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Perkel

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[54] **CRYOGENIC VIBRATORY MILL APPARATUS**

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[75] Inventor: **Harold Perkel**, Levittown, Pa.

Primary Examiner—John Husar
Attorney, Agent, or Firm—Sperry, Zoda & Kane

[73] Assignee: **TDF, Inc.**, Levittown, Pa.

[57] ABSTRACT

[21] Appl. No.: **497,954**

A cryogenic vibratory mill designed to receive cooling fluid such as liquid nitrogen within a grinding chamber for grinding of feed material such as crumb rubber from vehicle tires for cryogenic comminution within a grinding chamber. Cooling within the grinding chamber is achieved by passing cooling fluid such as liquid nitrogen therethrough wherein most of the cooling fluid passes through longitudinal channels formed longitudinally in the cylindrically shaped grinding rods. The operating temperature is normally less than -120 degrees Fahrenheit. A vibrating drive is operative to vibrate the housing and the grinding rods therein to achieve comminution of the feed stock rubber passing therethrough. With this design most of the cooling is achieved by passing of the cooling fluid through the channels defined in the grinding rods with only a minimum amount of cooling achieved by cooling fluid passing through the grinding chamber between the rods.

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[51] Int. Cl.⁶ **B02C 17/14; B02C 17/20**

[52] U.S. Cl. **241/65; 241/67; 241/175; 241/184; 241/DIG. 37**

[58] Field of Search 241/65, 67, 171, 241/172, 175, 184, DIG. 31, DIG. 37

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20 Claims, 4 Drawing Sheets

