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(12) **EUROPEAN PATENT APPLICATION**

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accordance with Art. 76 EPC:  
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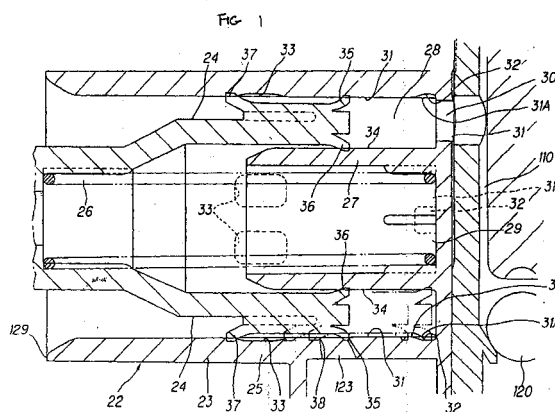
(71) Applicant: **YOSHINO KOGYOSHO CO., LTD.**  
**Tokyo (JP)**

(72) Inventors:  
• **Saito, Tadao, c/o Yoshino Kogyosho Co., Ltd.**  
**Tokyo 136 (JP)**  
• **Hayakawa, Shigeru,**  
**c/o Yoshino Kogyosho Co., Ltd.**  
**Tokyo 136 (JP)**

(74) Representative: **Crouch, David John et al**  
**Bromhead & Co.**  
**37 Great James Street**  
**London WC1N 3HB (GB)**

(54) **Trigger type liquid discharge device**

(57) A trigger type liquid discharge device comprising a container, a pump unit having a cylinder and a piston, a discharge pipe (F) having a discharge aperture (405), and a trigger (102) for reciprocating the piston. Liquid drawn up from the container is discharged through the discharge aperture by movement of the piston to a stroke end. A liquid guide (403) is arranged in a liquid flow path (407) disposed upstream relative to the discharge aperture (405). The liquid guide (403) comprises a valve body (410) for closing the liquid flow path (407), a pressure bearing sleeve (411) formed integrally with the valve body (410), a guide sleeve (417) connecting the valve body (410) and the pressure bearing sleeve (411) through an opening (420). The guide sleeve (417) of the liquid guide (403) is inserted into the inside of a guide sleeve (418) of a spin element (404). The valve body (410) is urged by a spring (413) between the guide sleeve (417) and a guide sleeve (418) to close the liquid flow path (407). The pressure bearing sleeve (411) has a pressure bearing surface (414) facing the upstream side of the liquid flow path (407) for bearing the liquid pressure. An area of the said pressure bearing surface (414) is so selected that a force generated by a proper liquid discharge pressure that is applied to said pressure bearing surface (411) is greater than the sum of a resilient force of the spring member (413) and a force applied to the pressure bearing surface (414) and directed to the downstream side of the liquid flow path (407).



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## EUROPEAN SEARCH REPORT

Application Number  
EP 03 00 0944

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.6)
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A	---	3-5	
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Y	US 4 271 990 A (KUTIK LOUIS F ET AL) 9 June 1981 (1981-06-09) * column 7, line 23 - line 46; figures 8-10 *	2	
Y	US 4 183 449 A (BLAKE WILLIAM S) 15 January 1980 (1980-01-15) * column 5, line 46 - column 7, line 47 *	2	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 January 2004	Examiner Juguet, J
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			

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#### CLAIMS INCURRING FEES

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

- ☐ Only part of the claims 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 claim(s):
- ☐ 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.

#### LACK OF UNITY OF INVENTION

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

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ 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 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 invention first mentioned in the claims, namely claims:



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1 3-12

trigger sprayer characterised by the priming means

2. Claim : 2

trigger sprayer characterised by a liquid guide comprising the outlet valve

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 00 0944

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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