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(54) Improved dispenser for pasty substances

(57) The invention relates to an improved dose-measuring device (1) for disposable specific paste containers (2, 40) for thick liquid substances, such as tooth paste, creams and lotions, soaps and such, in which the mentioned dose-measuring device (1) consist of a back side (3), a horizontal platform (4) with ring (5), bayonet catch (45, 46) and bore (6) for discharging the squeezed out tooth paste (34) from the specific paste container (2, 40), which is provided with a piston (32) with a bottom side parabola of revolution fitting with the form-matching bottom profile (33) of the paste container (2, 40), through which no thick liquid substance is lost, in which the paste container through the mentioned piston (32) is provided with an external driven left-threaded (31) axle (30), by which a surprisingly handy and well useable dose-measuring device (1) with cylindrical disposable paste containers (2, 40) is created.

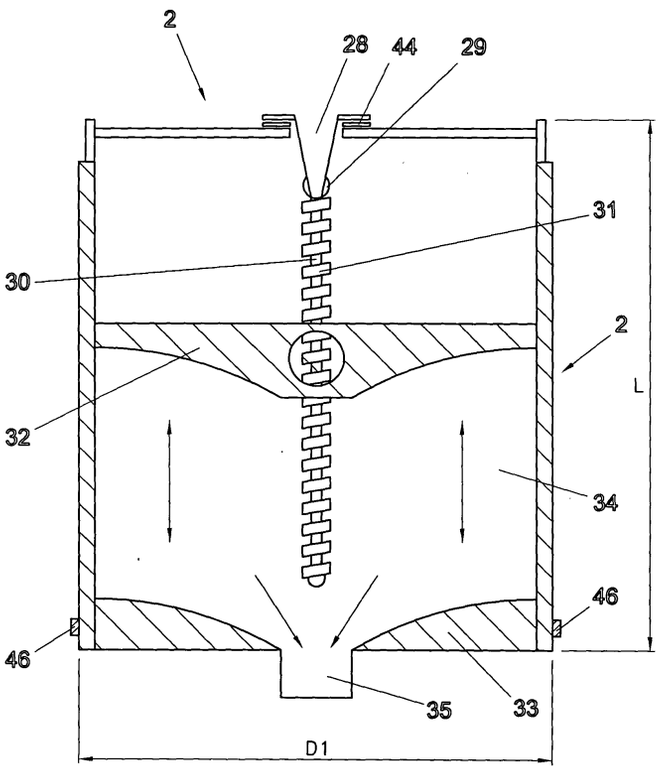

FIG. 4

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Description

[0001] The present invention relates to a dose-measuring device for replaceable paste containers with thick liquid substances, such as tooth paste, creams and lotions, gels, soaps and such, consisting of a supporting frame with closing device with means for mounting, putting under pressure, discharging and such of the thick liquid substances packed in the mentioned replaceable paste containers.

[0002] A somewhat similar device for dosing thick liquid substances or liquids with disposable containers is known from the American patent document number 4793521, titled: "DEVICE FOR DISPENSING FLUENT MATERIALS FROM CATRIDGES" from STEINER, Andy, 2309 11th Street, Two Rivers, Wisconsin 54241 and the patent is granted on 27-12-1988.

[0003] Here, it concerns a dose-measuring device (dispenser) for soap, shampoo, tooth paste and such, which consists of a casing or housing provided with a removable lid to repeatedly place matching paste catridges. The cross-section of the mentioned catridges is rectangular. The mentioned removable lid consists of a threaded axle, which at one end is provided with a piston, which pushes the lid of the mentioned catridge with, for example, soap, through which the mentioned liquid substance is squeezed out for use through an opening in the flat bottom.

[0004] The described threaded axle is driven by a pinion with shaft provided with a turning knob. Further, it is mentioned that the removable lid is spring loadedly pushed onto the placed replaceable catridges with thick liquid substances.

[0005] Further, a dose-measuring device which is very similar to the above described American Patent is known from the Dutch Patent number 1019343, filed on November 9th, 2001, titled: "DOSE-MEASURING DEVICE FOR MEASURING A PASTY SUBSTANCE", from MEEUWENOORD, Peter, Adriaan, applicant and inventor. Also this patent document concerns a support for a replaceable container with, for example, tooth paste, onto which a lid with a brace bar with a piston at the end for emptying the replaceable container through an opening in the bottom, which opening can be closed again after use with a closing cap on a hinging arm or flap. For this Dutch Patent application a PCT/NL02/00719, titled: "MEATERING DEVICE FOR MEATERING A PASTY SUBSTANCE" has been applied.

[0006] The aforementioned measuring devices have a number of disadvantages such as that the lid to be placed is provided with a threaded axle or rod in vertical height, along which a pinion shaft with a turning knob is applied for moving the piston in the replaceable container. Thus the lid gets a rather large height or has a protruding rod with a rack rail for the driveable piston, which descends into the replaceable container and can thus become dirty, and must therefore be cleaned for the next use, especially when replacing a tooth paste container for a soap container and visa versa.

