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United States Patent [19] Barstow

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[54] **SHAFT FURNACE**

(Pergamon Int'l Library); Editor: D.W. Hopkins, M.Sc.; Pergamon Press Ltd.; 1st ed.; 1976, pp. 336-345.

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[57] **ABSTRACT**

[51] **Int. Cl.⁶** **F27D 1/08**; C21C 5/48

[52] **U.S. Cl.** **432/99**; 266/900; 266/197; 266/219; 432/96

[58] **Field of Search** 266/197, 214, 266/219, 900; 432/95, 96, 99

An improved hearth section for a shaft furnace may comprise a plurality of splines mounted to the side wall of the hearth section in spaced-apart circumferential positions so that each of the splines extends radially inward from the side-wall and into the interior of the hearth section. The floor of the hearth section may include a plurality of stand-offs positioned in generally spaced-apart relation and that extend upward from the floor and into the interior of the hearth section.

[56] **References Cited**
PUBLICATIONS

A.K. Biswas, et al., *Extractive Metallurgy of Copper*, vol. 20 of the Internat'l Series on Materials Science and Tech.

27 Claims, 4 Drawing Sheets

