

INTELLECTUAL PROPERTY OFFICE OF SINGAPORE
PATENT AGENTS QUALIFYING EXAMINATION 2011

PAPER B: AMENDMENT OF A PATENT SPECIFICATION

11 October 2011, Tuesday

1330 – 1730 hrs

Maximum Time: 4 Hours (includes reading time)

Maximum Marks: 100



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INSTRUCTIONS TO CANDIDATES

1. This Paper consists of 25 pages, including this cover page.
2. Write your answers in English. Answers in any other language will not be marked. Answers in illegible handwriting will not be taken into consideration.
3. Two copies of the question paper are provided, one is for your reading and the other is for your use (optional) when answering the question(s) in the Answer Booklet(s).
4. Only your answers and/or drawings to the question(s) written or glued in the Answer Booklet(s) provided by the Examination Secretariat will be considered. You are to write on one side of each sheet in the Answer Booklet (s).
5. Information provided in the question(s) may be obtained from actual situations or modified therefrom for the purpose of this examination. You should accept the facts given in the Paper. Assume also that the prior art given is exhaustive.
6. For the purpose of this Paper you do not need to propose any amendments to the description of the Patent Application.

To be continued

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7. The documents provided in the question are:

- (a) Document A – Letter from Client (includes questions) (2 pages);
- (b) Document B – Singapore Patent Application 200500001-1 (7 pages of description plus claims and 6 pages of drawings);
- (c) Document C – Written Opinion (1 page); and
- (d) Document D1 - A leaflet published by a company “Tea Glow Ltd” on 1 April 2004 (3 pages of description and 4 pages of drawings).

End

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Document A – Letter from Client (1/2)

1) Singapore patent application number 200500001-1 was filed with no priority claim on 1 April 2005. The applicant was the inventor, Mr William Tan, a private individual. A request for
5 search and examination under Section 29(2)(b) was filed within the prescribed time limit, and the attached written opinion was issued, citing only the attached document "Document 1". The deadline for response is today. Also today you receive the following letter.

Dear Patent Agent,

10 After many disappointments, there may at last be a chance of commercializing my invention, as described in Singapore patent application number 200500001-1, and in particular the third embodiment. On this basis, I am prepared to authorize you to file a response to the written opinion. Cost remains my major concern, so I will not pay for a
15 divisional application, now or in the future. I recognize that this may mean that the first and second embodiments are not protected.

Please file a response today, making whatever amendments are desirable to put the application in order for allowance, while maintaining the widest allowable protection
20 consistent with enforceable claims.

If possible please take into account the comment I made when you forwarded the written opinion to me: conceivably there could be a commercial market for the inventive tap units of Fig. 11 on their own, i.e. not sold in combination with a dispensing unit.

25 Best regards,
William Tan

You attempt to contact Mr Tan, but it proves impossible. Please draft a letter responding to the
30 written opinion, and including a set of amended claims.

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Document A – Letter from Client (2/2)

- 2) Suppose that the situation is different. Specifically, the patent application as filed is the same, and the same written opinion issued. However, the written opinion issued in December
- 5 2010, so that the deadline for responding to it has already passed. The written opinion was reported to Mr Tan. Unfortunately at that time he had financial difficulties and was unable to pay your charges to prepare and file a response. No response was filed. A final examination report, identical to the written opinion, issued in July 2011, more than 42 months from the filing date, together with a letter from the Registry extending the grant fee deadline until today. Mr Tan
- 10 instructs you to file any required amendments to the application, and to pay the grant fee. Again, his principal concern is to get broad protection for the third embodiment in the patent application. If possible, he would prefer that the patent covers the other embodiments and the tap unit of Fig. 11 when sold separately. He will not pay for a divisional application. Please follow his instructions and prepare amended claims. The amended claims are to be filed today, together
- 15 with Patents Form 13 and Patents Form 14. Please include a note explaining briefly why the requirements of Section 30(3) are met.

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Document B – Singapore Patent Application 200500001-1 (1/13)

Water dispensing device

5 It is widely known to provide a water dispenser in homes or offices. Water is supplied in water bottles 1 as illustrated in Fig. 1. Each water bottle 1 has a tank 11 with a neck 12, containing a valve 13. A cap 14 covers the top of the neck 12. A shoulder 15 encircles the neck 12. To use the bottle, its cap 14 is removed, and the water bottle is upended (at this time, the valve 13 does not permit water in the tank 11 to exit the tank 11), and placed over a dispenser unit 4 having a
10 generally cuboidal housing, as shown in Fig. 2. Items within the housing are shown in dashed lines in Fig. 2. The upper surface 41 of the housing has a circular aperture. A nozzle 42 projects upwardly through the aperture, and the bottle 1 is placed with the nozzle 42 inserted into the valve 13, and with the shoulder 15 resting on the surface 41. The nozzle 42 penetrates the valve 13, such that water can flow through a central channel of the nozzle 42. A conduit 43
15 connects the nozzle 42 to an output port 48 at the lower end of the conduit 43. A tap unit 5 is attached to the output port 48 of the conduit.

The tap unit 5 is shown in more detail in Figs. 3 (in perspective) and Fig. 4 in cross-section. The tap unit 5 comprises an input pipe 51, a central portion 55 and an exit pipe 58, together defining
20 a water flow path 52. One end of the input pipe 51 has an outwardly-facing screw-threaded fitting 57 for connection to the output port 48 of the conduit 43 (which has an inward-facing screw thread), so that the tap unit 5 is attachable to the output port 48 of the conduit 43, and detachable therefrom. The end of the exit pipe 58 furthest from the input pipe 51 terminates in a spout.

25 The tap unit 5 further has a rotatable handle 53 and a leg 54. The leg 54 is attached at its upper end to the handle 53, passes through a bore in the central portion 55 of the tap unit. The leg 54 has an outer screw-thread, which engages with an inwardly-facing screw-thread in the central portion 55 of the tap unit, as shown in Fig. 4. Rotation of the handle 53 in the direction “A”
30 shown in Fig. 3 causes the leg 54 to move to the raised position shown in Fig. 4, and rotation of the handle 53 in the direction “B” shown in Fig. 3 causes the leg 54 to move to a lowered position. In the raised position, the leg 54 hardly obstructs the flow path 52. In the lowered position, the bottom part of the leg 54 completely blocks the water flow path 52.

