

Title (en)  
APPARATUS FOR BENDING HOLLOW FRAMES FOR ISOLATING GLASS

Publication  
**EP 0449801 A3 19911106 (DE)**

Application  
**EP 91890054 A 19910321**

Priority  
• AT 74290 A 19900330  
• AT 184090 A 19900910

Abstract (en)  
[origin: US5181412A] Apparatus for bending hollow profiles 3 into spacer frames for insulating glass panes, the hollow profile 3 being advanced by a gripper 2 displaceable along a conveyor 4. The magnitude of the stepwise advance of the hollow profile 3 corresponds to the lengths of the legs of the spacer frame to be made. A pickup 6 on the gripper 2 measures precisely each stepwise advance.

IPC 1-7  
**B21D 53/74**; **B21D 11/10**

IPC 8 full level  
**B21D 43/10** (2006.01); **B21D 53/74** (2006.01); **C03C 27/06** (2006.01); **E06B 3/66** (2006.01); **E06B 3/673** (2006.01)

CPC (source: EP US)  
**B21D 53/74** (2013.01 - EP US); **E06B 3/67313** (2013.01 - EP US); **E06B 2003/67395** (2013.01 - EP US)

Citation (search report)  
• [Y] US 4590779 A 19860527 - STANGE RONALD R [US], et al  
• [Y] US 3299681 A 19670124 - HAUTAU CHARLES F  
• [A] FR 2428728 A1 19800111 - BFG GLASSGROUP [FR]  
• [A] US 4161110 A 19790717 - JAHRBACHER GERT [AT], et al

Cited by  
CN111633081A; WO2020070245A1

Designated contracting state (EPC)  
CH DE DK ES FR GB IT LI SE

DOCDB simple family (publication)  
**US 5181412 A 19930126**; DE 4109549 A1 19911010; DE 4109549 C2 19940127; DE 59100592 D1 19931223; DK 0449801 T3 19931227; EP 0449801 A2 19911002; EP 0449801 A3 19911106; EP 0449801 B1 19931118; ES 2046883 T3 19940201; JP H04228234 A 19920818; JP H0724890 B2 19950322; NO 179683 B 19960819; NO 179683 C 19961127; NO 911111 D0 19910320; NO 911111 L 19911001

DOCDB simple family (application)  
**US 67758191 A 19910329**; DE 4109549 A 19910322; DE 59100592 T 19910321; DK 91890054 T 19910321; EP 91890054 A 19910321; ES 91890054 T 19910321; JP 8578891 A 19910327; NO 911111 A 19910320