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(54) **Improved device for drawing-separating liquid-phase acids and vapors from drums and the like, provided with a mouth including a dipping or drawing element.**

(57) The device essentially comprises a first tubular cylindrical body (1) and a second tubular cylindrical body (2), partially tightly encompassing the first body and coaxially extending therewith, said first body being provided with two upper (7) and lower (7') threaded portions, with the lower threaded portion (7') there being engaged an end portion of the second tubular body (8) in such a way as to define an annular chamber (9) between the two bodies (1, 8), the second body (8) being provided through the wall thereof with two pluralities of radially extending holes (10), with the upper threaded portion (7) there being screw engaged a sleeve (23) provided with a radially extending fitting (26) to be coupled to a small diameter vapor evacuating hose (27), the lower end of the second body being engaged with a further sleeve member (12) to be screw coupled to the threaded mouth of the drum therefrom the acid is to be drawn through the first body.

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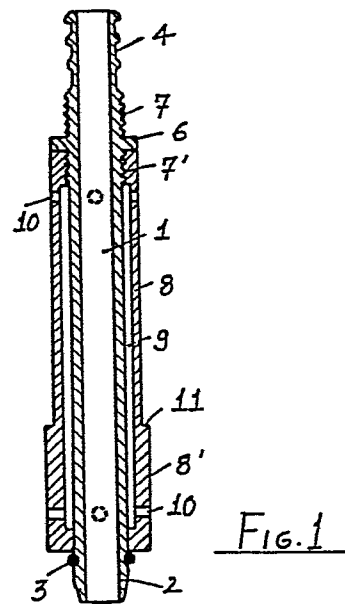
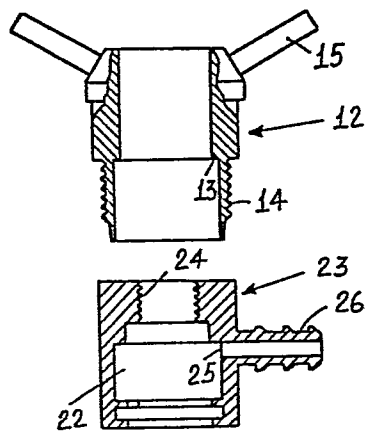


FIG. 1

The present Utility Model relates to an improved device for drawing-separating liquid-phase acids and vapors from drums and the like, provided with a mouth with a dipping or drawing element.

As it is known, in the electronic industry, for making printed board circuits and for other particular industrial treatments, there are used acids effective to provide the surfaces of given carriers with specific functional characteristics.

Also known is the fact that the use of acids, which usually are of the so-called "strong" type, may originate great dangers for the operators, because of the vapors that may be developed by said acids.

Obviously, suitable sucking hoods are provided at the treatment tanks, effective to prevent said acid vapors from diffusing to the environment.

On the other hand, the vapor pressure usually occurring in the tanks containing said acids may originate an excessive amount of vapors in the treatment tanks.

There are already known valve arrangements for drawing liquids from drums or barrels which arrangements generally comprise structurally complex valve assemblies specifically provided for controlling the flows of the liquid to be drawn and of a propelling gas thereof, usually CO_2 .

One of these arrangements is shown in the

US-A-Patent No. 3,065,885 which is the most pertinent prior art reference known to the Applicant in this field.

In particular this reference teaches a beer barrel tapping device comprising a tap unit and a barrel unit, said barrel unit adapted to be fixedly positioned in the top opening of a conventional beer barrel unit, said barrel unit having a casing with a beer tube extending downwardly therefrom to a point adjacent to the lowest portion of the bottom of the barrel, said barrel unit having a normally closed beer valve therein and a one-way gas outlet valve therein, said tap unit having a gas inlet and a beer outlet and a quick connector for quickly connecting the tap and barrel, said tap unit having a movable member and a gas valve therein and means for automatically opening said gas valve and said beer valve when the tap unit is inserted into assembled relation with the barrel for automatically closing the valves when the tap unit is withdrawn therefrom.