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Thus, a user of the water dispenser is able to extract water from the water bottle 1 by turning the handle 53 in the direction A, and stop water exiting by turning the handle 53 in the direction B.

5

Optionally, a unit 6 is provided within the dispenser unit 4 (see Fig. 2), proximate the conduit 43, to control the temperature of the water exiting the dispenser unit 4. This unit 6 may be a cooler or a heater, and is electrically powered.

- 10 Periodically, the water dispensing system of Fig. 2 must be cleaned by removing the tap unit 5 from the dispenser unit 4 (at a time when no bottle 1 is present, or the bottle 1 is empty), and flushing boiling water through it.

Summary of the invention.

15

The water dispenser of Figs. 1-4 has the disadvantage that if the tap is left in the configuration of Fig. 4 (or indeed in any configuration in which the leg 54 does not fully block the water flow path 52), all the water from the water bottle 1 will leak out, potentially causing a flood in the office.

20

The present invention proposes a tap unit which automatically closes when the user does not hold it open. It has an open configuration (in which water can be dispensed) and a closed configuration (in which water cannot be dispensed), and is biased to the latter configuration.

- 25 The invention further proposes a water dispenser system for dispensing both hot and cold water.

The invention further proposes a tap unit which is difficult for a small child to operate. The tap unit is opened by a complex movement, in which one of its elements has to be displaced in a plurality of sequential motions which are not all in the same direction. A lever is provided having a contracted state and an expanded state, being biased into the expanded state. The lever is operative when in the contracted state to control the tap into the open configuration.

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Brief description of the drawings

- 5 Figs. 1-4 illustrate a prior art water dispensing system.
Figs. 5-8 illustrate a first embodiment of the invention.
Fig. 9 illustrates a second embodiment of the invention.
Figs. 10-11 illustrate a third embodiment of the invention.

10 Description of the embodiments

The invention proposes that the (detachable) tap unit 5 of Fig. 3 is replaced by the inventive tap unit of the first or third embodiments.

- 15 The first embodiment is a tap unit 6 shown in Fig. 5 for replacing the tap unit 5 of Fig. 3. The tap unit 6 is shown in perspective view in Fig. 5, in cross-section Figs. 6 and 7, and an exploded, perspective view in Fig. 8.

- 20 The tap includes a hollow body 61, having an input portion 62 (which is screw threaded at its end), a spout portion 63, and a neck 64 defining an upper opening 65 (see Fig. 8). The upper opening is covered by a detachable cap 66 (see Fig. 8). The cap 66 includes a flat upper surface 67, and at the centre of the flat surface 67 is an upwardly projecting tube 69. A downwardly projecting skirt 68 surrounds the flat surface 67.

- 25 The tap unit 6 further includes a link element 70 (see Fig. 8), having a circular-cylindrical leg portion 71 of slightly smaller diameter than the inner diameter of the tube 69 and a circular-cylindrical closure portion 72 at the lower end of the leg portion 71. The upper end of the leg portion 71 includes a horizontally-extending cylindrical hole 73.

- 30 Referring to Fig. 8, the leg portion 71 of the link element 70 is threaded through a spring 9, and then through the tube 69 in the cap 66. The tube 69 permits the leg portion 71 to slide up and down relative to the cap 66. The spring 9 is trapped between the flat surface 67 of the cap 66, and the closure portion 72. The upward motion of the link element 70 is limited by degree to which this spring can be compressed.

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The cap 66 is connected to the hollow body 61 by fitting the skirt 68 of the cap 66 over the upper end of the neck 64. Downward motion of the link element 70 is then limited by collision of the closure portion 72 with a circular shoulder 74 (see Fig. 7) in the interior of the hollow body 61, at the top of the spout portion 63 (see Fig. 6). When the closure portion 72 is against the shoulder 74, the closure portion 72 blocks the spout portion 63, making it impossible for water to exit through the spout portion 63.

The spring 9 urges the closure portion 72 downwardly. Thus, it urges the tap unit 6 into the “closed configuration” shown in Fig. 6. In this configuration, the closure portion 72 blocks the spout portion 63.

An elongate lever 8 is pivotally attached to the leg portion 71 by a horizontal pin 81. The upper end of the leg portion 71 lies between two lugs 82, 83 of the lever 8, and each lug 82, 83 contains a respective horizontal cylindrical hole. The cylindrical hole in lug 82 is marked as 84, while the cylindrical hole in the lug 83 is not visible in Fig. 8. The pin 81 is threaded through cylindrical holes 84 and 73, and through the hole in the lug 83. Thus, the lever 8 can rotate about the horizontal pin 81 in a vertical plane as shown by the double-headed arrow in Fig. 6.

The lever 8 has a downwardly extending ridge 86. The lower edge of the ridge 86 rests against the flat surface 67 of the cap 66 in the rest configuration of Fig. 6.

However, when a user presses down an area 87 of the lever 8, distal from the lugs 82, 83, the lever 8 rotates about the lower edge of the ridge 86. This forces the pin 81 upwardly. This in turn pulls the link element 70 upwardly, compressing the spring 9. The closure portion 72 is lifted within the hollow body 61, unblocking the spout portion 63. This “open configuration” is shown in Fig. 7. Water can then flow out of the spout portion 63.

When the pressure on the area 87 of the lever 8 is released, the spring 9 returns the link element 70 of the tap unit 6 to the closed configuration of Fig. 6, and the flow of water stops.

The tap unit 6 of Figs. 5-7 can be used in place of the prior art tap unit 5 of Figs. 2-4.

