

J. E. BAIN & B. W. SMITH.
WATER SOFTENER.
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933,047.

Patented Sept. 7, 1909.

Fig. 1.

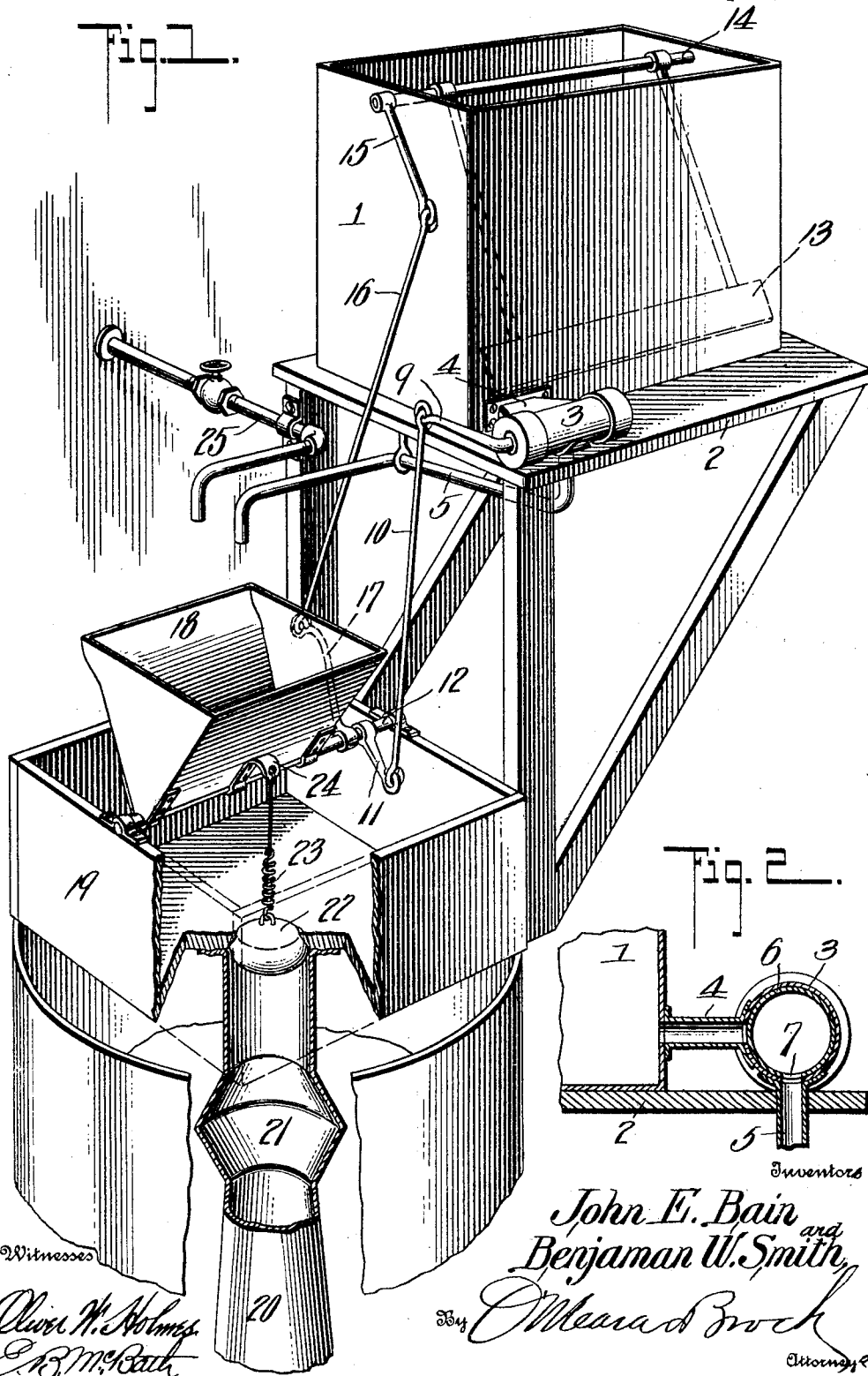
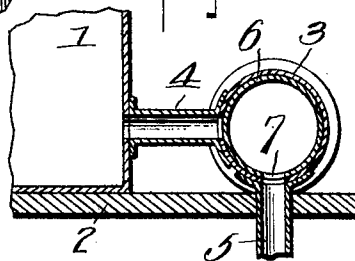


Fig. 2.