Thus it should be apparent that the arrangement of the mentioned US reference is structurally very complex and substantially comprises a two valve assembly including movable elements susceptible to malfunctions and specifically designed for the outlet of beer as propelled by CO₂ under pressure, and not for separating the liquid and gas, which constitutes the task of the invention.

Accordingly, the task of the present invention

is to overcome the above mentioned drawback, by providing an improved device for drawing-separating liquid-phase acids and vapors from equipped vessels, which device is able of completely drawing, from said vessels, in a well separated way the acids and vapors produced by said acids.

Within that task it is an object of the present invention to provide such an improved device, for drawing-separating liquid-phase acids and vapors from equipped vessels, which is able of conveying to the user treatment tanks, exclusively the liquid-phase of said acids.

Yet another object of the present invention is to provide such an improved device, for drawing-separating liquid-phase acids and vapors from equipped vessels, which is structurally simple and of great reliability, and which, in particular, does not include any movable element susceptible of premature wear.

According to one aspect of the present invention, the above mentioned objects, as well as yet other objects, which will become more apparent thereafter, are achieved by an improved device for drawing liquid-phase acids, according to the accompanying claims.

Further characteristics and advantages of the improved device for drawing liquid-phase acids according to the present invention, will become more apparent thereafter from the following detailed

description of a preferred embodiment of the device itself, being illustrated, by way of an exemplary embodiment, in the figures of the accompanying drawings, where:

Fig. 1 is an exploded sectional view illustrating the drawing device according to the present invention;

Fig. 2 is an elevation view illustrating that same device;

Fig. 3 is a perspective view illustrating a drum provided with two mouths effective to be coupled to the drawing device according to the invention;

Fig. 4 is a detail view illustrating one of the mentioned mouths therefrom the plug member has been removed;

Fig. 5 is an elevation view illustrating that same mouth portion; and

Fig. 6 is a schematic view illustrating the mentioned drum provided, at a mouth portion thereof, with the drawing device according to the invention.

With reference to the number references of the figures of the accompanying drawings, the device for drawing liquid-phase acids, as improved according to the present invention, comprises a first elongated tubular cylindrical body 1 provided an oval end portion 2 including a toroidal gasket 3, the other end portion thereof being shaped, for a given length 4,

in such a way as to be able of holding a hose 5.

The mentioned first tubular cylindrical body 1 is provided, at a suitable position, with a projecting radially extending abutment 6, on opposite sides thereof corresponding threaded portions 7 and 7' upwardly and downwardly extend respectively.

With the lower threaded portion 7' there is engaged the end portion of a second tubular cylindrical body 8 defining, with the mentioned first tubular cylindrical body, thereto it coaxially extends, an annular chamber 9, outwardly opened through radially extending holes 10, formed at the end portions thereof.

The mentioned second tubular cylindrical body, or outer body, is provided with a greater thickness wall 8', at the lower or bottom portion thereof, in such a way as to provide a radially extending abutment 11.

With the mentioned radially extending abutment there is engaged a sleeve member 12 also provided with a corresponding radially extending inner abutment 13 and provided with an outside threaded lower portion 14.

That same sleeve element or member 12 is further provided with operating projecting wings 15 and is effective to be coupled, by means of its threaded portion, with a hole, also threaded, 16, forming one of the mouth portions 17 formed on a

generic drum 18 holding the acid, in liquid phase, to be supplied to the systems.

It should be noted to that connection that the mouth portions comprise a suitable closure plug 19 and communicate with a dipping or drawing element 20 the lower end portion thereof dips in a suitable dipping edge formed at the base portion of said drum.

More specifically, said dipping or drawing member is provided with at least a radially extending opening 21 formed under the mentioned threaded hole 16, at a level which corresponds to the location of the lower holes 10, to vent the vapors through the mentioned second tubular cylindrical body, as the latter is coupled, through the threaded sleeve 12, to the mouth portion 17.