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However, Fig. 9 shows an alternative water dispensing system which can employ two of the tap units 6. Elements of Fig. 9 corresponding to those of the water dispensing system of Fig. 2 are given the same reference numbers. In this water dispensing system, the dispenser unit 4 of Fig. 2 is replaced by a dispenser unit 44 in which the conduit 43 of Fig. 2 is replaced by a branching conduit 45. The branching conduit 45 has two branches 46, 47, each terminating in a portion having a threaded inner surface for attachment to a tap unit. Thus the dispensing unit 44 can be connected to two tap units 6; or two tap units 5; or to one tap unit 5 and one tap unit 6. The first of these possibilities is illustrated in Fig. 9. A cooling unit 91 is placed near branch 46, and a heating unit 92 is placed near branch 47. Thus, a user is able to obtain either hot or cold water by selecting the respective one of the tap units 6.

Fig. 10 illustrates lever 20 which can replace the lever 8 of Figs. 5-8, in order to form a tap unit 21 which is a third embodiment of the invention. Fig. 11 shows the tap unit 21 in operation. Corresponding elements are given the same reference numerals.

The lever 20 is identical to the lever 8, with the sole exception that the lever element 20 includes a resilient element 22. The resilient element 22 is compressible in the direction indicated by the double arrow in Fig. 10, which is the length direction of the lever 20. This changes the spacing between the lugs 82, 83 and the ridge 86.

If the resilient element 22 is not compressed (i.e. the lever 20 is an expanded state), then the spacing between the lugs 82, 83 and the ridge 86 is great enough that the ridge 86 extends horizontally beyond the flat surface 67 of the cap 66. This gives a rest position shown in Fig. 11(a). Thus, depressing the area 81 at the free end of the lever 20 does not cause the ridge 86 to bear against the flat surface 67 of the cap 66, and thus does not lever the pin 81 upwards. So, it does not allow water to flow through the tap unit 21.

However, water can be extracted as follows. First, the free end of the lever 20 is raised such that the length direction of the lever is horizontal (as shown in Fig. 11(b)). Then lever 20 is compressed in its length direction (as shown in Fig. 11(c)), so that the resilient element 22 is compressed ("compressed state"). This brings the ridge 86 over the flat surface 67 of the cap 66. Then, the area 81 at the free end of the lever 20 is pressed down, causing the lever to rotate

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about the free edge of the ridge 86, thereby levering up the leg portion 71 of the link element 70, and putting the tap unit 21 into the open configuration (as shown in Fig. 11(d)).

5

Thus, water can only be extracted using the tap unit 21 in the case that the user lifts the lever 20, compresses the resilient element 22, and then moves the free end of the lever 20 downwardly. This is a complex action which, with practice, a user can perform single-handedly while holding a cup with his or her other hand, but it is hard for a child to perform the action, and thus there is little risk of the child causing water to leak. It will be clear to a skilled reader that the tap unit 21 can be used to replace one or both of the tap units 6 in Fig. 9.

10

Claims

15

1. A water dispenser having:
a dispenser unit for receiving a water bottle, the dispenser unit having a conduit for receiving water from the water bottle;
a tap unit, the tap unit having an open configuration in which the tap unit permits water to flow from the conduit to a spout of the tap unit, and a closed configuration in which the tap unit does not permit water to flow from the conduit to the spout,
the tap unit further comprising a spring for biasing the tap unit to the closed configuration.

20

2. A water dispenser having:
a dispenser unit for receiving a water bottle, the dispenser unit having a conduit for receiving water from the water bottle and transmitting it to two output portions, and a heater device and a cooler device proximate the respective output portions;
for each output portion a respective tap unit for controlling the flow of water through the respective output portion.

25

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3. A water dispenser having:
- a dispenser unit for receiving a water bottle, the dispenser unit having a conduit for
- 5 receiving water from the water bottle;
- a tap unit controllable by a lever unit, the lever unit having an expanded state in which it can control the tap unit to dispense water from the water bottle, and a contracted state in which the lever unit is not operative to control the tap unit to dispense water from the water bottle, the lever unit being biased into the contracted state.

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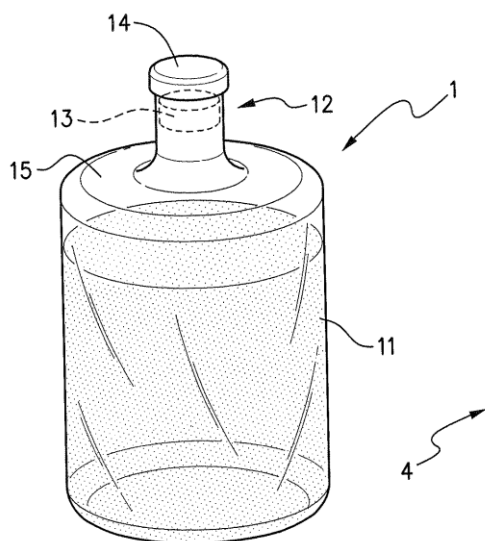


