

(No Model.)

M. PARTINGTON.
ATOMIZER FOR DAMPENING FABRICS.

No. 410,187.

Patented Sept. 3, 1889.

Fig. 1.

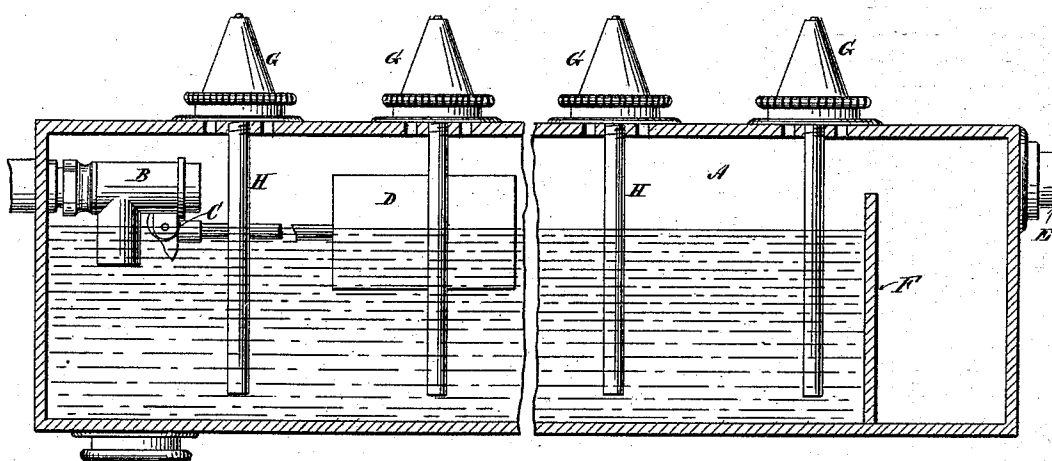


Fig. 2.

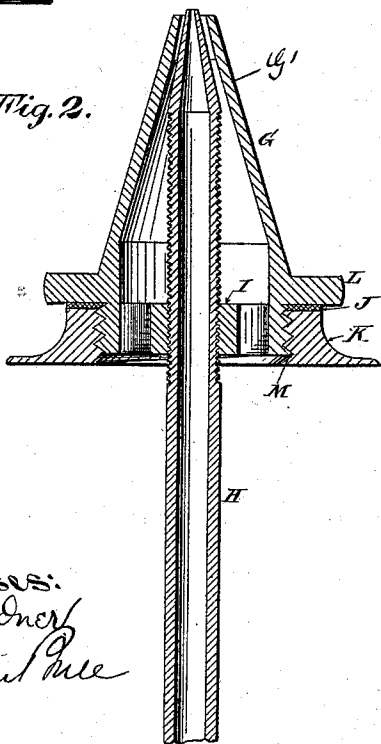
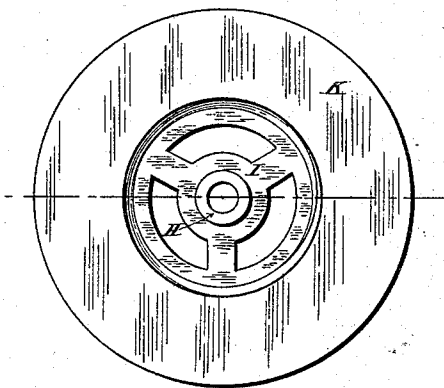


Fig. 3.



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ATOMIZER FOR DAMPENING FABRICS.

SPECIFICATION forming part of Letters Patent No. 410,187, dated September 3, 1889.

Application filed January 18, 1889. Serial No. 296,697. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL PARTINGTON, a citizen of the United States, residing at Fall River, in the State of Massachusetts, have invented certain new and useful Improvements in Atomizers for Dampening Fabrics, of which the following is a description in such full, clear, concise, and exact terms as will enable any one skilled in the art to which my invention appertains, or with which it is most nearly connected, to make and use the same, reference being had to the annexed drawings, making part of this specification, and to the letters and figures of reference marked thereon.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

As is now well understood in the arts, cotton goods before they are calendered are conditioned by dampening or sprinkling in bleaching, dyeing, or print works. The ordinary means of sprinkling or dampening such goods consists of a circular brush, the ends of the bristles of which dip into a trough containing water, which water, when the brush is revolved by centrifugal action, is thrown upon the goods. There are many objections to such a device when employed for this purpose. It is desirable that the water be sprinkled upon the goods in as small drops or as fine spray as possible, and that it be applied evenly over the entire surface. Besides the inherent defects of a brush as a means for dampening the goods may be mentioned the fact that the bristles are apt to become loosened and fall out, and that part of the brush becomes inefficient for sprinkling purposes, since it causes the goods to be unevenly and unsatisfactorily dampened. It is also impossible to regulate with uniformity and with accuracy the amount of water thrown upon the goods by such a device; nor is it possible to insure an even distribution of the water over the entire surface. This regulation and uniformity is a matter of the utmost importance in conditioning the cloth, because if too little water be thrown upon the goods they will not be properly ironed in passing through the calender-rollers, and if too much be thrown upon them they are apt to mildew after being calen-

dered, and they invariably have a heavy or lifeless feeling, which depreciates the value.

Another objection to the present means of conditioning the goods by means of a sprinkling-brush consists in the fact that the cloth after it is dampened must be laid aside for several hours in order that the water may have time to soak into and spread evenly through the entire mass. The time necessary to this end is greatly diminished if the water be thrown upon the goods in fine spray and evenly over the entire surface.