The top or upper radially extending holes of that same tubular cylindrical body converge to a chamber 22, as defined by a second sleeve member 23, effective to be tight coupled, by means of an inside threaded portion 24, to the corresponding threaded upper or top portion 7 of the mentioned first tubular cylindrical body.

That chamber 22, coaxially thereto there is located a portion of the second tubular cylindrical body 8, communicates to the outside through a radially extending hole 25, leading to a small tube or fitting 26, so shaped as to be able of holding a flexible hose 27.

In actual practice, through the first tubular cylindrical body 1 and the pipe or tube 5, the liquid-phase acid, held in the drum 18, is conveyed to the treatment tank.

On the other hand, the vapors susceptible to be disengaged at the acid free surface are flown, through the opening 21, the lower holes 10, the annular chamber 9, the upper or top holes 10, the chamber 22 and the small tube 26, to the flexible hose 27, in such a way as to be conveyed to a sucking hood.

From the above disclosure and from the figures of the accompanying drawings the great functionally and use facility characterizing the improved device for drawing acids, in a closed loop fashion, from drums and the like, according to the present invention, will be self-evident.

CLAIMS

1. An improved device for drawing-separating liquid-phase acids and the vapors thereof essentially comprising a first elongated tubular cylindrical body and a second elongated tubular cylindrical body, partially tightly encompassing said first body and coaxially extending therewith, characterized in that said first elongated body (1) is provided with two upper (7) and lower (7') threaded portions, with said lower threaded portion there being engaged an end portion of said second body (8) in such a way as to define an annular chamber (9) between said first and second bodies (1, 8), said second body (8) being provided, through the wall thereof, with two pluralities of radially extending holes (10), that with said upper threaded portion (7) there is screw engaged a sleeve member (23) provided with a radially extending fitting (26) to be coupled to a small diameter vapor evacuating hose (27), and that the lower end of said second body (8) is engaged with a further sleeve member (12), threaded on its outside, and effective to be screw coupled to the threaded mouth of the drum therefrom the acid is to be drawn through the first body.

2. A device according to the preceding Claim, characterized in that said first tubular body (1) is provided with an end elongated portion (2) including a toroidal gasket (3) the other end portion (4) thereof being shaped for a length in such a way

as to be able of holding an acid drawing flexible hose, said first tubular body (1) being provided with a radially extending projecting abutment (6) from the opposite sides of which there extend said upper (7) and lower (7') threaded portions.

3. A device according to the preceding Claims, characterized in that said second tubular body is provided, at the lower portion thereof, with a greater thickness wall (8') forming a radially extending abutment (11) therewith is effective to engage said further sleeve member (12) also provided with a corresponding inner abutment (13) and operating projecting wings (15).

4. A device according to the preceding Claims, characterized in that said sleeve member (23) is effective to be tight coupled, by an inside threaded portion thereof, with said upper threaded portion (7) of said first tubular body (1), said sleeve member being effective to define an annular chamber (22) encompassing the upper perforated portion of the second tubular body (8) in such a way as to communicate it to a sucking hood.

5. A device according to the preceding Claims, characterized in that it is designed for screw coupling to a drum the mouth portion of which communicates with a dipping element the lower portion thereof dips in a dipping zone at the base of the drum, said dipping element being provided at the top with at least a side opening (21) communicating with said holes (10).

