# LOW FLOW PERCUSSIVE RESPIRATORY APPARATUS AND RELATED TREATMENT

US 2019 247 599A1

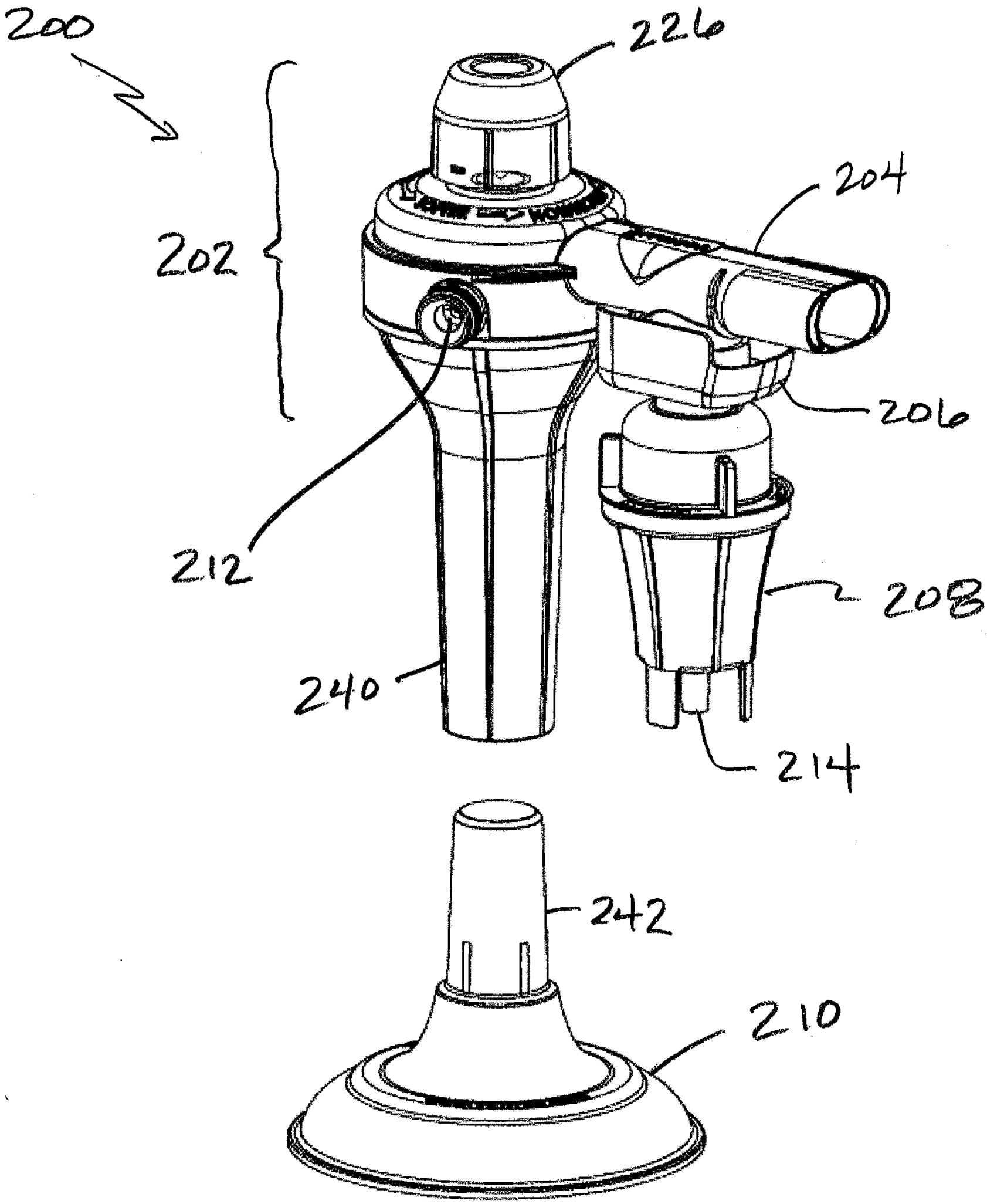
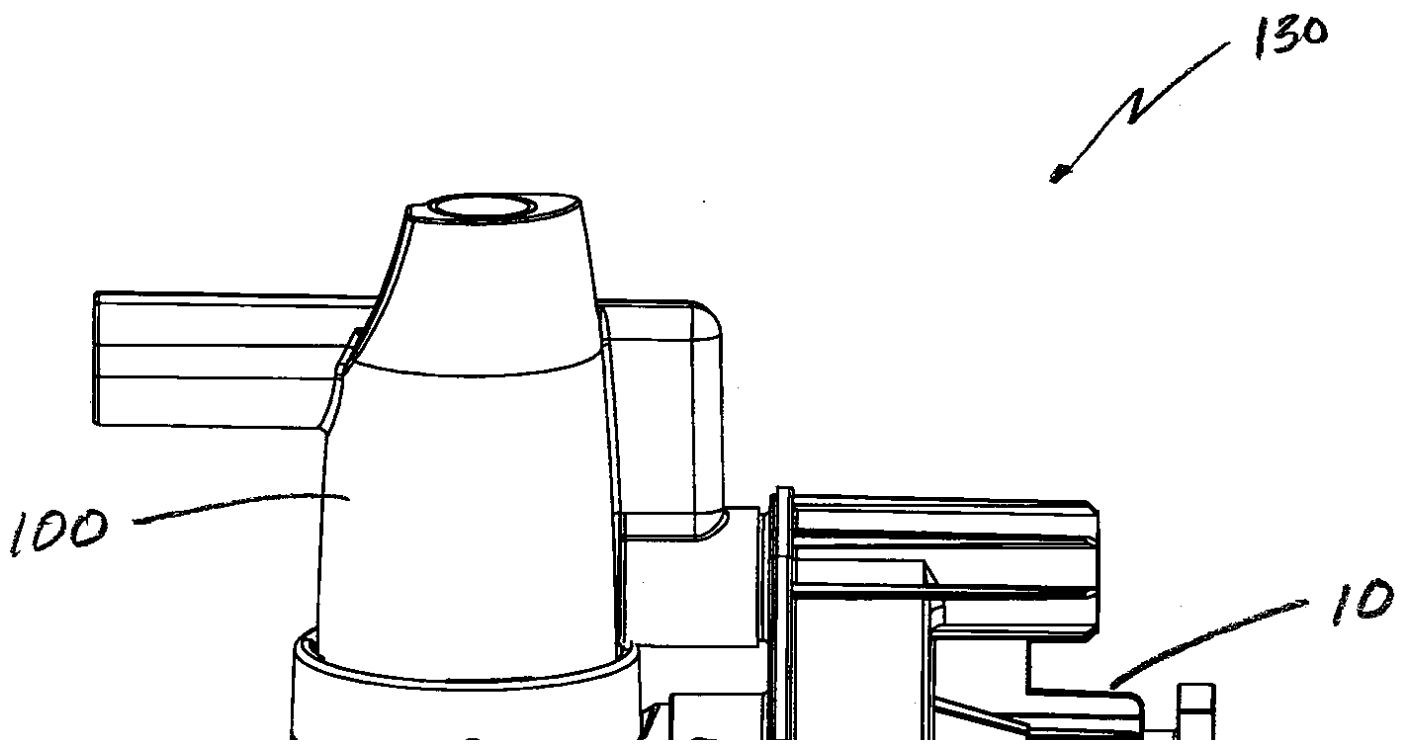
