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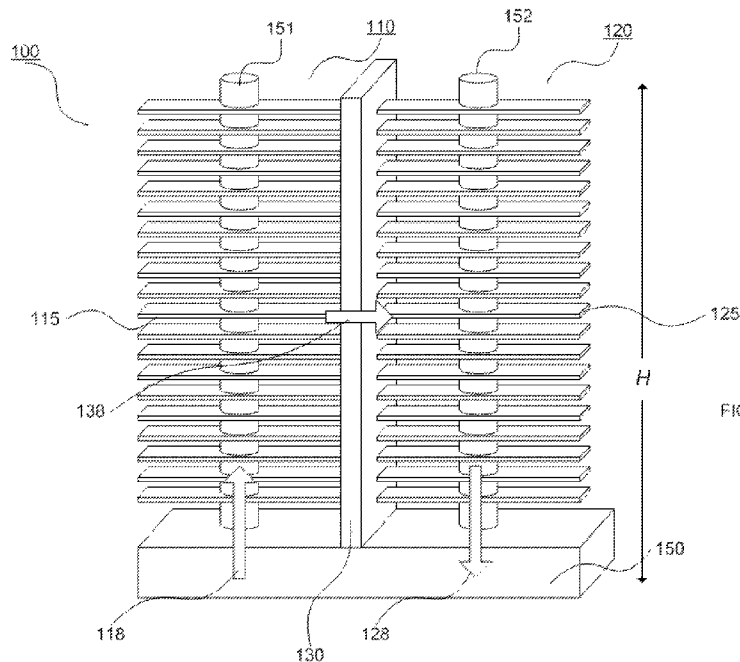


FIG. 1

(57) Abstract: Materials, components, and
methods are provided that are directed to the
fabrication and use of micro-scale channels
with a fluid for a heat exchange system,
where the temperature and flow of the fluid
is controlled, in part, through the macro-
scopic geometry of the micro-scale channel
and the configuration of at least a portion of
the wall of the micro-scale channel and the
constituent particles that make up the fluid.
Moreover, the wall of the micro-scale chan-
nel and the constituent particles are config-
ured such that collisions between the con-
stituent particles and the wall are substan-
tially specular. Accelerating and decelerat-
ing elements provided herein can be config-
ured with micro-scale channels which can
trace out a generally spiral path.



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