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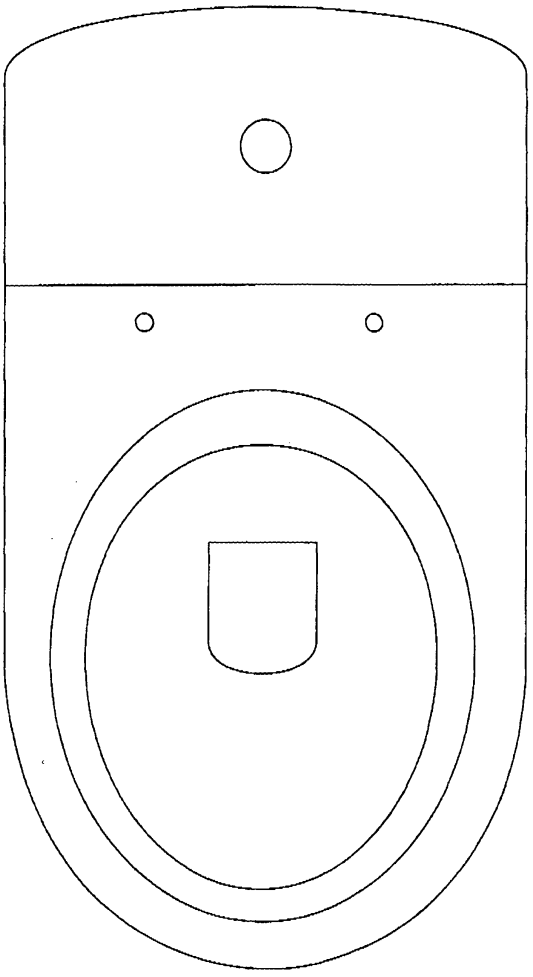
(71) Applicant: **Kurtycz, Mariusz Robert**
1 Henry Close
Middlesex
EN2 9JT (GB)

(72) Inventor: **Kurtycz, Mariusz Robert**
1 Henry Close
Middlesex
EN2 9JT (GB)

(54) Ventilated toilet

(57) Toilet having a ventilation duct in the rim located above the flush duct. Ventilation duct and flush duct are in communication via apertures. The ventilation duct is connected to a ventilator to draw off malodor. The ventilation duct can also be used to inject a detergent into the bowl when flushing.

Fig.1



EP 2 248 955 A1

Description

[0001]

Fig. 1.

1. Show ventilation toilet view from the top.

Fig. 2.
Show toilet view from the top. The broken line shows invisible elements.

A. From that place all ventilated air is going out from a toilet. In this place plastic pipe will be fitting in horizontally. Then will go outside the toilet in few different directions:

a), b), c) - are not shown on this drawings but I shortly describe :

a) Strait to the wall, connected to ventilator, strait outside.
b) Strait to the wall, up vertically, connected to a ventilator, horizontally outside wall.
c) Right or left in, or before wall, up connected to a ventilator, then to soil pipe, or outside. So if we don't want to channel a wall, we have possibility run the pipes on the wall, make those connections visible, and box it.

B. These holes are to connect toilet bowl and cistern together.
C. These holes are to connect toilet bowl and toilet seat together.
D. These holes are created on level 2 (F), to suck the air in to the toilet bowl. That air goes in channel L shown on (fig. 3), which is located between level 2 and top of the toilet bowl. This air will go to point A where will go outside. There way are marks by their air arrows.
E. Level 1, where the holes (I) are located. There are made to the release flush water from the cistern to the inside toilet bowl.
F. Level 2 of this toilet - invisible from outside (mark by the broken line). Their holes D are located on this level.
G. Top of the toilet.
H. Place where water coming from the cistern to the toilet. Water direction shown by the water arrow.
I. Holes made around level 1. There are made to the release flush water from the cistern to inside the toilet bowl. Air going in to the toilet trough the I holes. Then trough the holes D.

Fig. 3.
This drawing shows left side of the ventilated toilet. Points A, B, C, D, E, F, G, H, I are described above. B, and C not shown on this draw to make this picture more clearly.

K. That is channel between level 1 and 2. In this place water running from point H to I points.
L. This is channel between level 2 and top of the toilet. Ventilated air coming from toilet bowl to I holes. Then to holes D, and from holes D to the point A where going outside to ventilator S or O.
M. Cistern, from where water going to the toilet bowl.
O. Extractor fan. Size of this extractor has the same diameter like pipe fitting in the wall. There are easy to connect together by slide rings. Easy to replace as well. Pull switch (T) fitting to the ceiling to switch on or off the extractor fan.
P. Pipe fitting in the wall to ventilate the air outside the wall.
S. This extractor fan has bigger power then extractor O. Size of this connected parts of this extractor has the same diameter like the pipe fitting in the wall, but middle part are bigger. There are easy fit, and easy to connect together with a pipe by slide rings. Easy to replace as well. We fitting one of these extractors depend of power needed. Pull switch (T) fitting to the ceiling to switch on or off the extractor fan.
W. Wall.

Fig. 4
This drawing shows left side of the ventilated toilet. Points A, B, C, D, E, F, G, H, I are described above. B, and C not shown on this draw to make this picture more clearly.

K. That is channel between level 1 and 2. In this place water running from point H to 1 points.
L. This is channel between level 2 and top of the toilet. Ventilated air coming from toilet bowl to I holes. Then to holes D, and from holes D to the point A where going outside to ventilator S or O.
M. Cistern, from where water going to the toilet bowl.

Fig. 5
Show ventilation toilet view from the top.
Fig. 6
Show toilet view from the top. The broken line shows invisible elements.

A. From that place all ventilated air is going out from a toilet. In this place plastic pipe will be fitting in horizontally. Then will go outside the toilet in few different directions:

a), b), c) - are not shown on this drawings

but I shortly describe :

a) Strait to the wall, connected to ventilator, strait outside.
b) Strait to the wall, up vertically, connected to a ventilator, horizontally outside wall.
c) Right or left in, or before wall, up connected to a ventilator, then to soil pipe, or outside. So if we don't want to channel a wall, we have possibility run the pipes on the wall, make those connections visible, and box it.

B. These holes are to connect toilet bowl and cistern together.
C. These holes are to connect toilet bowl and toilet seat together.
D. These holes are created between level 2 (F), and top of the toilet G, to suck the air in to the toilet bowl. That air goes in channel L shown on (fig.3), which is located between level 2 and top of the toilet bowl. This air will go to point A where will go outside. There way are marks by their air arrows. On this drawing holes D are visible. There are created also to have direct access for liquid like bleach or different one, which smell nice. That liquid will be storage in channel L around holes J.
E. Level 1, where the holes (I) are located. There are made to the release flush water from the cistern to the inside toilet bowl.
F. Level 2 of this toilet - invisible from outside (mark by the broken line). Their holes D are located on this level.
G. Top of the toilet.
H. Place where water coming from the cistern to the toilet, Water direction shown by the water arrow.
I. Holes made around level 1. There are made to the release flush water from the cistern to the inside toilet bowl.
J. Little tiny holes created, so that liquid could be released slowly to channel K. When we flash toilet water going around in channel K , rains some of the liquid which is on top channel K and provide nice fresh smell every time we flush water.
So in toilet (fig. 1) we don't see any holes and our toilet is ventilated.
In toilet (fig. 5) we see ventilated holes around and we have storage for smell liquid.

Fig. 7
This drawing shows left side of the ventilated toilet. Points A, B, C, D, E, F, G, H, I, J are described above in draw (fig. 6). B, and C not shown on this draw to make this picture more clearly.

K. That is channel between level 1 and 2. In this place water running from point H to I points.
L. This is channel between level 2 and top of the toilet. Ventilated air coming from toilet bowl to I holes. Then to holes D, and from holes D to the point A where going outside to ventilator S or O.
M. Cistern, from where water going to the toilet bowl.
O. Extractor fan. Size of this extractor has the same diameter like pipe fitting in the wall. There are easy to connect together by slide rings. Easy to replace as well. Pull switch (T) fitting to the ceiling to switch on or off the extractor fan.
P. Pipe fitting in the wall to ventilate the air outside the wall.
S. This extractor fan has bigger power then extractor O. Size of this connected parts of this extractor has the same diameter like the pipe fitting in the wall, but middle part are bigger. There are easy fit, and easy to connect together with a pipe by slide rings. Easy to replace as well. We fitting one of these extractors depend of power needed. Pull switch (T) fitting to the ceiling to switch on or off the extractor fan.
W. Wall.

Fig. 8
This drawing shows left side of the ventilated toilet. Points A, B, C, D, E, F, G, H, I, J are described above. B, and C not shown on this draw to make this picture more clearly.

K. That is channel between level 1 and 2. In this place water running from point H to I . points.
L. This is channel between level 2 and top of the toilet. Ventilated air coming from toilet.
. bowl to 1 holes. Then to holes D, and from holes D to the point A where going outside.
. to ventilator S or O.
M. Cistern, from where water going to the toilet bowl.