[0007] Further, the replaceable containers have a flat bottom and piston, so that each time a thick liquid substance remains on the bottom of the replaceable container and can thus give a considerable loss in substance. Furthermore, with the known devices, the piston must be cleaned during replacement in case of a possible leakage of the lid and must also be turned back to the highest position before the next use, which can be annoying for a non-technical person and can stand in the way for buying such a measuring device, because for the general user these actions are not obvious.

[0008] Then the construction of the mentioned threaded axle or rod and pinion to move the piston on the lid of the container is relatively weak or the weakest link, so that after a few replacements of the paste container, it will develop mechanical failures.

[0009] All in all, for daily use by any person, the known dose-measuring devices show a number of shortcomings and disadvantages.

[0010] It is the aim of the present invention to provide such a modified or improved dose-measuring device for thick liquid substances such as soap, creams and lotions and tooth paste, in which the aforementioned disadvantages are solved and in which the device can be put onto the market in an economical way.

[0011] For this, a dose-measuring device for pasty substances, such as soap, creams and lotions and tooth paste according to the invention is further developed and/or modified in a very inventive way, characterized in that in the mentioned improved dose-measuring device is a specifically constructed replaceable cylindrical paste container, with a diameter D1 and a length L, in which in the mentioned paste container an up and down moving piston with specific underside and on that a form-matching bottom is applied with a discharge opening with a diameter D2, in which the up and down movement with a left-threaded axle is executed by the mentioned piston, in which the mentioned axle is connected torque-fixed in a special way with the turning knob of the lid of the dose-measuring device, in which a rotating stop valve with operating front is applied at the bottom/underside of the supporting frame, in which a closing device is used to keep the lid in its place, in which the paste container is kept in its place by means of a ring with bayonet catch, in which the material of the dose-measuring device and the replaceable paste containers is a rigid strong plastic.

[0012] The advantage is a very users-friendly improved dose-measuring device with for everyone easy to replace disposable paste containers for tooth paste, creams and such and which paste container can be completely emptied due to the shape of the bottom and piston.

[0013] Further, the dose-measuring device according to the invention is further developed in such a way, that the mentioned left-threaded axle for the up and down movement of the piston in the paste container is mount-

ed detachably on the upper side by means of a bush with a diameter of approximately 4 mm with sharp projections intensely contacting a hanging pin with diameter D3 of approximately 2 mm with ball knob with diameter D4 of approximately 4 mm attached moment fixed to the turning knob of the lid.

[0014] The advantage is that the mentioned protruding pin beneath the lid can easily be clamped to the threaded axle for the movement of the piston in the container with pasty substances.

[0015] Further, the dose-measuring device according to the invention is further developed in such a way, that the specifically constructed replaceable cylindrical paste container for thick liquid substances can have a diameter D1 of approximately 45 mm and can have a length L of approximately 65 to 70 mm, and that the mentioned discharge opening can have a diameter D2 of approximately 7 mm.

[0016] The advantages are containers with a suitable dimension for household and hotel use and such and in which the minimum cost for disposable plastics is created and which are very hygienic and are users-friendly.

[0017] Further, the dose-measuring device according to the invention is further developed in such a way, that the mentioned closing device consists of a springy pin construction, which can block the compression spring loaded double back side to keep the lid with turning knob on the paste container.

[0018] The advantage is that the back side with lid can be placed solidly and thoroughly onto the container with pasty substance.

[0019] Furthermore, the dose-measuring device according to the invention is further developed in such a way, that the mentioned left-threaded axle of the paste container is directly coupled to the upper side with a diabolic-shaped axle to the turning knob and thus forms a whole with the disposable paste container.

[0020] The advantage is a more simplified embodiment of the invention.

[0021] The preferred construction of the invention will be described by way of example, and with reference to the accompanying drawing.

[0022] In which:

Fig. 1 shows a front view in perspective of the improved dose-measuring device provided with the specific paste container for thick liquid substances, according to a preferred embodiment of the invention;

Fig. 2 Shows ditto as figure 1, but here the specific paste container for thick liquid substances such as tooth paste is omitted and the springy mechanism for blocking the lid on the mentioned container is shown in exploded view;

Fig. 3 shows a vertical cross-section over the line III-III of figure 2;

Fig. 4 shows a vertical cross-section over the mentioned disposable specific paste container for thick liquid substances, such as tooth paste, according to a preferred embodiment of the invention;

Fig. 5 shows a vertical cross-section also over the line III-III of figure 2 according to a second preferred embodiment of the invention; and

Fig. 6 shows a vertical cross-section over a second embodiment of the disposable paste container.

[0023] Figure 1 shows a front view in perspective of the improved dose-measuring device 1 provided with the specific paste container 2 for thick liquid substances, such as tooth paste, creams and lotions and such according to a preferred embodiment of the invention. The improved dose-measuring device 1 consist of a back side 3 and right angled thereon protruding a horizontal platform 4 with ring 5, provided with bayonet catch 45, 46 for supporting the mentioned paste container 2, in which in the centre of the ring 5 a bore 6 (see figure 2) is applied for the discharge of the thick liquid substances, in this case the tooth paste, creams and such, in which hinging at the bottom side of the platform 4 a closing flap 7 with control front 8 is applied.

[0024] After placing the specific paste container 2 on the platform 4 with ring 5, provided with bayonet catch 45, 46 the lid 9 with turning knob 10 is pushed onto the paste container 2 and is kept in place with a closing device 11 with springy pin construction.

