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PORTABLE WATER SOFTENER

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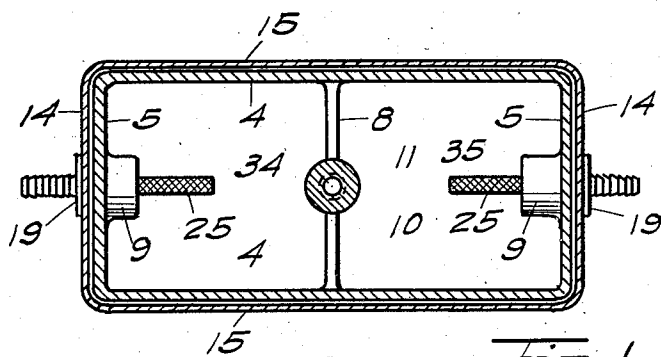


Fig. 1.

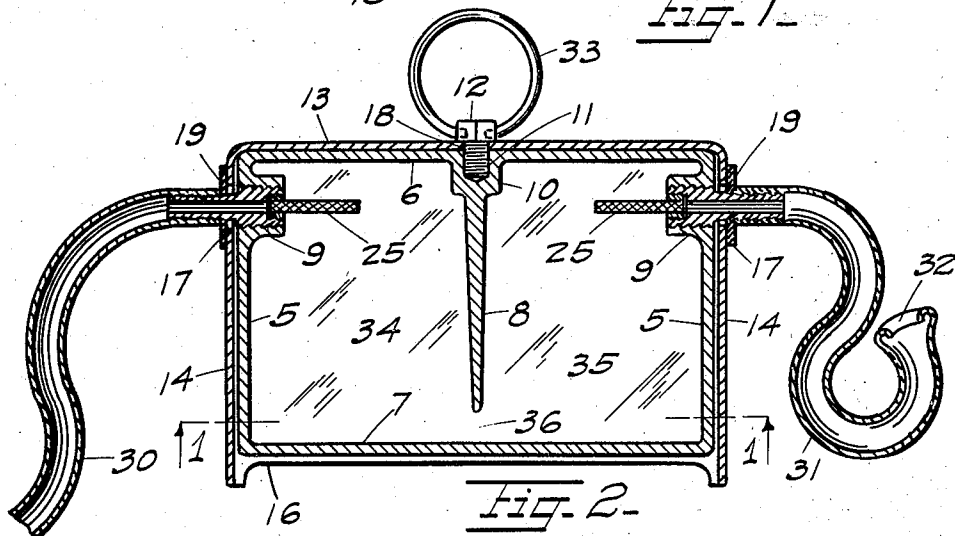


Fig. 2.

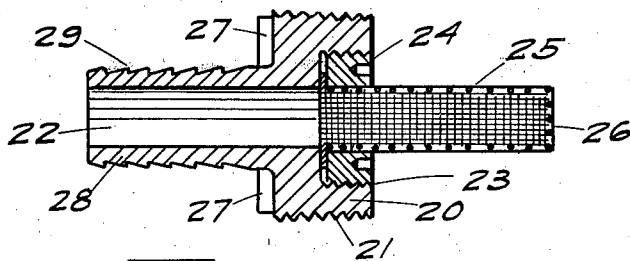


Fig. 3.

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## PORTABLE WATER SOFTENER

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This invention relates to water softening devices, and has special reference to a portable device which may be attached to the ordinary water faucet, and soft water supplied as desired.

The main object of the invention is to provide a portable water softener with flexible tube connections for convenient attachment to the ordinary household faucets.

Another object of the invention is to provide a portable water softener which is light in weight, conveniently handled, readily attached, and detached, of ornamental appearance, easily reactivated, and of ample capacity for ordinary household use.

Further objects of the invention will become apparent as the following description is read on the drawings forming a part of the specification and from the appended claim.

