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(54) **Title:** METHOD AND SYSTEM OF ELECTROMAGNETIC STIRRING FOR CONTINUOUS CASTING OF MEDIUM AND HIGH CARBON STEELS

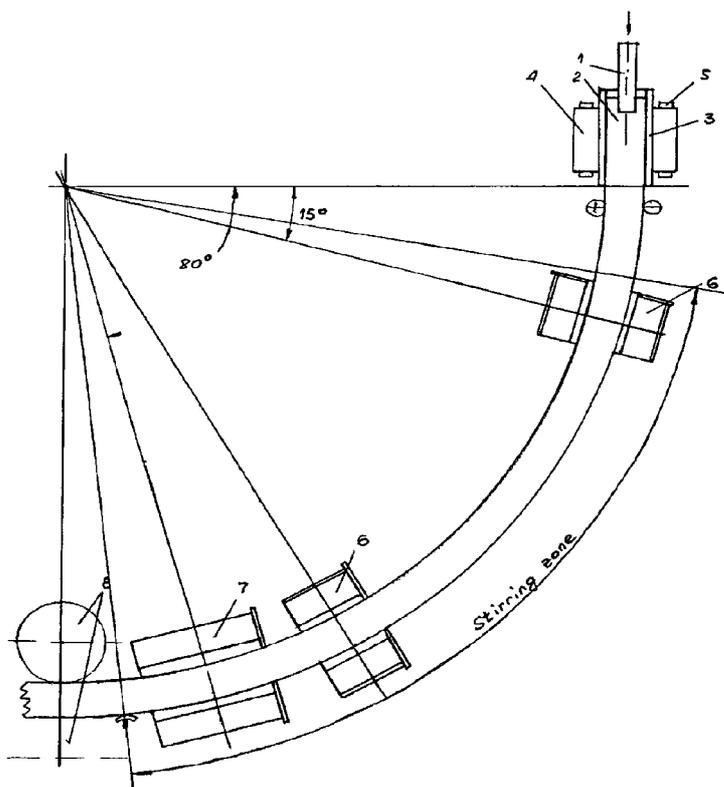


FIG.1

(57) **Abstract:** A method and an apparatus are provided for electromagnetic stirring during a continuous casting process, especially for casting a billet and bloom of medium and high carbon steels. The method and apparatus provide a higher surface quality of the ingot, reduce the entrapping of nonmetallic inclusions into the ingot, and suppress issues regarding central segregation and central porosity. The method provides an improvement in the stirring process from the meniscus to the crater end - and relates to in-mold stirring and stirring in a zone of secondary cooling and up to the crater end. The in-mold stirring is geared towards the suppression of meniscus disturbance, for submerged casting, in particular, the reducing of helical and axial velocity components of the molten steel, the lowering of the initial solidification point to avoid the touching of a shell edge with the slag ring, and a decrease of oscillation marks.

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## B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,722,480 A (ASAI et al.) 03 March 1998 (03.03. 1998), col. 4, lines 48-57.	1, 12
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Y		2-1 1, 13-2 1
Y	JP 07-40,019 A (KUSHIDA) 10 February 1995 (10.02. 1995), abstract and figure 1.	2-1 1, 13-21

Further documents are listed in the continuation of Box C.

See patent family annex.

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"A" document defining the general state of the art which is not considered of particular relevance	"X"	document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means		
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