



US006003728A

United States Patent [19]

[11] Patent Number: **6,003,728**

Elliott

[45] Date of Patent: **Dec. 21, 1999**

- [54] **DISPENSING STRUCTURE WITH AN OPENABLE MEMBER FOR SEPARATING TWO PRODUCTS**
- [75] Inventor: **John Elliott**, Burlington, Wis.
- [73] Assignee: **AptarGroup, Inc.**, Crystal Lake, Ill.
- [21] Appl. No.: **09/176,860**
- [22] Filed: **Oct. 22, 1998**
- [51] Int. Cl.⁶ **B67D 5/00; B67D 3/00; A61J 9/00; B65D 25/08**
- [52] U.S. Cl. **222/81; 222/83; 222/129; 222/511; 215/11.6; 215/DIG. 8; 206/219; 206/221**
- [58] Field of Search **222/81, 129, 83, 222/510, 511; 215/DIG. 8, 11.1, 11.6; 206/219, 220, 221, 222**

- 3,912,115 10/1975 Smith .
- 3,924,777 12/1975 Peyser .
- 3,949,898 4/1976 Patel et al. .
- 3,990,603 11/1976 Brochman .
- 4,022,357 5/1977 Dwinell .
- 4,179,044 12/1979 Fitte .
- 4,211,334 7/1980 Witten et al. .
- 4,234,103 11/1980 Strobl et al. .
- 4,294,382 10/1981 Summers et al. .
- 4,307,821 12/1981 McIntosh .
- 4,340,147 7/1982 McIntosh .
- 4,356,939 11/1982 Fitte .
- 4,483,464 11/1984 Nomura .
- 4,583,665 4/1986 Barriac .
- 4,682,702 7/1987 Gach .
- 4,696,415 9/1987 Mueshberg .

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

- 747 294 A1 12/1996 European Pat. Off. .
- WO 96/14249 5/1996 WIPO .
- WO 97/00816 1/1997 WIPO .

[56] References Cited

U.S. PATENT DOCUMENTS

- Re. 29,850 11/1978 Labarre .
- 2,895,654 7/1959 Rieke .
- 3,135,441 6/1964 Wise et al. .
- 3,207,375 9/1965 Bereziat et al. .
- 3,220,588 11/1965 Lipari 215/11
- 3,239,112 3/1966 Porcelli .
- 3,269,617 8/1966 Goth .
- 3,278,089 10/1966 Heekin et al. .
- 3,282,477 11/1966 Henchert .
- 3,292,828 12/1966 Stuart .
- 3,310,206 3/1967 Littlefield .
- 3,406,872 10/1968 Fiquet et al. .
- 3,434,620 3/1969 Laurizio .
- 3,458,080 7/1969 Laurizio .
- 3,459,315 8/1969 Labarre .
- 3,495,746 2/1970 Laurizio .
- 3,567,061 3/1971 Song .
- 3,580,423 5/1971 Gilman .
- 3,610,484 10/1971 Matzka .
- 3,661,306 5/1972 Kuckens .
- 3,779,413 12/1973 Pickerell et al. 215/11
- 3,834,597 9/1974 Guala .
- 3,860,152 1/1975 Marti .

Primary Examiner—Kevin Shaver
Assistant Examiner—Keats Quinalty
Attorney, Agent, or Firm—Rockey, Milnamow & Katz, Ltd.

[57] ABSTRACT

A dispensing structure is provided for a container that has an opening to the container interior. The dispensing structure includes a body for extending around the container opening and defining an access passage for access through the container opening. The body includes a chamber for receiving an additive product for adding to the container. The chamber has an initially closed upper end and has a bottom end defining a bottom end opening. A movable, bottom end closure is provided for releasably closing the chamber bottom end opening. A deformable cover is mounted to the body to accommodate deformation from an undeformed condition at which the bottom end closure closes the chamber bottom end opening to a deformed condition at which the bottom end closure is engaged and moved by the cover to a position that opens the chamber bottom end opening.

29 Claims, 6 Drawing Sheets

