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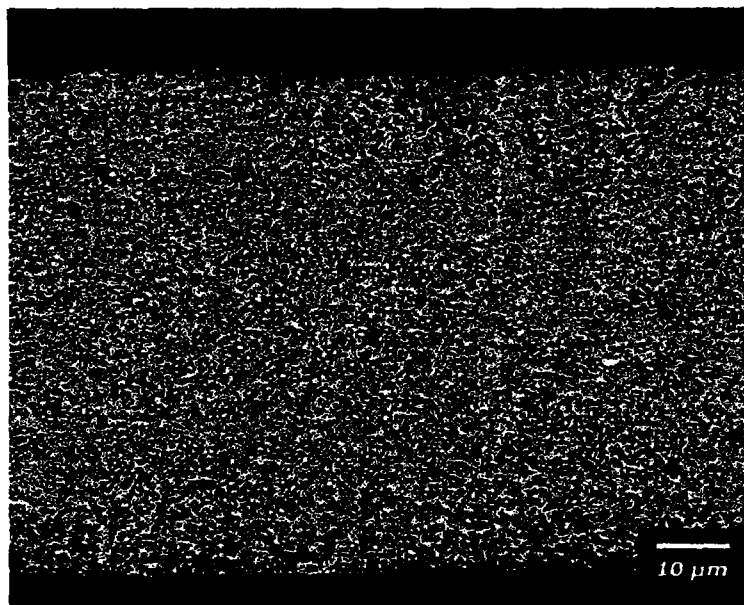
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(54) Title: MARTENSITIC STAINLESS STEEL AND STEELMAKING PROCESS



(57) Abstract: A process for producing a steel includes subjecting to at least a portion of a melt of the steel to electrosag remelting and, in a subsequent step, heating the steel to a temperature at least as great as the lowest temperature at which all carbides that can form in the remelted steel will dissolve and no greater than the nil ductility temperature of the remelted steel, and maintaining the temperature for a period of time sufficient to dissolve primary and clustered carbide particles in the remelted steel greater than 15 micrometers in length. A novel martensitic stainless steel also is disclosed including 0.65 to 0.70 carbon; 0 to 0.025 phosphorus; 0 to 0.020 sulfur; 0.20 to 0.50 silicon; at least one of greater than 0.0004 boron and greater than 0.03 nitrogen; 0.45 to 0.75 manganese; 12.7 to 13.7 chromium; and 0 to 0.50 nickel.



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