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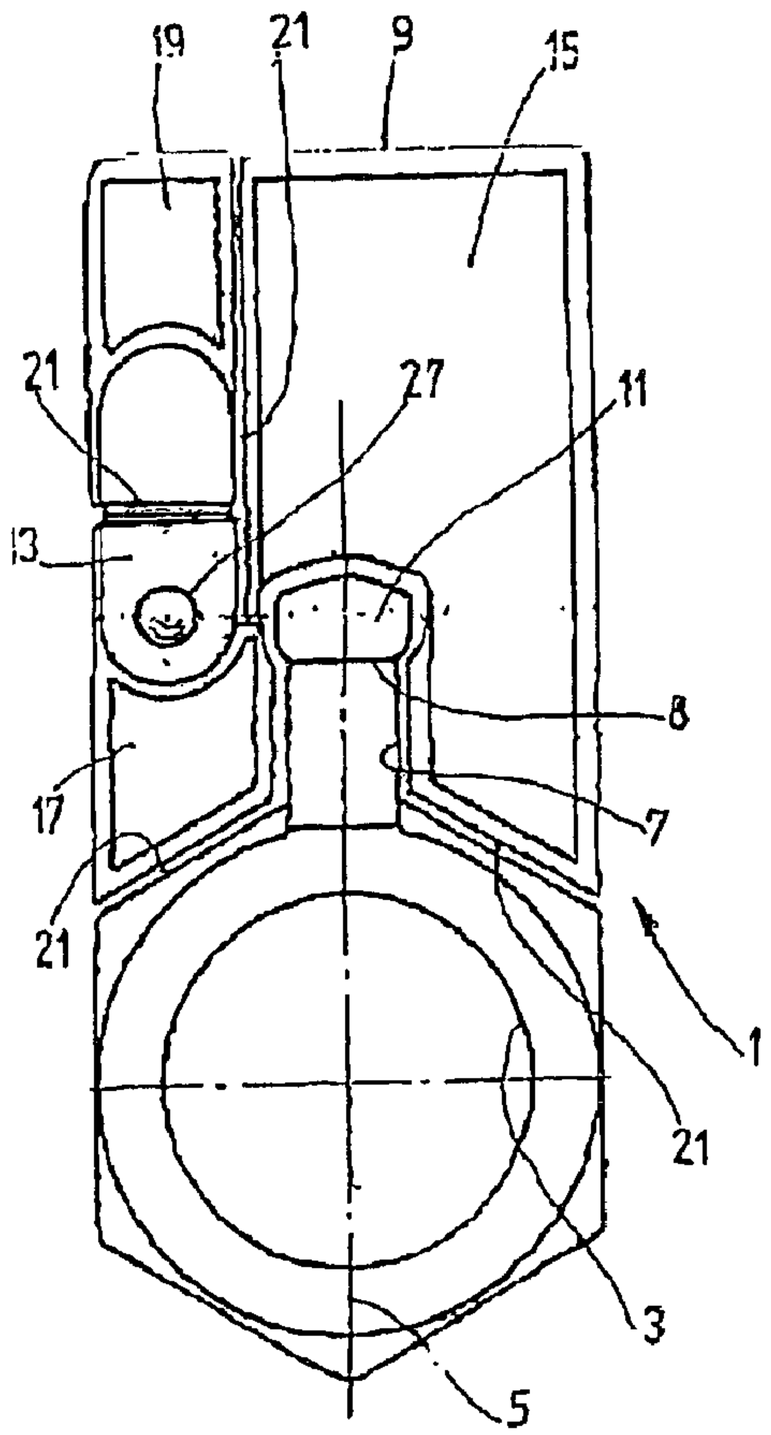
(54) Titre : RECIPIENT MONOBLOC A CHAMBRE DOUBLE
(54) Title: ONE-PIECE DOUBLE-CHAMBER CONTAINER



(57) Abrégé/Abstract:
The invention relates to a container (3) with an opening (8) for dispensing flowable or pourable substances located in the container and with a closing device (11), which closes the opening (8) and which can be removed in order to free the opening (8). According

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(57) Abrégé(suite)/Abstract(continued):
to the invention, an auxiliary receptacle (13), which is provided for holding an additive (27) to be added to the contents of the container (3), is detachably attached to the container (3). Said auxiliary receptacle comprises a discharge opening, which can be freed by removing a closure and which is provided for discharging the additive (27), and the auxiliary receptacle (13) can be placed with its freed discharge opening on the opening (8) of the container (3) after removing the closure device (11) thereof in order to form a passage, which is provided for adding the additive (27), is sealed from the outside and which extends between the auxiliary receptacle (13) and container (3).

