

C. L. KENNICOTT.
WATER SOFTENING APPARATUS.
APPLICATION FILED OCT. 2, 1911.

1,017,294.

Patented Feb. 13, 1912.

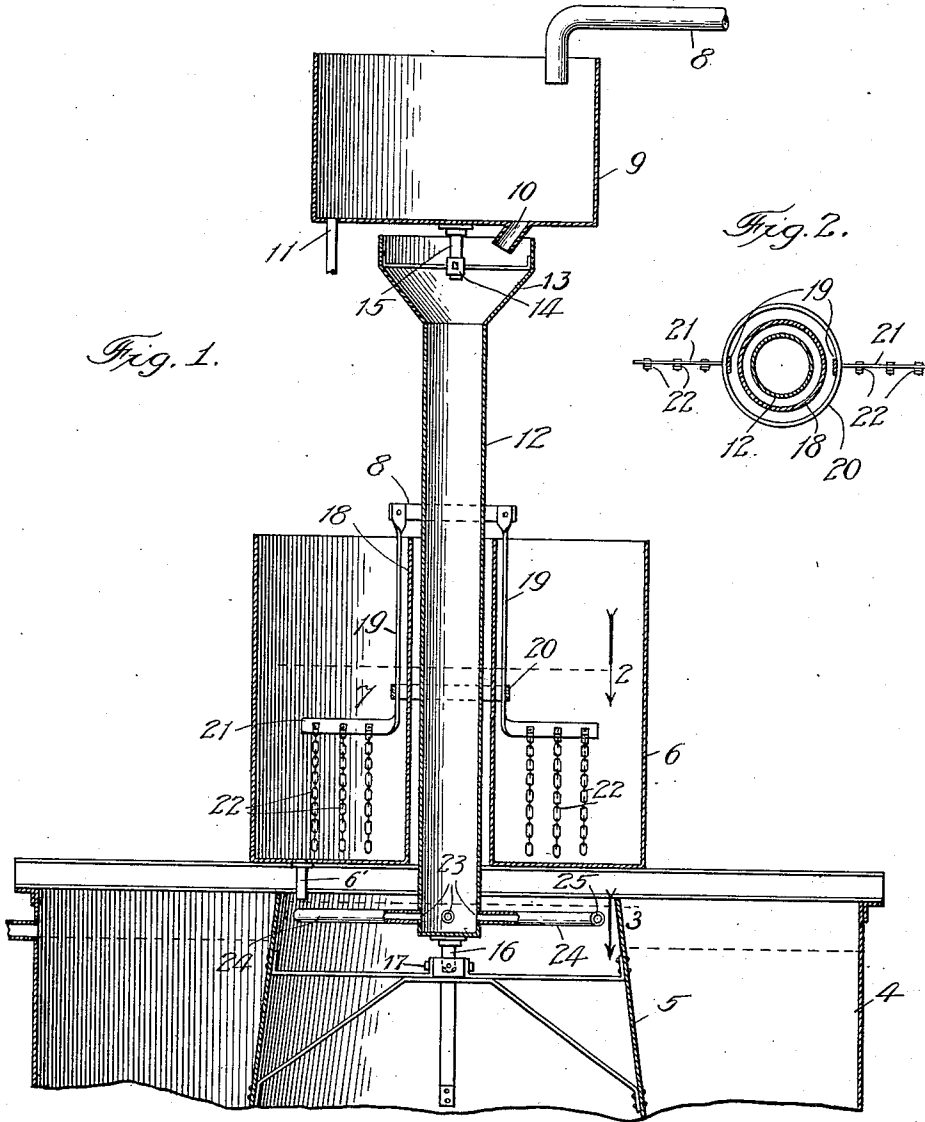


Fig. 2.

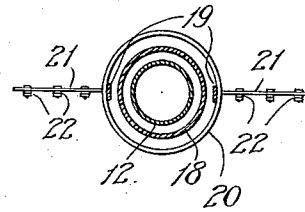
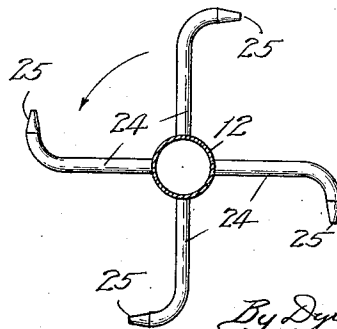


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

CASS L. KENNICOTT, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR TO THE KENNICOTT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

WATER-SOFTENING APPARATUS.