The object of my present invention is to provide a more efficient sprinkler, and its advantage, when used in bleaching, dyeing, or print works for conditioning the goods before calendering, consists in the economy of power employed and in the fact that the water is more evenly applied to the goods; that it is divided into smaller drops or particles before it reaches the goods, and that it diminishes the time necessary to elapse between the sprinkling of the cloth and passing it through the calender-rollers. By means of my improved sprinkler the goods are in an improved condition when they leave the calender-rollers and the time necessary to dry them is diminished.

The following is a description of the accompanying drawings and of the device illustrated therein, while the novel features of my invention will be specifically pointed out in the claims concluding this specification.

Referring to said drawings, Figure 1 illustrates a water-trough with my sprinkling-nozzles attached thereto, such as is adapted for use in bleaching, dyeing, or print works. Fig. 2 is a longitudinal section of one of the sprinkling-nozzles shown in elevation in Fig. 1, and Fig. 3 is a bottom view of the same.

A is a suitable trough containing liquid.

B is a delivery-nozzle, through which the water is passed into the tank A. C is a cock for controlling the admission of said fluid.

D is a float for working the cock C, so as to automatically control the flow of the water through the nozzle B, to maintain the liquid in the tank at a constant height.

E is a duct leading from a suitable blower, by means of which air is introduced into that portion of the tank not occupied by the wa-

ter, and thereby a constant pressure on the surface of the water is obtained.

F is a partition in the tank A to form an air-chamber at the end thereof.

5 G G G G are sprinkling-nozzles. (Shown in detail in Figs. 2 and 3.)

Referring to said Figs. 2 and 3, H is a pipe having a screw-threaded section. This tube H extends down beneath the surface of the water in the tank, and is open both at its top and bottom. Surrounding the tube H is a tip or tapering casing G', fitted so as to leave an annular space between the exterior wall of the pipe and the interior wall of the casing at their upper ends, having a web I, provided with a female screw taking in the screw-threaded section of the pipe H. The lower end of casing G' is provided with a shoulder L and a screw-threaded portion M.

20 K is a sleeve having a smooth level under side to form an air-tight joint with the top of the trough A, to which it is soldered or cemented, and having an internal screw-thread taking with the thread M on the lower end of the casing G'.

J is a packing-ring between the shoulder L and the sleeve K.

The operation of the device illustrated is as follows: Air under pressure is introduced through the duct E into the trough A. This air-pressure on the surface of the water in said trough forces it up through the tubes H and out of their upper ends. The air under pressure in the tank A passes up through the openings in the webs I, and out through the annular space between the exterior of the tube H and the interior of the casing G' in streams impinging upon the water-jet. The air thus issuing from the upper end of the casing G' comes in contact with the stream of water issuing from the tube H, thereby disintegrating and atomizing the water into the form of a spray upon the goods. The shoulder L upon the casing G' is provided with milling at its outer edge. By turning the pipe H with a right-hand or a left-hand revolution it will be seen that the relative position of the pipe H may be varied and its projection through the upper end of the casing G' adjusted. The object of this adjustment is to cause a coarser or finer spray to be thrown upon the goods, since the farther the tube H projects the less will be the dispersing or atomizing action of the column of air passing from the end of the casing G', and the larger will be the drops thrown upon the cloth, while as the pipe H is relatively depressed or withdrawn the greater will be the dispersing or atomizing action of the air column and the finer will be the spray thrown upon the cloth. By experiment I have ascertained that a pressure of one pound in the trough A will throw a spray from seven to eight feet high.

65 The goods dampened with my improved sprinkler are much better conditioned than those sprinkled in the ways already known

and practiced, and the cloth after it has been ironed is in much better condition and has no heavy or lifeless parts due to overwetting. I have also ascertained that the goods only require to be laid aside after being sprinkled and before being calendered a comparatively short time when dampened with my improved sprinkler on account of the fineness of the dampening-spray and the evenness with which it is applied to the goods.

It will of course be understood that I do not limit myself to the precise elements or combinations of elements illustrated, and hereinbefore described, since many modifications not affecting either the principle or purpose of the invention may be employed without departing from its spirit or the scope of the following claims.

It will also be understood that my improved sprinkler is adapted not only to the dampening of goods in bleaching, dyeing, or print works to condition them for the calender-rollers, but that it may be applied to other and analogous purposes.

My sprinkler is especially useful in dampening those materials—such as velveteens—where steam or a dampening agent is now employed. These goods cannot be sprinkled with a brush, as water, if it touches them in drops, will spot and ruin them. For this reason steam is employed to dampen these goods, and this not only makes it inconvenient to work in the room where the dampening is being done, but the steam rusts all machinery which may happen to be near it.

My sprinkler will throw the water up in such fine spray that it resembles a fog.

Having thus described the form in which I prefer to embody my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a sprinkler, a trough for containing liquid and air under pressure, a sleeve attached to said trough, a tip removably attached to said sleeve, forming a tapering chamber in communication with the air-space in said trough, and a tube, one end of which is to be immersed in said fluid and the other end of which projects outside of said trough, said tube having provision, substantially as described, for enabling it to be raised and lowered through said sleeve while the sleeve remains fixed to regulate the spray.

2. In a sprinkler, a trough for containing liquid and air under pressure, a sleeve attached to said trough, a tip removably attached to said sleeve, provided with a web having a screw-threaded aperture therethrough, said tip forming a tapering chamber in communication with the air-space in said trough, and a tube, one end of which is to be immersed in said fluid and the other end of which projects outside of said trough, said tube being provided with a screw-threaded section taking with the screw-threaded aperture in the said web, whereby it is adjusted, substantially as described.

3. In a sprinkler, a trough for containing

liquid and air under pressure, an air-chamber formed at one end of said trough, combined with a tube, one end of which is carried outside of said trough, and a casing having a
5 chamber in communication with the air-space in said trough, and having an opening inclined with relation to the opening in the outside end of said tube, substantially as described.

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Witnesses:

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