Fig. 9
This drawing shows pipe, which is created to flush water from a cistern and also ventilate air from the toilet. That air could be ventilated in the same time when we flush the toilet and that not affect ventilated process.
This pipe could be used for all kind of existing toilets connected with cistern by plastic pipes, which is shown on (fig 13,14,15.) If we fit and use for flushing first to see how it works without connect to another pipe - water not going to leak from the back. Connection with another pipe could be done any time after.
To make this works like flushing and ventilating we need to connect the pipe by sliding rings with another pipe, which is connected with extractor fun in that

wall or on the wall.
What kind of extractor fun we can use shows on (fig. 10, 10A, 11, 12)
If we have toilets like on (fig. 13, 14, 15), we don't need to spend money for new toilets to have them ventilated. What we need? We need only this pipe and extractor fun shows on (fig. 11, 12)

A. Show the way where the air going in to the pipe from the toilet.
C. Show the way where air will go outside from this pipe and will be connected with another.
B. Show the way where water going through this pipe from the cistern to the toilet.

There are air and water arrows to help understand better these drawings.
Fig. 10, 10A, 11, 12
Extractor fun created in the tube.

A. Direction of air.
B. Flexible rubber, which is open when extractor fun is on. When extractor fun is off the rubber is getting strait and closing way for the air to come back.
C. Motor area.
D. Rotated parts.

Fig. 13, 14, 15.
Those drawings shows how we can use and connected pipe R, which is described on (fig. 9), for many different types of toilets. All those toilets could be converting to be ventilated by fitting this pipe R and connected to extractor funs. (fig. 10, 10A, 11, 12) Elements A, I, O, P, S, T, W are described on (fig.2 and 3).
Fig. 16
This drawing shows left side of the ventilated toilet. Points A, B, C, D, E, H, I are described above but this time F is the top of the toilet. B, and C not shown on this draw to make this picture more clearly.

K. That is channel between level 1 and 2. In this place water running from point H to I . . points.
L. This is channel between level 2 and top of the toilet. Ventilated air coming from toilet . bowl to I holes. Then to holes D, and from holes D to the point A where going . outside to ventilator S or O.
M. Cistern, from where water going to the toilet bowl.

Claims

1. A ventilated toilet bowl, comprising:

a first channel fluidly connectable to a cistern and having apertures on the underside of the first channel to release flush water receivable from the cistern into the toilet bowl; and
a second channel located above the first channel and being connectable to an extractor to extract air from the toilet bowl, in use,

wherein a plurality of connecting apertures are provided between the first and second channels.

2. A ventilated toilet bowl according to claim 1, configured such that, air extracted from the toilet bowl passes through the apertures provided on the underside of the first channel and then through the connecting apertures into the second channel.

3. A ventilated toilet bowl according to claim 1, wherein the second channel is further provided with ventilation apertures in the side wall of the second channel facing into the toilet bowl.

4. A ventilated toilet bowl according to claim 3, wherein the connecting apertures between the first and second channels are small, and the second channel is operable to receive a supply of cleaning fluid such that, when flush water passes through the first channel, some of the cleaning fluid is added to the flush water.

5. A ventilated toilet bowl according to any preceding claim, comprising a first port connectable to a cistern to allow fluid connection between the cistern and the first channel.

6. A ventilated toilet bowl according to any preceding claim, comprising a second port connectable to an extractor to allow fluid connection between the second channel and the extractor.

7. A ventilated toilet system including a ventilated toilet bowl according to any preceding claim, further comprising a cistern and an extractor connected to the toilet bowl.

8. A ventilated toilet system according to claim 7, wherein the extractor comprises a housing having an inlet port and an outlet port, wherein the inlet and outlet ports are smaller than the extractor housing.

9. A ventilated toilet system according to claim 8, wherein the inlet and outlet ports are offset from the centre of the extractor housing.

10. A ventilated toilet system according to any of claims 7 to 9, wherein the cistern and extractor are connected to the toilet bowl by a single connecting pipe, the connecting pipe comprising two concentric pipes defining two conduits.

