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(54) **IMPROVED MOLTEN METAL SAMPLER**

(57) The present invention relates to a sampler for taking samples from a molten metal bath, particularly a molten iron, the sampler comprising:

- a carrier tube having an immersion end; and
- a sample chamber assembly arranged on the immersion end of the carrier tube, the sample chamber assembly comprising a cover plate and a housing, wherein the housing comprises:
 - an immersion end having a first opening for an inflow conduit and an opposing end having a second opening for a gas coupler,
 - a first face extending between the immersion end and the opposing end, the first face having a first depression proximate the immersion end and a second depression, the first depression being an analysis zone and the second depression being a ventilation zone, a portion of the analysis zone overlying a distribution zone which is in direct flow communication with the first opening and configured to receive the molten steel from the inflow conduit,
 - wherein the first depression having a cross sectional circle segment profile along a central longitudinal axis that is concavely or triangularly shaped,

- wherein the cover plate and the housing are configured to be assembled together to form a sample cavity including the distribution zone, the analysis zone and the ventilation zone, such that an analysis surface of a solidified steel sample formed within the sample cavity lies in a first plane, and
- wherein the first and second openings are spaced apart from the first plane.

The invention also relates to a sampler for taking samples from a molten metal bath, particularly a molten iron, the sampler comprising:

- a carrier tube having an immersion end;
- a sample chamber assembly arranged on the immersion end of the carrier tube, the sample chamber assembly comprising a cover plate and a housing, wherein the cover plate comprising a sealing member configured to provide a substantially gas tight seal between the cover plate and the housing, wherein the sealing member consist of an essentially noncontaminating material for the samples in the sample chamber.

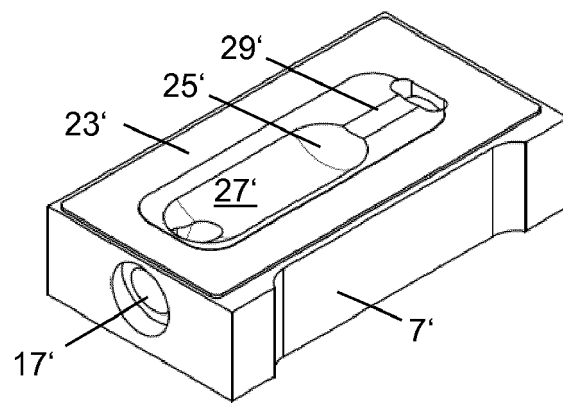


Fig. 4a