

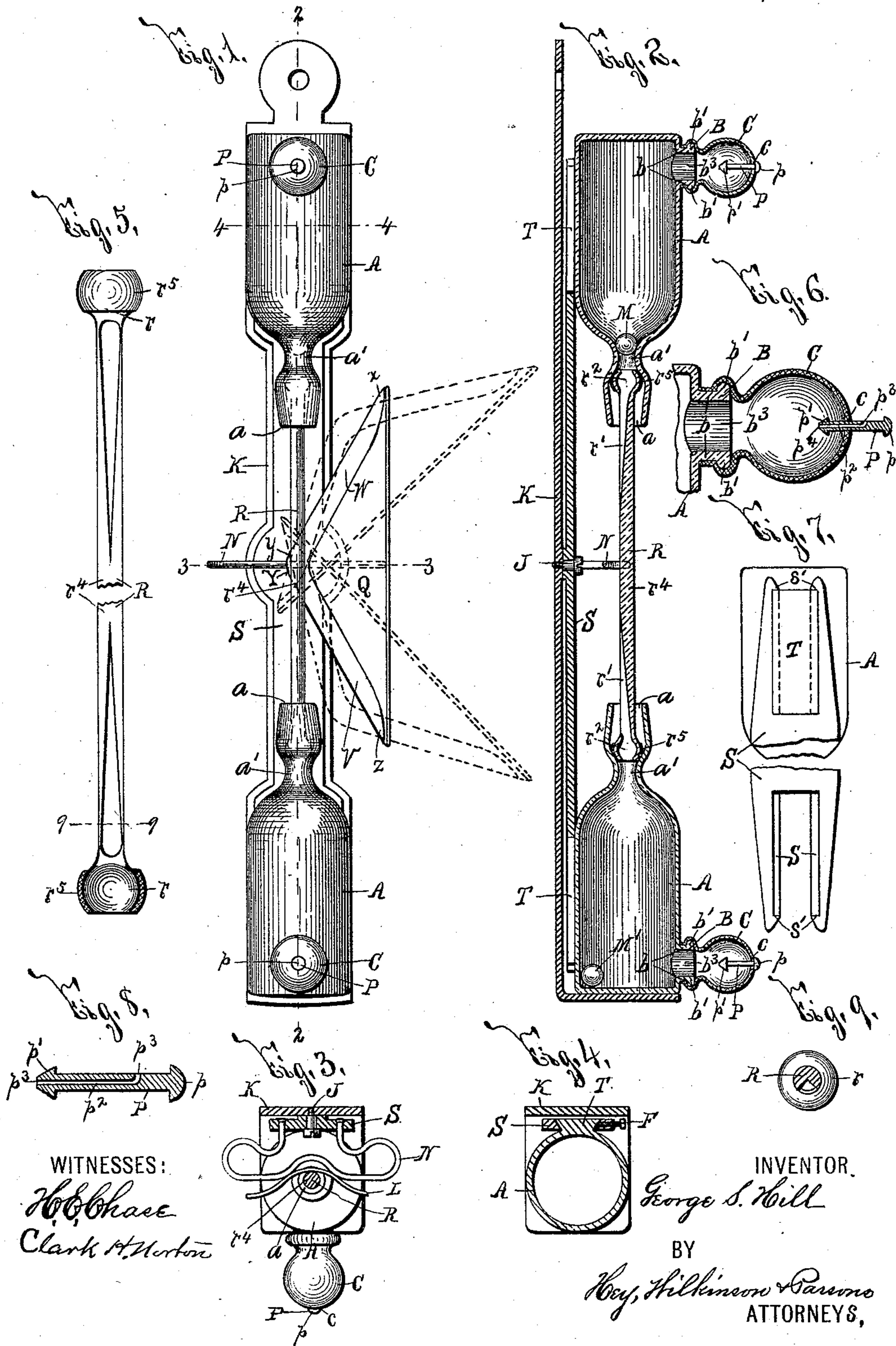
(No Model.)

G. S. HILL.

# APPARATUS FOR MOISTENING GUMMED SURFACES.

No. 532,459.

Patented Jan. 15, 1895.





# UNITED STATES PATENT OFFICE.

GEORGE S. HILL, OF SAYRE, PENNSYLVANIA.