[0025] By operating the turning knob 10 in the direction of arrow A, for example, the tooth paste can flow out of the paste container 2 through the bore 6 and transparent discharge channel 36, for which the closing cap 7, as shown in figure 3 with the control front 8 must be turned downwards. The tooth brush 12 can afterwards be slided in the space 13 and pushed on a moveable bottom flap 14, through which by means of a rod 15 the closing flap 7 is closed again due to the eccentric axis of rotation 16. Onto the closing flap 7 a removable closing cap 17 is applied.

[0026] Further, also two projections 18 on the upper part 19 of the back side 3 and two projections 20 in a space 21 can be applied for storing the brush part of an electric tooth brush. Furthermore, on the dose-measuring device 1 a removable draining rack for tooth brushes can be removed by means of a removing lip 22. See also patent document PCT/NL02/00719 for further details.

[0027] Further, suspension can be done by applying double sided tape on the rear of the back side 3, through which walls do not have to be damaged in, for example, the bathroom.

[0028] Figure 2 shows the same preferred embodiment of the invention, but now the according to the concerned specific constructed paste container 2 is omitted in order to clearly show the spring loaded locking of the back side 3. In this case the closing device 11 with springy pin construction blocks the spring loaded double

back side 23 with compression springs 24, 25, in which the back side can move over a certain length and stops against a beam.

[0029] Figures 3 and 4 show the coupling with a protruding and hanging pin 26 with ball knob 27 and the bush 28 with sharp projections 29 to connect the ball knob 27 torque-fixed with the vertical axle 30 provided with a left-thread 31 for the up and down movement of the piston 32 with a bottom side constructed as a parabola of revolution, fitting with the form-matching bottom profile 33.

[0030] By turning the turning knob 10 preferably tooth paste 34 is squeezed out by piston 32 through the opening 25 and comes in the bore 6 of figure 3 to come, according to the arrows B and C, onto the tooth brush 12 through an easy to clean removable paste tube 36, in which the stop valve is positioned in position X.

[0031] Figure 4 shows a first preferred embodiment of the paste container 2 and is mostly used for tooth paste 34. The cylindrical paste container 2 has a preferred dimension D1 of approximately 45 mm and a length L of approximately 65 to 70 mm.

[0032] The diameter D2 of the bore 6 (figure 3) is preferably approximately 7 mm. The diameter D3 of the hanging pin 26 is approximately 2 mm and the diameter of the ball knob 27 is approximately 4 mm.

[0033] Figures 5 and 6 show a cross-section of a second simplified preferred embodiment of the dose-measuring device 1. Equal parts are indicated with the same number, while the simplified paste container 40 is directly connected with a diabolo-shaped axle 39 with the axle 30 of the piston 32. The dimensions are the same and the paste container 40 is kept in its place by means of the bayonet catch 45, 46 in the ring 5 and the further working is the same. Beneath the turning knob 10 a rubber ring 44 is applied.

[0034] In figure 1 the paste container 2 is provided with a wrapper 37 with an advertisement, logo's, marks and such, but has a slotted opening 38 to be able to see the position of the piston 32 or the remaining filling height of the tooth paste or cream.

[0035] Finally it has to be emphasized, that the above description constitutes preferred embodiments of the invention, but that further variations and modifications are still possible without departing the scope of this patent document.

Claims

1. Dose-measuring device for replaceable paste containers with thick liquid substances, such as tooth paste, creams and lotions, gels, soaps and such, consisting of a supporting frame with closing device with means for mounting, putting under pressure, discharging and such of the thick liquid substances packed in the mentioned replaceable paste containers, **characterized in that**, in the mentioned improved dose-measuring device (1) is a specifically constructed replaceable cylindrical paste container (2, 40), with a diameter D1 and a length L, in which in the mentioned paste container (2, 40) an up and down moving piston (32) with specific bottomside and on that a form-matching bottom is applied with a discharge opening (35) with a diameter D2, in which the up and down movement with a left-threaded (31) axle (30) is executed by the mentioned piston (32), in which the mentioned axle (30) is connected torque-fixed in a special way with the turning knob (10) of the lid (9) of the dose-measuring device (1), in which a rotating stop valve (7) with operating front (8) is applied at the bottom or underside of the supporting frame, in which a closing device (11) is used to keep the lid (9) in its place, in which the paste container (2, 40) is kept in its place by means of a ring (5) with bayonet catch (45, 46), in which the material of the dose-measuring device (1) and the replaceable paste containers (2) is a rigid strong plastic.

2. Dose-measuring device as claimed in claim 1, **characterized in that**, the mentioned left-threaded (31) axle (30) for the up and down movement of the piston (32) in the paste container (2) is mounted detachably on the upper side by means of a bush (28) with a diameter of approximately 4 mm with sharp projections (24) intensely contacting a hanging pin (26) with diameter D3 of approximately 2 mm with ball knob (27) with diameter D4 of approximately 4 mm attached moment fixed to the turning knob (10) of the lid (9).