The invention consists primarily of a hollow rectangular body, with a transverse wall centrally located lengthwise and extending from the top to a point adjacent the bottom, leaving a passage for water at that point. At each end, adjacent the top, a removable tube connection communicates with the interior, a screen extending inwardly and being readily removable from the tube connection. The interior of the body is filled with a base exchange material or other water softening material, and flexible tubes are attached to the tube connections, one of the tubes being supplied with an encompassing mouth for convenient attachment to the ordinary household water faucet. A handle is fixed to the top of the body for convenient carrying of the device. A shell cover of porcelain lined metal or plated metal is provided with openings at both ends for reception of the tube connectors, and a hole at the top admits a screw in which the handle is fastened, the screw retaining the cover rigidly in position. The cover is finished in colors and patterns to suit various tastes, and to harmonize with special color combinations.

Referring to the accompanying drawings

Fig. 1 is a sectional plan view of the invention taken on line 1—1 of Fig. 2;

Fig. 2 is a sectional elevation taken through the longitudinal center of the invention;

Fig. 3 is a sectional view through the tube connection and screen.

The body consists of side walls 4, end walls 5, top 6, bottom 7 and transverse wall 8 which extends nearly to the bottom 7. Inwardly extending bosses 9 permit insertion of the connectors practically flush with the outer surface of end walls 5. A boss may be provided at 10, and a hole is tapped at 11 for reception of the hexagon head handle screw 12.

The cover consists of top 13, ends 14 and sides 15, the sides 15 being relieved as at 16 to provide a more pleasing appearance. Holes are provided at 17 for reception of the tube connectors, and a hole 18 for reception of the threaded end of screw 12. A pair of collars 19 of hexagonal, circular, or other desirable form are provided as finish for the holes 17.

The tube connector consists of a body portion 20, provided with standard pipe threads 21, a bore 22 extending through the body longitudinally and having a threaded counter-bore 23 into which a collar 24 is adapted to be screwed for retaining the flanged cylindrical screen 25, the end 26 of which is closed by screen material. Slots 27 are cut to accommodate a spanner wrench. An integral connection sleeve 28 is provided with the usual teeth 29 for retention of the tubes 30 and 31, the inlet tube 31 having an encompassing mouth 32 for sliding attachment over the ordinary bibcock. Other types of connections could be supplied as desired.

The handle screw consists of the threaded section 11 and a hexagon head 12, the head 12 clamping the cover to the body. A ring 33 is inserted through or into the flats of the hexagon and forms a convenient carrying handle.

The assembly of the device is accomplished by filling both chambers 34 and 35 with a zeolite or other water softening medium, placing the cover over the body, placing and drawing screwhead 12 against the cover tightly, inserting ring 33, next inserting the screens 25 with cooperating connector parts through openings 17 and screwing bodies 20 in place, placing finish collars 19 over the

sleeves 28 and forcing the tubes 30 and 31 over the sleeves, drawing the collars 19 against the sides 14, the tubes retaining the collars 19 in position.

5 The operation of the device is as follows:

The connection 32 is forced over a faucet, the tube 30 leading into a vessel for collection of the softened water. The water is turned on flowing through tube 31, screen 25 into chamber 35 passing through the water softening material or zeolite, thence through the opening 36 into chamber 34 through the zeolite contained therein and out through the screen 25 and tube 30.

15 Reactivation is accomplished by filling the device with a solution of sodium chloride and allowing the solution to remain in contact with the zeolite for a sufficient length of time to permit removal of the contained magnesia, usually not less than one half hour, then passing sufficient tap water through the device to remove the sodium chloride and magnesia which amounts roughly to about ten to fifteen times the weight of contained zeolite.

25 Having described an operative method of constructing and using the device, it will be understood that variations in construction and arrangement of parts may be resorted to without departing from the spirit or scope of the invention or sacrificing any of the advantages thereof.

I am aware that water softeners have been made, therefore, I do not claim such a device broadly, but I do claim:

35 A portable water softener comprising a two compartment container substantially filled with base exchange material, the dividing wall being interrupted adjacent the bottom, a connection at each end of said container adjacent the top, said connections consisting of a threaded body with axial aperture and threaded counterbore internally disposed relative to said container, and having an outwardly flanged cylindrical screen retained  
45 therein by a threaded collar and extending into said compartments, and a grooved externally extending tube attaching sleeve integral therewith, an ornamental cover for said container, and fixed to said container by  
50 means of a screw, the head of which is provided with apertures diametrically disposed for reception of the ends of a carrying ring.

In testimony whereof I have affixed my signature.

HAROLD E. BURCH.