

J. P. & K. K. NIELSEN.
MOISTENING APPLIANCE.
APPLICATION FILED FEB. 23, 1917.

1,243,967.

Patented Oct. 23, 1917.

Fig. 1.

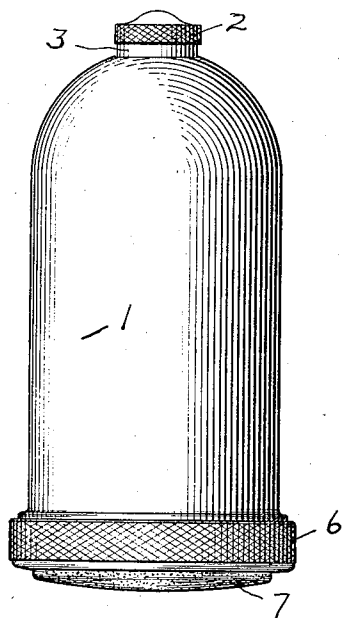


Fig. 2.

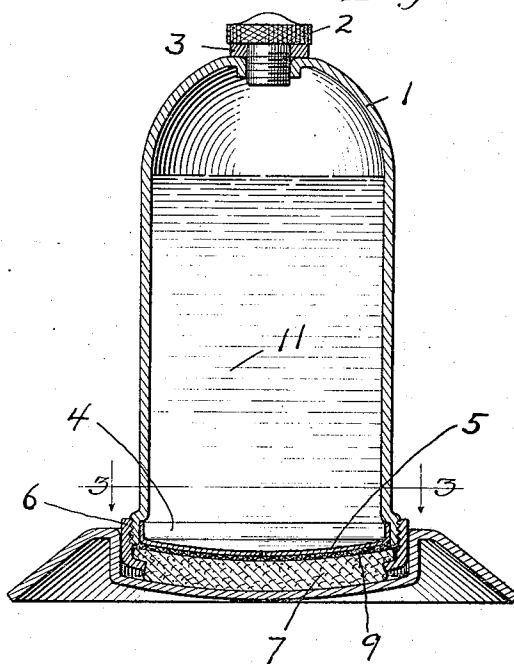


Fig. 3.

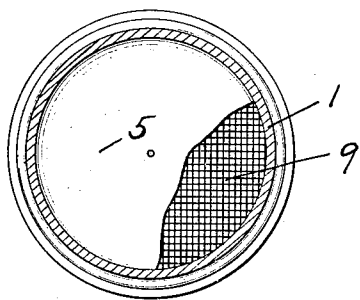


Fig. 4.

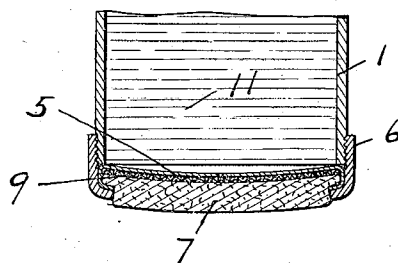
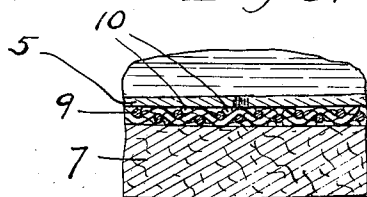


Fig. 5.



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MOISTENING APPLIANCE.

1,243,967.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JENS P. NIELSEN and KARL K. NIELSEN, both citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Moistening Appliances; and we do hereby 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.

In one of its general aspects, our invention relates to simple and effective means for controlling the emission of a liquid from a container and for distributing such liquid. In another aspect, it relates to moistening appliances of the kind used for moistening envelop flaps, stamps, etc., and aims to provide a simple and substantially dust proof container equipped with means under the control of the user for supplying any desired quantity of moisture distributed over a surface of considerable area.

In moisteners of this general class, it has heretofore been customary to depend either on the capillary action of a wick for feeding the liquid to the surface, or on gravity for forcing the liquid through a pervious member (such as felt). In either case, the rate at which the liquid was supplied to the operative surface was not readily controlled by the user, being dependent largely on the condition of the wicking or felt and on the amount of liquid in the container. Consequently, the operative surface was apt to be either too moist or too dry for effective service.

Our invention aims to overcome this objection by providing simple and effective means for normally preventing the feeding of the liquid to the operative surface, and for enabling the user to force liquid to the operative surface of the moistener in quantities not dependent upon the amount of liquid in the container. To accomplish this object without employing plungers, valves or other elements likely to stick or clog, we mount pervious liquid-distributing means adjacent to a minute opening in a wall of the container, and also employ a resilient and flexible wall portion of the container as manually operable means for compressing the contents of the container so as to force liquid through the said opening. The resilient and perforate wall portions may desirably be identical,

as in the embodiment of the drawings, in which

Figure 1 is an elevation of an envelop moistener embodying our invention.

Fig. 2 is a central vertical section through the moistener and through a base for supporting the moistener when not in use.

Fig. 3 is a transverse section through the moistener alone, taken along the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary longitudinal section of a moistener in which the edge of the diaphragm is crimped over the edge of the felt.

Fig. 5 is an enlarged fragmentary section showing the globule-retaining pockets between the screen and the diaphragm.

In the embodiment of Figs. 1, 2, and 3, the moistening appliance of our invention includes a tubular metal housing 1 having a rounded upper end in which a threaded opening is normally closed by a screw 2, the joint being made water-tight by a packing ring 3. The other end is desirably enlarged so as to afford a shouldered portion admitting a peripheral ring 4 on the edge of a thin and resilient metal diaphragm 5, which diaphragm has a minute opening at its center. Threaded upon the enlarged lower end of the housing 1 is a clamping ring 6 which laps over the edge portion of a disk 7 of felt or other moisture-pervious material. Interposed between this felt disk and the diaphragm 5 is a screen 9 of fine wire gauze, for the purpose hereafter described. Water or other liquid 11 may be introduced into the housing by removing the screw 2, and the moistener when thus completed is desirably supported when not in use by a metal base 8 which affords a socket for the moistener and excludes dust from the lower or operative surface for the felt disk.

