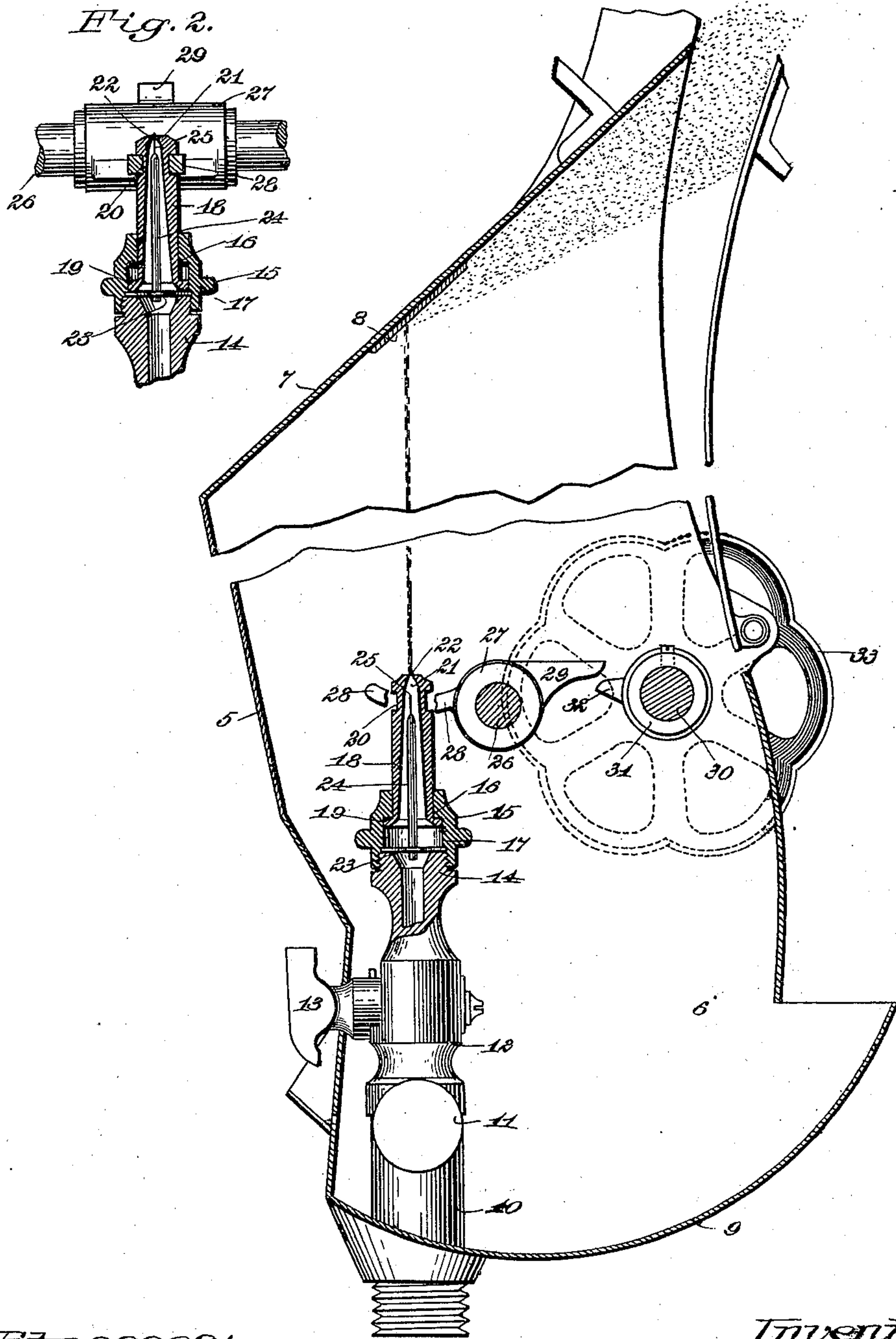


No. 685,652.

Patented Oct. 29, 1901.

R. P. SMITH.
DAMPENING MACHINE.
(Application filed May 6, 1901.)

(No Model.)



Witnesses:
Wm. H. Varnum.
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Fig. 1.

Inventor:
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att'y

UNITED STATES PATENT OFFICE.

ROBERT P. SMITH, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR TO
AMERICAN MOISTENING COMPANY, OF BOSTON, MASSACHUSETTS, A
CORPORATION OF MAINE.

DAMPENING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 685,652, dated October 29, 1901.

Application filed May 6, 1901. Serial No. 58,874. (No model.)

To all whom it may concern:

Be it known that I, ROBERT P. SMITH, a citizen of the United States, residing at Winchester, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Dampening-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in "dampening-machines" so called, whereby moisture may be supplied to fabrics of a fibrous or textile nature.

15 The invention relates more particularly to improvements in the nozzles for supplying fluid, together with the casing and the means for controlling parts of said nozzles.

20 One object of the invention is to so construct a nozzle that the orifice thereof may be cleaned of sediment from time to time, whereby the most minute orifices may be used.

25 Another object of the invention is to so construct a dampening-machine of this nature that the orifices may be positively cleared without withdrawing the machine from use.

Another object of the invention is to improve the construction of nozzles for dampening-machines.

30 The invention consists in the chamber, the mouthpiece movably mounted therein, and cleaner-stem in the chamber.

35 The invention also consists in a nozzle having a movable apertured mouthpiece and a clearer contained within the nozzle toward which the mouthpiece may be moved.

The invention also consists in the mouthpiece and the means for moving the same.

40 The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described, and pointed out in the claims.

45 Figure 1 represents a vertical sectional view of a dampening-machine of this nature, illustrating the improved nozzle in the operative position with the mechanism for depressing the mouthpiece. Fig. 2 represents a vertical sectional view of parts of the same, taken at right angles to Fig. 1, showing the mouth-

piece in the position when fully depressed, 50 with the clearer-needle extending through the aperture of the mouthpiece.

