Oct. 9, 1934. T. C. ROTHFUS 1,976,635

LIQUID DISPENSING DEVICE

Filed Jan. 22, 1932

Fig. 1.

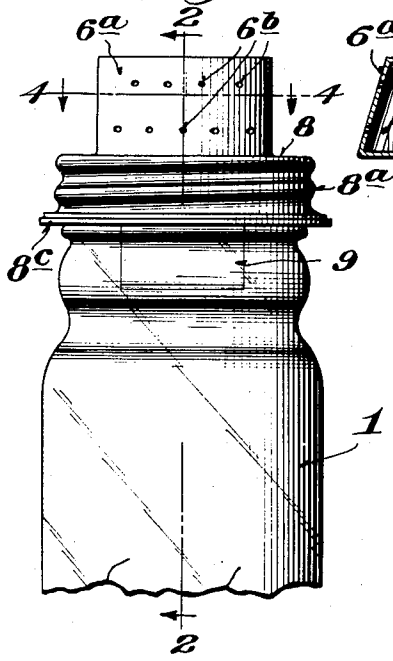


Fig. 2.

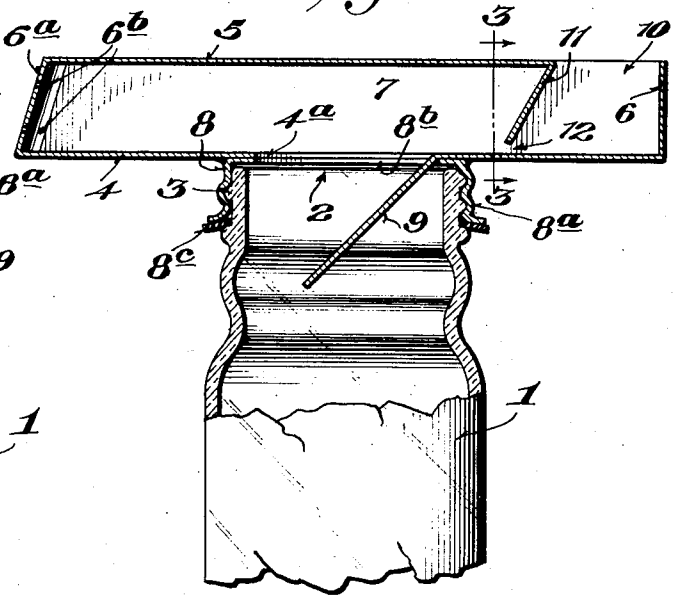


Fig. 3.

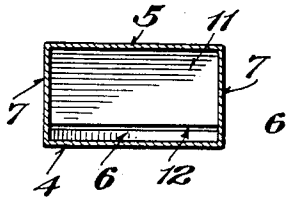
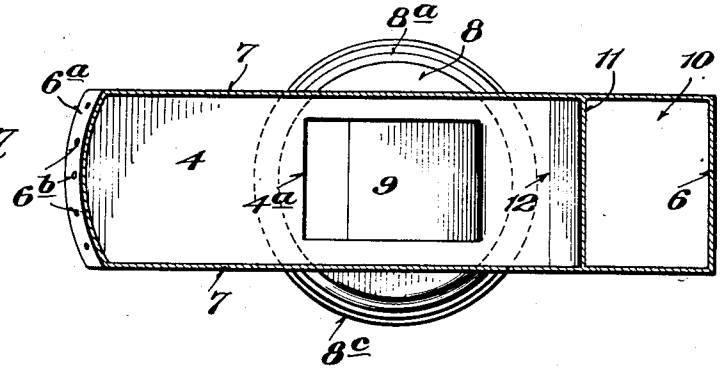


Fig. 4.



Inventor

Truman C. Rothfus,

By Milans & Milans,

Attorneys

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UNITED STATES PATENT OFFICE

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LIQUID DISPENSING DEVICE

Truman C. Rothfus, Des Moines, Iowa

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10 Claims. (Cl. 299—103)

This invention relates to a liquid dispensing device, which while susceptible of uses in various connections is more especially designed for the spraying of clothes with water or the like, whereby to appropriately dampen the same preliminary to the ironing operation.

