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(54) **Side port nozzle in a PDC bit**

(57) Using a nozzle having both a main passageway and a side passageway in a fixed head drill bit, especially a PDC bit, provides increased cooling and cleaning power, especially to the outer cutting surfaces. Additionally, causing a smaller side port passageway in a jet nozzle to intersect a larger main passageway in the nozzle in a manner that does not contain a chamfer or taper creates a non-plugging side port. The side port can then be sized down smaller than the size of the expected largest particle present in the mud without causing problems.

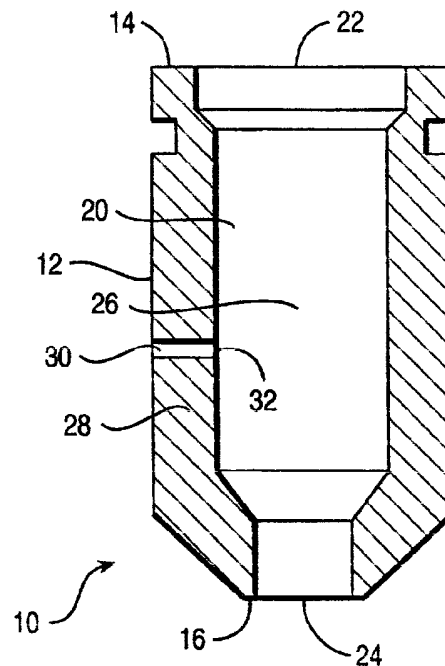


FIG. 1A

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EUROPEAN SEARCH REPORT

Application Number
EP 99 30 3972

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A	EP 0 295 045 A (REED TOOL COMPANY) 14 December 1988 (1988-12-14) * figure 2 * ---	4	
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
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Place of search	Date of completion of the search	Examiner	
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CATEGORY OF CITED DOCUMENTS		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	
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			

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

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The members are as contained in the European Patent Office EDP file on
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12-05-2000

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