FIG. 1

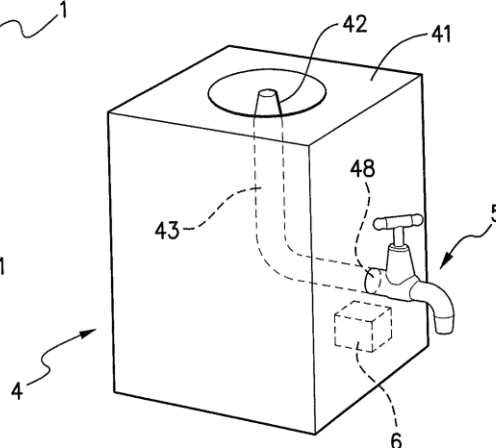


FIG. 2

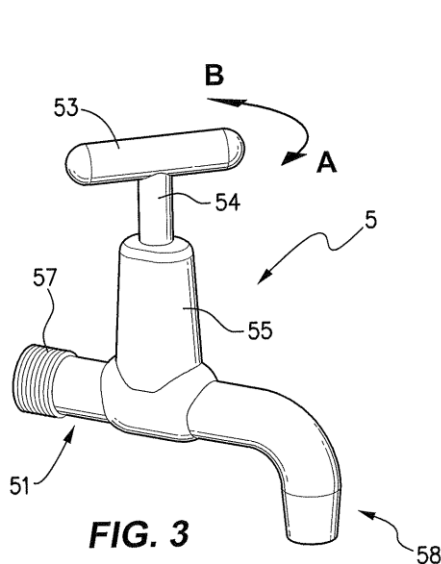


FIG. 3

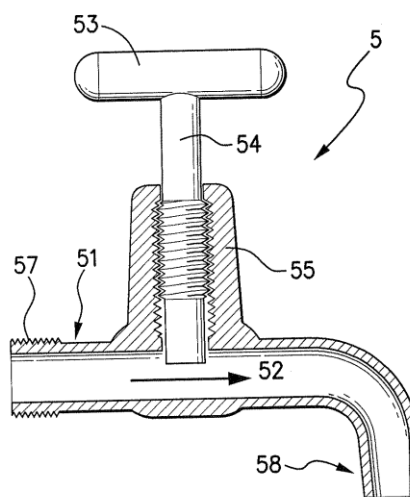


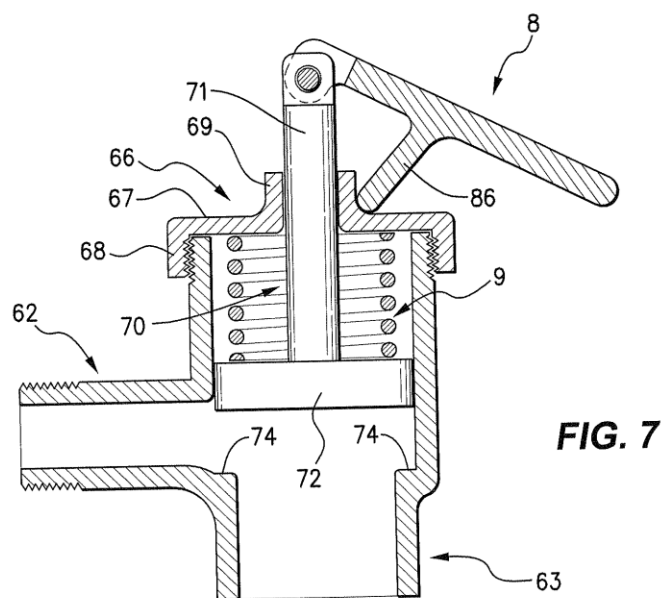
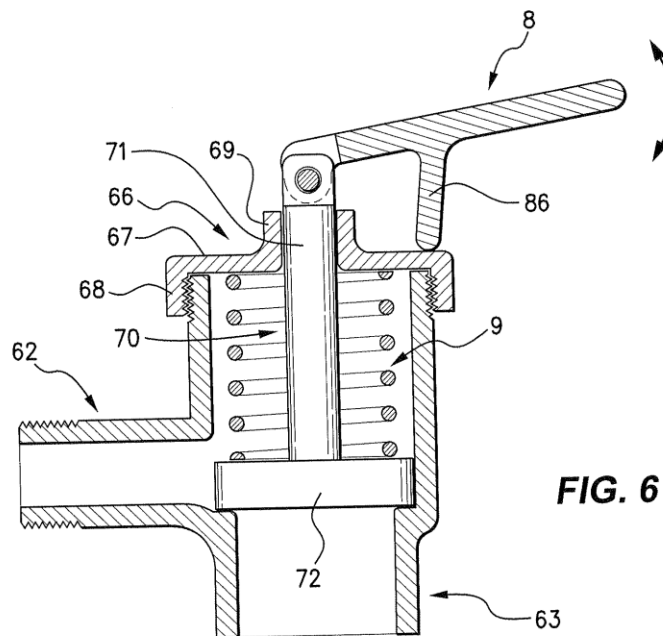
FIG. 4

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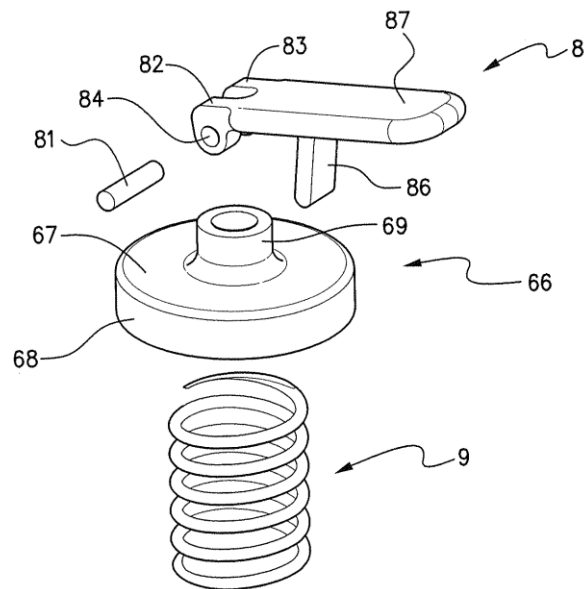
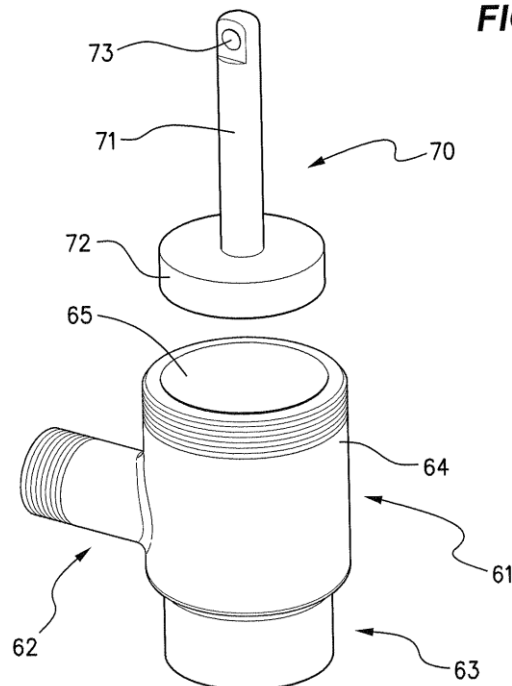


