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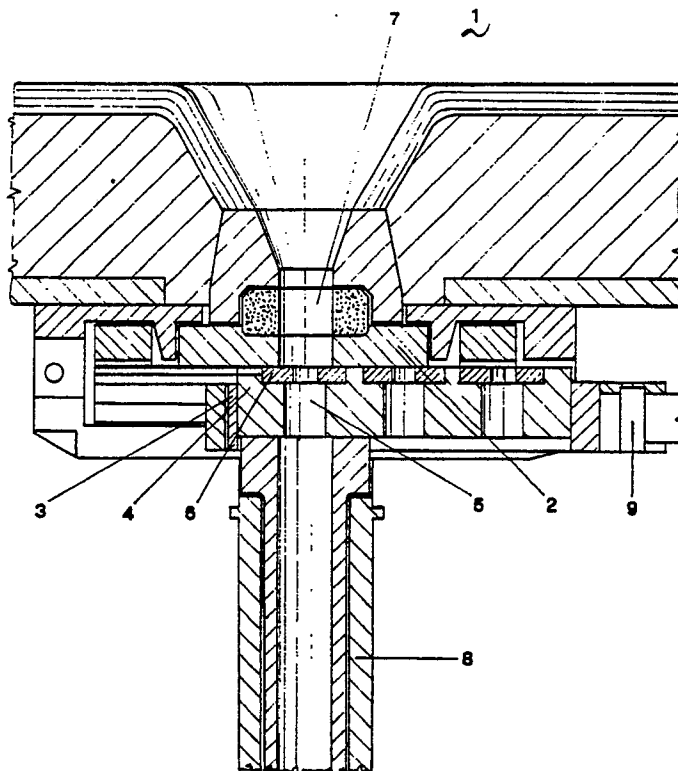
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54 **Device for continuous casting flow of metals.**

57 A continuous casting device for metals comprising a fixed plate (2) mounted on the base of a distributor (1) and a frame (1) mobile horizontally to

said fixed plate (2), characterised in that said mobile frame (3) comprises a plurality of parallel sized holes (5).



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This invention relates to a continuous casting device for metals.

Continuous casting plants for metals generally comprise an upper ladle for pouring the molten metal, and an intermediate distributor from which the molten metal is cast into the underlying ingot moulds.

The distributor base is generally provided with a casting device consisting of a refractory element commonly known as a nozzle, comprising a sized vertical hole which ensures constant flow of the casting jet.

A drawback of this known device is the considerable time loss involved in its replacement, with consequent reduction in production yield. Specifically, the nozzle has to be replaced under the following circumstances:

- when with the passage of time the sized hole enlarges so altering the molten metal flow rate to the extent of exceeding predetermined limits, so that casting has to be halted,
- following clogging of the sized hole by the steel,
- if the refractory element suffers damage for various reasons,
- after a certain period of continuous casting.

To obviate this drawback, casting devices have been proposed comprising a slide gate consisting of a fixed plate and a mobile plate slidable horizontally to the fixed plate and housing a plurality of side-by-side refractory elements (nozzles). During operation, a nozzle is positioned coaxially to the casting hole and a pneumatic or hydraulic activator member horizontally moves the nozzles so as to position a new nozzle below the casting hole as a replacement for the damaged or otherwise inoperable one.

This known device has however certain drawbacks, and in particular:

- the danger of steel seepage along the contacting walls of the refractory elements,
- substantial operating cost as the refractory element comprising the damaged hole must necessarily be scrapped.

According to the invention these drawbacks are obviated by a continuous casting device for metals comprising a fixed plate mounted on the base of a distributor and a frame mobile horizontally to said fixed plate, characterised in that said mobile frame comprises a plurality of parallel sized holes.

Advantageously each sized hole can be provided upperly with a sized ring.

The present invention is described in detail hereinafter with reference to the accompanying drawing showing a longitudinal diagrammatic section through the device of the invention.

As can be seen from the figure, the device of the invention is applied to the base of a tundish 1 and consists substantially of a slide gate compris-

ing a fixed plate 2 and a metal frame 3 mobile to said fixed plate along parallel guides (not shown on the drawing).

The mobile frame internally houses a plate 4 of refractory material comprising a plurality of parallel vertical holes 5, each of which is provided upperly with a sized ring 6 having a greater diameter than the casting hole 7.

In a position below the mobile plate and coaxial to the casting hole there is provided a jet covering tube (snorkel) which protects the molten metal jet as far as the underlying ingot mould.

A drive member 9 of pneumatic or hydraulic type is associated with the mobile plate to horizontally move said plate in order to position a new sized hole as a replacement for that previously damaged.

From the foregoing it is apparent that the improvement in the casting device according to the invention has numerous advantages, and in particular:

- the facility for replacing the sized hole while the casting plant is in operation,
- the ability to cast continuously for very long periods,
- reduced operating costs because the calibrated hole ring can be replaced without having to scrap the entire plate.

Claims

1. A continuous casting device for metals comprising a fixed plate (2) mounted on the base of a distributor (1) and a frame (3) mobile horizontally to said fixed plate (2), characterised in that said mobile frame (3) comprises a plurality of parallel sized holes (5).

2. A device as claimed in claim 1, characterised in that each sized hole (5) is provided upperly with a sized ring (6).

3. A device as claimed in claim 1, characterised by comprising an actuator (9) acting on the mobile frame (3).

4. A device as claimed in claim 3, characterised in that said actuator (9) is a cylinder-piston unit.

