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(54) **Liquid supply device**

(57) Liquid supply device comprising a supply beak of the liquid itself (2), a coupling ferrule (3) with the container (4) containing the liquid, provided with at least one

opening (31) suitable for putting the liquid contained in the container in communication with the supply beak. Said device has a rotating regulation part suitable for at least partially plugging said opening.

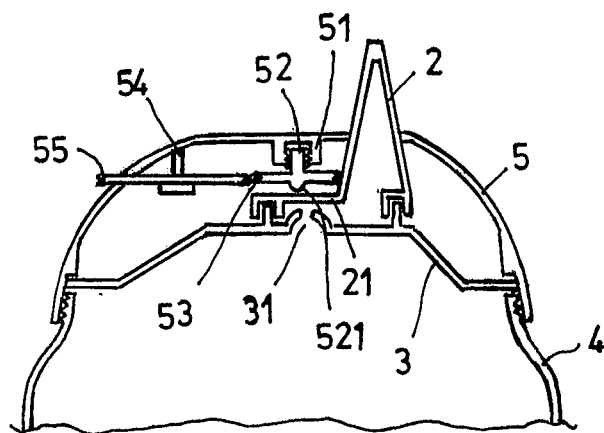


Fig. 1

Description

[0001] The present invention relates to a device for the supply of liquids. In particular, the present invention relates to a device for the supply of liquids which can be associated with any type of container, such as for example a child's mug or feeding bottle.

[0002] Children's mugs or feeders are known in the state of the art, which are provided with a top which can be screwed or constrained to the mouth of the mug, equipped with an anatomic mouthpiece for helping the child to correctly drink from a mug. In said top, in correspondence with the anatomic mouthpiece, there is normally a series of small holes or a single hole from which the liquid can exit.

[0003] Children's mugs or feeders are also known, which are provided with a top in which there is a regulating device of the quantity of liquid to be drunk.

[0004] The Applicant has faced the problem of producing a children's mug in which the quantity of liquid to be supplied by the mug can be regulated in order to equivalently allow the mug to be used with liquids having a different density.

[0005] The liquid supply device according to the present invention can be associated with mugs of the type used by children for drinking liquids having a different density, such as for example milk, tea, juices, etc.

[0006] An aspect of the present invention relates to a device for supplying liquids comprising a supply beak of the liquid itself, a coupling ferrule with the container containing the liquid, provided with at least one opening suitable for putting the liquid contained in the container in communication with the supply beak, characterized in that it comprises a rotating regulation part suitable for at least partially plugging said opening.

[0007] The characteristics and advantages of the device according to the invention will appear more evident from the following illustrative and non-limiting description, with reference to the enclosed figures, in which:

- figure 1 is a schematic view of the supply device in a first embodiment of the present invention;
- figure 2 is a schematic view of the supply device in a second embodiment of the present invention;
- figure 3 is a schematic view of the supply device in a third embodiment of the present invention;
- figure 4 is a schematic view of the supply device in a fourth embodiment of the present invention;
- figure 5 is a schematic view of the supply device in a fifth embodiment of the present invention;
- figure 6 is a schematic view of the supply device in a sixth embodiment of the present invention;
- figure 7 is a schematic view of the supply device in a seventh embodiment of the present invention.

[0008] With reference to the above figures, the liquid supply device substantially comprises a supply beak of the liquid itself 2, a coupling ferrule 3 with the container

4 containing the liquid, provided with at least one opening 31 suitable for putting the liquid contained in the container in communication with the supply beak and a rotating regulation part suitable for at least partially plugging said opening.

[0009] Figure 1 illustrates a first embodiment of the invention in which said regulation part comprises a convex support 5, suitable for being put on the ferrule 3, provided with an internally threaded cylindrical portion 51 in which a first externally threaded shaft 52 is inserted, with which a first toothed wheel 53 is associated. The convex support also has a seat suitable for receiving a second shaft 54 associated with a second toothed wheel 55 which is engaged with said first toothed wheel.

