DETERGENT DISPENSER HAVING A COMPRESSIBLE CONTAINER

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This invention relates generally to dispensing devices, and more particularly to a dispenser for adding a substance in controlled amounts to a flowing stream of another substance.

In applications involving the use of a stream of water or the like for cleaning purpose and requiring in many instances movement of the outlet of the stream with respect to the object being wet, such as may be provided with a hose connected to a stationary water supply, it is often desirable to enhance the cleaning power of the stream by adding thereto, as in the case when the stream is of water, amounts of cleaning agent such as soap or detergent.

It is an object of the present invention, therefore, to provide an apparatus or dispenser for adding a substance such as soap to a flowing stream of fluid such as water, which apparatus is economical to manufacture and easy to use.

It is a further object of the present invention to provide a novel soap dispenser which is portable, of simple construction, and the use of which enables a stream of soap containing water to be directed thereto in order to obtain an adequately cleaned object.

Still another object of the present invention is to provide a soap dispenser which is connectable with a hose or similar conduit in a manner to enable variable controlled amounts of soap to be added to a stream of water discharged from the nozzle.

A still further object of the present invention is to provide means to add controlled amounts of soap to a stream of water, which means does not require mechanical adjustments, mixing containers, or a siphon. Other objects will appear hereinafter.

The and other objects attendant advantages of this invention will become more readily apparent and understood from the following detailed specification and accompanying drawings in which:

FIG. 1 is a perspective view of an embodiment of a soap dispenser of the present invention;
FIG. 2 is a longitudinal section of the soap dispenser of FIG. 1; and
FIG. 3 is a longitudinal section of another embodiment of a soap dispenser of the present invention.

Referring now to the details of the drawings, in FIGS. 1 and 2 are shown a soap dispenser consisting essentially of a nozzle 10 having a body portion 11 and a connector 12, including a threaded bore 13 and a rubber washer, at one end of the nozzle for attachment to a hose 14. Nozzle 10 has a tapered bore 15 running from the connector end thereof, through body portion 11, and terminating in an orifice at the opposite end thereof.

A compressible container 18 is mounted onto nozzle 10 as generally shown in FIG. 1. This mounting may be obtained as shown in FIG. 2 by providing nozzle 10 with a boss or plug 17 extending from its body portion and having a gripping surface of ridge 22 or the like for tight engagement with the neck or outlet of container 18. Plug 17 may also be tapered inwardly to permit easy insertion of container 18 therewith.

Within plug 17 there is provided a bore 19 in communication with another bore 19a in the body portion 11 of nozzle 10 for transferring soap from container 18 to the stream of water 16 issuing from the orifice of tapered bore 15. The soap dispenser of the embodiment of FIGS. 1 and 2 is preferably oriented so that the outlet of bore 19a is above the orifice of bore 15, whereby soap, shown as 20, discharged from said outlet comes into contact by gravity with the stream of water 16 discharging therebelow.

FIG. 3 shows another embodiment of a soap dispenser of the present invention in which nozzle 30 has an angularly shaped body portion 31 with a connector 32, including a threaded bore 33 and a rubber washer, at one end of the body portion for attachment to hose 14 shown in phantom lines. Nozzle 30 has a tapered bore 35 extending therethrough, angling with the body portion 31 to communicate with connector 32 and terminating in an orifice at the opposite end of the nozzle.

In the modified version of the invention depicted in FIG. 3, a tapered plug 37 extends rearwardly from the straight portion of nozzle 30 so that container 18, shown in phantom lines, is essentially mounted along the major longitudinal axis of nozzle 30. Plug 37 also is provided with ridges 42 for gripping the interior surface of the neck 24 of container 18. Said container is depicted in this embodiment as having a cap 44 threaded onto the exterior of its neck 24 and having an aperture to permit plug 37 to pass therethrough. Longitudinal bore 39 is provided to transfer soap from the container to the stream of water issuing from bore 35.

To operate a soap dispenser of the present invention a container of soap in liquid form or a mixture of soap flakes and water, herein collectively referred to as soap, is mounted onto a hose nozzle such as nozzles 10 or 30 by forcing the container neck over the plug provided on the nozzle. The water supply is turned on and soap contained in container 18 is squeezed as shown in FIG. 1 to cause an amount of soap to discharge from the outlet of bores 19a or 39. Since this discharge of soap as a stream 20 is visually observable, the effectiveness of the squeezing action on container 18 and amount of soap obtained thereby is controllable according to the amount of soap desired. Generally, the volume of soap discharged varies with decrease in volume of container 18 caused by the squeezing thereof.

Mixing of the soap with the stream of water occurs outside of the nozzle by turbulence within the stream itself and additionally, by agitation upon contact with the object being washed. The diameter of soap supply passages, such as bores 19a and 39, are preferably small enough so that soap is discharged therethrough only by the application positive pressure, i.e., squeezing, to container 18. Consequently, the soap dispenser assembly of container and nozzle can be laid down without incurring loss of soap from the container by leakage through the detergent supply passage.

Container 18 is made of a material that is inwardly deformable or compressible, such as plastic. Nozzles 19 and 30 and equivalents thereof can be made of metal or plastic or combinations thereof.

The present invention is generally suitable for adding other fluidized substances in simple and economical fashion to a stream of other fluids.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is, therefore, to be understood that within the scope of the appended claim the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A soap dispenser, comprising, a unitary nozzle member having a bore for directing the passage of water therethrough and terminating in an orifice so as to discharge water in a stream therethrough and another bore terminating in another orifice above the first mentioned orifice for discharging liquid soap as a separate visually observable
stream into said first mentioned stream exteriorally of said nozzle, a compressible container for supplying said liquid soap to said another bore, with said another bore being of small enough diameter to prevent the flow of said soap therethrough except when pressure is applied to said compressible container, and means formed integrally with said nozzle member for mounting said compressible container by its outlet.

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