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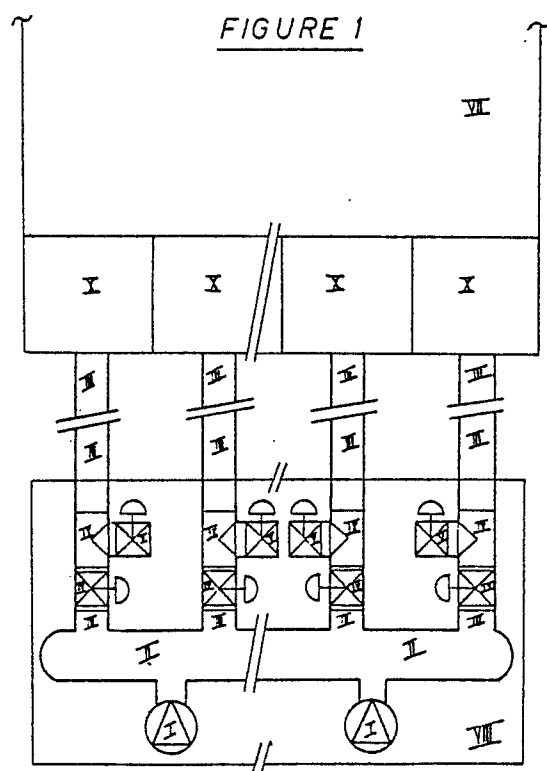
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54 A pneumatic wave producer which can be installed in or at a distance of the liquid medium.

57 Waves are produced in swimming pool VII from pressure chambers X. In these pressure chambers X air coming from fan I pushes the water level down when pressure valve IV is open and escaping valve V is closed.

The water level in the pressure chamber X rises due to the higher waterlevel in the swimming pool VII, when air escapes through valve V while pressure valve IV is closed.

The branch III of collector II can have a certain length, so that the wave production chamber VIII can be installed at a distance of the swimming pool VII.



A pneumatic wave producer which can be installed in or at a distance of the liquid medium.

The invention is related to a pneumatic wave producer, which can be installed in or at a distance of an existing or new to build liquid medium, in which waves have to be produced.

There are known wave producers such as described in the Dutch Patent Publication Nr. 161548. These wave producers are built against the wall of the liquid medium and need at least two connections per each pressurechamber.

The object of the present invention is to execute these known wave producers by utilising one pipeconnection, each pressurechamber, with a tee piece on which are installed two butterfly-valves (interconnected or not).

The advantages offered by the invention is that these valves have not to be built against the vertical wall of the pressure chamber, that this wave producer is built with usual, ordinary materials, and that this wave producer can be installed in or at a distance of the liquid medium so that he is applicable in existing liquid mediums. The invention shall be explained below with the help of following figures, in which by way of example the invention is applied to a swimming pool, which can be existing or new to build.

Figure 1 is an uppvierw of the pneumatic wave producer.

Figure 2 illustrates an example of built-in the wave producer at an existing swimming pool, by which the pneumatic wave production chamber is mounted at a distance of the swimming pool.

Figure 3 illustrates an example of built-in in an existing swimming pool. The wave producer can be built at any side of the swimming pool.

With reference to figures 1, 2 and 3, reference numeral VII denominates a swimming pool. The pressure chambers are denominated X and the pneumatic wave production chamber VIII.

In this wave production chamber VIII are installed following equipment. Two high pressure fans I (this could be one or more than two), who blow into a pipecollector II. From this pipe collector II leave several branches III to their respectively pressure chamber X.

It is possible that more than one branch III go to the same pressure chamber X.

In each branch III is positioned a tee piece IX, on which on the sight of the pipe collector II is mounted the pneumatic or hydraulic driven pressure valve IV, and on the free air sight is mounted the pneumatic or hydraulic driven escaping valve V. The third sight of the tee piece goes to the pressure chamber X.

If the pressure valve IV is open, the escaping valve V is closed and vice versa. The time of

closing or opening the valves IV and V is controlled with a time-relay or a programmed PLC computer. The number of pressure chambers X and the time between opening and closing the valves determine the wave pattern in the swimming pool VII.

The waves are produced when the pressure valve IV is open (also the escaping valve V is closed). The water in the pressure chamber X is pushed down by the high air pressure of the fan(s).
1. When the pressure valve IV closes, the water has achieved the lowest level. Then the waterlevel in pressure chamber X will rise, due to the higher waterlevel in the swimming pool VII and to the open position of the escaping valve V through which escapes the air. At the moment that the water in the pressure chamber X reaches the highest level, the pressure valve IV opens, and the escaping valve V closes. The pushing down of the water in the pressure chamber X starts again.

In view of the repetition of this cycle a wave motion is generated in the swimming pool VII from the pressure chamber X.

Different wave patterns can be produced f.e. a wave over the total width of the swimming pool VII by starting the above described cycle in all the pressure chambers X at the same time.

