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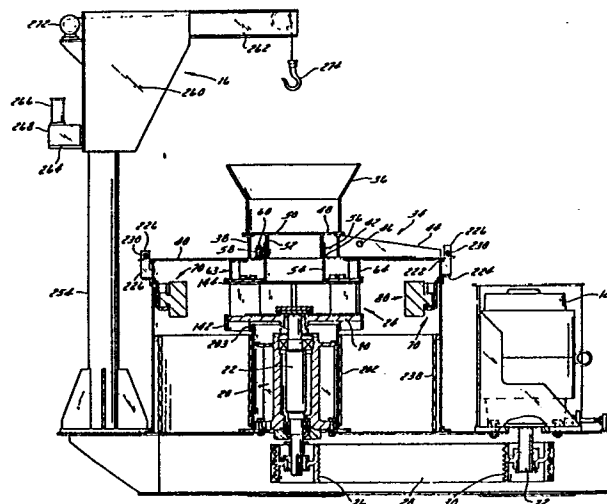
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report: **03.12.86 Bulletin 86/49**

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54 **Guard rings for vertical shaft impact crusher.**

57 A vertical shaft impact crusher having a rotor (24) mounted for rotation about a vertical axis on a vertical shaft (22) supported by a central bearing, and an impeller mounted on that shaft so that rock fed into the crusher is caught by the spinning impeller and thrown against an adjacent breaker ring (70), and is broken; wherein the crusher is provided with guard rings (63, 144, 142, 203) mounted telescopically and concentrically with the vertical shaft (22) forming a labyrinth seal, and also above and below the impeller to restrict the entrance of rock dust and rock fragments to the rotor shaft (22) and bearing; and a plurality of upper and lower wear plates which line the impeller to retard its erosion and are designed to be easily replaceable.





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.4)
X	US-A-3 148 840 (BEHNKE) * Figure 1; column 3, lines 7-10,39-41; figure 8; column 3, lines 35-45 *	1,2,6,7	B 02 C 13/18
A		5	
X	US-A-4 126 280 (BURK) * Figure 1 *	1	
A		2,4,5	
P,X	EP-A-0 135 287 (ACROWOOD CORP.) * Figures 1,4 *	1,2,6,7	
A	FR-A-2 371 233 (CREUSOT-LOIRE) * Figure; page 6, lines 3-5 *	2	B 02 C
A	US-A-3 334 823 (BEHNKE et al.) * Figure 1 *	4,5	
A	DE-A-2 502 066 (VER. ÖSTERREICHISCHE EISEN- UND STAHLWERKE-ALPINE MONTAN AG) * Figure 1; page 5, line 31 - page 6, line 1 *	3	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10-09-1986	Examiner CARMICHAEL D.G.
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	