

- [54] REVERSE OSMOSIS APPARATUS
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[57] ABSTRACT

A water filter cartridge includes a reverse osmosis membrane permeator spirally wound on a central winding tube and surrounded by an impermeable barrier layer which is, in turn, surrounded by a spirally wound prefilter. A post-filter is placed centrally within the winding tube. The cartridge is designed for functional installation in a housing tube fastened and sealed to a valve plate at a first end and closed by a removable end cap at the other, second end. Feed water enters the cartridge through an inlet port in the valve plate at the first end at an outer radius to pass lengthwise in prefilter. Prefiltered water returns from the second end lengthwise through the reverse osmosis permeator to a waste-water outlet port in the valve plate at an intermediate radius. Product water which has permeated through the membrane flows inwardly through holes in the winding tube and into a clearance space surrounding the central post-filter. After traveling to the second end in the clearance space, the permeate flows through the length of the post-filter to a purified-water outlet port at an inner radius in the valve plate. The reverse osmosis membrane cartridge is axially removable from the housing tube for ease of replacement of the cartridge unit without disturbing any piping connections.

Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 57,545, Jun. 3, 1987, abandoned.
- [51] Int. Cl.⁵ B01D 61/08
- [52] U.S. Cl. 210/136; 210/317; 210/336; 210/321.74
- [58] Field of Search 210/315, 317, 494.1, 210/335, 336, 321.74, 136, 321.83

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8 Claims, 5 Drawing Sheets

