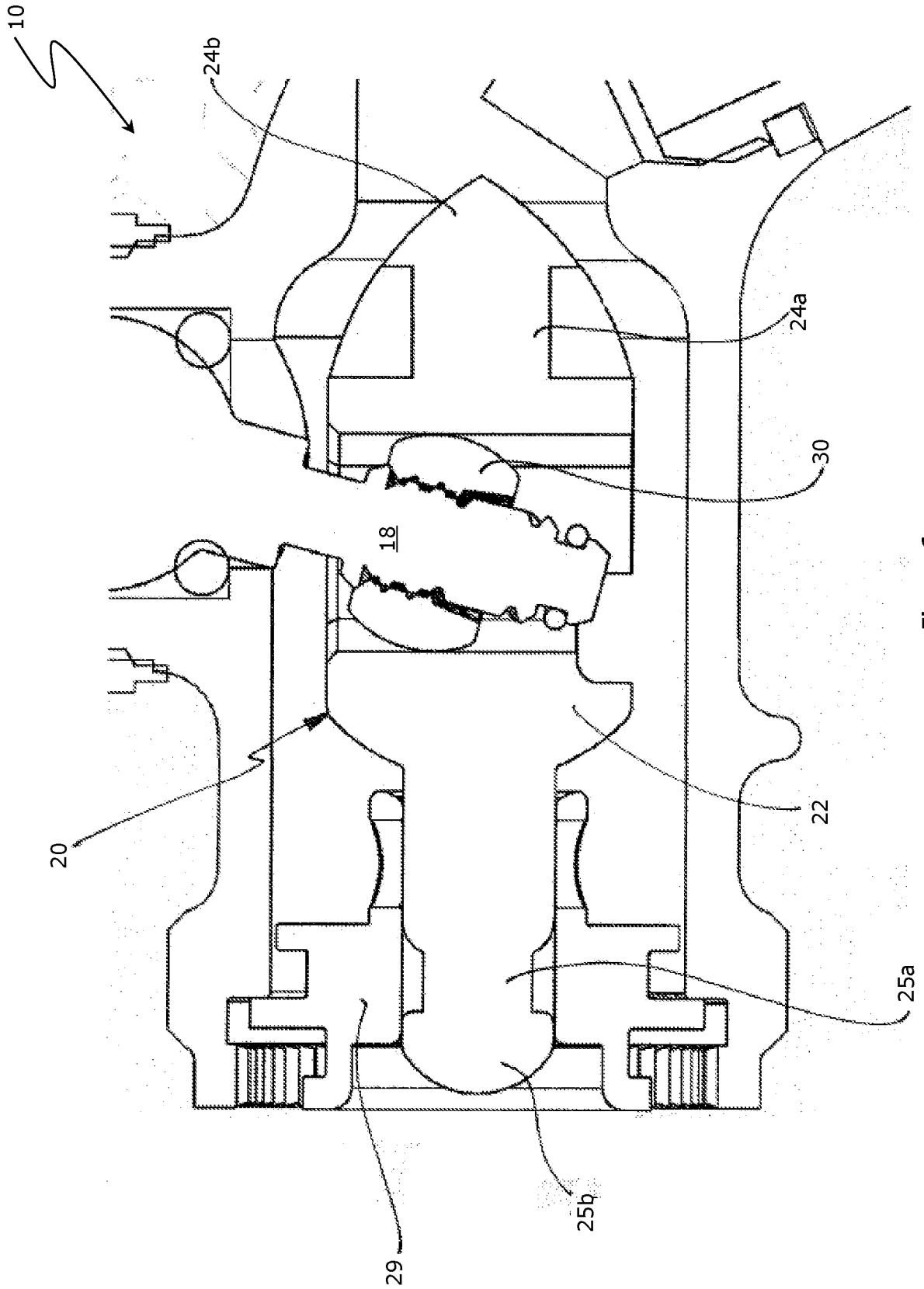


Figure 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2022/050775

A. CLASSIFICATION OF SUBJECT MATTER

B67D 1/00 (2006.01) B67D 1/14 (2006.01) F16K 1/12 (2006.01) F16K 1/38 (2006.01) F16K 1/52 (2006.01) F16K 31/60 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIAP & EPODOC: IPC & CPC; (B67D2001/1494, B67D1/[145, 1405, 1411, 1422, 1455, 1461, 1466, 1472, 1477] & F16K[1/52, 31/60]), KEYWORDS:(LEVER, HANDLE, PIVOT, SWING, OPEN, CLOSE, FLOW, DISCHARGE, VARY, COMPENSATE, GAIN, RATIO, THREAD, SCREW, BEER, CARBONATED) and like terms in various combinations. GOOGLE INTERNET; KEYWORDS (KEG X HOLDINGS PTY LTD, WILLY WERNER FIALA, KEG KING PTY LTD, ULTRATAP, ULTRATAP TWIST, BEER, KEG, DRAUGHT, CARBONATED, TAP, DISPENSER, COMPENSATED, TWIST, SWIVEL, HANDLE, LEVER, FLOW, FROTH, FOAM) and like terms in various combinations and AUSPAT & EspaceNet Applicant and Inventor Names. and AUSPAT, EspaceNet and internal databases provided by IP Australia Applicant and Inventor Names.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Documents are listed in the continuation of Box C		

Further documents are listed in the continuation of Box C

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* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
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Date of the actual completion of the international search 29 September 2022	Date of mailing of the international search report 29 September 2022
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INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/AU2022/050775
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

Form PCT/ISA/210 (Family Annex)(July 2019)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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End of Annex