FIG. 8

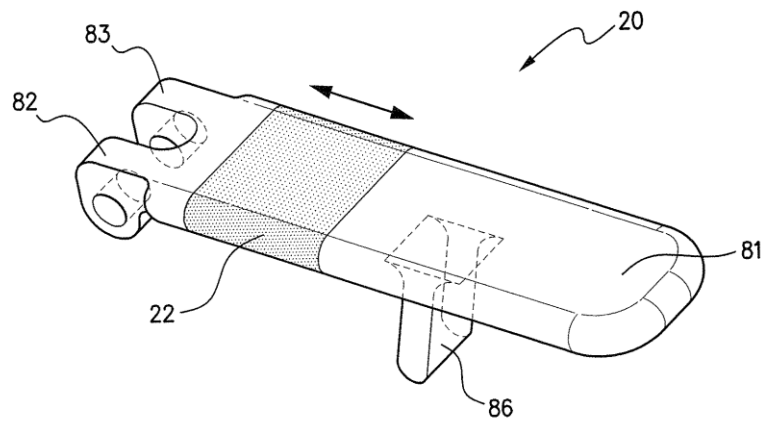
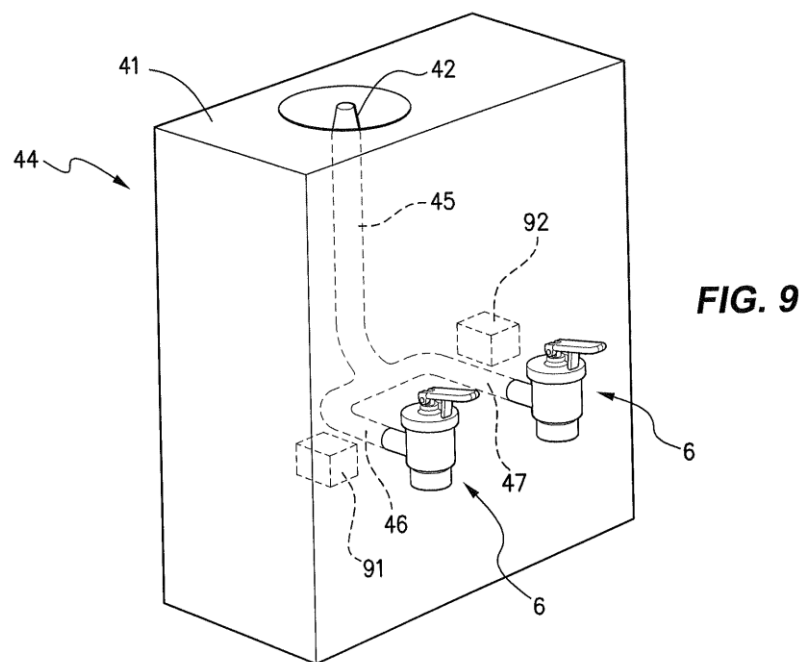


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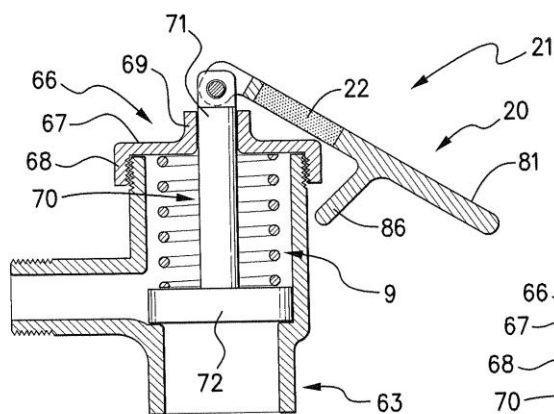


FIG. 11a

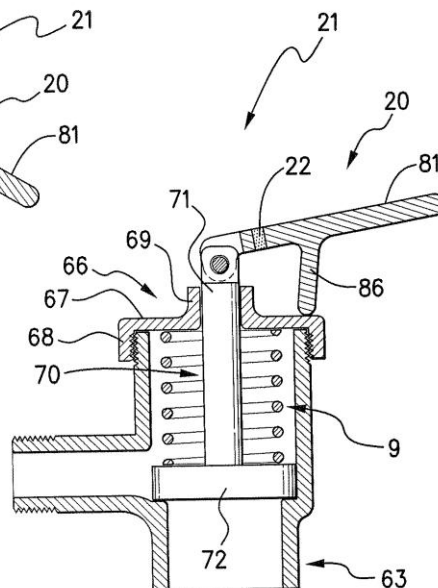


FIG. 11c

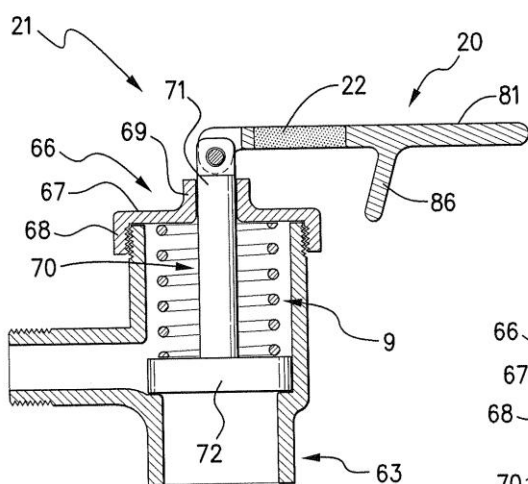


FIG. 11b

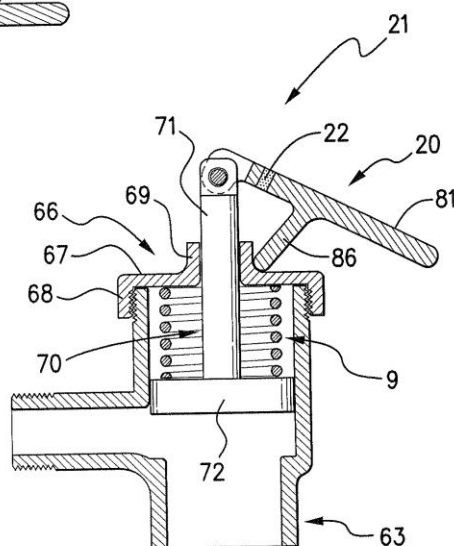


FIG. 11d

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Document C – Written Opinion (1/1)

Written Opinion

- 5 All of claims 1-3 are lacking in novelty over reference D1.