11. A ventilated toilet bowl or system substantially as herein described with reference to the accompany drawings.

Fig.1

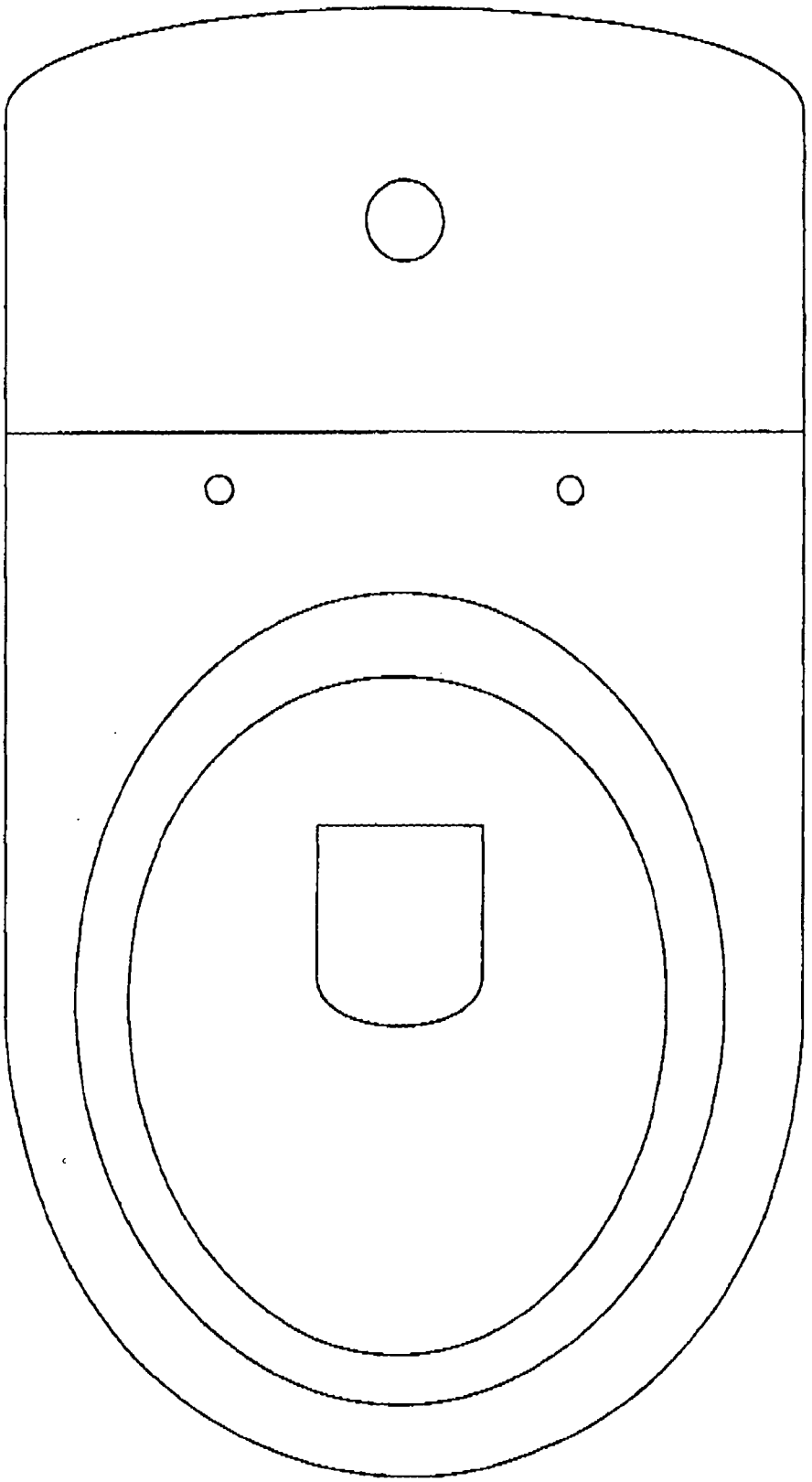


Fig. 2

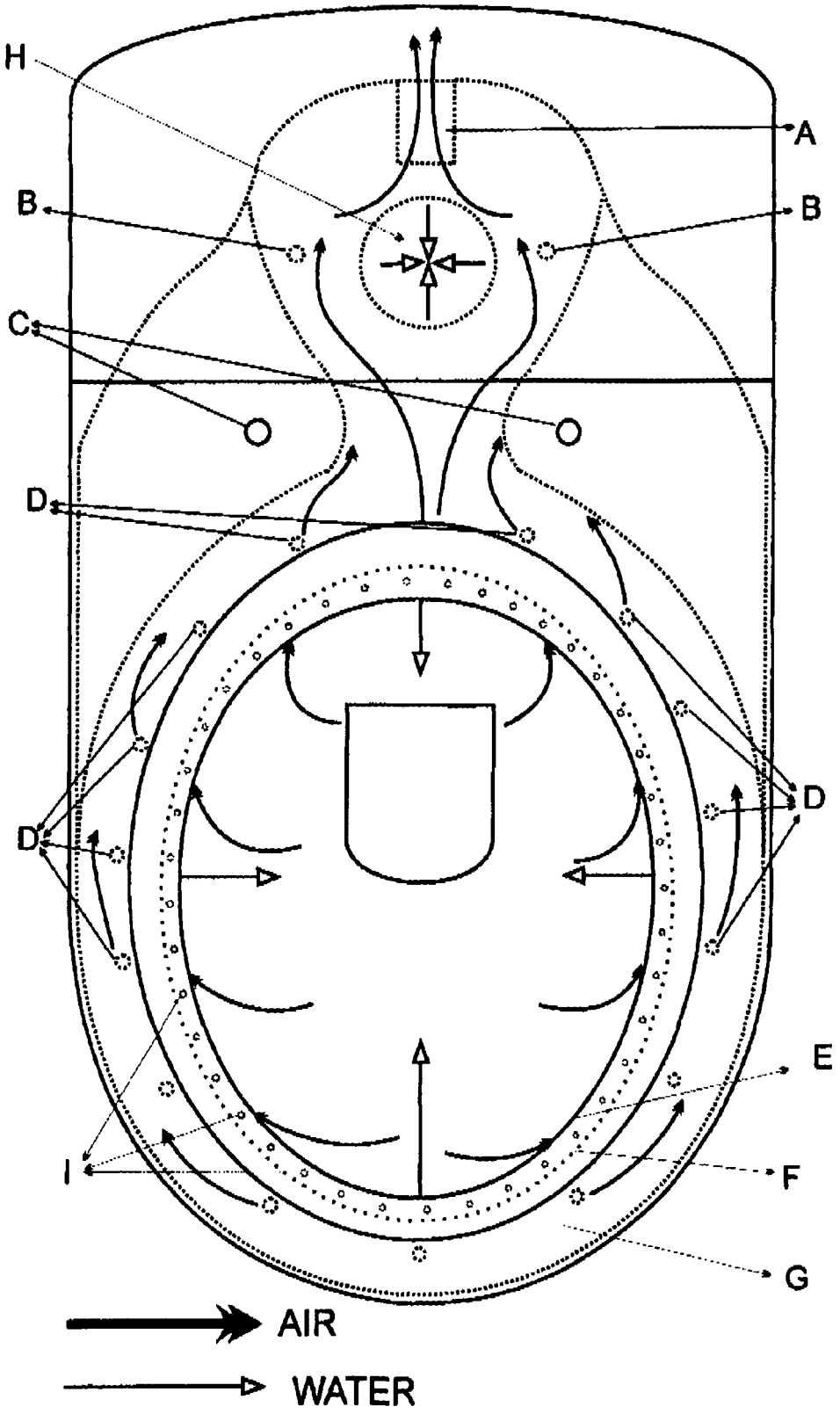
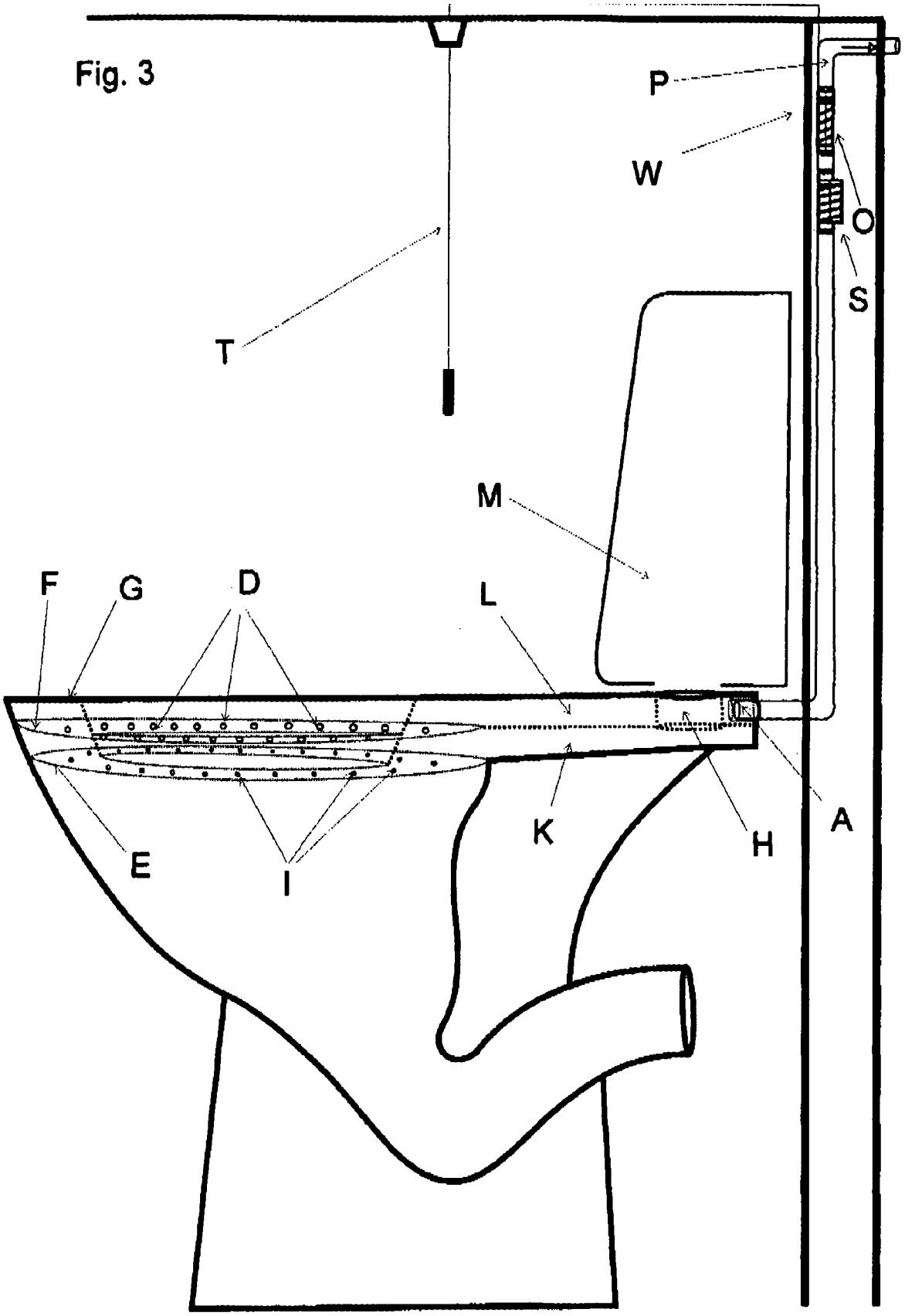