Claims

1. Pneumatic wave producer for a liquid medium, being arranged in a pool or a similar container, existing or new to build, utilising one pipeconnection each pressurechamber with one tee piece on which are installed two butterfly valves.

2. Application of the pneumatic wave producer according to claim 1 in existing swimming pools or in other existing liquid mediums and according fig 2 and 3.

3. Application of the pneumatic wave producer according to claim 1 in new to build swimming pools or other liquid mediums according fig 2 and 3.

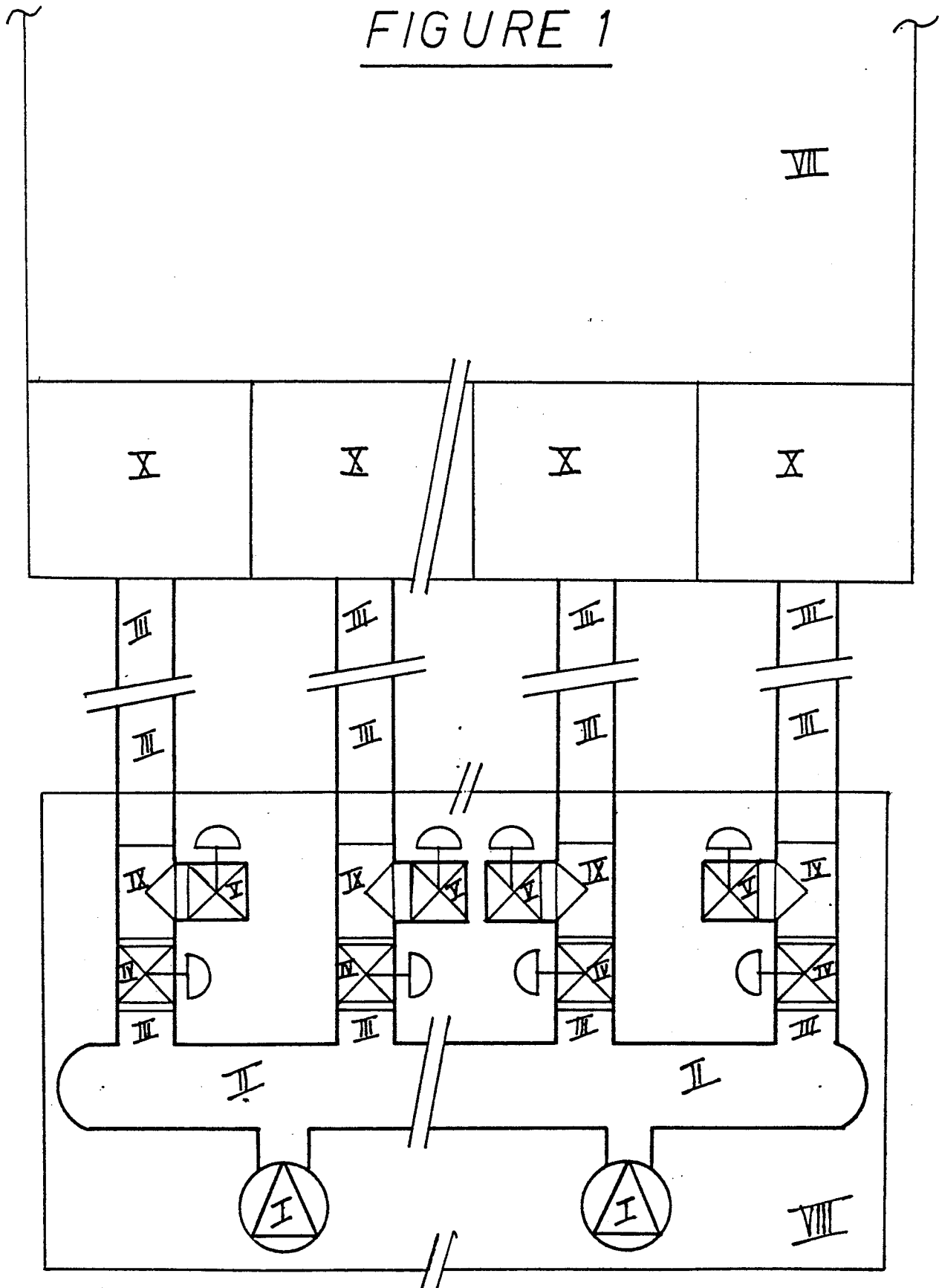
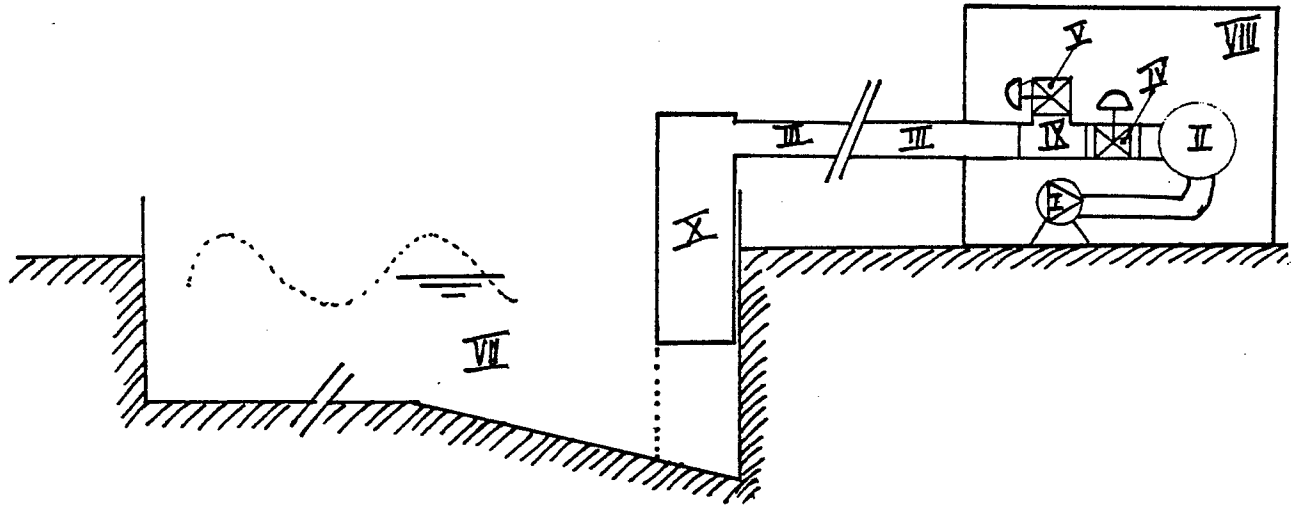
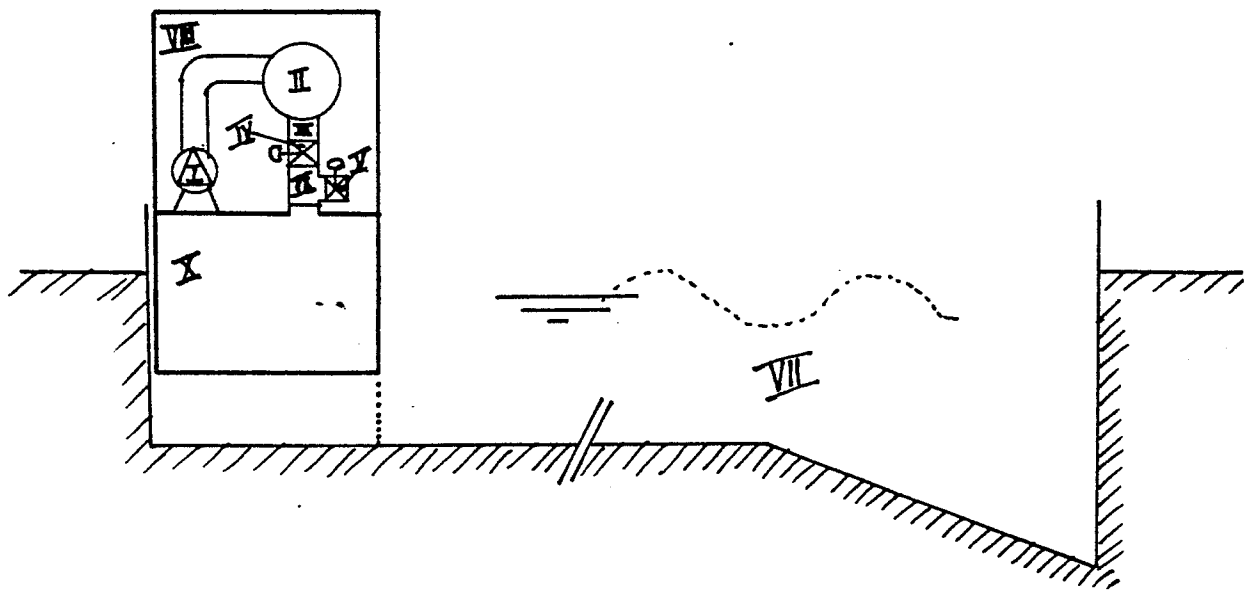
FIGURE 1

FIGURE 2FIGURE 3



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EUROPEAN SEARCH REPORT

Application Number

EP 87 20 0776

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)
X	GB-A-2 149 063 (ARMFIELD) * Page 1, lines 5-10, line 112 - page 2, line 37; figures 1-4 *	1-3	E 04 H 3/18
X	FR-A-2 572 775 (BAUDIN-CHATEAUNEUF) * Page 1, lines 1-3; page 3, line 15 - page 4, line 2; figures 1-3 *	1-3	
X	NL-A-8 302 734 (ECOPOOL) * Page 1, lines 25,26; page 4, line 11 - page 5, line 2; figure 1 *	1-3	
X	DE-A-2 811 623 (BÖHM) * Page 2, lines 13-19; figures 1,2 *	1-3	
A	DE-C- 209 878 (HOFFMEISTER) * Claim; figure *	1-3	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			F 04 D E 04 H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-12-1987	Examiner WALVOORT B.W.
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	