Title (en)

INDUCTION SKULL MELT SPINNING OF REACTIVE METAL ALLOYS

Publication

EP 0471798 B1 19930623 (EN)

Application

EP 90911041 A 19900430

Priority

US 34525489 A 19890501

Abstract (en)

[origin: WO9013377A1] An apparatus for melting and rapid solidification casting of metal alloys has a crucible (2) for molding a metal charge. The crucible has side walls (3), a top (7) and a bottom (20) having an orifice (5) therein. Collectively, the side walls, top and bottom define an interior of the crucible. A portion of the dimensions of the side walls and bottom is divided by longitudinal slits (11) into at least two segments. A nozzle (8) is disposed partially within the crucible and extends through the orifice. The nozzle has a first end (24) in communication with the interior (22) of the crucible. A second end (26) of the nozzle has a nozzle orifice (28) therein for defining a stream of molten metal alloy. A cooling mechanism (4) cools the top, side walls and bottom of the crucible. The apparatus has mechanisms (30, 32, 34) for inducing alternating electrical currents within the metal charge and within the nozzle, and for establishing and maintaining pressure within the interior of the crucible. A positioning mechanism (10) positions the crucible and nozzle means relative to a quenching mechanism (36) that includes a rapidly moving chill substrate. The crucible, nozzle and quenching mechanism are housed within an enclosure (1) that provides therewithin a controlled atmosphere having positive or negative pressure.

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