This invention relates to an improved sealable applicator for dispensing liquids, and has as its primary object the provision of an improved applicator in which a liquid-permeable applicator member can be caused alternatively to protrude from a liquid container for contacting an external body for wiping the dispensed liquid thereon, or to retract when not in use. A cap is attachable to the applicator to sealingly engage with the liquid container and to seat directly on the retracted applicator member, thereby preventing leakage and affording a positive sealing action. It is a further object of the invention to provide an improved applicator with means for preventing injury to an absorbent abrasion-resistant applicator member by contact with external bodies to which the liquid is applied. Further objects and advantages of the invention will become apparent as the following description proceeds.

Briefly stated, in accordance with a preferred embodiment thereof, I may carry out the invention in a container which forms an expandable chamber for liquid storage, such as a collapsible plastic squeeze-bottle, by mounting a resilient and absorbent liquid-permeable membrane across the opening of the container within its mouth, and preferably also by mounting a resilient abrasion-resistant liquid-permeable membrane over the absorbent member. The membranes are peripherally secured about the mouth of the container, so that a cap threaded on the neck of the bottle may sealingly engage the mouth and the membranes.

In use, the expandable chamber formed by the collapsible bottle is contracted by hand pressure, and applies a differential pressure against membranes. Because of the restricted area of the liquid flow passages in these membranes, this pressure causes a distortion of the membranes into a bulbous form protruding outwardly of the mouth to an exposed position for wiping on an external body to which it is desired to apply the liquid. Upon release of the bottle, the membranes resiliently contract to a form which may be substantially flat, or slightly hemispherical, depending on the materials employed. The cap may then be secured on the neck to sealingly engage the mouth of the bottle, and also to directly seat on the membranes, forcing them away from the mouth so that an effective seal is completed and leakage is precluded.

A variety of materials can be utilized in the absorbent and abrasion-resistant membranes, such as felt, cotton, foam rubber, or the like in the former, and woven or perforated plastic, fiber or sheet material in the latter. The container may be made of a variety of conventional materials, but since it is necessary to provide an expandable chamber for increasing the internal pressure to distort the membranes, I prefer to use a flexible, resilient plastic such as polyethylene, to form a collapsible squeeze-bottle.

Preferably, the membranes are mounted in a housing received in the neck of the container and forming an extension thereof, the housing being formed with a peripheral flange to overlie and engage the membranes, and to form a sealing surface or mouth for engagement with a cap. The cap itself may be made of any desired material, and preferably has an interior plane surface on which is seated a liner or gasket of liquid-impervious material, such as rubber, laminated paper, or plastic.

While the specification concludes with a claim particu-
sures which might accidentally be applied to the container by impact. The container, cap, and membrane housing may assume a variety of forms, and the housing may be formed integrally in the container if so desired. Any conventional container material, such as plastic, metal and the like, can be utilized as may be suitable for the particular liquid and the intended use of the applicator, while the housing might also be made of other materials which can be worked into the desired form for securing the membranes, such as rubber or lead. The membranes could alternatively be cemented on the container.

While I have illustrated and described a preferred embodiment of the invention, it will be understood by those skilled in the art that various additional changes and modifications may be made without departing from the true spirit and scope of the invention, which I therefore intend to define in the appended claim without limitation to details of the illustrated embodiment.

What I claim is:

A liquid dispensing applicator comprising, in combination: a container of flexible resilient material capable of being compressed to expel its contents, and having a mouth portion terminating at one end in a substantially flat annular flange forming a sealing surface lying in a plane, said flange being formed with an outlet orifice, a liquid-permeable porous membrane received on said container to underlie said orifice and peripherally secured to said mouth, said membrane normally being disposed entirely inwardly of said container with respect to the plane of said sealing surface, said porous membrane affording liquid flow passages of restricted area such that pressure from within said container distends the central portion of said membrane to a bulbous form protruding outwardly of said container with respect to the plane of said sealing surface for contact with external bodies to apply the dispensed liquid thereto, and a cap engageable over said opening with said container and having internal means for forcing said membrane to retract from the distended bulbous form inwardly of the container with respect to the plane of said sealing surface and for forming sealing engagement with said sealing surface and substantially the entire outer surface of said membrane.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor(s)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>797,089</td>
<td>Trimble</td>
<td>Aug. 15, 1905</td>
</tr>
<tr>
<td>2,853,728</td>
<td>Nadai</td>
<td>Sept. 30, 1958</td>
</tr>
<tr>
<td>3,010,138</td>
<td>Nadai</td>
<td>Nov. 28, 1961</td>
</tr>
</tbody>
</table>