



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.09.2002 Bulletin 2002/38

(51) Int Cl.7: **B67D 3/00**

(21) Application number: **02251325.3**

(22) Date of filing: **26.02.2002**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

- **Painter, Ian Norman
Wan Chai Hong Kong (JP)**
- **Finnegan, Robert Martin
Oxford OX2 6DU (GB)**
- **Thorpe, Martin
Oxfordshire OX29 8DB (GB)**
- **Chew, Lionel
MC 9800 Monaco (MC)**
- **Hamilton, Douglas
London N1 9RL (GB)**

(30) Priority: **16.03.2001 GB 0106518**

(71) Applicant: **Watson Enterprises (Bahamas)
Limited
Nassau, New Providence (BS)**

(74) Representative: **Craske, Stephen Allan
Craske & Co.
Patent Law Chambers
15 Queens Terrace
Exeter South Devon EX4 4HJ (GB)**

(72) Inventors:
• **Sheridan, Kenneth
Sindlesham Wokingham RG41 5RF (GB)**

(54) **Beverage dispenser**

(57) A water cooler has three vertically elongate arcuate walls 2, 3 and 4 and a removable top cover 6 which is adapted to receive and support an inverted bottle with its neck passing through an aperture 15 in the top cover. An internal platform is mounted below the top cover to receive a removable coupling member which incorporates a feed tube for insertion into the neck of the container. The platform also contains an opening in registration with a thermal receptacle mounted below said platform for receiving a reservoir connected to the feed tube to receive water from the container, and may also receive other replaceable components such as an air filter. An apertured ventilation duct 5 extends vertically at the junction between the side walls 3 and 4 and is rigidly connected to two structural members by the platform, a base plinth 1 and an internal bulkhead. The front wall 2 is fixed to the two structural members by screws while the side walls have hook formations which engage slots in the structural members and the duct.

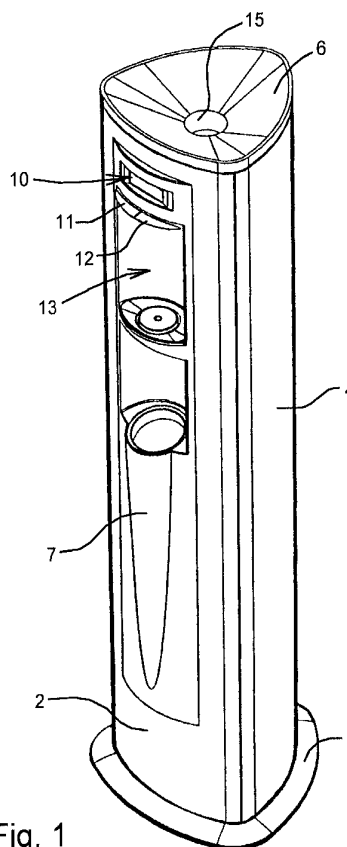


Fig. 1

Description

TECHNICAL FIELD OF THE INVENTION

[0001] This invention relates to beverage dispensers of the kind which dispense cooled, ambient and/or heated liquids, which are supplied from a bottle or similar container mounted on the dispenser.

BACKGROUND

[0002] Beverage dispensers commonly found in offices and similar premises are rectangular in plan view with four vertically elongate sides. Generally, the rear of the dispenser is substantially open to permit free air circulation and cooling. Consequently, such dispensers tend to occupy a considerable amount of space, and they must also be situated to permit adequate ventilation.

[0003] The liquid to be dispensed (generally water) is transferred from the container into a holding reservoir within the dispenser, wherein the liquid may be cooled or heated before being dispensed from a valve into a cup or other receptacle. In order to improve the hygiene in such dispensers it is now common to provide a reservoir which can be removed along with the bottle coupling and associated interconnections. Thus, the removable components can be replaced with clean items at regular intervals. For this reason, and for general maintenance, it is necessary to gain access to the internal components through a removable panel of the dispenser.

[0004] The present invention seeks to provide a new and inventive form of beverage dispenser which as well as being hygienic is very compact whilst at the same time providing easy access when changing the replaceable components.

SUMMARY OF THE INVENTION

[0005] The present invention proposes a beverage dispenser which incorporates:

- a plurality of vertically elongate walls;
- a top cover which is removably mounted on said elongate walls and which is adapted to receive and support an inverted liquid container with a neck of the container passing through an aperture in said top cover;

characterised in that

- the vertically elongate walls include a front wall and a pair of side walls which converge rearwardly from the front wall; and
- a platform is mounted below said top cover, said platform being adapted to removably receive and support a coupling member which incorporates a feed tube for insertion into the neck of such a con-

tainer when supported on the top wall, the platform further containing an opening which is in registration with a thermal receptacle mounted below said platform for removably receiving a reservoir through said opening, said reservoir being connected to the feed tube to receive liquid from said inverted container.

[0006] The front and side walls are preferably generally arcuate in transverse cross-section.

