The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(i). See the Maintenance Fee Notice on the inside of the cover.

[Signature]

Acting Director of the United States Patent and Trademark Office
A submerged nozzle has a lower part with a bottom and two outer side channels above the bottom, and a skirt with a center fluid to the lower part of the nozzle: above the outer side channels. The skirt has two parallel flat surfaces each having side edges that are smoothly connected to each other by two respective cylindrical surfaces, the two outer side channels being identical and lying along a common longitudinal axis making an acute angle with the parallel flat surfaces. A portion of the skirt is spaced apart from the nozzle to allow hot gas to flow in the space between the nozzle and the skirt.