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(54) Title: ONE-PIECE DOUBLE-CHAMBER CONTAINER

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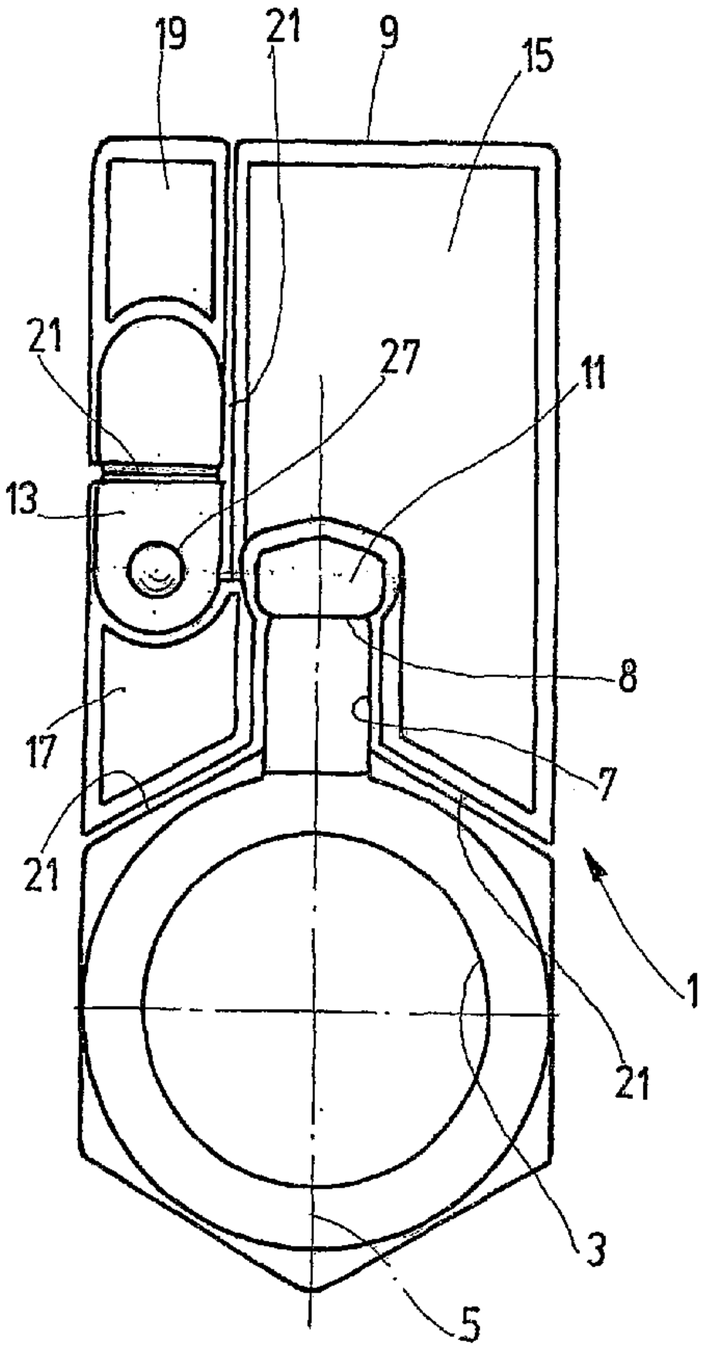

(57) Abstract: The invention relates to a container (3) with an opening (8) for dispensing flowable or pourable substances located in the container and with a closing device (11), which closes the opening (8) and which can be removed in order to free the opening (8). According to the invention, an auxiliary receptacle (13), which is provided for holding an additive (27) to be added to the contents of the container (3), is detachably attached to the container (3). Said auxiliary receptacle comprises a discharge opening, which can be freed by removing a closure and which is provided for discharging the additive (27), and the auxiliary receptacle (13) can be placed with its freed discharge opening on the opening (8) of the container (3) after removing the closure device (11) thereof in order to form a passage, which is provided for adding the additive (27), is sealed from the outside and which extends between the auxiliary receptacle (13) and container (3).

