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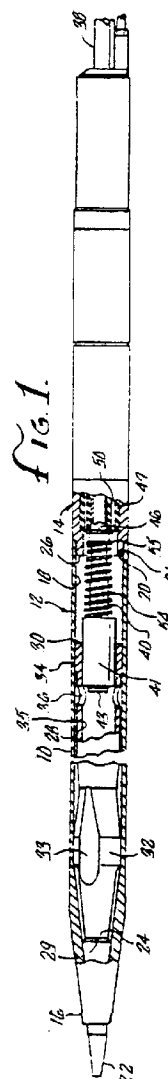
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(54) **Swivel assembly for a pneumatic underground piercing tool.**

(57) A swivel assembly (48) for supporting a valve sleeve (41) in a cavity of a striker (28) in a pneumatic underground piercing tool. A valve supporting means (51,52) supports the valve sleeve (41) on a valve body (40) by cooperating spherical seat and bearing members (56,57) to allow angular movement between the valve sleeve (41) and valve body (40). A retaining mechanism (64) is provided for resiliently securing the valve supporting means (51,52) to the valve body (40).





European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 5550

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)
A	GB-A-1 530 857 (GORNOGO) * page 3, line 105 - page 4, line 15; figures 1-4 *	1,8,11	E21B4/14 E21B7/26
D,A	US-A-4 662 457 (BOUPLON) * the whole document *	1,8,11	
A	GB-A-1 170 167 (GORNOGO) * figure 4 *	1,8,11	
A	EP-A-0 301 287 (SCHMIDT)		
A	EP-A-0 224 859 (PIERCE AIRROW)		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E21B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27 NOVEMBER 1992	Examiner Héctor Fonseca
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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