

Title (en)  
ARC FURNACE WITH CONSUMABLE ELECTRODE

Publication  
**EP 0452599 A3 19930224 (FR)**

Application  
**EP 90403152 A 19901107**

Priority  
US 51216690 A 19900420

Abstract (en)  
[origin: US5046145A] There is disclosed an arc reactor for treating a material in powder form conductive at very high temperatures, the reactor comprising a vertical electrically insulated sleeve cylindrical in shape, an upper electrode coaxially mounted with the sleeve at its upper end, a bottom electrode cooperating with the upper electrode, injectors for injecting a gas tangentially into the sleeve in order to create a vortex inside the same, a feed mechanism for introducing the powder material inside the sleeve near its upper end, so as to form a uniform cylindrical curtain of particles falling down into the sleeve, the particles being centrifugally projected against the internal wall of the sleeve by the vortex and entirely covering the internal wall while they are being simultaneously treated by the arc column, a crucible positioned under the sleeve to collect the treated particles in molten form that drip down from the sleeve, the molten material in use being in conductive contact with the bottom electrode, and a drive system to adjust a vertical position of the upper electrode, the upper electrode being slideable through the upper end and being made of a consumable electrode material. The upper electrode does not require water cooling and lasts for longer operation.

IPC 1-7  
**H05B 7/00**; **F27D 11/10**

IPC 8 full level  
**F27B 3/08** (2006.01); **F27D 11/10** (2006.01); **H05B 7/00** (2006.01); **H05B 7/152** (2006.01)

CPC (source: EP US)  
**F27D 11/10** (2013.01 - EP US); **H05B 7/00** (2013.01 - EP US)

Citation (search report)

- [A] US RE32908 E 19890418
- [A] EP 0282310 A2 19880914 - BROWNING JAMES A
- [A] GB 1390353 A 19750409 - TETRONICS RESEARCH DEV CO LTD
- [A] EP 0071351 A1 19830209 - HYDRO QUEBEC [CA]
- [A] EP 0019362 A1 19801126 - PLASMA HOLDINGS [NL]
- US-E-RE32908 (PFENDER)

Cited by  
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Designated contracting state (EPC)  
AT BE CH DE DK ES FR GB GR IT LI LU NL SE

DOCDB simple family (publication)  
**US 5046145 A 19910903**; CA 2030671 A1 19911021; CA 2030671 C 19990706; EP 0452599 A2 19911023; EP 0452599 A3 19930224; JP H044596 A 19920109

DOCDB simple family (application)  
**US 51216690 A 19900420**; CA 2030671 A 19901122; EP 90403152 A 19901107; JP 33347690 A 19901129