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Declarations under Rule 4.17:

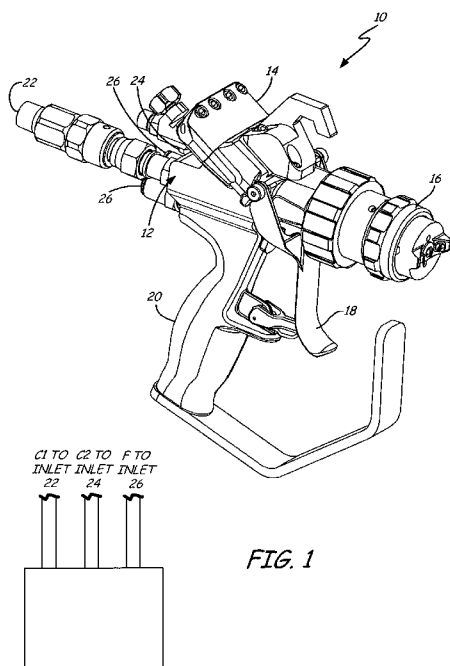
— of inventorship (Rule 4.17(iv))

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[Continued on next page]

(54) Title: VALVE ACTUATOR



(57) **Abstract:** A dispensing gun has a gun body, a first component inlet, a second component inlet, a dispense head, a first valve, a second valve, a clamp, and a trigger. The component inlets are attached to the gun body for receiving components. The dispense head is for dispensing the components. The valves are attached to the gun body and there are valve stems for controlling the dispensing of the components. The clamp has an upper portion and a lower portion, with the first and second valve stems positioned in between the upper and lower portions. The two portions are attached such that the first and second valve stems move with movement of the valve actuator in a direction parallel to the axes of the valve stems. The trigger is attached to the gun body and controls movement of the clamp.





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A. CLASSIFICATION OF SUBJECT MATTER***B05B 7/02(2006.01)i, B05B 7/12(2006.01)i, B05C 17/005(2006.01)i***

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B05B 7/02; B05C 17/01; A61D 7/00; B67D 5/60; G01F 11/06; B05B 1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: dispensing gun, actuator, valve

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 05104006A A (BROWN; DANIEL P.) 14 April 1992 See Figure 1 - Figure 4; column 4, line 10 - column 6, line 49.	1-20
A	WO 93-03860 A1 (ENZACOR AUSTRALIA PTY. LTD. et al.) 04 March 1993 See Figure 1; page 2, line 30 - page 4, line 26; claim 1.	1,11,18
A	US 04821927A A (PAULSEN; GARY et al.) 18 April 1989 See Figure 1 - Figure 5; column 3, line 20 - column 7, line 62.	1,11,18
A	US 2004-0226965 A1 (RUESCHHOFF KENNETH J. et al.) 18 November 2004 See Figure 1, Figure 4 - Figure 5; paragraph [0031] - paragraph [0040].	1,11,18

 Further documents are listed in the continuation of Box C. See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 05104006A A	14.04.1992	EP 0222875 A1	27.05.1987
		EP 0222875 B1	29.01.1992
		US 04993596A A	19.02.1991
		WO 86-06654 A1	20.11.1986
WO 93-03860 A1	04.03.1993	None	
US 04821927A A	18.04.1989	EP 0283215 A2	21.09.1988
		EP 0283215 A3	28.02.1990
		JP 01-112089 A	28.04.1989
		JP 02-736528 B2	16.01.1998
		JP 2736528 B2	02.04.1998
US 2004-0226965 A1	18.11.2004	US 6837398 B2	04.01.2005