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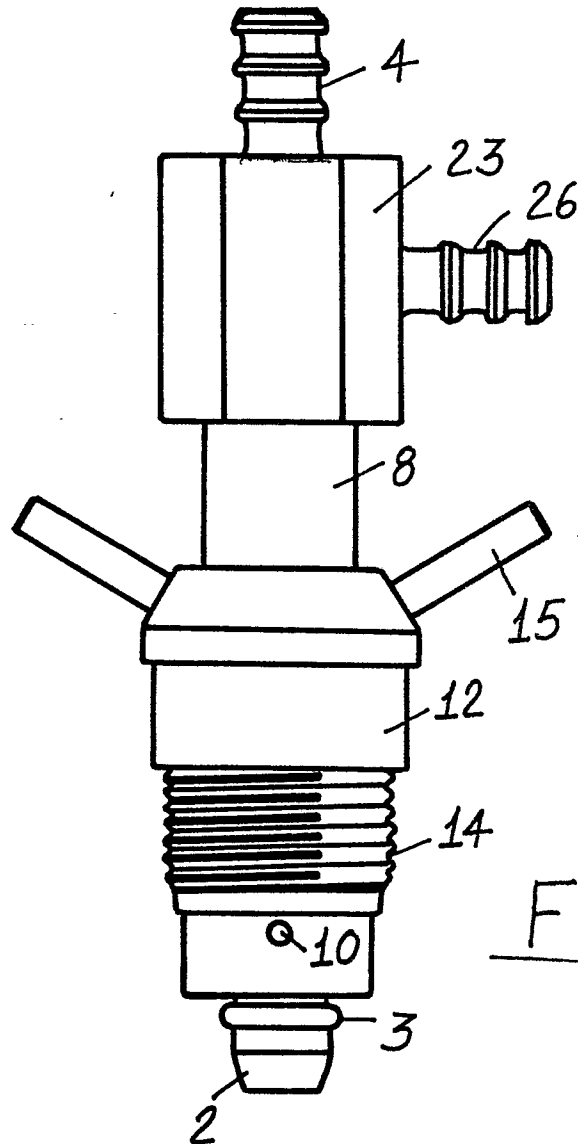
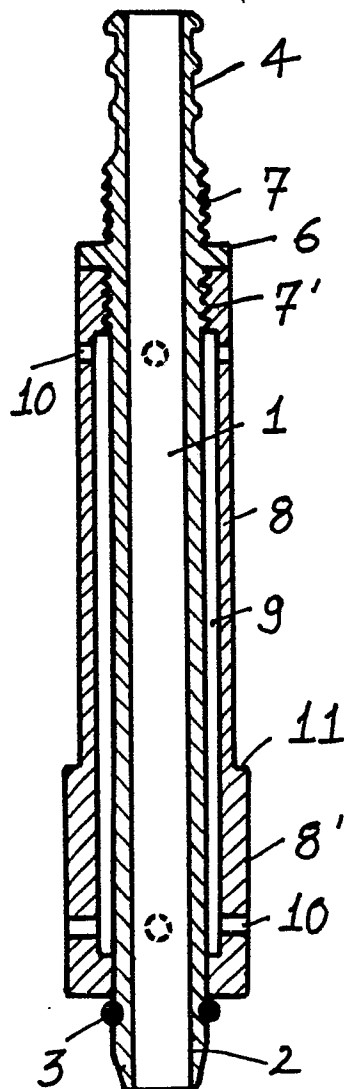
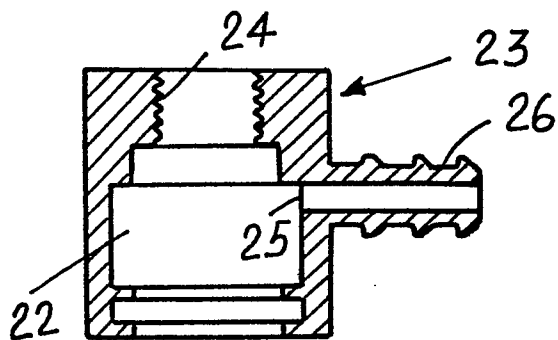
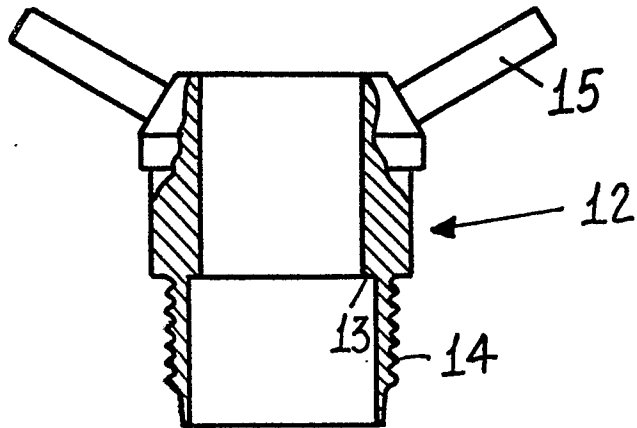


