(No Model.)

W. J. RUFF.

SPRAYING DEVICE.

No. 453,918. Patented June 9, 1891.

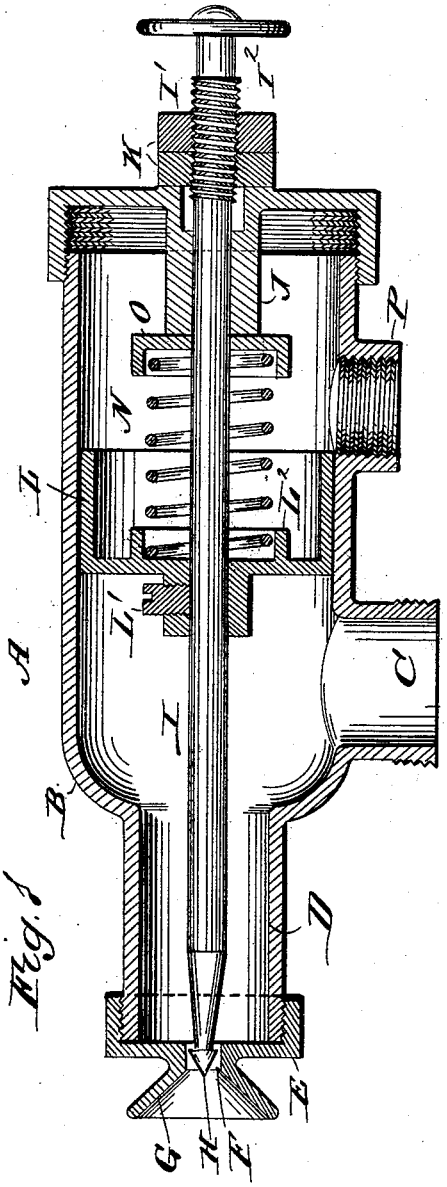

Fig. 1

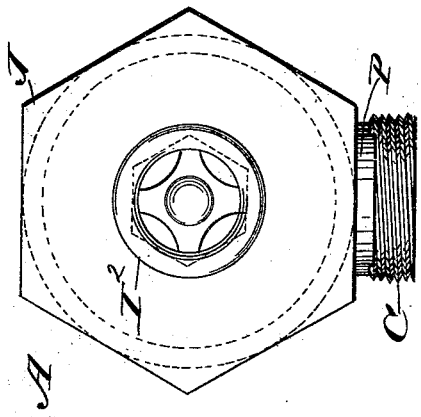

Fig. 3

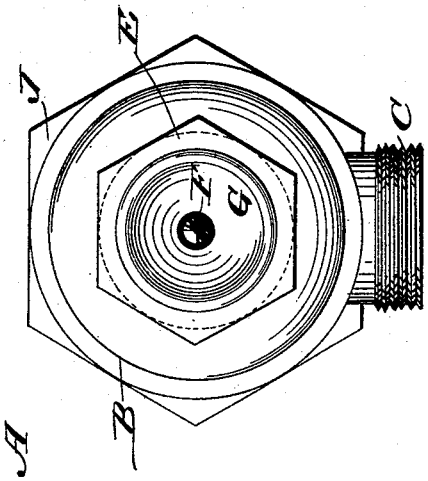

Fig. 2

WITNESSES:

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WILLIAM J. RUFF, OF QUINCY, ILLINOIS.

SPRAYING DEVICE.

SPECIFICATION forming part of Letters Patent No. 453,918, dated June 9, 1891.

Application filed July 1, 1890. Serial No. 357,402. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. RUFF, of Quincy, in the county of Adams and State of Illinois, have invented a new and Improved Spraying Device, of which the following is a full, clear, and exact description.

The invention relates to liquid-cooling apparatus, and its object is to provide a new and improved spraying device which is simple and durable in construction, and is more especially designed for spraying beer and ale worts and adapted to prevent clogging of the device by small particles of hops and other substances liable to pass with the worts to the spraying apparatus.