Claims 1-3 do not contain a common feature which is novel with regard to D1, and thus each is directed to a different invention. Unity is lacking, and there are three inventive concepts respectively covered by the three claims.

10

Claim 3 is not supported by the description.

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Document D1 - A leaflet published by a company "Tea Glow Ltd" on 1 April 2004 (1/7)

Two-temperature water dispenser

- 5 It is very common to provide in an office environment a dispenser for cold water, including a cooling element proximate the tap. Similarly, it is common in kitchens to provide a water dispenser having a heating element proximate the tap, which individuals can use to make cups of tea.
- 10 Tea Glow appreciates that in many environments there will be a need to supply both cold and hot water, from a single water bottle supply, so our dispenser unit provides *two* conduits from the water tank, which respectively pass a cooler and a heater. Rather than providing a separate tap for each of the conduits, Tea Glow propose a single tap, which is movable between a closed configuration and two open configurations, and in the each open configuration transmits water
- 15 from a different respective one of the conduits.

The configuration is shown in Fig. 1 in a perspective view. A water bottle 1 is upended over a dispenser unit 2. The dispenser unit draws water from the water bottle along two pipes 3, 13, provided respectively with a cooler unit 5 and a heater unit 15. The pipes 3, 13 terminate at, and

20 are joined to, respective input pipes 61, 62 of a tap unit 7. The tap unit has a spout 9. It also has an L-shaped handle 41. The L-shaped handle has a horizontal arm 42 and a vertical leg 43. The arm 42 can be rotated about a vertical axis which is the central axis of the leg 43. That is, the free end of the arm 42 can move in the two directions shown as A and B in Fig. 1.

- 25 In the rest configuration shown in Fig. 1, water from the bottle 1 cannot pass to the spout 9. However, when the arm 42 is rotated in the direction A, a flow path is opened from the pipe 13 (close to the heater unit 15) through the tap unit 7 to the spout 9, so warm water exits the spout 9. When the arm 42 is rotated in the direction B, a flow path is opened from the pipe 3 (close to the cooler unit 5) through the tap unit 7 to the spout 9, so cold water exits the spout 9.

30 The tap unit 7 is shown in a larger view in Fig. 3, and its two main components 4, 6 are shown in Fig. 2(a) and 2(b) respectively.

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Document 1 - A leaflet published by a company "Tea Glow Ltd" on 1 April 2004 (2/7)

Component 4 includes the lever 41. The lower end of the leg 43 is attached to a cylindrical body 44. A lug 45 is upstanding from the top surface of the cylindrical body 44.

5

Component 6 has a circular wall 63 which surrounds a cylindrical void 68. The inwardly-facing surface of the wall 63 is marked 65. The cylindrical void 68 has a floor 66, which contains a hole which leads to the spout 9. A lug 67 is upstanding from the top of the circular wall 63.

10 The cylindrical body 44 of the component 4 is placed into, and fills, the cylindrical void 68. This means that the cylindrical body 44 can rotate in a horizontal plane within the cylindrical void 68, about the dashed vertical line in Figs 2(a), 2(b) and 3, under the control of the arm 42 which acts as a lever.

15 A spring 8 is provided connecting the lugs 45 and 67. The spring 8 is stretched when the arm 42 is moved in either the directions A or B shown in Fig. 1. Thus, the spring 8 functions as a biasing means to urge the cylindrical body into the closed configuration shown in Fig. 1 in which water cannot exit the bottle 1 through the tap unit 7.

20 Fig. 4 corresponds to Fig. 2(a), but shows by dashed lines an internal L-shaped conduit 46 which is provided through the cylindrical body 44. The conduit 46 has a first end 47 in the side-wall of the cylindrical body 44, and a second end 48 in the centre of the circular lower surface of the cylindrical body 44. When the cylindrical body 44 is in the cylindrical void 68, the second end 48 of the conduit 46 is over the hole in the floor 66 which leads to the spout 9. Thus, the conduit
25 46 is always in communication with the spout 9.

Fig. 5 is a view of the component 6 in the direction indicated as C in Fig. 2(b). It shows that the pipes 61, 62 each define conduits which extend through the wall 63, and discharge into the cylindrical void 68, through respective openings 69, 70.

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Thus, when the cylindrical body 44 rotates within the cylindrical void 68 to bring the first end 47 of the conduit 46 into register with the opening 69 (which is caused by the arm 42 rotating in direction B), this creates a flow path from the pipe 61 to the spout 9. When the cylindrical body 44 rotates within the cylindrical void 68 to bring the end 47 of the conduit 46 into register with the opening 70 (which is caused by the arm 42 rotating in the direction A), this creates a flow path from the pipe 62 to the spout 9.

- 10 When the user releases the arm 42, the spring 8 contracts, bringing the arm back to the configuration of Fig. 1, in which water cannot flow out of the water bottle 1 along either of pipes 3, 13.

- 15 Figs. 6 and 7 show the components 4 and 6 respectively, viewed in the vertical direction, marked as D, in Fig. 2(a).

