

[54] **PULSED ARC WELDING APPARATUS**
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 [58] **Field of Search**..... **219/131 F, 131 WR, 131 R, 219/135, 137 PS; 323/22 SC**

[57] **ABSTRACT**

A pulsed arc welding system is disclosed in which improved performance is obtained through the use of positive switch control in the welding transformer secondary winding. The switch means is programed through solid-state gate drivers which are in turn controlled for controlled rectification on each half cycle by a phase control, the operation of which is initiated by sensing the secondary winding voltage. Thus, it is possible to accurately control a high current interval and a low current interval with precision to obtain optimum welding and weld control.

The time intervals for high level and low level welding current are also precisely controlled through digital counting techniques which permit a full range of control from zero to one hundred per cent high current mode of operation and a high current period as well as a low current period varying from 1/60 to 1-4/5 seconds.

[56] **References Cited**

UNITED STATES PATENTS

3,284,666	11/1966	Hajicek	219/131 R X
3,308,340	3/1967	Gille et al.	219/131 R X
3,622,744	11/1971	Main et al.	219/137
3,777,113	12/1973	Arikawa et al.	219/131 R X
3,818,177	6/1974	Needham et al.	219/131 R
3,826,890	7/1974	Bartlett	219/131 R
3,838,244	9/1974	Petrides et al.	219/131 R X

FOREIGN PATENTS OR APPLICATIONS

2,024,276	1/1971	Germany	219/131 WR
276,289	6/1969	U.S.S.R.	219/131 R

15 Claims, 6 Drawing Figures

