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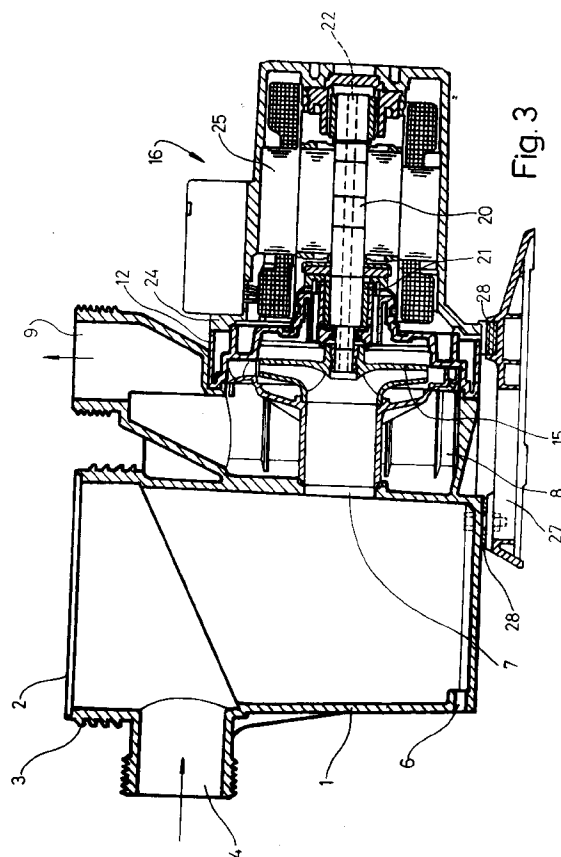
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(54) **Pre-filter for swimming pool installations.**

(57) Comprises a housing which includes a basket (5) closed with a cover (29) and fitted to a suction/force pump (16), whose motor is cooled by the water sucked by the pump. It is characterised in that this fitting is by means of an independent yoke (11) whose face abutting the pump is provided with a tubular trunnion (19) which comprises various longitudinal channels (26) to let in the water for cooling the motor (25) of the pump (16), and that the water outlet (9) is situated on a cavity (8) laterally adjacent to the pre-filter housing (1), the yoke (11) being attached and fixed to the mouth (10) of said cavity (8). It is further characterised in that cover consist of two parts (29 and 30).



Several versions of this type of pre-filter are already known and generally consist of a housing and cover laterally fitted to a suction/force pump and provided inside with a basket-shaped grille, the housing comprising a water inlet and lower down an opposing outlet for the filtered water sucked by the pump. A pre-filter of this kind is described in the US Patent 3,252,575. However, the pre-filters which have been used until now have a number of problems, of which it is worth mentioning the poor suction performance of the of the attached pump, imperfect filtration, difficulty in opening (due to depression effects) for cleaning, and vibrations transmitted to the ground where the pre-filter/pump assembly is fitted.

These pre-filters are fitted to a pump whose motor is cooled by the circulation of water from the same prefilter wherefore the housing is fixed to the pump motor by means of an intermediate yoke consisting of an element in which the pump wheel is located.

On the face which abuts against the pre-filter housing, this circular yoke element is provided with a cavity in which the pump wheel is located, whilst on the opposite face the yoke element is provided with a central tubular trunnion in which the pump axle is located by means of a suitable bushing.

The invention is characterised by the presence of various longitudinal channels distributed about the circumference of said tubular trunnion in order to let in water for cooling the pump motor, the water being driven towards it.

The invention is further characterised in that the outlet is situated on a lateral cavity adjacent to the pre-filter housing, the yoke element being fitted to the mouth of said cavity.

The cover consists of two elements, the cover itself and a screw collar by means of which the cover is secured against the upper mouth of the pre-filter housing, and with which arrangement the depression problem in opening the cover is solved since the screw collar is removed first and then the cover can be lifted easily.

Another characteristic of this invention is that the pre-filter/pump assembly is fixed to a base by means of elastic pads which eliminate the transmission of all vibration to the ground.

It is also important that the handle of the basket-shaped grille forms an integral part thereof.

These and other characteristics will become more apparent in the Detailed Description, taken together with the three accompanying drawings which show a practical embodiment which represents only one non-limiting example of the scope of the present invention.

