No. 773,714. PATENTED NOV. 1, 1904.

L. COSTER.

SPRAYER.

APPLICATION FILED MAR. 17, 1904.

NO MODEL.

Fig. 1.

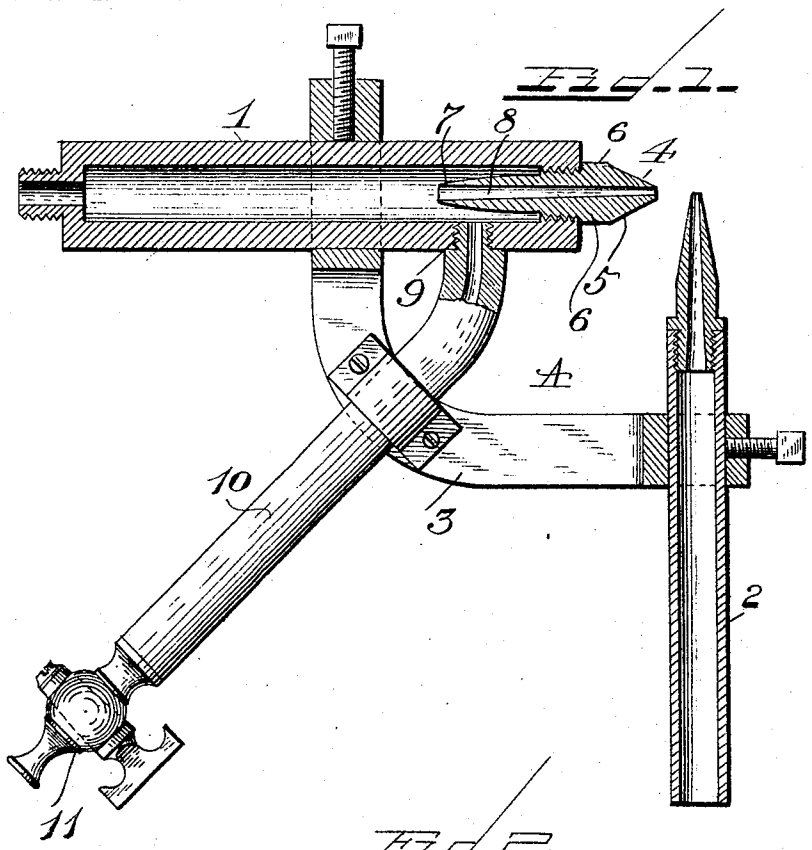


Fig. 2.

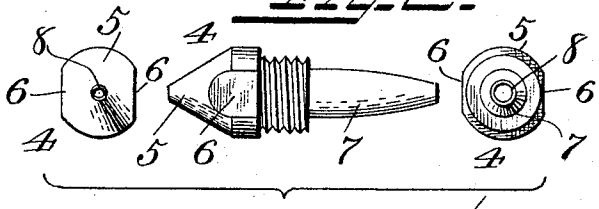
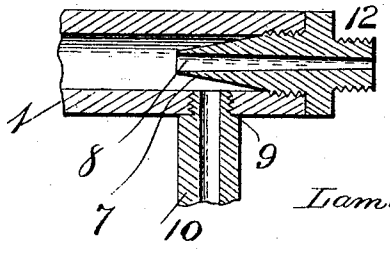


Fig. 3.



Witnesses
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No. 773,714. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

LAMBERT COSTER, OF COLLEGEPOINT, NEW YORK.

SPRAYER.

SPECIFICATION forming part of Letters Patent No. 773,714, dated November 1, 1904.

Application filed March 17, 1904. Serial No. 198,698. (No model.)

To all whom it may concern:

Be it known that I, LAMBERT COSTER, a citizen of the United States, residing at Collegepoint, in the county of Queens and State of New York, have invented certain new and useful Improvements in Sprayers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in steam-separators, and particularly to steam-separators for sprays for sizing and otherwise treating fabrics; and its object is to provide means of simple and effective construction for separating the water of condensation from the live steam and discharging the same from the steam-conduit. When used upon sprays of the character stated, the separator will prevent any other than dry live steam from being projected upon the goods and will thereby avoid discoloration of the goods.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a spray, showing the application of the invention thereto. Fig. 2 is a detail view of the combined separator and nozzle, and Fig. 3 is a view showing a modification.

Referring to the drawings, the letter A designates a sprayer of ordinary construction, such as used for sizing and otherwise treating fabrics, the same consisting of two right-angularly-arranged tubes 1 and 2, supported in proper relation by a curved arm or bracket 3 and provided at their proximate ends with discharge-nozzles 4. The fluids issuing from these nozzles commingle and are converted into spray which is projected against the goods to be treated.

Where steam is conducted through the tube 1 to be used as the impelling agent to scatter or spray the fluid or material supplied through the tube 2 difficulty is found in preventing the condensation in said tube 1 of a portion of the steam and the consequent staining or discoloration of the goods under treatment from the discharge of this water of condensation thereon through the nozzle 4. In order to obviate this objection, I provide means for discharging the water of condensation directly from the tube 1 and at the same time separating all moisture from the steam therein, so that the steam discharging from the nozzle will be entirely free from water, or in a "dry state," in which condition it will not stain or otherwise injure the goods.

The nozzle 4 as ordinarily constructed is provided with a tapered or cone-shaped discharge end 5, threaded or otherwise fitted in the end of the tube, and is provided with angular faces 6 for the application of a wrench or other tool to facilitate its application to and removal from the tube. In order to effect the separation from the steam of all moisture, I preferably modify the construction of the nozzle, so that it will serve both the purposes of a steam projector and separator. This is accomplished by providing the nozzle with a tapered or conical inner end 7 and reducing its bore 8 proportionately to the internal diameter of the tube 1, thus forming a condensing surface and space between the tube and inner end of the nozzle to receive the water of condensation dropping from said surface. The steam as it flows toward the discharge end of the tube 1 instead of passing directly through the bore of the nozzle with the moisture and water of condensation is checked or retarded by the surface 7, and the water of condensation and moisture are thereby separated therefrom, thus allowing only dry steam to discharge. In line with said condensing-space an opening 9 is formed in the bottom of the tube 1, and into this opening is fitted one end of a pipe 10, through which the water of condensation exhausts. This pipe passes through and is supported by a bracket between the tubes 1 and 2 and carries at its outer and lower end a drip-cock 11, which is opened to allow the water of condensation to drip out.

In Fig. 3 I have shown a modification in which a screw-threaded portion 12 is substituted for the conical discharge end of the nozzle to adapt the separator for connecting the proximate ends of two steam pipes or conductors.

By the use of my invention simple and effective means are provided to separate all

moisture from the steam discharged from the sprayer, thus obviating all liability of staining of the fabric under treatment. I, however, do not desire to limit my invention to use with sprays of this kind, but reserve the right to employ it generally upon steam-conductors.

Changes in the form, proportion, and the minor details of construction may also be made without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sprayer comprising two pipes, one of said pipes serving as a steam-supply pipe having an outlet for water of condensation, and a nozzle fitted in the end of said pipe and having a conical surface forming with the wall of the pipe a condensing-surface communicating with said outlet, substantially as described.

2. A sprayer comprising pipes arranged at an angle, one of said pipes serving as a steam-supply pipe, nozzles fitted in the proximate ends of the pipes, the nozzle of one pipe having a conical condensing-surface, a bracket supporting the pipes, and a waste-pipe supported by said bracket and communicating with the supply-pipe adjacent to said condensing-surface, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LAMBERT COSTER.

Witnesses:
CHARLES TAUBERT,
JOHN L. BRUNNER.