

Title (en)
Toggle lever clamping device

Title (de)
Kniehebel-Spannvorrichtung

Title (fr)
Dispositif de serrage à genouillère

Publication
EP 1023966 A3 20020508 (DE)

Application
EP 99123550 A 19991126

Priority
DE 29901364 U 19990127

Abstract (en)
[origin: EP1023966A2] The device has a working cylinder-type actuator unit (1) of multistage construction. It has at least two stages (13,13') positioned axially behind each other. Each stage has a fluid-charged actuator piston (14,14'), which is movement- connected to the actuator rod (6). The actuator stages have an associated control unit (15) for individual fluid charging of at least two pistons. The unit has esp. individually actuated control valves (35,35') for the pistons.

IPC 1-7
B23Q 3/06; **B25B 5/06**; **B25B 5/12**

IPC 8 full level
B25B 5/06 (2006.01); **B25B 5/12** (2006.01)

CPC (source: EP)
B25B 5/061 (2013.01); **B25B 5/122** (2013.01)

Citation (search report)

- [X] DE 9004624 U1 19900823
- [X] DE 19644832 A1 19980430 - MENKHOFF KARLHEINZ [DE]
- [A] US 3385172 A 19680528 - JAMES KAMINGA SYIVAN
- [A] FR 2739149 A1 19970328 - DK LE GUEN ET HEMIDY [FR]
- [A] FR 2391844 A1 19781222 - MANCEAU MARCEL [FR]

Cited by
CN102601635A; CN102581633A; CN102699720A

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)
DE 29901364 U1 19990506; EP 1023966 A2 20000802; EP 1023966 A3 20020508

DOCDB simple family (application)
DE 29901364 U 19990127; EP 99123550 A 19991126