The invention consists of a valve adapted to pass into the spraying-orifice and held on an adjustable valve-stem, and a piston held on the said valve-stem and adapted to automatically actuate the latter to remove the valve from the orifice when the latter is clogged.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section of the improvement. Fig. 2 is an end elevation of the same, and Fig. 3 is a like view of the other end.

The improved spraying device A is provided with a casing B, having an inlet-opening C, adapted to be connected with a pipe or other means for conducting the liquid to be sprayed into the casing B. The latter is also provided with an outlet D, on which is held a nozzle E, provided with a central opening F, leading into the cone-shaped cup G.

In the opening F is adapted to pass a conical valve H, somewhat less in diameter than the diameter of the said opening, so that the liquid can pass from the casing B through the space between the edge of the valve and the inner surface of the opening F into the cone-shaped cup G, from which the liquid passes in sprays into the air and is thereby cooled. The valve H is held on a valve-stem I, passing through the casing B and having its bearing in the hub of a cap J, screwing on the outer end of the casing B. The outer end of the valve-stem I is provided with a screw-thread I′, on which screw the jam-nuts K, serving to hold or lock the valve-stem I in position when the valve H is adjusted in the opening F, according to the spray desired. The extreme outer end of the valve-stem I is provided with a hand-wheel I^2 for conveniently turning the said valve-stem I to adjust the valve H in the opening F.

Part of the casing B is formed in the shape of a cylinder, in which is fitted to slide a piston L, having a hub secured on the valve-stem I by a set-screw L′. On the inside of the piston L is arranged a cup L^2, engaged by one end of a coil-spring N, pressing with its other end in a cup O, held on the end of the bearing on the cap J. The spring N has the tendency to hold the piston L in the position shown in Fig. 1, so that a free communication is established between the inlet and outlet openings C and D. An air-inlet opening P is also arranged in the casing B between the piston L and the cap J.

The operation is as follows: When the device is in the normal position, as shown in Fig. 1, the liquid can flow through the opening C into the casing B, and from the latter through the outlet D, past the valve H, to be sprayed, as previously described. Now, in case small particles, such as hops or other substances, pass with the liquid into the casing B and clog the valve H in the opening F, then a further escape of the liquid from the casing B through the said opening F is prevented. As the liquid enters the casing B under some pressure, this pressure is exerted in case of clogging, as described, against the piston L, so that the latter is forced outward against the spring N and carries with it the valve-stem I, whereby the valve H is moved out of the opening F and a free passage of the liquid takes place through the opening F, carrying with it the obstructing substance. As soon as the liquid flows freely through the opening F the pressure against the piston L ceases, so that the latter is returned by the force of the spring N to its former normal position, carrying with it the valve-stem I, so that the valve H again moves into the opening F, and the spraying of the liquid again begins in the manner above described. Thus it will be

seen that the device is automatic in operation, and cleans itself of any obstructing substance passing along with the liquid to be sprayed.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a spraying device, the combination, with a casing having a spraying-nozzle, of a spring-pressed piston in the casing in rear of the inlet-opening thereof and a valve carried by the piston and projecting into the opening of the spraying-nozzle, whereby provision is made for automatically moving the valve when it becomes clogged out of the spraying-nozzle opening to permit of a free passage of the liquid through said opening, substantially as described.

2. In a spraying device, the combination, with a casing having a spraying-nozzle, of a valve-stem projecting through the end of the casing opposite the spraying-nozzle, a valve on one end of the stem and entering the spraying-nozzle opening, and a spring-pressed piston in the casing in the rear of the inlet-opening thereof and secured on the valve-stem, substantially as herein shown and described.

3. In a spraying device, the combination, with the casing B, provided with the inlet C, the nozzle E, and cap J, having cup O, of the valve-stem I, provided at one end with a handle and at the other with a valve H, projecting into the spraying-nozzle, the piston L, provided with the cup L^2, and the spring N, surrounding the valve-stem and its ends seated in said cups, substantially as described.

WILLIAM J. RUFF.

Witnesses:
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