It is one of the objects of the invention to provide a novel device of the character stated, wherein the outlet openings for the liquid are removed a considerable distance from the point of supply for the same, whereby a substantial liquid pressure area is maintained, and to provide an air inlet beyond the said point of supply for the liquid, the various parts being so relatively proportioned and arranged that the emitted fluid assumes more the nature of a spray as distinguished from a sprinkle.

It is a further object of the invention to provide a liquid dispensing device or sprayer simple and neat in design and construction, inexpensive to manufacture, and involving greater efficiency in operation and effective results than devices heretofore in use for similar purposes. While, as stated, the sprayer attachment is preferably a substantially rectangular body in shape, it will be noted that in the embodiment illustrated the bottom wall 4 is slightly longer at its front end than the top wall 5, and that the side walls 7 at the point of connection with the top and bottom walls at the front end incline slightly downwardly and outwardly. Also the top and bottom walls 4 and 5 at the front end curve outwardly toward the center.

In the preferred embodiment of the invention, it is contemplated to use a main container for the liquid to be dispensed, which said container may take the form of an ordinary commercial liquid container such as a jar or bottle having the usual annular threaded mouth, and to this mouth of the main receptacle is adapted to be applied the spraying attachment proper.

It is further proposed to provide an attachment of the general character described adapted to be removably applied to a main liquid receptacle, and to provide such attachment with an air and water inlet suitably proportioned and arranged, whereby to make unnecessary the removal of the attachment while in use from the container in the filling operation of the latter with water or other liquid to be dispensed through the spraying device, and which further makes unnecessary any auxiliary air inlet tubes or the like projecting into the container proper.

Another feature of the invention resides in the provision of means to prevent any undue splashing of the liquid in either the liquid-filling or delivery operations.

Other features and novel details in the construction and arrangement of parts will be appreciated from the description to follow, which for a clear understanding of the invention is to be considered in connection with the accompanying drawing forming a part hereof, and wherein is disclosed for the purpose of illustration a convenient and satisfactory embodiment of the invention.

In the drawing:

Figure 1 is an elevation of a sprayer device embodying the principles of my invention;

Figure 2 is a vertical sectional view of the same; and

Figures 3 and 4 are details of parts of the device.

While in the accompanying drawing a preferred embodiment of the invention is disclosed, it is to be understood that minor changes in details may be resorted to without departing from the spirit of the invention.

With more particular reference to said drawing, a main container is provided having a body portion 1, an open mouth portion 2 at its top, which mouth portion in the embodiment of the invention illustrated is cylindrical and conveniently has exterior threads 3.

The body portion of the sprayer attachment is preferably substantially rectangular in shape and may be constructed from sheet metal, the parts being stamped from one piece and folded into shape and having its abutting edges secured in any desired manner, as by welding, whereby to provide liquid-tight joints. This substantially rectangular body part of the spraying attachment comprises a bottom wall 4, a top wall 5, a rear end wall 6, a front end wall 6_a, and side walls 7.

Secured to the bottom wall 4 is a main container-closure 8 which may take the form of an ordinary jar closure cap, having an annular threaded wall 8_a adapted to engage the threads 3 of the mouth 2 of the main container or receptacle 1. A suitable washer, as a rubber band or the like, 8_c may be interposed between the lower end of the closure cap and the container, to render the same water-tight.

The closure cap 8 being secured to the bottom wall 4 of the sprayer attachment, as stated, the same constitutes an effective means for detachably mounting the sprayer device on the main container 1. The top wall of the closure cap 8 is provided with an opening 8_b preferably rec-

tangular in shape, and the bottom wall 4 of the sprayer attachment is provided with a similar rectangular opening 4_a which preferably corresponds in shape and size with the opening 8_b of the closure cap 8 and in registration therewith. A tongue or deflector member or partition 9 integral with the bottom wall 4 is conveniently provided in the formation of the rectangular opening 4_a in the bottom wall 4 of the spraying attachment, the said tongue or partition 9 being bent downwardly to a point below the lower edge of the closure cap 8 and projecting into the mouth 2 of the container 1, whereby to prevent any unnecessary splashing of the water as delivered from the main container 1 into the spraying attachment.

