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WATER SOFTENER

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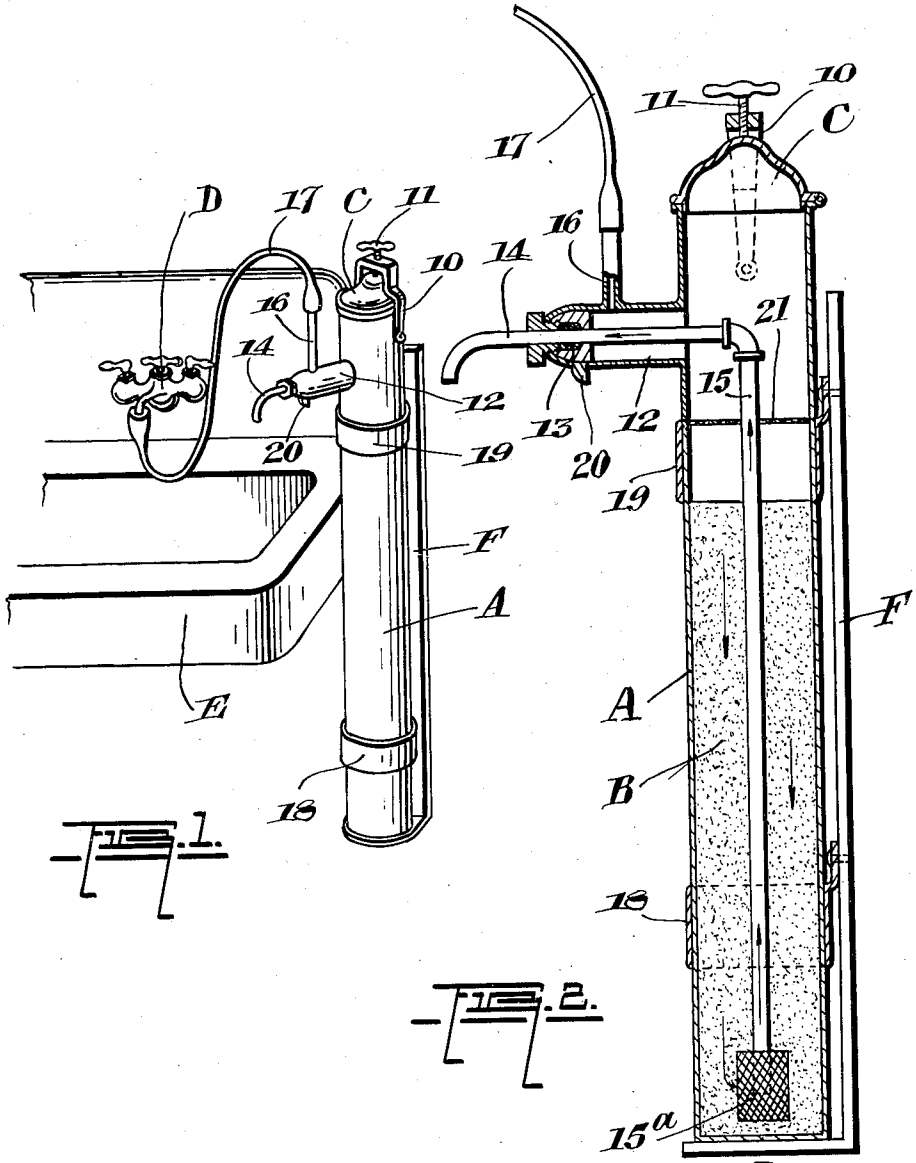


Fig. 1.

Fig. 2.

INVENTOR
HOMER YATES
BY Eugene C. Stevens
ATTY

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WATER SOFTENER

Homer Yates, Regina, Saskatchewan, Canada

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1 Claim. (Cl. 210—24)

This invention relates to improvements in a water softener and the objects of the invention are to provide a simple and economical device by which water may be softened and which may be readily attached in a position adjacent to where it is desired to be used.

Further objects are to provide a device which, when used for the softening of hot water, will enable the outflowing water from the softener to be as hot as possible.

Further objects are generally to improve and simplify a device of this kind to be better adapted to perform the functions required of it. It consists essentially in the improved construction hereinafter described in detail in the accompanying specification and drawing.

In the drawing:

Fig. 1 is a perspective view showing the improved device attached in the position to be used;

Fig. 2 is a sectional elevation of the device.

In the drawing like characters represent corresponding parts in all the figures.

Referring to the drawing A indicates a metallic cylinder adapted to contain the water softening material B, which latter may be in the form of greensand and fill substantially two-thirds of the cylinder. In order to provide easy access to the cylinder for the regeneration of the greensand a removable cap C is provided at the top thereof which may normally be held in position by a bale 10 pivoted to the sides of the cylinder and carrying a handscrew 11 which may be tightened against the cap as indicated.

At one side of the cylinder A and near the top thereof a lateral cylindrical extension 12 is provided, having a packing box at the outer end 13 through which the outlet pipe 14 extends, the said outlet pipe extending inwardly to about the centre of the cylinder and being there connected to a longitudinally extending supply pipe 15 which terminates adjacent to the bottom of the cylinder and has its lower end surrounded by a screen 15*a*. The pipe 14 is substantially smaller in diameter than the extension 12 so that an annular space will be left within the cylinder and around the pipe. The incoming water to be softened is fed into this space from a tubular inlet pipe 16 connected to the extension 12. From this inlet pipe 16 a flexible tube 17 of rubber or the like may lead to the faucet D which will furnish the supply of water, the faucet shown being above the sink E.

The cylinder A may be supported by any suitable means. I have shown a bracket F carrying spaced bands 18 and 19 which embrace the cylinder.

The inlet 12 may be conveniently formed with a lug 20 which will enable the cylinder to be suspended from the side of a laundry tub or the like while the projection 20 prevents displacement thereof.

In order to prevent undue disturbance of the surface of the sand by the inflowing water I have conveniently provided a screen 21 above the surface of the sand.

In operation the water to be softened, which is preferably supplied from the hot water tap, will pass down through the greensand as indicated by the arrows and in so doing will be softened by a process of metathesis exchange, which is well known. The softened water will then pass upwardly through the pipe 15 and out through the pipe 14. The outgoing pipe will have heat imparted to it by the inflowing water which circulates in the pipes between the extension 12 and the pipe 14 and the softened outflowing water will possess heat at the maximum temperature possible.

The device is simple and in a convenient form and may be readily moved from place to place. It is supported easily on the bracket or may be suspended on the edge of a laundry tub or the like, as already explained.

When the greensand has been used a certain length of time it will be necessary to regenerate it. This may be done by a salt solution which may be introduced through the top of the cylinder and allowed to flow through the sand preferable in a reverse direction to that in which the water flows.

Various modifications may be made in the invention without departing from the spirit thereof or the scope of the claim and, therefore, the exact forms shown are to be taken as illustrative only and not in a limiting sense, and I desire that only such limitations shall be placed thereon as are imposed by the prior art or are specifically set forth in the appended claim.

What I claim as my invention is:

A water softener comprising a metallic cylinder having a removable cap, a tubular extension near the top of the cylinder, a packing box at the end of the tubular extension, an outlet pipe extending through the packing box and downwardly adjacent to the bottom of the cylinder, a screen around the end of the outlet pipe, water softening material in the cylinder, an inlet pipe connected to the side of the adjacent extension.

HOMER YATES.