Similar numerals of reference designate corresponding parts throughout.

55 In moistening-machines of this character used for moistening textile and fibrous fabrics, and particularly in the moistening of paper between steps in its manufacture, it is most important to supply the requisite amount of moisture in a mist-like form so disintegrated 60 that the effect produced shall be equivalent to that of moist atmosphere without drops. To accomplish this effect mechanically, it is obvious that the fluid must be supplied in the most minute streams and under such pressure 65 that by impingement on a suitable deflector the streams of fluid shall be broken up into an absolute mist without the presence of drops. From the necessarily small area of the orifices through which the streams or jets are 70 directed toward the deflector and from the presence of impurities in the water the orifices soon become clogged, this causing annoyance and delay and sometimes damage to the goods from the stoppage of the supply of 75 moisture. In carrying this invention into practice it is found that the reduction in area of the orifice is limited only by the practical size of the clearer-needle and that the clearance of the orifice is effected in the most positive manner both mechanically by the needle 80 and by the increase in pressure at the orifice, caused by the reduction in area thereof as the needle enters or leaves the same.

85 In the drawings, 5 indicates a dampening-chamber of any usual construction, having the ends, as 6, the top 7, with its deflector 8, and the drip-pan or bottom 9. Through the bottom 9 is formed an opening, through which a connection 10 extends, this being connected 90 with any fluid-supply. From the connection 10 the pipe 11 extends the entire length of the moistening-chambers and carries a series of stand-pipes, as 12, controlled by a cock, as 13, and each having the upper end, as 14, furnished with an exterior screw-thread. On 95 the ends, as 14, of the stand-pipes are screwed the chambers, as 15, having the internal shoul-

ders 16 and 17, the bore between the shoulder 17 and the upper end of this chamber being slightly tapering, but not sufficiently so as to be perceptible in the drawings. In said bore the mouthpiece 18 is free to move vertically. This mouthpiece has at its lower end the annular shoulder 19, which has a sliding fit in the chamber between the shoulders 16 and 17 thereof and tapers very slightly toward its upper end portion, where it is furnished with the exterior groove 20. The bore of this mouthpiece is gradually reduced in diameter toward its upper end to meet the conical mouth 21, at the center of which is the minute outlet or orifice 22. Loosely secured between the top 14 of the stand-pipe, as 12, and the shoulder 17 of the chamber 15 is the spider 23, carrying the stem 24, axially disposed in the upper end of which is the clearer-needle 25.

It will now be seen that when fluid under pressure passes through the nozzles thus constructed the pressure of the fluid will first move the mouthpieces, as 18, vertically and will sustain the same, the fluid then passing through the minute orifices, as 25, impinging on the deflector 8, when it is disintegrated into a mist-like spray. If now the pressure of the fluid be reduced below the point necessary for the sustaining of the mouthpiece 18, this mouthpiece will drop back into the position shown in Fig. 2, where the clearer-needle 25 will penetrate the orifice 22 and force therefrom any ordinary impurities likely to lodge therein from the fluid, this automatic cleaning of the orifice depending somewhat on the weight of the mouthpiece and on the resistance it meets from pressure therein or from accumulated impurities. To positively move the mouthpiece downward, I make use of any usual depressing mechanism, which may be operated from the exterior of the chamber 5 to depress the mouthpieces, as 18, in succession.

In the ends, as 6, of the dampener-chamber are secured the ends of the cam-shaft 26, on which at intervals corresponding to the location of the stand-pipes, as 12, are journaled collars, as 27, having the curved cam-fingers 28 28, which are engaged in the groove 20 of the mouthpiece, as 18, and also having the oppositely-extending cam-arm 29. In suitable bearings in the ends, as 6, of the dampener-chamber is journaled the shaft 30, having at intervals corresponding to the disposition of the arms 29 collars, as 31, fixed there-

on by means of set-screws, each of the collars having a radially-extending tripper 32, adapted to lift the free end of the associated arm 29 when the shaft 30 is rotated by means of the band-wheel 33. In practice the collars 31 are so arranged and secured on the shaft 30 that the trippers, as 32, will successively actuate their associated arms, as 26, to successively depress the mouthpieces, as 18, to points where the sediment collected in the orifices 22 will be forced out by the clearer-needles, as 25, and the orifices will be scoured by the fluid under the increased velocity caused by the reduction in the area of the conical chamber 21 by the entrance therein of the end of the clearer-stem. It is evident that the length of the clearer-needle may be much shorter than as shown in the drawings, the length of the stem 24 being proportionately increased. In fact, this needle may be simply a very fine point on the end of such stem.

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

1. A dampening-machine comprising a nozzle furnished with an end chamber, a mouthpiece having a base movably secured within said chamber and having an apertured end, a cleaner-stem secured within said chamber and having an end adapted to enter the aperture at times, and mechanism for moving the mouthpiece toward the cleaner-stem to enter the end of the stem in the aperture.

2. A nozzle for a machine of this character comprising an end chamber, a mouthpiece having a base movably secured within said chamber and an apertured end, and a cleaner-stem secured within said chamber and having an end capable of entering the aperture at times.

3. The combination with the nozzle having the end 14, the chamber 15 secured thereto and having the shoulders 16 and 17, the mouthpiece 18 having the shoulder 19, movable in said chamber below the shoulder 16, and the aperture 22, and the clearer-stem 24 mounted in said chamber and having the needle 25 as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT P. SMITH.

Witnesses:

WILLIAM G. WAITT,
HENRY J. MILLER.