

Title (en)  
TOOL DRIVING APPARATUS

Publication  
**EP 0016811 B1 19831109 (EN)**

Application  
**EP 79901018 A 19791217**

Priority  
US 90537278 A 19780512

Abstract (en)  
[origin: WO7901066A1] A ripping tool (60) positioned below the earth's surface is driven by the output of a vibrating, preferably resonant force transmitting beam (64) which has lateral dimensions smaller than those of the ripping tool and is positioned below the earth's surface. The beam is configured to have a single resonant node when restrained from vibrating at such node and is supported (66) so that the single node is above the earth's surface and restrained from vibrating. The output of the beam is enlarged in thickness to form a hammer. A protective gap is maintained by a tool stop (62) between the tool and the output of the force transmitting beam. The width of the tool stop is precisely controlled by shimming (63) the tool stop and/or the supports for the force transmitting beam.

IPC 1-7  
**A01B 35/00**; **E01C 23/06**; **F16H 27/02**

IPC 8 full level  
**E02F 3/84** (2006.01); **A01B 35/00** (2006.01); **E01C 23/06** (2006.01); **E02F 5/32** (2006.01); **F16H 27/02** (2006.01)

CPC (source: EP)  
**E02F 5/326** (2013.01)

Citation (examination)  
• DE 2614473 A1 19771013 - GMEINDER & CO GMBH  
• US 3563316 A 19710216 - SHATTO HOWARD L

Designated contracting state (EPC)  
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DOCDB simple family (publication)  
**WO 7901066 A1 19791213**; AT E5224 T1 19831115; DE 2966385 D1 19831215; EP 0016811 A1 19801015; EP 0016811 A4 19801114; EP 0016811 B1 19831109; JP S55500234 A 19800417; JP S6221093 B2 19870511

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