

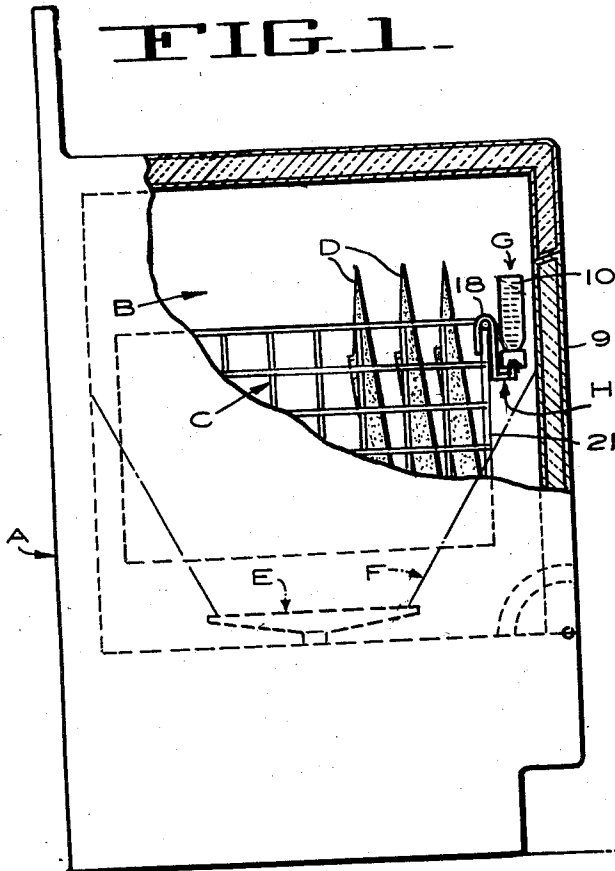
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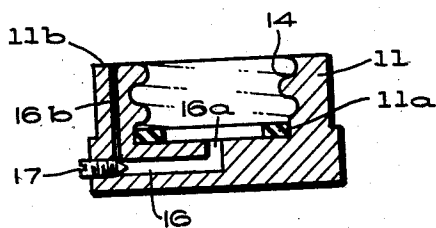
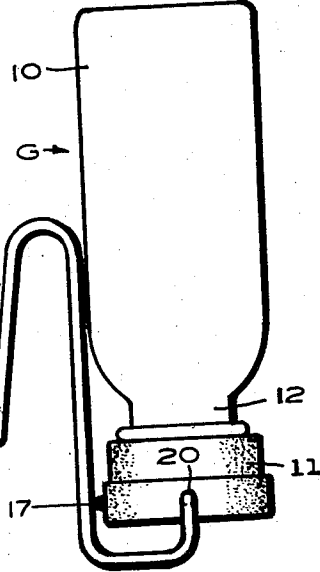
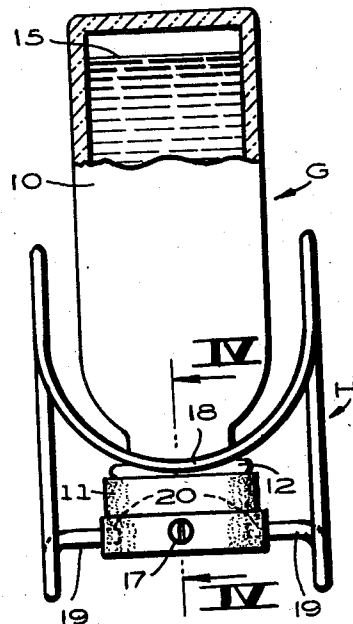
2,895,646

DRYING AGENT DISPENSER FOR USE WITH A DISHWASHING MACHINE

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**FIG. 2**



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**DRYING AGENT DISPENSER FOR USE WITH A  
DISHWASHING MACHINE**

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1 Claim. (Cl. 222—181)

In conventional dishwashing machines, as used commercially in hotels and restaurants, and those utilized in the home, rinse water is discharged over the dishes, glasses and silverware after the washing operation to rinse and sterilize them. However, this rinse water has a tendency to cling to the washed articles, which will leave spots or streaks when they dry.

Accordingly, resort has been made to injecting a non-sudsing drying agent liquid into the rinse water so as to break up the surface tension of the latter, thus causing the rinse water to drain from the washed articles.

In the present invention it is proposed to provide a relatively simple drying agent dispenser for use with a dishwashing machine, which may be readily installed in the washing and rinsing compartment of the machine. This dispenser is adapted to discharge the proper amount of a non-sudsing drying agent liquid into the rinse water to assure the drying of the dishes without spots or streaks.

More particularly stated, it is proposed to support the dispenser in a position wherein the hot water issuing from spray nozzles in the compartment of the machine will impinge a bottle forming part of the dispenser. This hot water will create sufficient expansion of the air and liquid contained in the bottle to force the non-sudsing drying agent liquid through an outlet orifice, where it will be mixed with the rinse water. Thus the dispenser eliminates any requirement for a pump or gravity-feed mechanism, but still it is reliable in operation. When the bottle cools, the vacuum created therein will cause air to reenter the bottle.

As a further object of the invention, it is proposed to support the entire dispenser on the usual rack in which the dishes are placed. The dispenser may be removed easily from the rack, when the latter is withdrawn from the dishwashing compartment.

Other objects and advantages will appear as the specification continues. The novel features will be set forth in the claim hereunto appended.