[0007] The platform preferably contains one or more holes for insertion of a conduit through which liquid is removed from the reservoir. The platform may also be adapted to receive other replaceable components. For example, the platform may hold an air filter through which air is conducted to the feed tube to replace liquid removed from the bottle, a non-return valve etc. The platform may also incorporate a dispensing valve for controlling the flow of liquid through the conduit. The platform may conveniently be formed as a plastics moulding.

[0008] Preferably a ventilation duct extends along the junction of the convergent side walls, said duct containing a plurality of ventilation apertures at different heights which communicate with the external atmosphere. The dispenser may include a fan arranged to create a positive air flow between the interior of the housing and the ventilation duct or vice versa. Thus, the duct may be of relatively small volume but will still provide adequate ventilation with minimum risk of obstruction.

[0009] The ventilation duct is preferably rigidly connected with spaced substantially parallel structural members at the front of the housing. At the top of the housing the platform may rigidly connect the duct with the two structural members while a base plinth may rigidly connect the duct and structural members at the lower end of the housing. An intermediate bulkhead may also rigidly connect the duct with the structural members.

[0010] The front wall of the housing may be fastened to the two structural members, e.g. using screws. The two side walls are preferably provided with downwardly-directed hook formations which are inserted into vertical slots provided in one flank of the duct and one of the structural members.

[0011] The structural members preferably include a pair of angularly-inclined wall sections. The outer edges of both angularly-inclined sections are preferably provided with substantially perpendicular flanges. Thus, the two members can be very strong but relatively lightweight.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The following description and the accompanying drawings referred to therein are included by way of non-limiting example in order to illustrate how the invention may be put into practice. In the drawings:

Figure 1 is a general view of a beverage dispenser in accordance with the invention;

Figure 2 is a rear view of the beverage dispenser showing the ventilation duct and a water bottle for use with the dispenser;

Figure 3 is a side view of the beverage dispenser with the facing side panel removed;

Figure 4 is a plan view of the beverage dispenser with the top cover removed;

Figure 5 is a detailed transverse section through a front corner of the beverage dispenser;

Figure 6 is vertical section VI-VI of Fig. 5; and

Figure 7 is a vertical section through part of the rear ventilation duct of the cooler.

DETAILED DESCRIPTION OF THE DRAWINGS

[0013] **Fig.s 1 and 2** show a beverage dispenser of the kind which dispenses chilled water and is therefore commonly referred to as a water cooler. The cooler includes a plinth 1, a vertically elongate upstanding front panel 2 and a pair of side panels 3 and 4 which converge rearwardly to meet a ventilation duct 5 which extends vertically between the rear margins of the side panels. The front and side panels are all moulded of plastics and are outwardly arcuate in transverse cross section such that the external profile of the cooler is smoothly curved with three similar sections (see **Fig. 3**). In addition, a top cover 6, which is also moulded of plastics, is removably supported on the front and side panels. The duct 5 occupies most of the height of the cooler and is closed at its top and bottom ends. The external wall of the duct contains an array of ventilation holes 8 covering most of the vertical length of the duct.

[0014] The front panel of the cooler has an electronic display panel 10, below which are a pair of control levers 11 and 12 for electrically or manually operating a pair of dispensing pinch valves which control the discharge of water into a dispensing recess 13. Below the recess 13 there is an opening 14 through which moulded cups can be removed from a tube 7 (**Fig. 3**) to receive the dispensed water.

[0015] The water is obtained from a container in the form of a bottle *B* (**Fig. 2**) which is inverted such that the neck of the bottle projects downwards. The top cover 6 is of dished shape with a central aperture 15, so that when the bottle is lowered onto the cooler it is supported by the cover 6 with its neck projecting through the aperture 15.

[0016] Referring to **Fig.s 3 and 4**, the ventilation duct 5 is formed of metal, and provides one of the main structural members of the cooler. Opposite sides of the duct

are provided with metal flanges 18 and 19 which lie behind the rear margins of the side panels 3 and 4. The cooler also includes a pair of spaced structural members 20, 21 which extend parallel to the duct 5 behind the opposite margins of the front panel 2 and the front margins of the side panels 3, 4. The members 20 and 21 are each comprised of a metal strip which is bent longitudinally for strength and rigidity. A bucket moulding 26, which includes a generally horizontal platform 27 surrounded by an upstanding side wall 28, is mounted below the top cover 6, rigidly fastened to the rear duct 5 and the structural members 20, 21 by means of self-tapping screws. At the bottom of the cooler the members 20, 21 and the duct 5 are fastened to upstanding abutments moulded on the plinth 1 using self-tapping screws. The members 20, 21 and duct 5 are also fastened to an intermediate transverse metal bulkhead 30 by means of rivets or self-tapping screws. The duct 5 and structural members 20, 21 thus provide a rigid internal skeleton for the cooler.

