

(54) Title of the invention : Advanced Boring Tool Assembly with multiple rollers for Elongated Cylindrical Boring Operation

(51) International classification :B23B0029020000, B23B0029034000, B23B0027000000, B23B0027100000, B23B0051000000 (86) International Application No :NA Filing Date :NA (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA		(71)Name of Applicant : 1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD Address of Applicant :Dhanbad - 826004, Jharkhand, India Dhanbad ----- ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Vivek Bajpai Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 2)Abhipsa Kar Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad ----- 3)Rajesh Sahoo Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----
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(57) Abstract :
The present invention relates to an advanced boring tool assembly (100) with multiple rollers utilizing force-counteracting roller support strategy for performing long cylinder boring operations. The boring tool assembly comprises of a boring tool (106), hollow boring rod (102), cutting force counteracting rollers (104), thrust force-counteracting rollers (108), and a coolant pipe (105). Force-counteracting roller supports (104,108) are provided on the hollow boring rod (102) in positions parallel to the tangential and thrust force generated on the tool. The rollers (104,108) provide supporting forces to balance the aforementioned forces. The multiple force-counteracting rollers (104,108) in increasing size progressively remove residual stresses. A specific provision for coolant pipe (105) has been configured within the hollow boring rod (102). The boring rod (102) has been provided with a slope (206) for chip flow guidance during machining to avoid the accumulation of chips on the machined surface.

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