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(54) Title: SPIRAL WOUND MEMBRANE ELEMENT PRODUCT WATER TUBE WITH EXTERNAL FLOW GROOVES

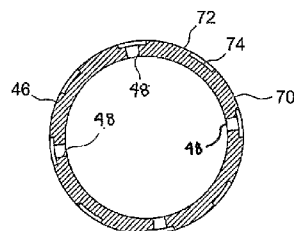


FIG. 3

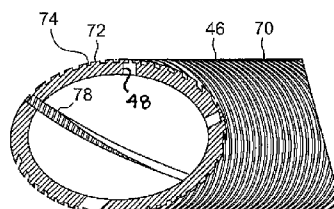


FIG. 4

(57) Abstract: The disclosed product water tube (70) is for use with a spiral wound filter element having a filter membrane. The product water tube has a tube wall with a plurality of apertures (48) formed therein to allow permeate from the filter membrane to pass through the tube wall and into a center portion of the tube. The tube wall has an outer surface having a pattern of ridges (72) and channels (74) that conduct the permeate across the outer surface of the tube to the apertures.