FIG. 1

FIG. 2

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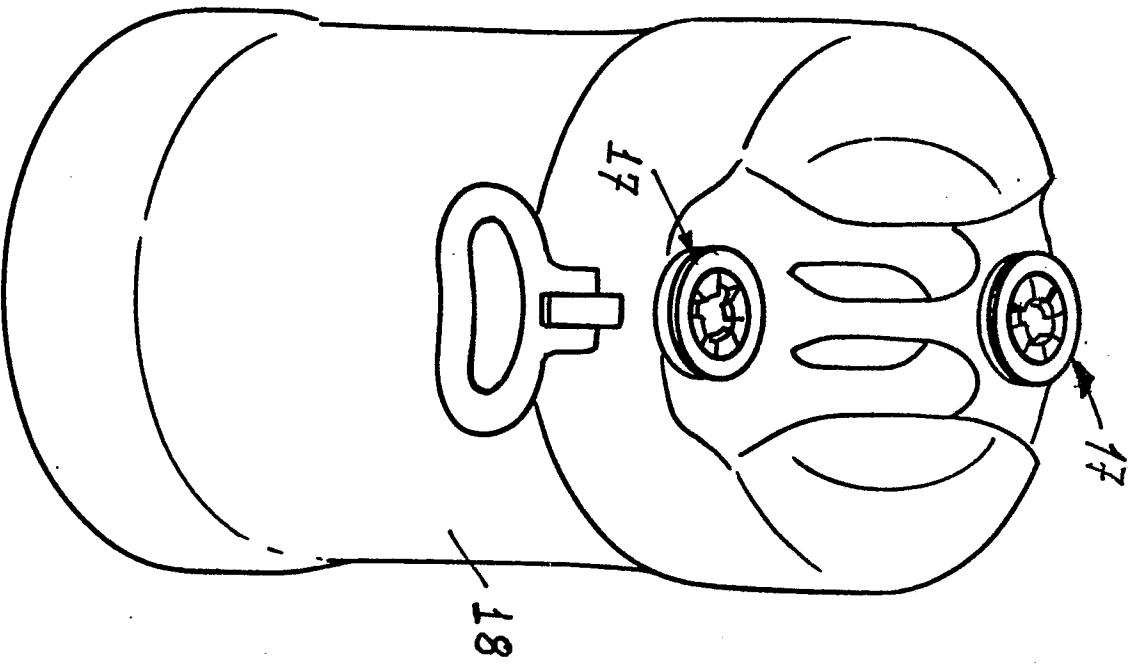