1,017,294.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed October 2, 1911. Serial No. 652,361.

To all whom it may concern:

Be it known that I, CASS L. KENNICOTT, a citizen of the United States, residing at Chicago Heights, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Water-Softening Apparatus, of which the following is a specification.

My invention relates to an improvement in the class of water-softening apparatus for industrial purposes, in which the precipitating or settling tank for the water undergoing treatment is surmounted by mechanism for supplying a chemical solution to the hard or raw water for softening the same.

The contents of the holder for the chemical solution require constant stirring, and the means hitherto employed for driving the stirrer-device have been undesirably complicated, in the way of gearing and its connections, and cumbersome and expensive.

The object of my invention is to enable greatly-simplified means to be used for driving the stirrer-device.

I have employed my present improvement in the water-softening apparatus which forms the subject of United States Letters Patent No. 912,803, dated February 16, 1909, and, in fact, have more especially devised it for that particular use, though it is not limited thereto; but in the present connection only so much of the said patented apparatus is illustrated as is required to enable my present improvement to be readily understood by those skilled in the art.

In the accompanying drawing, Figure 1 is a broken view in sectional elevation illustrating my improvement in its application to a water-softening apparatus; Fig. 2 is a section on line 2, Fig. 1, and Fig. 3 is a section on line 3, Fig. 1, showing the motor employed for driving the stirrer-device used in the solution-holder.

The precipitating tank 4 contains a down-take-conduit 5, which may flare downwardly, as shown. The holder 6 for the chemical solution, supported on the upper end of the tank 4, contains a stirrer-device 7, preferably of the construction illustrated in the drawing and hereinafter described. The water to be softened flows from a supply-pipe 8 into the hard-water box 9, supported above the settling tank and provided in its bottom with a discharge-opening 10,

for feeding the tank 4, and with a smaller discharge-opening 11 for supplying a relatively-small proportion of the water to a holder (not shown) for slaking lime therein; and the slaked lime is used for the solution, which is supplied from the holder 6 to the precipitating tank at the upper end of the conduit 5, through a spout 6¹ leading from the bottom of the holder, all as set forth in said patent. A conduit-pipe 12 extends from beneath the water-box 9 through the solution-holder 6 into the upper end of the down-take-conduit 5, and is supported to be rotated axially. The inlet-end of the pipe 12 is provided with a funnel-shaped head 13, into which the opening 10 leads, and which contains a bearing 14 for a journaling-stem 15 depending centrally from the bottom of the box 9; and the opposite end of this pipe is closed and has extending from it a journaling-stem 16 supported in a bearing 17 provided in the conduit 5 near its upper end. The holder 6 is formed with a central sleeve 18 rising from the opening in its bottom through which the pipe 12 passes, to surround the latter; and this pipe carries the stirrer-device 7 at its collar 8, which surrounds the pipe to rotate with it, and from which depend arms 19 encircled by a reinforcing ring 20 and bent to right-angles toward their free ends to form sections 21 for hanging series of chains 22 in the holder to extend nearly to its bottom and serve to enhance the thoroughness of the stirring operation.

From the pipe 12, near its lower, closed end, extend horizontally, from openings 23 therein, branch-pipes 24, of which four are shown equidistant apart. Each of these branch-pipes is correspondingly curved or deflected in a horizontal direction toward its outer end, which terminates in a nozzle 25. Thus the force of the flow of water through the pipe 12, in discharging by way of the deflected branch-pipes 25, rotates the latter in one direction, and with them the pipe 12 with the stirrer-device 7 thereon, producing constant rotation of that device for performance of its work in the solution-holder.

What I claim as new and desire to secure by Letters Patent is—

In a water-softening apparatus, the combination of a box for receiving water to be treated and provided with a discharge-outlet in its bottom, a precipitating tank, a so-

lution-holder discharging into said tank and having a central opening with a sleeve rising from about it, a conduit journaled at its upper, open end to the bottom of said
5 box to receive the discharge therefrom, and extending through said sleeve and closed at its opposite end, at which it is journaled on said tank, pipes extending from the conduit, having deflected nozzle-equipped outer ends for discharging the water from and thereby 10 rotating the conduit, and a stirrer-device supported on the conduit to be rotated thereby in the solution-holder.

CASS L. KENNICOTT.

In the presence of—
JOHN WILSON,
RALPH SCHAEFER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."