Fig. 3



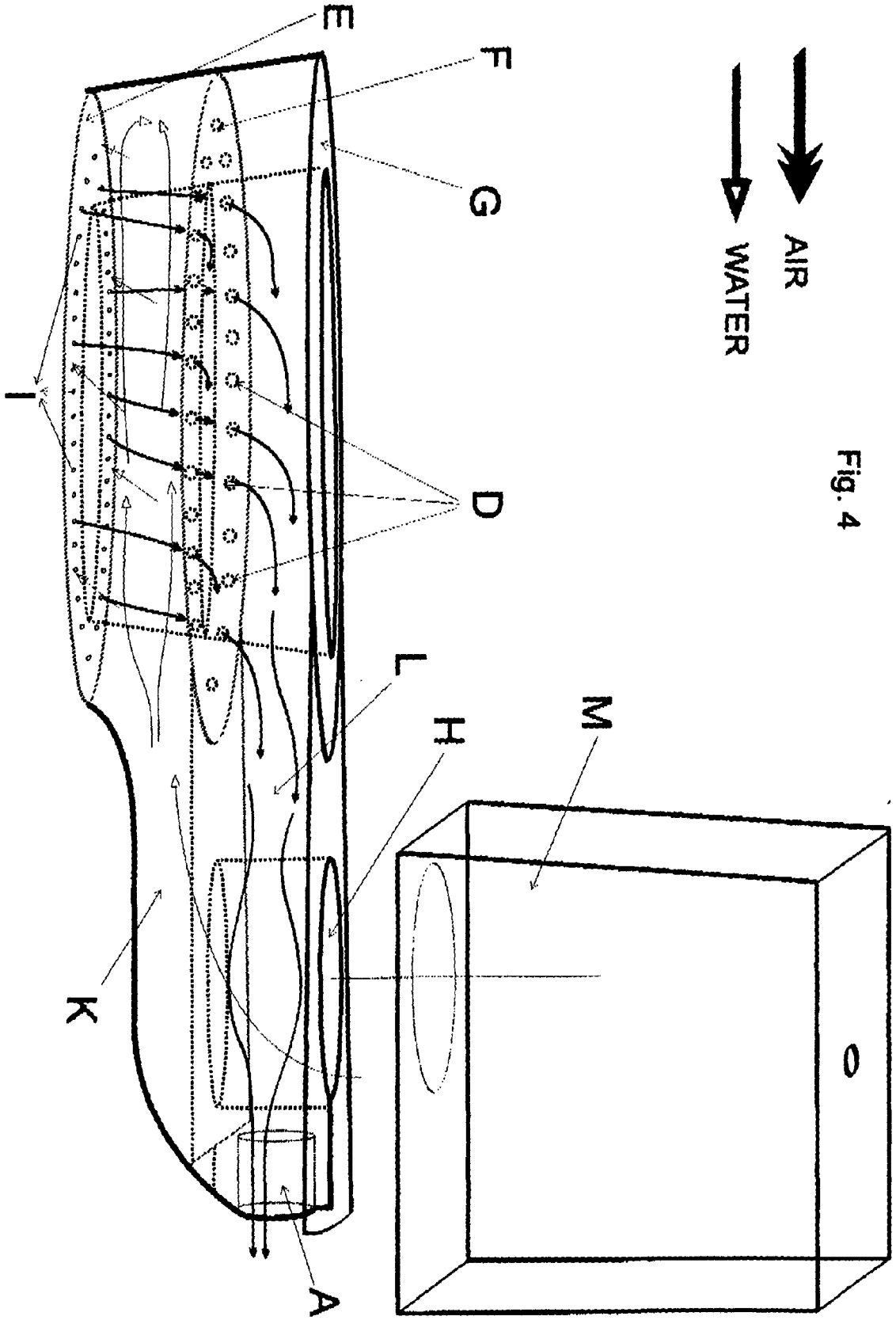


Fig. 4

Fig. 5

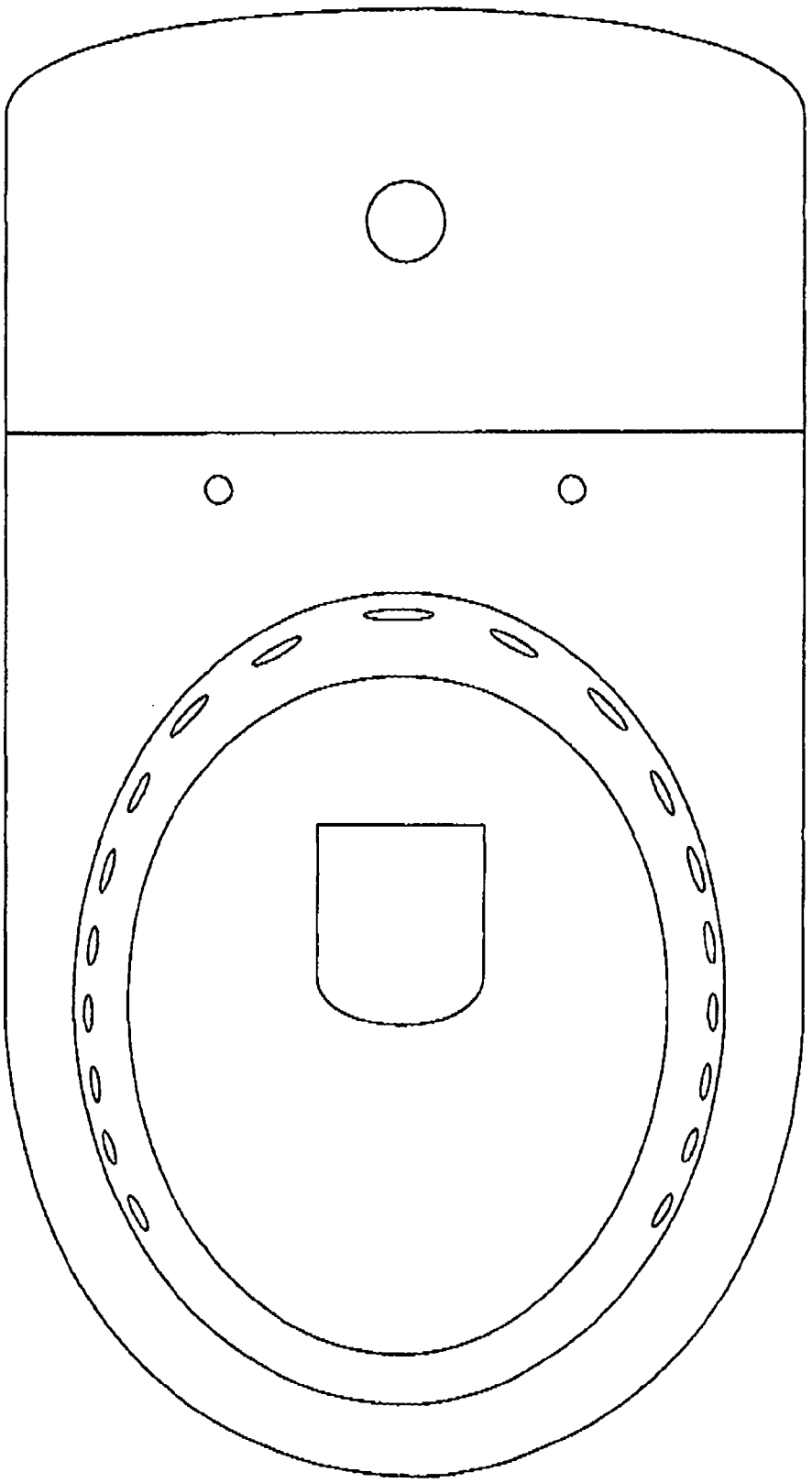


Fig. 6

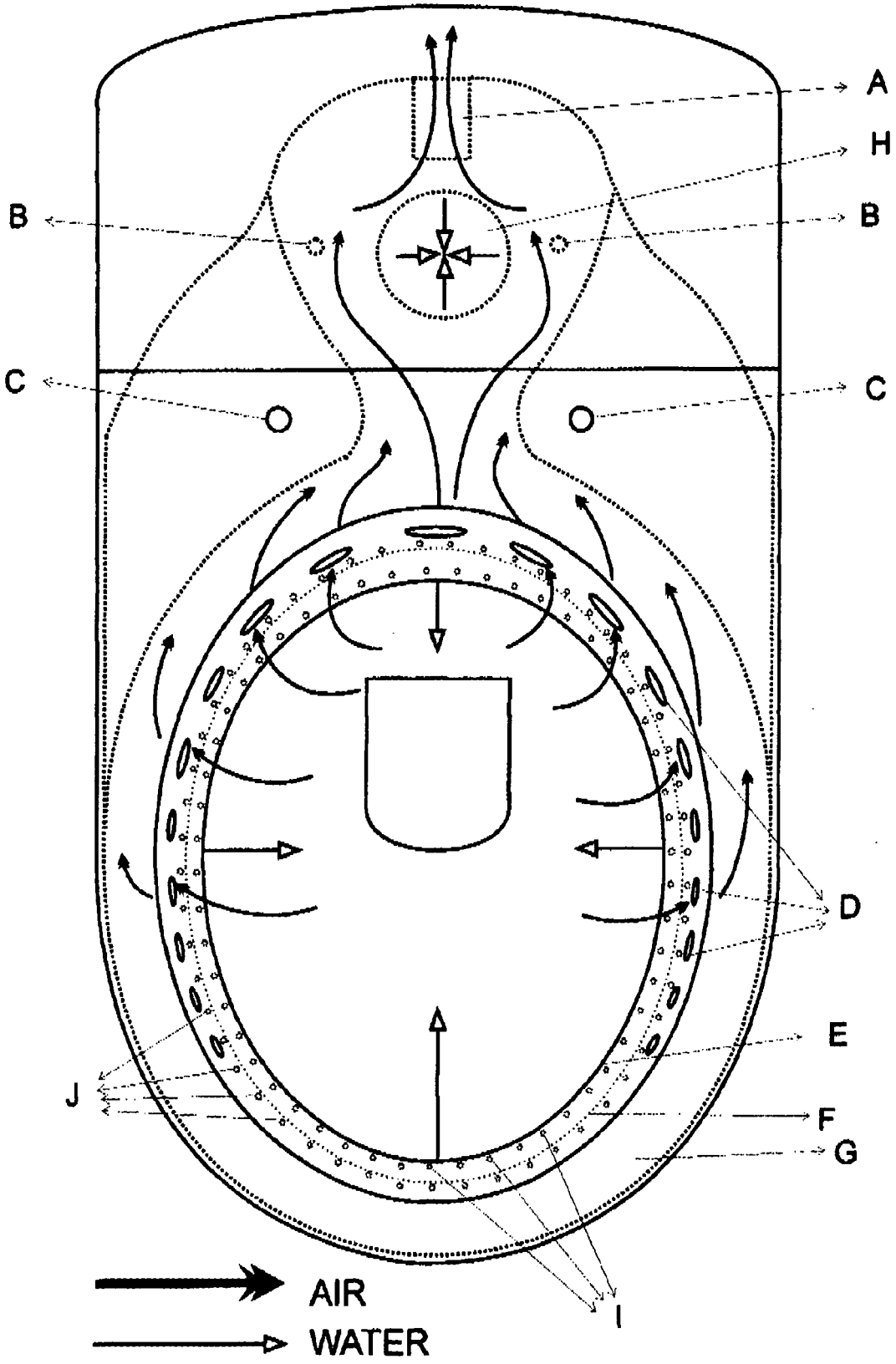
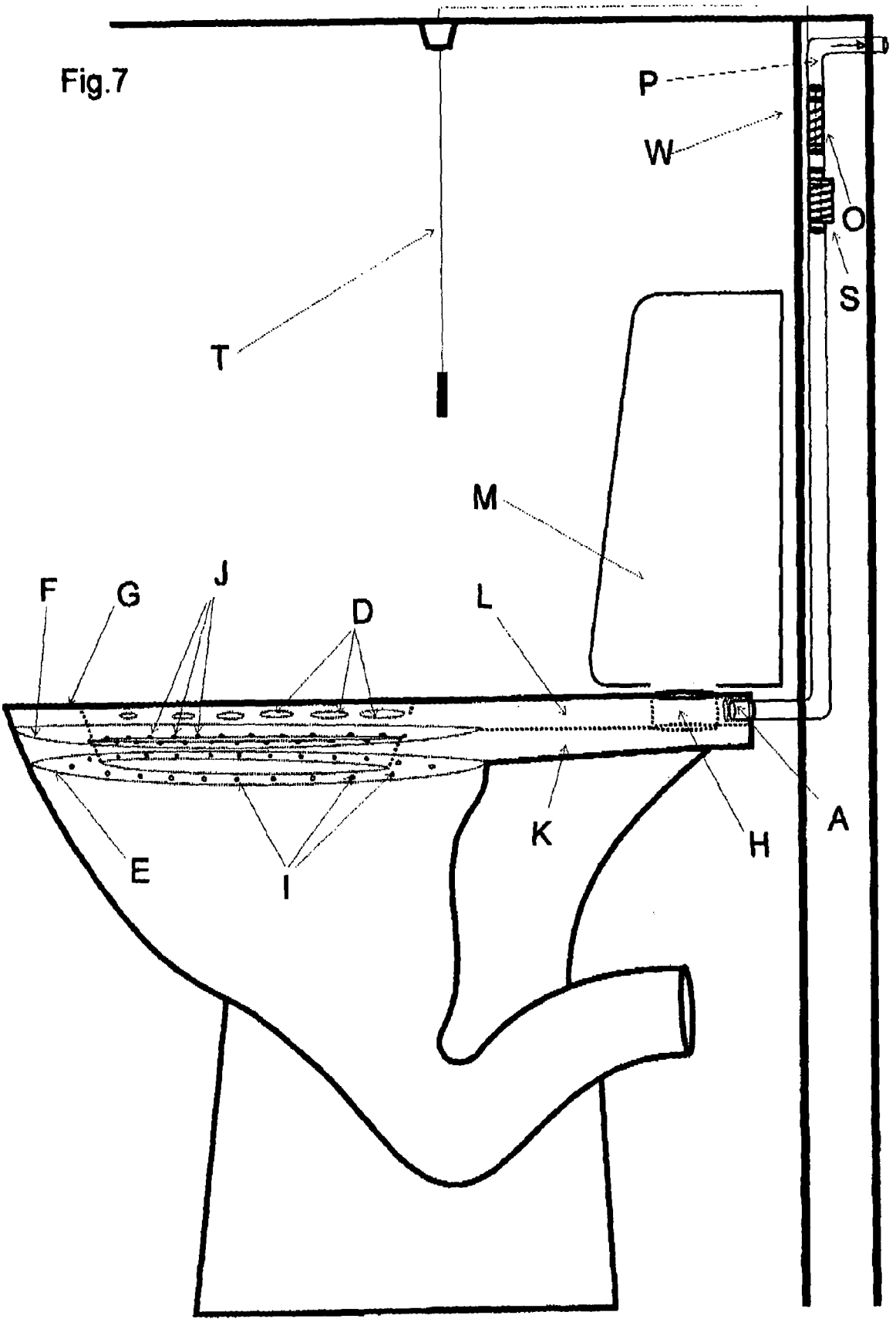


