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(54) Title: MATERIAL WITHDRAWAL APPARATUS AND METHODS OF REGULATING MATERIAL INVENTORY IN ONE OR MORE UNITS

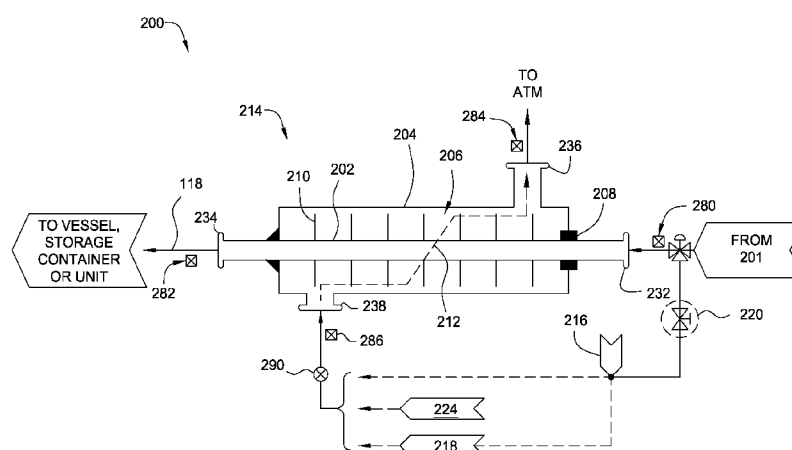


FIG. 2

(57) Abstract: Material withdrawal apparatus and methods and systems of regulating material inventory in one or more units are provided. A material withdrawal apparatus includes a heat exchanger and a sensor. The heat exchanger includes a material inlet, material outlet, cooling fluid inlet, and cooling fluid outlet. The material inlet is coupled to the unit and the sensor is coupled to the heat exchanger to provide a metric indicative of the temperature at the material inlet; material outlet; cooling fluid inlet and cooling fluid outlet. Another embodiment of a material withdrawal apparatus includes a vessel having an outer wall, liner, fill port, and a discharge port. The liner at least partially covers the inner surface of the outer wall. The fill port and discharge port are defined in the vessel and the fill port is configured to receive withdrawn material from at least a unit. Other embodiments provide methods of withdrawing or regulating material in a unit.