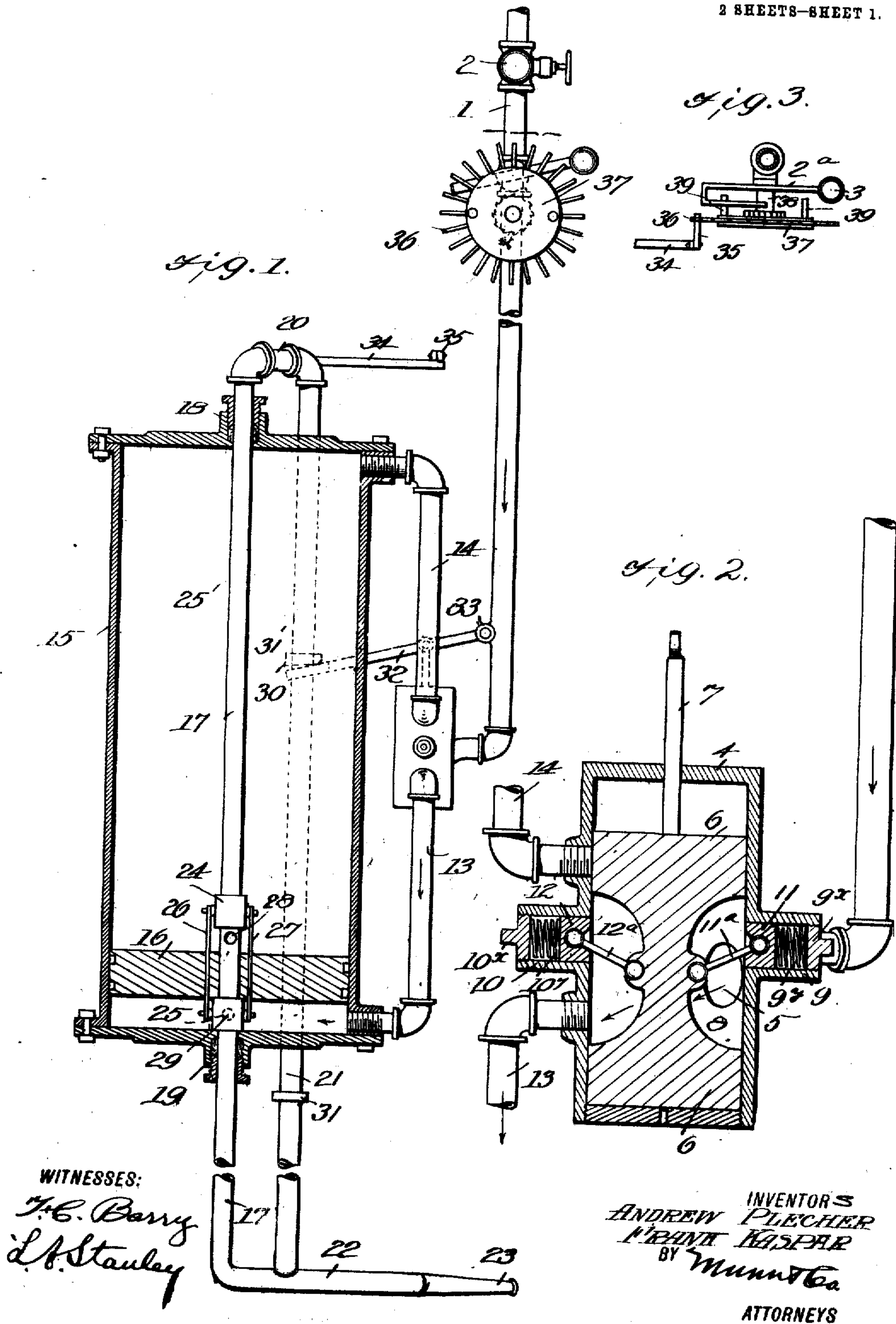


A. PLECHER & F. KASPAR.
SUGAR WASHING MACHINE.
APPLICATION FILED MAY 3, 1910.

995,900.

Patented June 20, 1911.