Fig.7



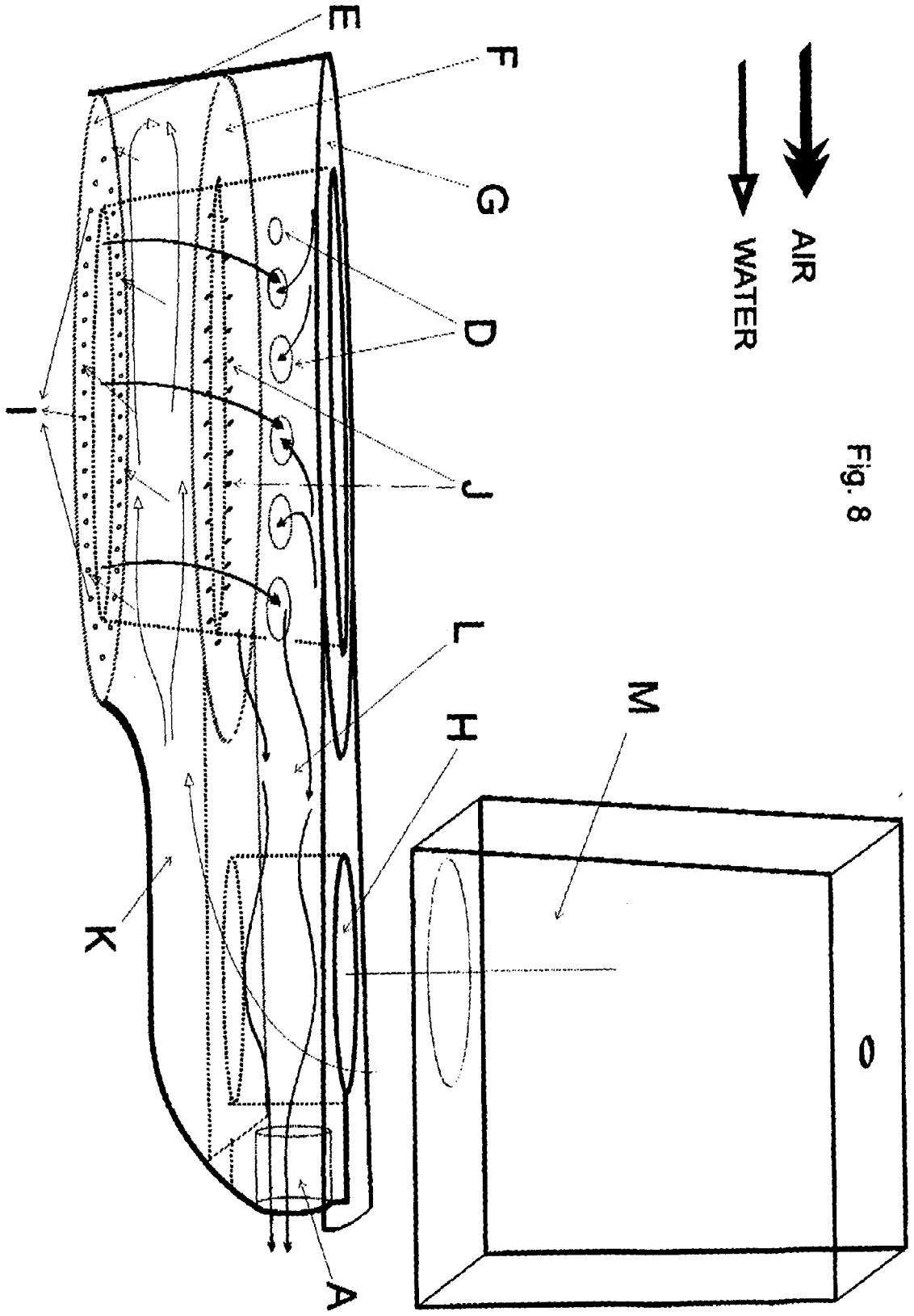


Fig. 8

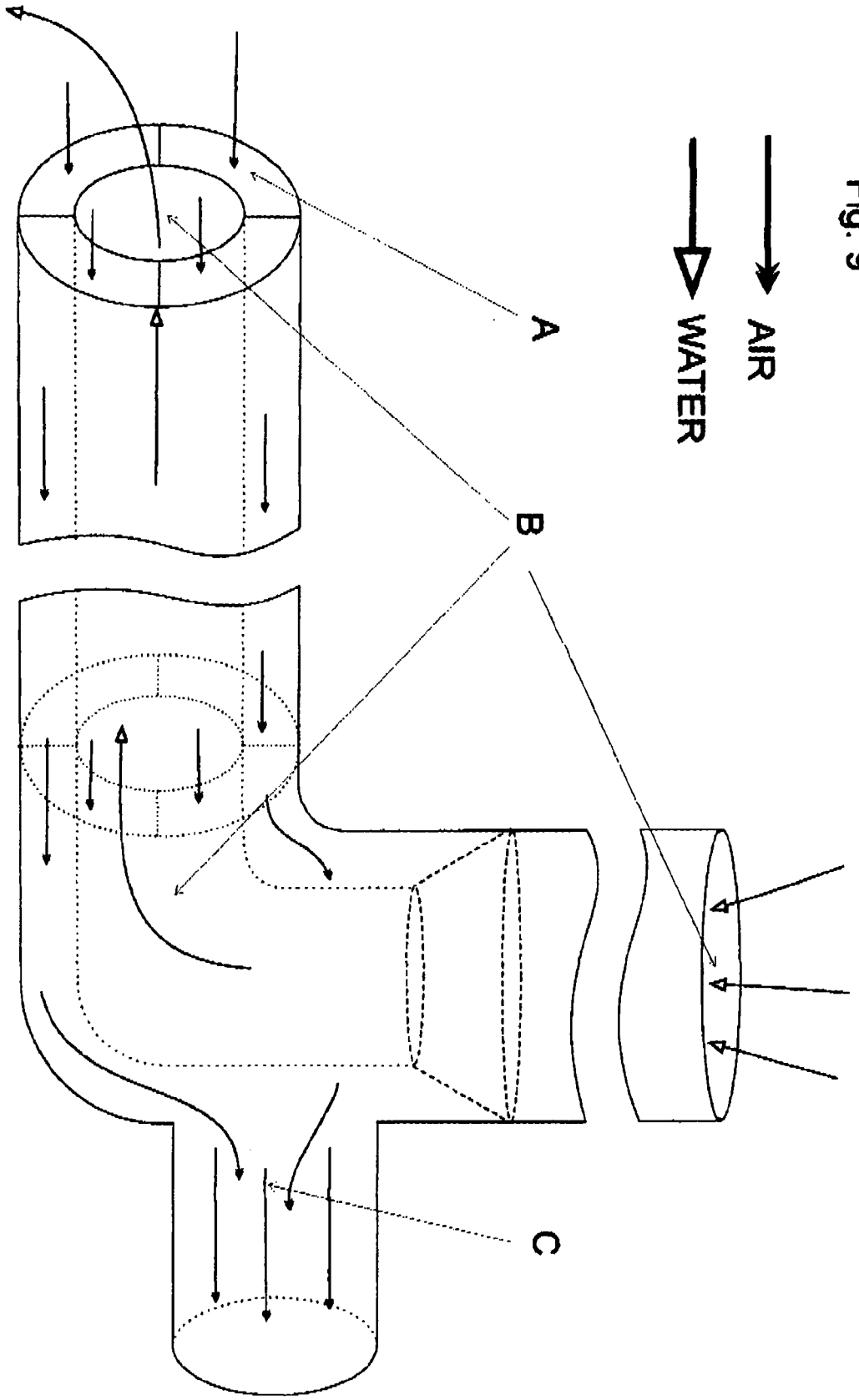


Fig. 9

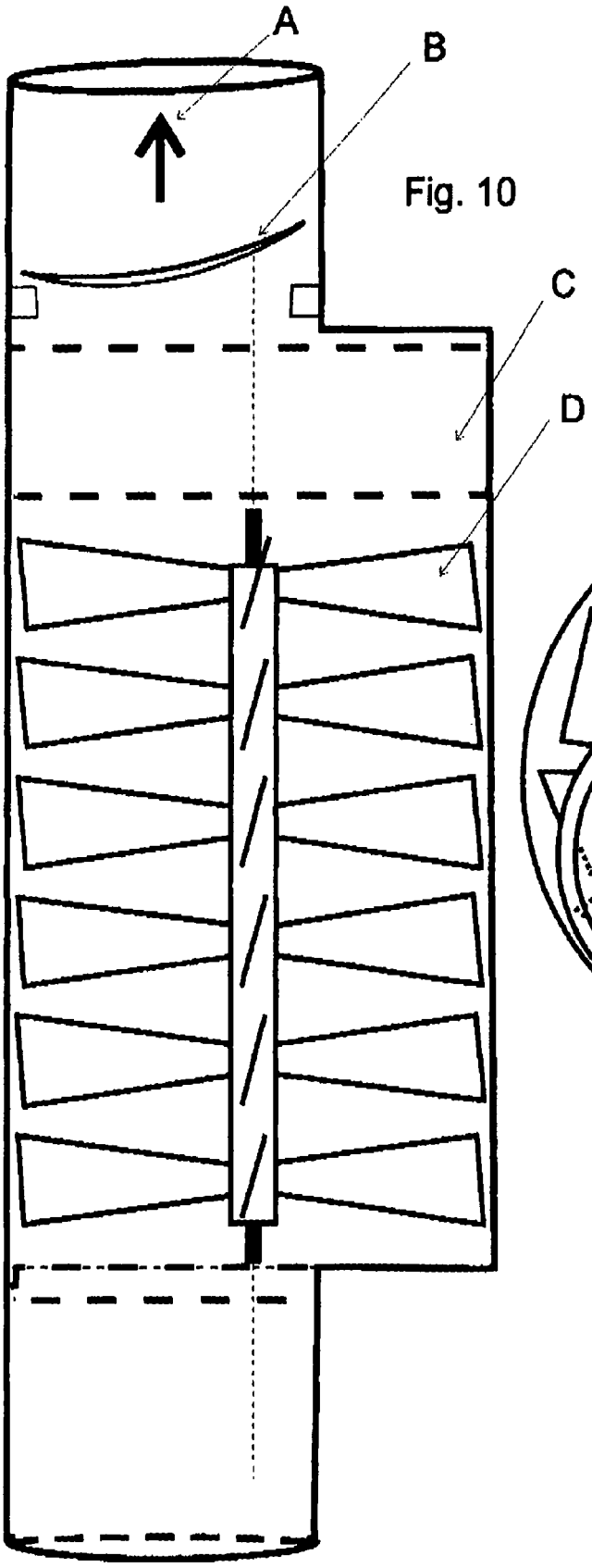


Fig. 10

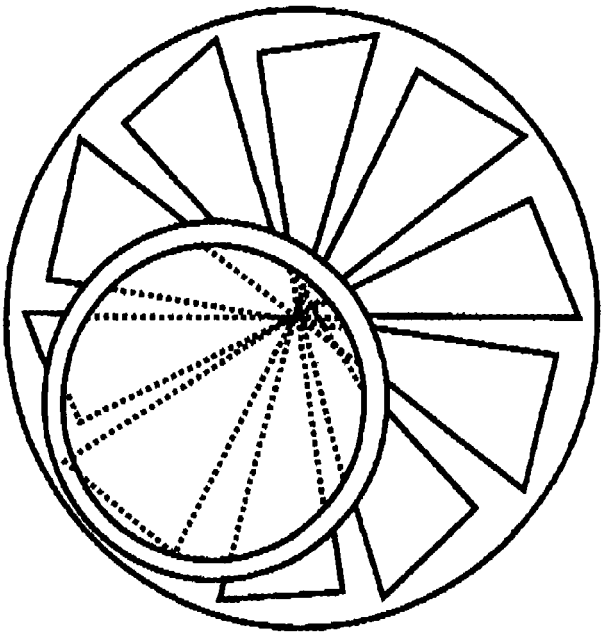


Fig. 10A

Fig. 11

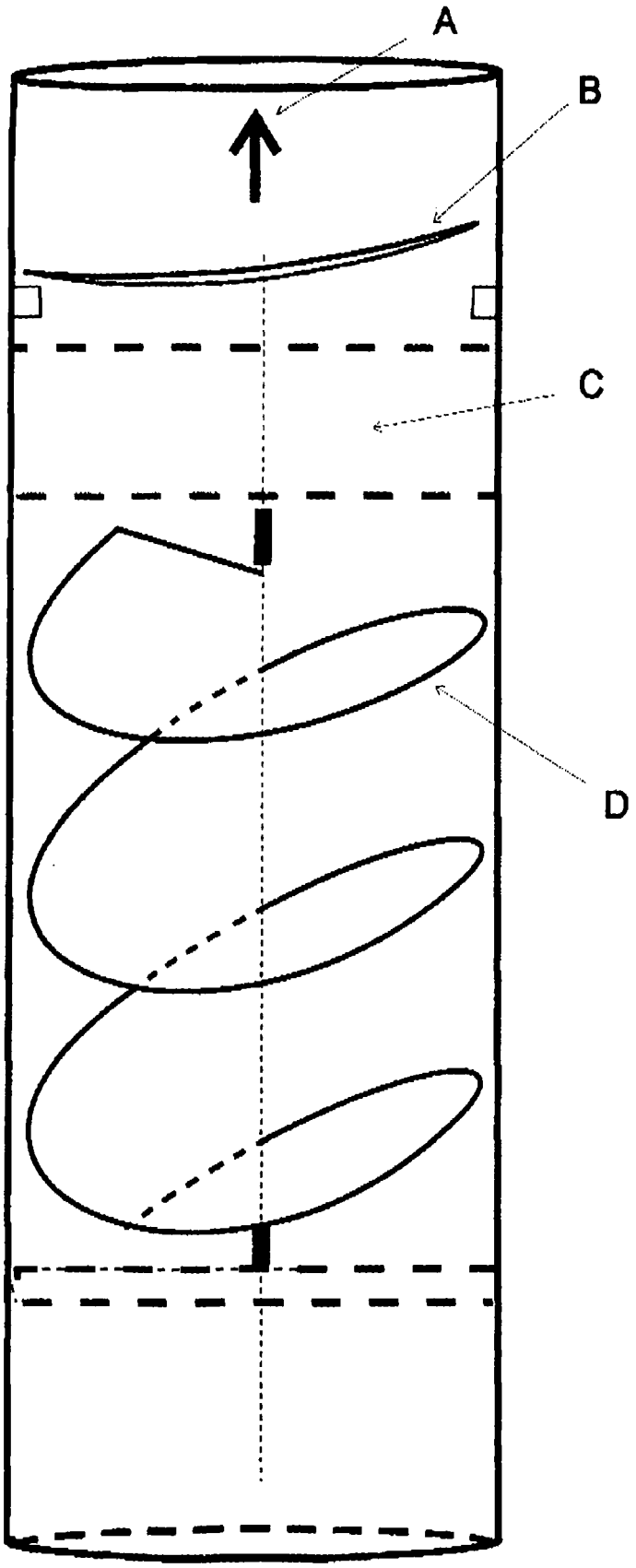


Fig. 12

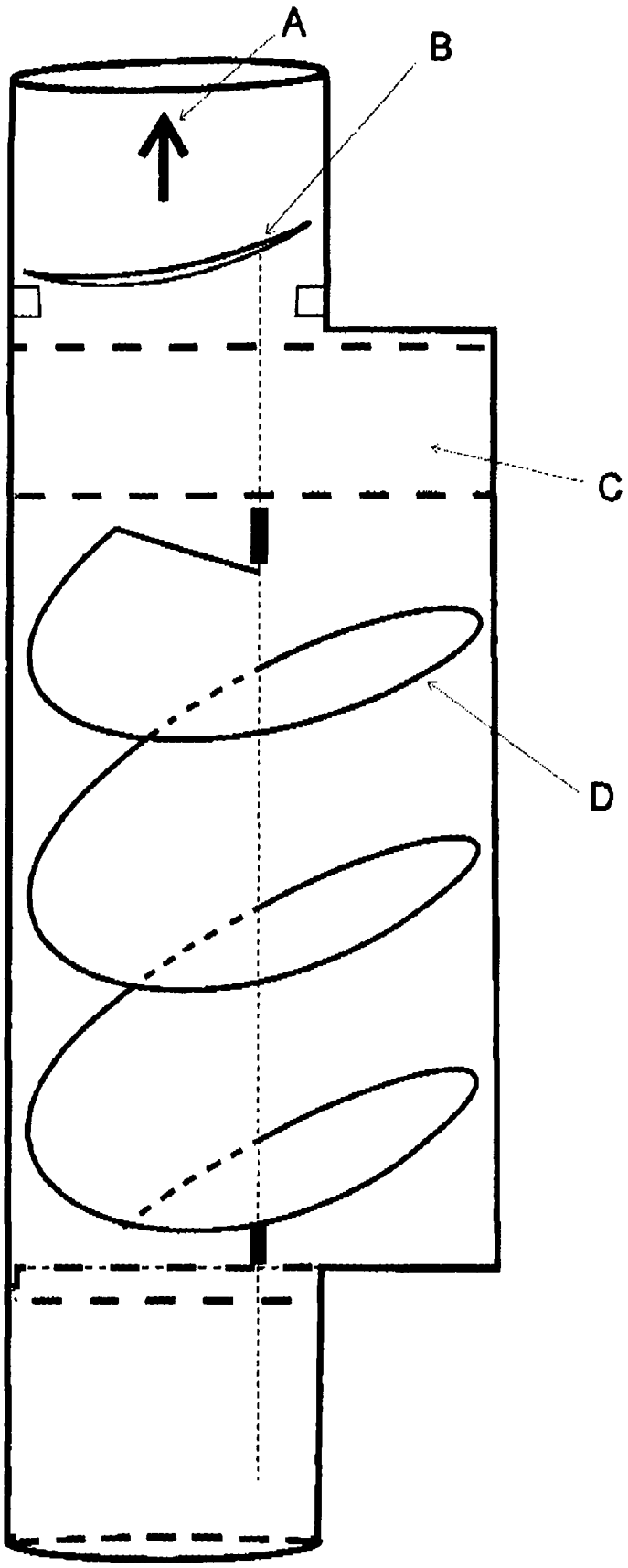


Fig.13

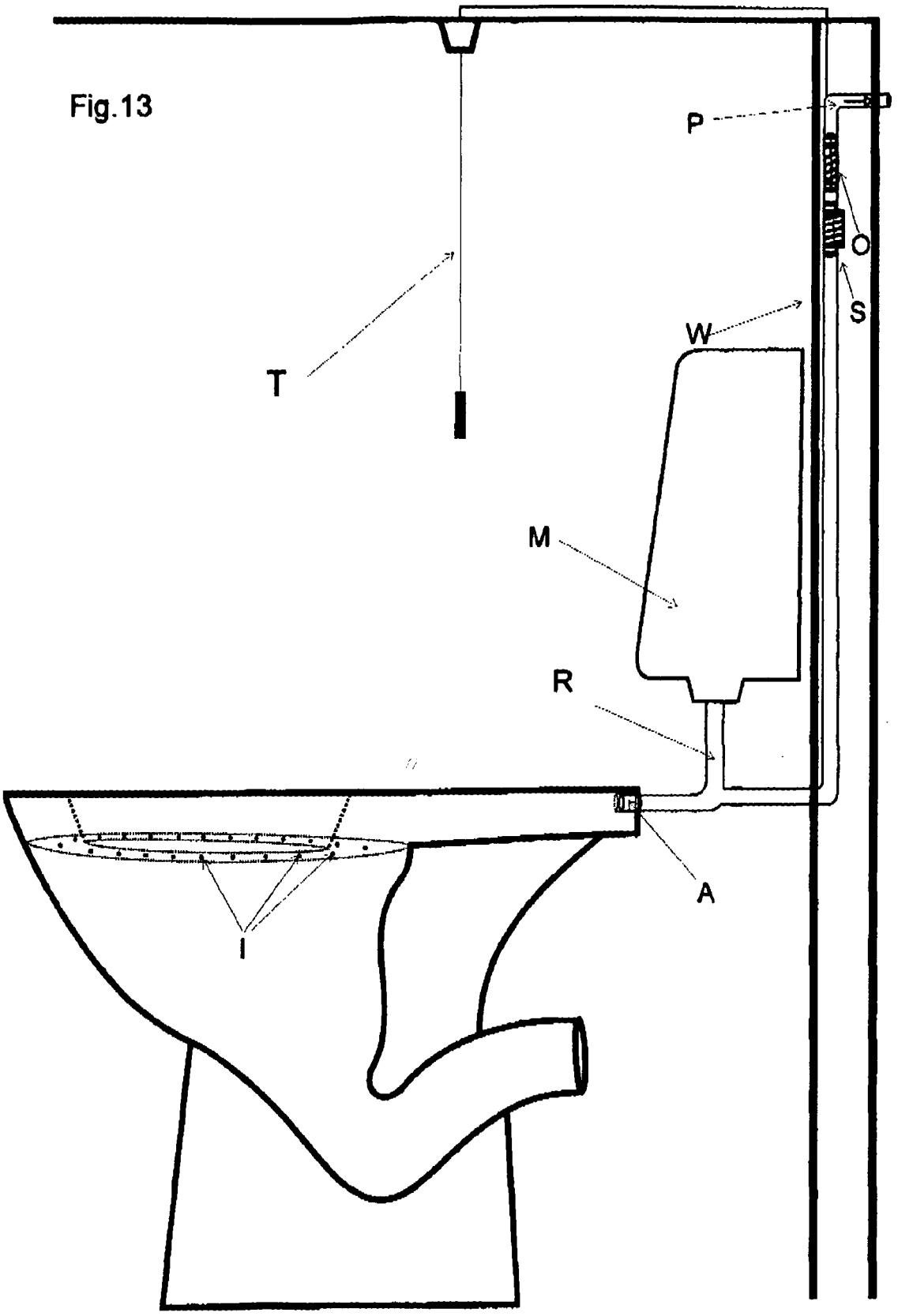


Fig. 14

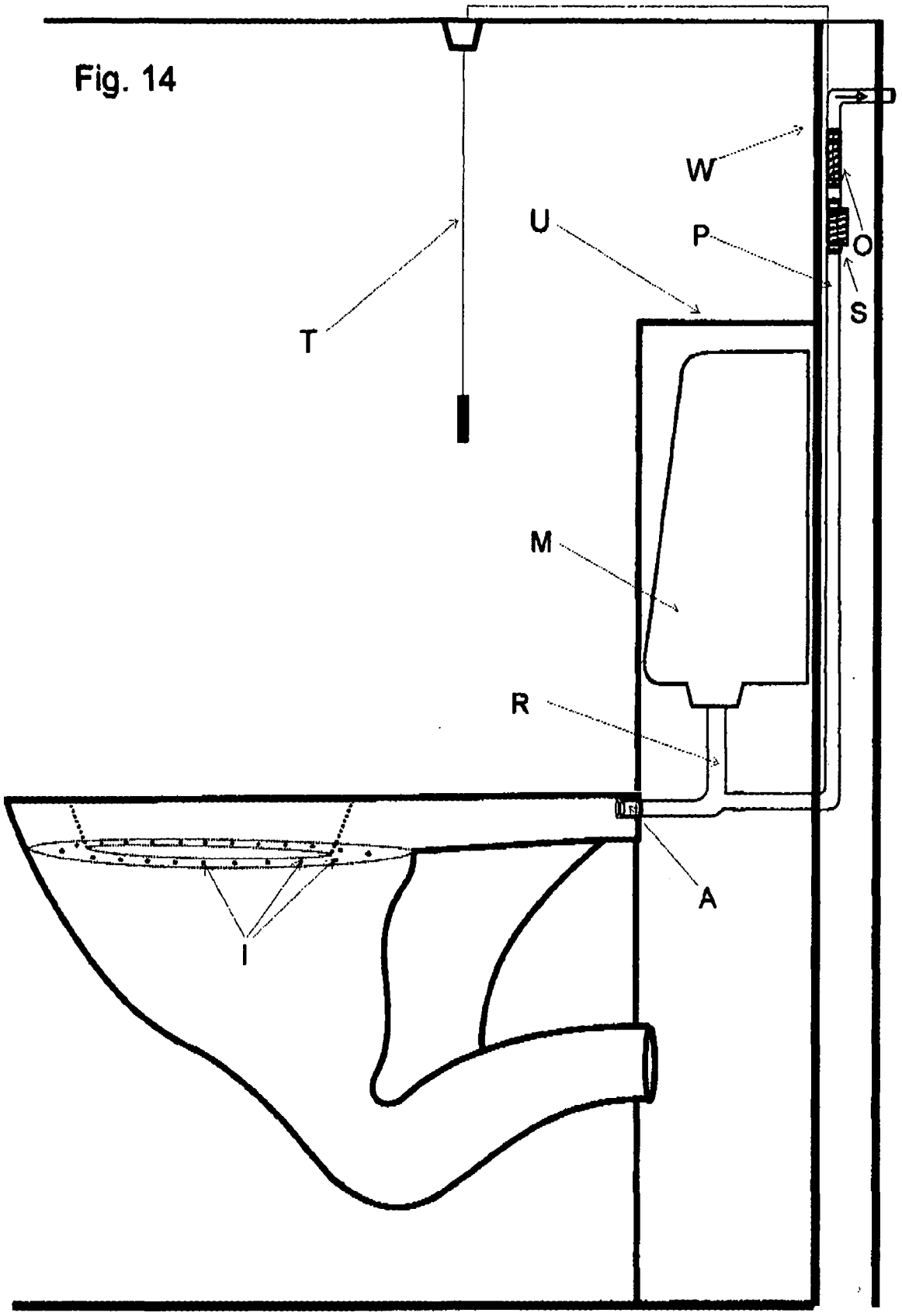
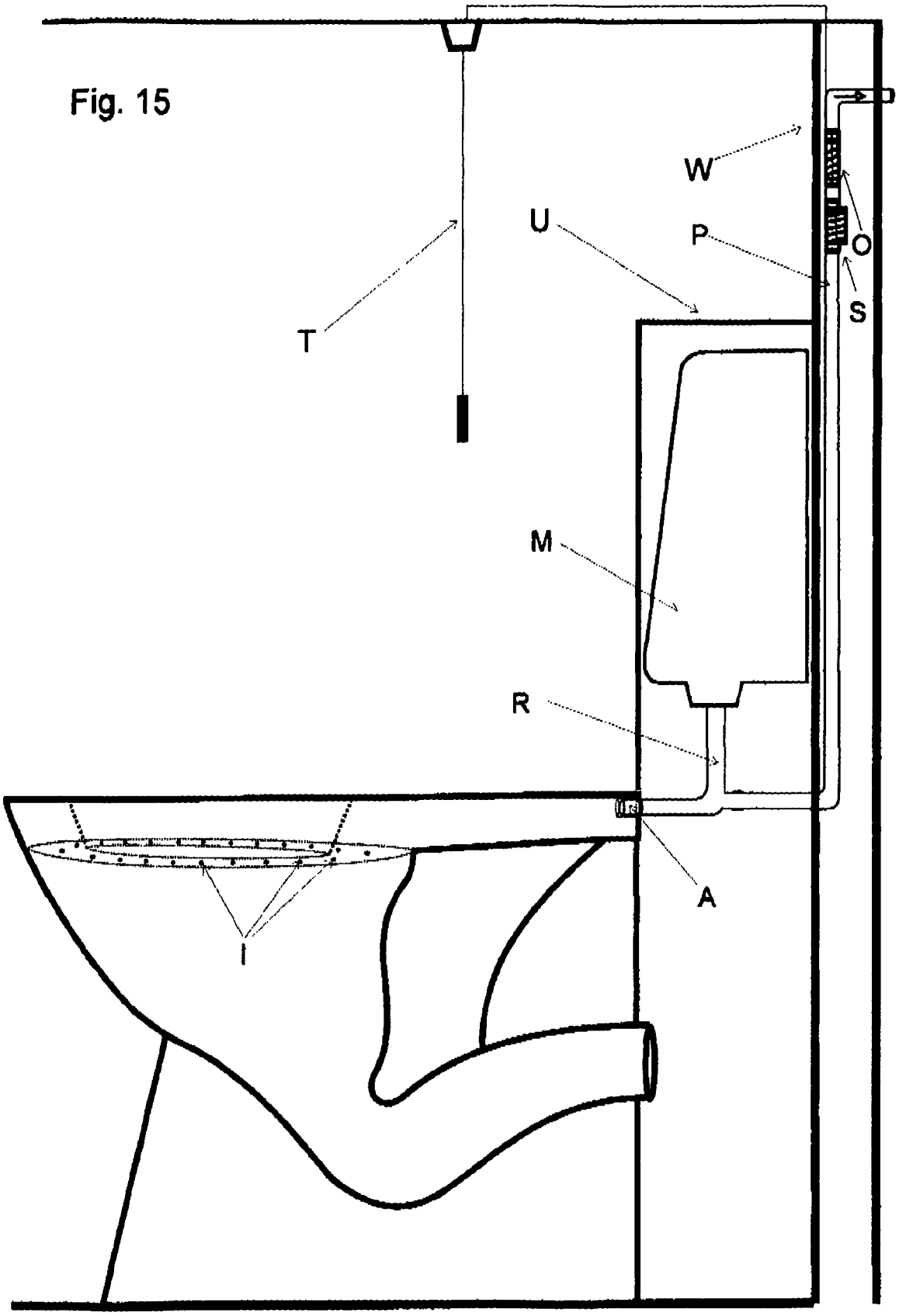


Fig. 15



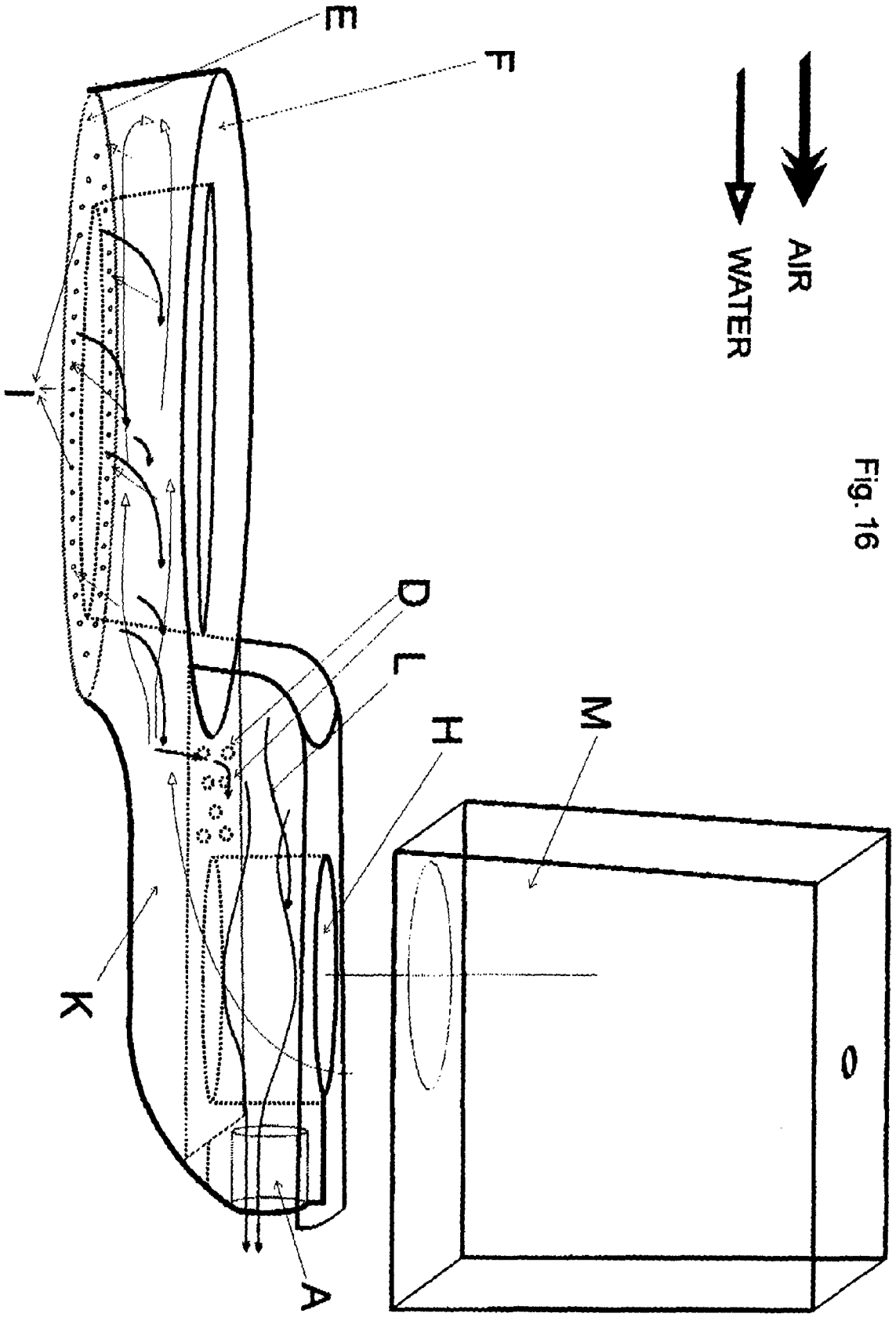


Fig. 16

