FORM 2
THE PATENT ACT 1970
&
The Patents Rules, 2003
COMPLETE SPECIFICATION
(See section 10 and rule 13)

1. TITLE OF THE INVENTION:

AIB-BOTTLE: AI BASED WATER FILTER BOTTLE

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COMPLETE : The following specification Invention. Particularly describes the invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

[10] My invented bottle "**AIB-BOTTLE** " that makes water potable/drinkable using an in built purifier. Also the invention relates to water filtration, and more particularly, to an improved, portable water filtration bottle.

BACKGROUND OF THE INVENTION

[20] Water being a basic necessity cannot be avoided at all but the water should be potable as well . Nowadays the flowing water, drinking water tanks etc aren't clean or in short they cannot be used for drinking purposes. And drinking non potable water will make the person fall ill. Even avoiding the non potable water and not drinking the water turns in the person falling ill. Auto filter water bottle is the solution over these problems. This invention disclosure is not limited to the parameters mentioned here but other possible problems can also be solved.

[30] Water filtering means are widely known and used in numerous applications. It is important when comparing different kinds of filtration processes, and different kinds of products, that an understanding of the abilities and inabilities of each is obtained. The source of the water and particular "product need" are necessary to make sure that the correct filtration products are used in order to solve specific problems and to reduce specific contaminants and/or pollutants. With so many varying water problems and available filtration products throughout the world, an analysis or test of specific needs should be made before making a decision on what filtration product or products should be used to provide safe drinking water.

MICROBIOLOGY

[40] Each filtration and/or purification process and/or product has different abilities and inabilities of removing the contaminants mentioned above. These include: 1) Sediment filtration, which is primarily used to remove silt, sand and suspended items. Sediment filters come in many sizes, such as 20 micron, to remove particles that are 20 microns in size or larger. 2) Granulated activated carbon filtration (GAC), which are very effective at removing some chlorine, chloroform, trihalomethane, VOC, pesticides, herbicides and other organic chemicals. This type of filter is responsible for improving clarity, taste and odor, and the characteristics of the quality or type of GAC--dwell time, volume and flow rate have to be considered to create the best results for absorption of pollutants in water. The present invention uses a filter having Powder Activated Coconut Carbon (PAC), which is considered to be the very highest quality and smallest of the carbon medias. 3) Ultra filtration, which is the design of very fine filters or ultra filtration filters created for use in removing the contaminants listed above.

[50] These filters have the ability to remove pathogens that are larger than the pore size of the fine filter. Guardia, Cryptosporidium and other micro-organisms measuring 2-10 microns in size. Such filter assemblies are set forth in pending application Ser. No. 08/813,268, filed Dec. 23, 1996 for a PORTABLE FILTRATION SYSTEM AND METHOD, naming the same inventors as the current application. The disclosure of this application is incorporated herein, in its entirely, by this reference thereto. These known filters can remove up to 99.9% of the pollutants. Although such known water filter assemblies solve the above-mentioned filter needs, it has been found that the handling of the caps of such filters, when removing or replacing them on a bottle can contaminate the filter. Thus, there still exists the need in the art for an easy-to-use, substantially low-cost filter held in a flexible bottle that is not contaminated by handling, and efficiently filters and purifies water.

[60] The combination filter and squeeze bottle of the present invention provides a product that has similar capabilities to known filter bottles to improve filtration and purification for more of the total pollution, by providing a water filter purification system, using media that is smaller than 5 micron in pore size, sealed in the interior of a bottle. The present invention has been specifically designed to be effective in all of the pollution areas identified above, namely, INORGANICS, ORGANICS, RADIOLOGICAL CHEMICALS AND MICROBIOLOGY. Available testing data shows the improved abilities of the present invention to remove high percentages of all of these contaminants or pollutants, without becoming contaminated by handling, which might occur with known systems.

[70] Basically, the filter bottle combination of the present invention is permanently mounted and sealed in the top of a flexible, portable bottle. The flexible bottle includes an opening in the bottom of the bottle through which water may be added. A sealing cap is used to close the bottom opening. The filter assembly permanently secured in the bottle includes a PAC filter impregnated with sorbent media and a check valve assembly with a further filter mounted therein. When the cap closure at the bottom of the bottle is removed from the flexible bottle, the flexible bottle is filled with questionable water and the bottom cap replaced and tightened to seal the bottle. A nozzle outlet or valve is provided at a tip portion at the top of the bottle, after the sealed filter element. This valve may then be pulled upwardly or turned to open, and the flexible bottle squeezed to force water through the filter element, permanently sealed in the top of the bottle, whereby clean, filtered water will exit through the open nozzle or valve. The nozzle outlet or valve is then closed to seal the unit after use.