2 SHEETS-SHEET 1.



WITNESSES:
J. C. Barry
L. A. Stanley

INVENTORS
ANDREW PLECHER
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BY Munn & Co.
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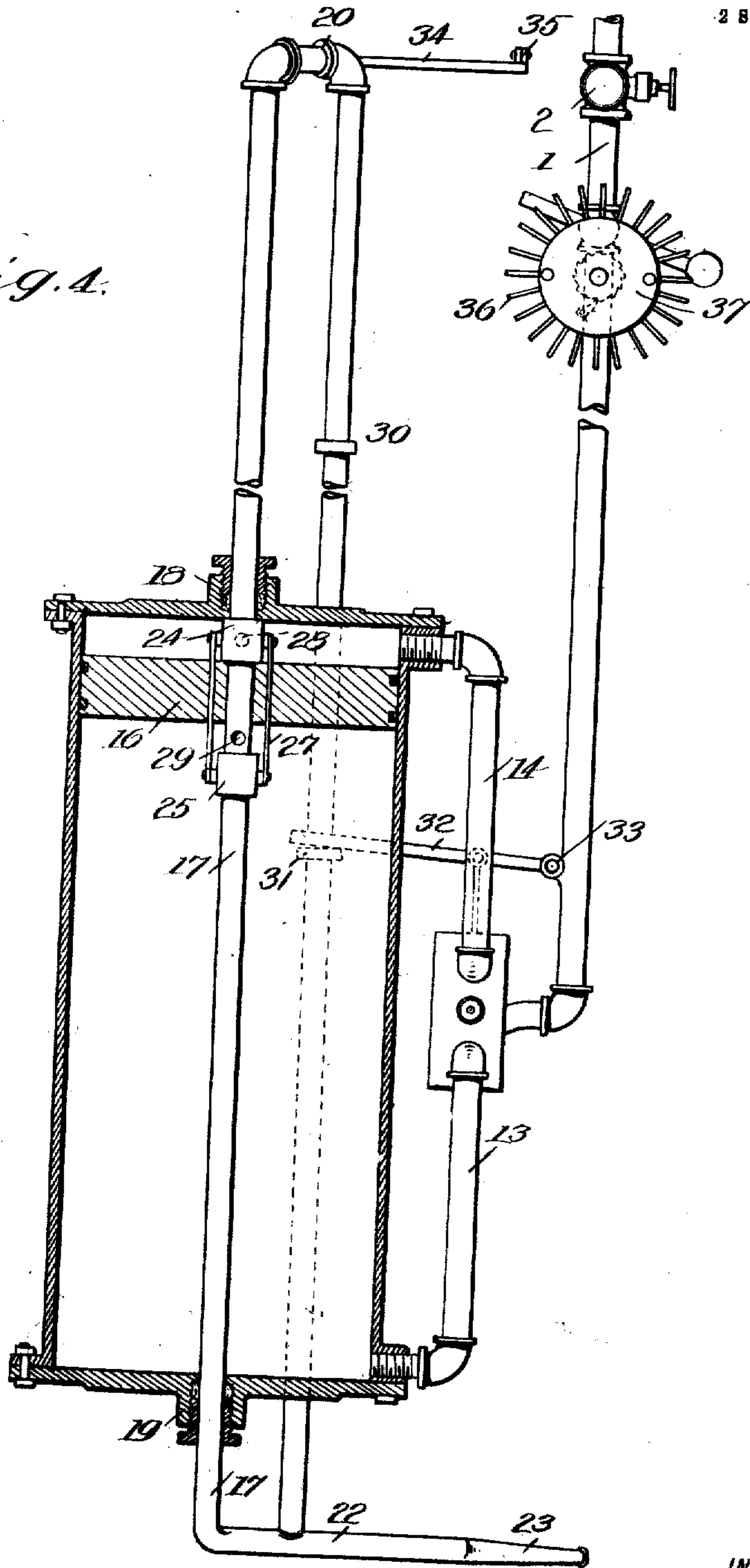
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Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW PLECHER AND FRANK KASPAR, OF LAS ANIMAS, COLORADO.

SUGAR-WASHING MACHINE.

995,900.

Specification of Letters Patent. Patented June 20, 1911.

Application filed May 3, 1910. Serial No. 559,060.

To all whom it may concern:

Be it known that we, ANDREW PLECHER and FRANK KASPAR, citizens of the United States, and residents of Las Animas, in the county of Bent and State of Colorado, have made certain new and useful Improvements in Sugar-Washing Machines, of which the following is a specification.

Our invention relates to improvements in means for washing sugar in centrifugal machines, and it consists in the constructions, combinations and arrangements herein described and claimed.