(57) Zusammenfassung: Bei einem Behälter 3 mit einer Öffnung 8 zur Abgabe von im Behälter befindlichen fliess- oder schüttfähigen Stoffen und mit einer die Öffnung 8 verschliessenden Verschlusseinrichtung 11, die zur Freigabe der Öffnung 8 abnehmbar ist, ist ein zur Aufnahme eines dem Inhalt des Behälters 3 beizufügenden Zusatzstoffes 27 vorgesehenes Hilfsbehältnis 13 am Behälter 3 abnehmbar angebracht, welches eine durch Abnehmen eines Verschlusses freigebbare Auslasseinrichtung für den Austritt des Zusatzstoffes 27 aufweist, und das Hilfsbehältnis 13 ist mit seiner freigegebenen Auslasseiririchtung an der Öffnung 8 des Behälters 3 nach Abnehmen von dessen Verschlusseinrichtung 11 anbringbar, um für die Beifügung des Zusatzstoffes 27 einen nach aussen abgedichteten Durch gang zwischen Hilfsbehältnis 13 und Behälter 3 zu bilden.

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— *mit internationalem Recherchenbericht*

Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

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ONE-PIECE DOUBLE CHAMBER CONTAINER

Container

The invention relates to a container with an opening for delivery of flowable or pourable materials present in the container and with a closure device which closes the opening and which can be removed for clearance of the opening.

Containers of this type which are filled with contents which are to be delivered are known in the most varied forms and for different uses of the delivered contents. For example, they can be ampule-like containers which contain pharmaceuticals which must be delivered from the container for injection purposes, infusion purposes or the like.

Both in the area of medical applications and also in generally technical applications in which contents to be delivered from a container are used for treatment or processing procedures, to some extent the problem arises that the substance to be delivered is a composition of agents which are incompatible with respect to joint storage suitability. In other words, these agents which must be stored separately may only be combined to form the material to be delivered from the container when use of this binary substance takes place. The requirement of separate storage and combination of the agents which takes place before use leads disadvantageously to increased storage effort and awkward handling.

On the basis of this prior art, the object of the invention is to devise a container of the aforementioned type which facilitates simplified storage and handling.

In a container of the initially mentioned type this object is achieved as claimed in the invention in that an auxiliary receptacle which is provided for accommodating an additive which is

to be added to the contents of the container is removably attached to the container and has an outlet means which can be cleared by removing a closure for the discharge of the additive, and that the auxiliary receptacle with its cleared outlet means can be attached to the opening of the container after removal from its closure device in order to form a passage which is sealed to the outside between the auxiliary receptacle and the container for adding the additive.

Storage is simplified by the detachable connection provided as claimed in the invention between the container and the auxiliary receptacle which contains the additive because the two agents, although they are separate from one another, form one storage unit. The handling which is necessary for delivery of the substance is greatly simplified because the addition of the additive to the container contents takes place especially easily and conveniently, such that the auxiliary receptacle can be coupled with its outlet means to the opening of the container. The unit consisting of a container and auxiliary receptacle attached to its opening can be shaken in order for example in order to induce the required mixing of the two agents, or, when the additive is an agent of a specific particle size which can be shaken, for example in the form of a single large particle, for example a tablet, in order to move it through the passage between the auxiliary receptacle and the container.

When the substances to be delivered are highly-sensitive products, as is the case for pharmaceuticals, where international standards for aseptic packaging must be met, the container is advantageously produced using the process known in the pertinent technology as the bottelpack® system. This process enables cost-effective automated forming (blowing or vacuum forming), charging and sealing of receptacles.

According to this system, or also when using another production process, preferably the container with its closure device and the auxiliary receptacle with its closure are produced from plastic as a one-piece body, on which weak points are formed which constitute desired break points at which the closure device of the container and the auxiliary receptacle for removal from the

container can be separated. In this way both the container can be opened very easily and also the auxiliary receptacle can be removed in order to be able to handle it separately.

Preferably, on the outlet means of the auxiliary receptacle a weak point is also formed which constitutes desired break points for separation of the closure of the auxiliary receptacle for clearance of its outlet means.

When the container is a type of ampule with an opening which is provided on a neck part which projects coaxially to the main axis of the ampule, the body which forms the unit consisting of the container and auxiliary receptacle can be configured such that on the neck area of the ampule it is lengthened by an extension which extends in the direction of the main axis of the ampule and on which the closure device of the container, the auxiliary receptacle and the weak points which form the desired break points are formed.

This extension of the body can be formed in partial areas which border the closure device of the container and the closure of the auxiliary receptacle in the form of flat plates, so that grasping surfaces are formed by means of which the closure device and the auxiliary receptacle can be easily separated from the container by means of the desired break points.