USER FACING PROBLEMS:

[80]
1.While travelling, it's not possible to carry water in large quantity. So, after being left with no water and feeling thirsty we have to start searching for drinking water tanks.
2.These drinking water tanks may or may not be available easily we have to search thoroughly.
3.Again not necessary the water in these water tanks is potable. It may contain impurities harmful for human health.
4.In summers the water is too hot and in winters the water is too cold .So, if the person wants to have water according to his or her own accordance can't have it.

PRIOR ART STATEMENT

[90]

US6004460A

A combination filter assembly and flexible, portable bottle having a bottom opening with a sealing cap attached thereto, to filter out substantially all INORGANICS, ORGANICS, RADIOLOGICAL CHEMICALS and MICROBIOLOGY held in water in the bottle. The filter assembly may be attached to an adapter sealed to the top of the flexible bottle. Water in the bottle passes through the filter assembly and out a top nozzle or valve when the flexible bottle is squeezed. The flexible bottle is filled with water through the bottom opening.

US7810651B2

[100] A flexible water bottle is provided that includes an approach for filtering unfiltered water within the bottle. The bottle includes a filter assembly located within the cap of the bottle such that the filter assembly need not descend into the bottle cavity when the cap is screwed on, thereby not displacing water while screwing on the cap. The filter assembly has an axial flow orientation. An illustrated filter assembly includes paper filters covering the upper and lower ends and can include an activated charcoal filter in between the paper filters. Water is filtered when pressure generated by squeezing the bottle forces water from the bottle cavity through the filter along an axial flow path and out through a spout.

US4605499A

[110] A disposable, portable water filter that is suited for filtering small quantities of drinking water. In one embodiment the filter may be placed over a jar or drinking glass and unfiltered water poured into the jar or glass through the filter. In another embodiment, the filter includes the jar which has a lid with a rim that fits tightly around the neck of the jar. The lid may have an opening for pouring

unfiltered water into the jar and filtered water out from the jar. The lid may have an opening for pouring unfiltered water into the jar and filtered water out from the jar. The filter thereby provides twice the filtering effect. The filter in a preferred embodiment consists of containing material that forms a pouch for holding the filter medium and a skirt for suspending the filter. In another embodiment the filter may consist of one sheet of metal foil shaped like a bowl for containing the filter medium, and has handles extending from the bowl for holding the filter over a jar or drinking glass.

US6478956B2

[120] A manually pressurized water filtering container comprising an enclosure having a compressible wall terminating at an open neck and a removable, water permeable filter module and a cap adapted for receiving the filter module and for engaging and sealing the open neck. A sealing gasket is compressed between two sealing surfaces in one case by a retainer and in another case by the engagement of the cap on the container. Water forced out of the enclosure by compression of the wall moves through the filter module to reach the open neck and the cap.

US5518613A.

[130] A personal portable water purifying and drinking device. The device includes a conduit having a chemical purification stage positioned at one end of the conduit, and a filtration stage positioned at the opposite end of the conduit. The chemical purification stage includes a chemical purifying agent and a residence chamber to neutralize bacteria and viruses. The filtration stage includes a filter and a cleaning medium, the filter having a diameter larger than the diameter of the conduit, and designed to remove exceedingly small microorganisms, such as potentially harmful parasites 1-2 μm in size, from the water to be filtered. A mouthpiece is mounted after the filtration stage of the conduit to draw fluid through the device and into the user's mouth.

