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(54) Title: METHODS AND SYSTEMS FOR STERILIZATION

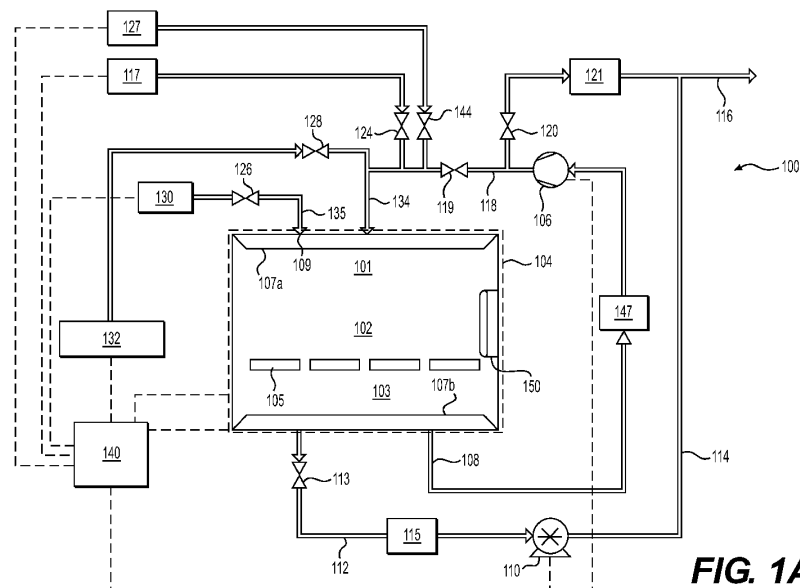


FIG. 1A

(57) Abstract: A sterilization method comprising: pre-conditioning a sterilization apparatus including a sterilization chamber (102) comprising a sterilization load (105), wherein pre-conditioning the sterilization apparatus includes increasing a temperature of a portion of the sterilization apparatus to a temperature greater than a maximum temperature of the sterilization load; executing a sterilization phase (206), wherein the sterilization phase (206) includes a plurality of sterilization pulses (420, 440, 460); and executing an aeration phase (208), wherein the aeration phase (208) includes a plurality of aeration pulses, wherein the plurality of aeration pulses includes: a primary aeration pulse comprising: achieving a first vacuum pressure (342) within the sterilization chamber (102), wherein the first vacuum pressure is less than 650 millibar; and after a first vacuum hold (344), increasing the pressure (346) of the sterilization chamber (102) to a pressure greater than 700 millibar; and a secondary aeration pulse comprising: achieving a second vacuum pressure (322)

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within the sterilization chamber (102), wherein the second vacuum pressure is less than 650 millibar; and after a second vacuum hold (324), adding air (326) to the sterilization chamber (102) while exhausting (328) the sterilization apparatus.