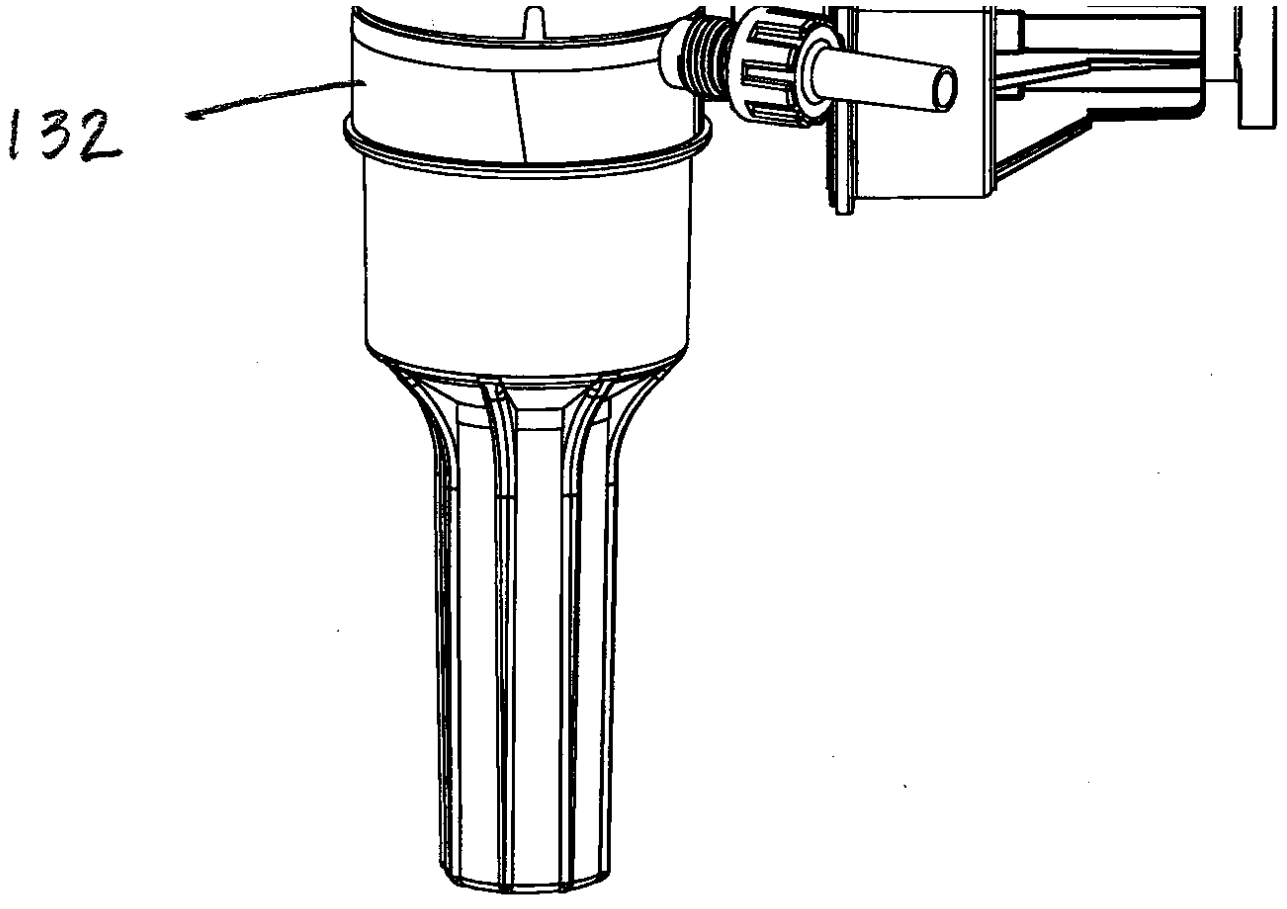


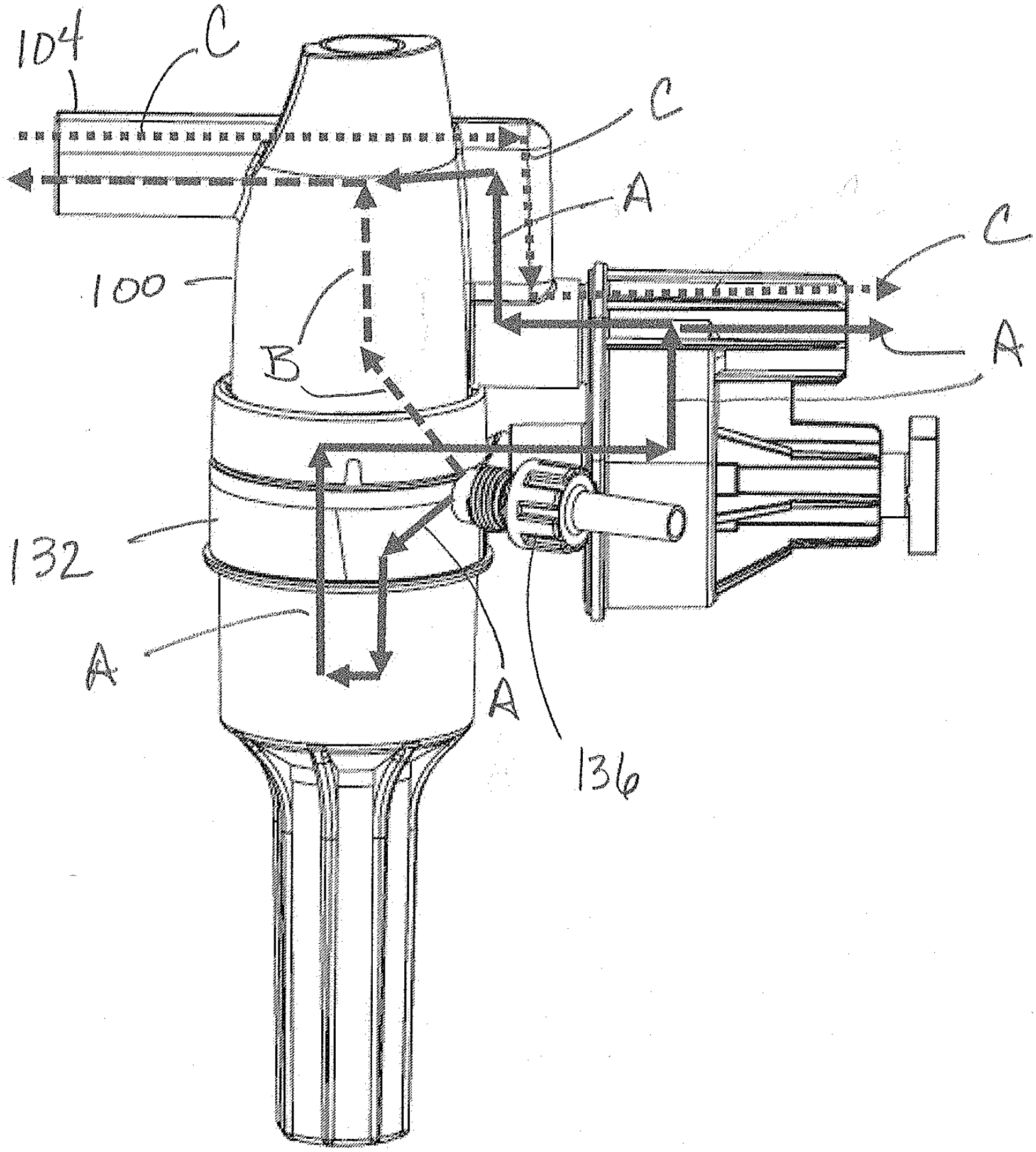

