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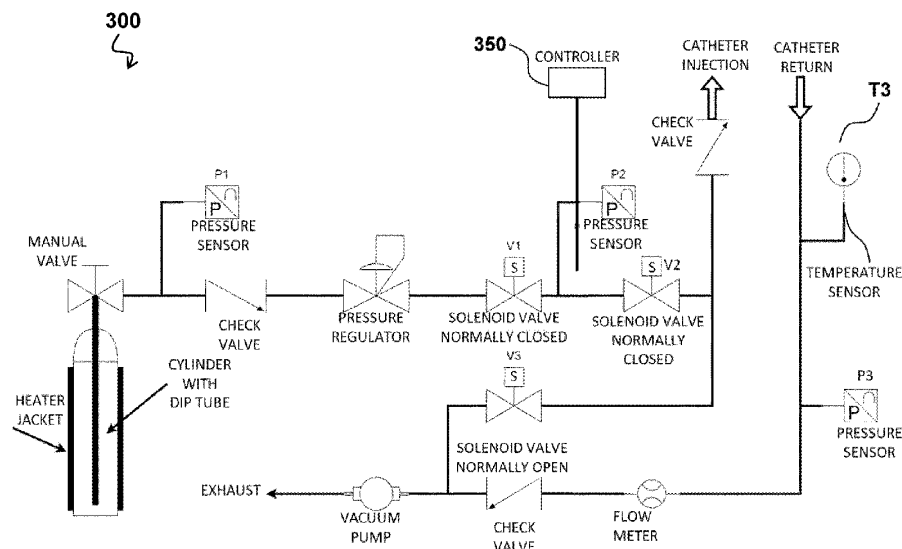


Figure 3

(57) Abstract: A temperature regulation method for a balloon catheter, the method comprising supplying cryogenic fluid to a balloon of the balloon catheter in at least two phases, the at least two phases comprising a cooldown phase and a regulation phase subsequent to the cooldown phase, wherein the cooldown phase comprises: coupling a source of the cryogenic fluid to the balloon; delivering the cryogenic fluid to the balloon via a flow control valve to cool the balloon; obtaining one or more temperature measurements for the balloon; determining, using the one or more temperature measurements, that a temperature of the balloon satisfies a first predetermined condition; and, in response to the determining, closing the flow control valve; and, wherein the regulation phase comprises repeating the following steps: obtaining one or more further temperature measurements for the balloon; determining, using the one or more further temperature measurements, whether a temperature of the balloon satisfies a second predetermined condition; and, if the temperature

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of the balloon satisfies the second predetermined condition, opening the flow control valve to increase supply of the cryogenic fluid to the balloon.