In the drawings:

Figure 1 shows a vertical section of the pre-filter housing and the yoke element.

Figure 2 represents a frontal view of the yoke element as seen from the face which abuts against the

prefilter housing.

Figure 3 illustrates, again in vertical section, the assembled pre-filter/pump arrangement.

Figures 4 and 5 show respectively a vertical section and a half plan view of the pre-filter housing with the cover fitted.

Figure 6 is a perspective view showing details of the handle of the basket-shaped grille.

As the drawings show, the pre-filter consists of a truncated, slightly conically shaped housing **1** which forms an upper mouth receptacle **2** with an external thread **3** for the cover. The housing is provided with an upper, radially oriented water inlet **4**, inside is fitted a basket-shaped grille **5** and at the bottom of the housing is a radially oriented purge orifice.

Opposing and below the water inlet **4**, the housing is provided with an outlet **7** for the filtered water. This outlet leads to a lateral cavity **8** adjacent to the housing **1** at the top of which is located another outlet **9** through which the water passes to the outside.

A yoke **11** is attached and fixed to the mouth **10** of the lateral cavity **8** of the housing **1** and comprises a circular element **12** whose face **13** abuts against the housing **1** to form a peripherally threaded cavity **14** in which the pump wheel **15** of the pump **16** is located. The cavity **8** and the yoke element **12** are fixed together by means of their respective peripheral rebates **17** and **18**.

On the face oriented away from the cavity **14**, the yoke element **12** is provided with a tubular trunnion **19** in which one of the ends of the pump axle **20** is located by means of a bushing **21**, wherein the axle is tubular and along its length runs the conduit **22** and wherein said face of the yoke element also comprises a peripheral rebate **23** for fitting to the housing **24** of the pump motor **25**.

The aforementioned tubular trunnion **19** is provided with a number of longitudinal channels **26** distributed about its circumference and through which the water for cooling the motor **25** enters. The water is driven towards the motor, after cooling which it passes along the conduit **22** of the pump axle to arrive at the cavity **14** where the pump wheel is located, passing then to the outlet **9** in the pre-filter housing.

The pre-filter/pump assembly is fixed to the ground by means of an interposed base **27** which supports it by means of elastic pads **28**.

A cover **29** is fitted to the upper mouth of the pre-filter housing **1** by means of a screw collar **30** where said cover is advantageously transparent and has a diametric external protrusion **31** which may, if desired, include a depression purge orifice which can be closed by means of a stopper.

In order to fit and secure the cover to the housing **1**, the periphery of the cover is provided with an angular section and an underlying rim **32** which fits into the internal periphery of the mouth of said housing, and an external rim **33** which is seated on top of said

mouth with an interposed o-ring seal **34**. The cover is secured by means of an internal flange **35** on the upper edge of the screw collar wherein said flange presses against said rim **33** of the cover.

The basket-shaped grille **5** is stabilised within the housing **1** by the pressure exerted from above by a ring-shaped protrusion **36** provided on the inside of the cover **29**, wherein the pressure is elastically maintained by means of the transverse handle **37** which forms a single piece with basket-shaped grille. 5
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The handle consists of two flexible strips **38** and **39** which begin at diametrically opposed points on the port of the basket-shaped grille and whose two free ends are fixed together by introducing a T-shaped projection **40** on one of the strips into an eye **41** in the other strip. 15

