Jan. 7, 1930. J. A. JOHNSON 1,742,356

WATER SOFTENER

Filed Dec. 22, 1928

FIG. 1

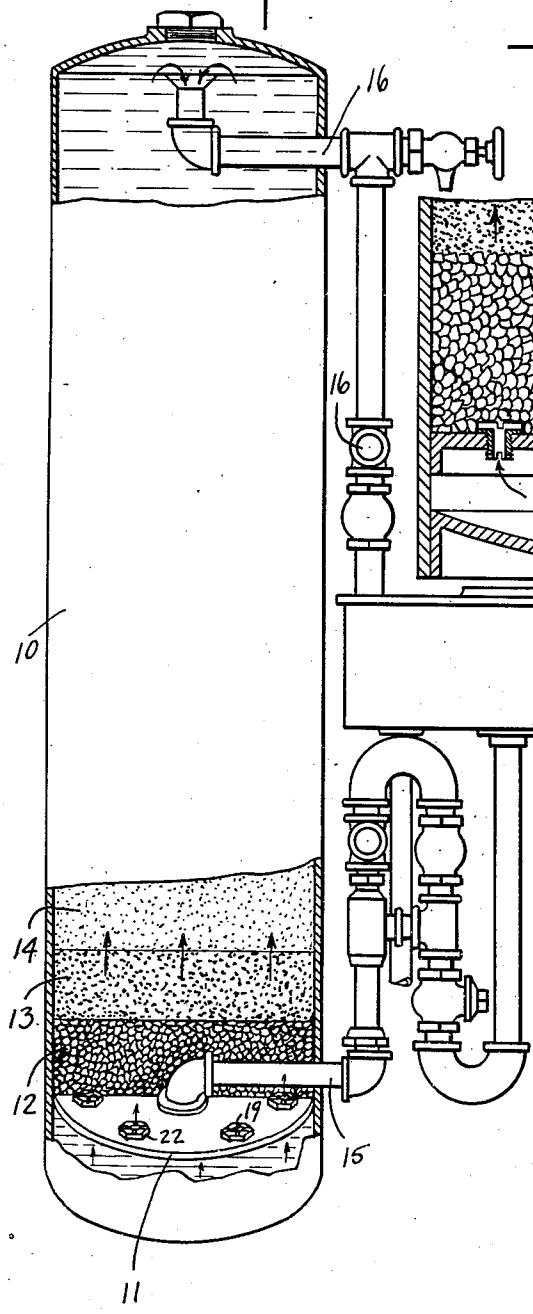


FIG. 2

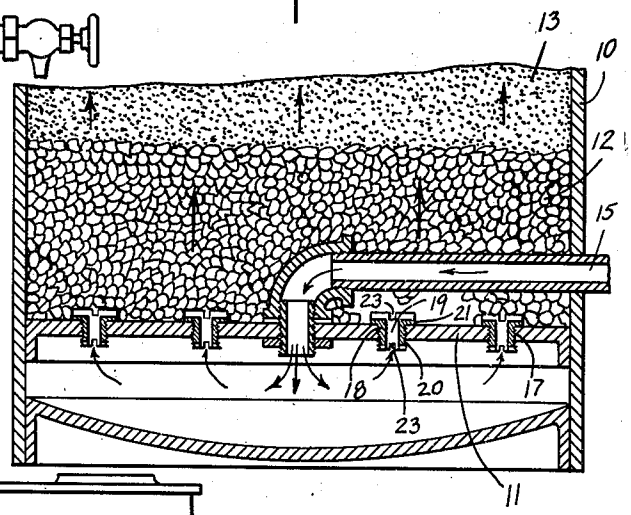


FIG. 3

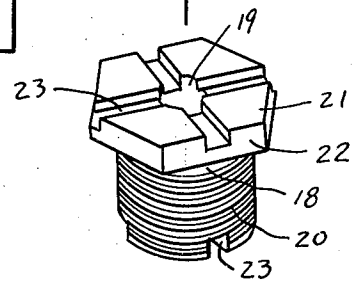
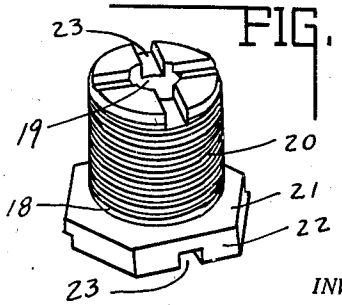


FIG. 4



INVENTOR.
JOHN A. JOHNSON.
BY Fortwendel & Fortwendel
Goldsmith & Galt
ATTORNEYS.