In the process of making sugar, by use of centrifugals, the sugar and molasses are fed into the centrifugal, and the latter is rapidly rotated, by which the sugar is freed from most of the molasses. It is necessary to wash out the remaining molasses, while the machine is still in motion. The ordinary means of washing the sugar is for the operator who attends to the centrifugal, to take an ordinary sprinkling can, while the centrifugal is turning two thousand (2,000) times a minute, moving the can up and down in the centrifugal to wash the sugar evenly. There are certain objections to this means of washing sugar. The water is not gaged, and one batch of sugar may be supplied with a surplus of water, while with another batch, not enough water may be supplied to complete the operation. The use of a surplus of water, of course, dissolves out the sugar, which then has to make its rounds through the factory again before it can be recovered.

An object of our invention is to provide a device which will automatically wash a charge of sugar, and when sufficient water has been supplied will shut off the supply.

A further object of our invention is to provide a reciprocating washing device, the movement of which, is accomplished by means of the water, which is used in the sprinkling operation.

A further object of our invention is to provide a device of compact nature, and having relatively few parts for effecting the above named objects.

Our invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a side view of the device, the main cylinder being shown in section, Fig. 2 is a detail view on an enlarged scale of the slide valve, and Fig. 3 is a detail view of the

balanced valve. Fig. 4 is a view similar to Fig. 1, showing the piston and pipes in their upper position.

In carrying out our invention, we provide a supply pipe 1, which has a cut-off valve 2. Below the cut-off valve is another valve 2^a. This valve is balanced, by means of a weight 3, and is adapted to be actuated by the movement of the sprinkling device, as hereinafter explained. The pipe 1, communicates with a valve casing 4 through the opening 5. The valve is best shown in Fig. 2. It consists of a valve member 6, having a stem 7 projecting through the casing 4, at one end. The valve member is channeled, at 8, to provide an annular passage for the water. Centrally disposed of the valve casing are the threaded extensions 9, on one side, and 10 on the other. These extensions are provided with the sliding heads 11 and 12, respectively, which are connected to the central portion of the valve member 6, by means of the ball and socket connections 11^a and 12^a respectively. Secured in the ends of the respective extensions 9 and 10 are the screw plugs 9^x and 10^x, and between the screw plugs and the heads 11 and 12 are the respective springs 9^y and 10^y.

In the position of the valve, shown in Fig. 2, the annular channel 8 is in communication with a branch pipe 13, while the upper part of the valve member 6 closes the end of a similar branch pipe 14. Referring now to Fig. 1, it will be seen that these pipes 13 and 14 communicate with the bottom and top of a cylinder 15. The latter is provided with a piston 16, secured to a pipe 17, which extends through the piston, and through the top and bottom of the cylinder, suitable stuffing boxes 18 and 19 being provided to prevent the escape of water. The upper end of the pipe 17 is connected by a branch pipe 20, with a pipe 21, which extends outside of the cylinder, and joins a lateral branch 22 of the pipe 17, below the cylinder. The pipe 22 is provided with a nozzle 23. Disposed upon the pipe 17 are sleeves 24 and 25, these sleeves being joined together by rods 26 and 27, which pass through the piston 16 in the manner shown in the figure. The sleeve 24 is adapted to cover and uncover the opening 28 on the pipe 17 above the piston 16, while the sleeve 25 controls a similar opening 29, below the piston.

On the pipe 21 are the two collars 30 and 31. These collars are arranged to engage a

lever 32, which is pivoted at 33 to the pipe 1, and which has a pivotal connection with the stem 7 of the valve member 6.

At the top of the pipe 21 is a laterally extending arm 34, having an end 35, which is pivoted to the arm 34, in such a manner that it may be swung upwardly, but not downwardly. This arm is arranged to engage pins 36, on a wheel 37, mounted on a cylindrical lug 38, carried by the pipe 1. On the opposite side of the wheel are pins 39, which are arranged to engage an extension on the lever of the balanced valve 2^a. This valve operates to cut off the water, when it is swung out of its normal position.