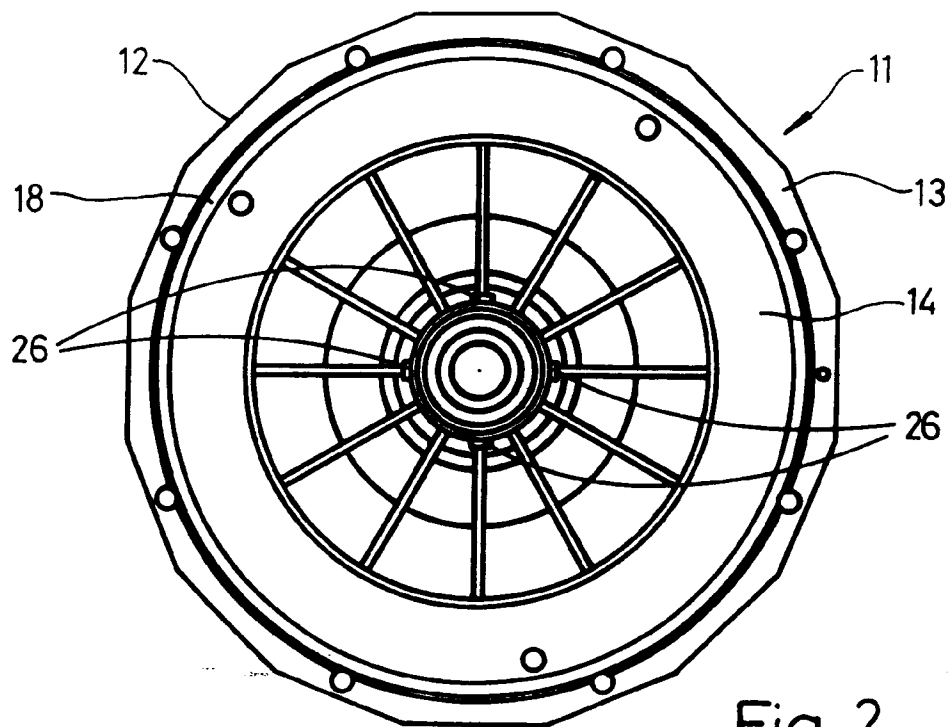
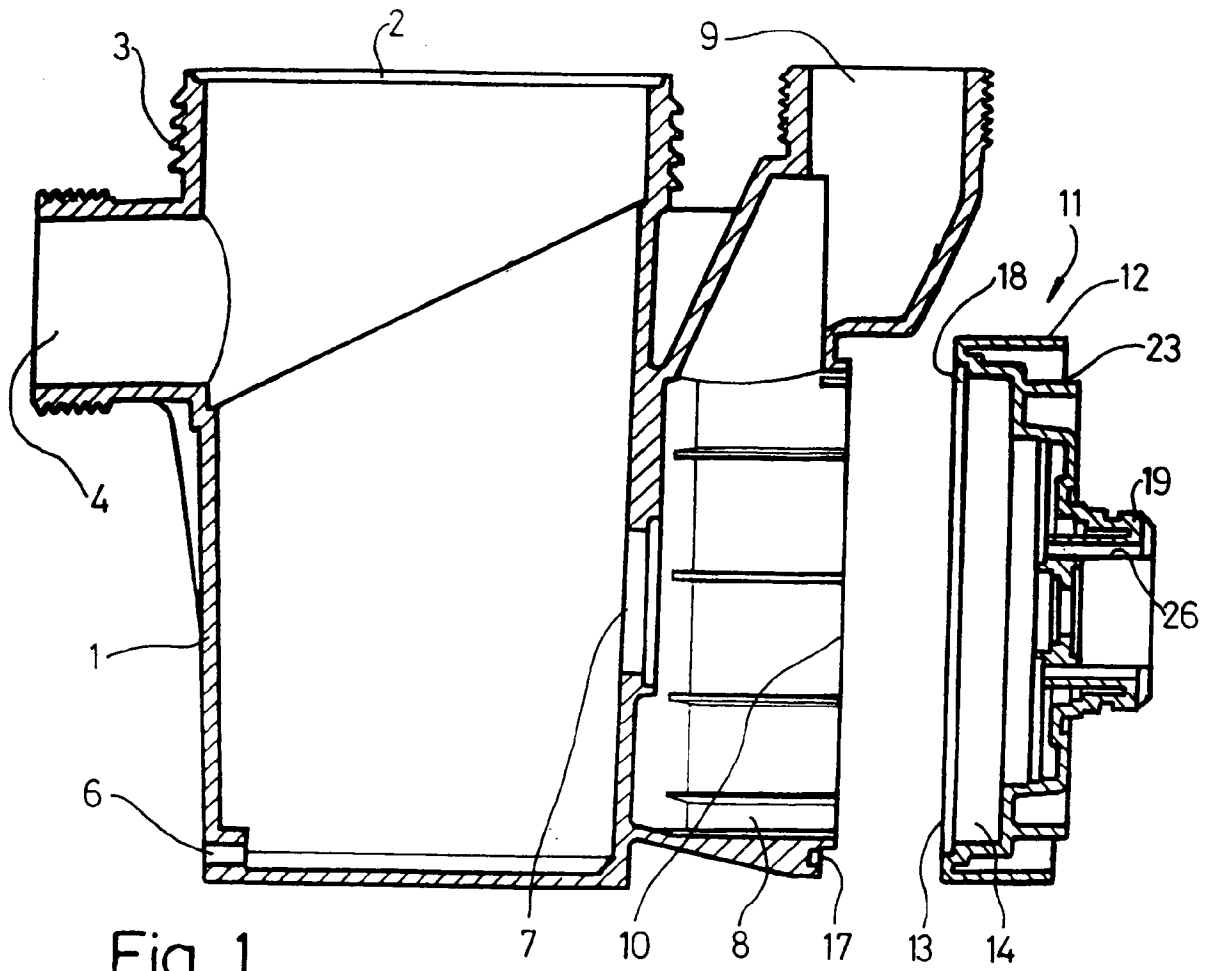
Claims