## APPARATUS FOR MOISTENING GUMMED SURFACES.

SPECIFICATION forming part of Letters Patent No. 532,459, dated January 15, 1895.

Application filed June 8, 1894. Serial No. 513,930. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE S. HILL, a citizen of the United States, residing at Sayre, in the county of Bradford and State of Pennsylvania, have invented a new and useful Improvement in an Apparatus for Moistening Gummed Surfaces and the Like, reference being had to the accompanying drawings.

What I have invented is an effective and convenient device for moistening gummed labels, envelope flaps, &c.

My invention is simple, cheap, and cleanly, and takes the place of the dirty and disagreeable practice of licking labels, &c.

The essential features of my invention are two glass bottles or vials exactly the same in construction and set vertically, one directly over the other, the lower one with its mouth opening upward and the upper one with its mouth opening downward. They are arranged a few inches apart and connected by a rod down which the water trickles. Each bottle is also provided with an opening at one side closed by a rubber nipple or elastic membrane of same form and has inserted within it a small ball or marble which acts as a valve to close its neck automatically when in a particular position. The rubber nipples or membranes each have one perforation which may be opened or closed in order that the interior of the bottles may communicate with or be cut off from the outer air as may be desired. A framework or support of some sort is also provided to which the bottles are firmly secured, preferably pivoted to a standard so that either bottle may be set in the upper position.

My invention will be better understood by reference to the accompanying drawings, in which the same letters indicate corresponding parts in all the views.

Figure 1 is a front elevation of my invention showing an envelope flap in three positions while being moistened. Fig. 2 is a vertical section on line 2—2, of Fig. 1. Fig. 3 is a horizontal section on line 3—3, of Fig. 1. Fig. 4 is a horizontal section on line 4—4, of Fig. 1. Fig. 5 is an enlarged back view of the connecting rod with the middle portion broken away, one end in elevation and the other in section. Fig. 6 is an enlarged sectional view of the side nozzle of one bottle and the nipple closing the same, showing the construction of the pin by which the perfora-

tion through the nipple is closed. Fig. 7 is an enlarged back view of the back piece on which the bottles are supported with its middle portion broken away, showing the upper bottle in position. Fig. 8 is an enlarged detached sectional view of the pin for closing the perforation in the nipple; and Fig. 9 is a cross section of the rod on line 9—9 of Fig. 5.

As the bottles are exactly the same in form and construction I shall for convenience direct my description to the upper one.

The parts of the lower bottle I have indicated by the same reference letters as I have the corresponding parts of the upper bottle; and the description therefore applies equally well to the lower bottle.

The bottle A is constructed with its mouth  $a$  slightly larger than the neck  $a'$ . It is provided with an integral dovetail T by which it is set on its supporting frame or back piece S. It is also provided with the integral nozzle B preferably constructed with a side wall  $b$  and beadings  $b'$   $b'$ . Through the nozzle is an opening  $b^3$  into the interior of the bottle. To close the opening  $b^3$  air-tight, an elastic membrane is provided preferably in the form of a rubber nipple C slipped over the beading  $b'$  of the nozzle B. The nipple is perforated at one point  $c$  which is normally closed by any suitable means such as an ordinary pin. I preferably provide for closing the aperture  $c$ , a pin of peculiar construction which is most clearly illustrated in Figs. 6 and 8. This pin P fitted into the perforation  $c$  has at its outer end a head  $p$  which prevents it being pushed into the bottle and at its inner end a head  $p'$  which prevents its being easily drawn entirely out of the nipple. It is also provided throughout a portion of its length with a longitudinal channel or perforation  $p^2$  which opens at  $p^4$  through one end of P and at  $p^3$  through the side of the pin. Through the opening  $b^3$  is inserted into each bottle a marble M and M', which act as ball valves automatically to close the necks of their respective bottles when said necks are turned downwardly.