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THE NATIONAL WATER SOFTENER COMPANY, OF MUNCIE, INDIANA, A CORPORATION OF INDIANA.

WATER-SOFTENER.

933,047.

Specification of Letters Patent.

Patented Sept. 7, 1909.

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To all whom it may concern:

Be it known that we, JOHN E. BAIN and BENJAMAN W. SMITH, both citizens of the United States, residing at Montpelier, in the county of Blackford and State of Indiana, have invented a new and useful Improvement in Water-Softeners, of which the following is a specification.

This invention relates to a device especially adapted for use in laundries.

The object of the invention is a device for automatically mixing a softening compound with hard water.

The invention consists of the novel features of construction hereinafter described, pointed out in the claims and shown in the accompanying drawings in which—

Figure 1 is a perspective view, parts being broken away and shown in section. Fig. 2 is a detail sectional view through a feed cylinder and a portion of tank for holding a softening compound.

In constructing the device a tank 1 having a capacity of about fifteen gallons is placed upon an elevated platform 2 and upon the same platform is placed a cylinder 3 which communicates by means of a wide flat pipe 4 with the tank 1 and is provided also with a downwardly opening discharge pipe 5, and a rotatable cylinder valve 6 is arranged within the cylinder 3 and is provided with a slot 7 adapted by a quarter turn of the valve to be registered respectively with the pipes 4 and 5. An angled valve handle 9 is provided and is connected by a link 10 with a rocker arm 11 secured to a rock shaft 12. Within the tank 1 swings a mixer or an agitating paddle 13 which rocks with a shaft 14 journaled in the upper portion of the tank and having an arm 15 which is connected by a link 16 to an arm 17 also secured upon the rock shaft 12. A tilting bucket 18 is fixed on the shaft 12, the center of gravity of the bucket being to one side of the shaft. Beneath this bucket is a box 19 upon the sides of which the shaft 12 is journaled and a discharge pipe 20 leads from the bottom of the box. This pipe has an enlargement 21 a short distance below the box bottom and is provided with a flat top valve 22 which seats itself in the box bottom at the top of the pipe. A spring 23 is connected at the lower end to the valve 22 and has its upper end connected to a bracket 24 carried by the

bucket 18 and normally holds the bucket in an upright position. A water supply pipe 25 is also provided and both the pipe 25 and the pipe 5 discharge into the bucket.

The operation of the device is as follows:— When the bucket is in its upright position, the valve 6 is turned so that the slot 7 registers with the pipe 5 and the contents of the cylinder 3 are discharged into the bucket 18 together with the water to be softened which flows from the pipe 25. As the bucket fills, the weight of water will tilt an empty bucket and the weight of the water discharged into the box 19 resting upon the valve 22 will carry the same downward, thus returning the bucket 18 to its normal position. As the valve 22 enters the enlargement 21 of the pipe 20 the water will be released. As the bucket is tilted the rocker arm 11 will lift the link 10 and arm 9 thus turning the valve 6 and bringing the slot 7 into alignment with the pipe 4, refilling the cylinder with the compound from the tank 1. At the same time the paddle 13 will stir the compound through movement of arms 15 and 17, link 16, and consequent rocking of shaft 14. As the bucket returns to its normal position, a reverse movement of the rocker arms and links will take place, and the valve 6 will be returned to its normal position bringing slot 7 into alinement with the pipe 5, thus repeating the operation above described.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. A device of the kind described comprising a tank, a bucket tiltable by weight of water discharged therein, a box receiving the contents of the bucket, a discharge pipe leading from said box, a valve in said box, said valve being actuated by weight of water thereon, means operated by movement of the valve for returning the bucket to its normal position and means for regulating discharge of the softening compound from the tank to the bucket.

2. A device of the kind described comprising a tank, a box, a discharge pipe from the box, a rock shaft carried by the box, a tilting bucket fixed on said rock shaft, a water discharge pipe discharging into said bucket, a cylinder, a pipe between said cylinder and tank, a discharge pipe from the cylinder to the bucket, a valve in the cylinder

alternately opening and closing the inlet of the pipe from the tank to the cylinder and the outlet of the pipe from the cylinder to the bucket, means carried by the rock shaft
5 for operating said valve, a vertically movable valve in the discharge pipe leading from the box and a spring connected respectively

to said valve and to the bucket, as and for the purpose set forth.

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