The top wall 5 of the sprayer attachment is separated at the rear end from the top edges of the sides 7 and rear end wall 6 and bent inwardly and forwardly so as to provide a substantial opening 10 conveniently projecting from side to side of the sprayer attachment, and also to provide a tongue or deflector partition 11, which partition is spaced at 12 from the bottom wall 4 of the sprayer attachment and secured as by welding or the like to the side walls 7. This inclined or sloping partition 11 assists in preventing any undue splashing of the liquid and prevents the latter from being forced backward and out of the opening 10 in the forward and backward motion of the device incident to the spraying operation. The front wall 6_a is provided with a series of very small openings 6_b preferably arranged in two rows, one adjacent the top wall and the other adjacent the bottom wall of the sprayer attachment, and the holes in one row alternating with those in the other row, as illustrated. It will be observed that the front end wall 6_a inclines outwardly from its point of connection with the top wall 5 to its point of connection with the bottom wall 4, whereby as the device is tilted a spray will be delivered. It will also be observed that the front end wall 6_a curves from its center rearwardly to its point of connection with the side walls 7, in accordance with the curvature of the front ends of the top and bottom walls 4 and 5, whereby the delivered sprays will be effective over a wider area in the dampening operations.

In operation, assuming that the device is to be used for the dampening of clothes or the like, the receptacle 1 will be supplied with water or other dampening liquid. This water or liquid may be placed within the receptacle or container 1 by either removing the sprayer attachment from the container 1 and delivering the liquid through the open mouth 2 or by delivering the liquid through the opening 10 in the sprayer attachment without removing the cap from the container, the liquid thus passing from said opening 10 along the bottom wall 4 down the inclined partition 9 into the container 1. The receptacle or container 1 will thereupon be grasped by the operator and tilted and subjected to a back-and-forth movement; and by reason of the construction and arrangement of the front end wall 6_a and the openings therein, the spray will be delivered over a relatively wide area. By reason of the construction of the sprayer device, it will be borne in mind that there is provided an elongated hollow chamber between the opening 4_a in the bottom wall of the sprayer device and the front end wall, of substantial length; and the liquid pressure built up therein, together with the air admitted through the opening 10, will result in an effective spraying operation. The depending flanges or partitions 9 and 11 will assist in preventing undue splashing, as previously noted, and the partition 11 prevents discharge of the water accidentally through said top wall air-and-water inlet opening 10.

What I claim is:

1. A spraying device comprising an elongated substantially horizontally disposed rectangular hollow body having top, bottom, side, and end walls, the bottom wall having an inlet opening intermediate its ends, the front end wall being provided with a series of small discharge openings, the top wall having a normally open relatively large inlet opening adjacent the rear end wall, and an interior partition depending from the top wall adjacent the forward portion of said inlet opening and spaced from the bottom wall of said body, the device being adapted to be connected to the open end of a bottle or the like with the inlet opening in its bottom wall in communication with the mouth of the bottle.

2. A spraying device adapted to be supported in horizontal position on the open mouth of a bottle or other container to receive liquid therefrom, said spraying device comprising an elongated body portion adapted to contain liquid and having front and rear end walls, the front end wall having a series of small outlet openings, said body portion having an inlet opening at its rear end spaced from the bottom wall and an auxiliary inlet opening in its bottom wall spaced a substantial distance rearwardly from the front end wall, and a depending flange on the bottom wall of said body portion projecting downwardly through said bottom opening and adapted to be positioned within the open mouth of the bottle or container when applied thereto.

3. A spraying device adapted to be applied to the open end of a bottle or the like, comprising an elongated body portion having front and rear end walls, the front end wall having a series of small openings, said body portion having an inlet opening adjacent its rear end spaced from the bottom wall of said body portion, and said body portion also having an auxiliary inlet opening in its bottom wall substantially midway of its ends, a coupling collar depending from the bottom wall, surrounding said bottom opening, said bottom wall having an inclined depending flange projecting below and underlying said bottom opening, and said collar having means for attachment to the open end of a bottle or container, and said flange being adapted to project into said open end.