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PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number
EP 10 00 3288

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	DE 573 501 C (OTTO SCHUBERT DR ING) 3 April 1933 (1933-04-03) * the whole document *	1,2,5-9 3,4,10	INV. E03D9/03 E03D9/052
Y	US 2004/210994 A1 (TURKMAN SAMSAM U [US]) 28 October 2004 (2004-10-28) * the whole document *	3	
Y	WO 02/072966 A1 (BIELLE STUDI S R L [IT]) 19 September 2002 (2002-09-19) * page 4, line 11 - line 24 *	4	
Y	DE 10 2004 014554 A1 (SCHROETER SIEGFRIED [DE]) 20 October 2005 (2005-10-20) * paragraph [0005] - paragraph [0008]; figure 1 *	10	

TECHNICAL FIELDS SEARCHED (IPC)

E03D

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
Munich	14 July 2010	Horst, Werner

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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

EPO FORM 1503 03.82 (P04E07)

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INCOMPLETE SEARCH SHEET C

Application Number
EP 10 00 3288

Claim(s) completely searchable:
1-10

Claim(s) not searched:
11

Reason for the limitation of the search:

Claim 11 does not contain any features. The statement made in the claim does not enable the skilled person to determine which technical features form the subject-matter of the claim. The claim therefore does not meet the requirements of Article 84 EPC in that the matter for which protection is sought is not clearly defined.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 00 3288

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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14-07-2010

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82