WO2015167951A1

[140] Water bottles and flavor tablets for use therewith. The water bottle includes a container having a closed end, an open end, and a removable lid selectively couple able over the open end of the container. A straw is disposed through the lid, or attached to the lid. A filter may be disposed within the straw, the filter removing impurities from water as it is drawn from the chamber through an opening within the straw, through the filter. A flavor tablet (e.g., a dissolvable solid including a flow channel disposed therein, or defined between a perimeter edge of the tablet and the straw or spout) can be placed within the straw or spout of the

water bottle, downstream from (e.g., above) the filter so that water drawn through the straw passes first through the filter (if present), and then around or through the flavor tablet, flavoring the water drawn there through

US6569329B1

[150] A bottle mountable filtration system typically includes a plurality of different filter elements or filtering and treatment elements having a substantially common central axis that are mounted to extend into a bottle from a cap with a manual valve. Mounting structures may be provided, by screw threads, or by an interference fit, and connect the filter treating elements to the cap. An outer filter treating element may comprise a chlorine removal primarily radial flow outer filter, and an inner treatment element comprising a flavoring, vitamin, mineral, or medication adding component including a mixing chamber which provides an axial flow chamber radially surrounded by the flavoring, etc., adding component. Conversely, the inner treatment element may be a radial flow carbon composite filter used independently or in conjunction with one of several independent outer water treatment elements which may be radial or axial flow in design for the removal of a variety of biological, organic, or inorganic contaminants.

SUMMARY OF THE INVENTION

[160] Accordingly, it is a general object of the present invention to provide an improved portable squeeze bottle and filter assembly. It is a particular object of the present invention to provide a compact PAC water filter permanently secured in the top of a flexible, portable bottle. It is yet a more particular object of the present invention to provide an improved filter assembly permanently secured in the top of a flexible, portable bottle, having an opening in the bottom of the bottle. It is a still further particular object of the present invention to provide an improved flexible, portable bottle having an improved filter assembly permanently secured in the top thereof. And, it is yet a still more particular object of the present invention to provide an improved, flexible, portable bottle having an improved filter element secured in a top of the bottle, with an open bottom, having a closure cap thereon.

[170] In accordance with one aspect of the present invention, there is provided a filter assembly for a flexible, portable bottle. The filter assembly includes a PAC filter assembly permanently secured in the top of the flexible body of the bottle to filter out substantially all pollutants. The bottle has an opening formed in the bottom of the flexible body of the bottle to allow water to be added to the flexible bottle. The present invention also provides a novel bottom cap for sealing the flexible, portable bottle to allow water in the bottle to be squeezed out through a

nozzle or valve in the top of the bottle, when the nozzle is open and sufficient force is applied to the bottle.

[180] the portable disposable filter according to the invention consists essentially of a filter part cnsisting of two layers of a porous containing material or fabric which contains confined between the two layers, a measured, small amount of filter medium.

[190] The containing material may be any water resistant woven fabric such as cheesecloth, or a fibrous material such as waterproof paper or suitably woven or matted synthetic fiber, which, by itself may provide part of the filtering process. The filter medium may advantageously be granular, activated charcoal which is a well known highly effective filter medium, but the scope of the invention shall not be confined to any particular type of filter medium, since it is capable of working with any suitable granulated filter medium.

[200] In one of its more preferred embodiments the portable filter, according to the instant invention, consists of a section of hose, made of containing fabric, which is closed at one end, into which is poured a measured small amount of filter medium, such as a teaspoon or less. The hose immediately above the filter medium is constricted by means of a suitable drawstring, rubber band or the like so that a small pouch enclosing the filter medium is formed. The remaining hose section is next folded inside-out forming an upward projecting skirt encircling the pouch filled with filter medium, which can next conveniently be lowered into a wide-mouth water jar or container with a threaded neck, which fits under a standard faucet, with the skirt folded over the upper edge of the neck of the mouth, so that unfiltered water can be poured into the jar where it is filtered as it percolates through the filter medium, and is collected and stored as filtered water in the jar. The water is filtered again when it is poured out.

[210] In another embodiment, the water container may have a screw-on or press-on lid that can be screwed over the top of the jar's neck and hold in place the folded-over skirt of the filter. The lid may advantageously have an opening for pouring water into the jar, and the opening may have a snap-on cap and/or may be adapted to receive the end of a water hose for filling the jar, or a pouring spout.

[220] In still another embodiment, the screw-on lid may have a folding handle which in an extended position is helpful in tightly screwing the lid onto the neck of the jar and for holding the filter. In still another embodiment the screw-on lid may have an opening adapted to receive a pouring spout.

[230] In still another embodiment the portable filter part may be constructed of two coordinated circular pieces of containing fabric which are joined at the edges and contain filter medium in the space between the two pieces.