[0017] Referring to **Fig. 5**, the members 20 and 21 include a pair of flat angularly inclined sections 32 and 33 with oppositely-directed perpendicular flanges 34 and 35 formed at opposite edges for increased strength. The opposite marginal edges of the front panel 2 are provided with a spaced moulded lugs 38, also visible in **Fig. 3**, which are used to fasten the front panel to the flat section 33 by means of self tapping screws 39. Thus, the front panel could be removed by removing the screws 39. The adjacent margins of the side panels 3 and 4 are provided with moulded rearwardly-projecting hooks 40, also seen in **Fig. 6**, which project downwardly for engagement through vertical slots 42 in the flat sections 32. The side panels are also provided with similar hooks are provided for engagement through corresponding slots in the rear flanges 18 and 19. The side panels are thus easily installed by pushing the hooks through the slots and then sliding them downwardly and they can also be quickly removed by a reverse action.

[0018] Returning to **Fig. 4**, the platform 27 is formed with a central recess 46 which holds a cup-shaped coupling 48 into which the neck of the inverted bottle *B* is inserted through the aperture 15. The coupling 48 includes an integrally moulded feed tube 49 which projects through the neck of the bottle to remove water therefrom. The water is conducted via a flexible pipe indicated at 50 into a moulded reservoir 51 which is removably inserted through an aperture 52 in the platform 27. (In the drawings, pipes and tubes are indicated by dashed lines for clarity.) As seen in **Fig. 3**, the reservoir is held within an open-topped thermal receptacle 56, e. g. of expanded polystyrene, which is mounted between the top moulding 26 and the bulkhead 30. The receptacle 56 is lined with cooling coils (not shown) which form part of a conventional refrigeration system driven by a compressor 58 mounted at the bottom of the dispenser.

[0019] Returning to **Fig. 4**, cooled water can be removed from the reservoir 51 via a flexible pipe 60 which

is inserted through an aperture 61 in the platform 27 into a pinch valve operated by the lever 12. Ambient water can also pass direct from the pipe 50 via a flexible pipe 64 which is inserted through a further aperture 65 in the platform 27 into another pinch valve operated by the lever 11. The pinch valves are mounted within a compartment 68 moulded in the platform 27. The pipes 60 and 64 can be releasably held by clips 70 and 71 secured above the compartment 68. Water displaced from the bottle is replaced by clean air which passes through a separate passage in the feed tube 49. The air is supplied through narrow-bore flexible tubing 72 via (for example) a pressure-release valve 74, an air filter 75 and a non-return valve 76, all of which are inserted into recesses formed at the rear of the platform 27.

[0020] Despite the compact and simple construction of the water cooler the periodic replacement of the components which come into contact with the water is very simple. When the bottle is changed the top cover 6 is lifted off and the coupling 48, reservoir 51 and air components 74-76 are pulled out together with the interconnecting pipes and tubes. A clean set of components are inserted into the platform 27 and the cover is replaced.

[0021] Heat produced by the internal electrical components and removed from the chilled water by the refrigeration system is extracted by means of a small electric fan 80 which can be seen in **Fig. 3** and is shown in more detail in **Fig. 7**. The fan is mounted in an upward-facing opening 81 which channels warm air into the ventilation duct 8 to be expelled through the holes 8 at all levels. The air flow could also be reversed to provide a similar cooling effect.

[0022] It will be appreciated that the features disclosed herein may be present in any feasible combination. Whilst the above description lays emphasis on those areas which, in combination, are believed to be new, protection is claimed for any inventive combination of the features disclosed herein.

Claims

1. A beverage dispenser which incorporates:

- a plurality of vertically elongate walls (2, 3 and 4);
- a top cover (6) which is removably mounted on said elongate walls and which is adapted to receive and support an inverted liquid container (B) with a neck of the container passing through an aperture in said top cover;

characterised in that

- the vertically elongate walls include a front wall (2) and a pair of side walls (3 and 4) which converge rearwardly from the front wall; and
- a platform (27) is mounted below said top cover,

said platform being adapted to removably receive and support a coupling member (48) which incorporates a feed tube (49) for insertion into the neck of such a container when supported on the top wall, the platform further containing an opening (52) which is in registration with a thermal receptacle (56) mounted below said platform for removably receiving a reservoir (51) through said opening, said reservoir being connected to the feed tube to receive liquid from said inverted container.

2. A beverage dispenser according to Claim 1, in which the front and side walls (2, 3 and 4) are generally arcuate in transverse cross-section.
3. A beverage dispenser according to Claim 1 or 2, in which the platform contains at least one hole (61, 65) for insertion of a conduit (60, 64) through which liquid is removed from the reservoir.
4. A beverage dispenser according to any preceding claim, in which the platform is adapted to receive an air filter (75) through which air is conducted to the feed tube to replace liquid removed from the bottle.
5. A beverage dispenser according Claim 3, in which the platform incorporates a dispensing valve (11, 12) for controlling the flow of liquid through the conduit.
6. A beverage dispenser according to any preceding claim, in which the platform is formed as a plastics moulding (26).
7. A beverage dispenser according to any preceding claim, in which a ventilation duct (5) extends along the junction of the convergent side walls (3 and 4), said duct containing a plurality of ventilation apertures (8) which communicate with the external atmosphere.
8. A beverage dispenser according to Claim 7, including a fan (80) arranged to create a positive air flow between the interior of the housing and the ventilation duct.
9. A beverage dispenser according to Claim 7 or 8, in which the ventilation duct is rigidly connected with spaced substantially parallel structural members (20, 21) at the front of the housing.
10. A beverage dispenser according to Claim 9, in which the platform (27) rigidly connects the ventilation duct with the two structural members.
11. A beverage dispenser according to Claim 9 or 10, in which a base (1) rigidly connects the duct and

structural members at the lower end of the housing.