*Drawing*

For a better understanding of the invention, reference should be had to the accompanying drawing, forming part of this specification, in which:

Figure 1 is a side elevational view of a dishwashing machine, partly in section, and illustrating my drying agent dispenser mounted on the dish-containing rack thereof;

Figure 2 is a rear elevational view of the dispenser, with the upper portion of the bottle of the dispenser being broken away to disclose the non-sudsing drying agent liquid;

Figure 3 is a side elevational view of the dispenser; and

Figure 4 is an enlarged sectional view taken along the line IV—IV of Figure 2, and illustrating a passageway and orifice through which the liquid is discharged.

While I have shown only the preferred form of my invention, it should be understood that various changes, or

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modifications, may be made within the scope of the annexed claim without departing from the spirit thereof.

*Detailed description*

Referring to the drawing, it will be noted that a conventional dishwashing machine A has been shown, which defines a combined washing and rinsing compartment B on the interior thereof. The usual rack C is disposed in this compartment and is adapted for holding dishes D for washing and rinsing operations. As shown in Figure 1, a rotatable spray nozzle E is mounted for delivering hot water F over the dishes. Access to this compartment may be gained by opening a door 9 (see Figure 1).

The circulatory systems for the wash and rinse waters have not been shown, since they are well known in the art. Generally speaking, detergent-carrying wash water of suitable temperature, say 140° Fahrenheit, is directed over the dishes by the nozzle E for a predetermined period of time; and, after the washing cycle has been completed, this water is automatically discharged from the machine. Subsequently, a fresh supply of hot rinse water of a somewhat higher temperature, for example 170° to 180° Fahrenheit, is admitted into the machine; and this water is sprayed over the dishes by the nozzle E during the first rinse cycle. Thereafter, this rinse water is discharged. In some machines, another supply of hot rinse water is delivered to the machine and the latter goes through a second rinse cycle.

Of course, I do not desire to be limited to any particular type of dishwashing machine or temperatures of water. The particular machine herein shown has been selected for the purpose of illustration only.

In the drawings, my drying agent dispenser is designated generally at G. It includes an inverted bottle 10 having a cap 11 secured to the neck 12 of the bottle at the bottom of the latter. In Figure 4, the cap has been shown as being fashioned with threads 14, which are adapted to receive corresponding threads provided on the neck of the bottle. A gasket 11a has been provided to form a liquid-tight seal between the cap and the bottle (see Figure 4).

The non-sudsing drying agent liquid 15 is contained in the bottle 10 (see Figure 2). The liquid used may be a commercial product known as "Rinse-Dry," which is composed of a non-ionic alkyl aryl sulfonate wetting agent and alcoholic solvent for blending.

As disclosed in Figure 4, the cap 11 has a passageway 16 fashioned therein for communicating with the interior of the bottle 10 so as to receive the liquid 15 therefrom through the entrance end 16a of the passageway. This passageway further includes a restricted orifice 16b leading to the exterior of the cap, and providing an outlet through which the liquid 15 may be discharged. As shown, this orifice extends upwardly to the rim 11b of the cap.

It will be observed from Figure 1 that the dispenser G is supported in the compartment B in a position to be impinged by the water F issuing from the rotatable nozzle E. When the hot water striking the bottle 10 has created sufficient expansion of the air and liquid in the bottle, the liquid will be forced through the orifice 16b for mixing with the rinse water.

Assuming that the liquid 15 is cool at the start of the washing cycle, very little of this liquid will be discharged through the restricted orifice 16b during the washing of the dishes. However, when the rinse water of a higher temperature is being directed over the dishes during the first and second rinsing cycles, the pressure built up in the interior of the bottle will cause the proper amount of the liquid to be forced through the orifice for mixing with the rinse water. The latter is delivered into the compartment B with considerable force, and will pick up

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the drying agent liquid that is discharged from the restricted orifice.

This drying agent will break the surface tension of the water, causing the latter to drain from the dishes, glasses, etc., and thus permitting them to dry without spots or streaks.

For the purpose of controlling the amount of the non-sudsing drying agent liquid 15 that is discharged through the orifice 16b during the rinsing cycles, the cap 11 is provided with a regulating screw 17. This screw penetrates into the passageway 16 adjacent the bottom of the orifice, and is adjustable to control the outflow of the liquid.

In order to provide a support for the cap 11 and the bottle 10, the dispenser G includes a bail H. The latter is fashioned with a hook 18, which is shaped for engaging with the rack C, as suggested in Figure 1. This bail defines a pair of horizontal trunnions 19, which project into sockets 20 formed in the cap 11. Thus the cap is swingably anchored to the bail on a horizontal axis, whereby the bottle 10 may be swung into a vertical position. This is necessary, since the ends 21 of some racks B are inclined with respect to vertical. The exact location of the drying agent dispenser G on the rack C is immaterial. From a broader aspect, the dispenser could be supported by means other than the rack B, if desired.

I claim:

In a drying agent dispenser of the character described;

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a bottle containing a non-sudsing drying agent liquid; means supporting the bottle in inverted position; the bottle having a neck at its bottom; a cap secured over the neck of the bottle; the cap being provided with a rim which is disposed exteriorly of the bottle, and the rim having an exposed upper surface at its top; the cap having a passageway communicating with the interior of the bottle so as to receive drying agent liquid therefrom; this passageway including a vertically arranged restricted orifice leading to the upper exposed surface of the rim of the cap and providing an outlet through which the drying agent liquid may be discharged in an upward direction, when the contents of the bottle are heated to build up pressure in the bottle; and adjustable regulating means operable to control the outflow of the drying agent liquid through the orifice.

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