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# (12) United States Patent

# Tarca et al.

#### APPARATUSES AND METHODS FOR (54)MILLING BONE

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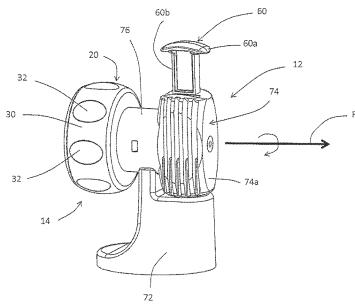
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- **Field of Classification Search** (58) CPC ...... A61F 2002/4645; A61F 2/4644; A61B 2017/1602; A47J 43/255

See application file for complete search history.



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#### (57) ABSTRACT

A bone mill includes a housing, at least a first bone milling tool, a proximal bearing sleeve, and a distal bearing sleeve. The housing defines a work chamber. The work chamber has a first axial end, a second axial end, a feed input opening, and an output opening. The bone milling tool is configured to be disposed within the work chamber, and extends at least from a first axial end to the second axial chamber. The proximal bearing sleeve is supported by the housing proximate the first axial end, and a distal bearing sleeve supported by the housing proximate the second axial end. The proximal bearing sleeve and the distal bearing sleeve support the bone milling tool and allow rotation of the bone milling tool within the work chamber about an axis.

#### 12 Claims, 16 Drawing Sheets