4. A spraying device adapted to be positioned over the open mouth of a bottle or other suitable container comprising an elongated horizontally disposed body portion having forward and rear end walls, the front end wall having a series of small openings, said body portion having an inlet opening adjacent its rear end spaced from the bottom wall of said body portion, and said body portion also having an auxiliary inlet opening in its bottom wall substantially midway of its ends, a depending coupling collar on the bottom wall surrounding said bottom opening having means for attachment to the open mouth of the bottle or container, said bottom wall having an inclined depending flange projecting below and underlying said bottom opening and adapted to project into the mouth of said bottle or container, and the top wall of the body portion having a depending flange arranged forwardly of the first mentioned inlet opening and spaced from the bottom wall.

5. In a device of the character described, the combination of a liquid container having an open mouth, a sprayer attachment comprising an elongated horizontally disposed hollow body having means for connecting the same to the open mouth of the container, the bottom wall of the attachment having an opening in communication with the open mouth of the container, the elongated body portion having front and rear end walls, the front wall having discharge openings therein, the body portion having an inlet opening spaced rearwardly of its point of connection with the container, a partition depending from the top wall of the body portion forwardly of said inlet opening, and a partition depending from the bottom wall of the body portion and projecting into the mouth of the container.

6. A spraying device of the character described, comprising a main container having an open mouth, a spraying attachment adapted to be detachably mounted upon said container and having an opening in its bottom wall in communication with the open mouth of the container, said attachment comprising a horizontally disposed elongated rectangular body portion having front and rear end walls, the front wall being inclined and curved and having a series of small openings, and said body portion having a combined liquid-and-air inlet opening in its top surface adjacent the rear end wall, and a depending flange or partition spaced from the bottom wall and arranged forwardly of said air-and-liquid inlet opening.

7. A spraying device comprising an elongated horizontally disposed hollow body having end walls, the bottom wall portion of the tubular body having an inlet opening intermediate its ends, the front end wall being provided with a series of small discharge openings, the top wall portion having a normally open relatively large inlet opening adjacent the rear end wall, and an interior partition depending from the top wall portion adjacent to and forwardly of said last mentioned inlet opening and spaced from the bottom wall portion of said body, said hollow body being adapted to be connected to the open end of a bottle or the like with the inlet opening in its bottom wall in communication with the mouth of the bottle.

8. A spraying device comprising an elongated horizontally disposed substantially rectangular hollow body having top, bottom, side and end walls, the bottom wall having an inlet opening intermediate its ends, the front end wall being provided with a series of small discharge openings, the top wall having a normally open relatively large inlet opening adjacent the rear end wall, an interior partition depending from the top wall adjacent to and forwardly of said last mentioned inlet opening, and said front wall inclining outwardly from top to bottom, said body being adapted to be connected to the open end of a bottle or the like with the inlet opening in its bottom wall in communication with the mouth of the bottle.

9. A spraying device comprising an elongated horizontally disposed substantially rectangular hollow body having top, bottom, side, and end walls, the bottom wall having an inlet opening intermediate its ends, the front end wall being provided with a series of small discharge openings, the top wall having a relatively large inlet opening adjacent the rear end wall, an interior partition depending from the top wall adjacent to and forwardly of said last-mentioned inlet opening, and said front wall curving outwardly from its sides to its center, said body being adapted to be connected to the open end of a bottle or the like with the inlet opening in the bottom wall in communication with the mouth of the bottle.

10. A spraying device comprising an elongated horizontally disposed hollow body having end walls, the bottom wall portion of the tubular body having an inlet opening intermediate its ends, the front end wall being provided with a series of small discharge openings, the top wall portion having a normally open relatively large inlet opening adjacent the rear end wall, an interior partition depending from the top wall portion adjacent to and forwardly of said last-mentioned inlet opening and spaced from the bottom wall portion of the body, and a depending collar on the bottom wall portion surrounding the inlet opening therein and adapted to fit upon and be secured to the open end of a bottle or the like.

TRUMAN C. ROTHFUS.