In one aspect, the invention provides a container unit, comprising:

an ampule having a longitudinal axis, a body with contents, a neck part extending from said body coaxially to said longitudinal axis, an opening at an end of said neck part remote from said body and a removable closure device on said opening to clear said opening when removed;

an auxiliary receptacle containing an additive for said contents of said ampule and being removably attached to said ampule and formed as a unitary, one plastic piece with said ampule, said auxiliary receptacle having an outlet and a removable receptacle closure connected thereto by a weak point permitting discharge of said additive upon removal of said receptacle closure, said receptacle closure being independently operable from said closure device, said outlet being attachable to said opening of said ampule after removal of said receptacle closure and said closure device from said auxiliary receptacle and said

ampule, respectively, to form a sealed passage therebetween for adding said additive to said contents;

weak points formed in said plastic piece, including between said closure device and said receptacle closure, to facilitate separation of said ampule and said auxiliary receptacle with said closure device and said receptacle closure sealed thereon, respectively; and

a body extension extending along said longitudinal axis from said neck part and having weak points forming break points with said closure device of said ampule and with said auxiliary receptacle.

The invention is detailed below using an embodiment which is shown in the drawings in which,

FIG. 1 shows a schematically simplified side view of one embodiment of the container as claimed in the invention in the form of an ampule with an auxiliary receptacle which is located on it and which contains an additive in the form of a tablet, and

FIGS. 2 to 6 show representations of the embodiment from FIG. 1, the components of the embodiment being shown in different operating states which correspond to successive handling steps when the container is being used.

With reference to the figures, the invention is explained using the example of an ampule-like container which is produced in one piece from thermoplastic using the bottelpack® system which is known in the pertinent art. In this process for producing and charging containers, at least one tube of softened plastic material is extruded into an opened mold. In the course of closing the lower parts of the mold, welding processes are carried out on the tube to form the container bottom. The tube, or in the event that several containers are being formed, the tubes, is or are cut off above to mold by means of a cutting element to form the pertinent fill opening. The mold is then moved with the unit having the open fill opening or the open fill openings into a charging position in which the container or containers, after the container shape has been formed by expansion by means of blown air or vacuum molding, is filled with the contents. Then a head welding process is carried out on the top of the container or containers, by which the closure of the filled unit is produced.

FIG. 1 shows a unit which has been produced according to the bottelpack® system, with a one-piece body which is designated as a whole as 1, and on which the filled, ampule-like container 3 forms the lower end part of the body. The container 3 has a neck part 7 which projects coaxially up toward the main axis 5 of the ampule, with the container opening 8. On the neck part 7 a body extension 19 extends up in the direction of the main axis 5 of the ampule; on the extension, as shown in FIG. 1, a closure device 11 which forms the closure of the opening 8 of the container and an auxiliary receptacle 13 are formed as integral components of the body extension 9. Between the components of the body extension 9 weak points 21 are formed which constitute desired break points for separating the components and the removal of the closure device 11 from the container opening 8 which hereby takes place.

As shown most clearly by FIGS. 2 and 3, the body extension 9 has partial areas in the form of flat plates 15, 17, and 19. They form grasping surfaces using which the components which form the body extension 9 can be removed at the desired break points from the ampule-like container 3. FIG. 2 shows the operating state in which the auxiliary receptacle 13 has been removed from the rest of the unit. FIG. 3 shows the operating state which follows next during use, in which by means of the grasping surfaces 17 and 19 the closure 23 of the auxiliary receptacle 13 is removed by separation at the pertinent desired break points in order to clear the outlet means 25 of the auxiliary receptacle 13. Moreover, FIG. 3 shows that the closure device 11 is separated from the neck area 7 of the container 3 using the grasping surface 15 in order to clear its opening 8.

FIG. 4 shows the stage which follows during use, in which the auxiliary receptacle 13 with the additive contained in it in the form of a tablet 27 is brought to the opening 8 of the container 3 in order to dispense the tablet 27 into the container 3 by way of the outlet means 25 and the opening 8. As FIG. 5 shows, the outlet means 25 on the auxiliary receptacle 13 forms a coupling sleeve 29 which can be slipped onto the neck part 7 and which matches the neck part 7 of the container 3, and by means of which a passage which is sealed to the outside can be formed between the auxiliary receptacle 13 and the interior of the container 3. The unit which is reclosed and formed in this way can now be shaken in order to dissolve the tablet 27 which has been added to the container 3 in the desired manner and to mix the additive which has been added to the container 3 in this way with the other container contents. FIG. 6 shows that after removing the auxiliary receptacle 13 the contents of the container 3 which are mixed with the additive can now be delivered by way of the now cleared opening 8.