FIG. 1A






Prior Art

FIG 1B




Prior Art

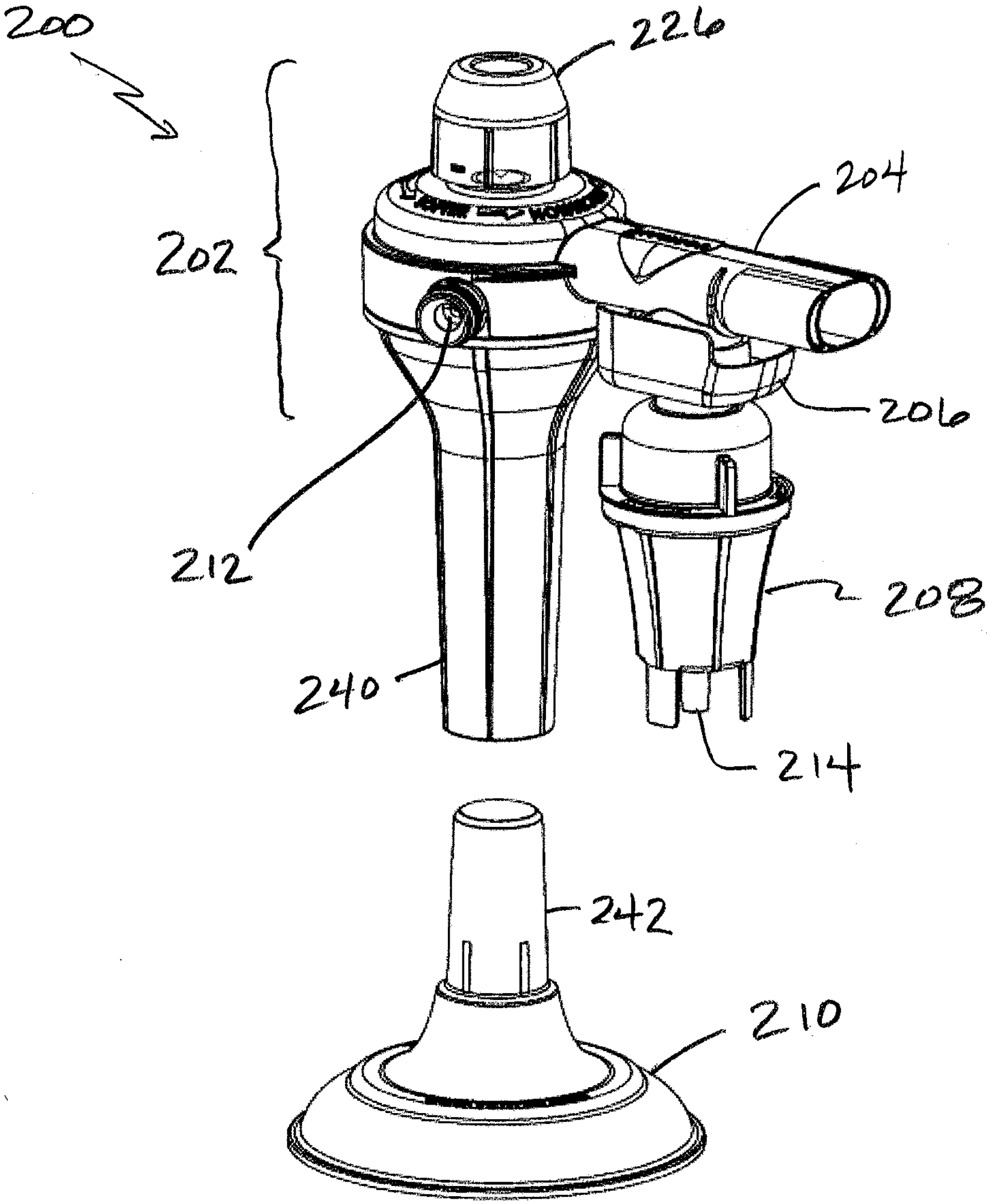