- 12.** A beverage dispenser according to Claim 9, 10 or 11, in which a transverse bulkhead (30) rigidly connects the duct with the structural members. 5
- 13.** A beverage dispenser according to any of Claims 9 to 12, in which the front wall (2) of the housing is fastened to the two structural members (20, 21). 10
- 14.** A beverage dispenser according to any of Claims 9 to 13, in which the two side walls (3 and 4) are provided with downwardly-directed hook formations (40) which are inserted into vertical slots (42) provided in one flank (18, 19) of the duct and one of the structural members (20, 21). 15
- 15.** A beverage dispenser according to any of Claims 9 to 14, in which the structural members include a pair of angularly-inclined wall sections (32, 33). 20
- 16.** A beverage dispenser according to Claim 15, in which the outer edges of both angularly-inclined sections (32, 33) are provided with substantially perpendicular flanges (34, 35). 25

30

35

40

45

50

55

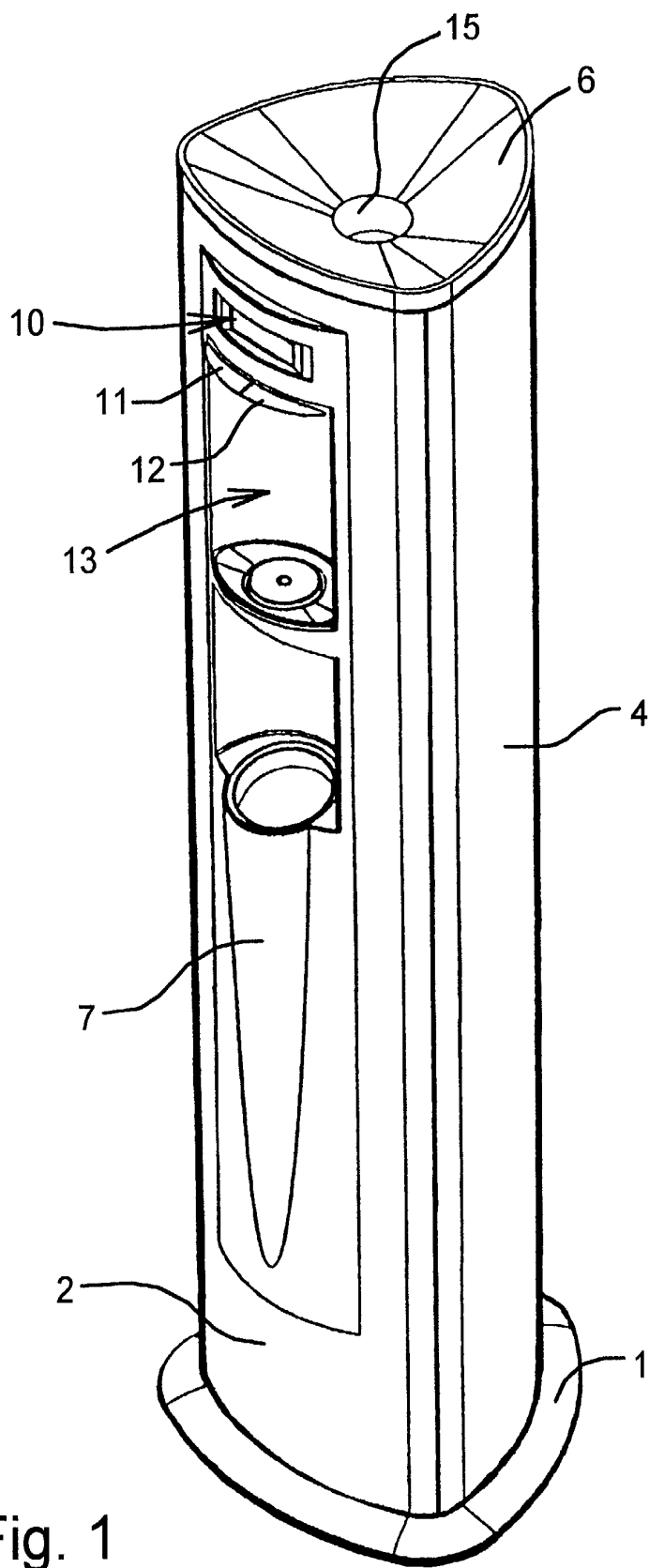


Fig. 1

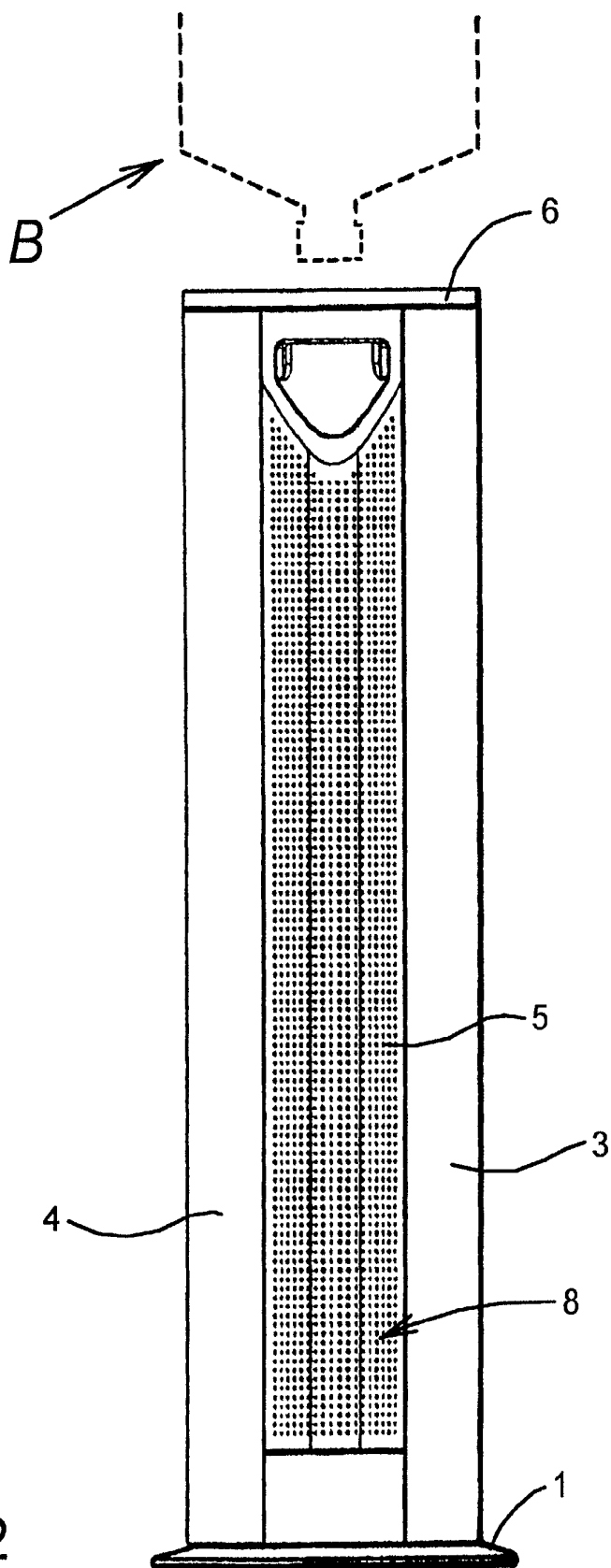


Fig. 2

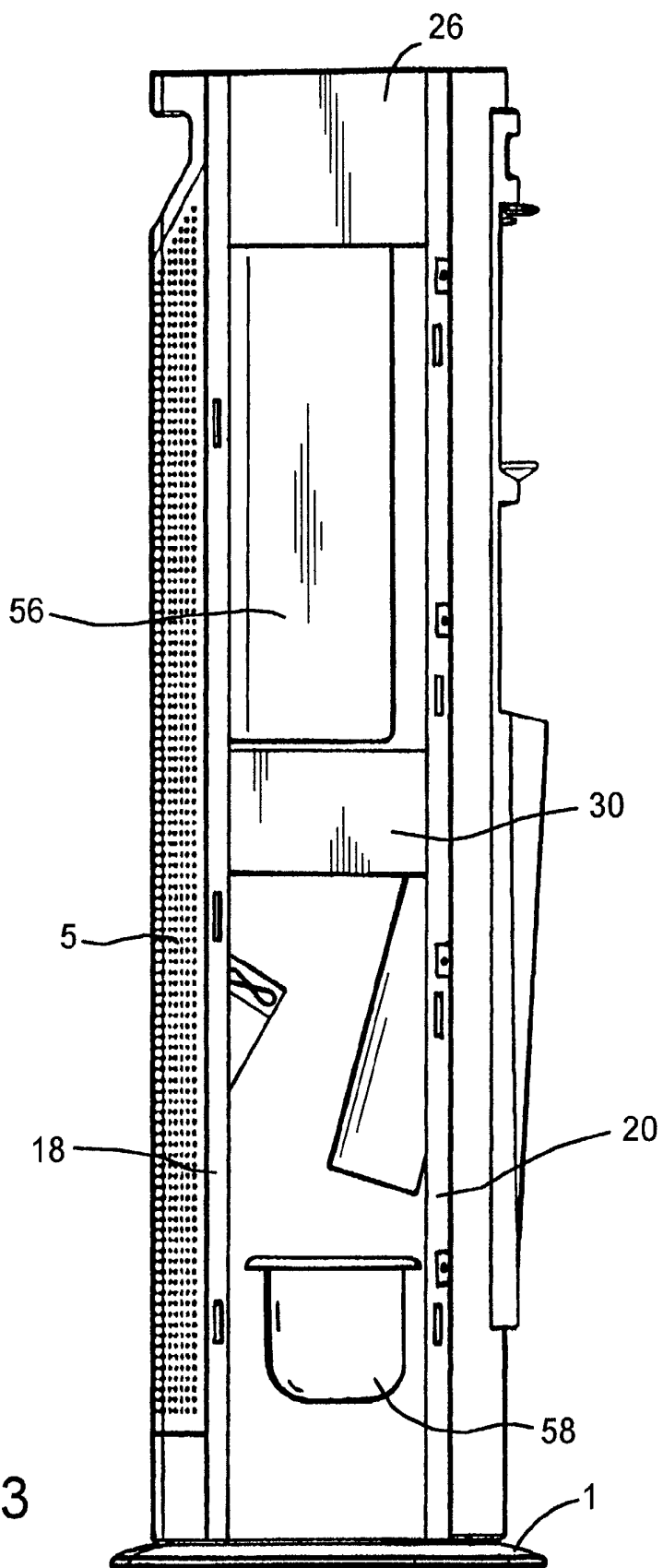


Fig. 3

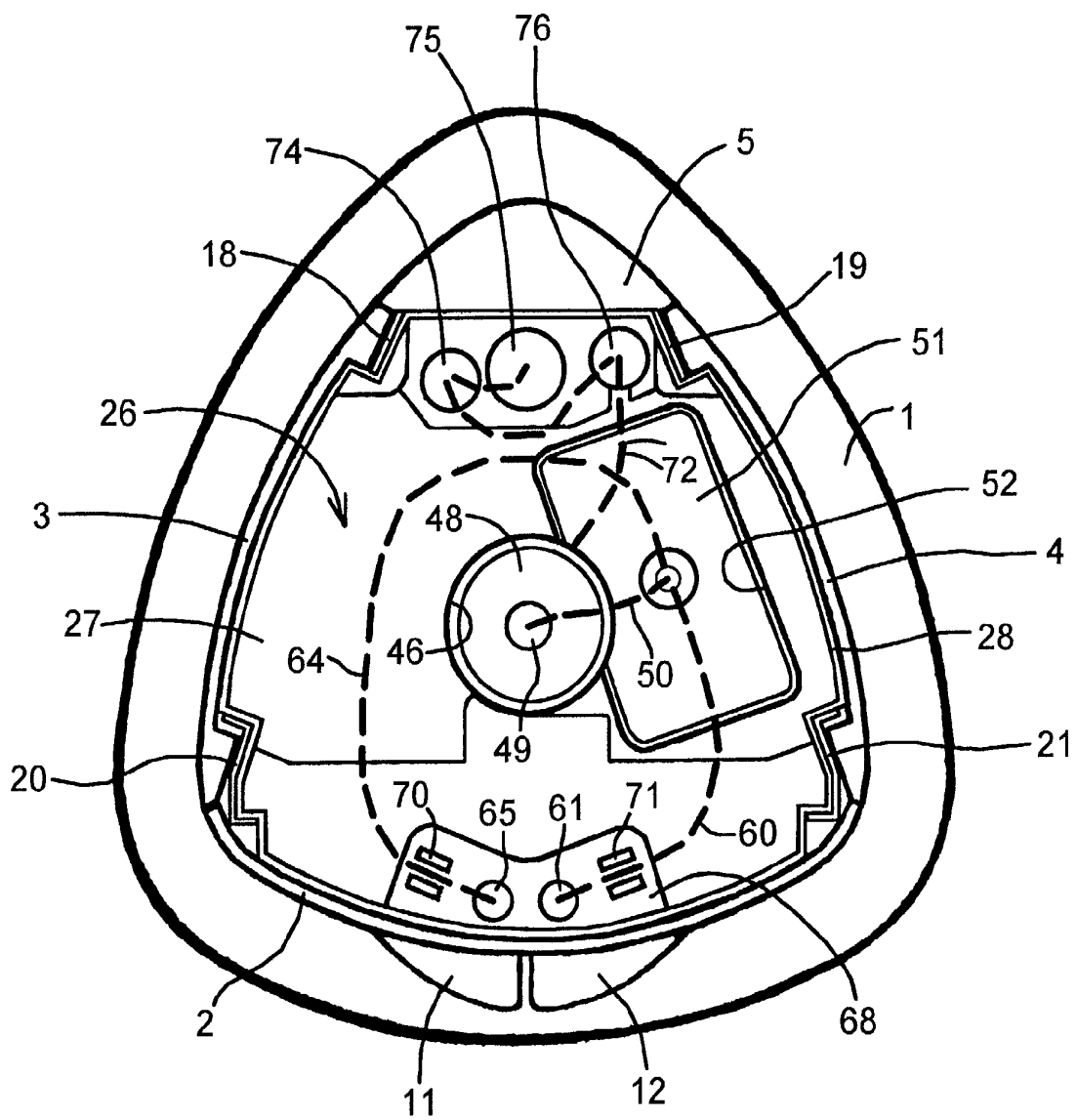


Fig. 4

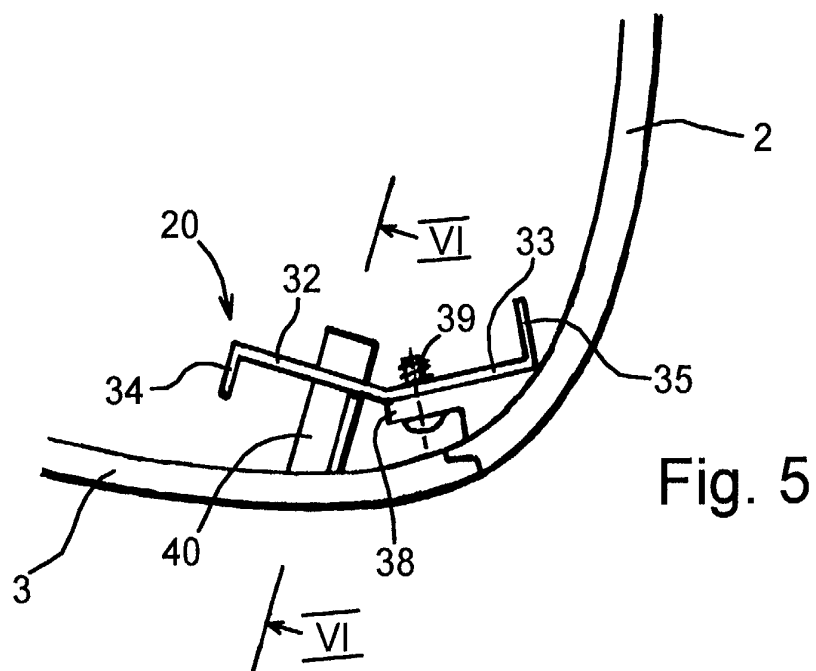


Fig. 5

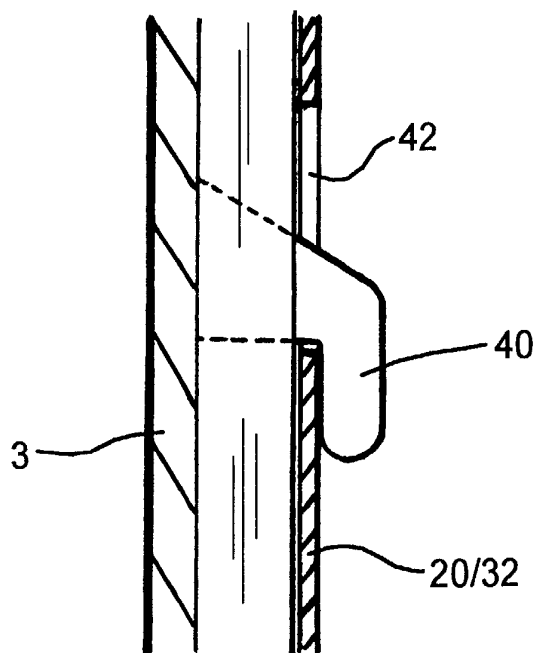


Fig. 6

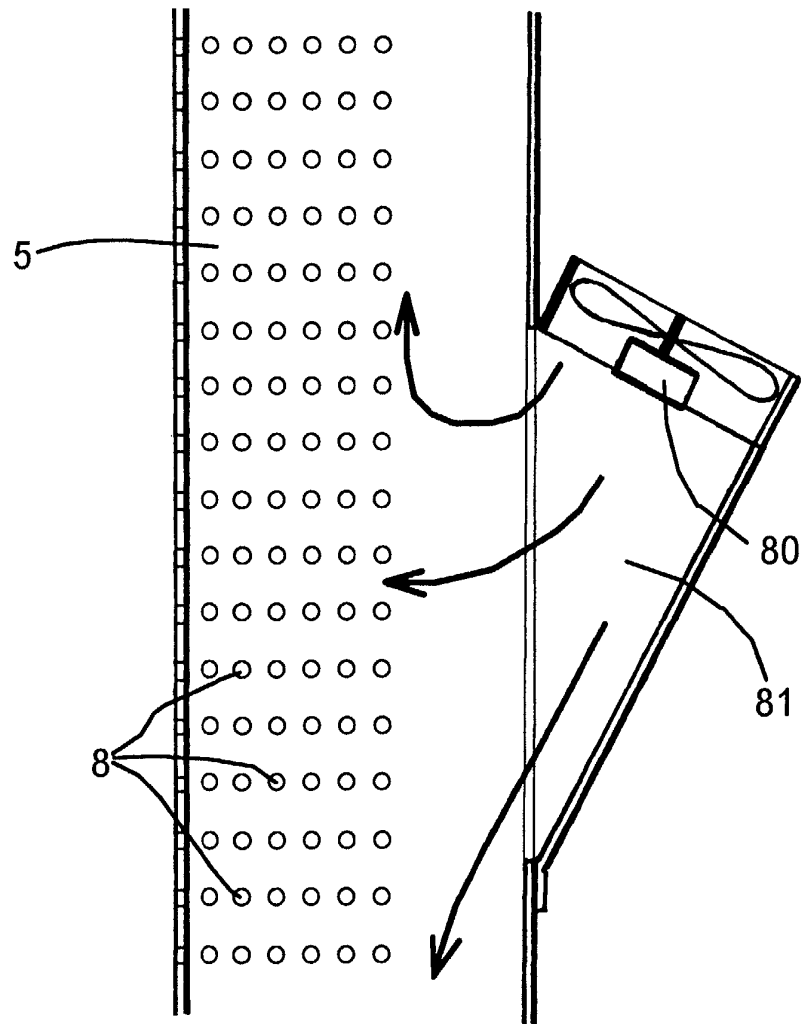


Fig. 7



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 25 1325

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)
Y	US 5 695 094 A (L. C. BURNHAM, R. R. SAAR, K. ALSTAD, D. W. WENDT, E. H. DONSELMAN) 9 December 1997 (1997-12-09)	1	B67D3/00
A	* column 3, line 44 - line 55 * * column 4, line 39 - line 45 * * column 4, line 61 - column 5, line 14 * * column 5, line 4 - line 14 * * column 5, line 20 - line 25 * * column 7, line 11 - line 14 *	4-6	