Patented Jan. 7, 1930

1,742,356

UNITED STATES PATENT OFFICE

JOHN A. JOHNSON, OF CRAWFORDSVILLE, INDIANA, ASSIGNOR TO JOHNSON MANUFACTURING COMPANY, OF CRAWFORDSVILLE, INDIANA, A CORPORATION

WATER SOFTENER

Application filed December 22, 1928. Serial No. 327,797.

This invention relates to a water filter and/or softener, particularly of the domestic type employing a gravel, silicate or zeolite filtering and/or softener bed.

The object of the invention is to provide such a device with a non-clogging nozzled bed support.

The principal feature of the invention consists in forming a non-clogging nozzle by providing radially disposed open grooves in the exposed ends of the tubular nozzle body, said grooves at their inner ends having free communication with the central channel through said body.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:—

In the drawings Fig. 1 is a perspective view of a water softener embodying the invention, parts being broken away to show other parts in detail. Fig. 2 is an enlarged longitudinal sectional view through the nozzle supporting plate and associated construction. Fig. 3 is an enlarged perspective view of one form of nozzle embodying the invention. Fig. 4 is a similar view of the nozzle in inverted position.

In the drawings there is shown a tank or container 10 suitably supported and including near its base and in spaced relation therewith a supporting perforated bed plate 11 may support a layer of gravel 12 in turn supporting a layer of sand 13 which in turn supports the zeolite bed 14. Such a bed arrangement constitutes a combination water filtering and softening bed. The hard water supply is indicated at 15 and the water is introduced to the tank beneath the plate 11. The water passes upwardly through the perforations in the plate and thence upwardly through the gravel, sand and zeolite to the service pipe 16 in a softened condition.

The plate 11 is apertured at 17 to provide a plurality of openings. Each aperture is threaded to receive a nozzle. Each nozzle includes a tubular body portion 18 having the longitudinally directed central channel 19. The exterior surface of the body is threaded as at 20. A laterally directed peripheral flange 21 has squared faces 22 for tool engagement. Six faces herein form a hexagonal head suitable for wrench engagement whereby each nozzle may be screwed into the aperture 17 in the plate 11.

Each exposed end or face of the tubular body 18 is provided with a plurality of open face grooves 23. The grooves are shown extending in radial relation, pairs being in diametric alignment. The inner ends of said grooves communicate with the central channel 19 of the body 18. The provision of the open faced grooves insures free passage of the liquid to or from the longitudinal channel 19. If a particle of material should seat over the control channel 19 or transversely fill and cut off one of the radial grooves, another groove or other grooves will provide the necessary communication. Since the grooves are open faced and are relatively deep, complete clogging is eliminated. Since opposite ends are grooved there is no complete clogging even with reverse flow.

The invention claimed is:

1. In a water conditioning device having a perforated plate for sustaining the water conditioning bed, a plurality of non-clogging nozzles mounted therein and extending therethrough having a channel therethrough, and a plurality of open face grooves extending substantially transverse of each nozzle and communicating at their inner ends with the channel therethrough, said grooves being formed in an exposed end of said body.

2. In a water conditioning device having a perforated plate for sustaining the water conditioning bed, a plurality of non-clogging nozzles receivable by said plate and having a central channel, an exposed head on each of said nozzles, and a plurality of open face grooves extending radially of said head in communication with said channel, said grooves being formed in the exposed surface of said head.

3. In a water conditioning device having a perforated plate for sustaining the water conditioning bed, a non-clogging nozzle body receivable by a plate perforation and having a longitudinal channel therethrough, an exposed tool engageable portion on said body,

and a plurality of open face grooves substantially transverse of the longitudinal channel and communicating at their inner ends therewith, said grooves being formed in each opposite exposed end of the nozzle body.

4. A non-clogging tubular nozzle body including a longitudinal channel extending therethrough, and a plurality of radially extending open face grooves in each exposed end of the body communicating at their inner ends with the longitudinal channel and terminating at their outer ends with the peripheral surface of the nozzle.

5. A non-clogging tubular nozzle body including a longitudinal channel extending therethrough, and an open faced groove in the exposed end of the body communicating at its inner end with the longitudinal channel and terminating at its outer end with the peripheral surface of the nozzle.

In witness whereof, I have hereunto affixed my signature.

JOHN A. JOHNSON.