It will be understood that in place of the tablet 27 which is shown as an additive, in the auxiliary receptacle 13 there can be another additive which can be shaken or which is liquid and which is to be added to the contents of the container 3. It will also be apparent that for the container 3 and the auxiliary receptacle 13 there may be container shapes other than as are shown in the

drawings, and that in place of the aforementioned bottelpack® system other production processes can be used to form the unit which consists of the container and auxiliary receptacle.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A container unit, comprising:

an ampule having a longitudinal axis, a body with contents, a neck part extending from said body coaxially to said longitudinal axis, an opening at an end of said neck part remote from said body and a removable closure device on said opening to clear said opening when removed;

an auxiliary receptacle containing an additive for said contents of said ampule and being removably attached to said ampule and formed as a unitary, one plastic piece with said ampule, said auxiliary receptacle having an outlet and a removable receptacle closure connected thereto by a weak point permitting discharge of said additive upon removal of said receptacle closure, said receptacle closure being independently operable from said closure device, said outlet being attachable to said opening of said ampule after removal of said receptacle closure and said closure device from said auxiliary receptacle and said ampule, respectively, to form a sealed passage therebetween for adding said additive to said contents;

weak points formed in said plastic piece, including between said closure device and said receptacle closure, to facilitate separation of said ampule and said auxiliary receptacle with said closure device and said receptacle closure sealed thereon, respectively; and

a body extension extending along said longitudinal axis from said neck part and having weak points forming break points with said closure device of said ampule and with said auxiliary receptacle.

2. A container unit according to claim 1, wherein:

said body extension extends perpendicular to said longitudinal axis of said ampule over a width corresponding to an ampule width.

3. A container unit according to claim 2, wherein:

said body extension comprises partial areas bordering on said closure device of said ampule and said receptacle closure of said auxiliary receptacle, said partial areas being flat plates forming grasping surfaces facilitating removal of said closure device and said receptacle closure from said ampule and said auxiliary receptacle, respectively.

4. A container unit according to claim 3, wherein:

a grasping surface is on said auxiliary receptacle for removing said receptacle closure from said outlet.

5. A container unit according to any one of claims 1 to 4, wherein:

said auxiliary receptacle forms a coupling sleeve after removal of said receptacle closure, said sleeve being able to be slipped onto said neck part and to form a sealed passage between said auxiliary receptacle and said ampule.

6. A container unit according to any one of claims 1 to 5, wherein:

said auxiliary container is smaller than and is axially offset relative to said ampule.

