

Title (en)  
PLASMA ARC WELDING APPARATUS

Publication  
**EP 0372500 A3 19910605 (DE)**

Application  
**EP 89122434 A 19891205**

Priority  
US 28024088 A 19881205

Abstract (en)  
[origin: US4929811A] A plasma arc torch system includes a fault detect circuit for sensing a short between the electrode and the nozzle and disabling the power supply when the short is sensed. A sensing circuit within the torch cable is provided for actuating the fault detect circuit when the cable is severely punctured. The sensing circuit includes a foil embedded within the cable which circumscribes the main conductor to which a drain lead is connected. The drain lead senses a short between the foil and main conductor from a penetrating foreign object and actuates the fault detect circuit. Additionally, the fault detect circuit is effective in combination with a unique continuity interlock circuit disclosed to insure a safe torch. Further, a rectified control circuit is provided to maintain a stable arc preventing erosion of the nozzle and subsequent exposure of the electrode.

IPC 1-7  
**H05H 1/34**; **H05H 1/36**

IPC 8 full level  
**B23K 10/00** (2006.01); **H05H 1/34** (2006.01); **H05H 1/36** (2006.01)

CPC (source: EP KR US)  
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Citation (search report)  
• [A] DE 2541166 A1 19760422 - MANSFELD KOMBINAT W PIECK VEB  
• [AD] US 4663515 A 19870505 - KNEELAND ROBERT D [US], et al  
• [AD] US 3745321 A 19730710 - TKACHEV M, et al  
• [A] GB 1195420 A 19700617 - WESTINGHOUSE BRAKE & SIGNAL [GB]  
• [A] US 4247752 A 19810127 - STRINGER LOREN F  
• [A] PATENT ABSTRACTS OF JAPAN vol. 12, no. 311 (M-734)(3158) 24 August 1988, & JP-A-63 084 774 (DAIHATSU MOTOR CO LTD) 15 April 1988,

Cited by  
DE102004033775A1; DE4300942A1; FR2669847A1; DE19548606A1; EP0480149A3

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**EP 89122434 A 19891205**; AU 4593889 A 19891205; DK 612489 A 19891205; FI 895806 A 19891204; JP 31634289 A 19891205; KR 890018089 A 19891205; NO 894831 A 19891204; PT 9249289 A 19891205; US 28024088 A 19881205