FIG. 2

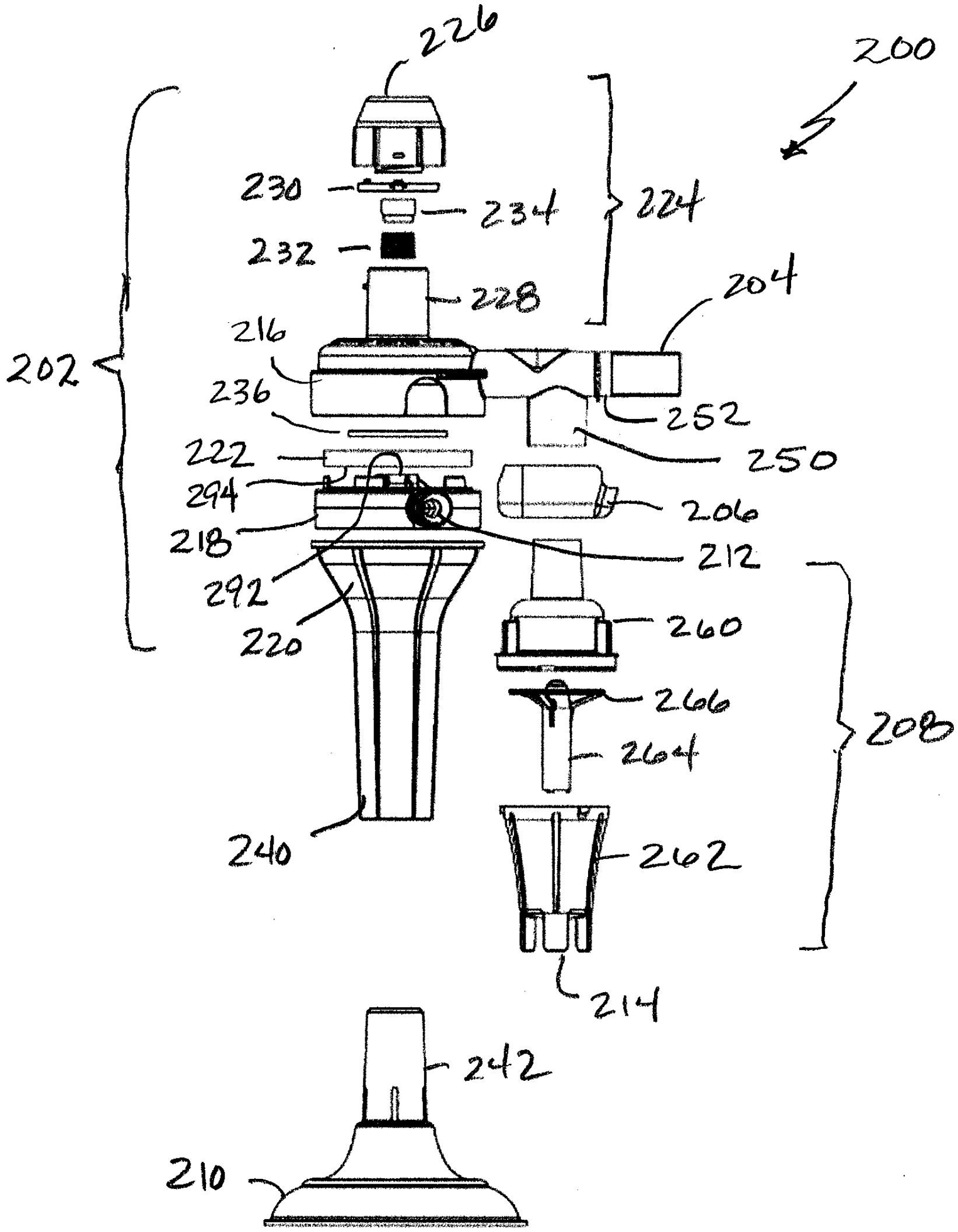