3. Dose-measuring device as claimed in claim 1, **characterized in that**, the mentioned left-threaded (31) axle (30) of the paste container (40) is directly coupled to the upper side with a diabolic-shaped axle (39) to the turning knob (10) and thus forms a whole with the disposable paste container (2).

4. Dose-measuring device as claimed in claim 1, **characterized in that**, the specifically constructed replaceable cylindrical paste container (2) for thick liquid substances (34) can have a diameter D1 of approximately 45 mm and can have a length L of approximately 65 to 70 mm.

5. Dose-measuring device as claimed in claims 1 - 3, **characterized in that**, the mentioned discharge opening (35, 6) can have a diameter D2 of approximately 7 mm.

6. Dose-measuring device as claimed in claim 1, **characterized in that**, the bottom side of the mentioned up an down moveable piston (32) has the shape of a parabola of revolution, in which the bottom (33) with the discharge opening (35), as far as the shape

accurately fits.

7. Dose-measuring device as claimed in aforementioned claims, **characterized in that**, the dose-measuring device (1) is a coloured plastic, the paste container (2, 40) a transparent plastic and that the piston (32), the axles (30, 26, 39) and such are of the plastic nylon.

8. Dose-measuring device as claimed in claims 1 - 6, **characterized in that**, the cylindrical surface of the transparent paste container (2,40) can partly be encircled by a wrapper provided with marks, colours, logo's, texts and such, in which it has a vertical slotted opening (38) in order to see the position of the piston (32).

9. Dose-measuring device as claimed in claim 1, **characterized in that**, the mentioned closing device (11) consists of a springy pin construction, which can block the compression spring loaded double back side (23) to keep the lid (9) with turning knob (10) on the paste container (2).