1.- A pre-filter for swimming pool installations of the type which consist of a housing comprising a basket-shaped grille (5), closed with a cover (29) and laterally fitted to a suction/force pump (16), the motor of which is cooled by the water sucked by the pump, characterised in that this fitting is by means of an independent yoke (11) whose face abutting the pump is provided with a tubular trunnion (19) which comprises various longitudinal channels (26) to let in the water for cooling the motor (25) of the pump (16), and that the water outlet (9) is provided with a cavity (8) laterally adjacent to the pre-filter housing (1), the yoke (11) being attached and fixed to the mouth (10) of said cavity (8). 20
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2.- A pre-filter for swimming pool installations according to claim 1 characterised in that the cover (29) consists of two elements, the cover itself and a screw collar (30) by means of which the cover is secured to the upper mouth (2) of the pre-filter housing (1) wherefore the periphery of said cover (29) has an angular section (32-33) which fits into the internal periphery of said mouth (2) and which is supported by it where it is forced by an internal flange (35) on the upper edge of the screw collar (30). 35
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3.- A pre-filter for swimming pool installations according to claim 1 wherein the pre-filter is provided on a base (27) together with the pump (16) by means of interposed elastic pads (28) provided for fitting the pre-filter housing (1) to the base (27) and supporting the yoke (11) thereon. 45
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4.- A pre-filter for swimming pool installations according to claim 1 wherein the basket-shaped grille (5) comprises, and forms a single piece with, a handle (37) consisting of two flexible strips (38,39) which begin at diametrically opposed points on the mouth of the basket-shaped grille and whose free ends are fixed together (49,41). 55