When the moistener as thus constructed is partly filled with water, the air-tight closure afforded by the screw 2 and the packing ring 3 will prevent air from entering the container of which the housing 1 forms the main member, hence no water will normally issue from this container through the perforation in the diaphragm. However, the latter is bowed downwardly and, being of resilient material, is adapted to be sprung upwardly by an upward pressure against it. Therefore, an upward digital pressure on the

felt, or a corresponding downward pressure on the whole container when the exposed surface of the felt is bearing against a rigid object, will flex the diaphragm inwardly and tend to compress the contents of the container. But, since the water is practically incompressible, such an action will merely compress the air above the water, whereupon the resulting pressure will force water in a fine stream through the aperture in the diaphragm. If this diaphragm were in direct contact with the felt, the ejected water would only moisten a quite small portion of the felt opposite the said aperture, thereby affording too small a moistened surface to be suitable for most purposes. To overcome this, we interpose a foraminous member, such as a finely meshed wire screen 9 between the felt and the diaphragm. Then, owing to the surface tension of the globules of water forced through the aperture in the diaphragm, these globules 10 will at first be retained between the wire gauze and the diaphragm, and a second or third flexing of the latter may cause a distribution of these globules in the space between the wire gauze and the diaphragm before the surface tension of the water is overcome and the latter is forced through the meshes to the felt. Consequently, we are able to secure a substantially uniform distribution of the liquid over the entire exposed or operative surface of the felt disk, the extent of the surface moistening depending upon the number of times that the diaphragm has been flexed inwardly, it being obvious that the resiliency of the latter will promptly return it to its initial and outwardly bowed shape as soon as the flexing pressure is removed.

As soon as the surface moisture has been reduced by using the appliance, this moisture may be increased again by the flexing of the diaphragm, this being easily accomplished by a little downward pressure on the appliance during one or more strokes while using the appliance. In other words, the control of the effective moisture on the operative surface requires no extra time whatever and no manipulation of any auxiliary element. Moreover, since the feeding of the water is controlled only by the forcible flexing of the diaphragm and is independent of the amount of water in the container, our appliance can be used continuously with uniform action. Should the felt become gummed or soiled, it can easily be cleaned by removing the clamping ring 6 and rinsing the felt with hot water, or a new felt may easily be substituted. To make the lower end of the container air-tight except for the aperture in the diaphragm, the ring 4 on the latter is desirably soldered to the adjacent portion of the housing, in doing which the shoulder at the upper end of the enlarged housing portion acts as a stop for

the said ring. However, we do not wish to be limited to this or other features of the construction and arrangement here described, it being obvious that the same might be modified in many ways without departing from the spirit of our invention. For example, the enlarging of the lower end of the housing 1 may be omitted, as in Fig. 4, and the edge of the diaphragm may be crimped over the edges of both the felt and the wire screen so as to make a detachable unit of these three elements.

We claim as our invention:

1. In a moistening appliance, the combination with a container for a liquid, of a flexible diaphragm forming part of the wall of the container, said diaphragm being normally bowed outwardly and provided with an aperture, and pervious means mounted outwardly of said diaphragm.

2. In a moistening appliance, the combination with a container for a liquid, of a flexible diaphragm forming part of the wall of the container, said diaphragm being normally bowed outwardly and provided with an aperture, pervious means carried by the container outwardly of the diaphragm, and a foraminous non-pervious member disposed between the diaphragm and said pervious means.

3. In a moistening appliance, the combination with a container for a liquid, of a flexible diaphragm forming part of the wall of the container, said diaphragm being normally bowed outwardly and provided with an aperture, a fine-meshed wire screen disposed adjacent to the exterior to the diaphragm, and a moisture-pervious member mounted outside said wire screen.

4. In a moistening appliance, a tubular container, movable closure means on the container for admitting a liquid to the latter, a flexible and normally outwardly bowed diaphragm forming one end of the container, a wall portion of the container being equipped with a minute aperture; a foraminous member disposed outside the said apertured wall portion, and a moisture-pervious member outside of and adjacent to the foraminous member.

5. In a moistening appliance, a tubular container having a flexible and normally outwardly bowed and minutely perforated resilient end, a collar threaded upon the container, and a moisture-pervious member disposed between the collar and the said resilient end.

6. In a moistening appliance, a tubular container having a flexible and normally outwardly bowed and minutely perforated resilient end, a foraminous member disposed outside of and adjacent to the said perforate end, a moisture-pervious member outside of and adjacent to the foraminous member, and means threaded upon the container for

clamping both of the last named members in their said positions.

5 7. In a moistener, a tubular container shell having an open end; a closure for said end comprising a flexible and normally outwardly bowed and minutely perforated resilient disk, and a collar integral with said disk and secured to the said open end of the container shell; a foraminous member and a
10 moisture-pervious member successively disposed outside the said closure, and means carried by one of the first named elements for maintaining the said members in position.

15 8. In a moistener, a tubular container shell

having an open end; a closure for said end comprising a flexible and normally outwardly bowed and minutely perforated resilient disk, and a collar integral with said disk and secured to the said open end of the container shell; a moisture-pervious member disposed outside the said closure, and means detachably carried by one of the first named elements for holding the moisture-pervious member in its said position.

Signed at Chicago, Illinois, February 16, 1917.

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