Fig. 1

EMERGENCY SAFETY CHAMBER

ROTATING POURING GATE

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Another aspect of this invention provides new embodiments of distributing pouring gates in the molds, which according to this invention, may:

(a) Feed the cavity of the mold in the direction opposite to the direction of centrifugal force, such as gates 18 and 19, in the figure;

(b) Flare from the main distributing gate towards the cavity of the mold, such as gates 19 and 22, in the figure, gate 18 flaring and at the same time directed against the centrifugal force, gate 22 flaring while it may be at any angle from 0° to 90°, in regard to the direction of centrifugal force, (i.e. radial direction);

(c) Taper in any direction (gate 23, the figure);

(d) Be provided with sudden enlargements such as gate 24, the figure, which may be repeated at least twice; such enlargements being substantially co-axial with the axis of the gate itself;

(e) Be stair-case like as shown by 25 in the figure.

It is obvious that when high or very high centrifugal forces are provided in the molds during the pouring thereinto the molten solids (such as metal alloys or glass, etc.) and during its solidification, may break the mold. Therefore, the flaring gates may control the shock between the molten material and walls forming the cavity, and diminish the pressure, before the cavity has been filled.

The stepwise enlarged gate, or stepwise flaring gate, will also diminish the pressure, and will exercise an action similar to that of the flaring gate.

The stair-case like gate if built tapering, or flaring or provided with enlargement, will act accordingly, and will at the same time break the flow of the metal.

The pressure-diminishing gates, according to this improvement may be used in any desired combination of "a," "b," "d" and "e," and are of extreme importance for diminishing the pressure of the molten material on the walls of the mold, and may be applicable, in particular, for precision castings of very fine dimensions.

Still another improvement provides means to change the position of the rotating pouring gate R, the figure, along the axis of rotation X-X. This can be achieved by mounting the gate R on a sliding shaft (not shown on the drawing) or on a shaft 26 provided with a male thread, while corresponding female thread being provided in the rotating pouring gate R.

Fixation means including such as one or a plurality of screws or the like 27 may be provided.

The gate R should also preferably be mounted on
guides 28 rigid with the frame 29 on which the rotating pouring gate R is mounted. Such an arrangement will permit adjustment of the exit orifices 13 of the rotating pouring gate R in any desired position in order to register the entrance openings of the molds.

The operation of the device as shown in the figure is very simple, it consists of rotating the frame 29 around shaft 50 or around an axis X-X by means of a gear, bevel-gear or differential gear, or pulley 44, rigidly interconnected with such frame. A support (or ground) 51, on which such a non-rotating shaft 50 is mounted may be used as shown in the figure. The molten solid, such as metal or glass, etc., is poured into the entrance orifice 52 of the rotating pouring gate R, and is distributed accordingly into the cavities of the mold.

To maintain the mold in the desired position, insertion members 53 and 54 in any desired number may be interposed between the casing of the mold 55 and the frame 29, and/or between the casing 56 and the wall forming the rotating gate 51.

Having now particularly described and ascertained the nature of this invention and the manner in which it is to be performed, I declare that what I claim is:

1. An apparatus for centrifugal casting of molten materials in the cavities of molds, comprising a rotatable pouring gate having an entrance orifice on its top and at least one exit orifice on its bottom, the inner walls of said gate flaring from top to bottom, means to control and maintain the position of said gate along the axis of rotation of said apparatus said means being coaxial with said axis of rotation, and comprising a female and male threadings and locking means.

2. A centrifugal casting apparatus comprising a frame, a permanent rotating pouring gate of the character herein described, said gate being rigidly mounted in respect to said frame, at least one mold separate from said gate and having at least one entrance orifice, said orifice contacting the corresponding exit orifice of said gate, means to rotate said frame, means to adjust and maintain the position of said gate along the axis of rotation of said apparatus, said means being coaxial with said axis of rotation, and comprising a female and male threadings and locking means.

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