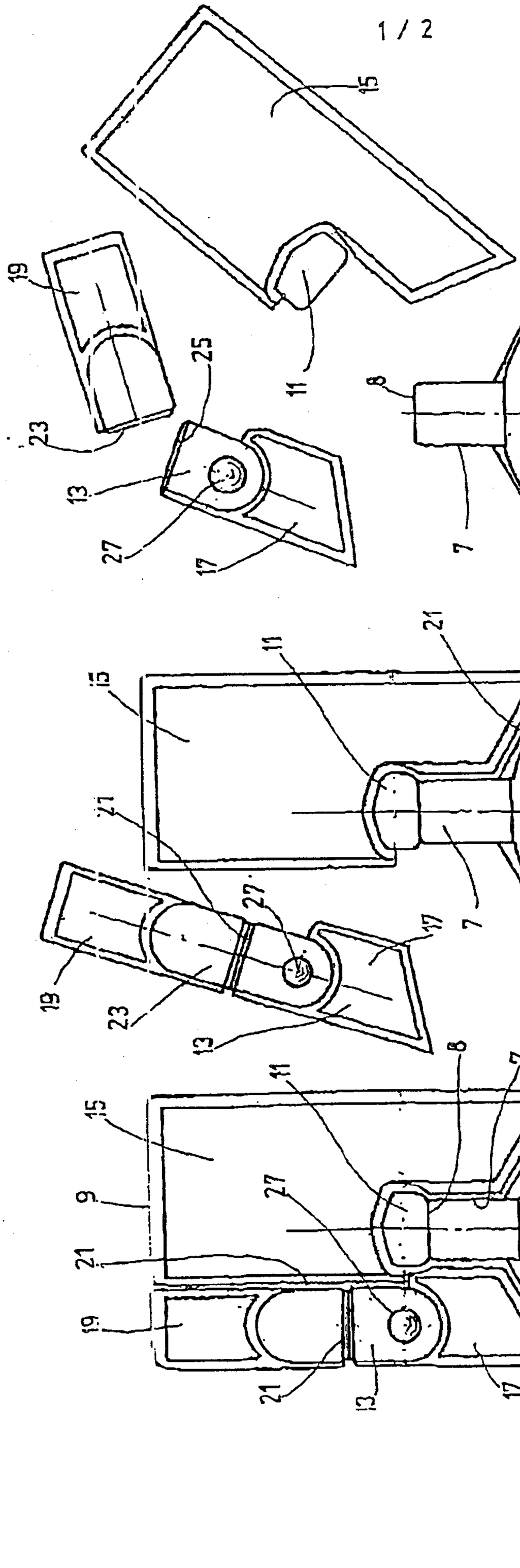


Fig.3

Fig.2

Fig.1

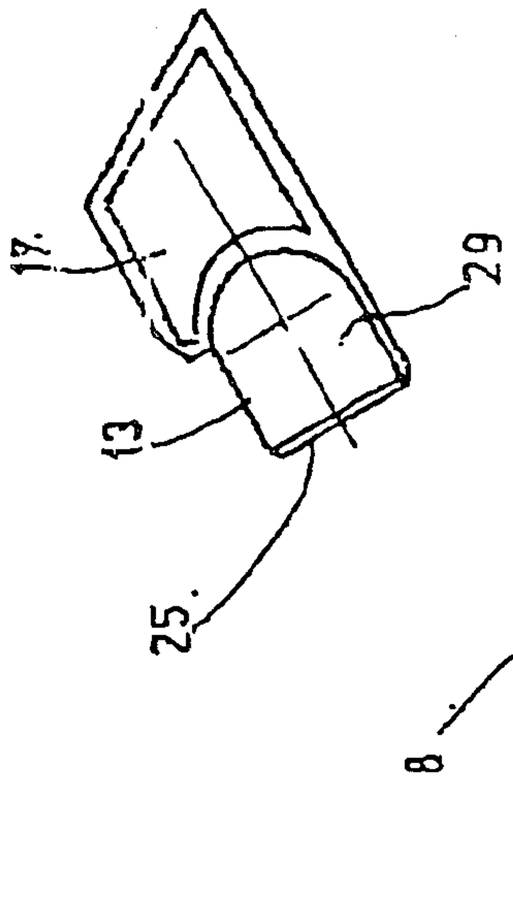


