

Title (en)  
DOWN-THE-HOLE HAMMER

Title (de)  
IM-LOCH BOHRHAMMER

Title (fr)  
MARTEAU FOND DE TROU

Publication  
**EP 0851090 A1 19980701 (EN)**

Application  
**EP 97928443 A 19970618**

Priority  
• JP 9702089 W 19970618  
• JP 15809096 A 19960619

Abstract (en)  
A down-the-hole hammer in which a top sub connected to a joint adapter is connected to the upper end of a piston-containing piston case and a driver thumb in which a hammer bit is housed movably to and fro is connected to the lower end of the piston case, characterized in that there is no possibility that the connected members are loosened even when they are turned forward or reversely, the connecting and disconnecting of parts can be done simply without using any special jig and tool during part replacement. A joint adapter (18) and a top sub (17) are formed to one body. The coupling of the piston case (1) and the top sub (17) together and the coupling of the piston case (1) and the drive sub (5) together are done by engaging the joint portions of the top sub (17) and drive sub (5) formed into polygonal shafts (19) or spline shafts with the joint portions of the piston case (1) formed into recesses (20) into which these polygonal shafts (19) or spline shafts are fitted. Pins (22), which serve as keys, are removably inserted into pin holes formed in boundary parts between these engaged joint portions so that the pin holes (21) extend over both of the joint portions. <IMAGE>

IPC 1-7  
**E21B 4/06**

IPC 8 full level  
**E21B 4/16** (2006.01); **E21B 4/06** (2006.01); **E21B 11/00** (2006.01); **E21B 17/02** (2006.01); **E21B 17/07** (2006.01)

CPC (source: EP US)  
**E21B 4/06** (2013.01 - EP); **E21B 17/0465** (2020.05 - EP US); **E21B 17/076** (2013.01 - EP)

Cited by  
CN103797208A; AU2003212036B2; CN105156027A; AU765112B2; RU2622951C2; US10538968B2; US6705415B1; WO0047860A3; US6767853B1; US11149501B2; EP2623705B1; US9932788B2; US10851588B2; US10961779B2; US11808151B2

Designated contracting state (EPC)  
DE GB IT

DOCDB simple family (publication)  
**WO 9748875 A1 19971224**; AU 3274197 A 19980107; AU 719282 B2 20000504; EP 0851090 A1 19980701; EP 0851090 A4 20020403; JP H108869 A 19980113; KR 100205470 B1 19990701

DOCDB simple family (application)  
**JP 9702089 W 19970618**; AU 3274197 A 19970618; EP 97928443 A 19970618; JP 15809096 A 19960619; KR 19960024876 A 19960628