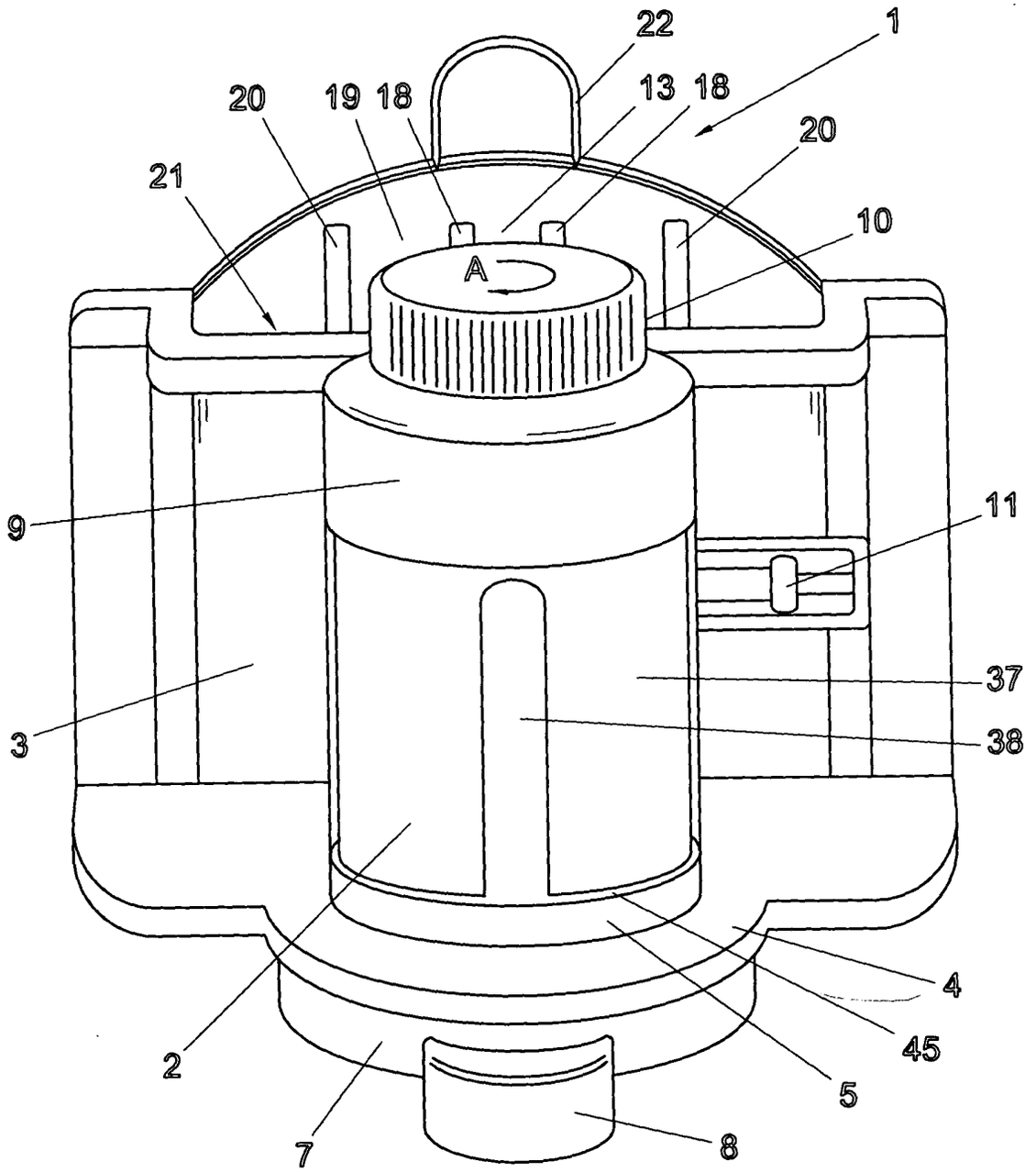

FIG. 1

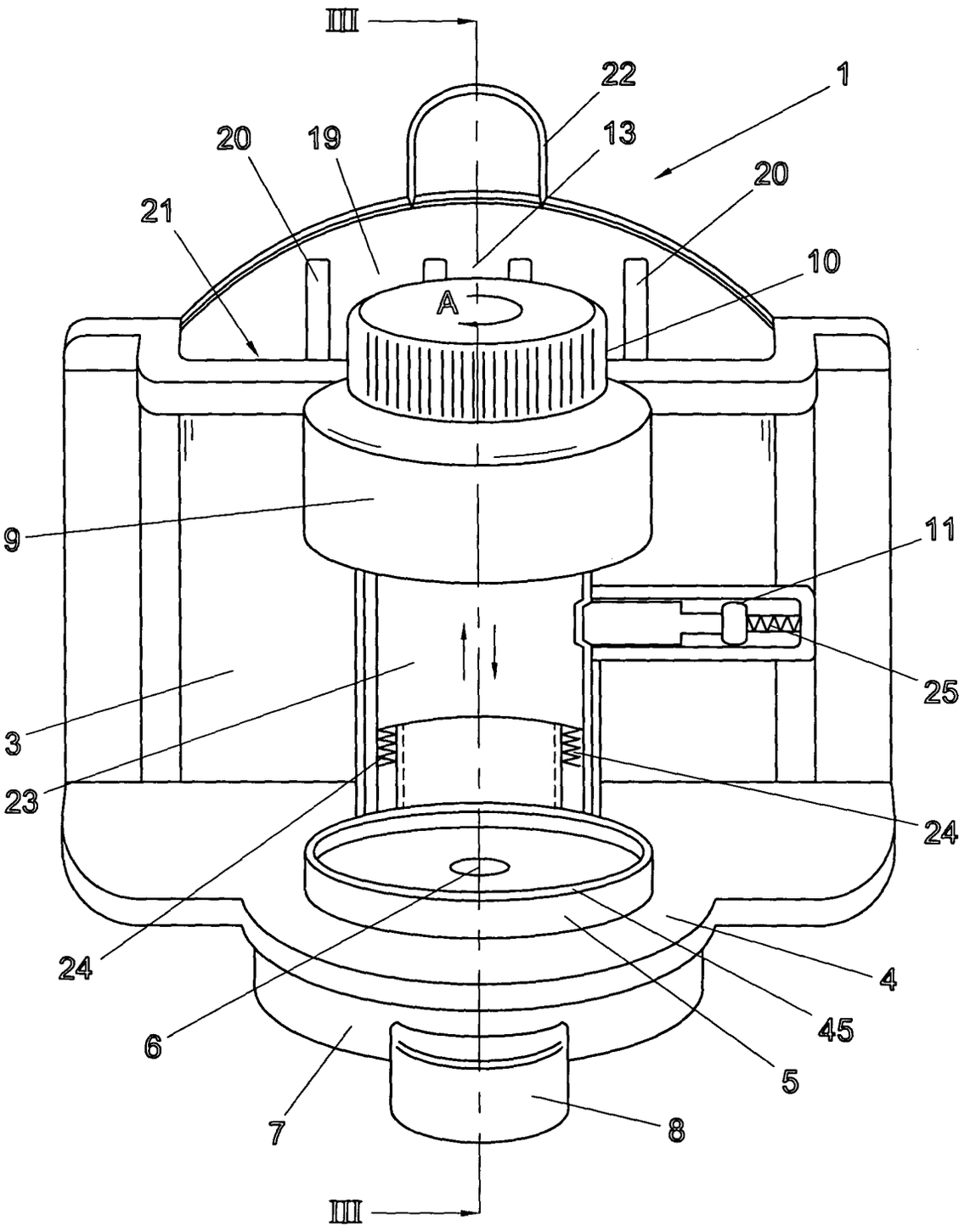

FIG. 2