Fig.6

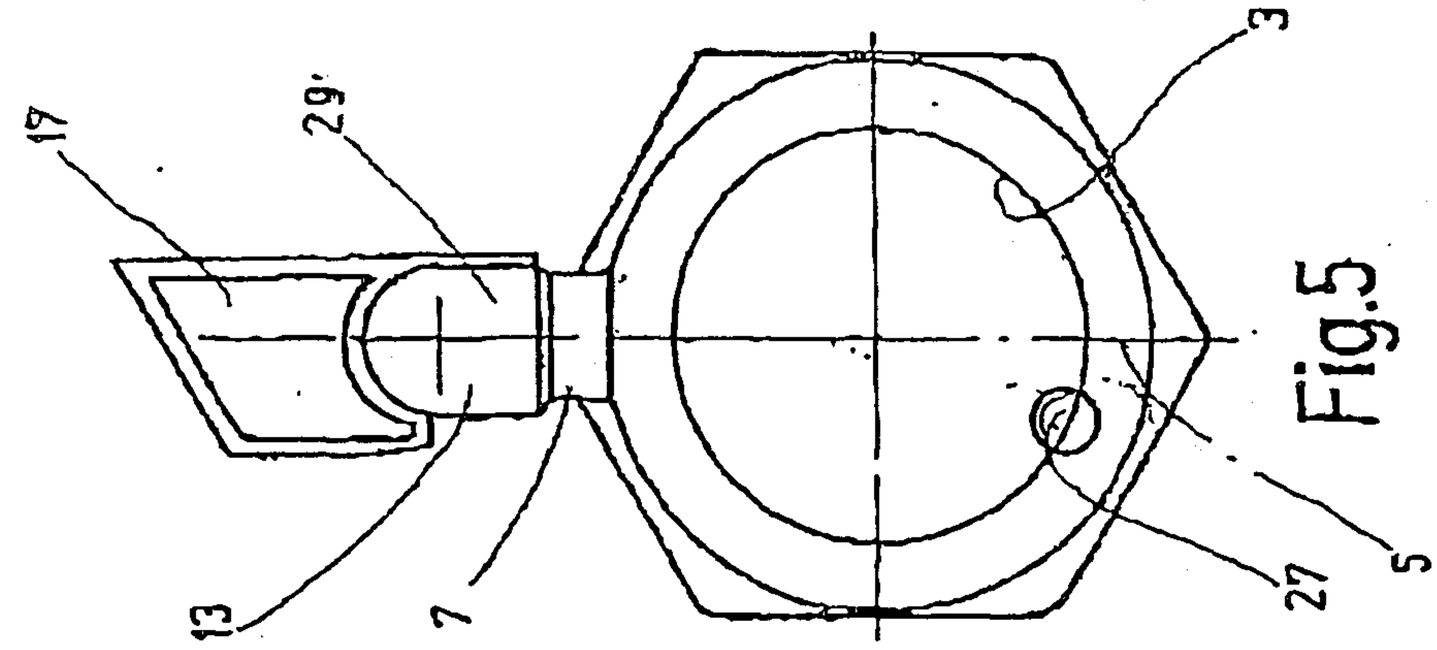


Fig.5

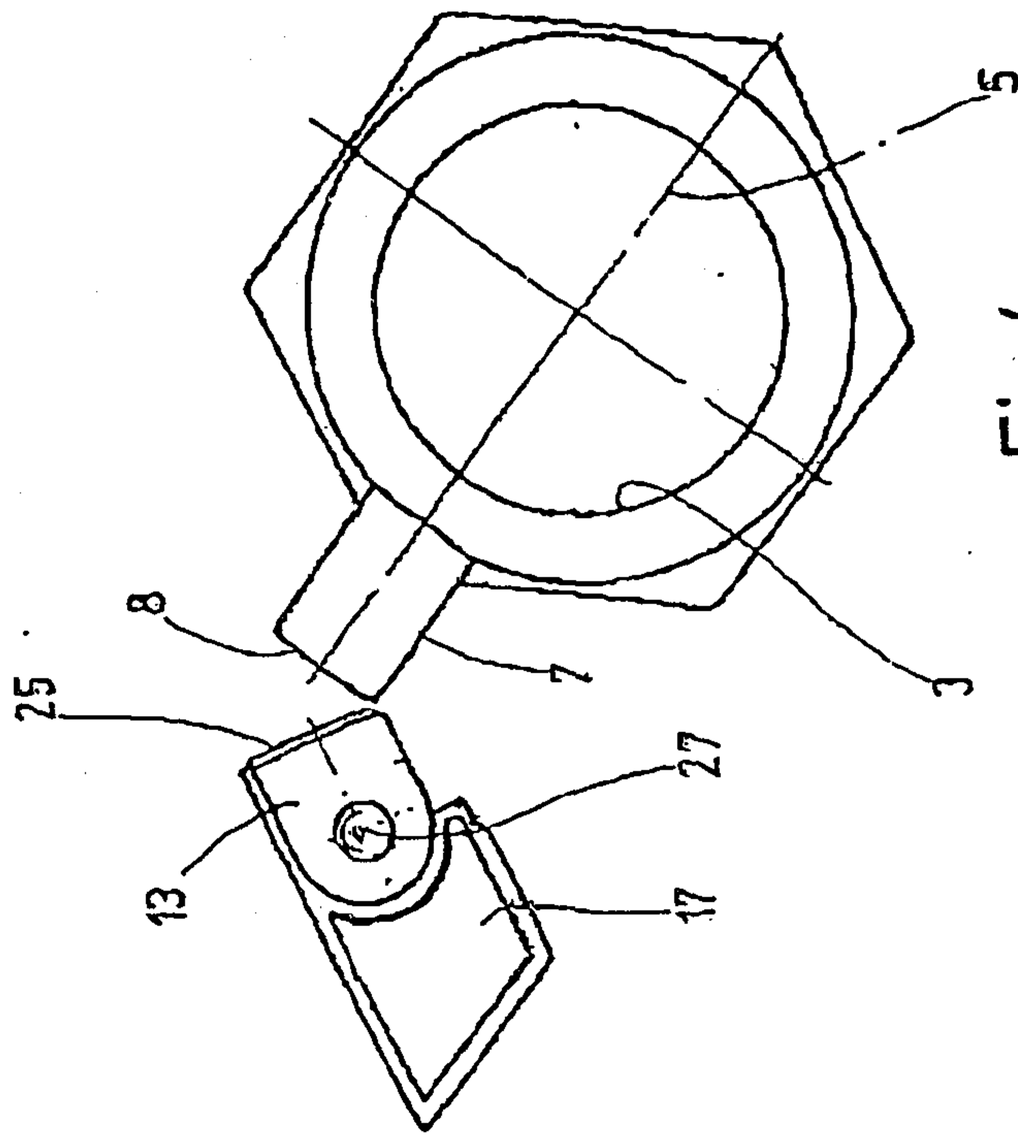