The bottles are connected by a peculiarly formed rod R, clearly shown in Figs. 2 and 5, and in section in Fig. 9. The central part of the rod is solid, and at each end it is provided with a tip  $r$  preferably a little enlarged through which the opening  $r^2$  leads into the groove  $r'$  extending some distance toward the



center of the rod. Preferably these grooves  $r'$   $r'$  do not connect or run into each other, but decrease in size gradually and disappear before reaching the center of the rod  $r^4$ . The enlarged tip  $r$  of the rod R is preferably surrounded with a gasket  $r^5$  of rubber or cloth in order to make a tight joint with the neck of the bottle  $a'$ . The rod is preferably made of glass, though any suitable material may be used. The bottles with the connecting rod are held in operative position by means of some framework or standard constructed of any desired material. The form of standard or support for the bottles, which I prefer, consists of a back piece S on which the bottles A are set, and to which they are firmly attached by any simple means, so that they shall always be maintained firmly a distance apart corresponding to the length of the rod R, so that its ends inserted into the mouths of the respective bottles, as shown in the drawings, shall be held firmly in position, and shall fit tightly the bottles at their necks  $a'$   $a'$ . The back piece S is preferably constructed with notches S' S' at its ends, into which notches the dovetails T T on the backs of the respective bottles are adapted to fit closely, and in which notches the respective bottles are positively held by any desired means, as by the set screw F, or by small projections s s at the extreme ends of S, which take over the ends of the dovetails T T.

Secured to the back piece S is the guide N set opposite the solid ungrooved portion of the rod R. This part N may be a curved pad of hard rubber or other material, or, as is shown in Fig. 3, may be a support constructed of wire substantially in the form there shown. It extends from the back piece S outwardly close to the rod R, and curves around it on each side without, however, touching it, and acts as a guide or support to the label or other article, while it is being moistened.

By means of a pivot J the back piece S is pivoted to a standard K of any convenient form by means of which my device may be attached to a wall or set on a desk or table. By this arrangement the bottles may be inverted so that, as may be desired, either bottle may be made to assume the upper position, and the other bottle a position directly below it.

The operation of my invention is as follows: The parts being assembled and set in position, that is, the bottles A A with the connecting rod R and the guide N being firmly connected to the back piece S, and the back piece S being pivoted at J to the supporting frame K, one of the bottles is filled with the moistening liquid as water either through the opening  $b^3$  or by letting the water drop down the back of the rod R through the perforation  $r^2$  and the neck  $a'$  into the bottle. (Where gummed labels or envelope flaps are to be moistened water is preferably used; where ungummed labels, a solution of mucilage or gum of some sort is introduced into the bottle.)

The bottle A being filled, is turned into the upper position, as shown in Figs. 1 and 2. In this position the upper bottle is the operative bottle, the lower one acting merely to receive the surplus water, that has flowed down the inner side of the rod R and has not been absorbed by the gummed articles. My device, being set in this position, and the pins P P being pushed in to their fullest extent so that the perforation c is closed air-tight, it will be observed that the marble M drops down into the neck  $a'$  of the upper bottle, as best shown in Fig. 2, and substantially closes this, so that with the assistance of the air pressure, no water can pass. Now, when it is desired to moisten a label, the nipple C is pinched by which means pressure is applied to the water within the bottle A, and a drop or two is forced down and past the marble M, which does not fit perfectly, and flows down through the neck  $a'$ , perforation  $r^2$ , and the groove  $r'$ , moistening the inner side of the rod R; though it will be noticed that when the nipple C is released from between the thumb and finger, the marble M is forced up momentarily from its seat, permitting a drop or two more to escape. The label L is then passed between the rod R, and the guide N with its back or surface to be gummed or moistened turned toward and pressed lightly against the moistened back of the rod R, which pressure is produced by the peculiar shape of the guide N, shown in section in Fig. 3. It will be found that the gummed label is evenly, sufficiently, and yet not excessively moistened.

If mucilage is being applied to an ungummed label by means of my invention the operation is exactly the same, and it will be found that the back of the label is evenly, sufficiently, and not excessively moistened with the gummy solution.

My invention is peculiarly adapted for moistening the gummed flaps of envelopes.

