March 9, 1926. 1,575,895

E. A. BAKER

COOLING SPRAY

Original Filed Jan. 30, 1922

Fig. 2

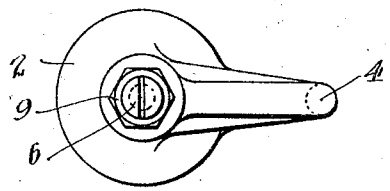


Fig. 1

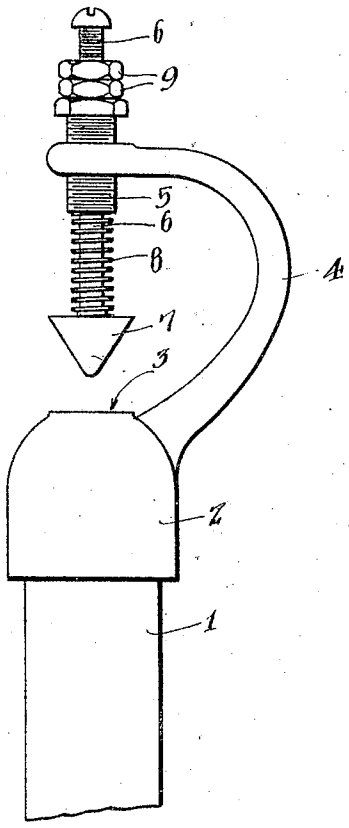
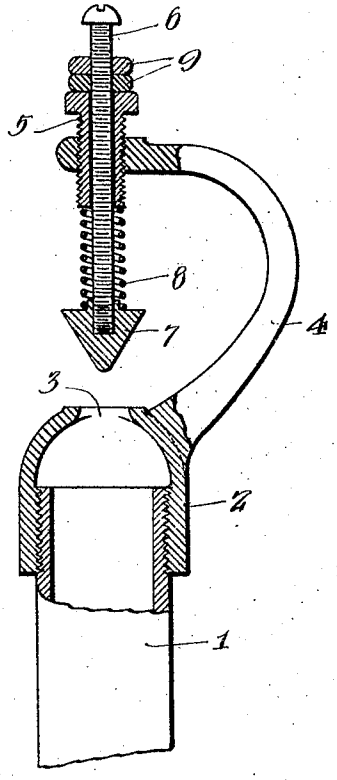


Fig. 3



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UNITED STATES PATENT OFFICE.

EDWIN A. BAKER, OF LOS ANGELES, CALIFORNIA.

COOLING SPRAY.

Application filed January 30, 1922, Serial No. 532,926. Renewed September 9, 1925.

To all whom it may concern:

Be it known that I, EDWIN A. BAKER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, formerly residing at Fullerton, in the county of Orange and State of California, have invented a new and useful Cooling Spray, of which the following is a specification.

This invention relates to cooling sprays and is particularly directed to a spray adapted for spraying liquids containing impurities or solid bodies such as would tend to stop up the ordinary types of spraying devices.

The general object of this invention is to produce a simple spraying device having a construction which will operate to prevent the spraying orifice from becoming obstructed, and which can also be readily cleared of obstruction, if the same should lodge between the orifice and the spraying head or baffle which co-operates with the orifice.

An object of the invention is to provide a spraying device for breaking the liquid into a fine mist against a baffle member which is yieldable under excessive pressure created by a clogging of the device, whereby the device may be flushed clean and the device subsequently restored to a normal condition.

Various other objects and advantages will be more fully apparent from the following description of the accompanying drawing which form a part of this disclosure, and which illustrate a preferred form of embodiment of the invention.

Of the drawings:

Fig. 1 is a side elevation of the device.

Fig. 2 is a top plan view.

Fig. 3 is a vertical section.

The device of the present invention, while well adapted for various purposes, has particular advantages in its use in connection with oil refining systems, and in this connection is adapted for use in delivering a fine spray or mist of cooling water over pipes of a condenser containing vaporized oil. In refineries the cooling water is used over and over again and becomes more or less fouled with impurities, often containing lint, grease, slime and even solid bodies such as bits of wood or match sticks. Such substances tend to clog the spray device and unless provisions are made to prevent the obstruction, or automatically release such substances, the entire system must be shut down and the spray cleaned. The present device is constructed so as to prevent its clogging, and provides for an automatic cleaning of the spray under abnormal pressure conditions created by clogging.

