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United States Patent

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*J. Todd Johnson*

Acting Commissioner of Patents and Trademarks

*Melvinia Gary*  
Attest



US005862697A

# United States Patent [19]

Webster

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## [54] TUBE BENDING APPARATUS, AND METHODS OF CONSTRUCTING AND UTILIZING SAME

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[51] Int. Cl.<sup>6</sup> ..... **B21D 7/04; B21B 37/08**

[52] U.S. Cl. .... **72/149; 72/20.1; 72/155**

[58] Field of Search ..... **72/149, 150, 155, 72/17.2, 18.3, 19.7, 20.1, 21.4, 20.3**

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[57]

## ABSTRACT

A tube bending apparatus, comprising a tube holding mechanism; a first head member for substantially preventing lateral movement of a first portion of the tube; a unit for translating the tube along its longitudinal axis so as to be substantially adjacent the first head member; a unit for rotating the tube about its longitudinal axis; a bend arm member which is pivotally connected to the first head member; a drive mechanism for rotating the bend arm member so as to contact the tube for bending thereof; and wherein the drive mechanism comprises an electric motor and associated gearing for directly coupling the motor to the bend arm member.

10 Claims, 14 Drawing Sheets