[240] In still another embodiment with the two pieces of coordinated containing fabric, the upper piece may be porous, while the lower piece is impermeable except for a small center opening or grid so that the lower piece acts as a funnel, for urging the filtered water percolating through the filter medium, toward the middle of the filter, from where it pours into the jar. In still another embodiment, the lower coordinated piece may be formed of rather rigid aluminum foil that can be shaped into a cone, bowl or hemisphere with small holes or a grid in the bottom that contains the filter medium granules but let's water pass through. In still another embodiment, the bottom piece of aluminum may have radially projecting handle parts, so that the filter can be placed over the mouth of the jar without falling into the jar. The projecting parts may have a hole or eyelet for hanging the filter part when not in use.

[250] Although there exist novelty straws (e.g., U.S. Patent No. 8,334,003) into which flavoring granules may be placed, such systems are messy, due to the presence of the large quantity of individual, loose flavoring granules provided therein. It would be advantageous to provide a simpler, less messy system that would allow a user to flavor water dispensed from a personal water bottle.

[260] Furthermore, available water bottles including filter systems are not particularly selective in their removal of components within the water. Such existing systems simply remove all particulates greater than a given size, and also remove other components that are chemically adsorbed or otherwise trapped by the filter media. Such systems are not sophisticated about removing only unwanted "bad" contaminants from the water. For example, the current filters do not discriminate between minerals or other components in the water that are good or bad for the user, but rather simply stop any and all materials can be stopped by the particular filtration mechanism.

[270] The present invention solves this problem by providing the ability to add good or desirable components to the water (e.g., back into the water) flow after water may be filtered, by whatever filtration technique desired. In this way, the user can ensure they are both filtering out the bad, while still receiving the good.
[280] This is accomplished by using a dissolvable tablet that is downstream from any filtering system, which tablet allows the user to introduce or reintroduce good, desired minerals, vitamins, or flavors into the water after it has filtered out the contaminants in the water. The present invention relates to reusable water bottles for personal use, and which provide the ability to introduce a flavor or

other adjuvant (e.g., vitamins, minerals, etc.) into the drinking water being dispensed from the water bottle, as it is being consumed (e.g., sucked through a straw).

[290] According to one embodiment, a water bottle includes a container having a closed end (e.g., bottom) and open end (e.g., top), the container defining a chamber therein for containing water. A removable lid may be included, which lid may be selectively couple able over the open end (e.g., top) of the container. A straw may be provided, disposed through the removable lid, and/or attached to the lid (e.g., to an underside of the removable lid). The straw may extend towards the closed end (e.g., bottom) of the container. A filter may be disposed within the straw. Such a filter may remove impurities (e.g., chlorine) from water as it is drawn from the chamber through an opening within the straw (e.g., in the bottom of the straw), through the filter. A flavor tablet (e.g., solid and dissolvable) may be provided, disposed within the straw at a location that is downstream from (e.g., above) the filter, so that water drawn into the straw is pulled through the filter, and then around or through the flavor tablet, flavoring the water drawn there through.

BRIEF DESCRIPTION OF THE DIAGRAM

[300]

fig.1 shows the outer surface which has a T.D.S meter to show the actual quality of water.
fig2. shows the inner portion of bottle that contains a filter/purifier which has three layers. and the base of the bottle has a circuit for the purifier purpose.
fig.3 shows the detailing picture of the inbuilt purifier which has three layers.
fig.4: actual bottle .

DESCRIPTION OF THE INVENTION

[310] As the public both domestically and internationally has become aware of the decline in water quality due to both chemical and biological contamination, it has become apparent that more choice, capability, and versatility would serve the general public's interest. To provide the ability to the consumer to custom tailor a high performance water filtration product both simply and economically would be advantageous. Particularly as no such product currently exists. It has also become apparent that a significant quantity of water consumed by the public is consumed outside the home. Typically, prior to the introduction of portable personal water filter bottles by Innova Pure Water, Inc., the alternative was expensive, and not always conveniently available bottled water. This changed somewhat with the introduction of the portable Innova personal water filter bottles for chlorine, taste

and odor removal. But a void has remained for lead, protozoa, nitrates, bacteria, viruses, and in some areas calcium.