In the drawings, 1 designates the supply pipe upon which the spraying device is screwed, and the spray device comprises a body 2 having a discharge port 3, and a rigid fixedly mounted arm 4 extending upwardly and laterally to a point above and axially aligned with said port. The baffle member or spraying head 7 is supported in such a way that a solid body such as a small stick will not lodge against the supporting member. In order to accomplish this the arm which supports the spraying head is disposed at sufficient distance from the orifice to prevent a stick or match or other solid body coming through the orifice, from engaging the arm while the body is still within the orifice. The spraying head itself is carried on an elongated stem which holds the spraying head as near as may be desired to the orifice. It is preferable to mount the spraying head 7 so that it can be adjusted toward or from the orifice. In order to accomplish this I provide a bushing 5 adjustably mounted, for example, screw-threaded into an aperture in the upper end of the arm 4 and adjustable slidably in the bore of said bushing is a stem 6 having a cone-shaped baffle member 7 attached to its lower end. In order to enable the cone head 7 to release itself automatically, I provide a spring 8 surrounding the stem 6 betweeen the member 7 and the lower edge of the bushing 5 and lock nuts 9 screw-threaded on the stem abut the top edge of the bushing 5 to limit the downward movement of the stem and baffle member relative to the bushing.

In order to keep the space around the abutment or conical head 7 clear, I construct the device so that the arm 4 has means which constitutes the sole guide for the stem. This means is an opening which is formed through the arm and preferably provided with a bushing.

In adjusting the device for use, the lock nuts 9 are adjusted upon the stem 6 to give proper tension to the spring 8 so as to overcome the normal pressure of the water, and the bushing 5 is adjusted up or down to

bring the baffle member 7 in proper relation to the port 3 to produce the required spraying effect.

If sticks, lint, or other substances become clogged between the port 3 and the member 7 the increased pressure due to such clogging being exerted against the member 7 will move the member 7 upwardly against the tension of the spring 8. This will release the material effecting the clogging of the device so such material will be flushed clear of the port and baffle member after which the spring returns the baffle member to normal position.

This provides a cooling spray having a yielding baffle member effecting a breaking up of the water into a fine mist or spray and movable to automatically release such foreign substances as become clogged against said member.

Having described my invention I claim:

1. In a spraying device, the combination of a body having a discharge port, and a rigid fixedly mounted arm extending upwardly above the discharge port, an elongated stem mounted to slide through the arm and projecting downwardly therefrom toward the discharge port, said arm having means constituting the sole guide for the stem, means for limiting the downward movement of the stem, a baffle member carried at the lower end of the stem in the path of the jet for spreading the same, and a spring on the stem located in the space between the arm and the baffle member, and yieldingly holding the baffle member in position near the discharge port.

2. In a spraying device, the combination of a body having a discharge port, and having a rigid arm extending upwardly therefrom, and over the discharge port, a bushing mounted in the arm, an elongated stem having means for adjusting the same longitudinally and mounted to slide freely through the arm and bushing toward and from the discharge port, a spring on the stem with its upper end adjacent to the arm, and a conical head carried by the lower end of the stem receiving the thrust of the lower end of the spring, said bushing constituting the sole guide for the stem.

3. A device of the nature disclosed combining a body having a discharge port and an arm relatively spaced from said port, a bushing screw-threaded into said arm, a stem slidable within the bushing in axial alignment with the port, a baffle member on the lower end of the stem, abutment means adjustable on the stem and adapted to engage the bushing to limit movement of the baffle member towards the port, and tension means yieldingly maintaining the baffle member and associated parts against upward movement away from the port.

4. In a spraying device the combination of a body having a discharge port and a rigid fixedly mounted arm extending upwardly above the discharge port, and an elongated stem mounted to slide through the arm and projecting downwardly therefrom toward the discharge port, said arm having means constituting the sole guide for the stem, means secured to the stem above the arm for limiting the downward movement of the stem, a conical head carried at the lower end of the stem in the path of the jet for spreading the same, and a spring on the stem located in the space between the arm and the conical head, and yieldingly holding the conical head in position near the discharge port.

Signed at Los Angeles, California, this 12th day of December, 1921.

EDWIN A. BAKER.