[0010] Said seat is provided in such a position as to allow said second toothed wheel to at least partially protrude from the support to enable it to be manually rotated. Furthermore, the lower end 521 of the first shaft 52 is suitable for encountering a portion 21 of the beak overlapping the opening 31 of the ferrule so that by manually rotating the second toothed wheel and therefore indirectly the first toothed wheel, said first shaft moves vertically allowing said portion of the beak 21 to adhere or not to adhere to the opening 31 and consequently either closing the opening for the outlet of the liquid or partially opening it and therefore regulating the flow.

[0011] Figure 2 illustrates a second embodiment of the present invention wherein said regulation part comprises the convex support 5, suitable for being positioned on the ferrule 3, equipped with a seat suitable for receiving a shaft 54a associated with a disk 55a.

[0012] Said seat is provided in such a position as to allow said disk to at least partially protrude from the support to enable it to be for example manually rotated. On the lower surface of said disk there is a cam 551a having a differentiated height so that during the partial rotation of the disk it corresponds with the horizontal portion of the beak 21 which in turn corresponds with the opening 31 and consequently either closing the opening for the outlet of the liquid or partially opening it and therefore regulating the flow.

[0013] Figure 3 illustrates a third embodiment of the present invention wherein said regulation part comprises a cylinder 51b made of a flexible material, for example silicon, and an internally threaded ring 52b which can be advantageously fitted onto said cylinder. The ferrule 3 has a cylindrical central portion on which there are holes 31 for the passage of the liquid and an externally threaded annular portion 32b on which said ring 52b is screwed. The screwing operation of the ring allows its internal edge 521b to correspond with the walls of the flexible cylinder 51b which in turn is positioned on the holes 31 closing them or partially opening them by regulating the liquid flow.

[0014] Figure 4 illustrates a fourth embodiment of the present invention wherein said regulation part comprises the convex support 5, suitable for being positioned on the ferrule 3, equipped with an internally perforated and

externally threaded annular seat 51c suitable for receiving an internally threaded stopper 52c which is screwed thereon. Said stopper also comprises a central pin 521c suitable for engaging with the horizontal portion of the beak 21 during the screwing of the stopper, bringing it towards the opening 31 and consequently either closing the opening for the outlet of the liquid or partially opening it and therefore regulating the flow.

[0015] Figure 5 illustrates a fifth embodiment of the present invention wherein said regulation part comprises the convex support 5, suitable for being positioned on the ferrule 3, equipped with an externally threaded annular seat on which a ring 51d is screwed. The lower surface of said ring corresponds with the termination 521d of an oscillating lamella 52d of the convex support 5.

[0016] The termination of the lamella is suitable for engaging with the horizontal portion of the beak 21, during the screwing of the ring 51d, bringing it towards the opening 31 and consequently either closing the opening for the outlet of the liquid or partially opening it and therefore regulating the flow.

[0017] Figure 6 illustrates a sixth embodiment of the present invention wherein said regulation part comprises the convex support 5, suitable for being positioned on the ferrule 3, equipped with an internally threaded pass-through annular seat in which a screw 51e is inserted. The lower end of said screw is such that it corresponds with a flexible portion 22 of the beak which in turn is positioned on the opening 31 of the ferrule closing the opening itself for the outlet of the liquid or partially opening it and therefore regulating its flow.

[0018] According to the present invention, the beak can also integrate an air access valve which can be fixed (cut for example) or with a regulatable system.

[0019] Figure 7 illustrates a seventh embodiment of the present invention wherein said regulation part comprises the convex support 5, suitable for being positioned on the ferrule 3, equipped with a pass-through seat 51 in which a screw 51f is inserted. Rows of pins 512f suitable for plugging said openings 31 being positioned around the stem 511f of said screw.

[0020] The rows can advantageously have differing numbers of pins (for example, one, two or three) up to the maximum number of openings 31 allowing one or more openings to be plugged as desired by rotating the screw, consequently regulating the liquid flow and also stopping it in the position in which the pins have blocked all the openings.

Claims

1. A liquid supply device comprising a supply beak of the liquid itself (2), a coupling ferrule (3) with the container (4) containing the liquid, provided with at least one opening (31) suitable for putting the liquid contained in the container in communication with the supply beak

characterized in that it comprises a rotating regulation part suitable for at least partially plugging said opening.