[320] By separating the various filtration elements into independent rechargeable filtration or water treatment components which are interchangeable, total flexibility and utility can be attained. As will be shown by the drawings and the product descriptions attached, there are independent interchangeable filtration/water treatment modules to solve most, if not all, principal water contamination problems. The essential breakthrough to providing such a system was to develop a universal filtration element functioning as the core element about which the specialized modules would be assembled and a convenient, efficient and secure means to assemble the components to preferably the bottle cap. By separating the individual filtration/water treatment components economic advantages, as well as flexibility is achieved. Thus, the user can purchase a high performance "Sport Type" bottle with greater than 90% chlorine, lead, taste and odor removal for use as a personal portable water treatment device to take along and replenish from typical municipal treated sources. However, with the addition of secondary filters, as an example, water may be taken from other sources of unknown quality and treated for biological contamination, or other desirable treatments may be achieved.

[330] While the internal filter generally remains constant the outer elements are changed as dictated by the treatment requirements. The method of mounting and securing the filters is unique. Each of the bottle tops, which as presently used are of 53 mm-73 mm neck diameter, provide adequate clearance and space for the external secondary treatment device. This adaptation mechanism provides two independent surfaces upon which each of the treatment elements may be assembled. Typically, the outer element is affixed to the cap either with or through the use of a friction fit and double "O" ring seals, or a thread-on adapter. An advantage is in the secure, as well as simple nature of assembly which does not require any high degree of force. It is more positive, providing excellent filter retention and sealing capability, while remaining user friendly when considering the broad range of users. With the threaded design little strength is required to either assemble or remove the filter. Thus, the following described system for water treatment/filtration brings unique advantages of economics, safety, aesthetic water quality, and freedom from many harmful biological, chemical and heavy metal contaminants.

[340] There are several significant aspects to the invention; the first is the manner by which two independent water treatment elements are combined. The second is the individual filtration/treatment modules which are freely combined with the

basic unit. A third is the option of a proper and thoroughly mixed addition of vitamin, minerals, flavorings, or the like to the filtered water. As the various water treatment units are independent, and interchangeable to meet particular requirements a treatment system has been created for the first time. The system allows the user to adapt a basic high performance filter water bottle to a biological treatment product for protozoa, a product to devitalize or exclude bacteria, or bacteria and virus. Also, secondary treatment elements for the removal of nitrates, arsenic, calcium, and specific heavy metals, as well as contaminants which are radioactive and nuclear by-products.

[350] The secondary filter assembles over the inner filter without affecting the inner carbon composite filter in any manner. The exceptional removal ability of the carbon composite filter removes not only chlorine very effectively, up to about 91%, but also removes the residual iodine taste which is frequently a by-product of treatment for the revitalization of bacteria and virus using an iodinated ion-exchange resin. The carbon composite filter will also remove up to about 97% of the lead present at a flow rate of 10 ml/sec. Another adjunct the subject system makes available is to add a cooling element containing a product such as the “blue ice”™ produced by Rubbermaid as the outer treatment unit which is removable to place in a freezer. After dropping to 32° F. or lower, the cooling element is reassembled to the bottle top over the standard internal carbon composite filter. The cooling element drops the water in the bottle approximately 15° below ambient for a period of an hour or more. The chilled water is consequently filtered by the inner carbon composite filter. The “Blue Ice”™ cooling element may also be used alone, without the inner filter, to cool beverages that should not be filtered; i.e., milk, juices, soft drinks, etc.

[360] The system permits the use of multiple elements and the ease of removal and reassembly permits the practical regeneration of filters with reduced capacity, such as nitrate specific filters. As a result of the high levels of nitrate contamination found in certain locals in the U.S. and Europe a personal portable water filter bottle filter may only last through one day's use. It is then removed and placed in a regeneration unit which over time; i.e. overnight, regenerates the filter which is now ready for effective use. This procedure may be replicated over and over providing an extended life to the regenerative filter which could approach one year, or more.

[370] While a number of designs can be conceived for the regeneration of the nitrate specific ion exchange resin, the essence of such a design for everyday consumer use would hold the filter to be regenerated in a vertical plane with a reservoir both above and below the filter to be regenerated. A solution of salt

(sodium chloride) mixed with water to form a brine (approximately 5%-15% by weight). Each of the two reservoirs (above and below) contains exit/entry ports for the exchange of the brine solution through the ion-exchange resin within the filter body. The top reservoir and bottom reservoirs are reversed either manually or automatically through a spring return released by a latch timer, or other such simple mechanism. By rotating the unit half way through the complete cycle a higher efficiency is achieved. The regeneration unit is also designed to place the entry end of the filter at the base for the initial regeneration cycle. The inlet/outlet ports are sized to restrict the flow through the filter during the regeneration cycle to achieve optimum time in contact of brine with resin to permit the exchange function to take place. There is a second series of inlet/outlet ports sized to allow free unrestricted flow of rinse water through the reservoirs and centered filter. The choice of the port sizes is controlled by rotating the securing collar to one of two positions; i.e., regenerate or rinse.