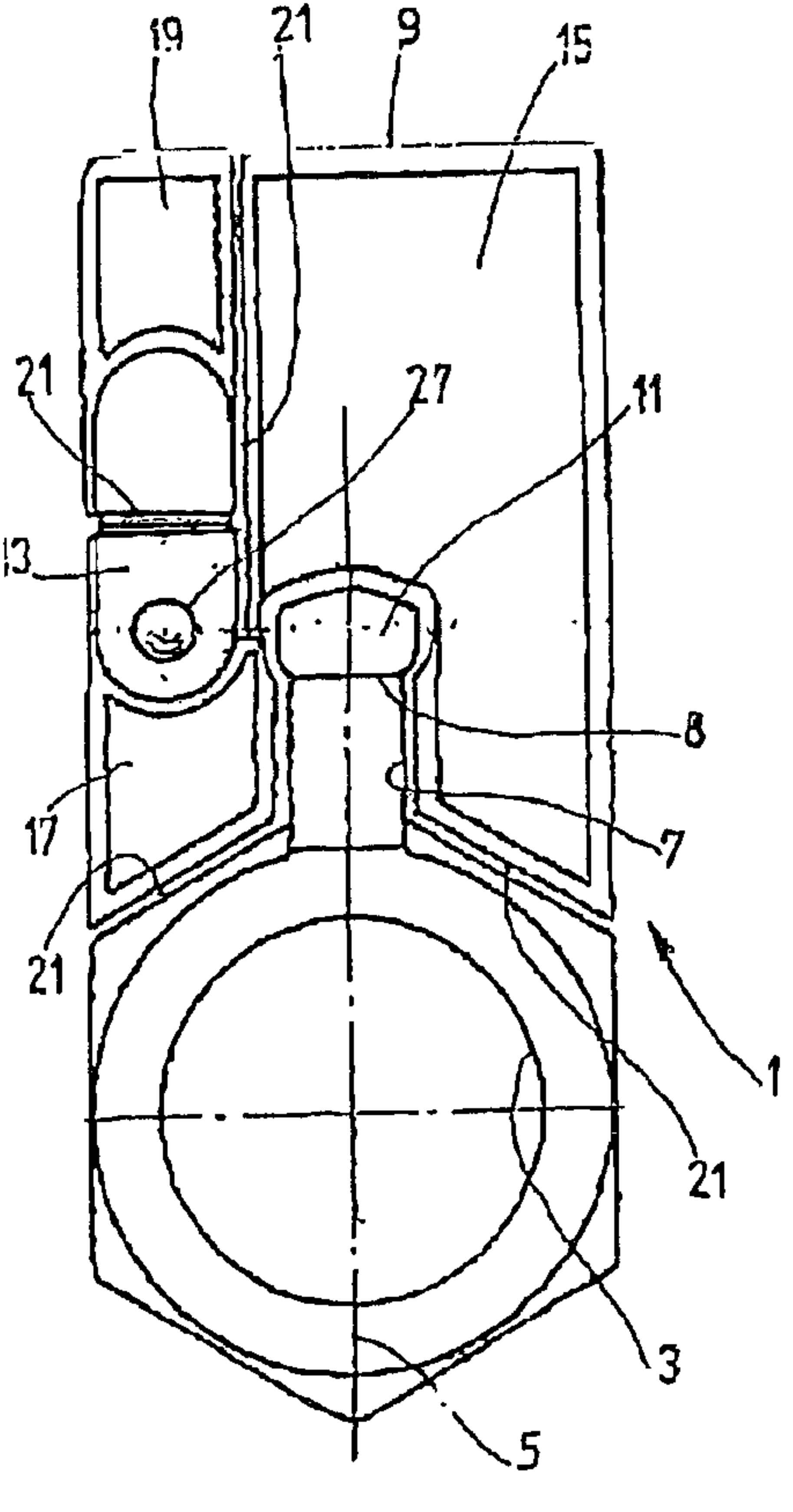


Fig.4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