Fig. 3

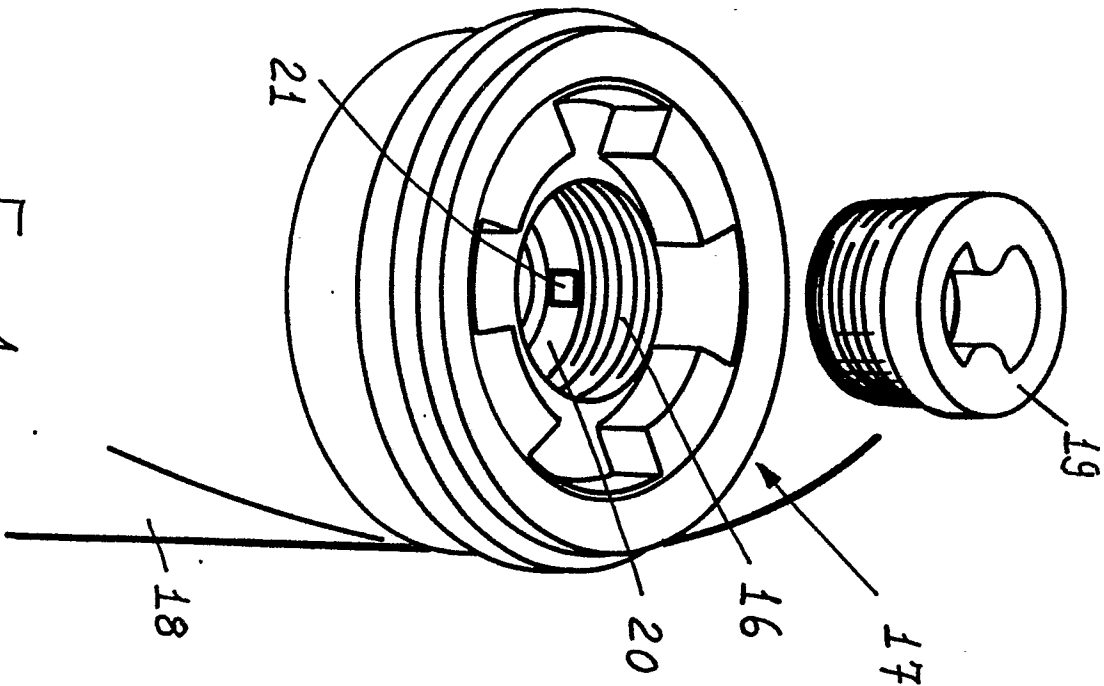


Fig. 4

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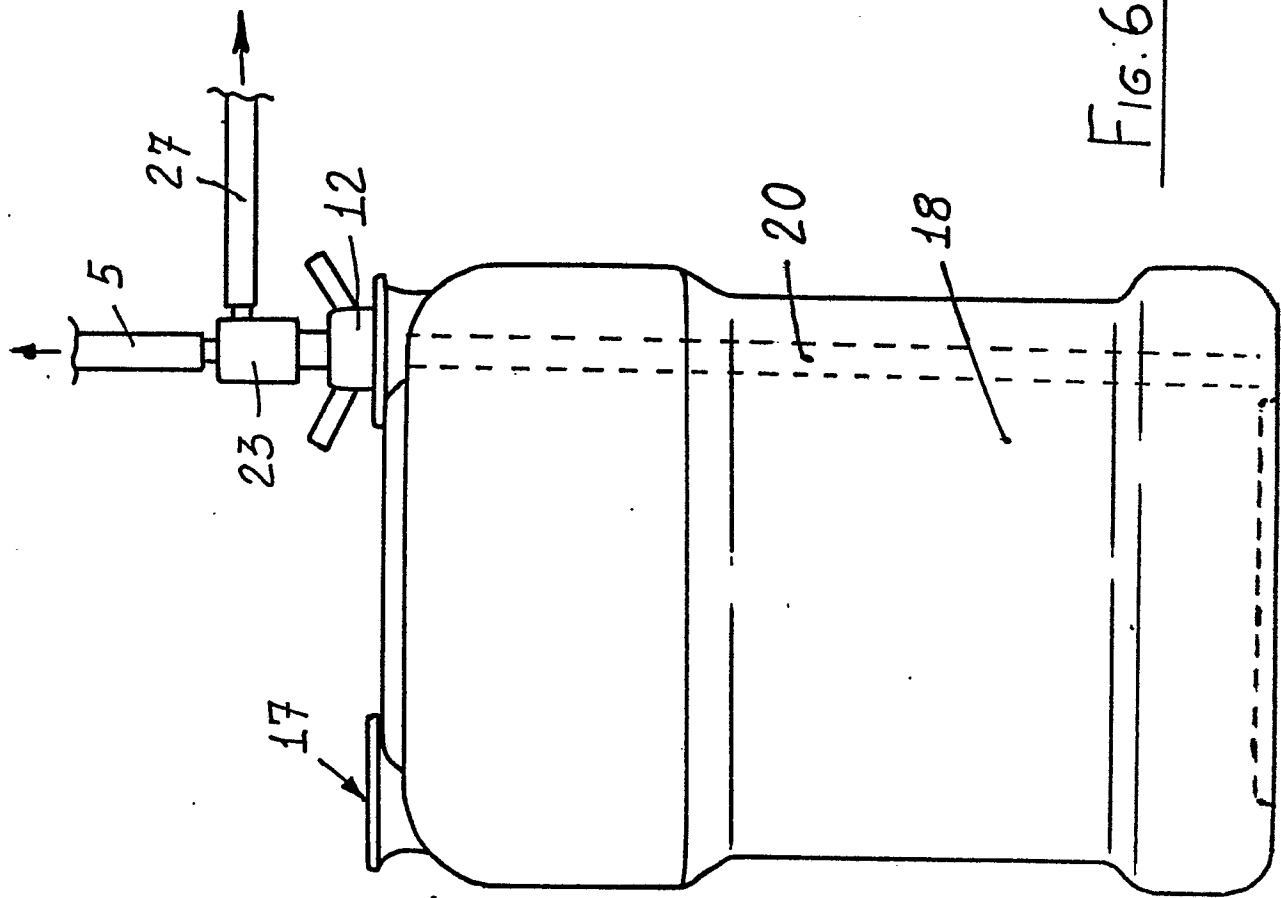