Y	US 5 911 341 A (EDWARD. H. DONSELMAN, LOWELL C. BURNHAM) 15 June 1999 (1999-06-15) * column 2, line 21 - line 24 * * column 4, line 13 - line 28 *	1	
A	US 5 222 531 A (H. E. BAKER, J. B. BAKER, D. H. BAKER, P. K. BAKER, ET AL.) 29 June 1993 (1993-06-29) * column 5, line 3 - line 11 *	1	
A	DE 198 57 019 A (BRAUN, KARL-HEINZ) 15 June 2000 (2000-06-15) * column 3, line 19 - line 25; figure 2 * * column 1, line 27 - line 37 *	7-9, 13	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B67D
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 11 June 2002	Examiner Desittere, M
CATEGORY OF CITED DOCUMENTS		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	
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			

EPO FORM 1503 03 82 (P24-C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 02 25 1325

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-06-2002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5695094 A	09-12-1997	US 5493873 A	27-02-1996
		US 5553935 A	10-09-1996
		AU 8121594 A	08-05-1995
		BR 9407864 A	29-10-1996
		CA 2174505 A1	27-04-1995
		EP 0723524 A1	31-07-1996
		WO 9511194 A1	27-04-1995
		US 6123232 A	26-09-2000
		US 5577393 A	26-11-1996
		US 6029860 A	29-02-2000
		AU 8080094 A	08-05-1995
		BR 9407871 A	29-10-1996
		CA 2174423 A1	27-04-1995
		EP 0719102 A1	03-07-1996
		IL 111255 A	12-03-1999
		WO 9510960 A1	27-04-1995
US 5911341 A	15-06-1999	US 5667103 A	16-09-1997
		AU 5304096 A	02-10-1996
		CA 2215058 A1	19-09-1996
		EP 0810973 A1	10-12-1997
		IL 117427 A	11-04-1999
		WO 9628379 A1	19-09-1996
US 5222531 A	29-06-1993	US 5295519 A	22-03-1994
		US 5289855 A	01-03-1994
		AT 116949 T	15-01-1995
		AT 153618 T	15-06-1997
		AU 617015 B2	14-11-1991
		AU 4405189 A	01-05-1990
		BR 8907712 A	30-07-1991
		CA 1338210 A1	02-04-1996
		CA 1338339 A1	21-05-1996
		DE 68920588 D1	23-02-1995
		DE 68920588 T2	17-08-1995
		DE 68928086 D1	03-07-1997
		DE 68928086 T2	20-11-1997
		DK 145590 A	14-06-1990
		EP 0438451 A1	31-07-1991
		EP 0641713 A1	08-03-1995
		ES 2016533 A6	01-11-1990
		FI 89780 B	13-08-1993
		GR 89100655 A , B	29-11-1990
		IL 92114 A	21-02-1993
		IL 99404 A	18-08-1993
		JP 6062195 B	17-08-1994

EPO FORM P/258

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

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 25 1325

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-06-2002

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5222531 A		JP 3503273 T	25-07-1991
		KR 9611713 B1	30-08-1996
		MX 172394 B	15-12-1993
		PT 91978 A , B	30-04-1990
		US 5284188 A	08-02-1994
		US 5295518 A	22-03-1994
		US 5289854 A	01-03-1994
		WO 9003919 A1	19-04-1990
		US 5222530 A	29-06-1993
		US 5121778 A	16-06-1992
DE 19857019 A	15-06-2000	DE 19857019 A1	15-06-2000

EPO FORM P0458

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