HEAT EXCHANGER

ABSTRACT

A heat exchanger for exchanging heat between first and second fluids. A plurality of vertically oriented passages are defined between alternating first and second passage walls. The first and second passages are provided for bringing the first and second fluids into a heat transfer relationship. To this end, the first passage incorporates an inlet and an outlet, for instance, to admit gaseous nitrogen into the top of the first passages and to discharge condensed nitrogen from the bottom of the first passages. An inlet is provided to introduce the second fluid into the second passages. The second fluid, which is a liquid is to be at least in part vaporized within the second passages. Liquid film, composed of the liquid, is distributed within the second passages by way of an arrangement of slotted dividing bars having staggered slots along the length of such slotted dividing bars to urge liquid against the passage walls defining the passages. Additionally, or in place of the dividing bar arrangement, a multi-domain corrugated fin material arrangement can be provided to effect a liquid film distribution within the second passages.

Fig. 3