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FIG. 3

*FIG. 4*

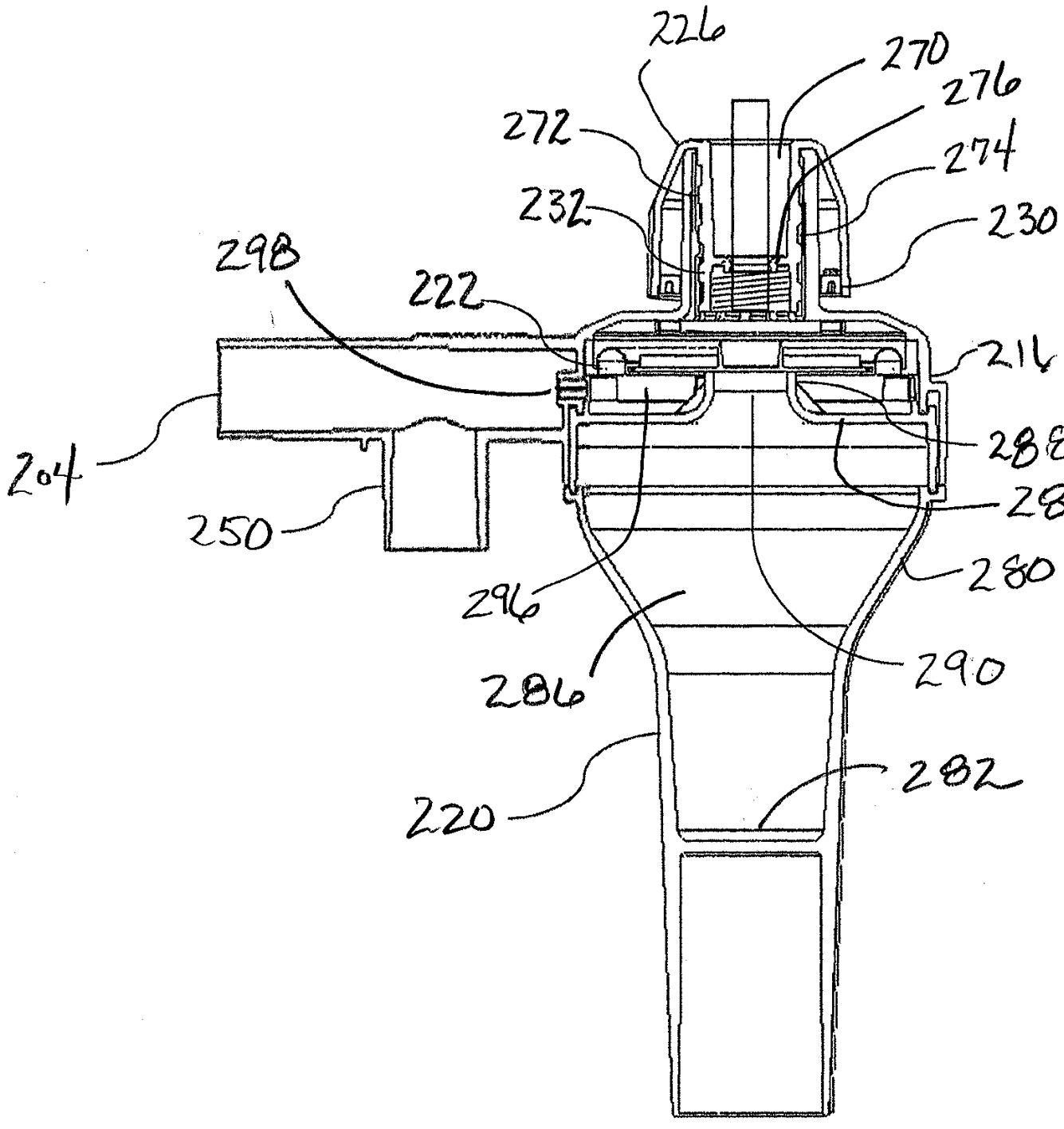