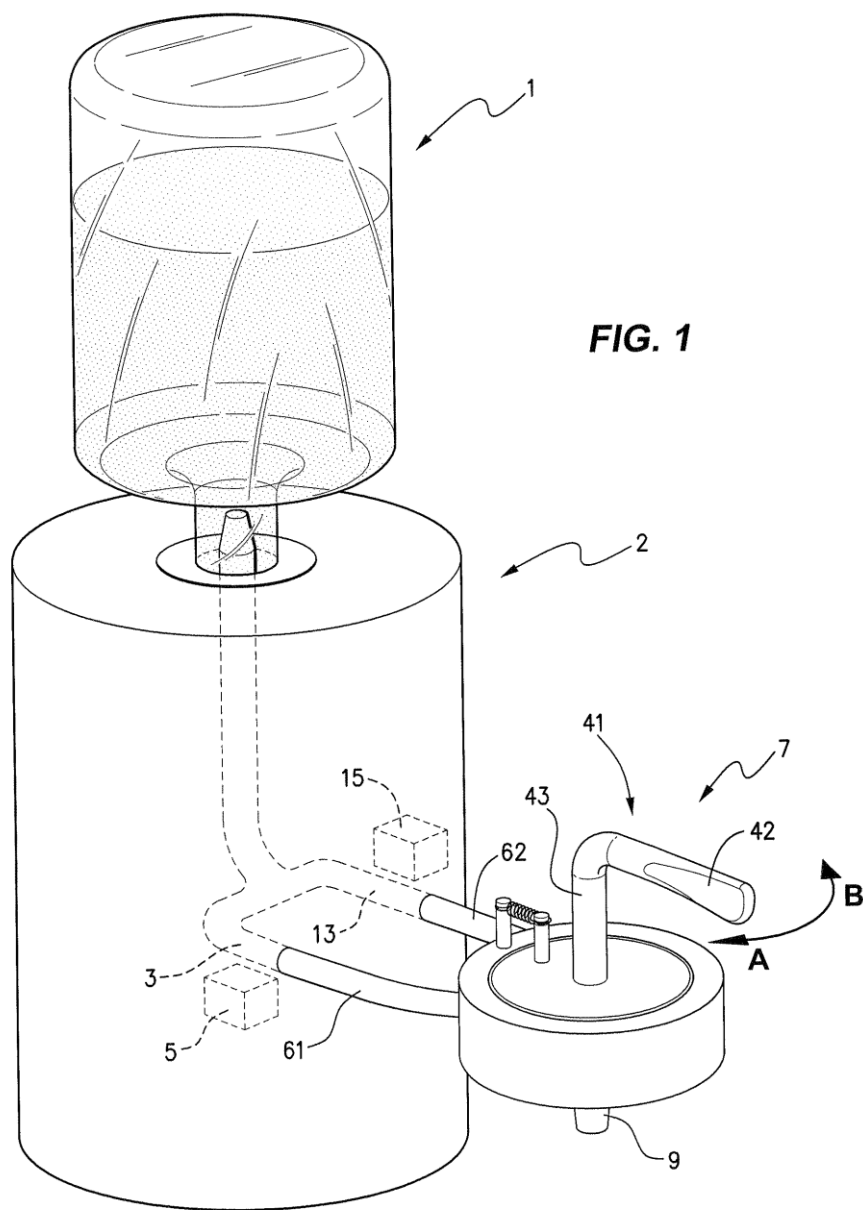
- In certain situations it may be inconvenient that water can be dispensed so easily. For example, a careless motion which displaces arm 42 can cause scalding water to be dispensed unintentionally. In one variation, therefore, the tap unit 7 is provided with a mechanism which requires that a second, longitudinal action at the same time as the rotational motion of the arm 42, in order that water is dispensed. For example, spout 9 may be provided with a valve controlled by a button. The valve is biased into a closed formation in which water cannot pass through the spout 9. The valve is open when, and only when, the button is pressed. Thus, to dispense water by displacing the user arm 42 with one hand, while pressing the button with the other.
- 20
- 25

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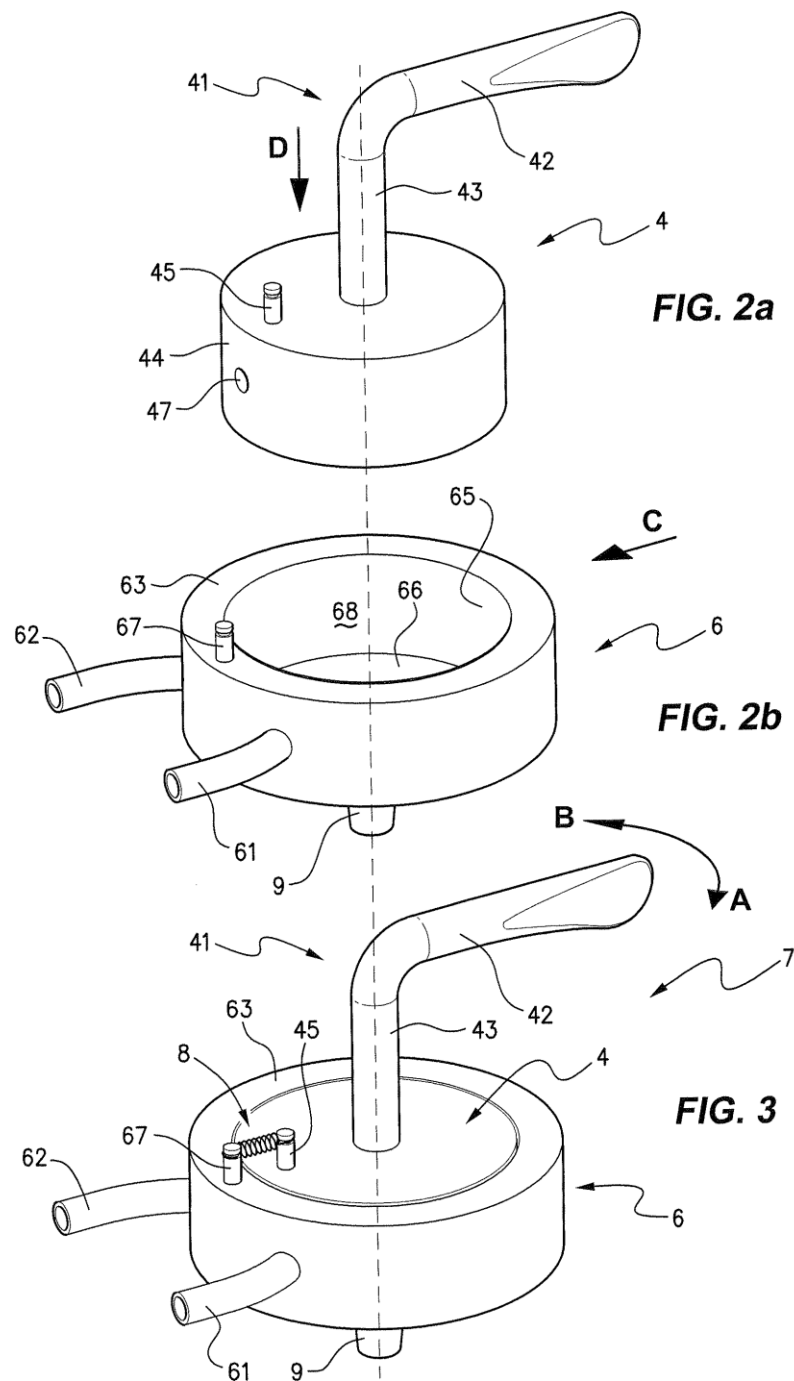


