

Title (en)

Plier like hand tool for enlarging hollow bodies

Title (de)

Handwerkzeug in Form einer Zange zum Aufweiten von Hohlkörpern

Title (fr)

Outil à main en forme de pince pour l' élargissement des corps creux

Publication

EP 1369188 B1 20031217 (DE)

Application

EP 02012383 A 20020606

Priority

EP 02012383 A 20020606

Abstract (en)

[origin: US2003226390A1] A hand tool for expanding hollow bodies contains a casing (2) having a laterally extending first hand lever (3). A second hand lever, (7) which consists of steel and is joined to the casing so as to pivot on a shaft (5), bears a pinion sector (6) surrounding the shaft (5). The two hand levers (3, 7) form a pliers. In the casing (2) a bore is disposed for guiding a rack consisting of steel, one end of which cooperates within the bore with the pinion sector (6) such that an expansion wedge can be displaced outwardly by a closing movement of the two hand levers (3, 7). The casing has means by which an expansion head with radially moving expander jaws can be placed coaxially onto the outwardly tapered end of the spreading wedge. To reduce both the weight and the force required for operation, the casing (2) and its hand lever (3) consist of a light material from the plastic and light metal group. The casing (2) thus forms together with the rack a low-friction combination of light material and steel. Preferably the weight of the second hand lever (7) consisting with the pinion sector (6) of steel is further reduced by at least one opening (7d, 7e, 7g) between the flanges (7a, 7b).

IPC 1-7

B21D 41/02; **B29C 57/04**

IPC 8 full level

B21D 39/20 (2006.01); **B21D 41/02** (2006.01)

CPC (source: EP US)

B21D 41/026 (2013.01 - EP US)

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

US 2003226390 A1 20031211; **US 6672128 B2 20040106**; AT E256512 T1 20040115; CN 1465451 A 20040107; DE 20209473 U1 20020829; DE 50200161 D1 20040129; EP 1369188 A1 20031210; EP 1369188 B1 20031217; ES 2211842 T3 20040716; JP 2004009142 A 20040115

DOCDB simple family (application)

US 23473802 A 20020904; AT 02012383 T 20020606; CN 02131586 A 20020910; DE 20209473 U 20020619; DE 50200161 T 20020606; EP 02012383 A 20020606; ES 02012383 T 20020606; JP 2003162772 A 20030606