

Title (en)  
DEVICE FOR SHATTERING OR SPLITTING ROCKS OR CONCRETE BY USING A PROPELLANT CHARGE AND A LIQUID PLACED BEFORE SAID CHARGE

Publication  
**EP 0311025 B1 19920102 (DE)**

Application  
**EP 88116419 A 19881005**

Priority  
DE 3733819 A 19871007

Abstract (en)  
[origin: EP0311025A2] In a device for comminuting rock or the like by means of a propellant charge (8) and a liquid (10) placed in front of this, in order to utilise the energy of the propellant charge (8) essentially completely for comminution purposes, and furthermore to simplify the operation of the device, the latter has a tube (16) to be inserted into a drillhole (25) of the object (26) to be comminuted. Arranged on this tube (16) is a multi-part spreader sleeve (3) having an inner cone (2a) which interacts with an outer cone (2) on the tube (16) when the latter experiences a recoil after the ignition of the propellant charge (8). The spreader sleeve (3) is thereby pressed against the wall of the drillhole (25), thus assisting the comminuting effect of the liquid jet (15) issuing through the nozzle (4). At the same time, a bracing and retention of the device in the drillhole (25) are obtained by means of this spreader sleeve (3). The utilisation of the energy of the propellant charge (8) is further improved if the nozzle (4) is mounted axially displaceably in the tube (16) and has an outer cone (1) which interacts with an inner cone (1a) on the spreader sleeve (3). When, after ignition has occurred, the pressure of the liquid (10) displaces the nozzle (4) towards the end of the drillhole, the spreader sleeve (3) is pressed even more firmly against the wall of the drillhole (25) via the outer cone (1) and inner cone (1a). <IMAGE>

IPC 1-7  
**E21C 37/00**; **E21C 37/10**; **F42B 3/00**; **F42D 1/00**

IPC 8 full level  
**E21C 37/12** (2006.01); **F42D 3/04** (2006.01); **F42D 99/00** (2009.01)

CPC (source: EP)  
**E21C 37/12** (2013.01); **F42D 3/04** (2013.01)

Cited by  
CN111765824A; GB2271415A; US6347837B1; US6339992B1; WO0054003A1; US6321655B1; US6332401B1

Designated contracting state (EPC)  
BE FR GB IT SE

DOCDB simple family (publication)  
**DE 3733819 C1 19880818**; EP 0311025 A2 19890412; EP 0311025 A3 19891123; EP 0311025 B1 19920102; NO 168326 B 19911028; NO 168326 C 19920205; NO 883907 D0 19880901; NO 883907 L 19890410; ZA 887499 B 19891025

DOCDB simple family (application)  
**DE 3733819 A 19871007**; EP 88116419 A 19881005; NO 883907 A 19880901; ZA 887499 A 19881006