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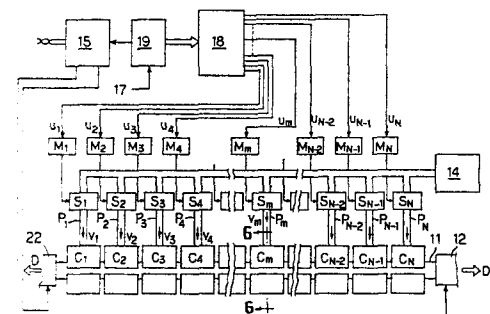
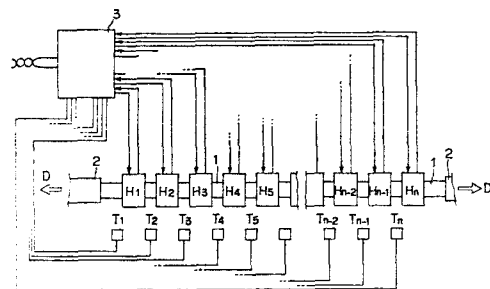
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54 **Method for manufacturing tapered rods and apparatus therefor.**

57 Method for manufacturing a tapered rod for a coil spring from a metallic material of mainly steel in a linear state, by imparting heating to the same with a predetermined temperature gradient pattern in the axial direction thereof while or before pulling by tensile force the metallic material chucked at two axially distant points in either direction in a gradually decreasing or stepwise decreasing speed, until a desired tapered portion is formed. An apparatus preferably employed for this method comprises a pulling mechanism (12, 22) for chucking and pulling the material, an electric current supplying mechanism (15) for supplying predetermined amount of current to the material between the two chucked points, a plurality of cooling means (C₁-C_n) arranged axially along the material for positionwise cooling the material so as to make the temperature gradient thereon, a temperature detecting means (16, 17) for detecting the surface temperature of the material for feeding back the detected data to the current supplying mechanism (15), and a heating temperature controlling means (18) for controlling the amount of the current flowed there.



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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<p><u>DE - A - 1 752 609</u> (BRÜNINGHAUS)</p> <p>-----</p>		B 21 C 37/04
			TECHNICAL FIELDS SEARCHED (Int.Cl. ³)
			<p>B 21 C 1/00</p> <p>B 21 C 37/00</p> <p>B 21 F 21/00</p> <p>B 21 F 35/00</p> <p>B 21 H 8/00</p>
			CATEGORY OF CITED DOCUMENTS
			<p>X: particularly relevant if taken alone</p> <p>Y: particularly relevant if combined with another document of the same category</p> <p>A: technological background</p> <p>O: non-written disclosure</p> <p>P: intermediate document</p> <p>T: theory or principle underlying the invention</p> <p>E: earlier patent document, but published on, or after the filing date</p> <p>D: document cited in the application</p> <p>L: document cited for other reasons</p>
			&: member of the same patent family, corresponding document
<p>X The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
Berlin	14-04-1982	SCHLAITZ	