From the foregoing description of the various parts of the device the operation thereof may be readily understood. The device is suspended above a centrifugal machine (not shown) in any suitable manner. In beginning the operation the valve 2 is opened far enough to regulate the flow of water. The water passes down the pipe, and into the valve casing 4, by means of the opening 5. In the position shown in Fig. 2, the water would then pass around the annular channel 8, down through the pipe 13, and underneath the piston 16, thereby forcing the latter upwardly. The piston continues to ascend until the collar 31 on the pipe 21, comes in contact with the arm 32, when the valve is moved upwardly against the tension of the springs 9^r and 10^r. When the center of the valve casing has been passed, the reaction of the springs throws the valve suddenly upwardly, shutting off the pipe 13, and bringing the annular channel 8, into registration with the pipe 14. The water now passes through the pipe 14 into the upper part of the cylinder. It will be noted that the sleeve 24 contacts with the top of the cylinder 15, so as to close the opening 28, and to open the opening 29. The water, which is below the piston, is now forced out through the opening 29 and through the pipes 17 and 22, out of the nozzle 23 in a continuous stream. As soon as the piston reaches the bottom, the sleeves 24 and 25 are pushed upwardly uncovering the opening 28 and covering the opening 29. It will thus be seen that there will be a reciprocating movement of the device, which will tend to raise the nozzle up and down, while ejecting water therefrom. At each upward stroke, the arm 35 engages one of the pins 36, turning the wheel 37 a given distance. The pins 39 on the opposite side of the wheel may be placed so as to engage the balanced valve 2^a, after a predetermined number of reciprocations. When the balanced valve is thrown, the water is cut off, and the device stops. The number of pins on the wheel 37 may be adjusted so as to regulate to a nicety the quantity of water delivered to the device. The device may be started up again

by manually operating the balanced valve 2^a to permit the flow of water when the operation may be repeated.

It will thus be seen that we have provided a device in which the water used in propelling the device is also used in the spraying operation. There results, therefore, a great saving in water. The machine sprays the water evenly along the rim, where it is most needed. The slide valve acts positively to open and close the pipes 13 and 14. The device is always ready for use, and after it is set in motion it requires no attention on the part of the operator.

The cylinder may be made of different sizes to conform with the requirements of different grades of sugar, thus with white and brown sugar, one requires more water, and the other less.

We claim:—

1. In a spraying device, a supply pipe, a valve casing provided with a valve communicating with said supply pipe, a cylinder provided with a piston, means within said cylinder for directing the water alternately to one side and the other of said piston, outlet ports above and below said piston, said outlet ports being connected with said nozzle, and connections between said piston and said valve for operating the latter through the movement of the piston.

2. In a spraying device, a supply pipe provided with a valve, a valve casing communicating with said supply pipe, a valve in said valve casing, a cylinder, passages connecting the upper and lower ends of said cylinder with said valve casing, a piston disposed in said cylinder, a central pipe secured to said piston and arranged to extend through said cylinder, a branch pipe communicating with said central pipe, a lever connected with said valve, collars on said branch pipe for actuating said lever, a nozzle communicating with said central pipe and said branch pipe, exit ports in said central pipe communicating with said nozzle, a slidable sleeve for closing each of said exit ports, and means carried by said branch pipe for actuating the valve in said supply pipe to cut off the water supply.

3. An automatic spraying device, comprising a nozzle, a water supply pipe, a valve casing communicating with said water supply pipe, a valve therein, a cylinder, a piston therein, said piston being connected with said nozzle, pipes leading from said valve casing to respective ends of said cylinder, connections between said piston and said valve for operating the latter, and spring actuated members carried by said valve casing and connected with said valve for causing a sudden throw of the valve subsequent to the first movement thereof in either direction.

4. In an automatic spraying device, a cyl-

inder, a pipe passing through said cylinder and having openings communicating therewith, a nozzle secured to the end of said pipe, a piston secured to said pipe, means for introducing water into said cylinder at each end thereof, a valve for regulating the flow of the water, means connected with said pipe for actuating said valve, and a valve within said cylinder for covering and uncovering the openings in said pipe.

5. In an automatic spraying device, a cylinder, a piston therein, a pipe arranged to extend through said cylinder and being secured to said piston, said pipe being provided with an opening above said piston and one below it, slidable valve members carried by said pipe respectively above and below said piston, connections between said valve members arranged to slide through said piston, means for supplying water to each end of said cylinder, and means actuated by the

movement of the piston for automatically controlling the water supply.

6. In a spraying device, a supply pipe, a valve casing communicating therewith, a valve within said casing provided with spring means for causing a quick throw of the valve after its initial start in either direction, a cylinder, a pipe for establishing communication with one end of said valve casing and one end of said cylinder, a second pipe for establishing communication with the other end of said valve casing and the other end of said cylinder, a nozzle having communication with the interior of said cylinder, and a piston within said cylinder for reciprocating said nozzle.

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Witnesses:

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