

March 12, 1929.

E. A. ROBERTSON

1,704,925

WATER SOFTENING APPARATUS

Filed Aug. 27, 1927

Fig. 1.

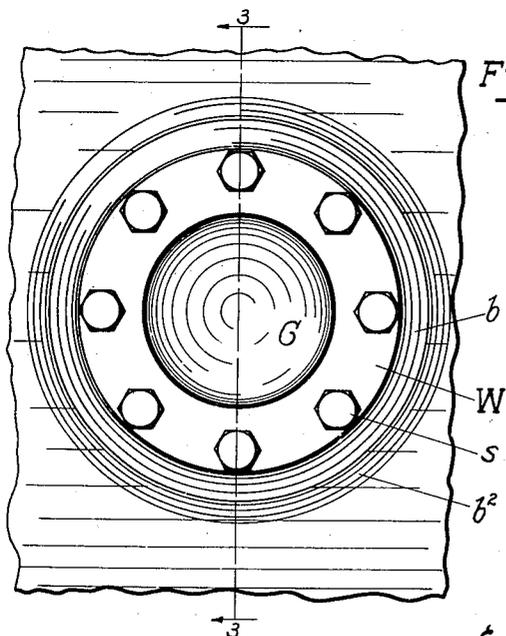
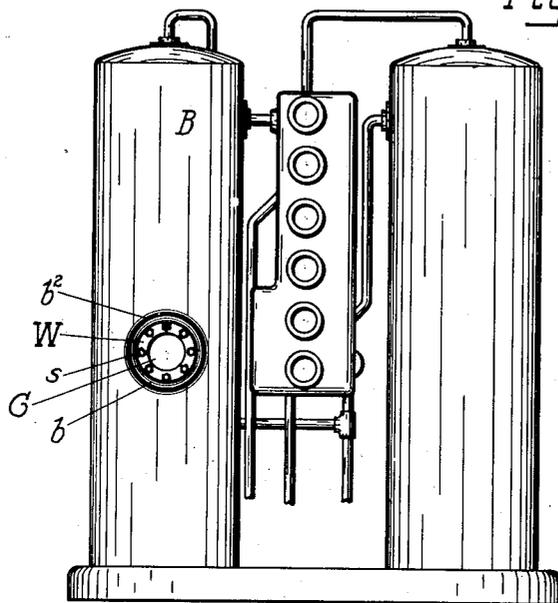


Fig. 2.

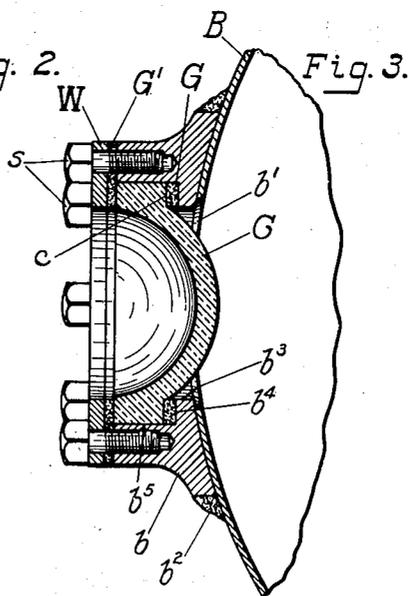


Fig. 3.

Edwin A. Robertson INVENTOR

BY *Walter A. Knight.*

ATTORNEY

# UNITED STATES PATENT OFFICE.

EDWIN A. ROBERTSON, OF LAKE WAWASEE, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PERMUTIT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

## WATER-SOFTENING APPARATUS.

Application filed August 27, 1927. Serial No. 215,989.

My invention relates to means for observing the height of the salt bed in the brine tank of a zeolite water softener.

In a pressure system zeolite water softening apparatus the top of the brine tank is closed and some means must be provided for indicating the quantity of salt in the tank at all times. Enough salt should always be kept in the brine tank to ensure the delivery of saturated brine to the bed of zeolites in the water softening tank whenever regeneration is necessary. All of the various forms of gauges have been found useless because they clogged with salt or corroded and became undependable.

The principal object of this invention is to provide a window of such construction and so placed as to enable anyone observing the brine tank to see whether the salt bed has fallen below the window or its top is above the window or opposite some point of it. When looking through the window the salt will show substantially white and the brine substantially black.

Another object of my invention is to so form the window as to cause it to automatically clear itself of salt when the top of the salt bed falls below it or any part of it.

My invention is illustrated in the accompanying drawings in which:

Figure 1 is a front elevation of an automatic water softening apparatus of the pressure type;

Fig. 2, an elevation, is an enlarged detail of the window, shown at right angles to the window in Fig. 1, fixed to a flange secured to the side of the tank, the unnecessary parts of the tank being broken away, and

Fig. 3 is a cross section on the line 3—3 of Fig. 2.

Referring now to the drawings, B is the brine tank, *b* a flange secured to the side of the tank at a suitable height surrounding an opening *b*<sup>1</sup> therethrough and welded at *b*<sup>2</sup> to the shell of the tank. A flange casting has an opening *b*<sup>3</sup>, a shoulder *b*<sup>4</sup>, and is bored at *b*<sup>5</sup> to receive a circular shaped concavo-

convex glass window C formed with an annular shoulder *c* adapted to rest upon the gasket G and held securely in place by gaskets G<sup>1</sup>, a washer W and cap screws *s*. The window is preferably located at such a height as would equal the height of the bed of salt desirable to maintain a body of saturated brine in the tank.

It will be noted that the convex bulging portion of the window C protrudes into the brine tank so that it will automatically be cleared of adhering salt as the height of the salt in the tank lowers, so that at all times it can be determined by looking through the window whether salt, brine, or part salt and part brine are in line with the window.

A window could be made of a plano-convex glass but the concavo-convex form shown in the drawing is preferred as a cheap pressed glass window will answer the purpose if of such thickness as to be readily seen through.

I claim as my invention and desire to secure by Letters Patent of the United States:

1. In combination with the brine tank of a zeolite water softener, an opening in the side of said tank at substantially the salt bed height required to ensure saturated brine in said tank, a transparent window bulging inwardly beyond the inner surface of said tank through said opening into said tank, and means for holding said window in position over said opening and close the same.

2. In combination with the brine tank of a zeolite water softener, an opening in the side of said tank at substantially the salt bed height required to ensure saturated brine in said tank, a transparent window made concavo-convex with a clamping rim and placed so as to bulge inwardly beyond the inner surface of said tank through said opening and close the same.

In testimony whereof I have hereunto set my hand.

EDWIN A. ROBERTSON.