In Fig. 1 is shown an envelope flap in process of being moistened on its gummed surface. The flap is shown in three positions, in which the first or upper position, indicated in dotted lines, shows its position when inserted between the rod R, and the guide N. In the second position, shown in full lines half of the gummed surface W has been moistened, and the tip of the flap  $y$  is being moistened. In the third or lower position of the flap indicated in dotted lines, the moistening of the gummed surface W is being completed and the envelope is about to be removed from the moistener. It will be understood by this diagram that the envelope flap V with its gummed surface W is passed between the rod R and the support N, in a curved path or with a swinging motion of the hand, the bulb having been pressed as in the case of a label just described. By this manner of applying the moisture to the flap merely the gummed surface W of the flap is moistened, first, at the point  $z$ , then from  $z$  to  $y$ , and then from  $y$  toward  $x$ , and the remainder of the interior of the flap Q is



not moistened, nor is any gum transferred to it by which it might be caused to stick to the letter or other inclosure in the envelope when the envelope was sealed. This result, which is entirely avoided by the use of my invention is one of the disadvantages of all envelope moisteners that I have ever seen. In these the envelope flap is passed through the moistener at right angles to its length, so that the tip  $y$  of the flap is first moistened, and, as the operation is continued in order to moisten the gummed surface  $W$  from  $y$  to  $z$  and from  $y$  to  $x$ , some of the gum is carried back onto the ungummed portion of the interior of the flap  $Q$ , by which the flap is often caused to adhere to the inclosure or letter within the envelope; or the envelope is passed through the moistener, parallel to its length, the gummed surface  $W$  at one end  $x$  or at the other end  $z$  being first moistened, when the same undesirable result of transferring some of the gum onto the ungummed portion  $Q$  of the flap is produced.

The foregoing is the operation of my device when it is desired to moisten one article at a time. When, however, it is desired to moisten a large number of labels, envelopes, &c., continuously, my device is operated as follows:

Instead of pinching the nipple  $C$  every time it is desired to moisten each label the pin  $P$  is drawn out into the position shown in Fig. 6, so that the opening  $p^4$  is within the nipple, and therefore communicating with the interior of the bottle  $A$  while the opening  $p^3$  is without the bottle, and, of course, in communication with the outer air, thus equalizing the water pressure within and without the bottle. The result of this is that the water is not held securely within the bottle, but flows past the valve or marble  $M$  very slowly through the hole  $r^2$  into the groove  $r'$  and down the inner surface of the rod  $R$  in a continuous but very slow stream. It might at first sight seem that it would not flow past the marble or ball valve  $M$ , but it does slowly, because the marble does not fit with absolute exactness the neck  $a'$  of the bottle. Experiments show that this is always the case, but that it takes some little time for the water to flow from the upper bottle into the lower one. When it has all flowed out of the upper bottle it will be found that comparatively a small portion of the water has been taken up in moistening the gummed surfaces and the relative positions of the two bottles are then reversed, so that the upper bottle now empty is in the lower position and the lower bottle into which the surplus water has flowed is in the upper. In this position if it is desired to continue the operation of moistening a number of gummed surfaces continuously, the pin  $P$  in the bottle in the lower position is pushed in as far as it will go and the pin in the bottle now in the upper position is pulled out until the opening  $p^3$  of its channel  $p^2$  is outside the nipple communicating with the outer air.

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

1. In a device for moistening gummed surfaces, the combination of a vessel for containing liquid, a second vessel for receiving it, a solid conducting rod for connecting the two vessels, and means for supporting the same.

2. In a device for moistening gummed surfaces, the combination of an upper vessel containing liquid, a lower vessel receiving the waste liquid, a solid conducting rod for guiding the liquid, means for sustaining the same, and means for regulating the flow of liquid from the upper vessel.

3. In a device for moistening gummed surfaces, the combination of a vessel containing liquid, means for controlling the flow therefrom, a rod for guiding the liquid in a downward course, and means for guiding the article to be moistened against the rod, substantially as described and shown.

4. In a device for moistening gummed surfaces, the combination of a vessel having two openings, means for automatically closing one of them, an elastic cap for normally closing the other, a second vessel similar thereto, a rod having a solid middle portion, and enlarged perforated ends communicating with the two vessels respectively, means for sustaining the vessels reversibly the required distance apart, and a guide for pressing the article to be gummed against the rod, substantially as described and shown.

5. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with an opening, a conducting rod or bar having one end inserted in said opening, whereby the liquid gravitates along the outer surface of the rod for moistening the articles applied thereto, substantially as and for the purpose described.

6. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with an opening, a conducting rod or bar having a perforated bulbous end inserted within said opening and an external lengthwise groove leading from said perforation for conducting the liquid along the outer surface of said rod or bar, substantially as described and shown.

7. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with an opening, a solid conducting rod or solid bar having one end inserted within said opening, and a gravity valve within the reservoir for closing said opening, substantially as specified.

8. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with inlet and outlet openings, a flexible perforated air bulb capping the inlet opening, a gravity valve in the outlet open-



ing, and a conducting rod or bar leading from the outlet opening, all operating substantially as described.

9. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with inlet and outlet openings, a flexible air bulb capping said inlet opening, a perforated air valve movable through a perforation in said air bulb for regulating the passage of air, a gravity valve in the outlet opening for regulating the flow of liquid therethrough, and a conducting rod leading from said outlet opening, all operating substantially as set forth.

10. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with an opening, a conducting rod or bar leading from said opening, and a guide on one side of said rod for guiding the articles to be moistened along the surface of the conducting rod, substantially as described.

11. The herein described moistening device consisting of a support, a liquid containing reservoir mounted on the support and provided with inlet and outlet openings, a flexible air bulb capping the inlet opening, a conducting rod or bar having one end inserted within the outlet opening for conducting the liquid therefrom, and a receptacle having an opening aligned with the opposite end of said conductor for receiving the drip therefrom, substantially as specified.

12. The herein described moistening device consisting of a reversible support, liquid receptacles mounted on the support and provided with openings in their adjacent ends, and a solid conducting rod or solid bar having its opposite ends inserted in said openings for conducting the liquid from one receptacle to the other along the outer surface of said rod, substantially as described.

13. The herein described moistening device consisting of a reversible support, liquid receptacles mounted on the support and provided with openings in their adjacent ends, a conducting rod or bar having its opposite ends inserted within said openings for conducting the liquid from one receptacle to the other along the outer surface of the rod, and a guide for guiding the article to be moistened along said surface of the rod, substantially as specified.

14. The herein described moistening device consisting of revoluble supports, liquid receptacles mounted on the support and provided with inlet and outlet openings, flexible air bulbs capping the inlet openings, and a conducting rod or bar connecting the outlet openings for conducting the liquid from one receptacle to the other along its outer surface, substantially as described.

15. The herein described moistening device consisting of a reversible support, liquid receptacles mounted on the support and provided with openings in their adjacent ends,

gravity valves for closing said openings, and a conducting rod for conducting the liquid from one receptacle to the other along its outer surface, substantially as and for the purpose specified.

16. The herein described moistening device consisting of a revoluble support, liquid receptacles mounted on the support and provided with inlet and outlet openings, perforated air valves movable within the inlet openings for regulating the passage of air there-through, and a conducting rod or bar for conducting the liquid from one receptacle to the other along its outer face, substantially as and for the purpose described.

17. The herein described moistening device consisting of a revoluble support, liquid receptacles mounted on the support and provided with inlet and outlet openings, flexible air bulbs capping the inlet openings, gravity valves for closing the outlet openings, and a conducting rod for conducting the liquid from one receptacle to the other along the outer surface thereof, substantially as specified.

18. The herein described moistening device consisting of a reversible support, liquid receptacles mounted on the support and provided with inlet and outlet openings, flexible air bulbs capping the inlet openings, perforated air valves movable through the walls of said bulbs for regulating the passage of air thereinto, gravity valves for automatically regulating the passage of liquid through the outlet openings, and a conducting rod or bar for conducting the liquid from one receptacle to the other along its outer surface, substantially as described.

19. The herein described moistening device consisting of a reversible support, liquid receptacles mounted on the support and provided with inlet and outlet openings, flexible air bulbs capping said inlet openings, air valves movable within said bulbs, gravity valves for automatically regulating the out-flow of the liquid, a conducting rod or bar for conducting the liquid from one receptacle to the other along its outer surface, and a guide in proximity to said rod for guiding the article to be moistened along and against said rod, substantially as described.

20. The herein described moistening device consisting of a reversible support, liquid receptacles mounted on the support and provided with openings in their adjacent ends, a conducting rod having its opposite ends perforated and inserted within said openings, grooves leading from said perforations to the outer surface of said rod and a guide aligned with said grooved surface for guiding the articles against and along said grooved surface, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GEORGE S. HILL.

Witnesses:

JOHN F. KINGSLEY,  
W. W. COPELAND.