[380] In function the lower reservoir is filled with salt and water, the brine, and assembled to the filter adapter, with filter, and the upper reservoir. The unit is placed into its stand and the reservoirs and filter assembly is rotated 180 degrees, bringing the reservoir with the brine to the top. As a function of the 180 degree rotation, a spring and timer are set which will again rotate the reservoirs and filter assembly back 180 degrees, timed to coincide with the brine having transferred from the top to the bottom reservoir through the filter.

[390] Upon completion of the regeneration phase the reservoirs with filter assembly are removed from the stand and the threaded end cap of brine filled reservoir is removed and the brine emptied, typically into a sink. The end cap of the other empty reservoir is then removed and with the filter adapter rotated to access the rinse ports, the assembly is placed into the sink and fresh water allowed to run through to rinse the brine from the filter. This operation can also be unattended, as is the regeneration cycle. The rinse cycle requires just a few minutes to clear the remaining brine.

[400] Alternatively a simple nitrate regeneration fixture may be used, for practicing the following: (a) Providing a fixture having a salt support element with a porous bottom portion. (b) Placing salt in the salt support element. (c) Passing water from a faucet or hose into the salt support element to dissolve the salt and produce a brine solution. (d) Causing the brine solution to flow through the porous bottom and through a nitrate filter in need of regeneration. And, (e) after all salt has been dissolved, continuing the passage of water from the faucet or hose through the filter until the regenerated filter is ready for use.

[410] Still another opportunity exists with the use of independent filter or treatment modules. The inner module can contain nutrients to act as supplements, including vitamins and minerals, which are released in dissolved form and more easily ingested than in pill form. Secondly, the inner treatment module may contain a flavoring module which may comprise or consist of a controlled low solubility flavored binder or a liquid flavor dispenser for dispensing materials as shown generally in International Published Application WO 00/09448, the disclosure of which is hereby incorporated by reference herein. The size of the inner module is such that a liquid flavor extract may be used with an incorporated dispenser which meters the flavor extract in a controlled manner based upon water flow and mixes the same. A similar system may also be used to dispense vitamins, minerals, and even medications.

WE CLAIMS

[421]

1. The Invention "**AIB-BOTTLE**" is fully used in Indian user at traveling, office etc. You know person having auto filter bottle will no longer have to search for any water drinking tanks he himself has a self purifying bottle that will make any sourced water potable/drinkable wherever he finds water can be filled in this bottle where this bottle having three layered in built purifier will firstly remove harmful germs/bacteria in micro level etc. then retain some useful minerals and then remove bad taste and add some additional test, foul smell where the water becomes potable and according to the individual one can set and get water temperature in Degree C according to their need. The bottle also has a T.D.S – Display which will let you know about the actual quality of water. This is definitely a user friendly bottle.

2. According to claims 1# the invention is to provide drinkable water in side of bottle.
3. According to claims 1# the invention is to provide good quality of water to carry any location,
4. According to claims 1# the invention is to no need to search the drinking water.
5. According to claims 1# the invention is to remove harmful germs/bacteria.
6. According to claims 1# the invention is to can set and get water temperature according to their need.
7. According to claims 1# the invention is to give T.D.S display meter which will let you know about the actual quality of water.

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ABSTRACT

[422]

My invention "**AIB-BOTTLE**" is fully used in Indian user at traveling, office etc **.** You know person having auto filter bottle will no longer have to search for any water drinking tanks he/she himself has a self purifying bottle that will make any sourced water potable/drinkable wherever he finds water can be filled in this bottle where this bottle having four layered in built purifier will firstly remove harmful germs/bacteria in micro level etc. then retain some useful minerals and then remove bad taste and add some additional test, foul smell where the water becomes potable and according to the individual one can set and get water temperature in Degree C/ F according to their need. This invention also has a T.D.S –Display which will let you know about the actual quality of water.