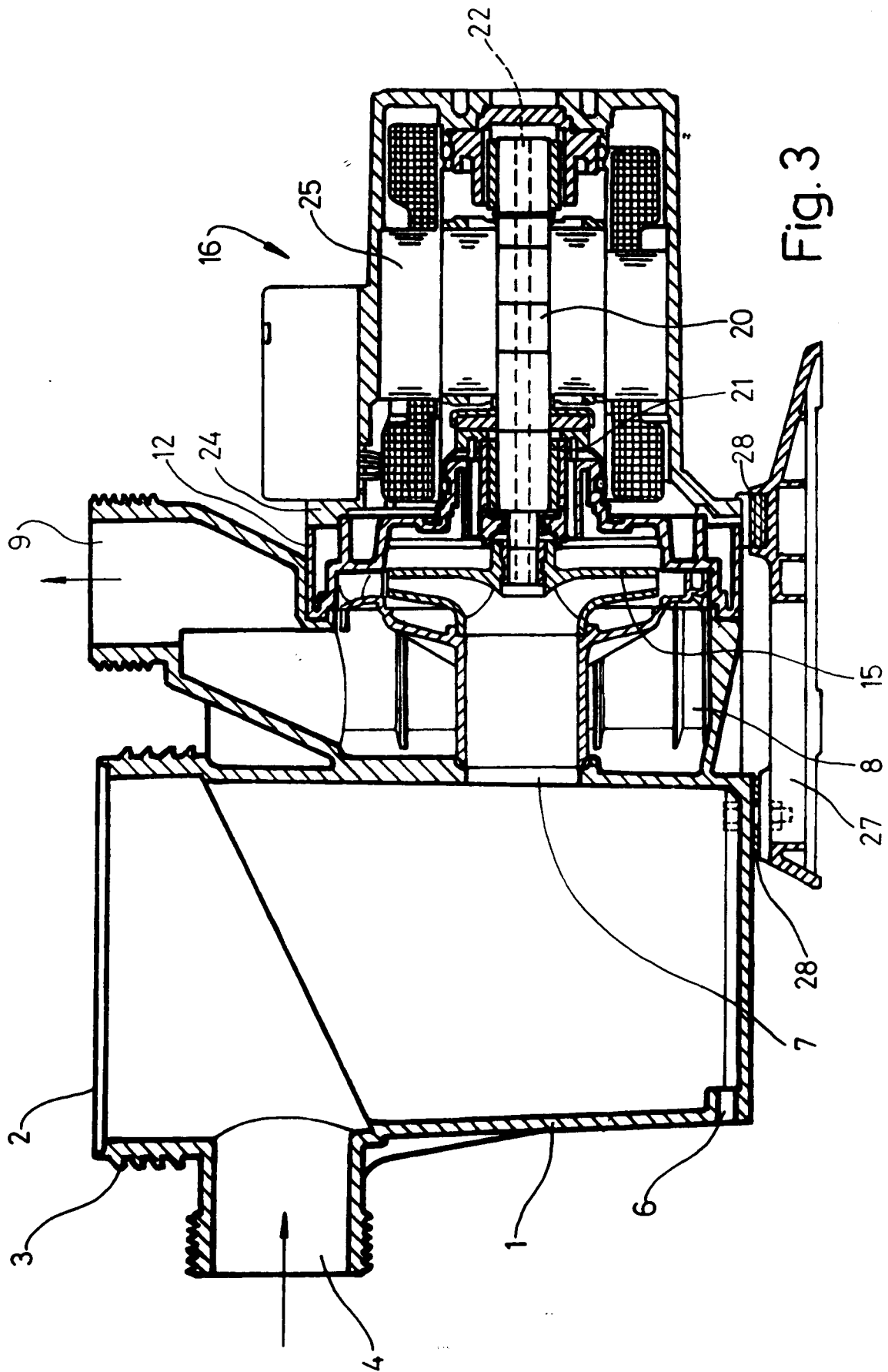


Fig. 3

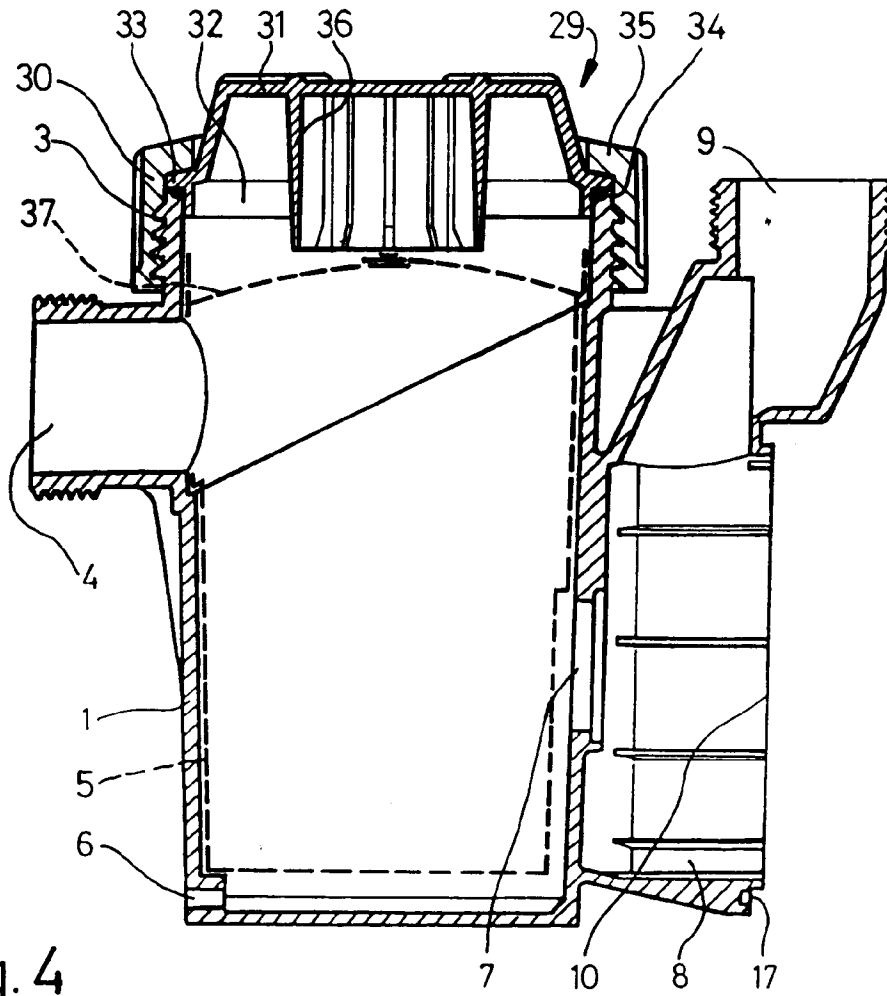


Fig. 4

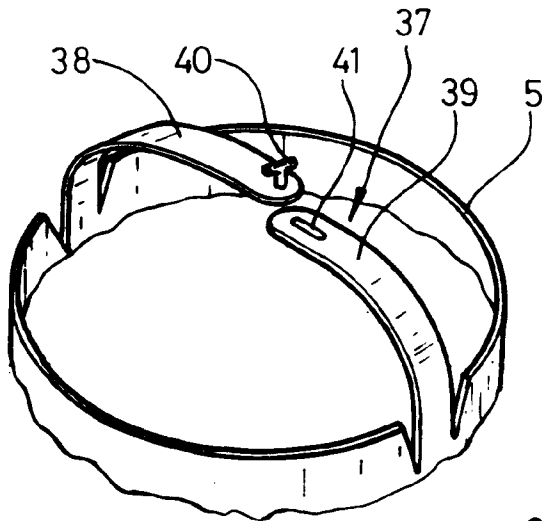


Fig. 6

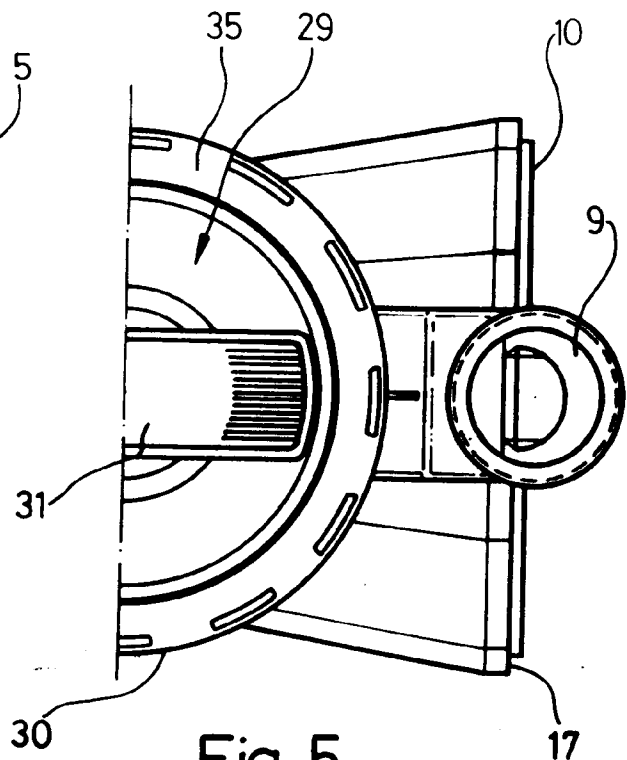


Fig. 5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 50 0146

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.5)
D,A	US-A-3 252 575 (JACUZZI) * column 1, line 41 - line 52 * ---	1-3	E04H4/12 F04D13/06
A	US-A-2 301 063 (MCCONAGHY) * page 2, column 1, line 15 - line 28; figure 1 * ---	1	
A	DE-A-2 800 427 (LEDERLE) * figure 3 * ---	1	
A	CH-A-461 959 (BOSCH) ---		
A	DE-A-3 243 617 (HERMETIC - PUMPEN) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E04H F04D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 JANUARY 1993	Examiner BARBAS A.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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