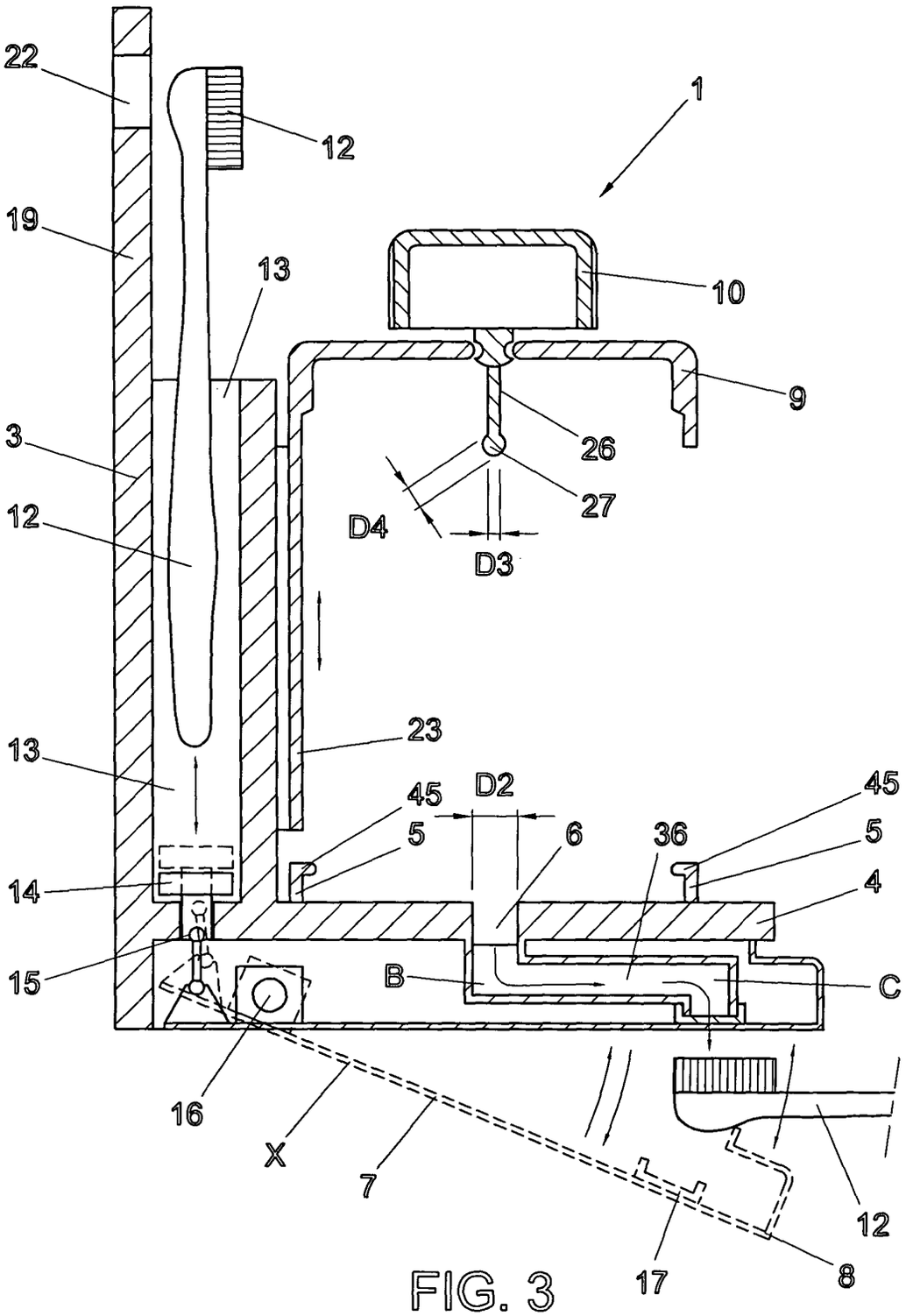
22
12
1
19
13
10
9
3
26
27
12
D4
D3
23
13
45
D2
45
5
6
36
5
14
4
15
B
C
16
X
7
12
17
8

