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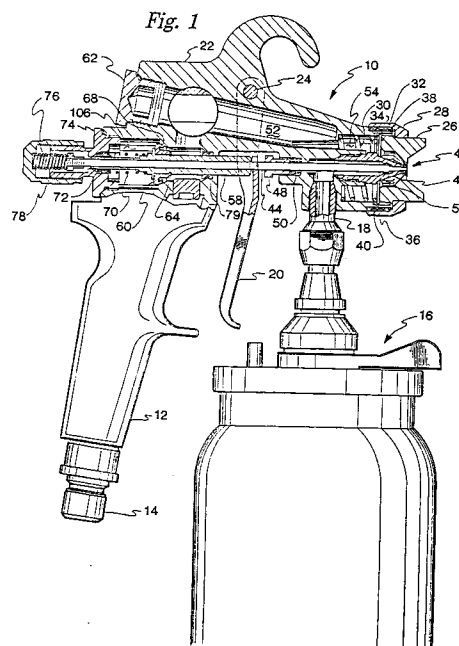
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(54) **Improved air valve and shaft seal for portable paint gun.**

(57) An improved control shaft seal (72) and air valve for a portable paint gun (10) with the seal having a radial clearance with the shaft except at a shaft sealing surface (100) of limited axial length. The shaft seal has a conical surface (102) radially outward of the shaft sealing surface to provide a sealing surface and also to provide transfer of axial forces at that surface to a radial direction to provide a force to urge the shaft sealing surface (100) against the control shaft. A second conical surface of the seal provides for retention of the seal on an air valve spring when the paint gun is disassembled. An improved air valve (60) for portable paint guns is also disclosed having a rigid axial hub (110) and radial support (114) carrying a relatively flexible rim portion (116) adapted to engage a tapered seating surface (120) in the gun.





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EUROPEAN SEARCH REPORT

Application Number

EP 91 11 1954

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.5)
X	FR-A- 587 897 (A.M. SEARLES) * Page 1, lines 41-59; page 2, lines 18-23; figure 2 * ---	1,5-10	B 05 B 7/12 F 16 K 1/36 F 16 K 41/00
Y	GB-A- 799 991 (L. ADAMS LTD) * Page 2, line 109 - page 3, line 11; figure * ---	11,12, 16-18	
Y	US-A-4 560 109 (TERUYUKI et al.) * Abstract; figures * ---	11,12, 16-18	
A	US-A-2 888 207 (R.E. SYKES) * Column 3, lines 23-26; figures 1,3 * ---	1,3	
A	US-A-1 875 438 (H. GABRIELS, Jr.) * Page 1, lines 3-13,51-69; figure 2 * ---	4,6	
A	DE-A-2 737 680 (TRICENTROL MANUFACTURING LTD) * Page 10, lines 6-8; figure 1 * ---	1-3	
E	WO-A-9 111 644 (ITW LTD) * Abstract; figures 2-5 * -----	11,12, 16-18	TECHNICAL FIELDS SEARCHED (Int. Cl.5) B 05 B F 16 K
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28-04-1992	Examiner BREVIER F.J.L.
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.

- ☐ 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.

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:

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- ☒ 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:



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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 1-10 Subject I : Air valve for a portable paint gun.
2. Claims 11-21 Subject II : Shaft seal for a portable paint gun.