Fig. 6

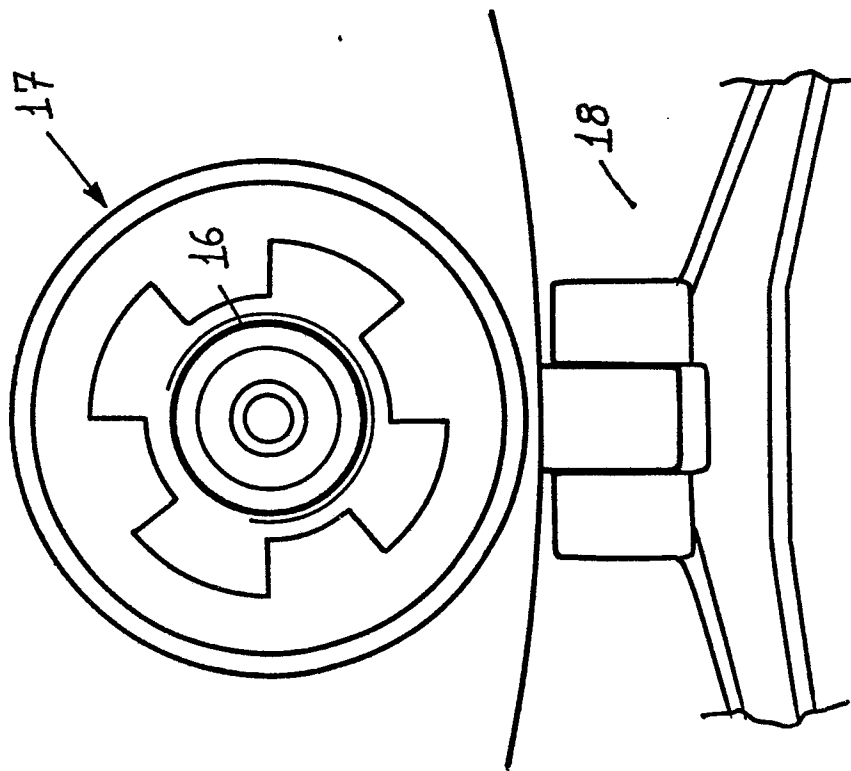


Fig. 5



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
D, A	US-A-3 065 885 (CHATTEN) * Figures 1,3,5; column 2, line 41 - column 3, line 59 *	1	B 67 D 1/08
A	--- US-A-4 187 957 (BUTTLE)		
A	--- US-A-3 498 313 (BELICH) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			B 67 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29-07-1986	Examiner DEUTSCH J.P.M.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			