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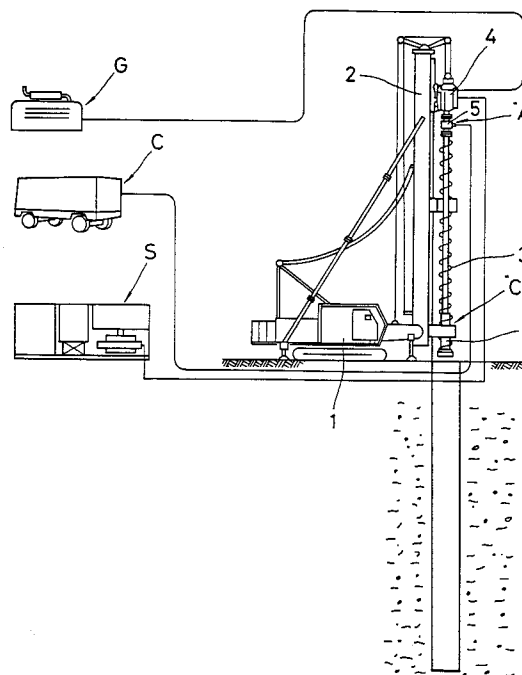
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(54) **Underground borer with down hammer.**

(57) In an underground borer with down hammer having a vehicle body 1, a guide stilt 2 standing on the vehicle body, and a rotary machine 4 having its bottom coupled with a screw shaft 3 and a down hammer B, a supply unit 5 is interposed between the rotary machine 4 and the screw shaft 3, a fluid conduit 6 is formed centrally of the screw shaft 3, compressed air conduits 7 and 7' are formed to surround the fluid conduit 6, and a fluid jetting pipe 8 is arranged centrally of the down hammer B to extend until the inside of a bit body 9 so that water may be discharged, along with high-pressure compressed air, from a central portion of the bottom surface of the bit body during boring to cool the bit body, promote anti-wear properties, suppress powdery dirt, reduce noises and increase the boring speed.

FIG. 1





European Patent
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EUROPEAN SEARCH REPORT

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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)
Y	EP-A-0 168 368 (ATLAS COPCO) * page 2, line 10 - line 21; figure 1 * ---	1	E21B4/14 E21B21/02 E21B21/14
Y	US-A-3 198 267 (MADSON) * column 1, line 8 - column 2, line 39; figures 1A-1B * ---	1	
A	GB-A-609 633 (PADLEY) * the whole document * ---	2	
A	US-A-3 061 024 (THOMPSON) -----		
			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 31 May 1995	Examiner Claeys, H
<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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