FIG. 3

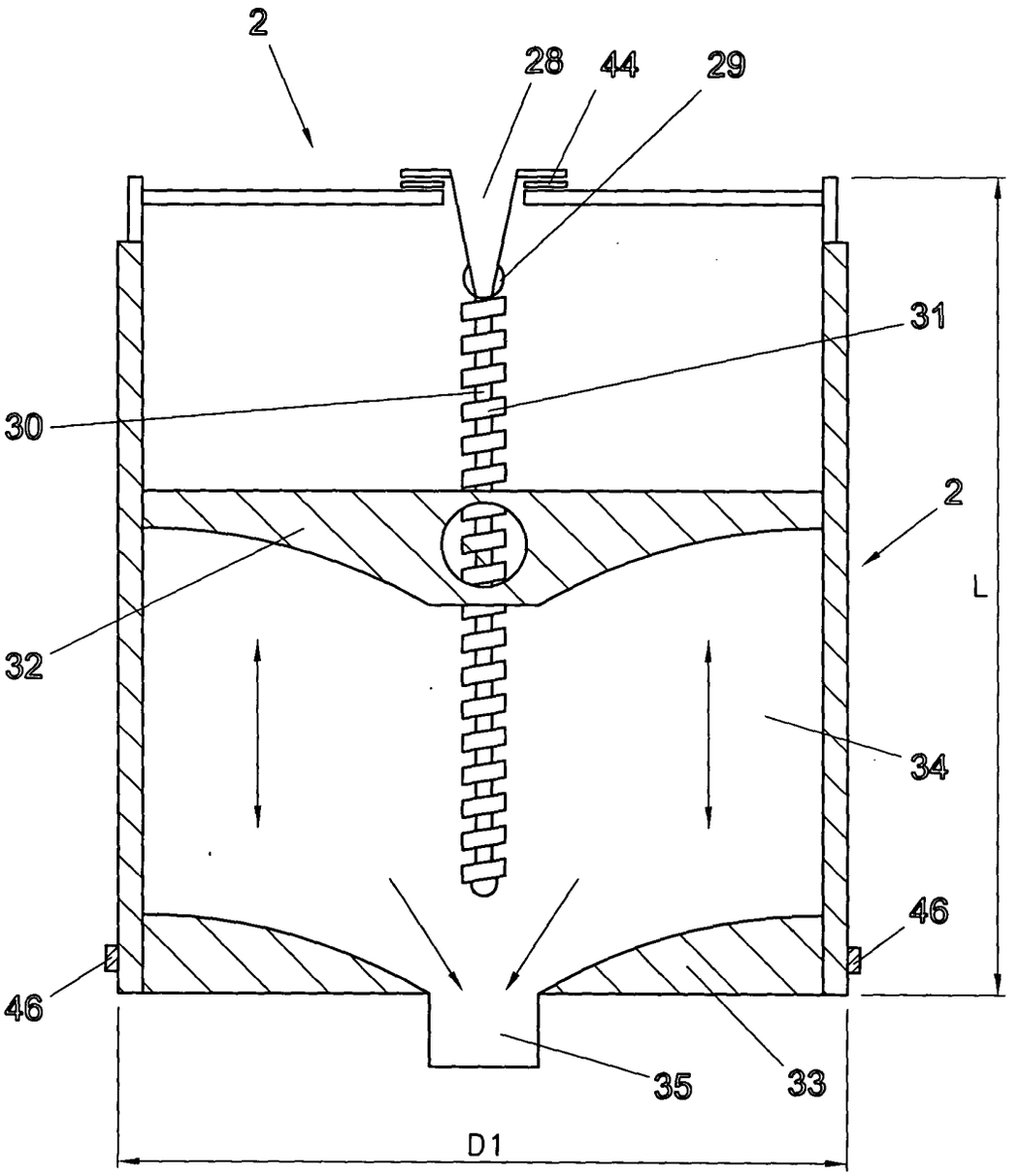

FIG. 4

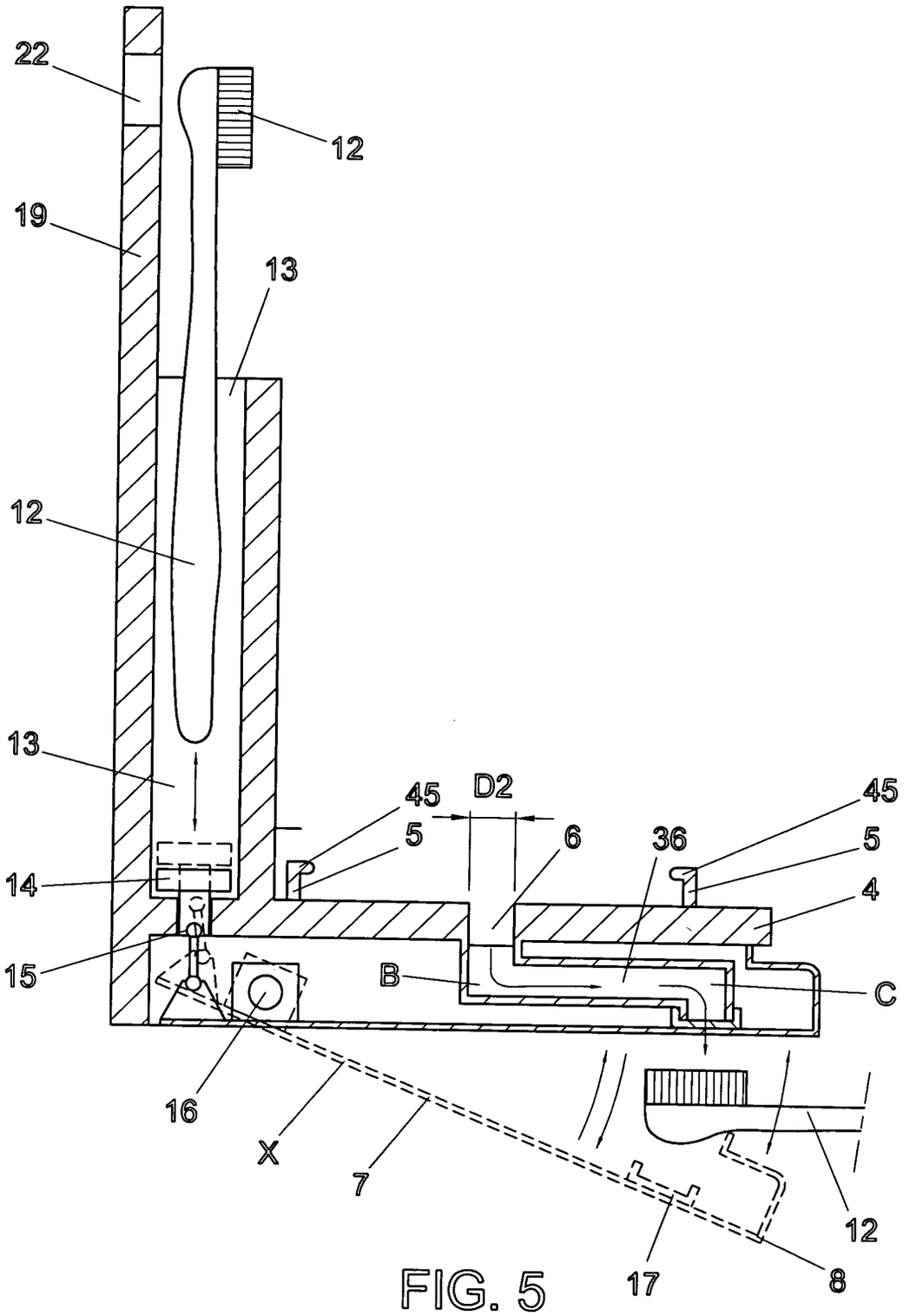

FIG. 5

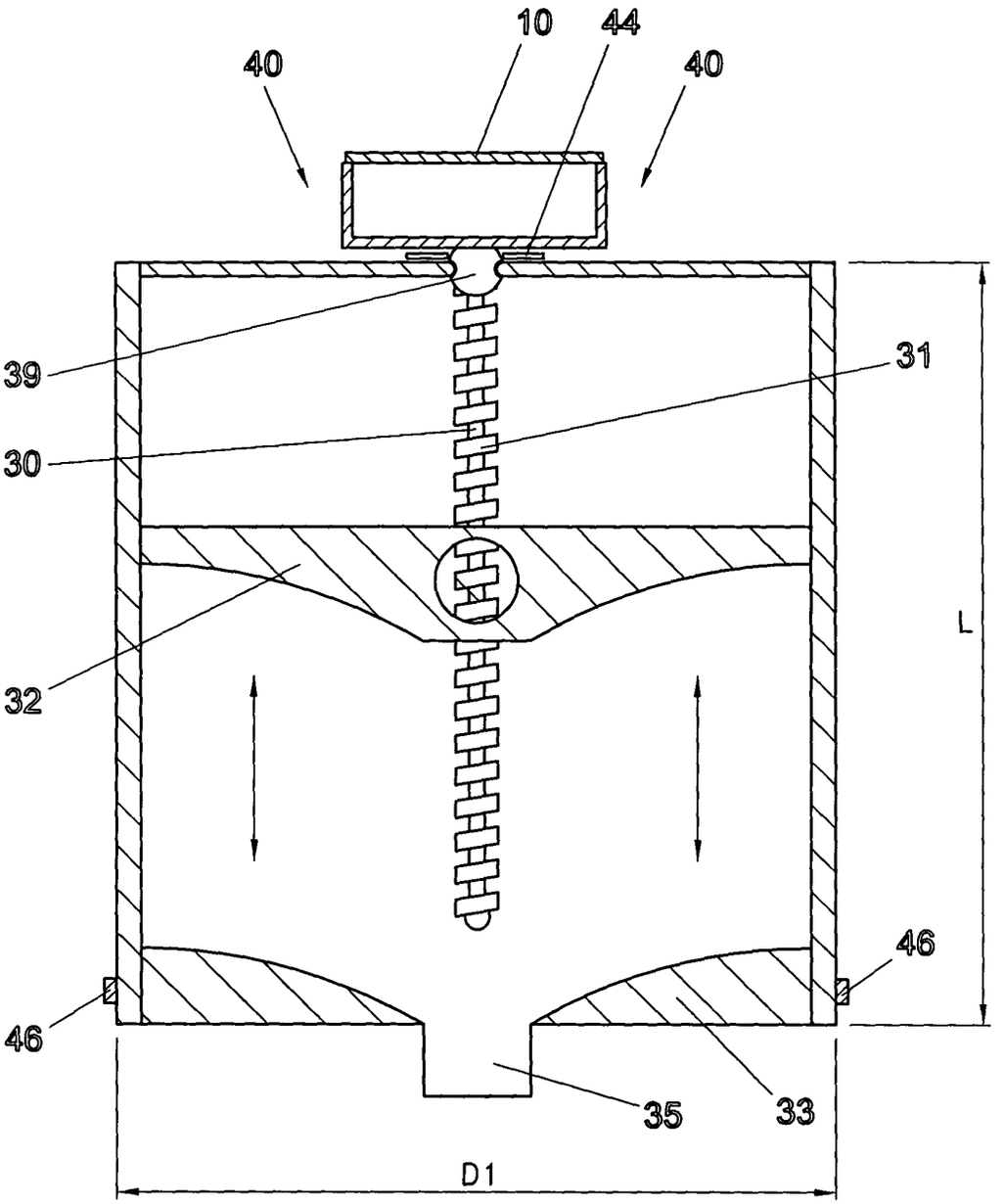

FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 03 07 8281

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.7)
D,Y	WO 03 039312 A (MEEUWENOORD PIETER ADRIAAN) 15 May 2003 (2003-05-15) * page 4, line 11 - page 6, line 22; figures 1,2 *	1-9	A47K5/12
Y	DE 441 677 C (PURITAS GES M B H;TECHN UND CHEM TECH FABRIKATE) 7 March 1927 (1927-03-07) * page 2, line 33 - line 36; figure 1 *	1-9	
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A	US 5 482 187 A (EDWARDS JAMES H ET AL) 9 January 1996 (1996-01-09) * column 5, line 11 - line 16 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47K B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	12 February 2004	Zuurveld, G

CATEGORY OF CITED DOCUMENTS

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12-02-2004

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