2. The device according to claim 1, wherein said rotating regulation part comprises a convex support (5), suitable for being positioned on a ferrule (3), having an internally threaded cylindrical portion (51) in which a first externally threaded shaft (52) is inserted, with which a first toothed wheel (53) is associated, said convex support also has a seat suitable for receiving a second shaft (54) associated with a second toothed wheel (55) which is engaged with said first toothed wheel.
3. The device according to claim 1, wherein said rotating regulation part comprises the convex support (5), suitable for being positioned on the ferrule (3), having a seat suitable for receiving the shaft (54a) associated with a disk (55a), on the lower surface of said disk there being a cam (551a) having a differentiated height so that during the partial rotation of the disk it corresponds with a horizontal portion of the beak (21) which in turn corresponds with the opening (31).
4. The device according to claim 1, wherein said rotating regulation part comprises a cylinder (51b) made of a flexible material and an internally threaded ring (52b) which can be fitted on said cylinder, the ferrule (3) has a cylindrical central portion on which holes (31) for the passage of the liquid are provided and an externally threaded annular portion (32b) on which said ring (52b) is screwed, the screwing operation of the ring allowing its internal edge (521b) to be engaged with the walls of the flexible cylinder (51b) which in turn is positioned on the holes (31).
5. The device according to claim 1, wherein said rotating regulation part comprises a convex support (5), suitable for being positioned on the ferrule (3), equipped with an internally perforated and externally threaded annular seat (51c) suitable for receiving an internally threaded stopper (52c) which is screwed thereon, said stopper also comprising a central pin (521c) suitable for engaging with the horizontal portion of the beak (21), during the screwing of the stopper, bringing it towards the opening (31).
6. The device according to claim 1, wherein said rotating regulation part comprises a convex support (5), suitable for being positioned on the ferrule (3), equipped with an externally threaded annular seat on which a ring (51d) is screwed, the lower surface of said ring corresponding with the termination (521d) of an oscillating lamella (52d) suitable for engaging with the horizontal portion of the beak (21), during the screwing of the ring (51d), bringing it towards the opening (31).

7. The device according to claim 1, wherein said rotating regulation part comprises a convex support (5), suitable for being positioned on the ferrule (3), equipped with an internally threaded pass-through annular seat in which a screw (51e) is inserted, the lower end of said screw being suitable for engaging with a flexible portion (22) of the beak which in turn is positioned on the opening (31) of the ferrule. 5
8. The device according to claim 1, wherein said rotating regulation part comprises a convex support (5), suitable for being positioned on the ferrule (3), equipped with a pass-through seat (51) in which a screw (51f) is inserted, rows of pins (512f) suitable for plugging said openings (31) being positioned around the stem (511f) of said screw. 10 15
9. The device according to claim 1, wherein said beak integrates an air access valve which can be fixed (cut for example) or with a regulatable system. 20

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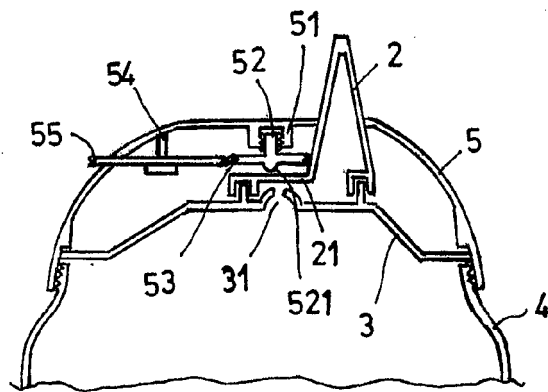


