

The opinion in support of the decision being entered today was *not* written for publication in a law journal and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT J. KOFFRON
and
ROSS A. JACOBS

Appeal 2006-2473
Application 10/276,625
Technology Center 1700

Decided: August 25, 2006

Before KIMLIN, TIMM, and JEFFREY T. SMITH, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-9 and 11-20.

Claims 1 and 12 are illustrative:

1. A vortex inhibitor for extended processing of molten metal during delivery by a ladle (22) having an opening and a closeable cover (90) over

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said opening and a discharge nozzle (28) in said ladle, the inhibitor comprising:

a refractory body shaped to fit within said ladle opening;

said refractory body including intermixed steel ballast, refractory material and a penetration inhibitor resisting deterioration of said body by slag and molten metal; and

said refractory body having an adjusted specific gravity, said adjusted specific gravity defined by having a reduced steel ballast to refractory material ratio less than the ratio required for a specific gravity required to buoyantly support the body in said molten metal in said ladle wherein said adjusted specific gravity is 2.7-4.5.

12. A method for improving metal pouring processes with a metal pouring vessel (22) containing molten metal and a discharge opening (28) in said vessel comprising:

introducing a refractory body having an adjusted specific gravity, said refractory body including intermixed steel ballast and refractory material, and said adjusted specific gravity defined by a reduced steel ballast to refractory material ratio less than required for a specific gravity required to buoyantly support said body in the molten metal wherein said adjusted specific gravity is 2.7-4.5;

closing the metal pouring vessel with a cover;

maintaining said refractory body enclosed in said vessel until discharge of said molten metal is terminated.

In addition to the admitted prior art found in Appellants' specification, the Examiner relies upon the following references as evidence of obviousness:

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Labate	4,799,650	Jan. 24, 1989
Koffron	5,044,610	Sep. 3, 1991
Kriechbaum	6,165,926	Dec. 26, 2000

Appellants' claimed invention is directed to a vortex inhibitor for processing molten metal with a ladle (claim 1), and a method for pouring molten metal from a vessel by introducing a refractory body in the molten metal and maintaining the refractory body enclosed in the vessel until discharge is terminated (claim 12).

Appealed claims 1-9 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either Koffron or Labate in view of Kriechbaum. Appealed claims 12-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of either Koffron or Labate in view of Kriechbaum.

We consider first the Examiner's rejection of claims 1-9 and 11 over either Koffron or Labate in view of Kriechbaum. Both Koffron and Labate disclose vortex inhibitors for discharging molten metal but, as recognized by the Examiner, neither reference teaches that the inhibitor comprises a refractory body containing a penetration inhibitor, such as particulate carbonaceous material and silica or silicate based glass. To remedy this deficiency the Examiner relies upon Kriechbaum who discloses a refractory body containing materials that correspond to the claimed penetration inhibitor. However, we concur with Appellants that Kriechbaum offers no teaching or suggestion that the refractory body can be used as, or formed into, a vortex inhibitor. The only application of the refractory compositions

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disclosed by Kriechbaum is for "a lining on the inner walls of vessels and furnaces intended to receive liquid metal, glass and the like" (col. 1, ll. 10 and 11). While the reference includes a broad statement that "[t]he present invention relates to castable refractory compositions and methods of making refractory bodies" (col. 1, ll. 6 and 7), such a general statement fails to provide the requisite suggestion that the compositions can be used as a vortex inhibitor. Although Kriechbaum, as submitted by the Examiner, teaches that refractory castable compositions that contain silica or particulate carbon are suitable for contact with molten metal, the Examiner has not established that that property alone would have made the compositions of Kriechbaum obvious for use as a vortex inhibitor to one of ordinary skill in the art.

We now turn to the § 103 rejection of claims 12-20. It is noteworthy that claim 12 does not define the refractory body as a vortex inhibitor or define the composition of the refractory body as comprising the penetration inhibitor of claim 1. However, Appellants maintain that "[o]ne of ordinary skill in the art would not be motivated to provide a process of 'maintaining the body within the vessel until the pour is completed', per claim 12, by combining the cited references" (Br. 7, last paragraph). Appellants submit that "the 'admitted prior art' does not teach, disclose or suggest 'maintaining the body within the vessel until the pour is completed'" (Br. 7, second paragraph). Appellants point to the specification for the proposition that Koffron's vortex inhibitor "cannot be introduced into a closed vessel" (*Id.*).

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In response, the Examiner submits that Appellants' argument "is not persuasive because as stated in the above rejection, the applied art includes the step of introducing a refractory body into a closed vessel and maintaining the body within the vessel until the pour is completed" (sentence bridging pages 7 and 8 of Answer). However, our review of the "above rejection" finds no reference to the relevant claim limitation. If the Examiner is referring to the statement that the admitted prior art teaches that it was known "to conduct intermediate processing of molten metal within a closed ladle . . . as well as introduction of a refractory body into the melt" (Answer 6, second paragraph), this statement does not address the argued limitation of maintaining the refractory body within the vessel until the pour is completed. Accordingly, this application is remanded to the Examiner to place on the record the particular sections of the applied prior art that teach or suggest maintaining the refractory body in the enclosed vessel until discharge of the molten metal is terminated.

In conclusion, based on the foregoing, the Examiner's § 103 rejection of claims 1-9 and 11 is reversed. The Application is remanded to the Examiner concerning the rejection of claims 12-20 under § 103 for the reasons set forth above.

This remand to the examiner pursuant to 37 CFR § 41.50(a)(1) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)) is made for further consideration of a rejection. Accordingly, 37 CFR § 41.50(a)(2) applies if a

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Supplemental Examiner's Answer is written in response to this Remand by the Board.

REVERSED AND REMANDED

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