

Title (en)  
COLLAPSIBLE PUMP CHAMBER HAVING PREDETERMINED COLLAPSING PATTERN

Title (de)  
ZUSAMMENDRÜCKBARE PUMPKAMMER MIT VORBESTIMMTEM FALTBAREN MUSTER

Title (fr)  
CHAMBRE DE POMPE POUVANT S'APLATIR SUIVANT UN SCHEMA PREDETERMINE

Publication  
**EP 0705141 B1 19980722 (EN)**

Application  
**EP 94913425 A 19940418**

Priority  
• US 9404254 W 19940418  
• US 8200193 A 19930624  
• US 20332194 A 19940228

Abstract (en)  
[origin: WO9501226A1] A liquid dispensing pump (20) for use with consumer product packages is provided with a shipping seal. The housing of the pump device includes an upper housing (24) and a lower housing (26) which are movable relative to each other between open and closed shipping seal positions. The liquid dispensing pump (20) includes a collapsible pump chamber (40), e.g. a bellows. Integral with the bellows (40) is at least one functional element of the shipping seal. The housing includes cooperating actuation elements which prevent actuation of the pump device when the shipping seal is closed. The housing may also include a tamper evident device which prevents actuation of the pump device prior to removal of the tamper evident tab; and may prevent movement of the housing from the closed shipping seal position to the open shipping seal position prior to removal thereof. The bellows (40) may also include an integral valve including a valve member, a valve seat and a valve opening which are all integral components of a wall of the collapsible pump chamber (40), the valve seat facing one side of the wall and the valve member being formed at an angle away from the other side of the wall so that upon pushing the valve member through the valve opening the valve member is biased against the valve seat.

IPC 1-7  
**B05B 11/00**

IPC 8 full level  
**B05B 11/00** (2006.01)

CPC (source: EP KR)  
**B05B 11/00** (2013.01 - KR); **B05B 11/0044** (2018.08 - EP); **B05B 11/0064** (2013.01 - EP); **B05B 11/007** (2013.01 - EP);  
**B05B 11/1032** (2023.01 - EP); **B05B 11/1033** (2023.01 - EP); **B05B 11/1035** (2023.01 - EP); **B05B 11/1059** (2023.01 - EP);  
**B05B 11/1067** (2023.01 - EP); **B05B 11/1077** (2023.01 - EP); **B05B 11/1097** (2023.01 - EP)

Designated contracting state (EPC)  
AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE

DOCDB simple family (publication)  
**WO 9501226 A1 19950112**; AT E168594 T1 19980815; AU 6559594 A 19950117; AU 678463 B2 19970529; AU 7091794 A 19950124;  
BR 9406962 A 19960827; BR 9406972 A 19960326; CA 2165314 A1 19950112; CA 2165314 C 20001128; CA 2165315 C 20001024;  
CN 1069232 C 20010808; CN 1071147 C 20010919; CN 1125915 A 19960703; CN 1125916 A 19960703; DE 69411919 D1 19980827;  
DE 69411919 T2 19990422; DE 69420730 D1 19991021; DE 69420730 T2 20000316; EP 0705141 A1 19960410; EP 0705141 B1 19980722;  
EP 0705144 A1 19960410; EP 0705144 B1 19990915; ES 2118403 T3 19980916; ES 2135586 T3 19991101; JP H08511723 A 19961210;  
JP H08511988 A 19961217; KR 960703353 A 19960817; KR 960703354 A 19960817; MX PA94002797 A 20020618; WO 9500253 A1 19950105

DOCDB simple family (application)  
**US 9404255 W 19940418**; AT 94913425 T 19940418; AU 6559594 A 19940418; AU 7091794 A 19940418; BR 9406962 A 19940418;  
BR 9406972 A 19940418; CA 2165314 A 19940418; CA 2165315 A 19940418; CN 94192582 A 19940418; CN 94192584 A 19940418;  
DE 69411919 T 19940418; DE 69420730 T 19940418; EP 94913425 A 19940418; EP 94919979 A 19940418; ES 94913425 T 19940418;  
ES 94919979 T 19940418; JP 50278094 A 19940418; JP 50346395 A 19940418; KR 19950705976 A 19951226; KR 19950705977 A 19951226;  
MX 9402797 A 19940418; US 9404254 W 19940418