Fig. 1

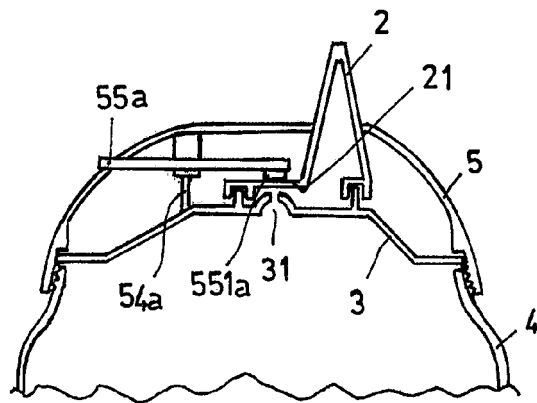


Fig. 2

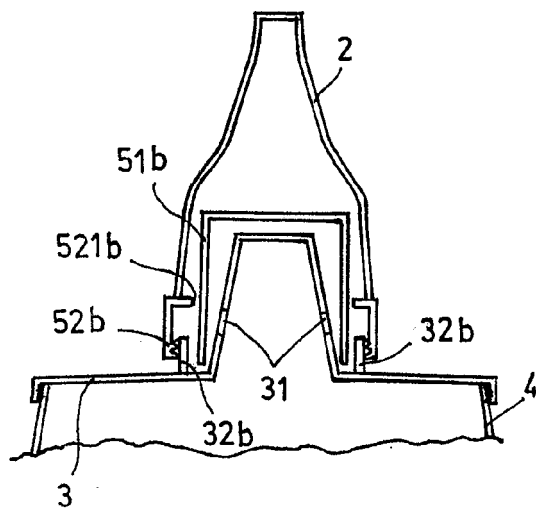


Fig. 3

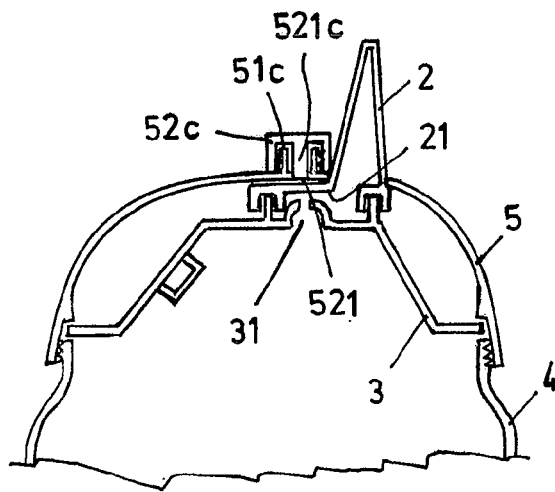


Fig. 4

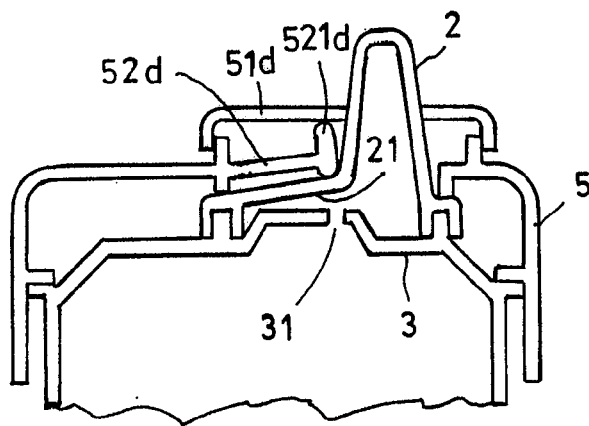


Fig. 5

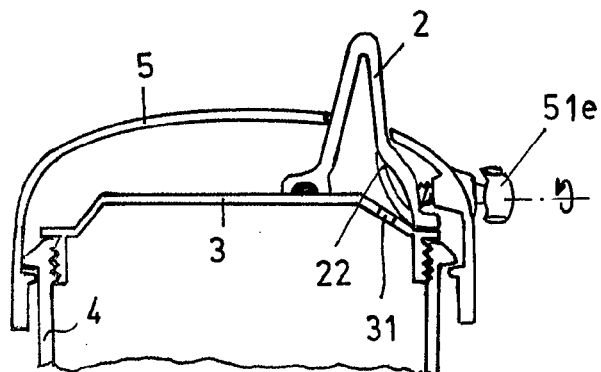


Fig. 6

Fig.7