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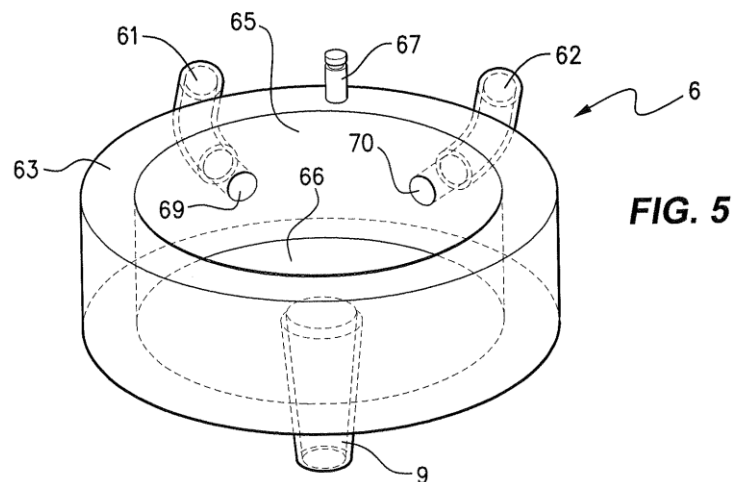
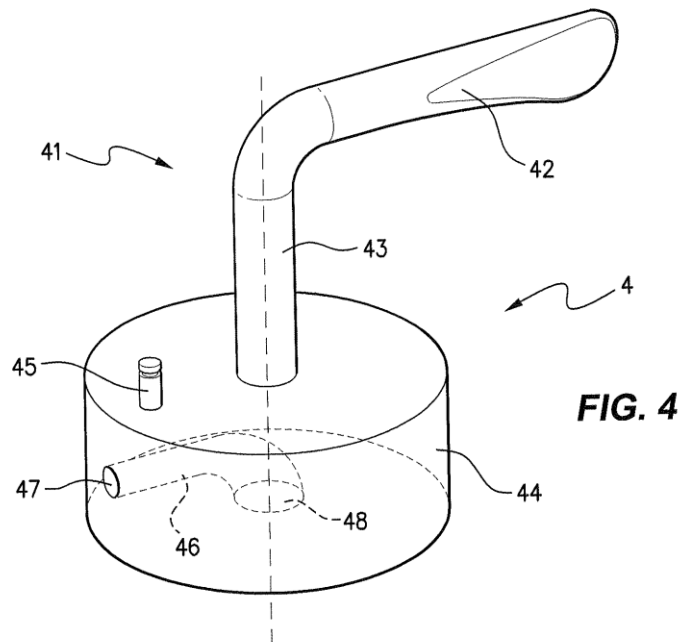


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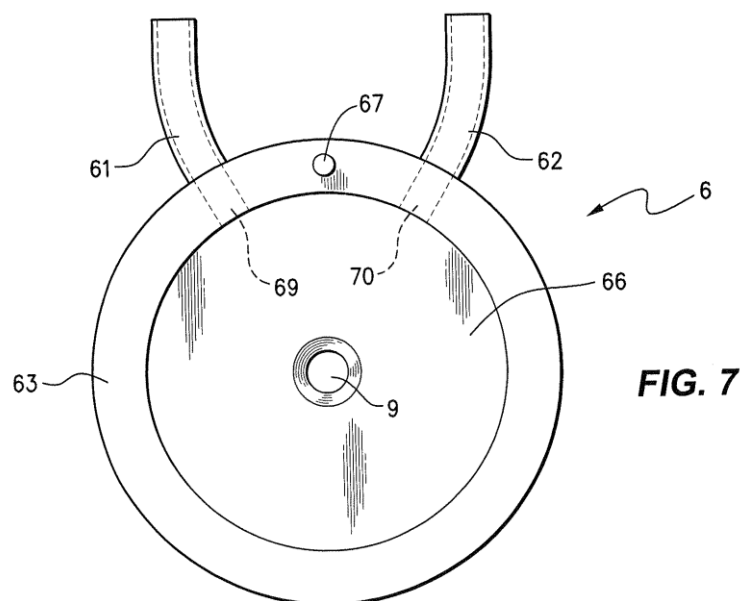
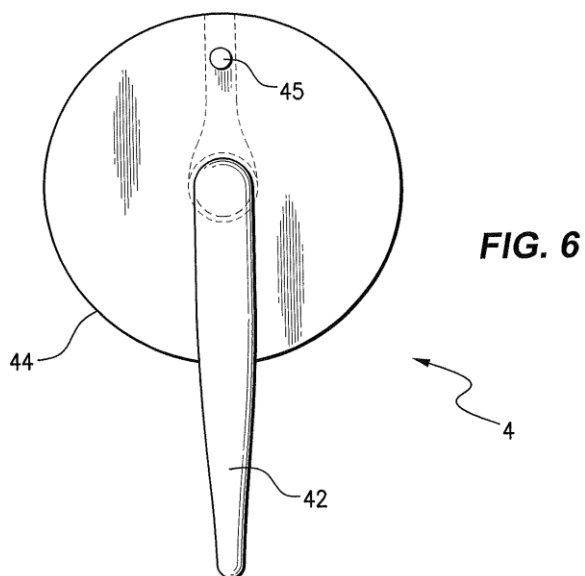
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