

12 **EUROPEAN PATENT APPLICATION**

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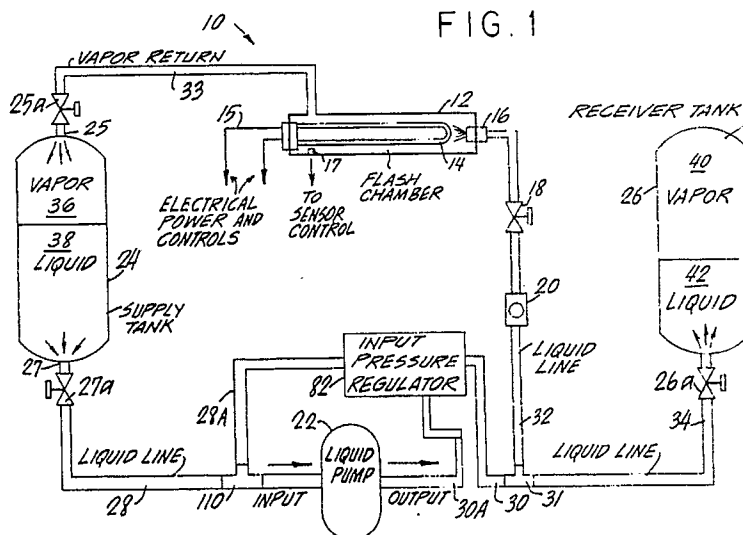
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54 **Fluorocarbon pumping system.**

57 A system and method for pumping liquid fluorocarbons and the like from a pressurized supply container (24) to another container (26). The system compensates for the inherent vapor pressure drop occurring within any pressurized container of fluorocarbons as the fluorocarbons are pumped out. A phase conversion apparatus is provided to recirculate a portion (32) of the liquid being pumped from the downstream side of the pump (22), through a phase conversion chamber (12) into the supply tank

(24) in a vapor phase. This prevents a vapor pressure drop in the supply tank and avoids the flashing of the liquid into a gas at the discharge connection of the supply container. The invention also comprises an improved fluorocarbon gear pump (22) and pressure regulation means (82). The gear pump utilizes offset gear axes and porous gears to form a liquid film over the gears to prevent deleterious contact in the pump and extend useful pump life.

FIG. 1





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
A	US-A-3 272 238 (A. GROPE) * Column 1, line 10 - column 2, line 2; column 2, line 51 - column 3, line 58; claim 1; figure 2 *	1,2, 7,9, 11	F 17 C 5/02
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A	DE-C- 664 322 (JULIUS PINTSCH K.G.) * Page 3, lines 4-48; figure 3 *	1,4, 7,11	
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A	DE-C- 695 073 (JULIUS PINTSCH K.G.) * Page 1, line 44 - page 2, line 23; figures *	1,3, 5,9	
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A	GB-A- 521 792 (E.GEERTZ et al.) * Page 7, line 93 - page 8, line 9; figure 7 *	1,3, 7,9	TECHNICAL FIELDS SEARCHED (Int. Cl. 4) F 17 C

THE HUMAN GENOME PROJECT			
Place of search THE HAGUE		Date of completion of the search 01-09-1989	Examiner MARZENKE
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			



CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid.
- namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

X LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions.

namely:

1. Claims 1-7, 9-11: System and method for pumping liquified gases
2. Claim 8: Evaporator for liquified gases
3. Claims 12-21: Gear pump for liquified gases

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid.
- namely claims:
- ☒ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.

namely claims: 1-7, 9-11