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FIG. 5

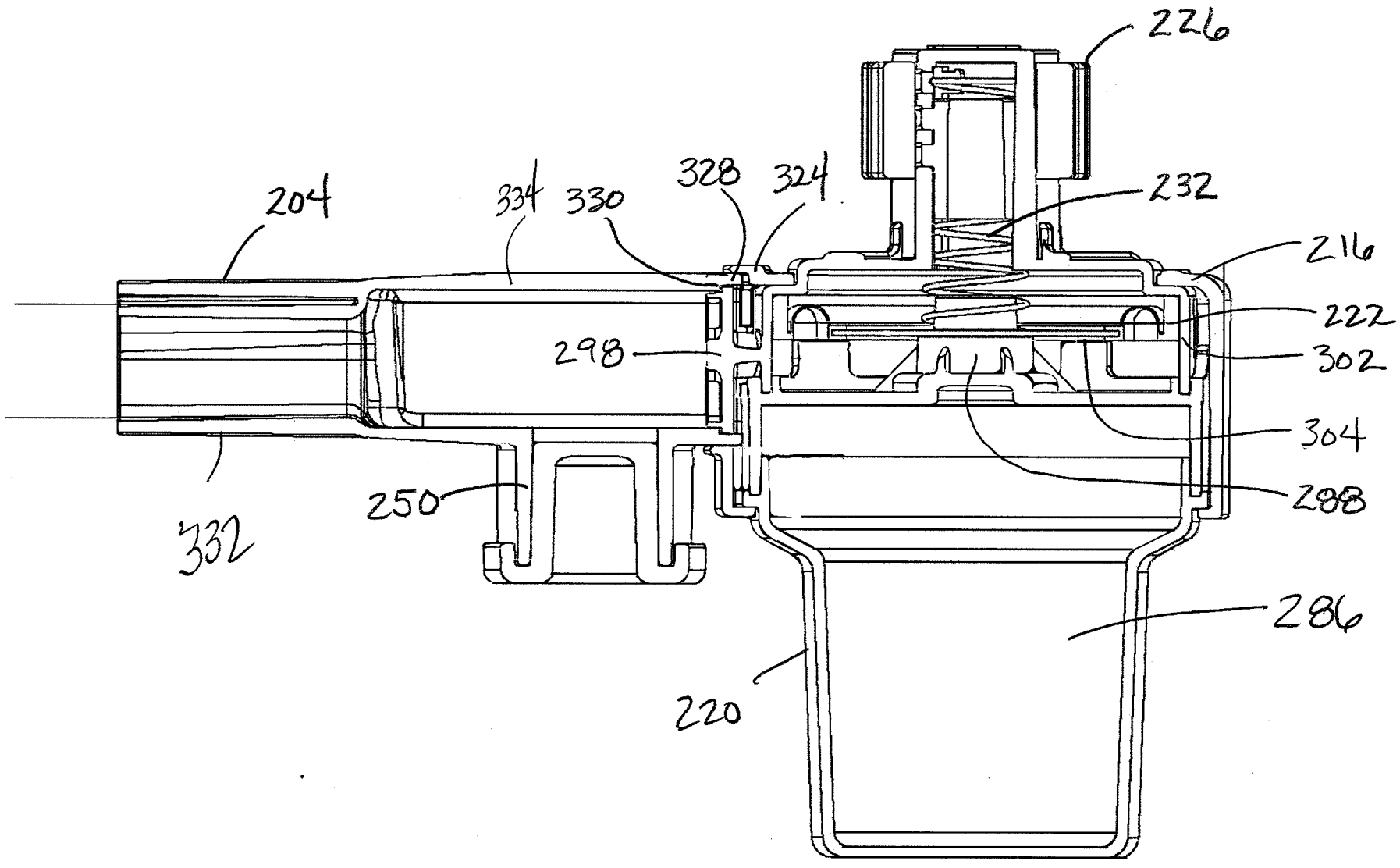
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FIG. 6A

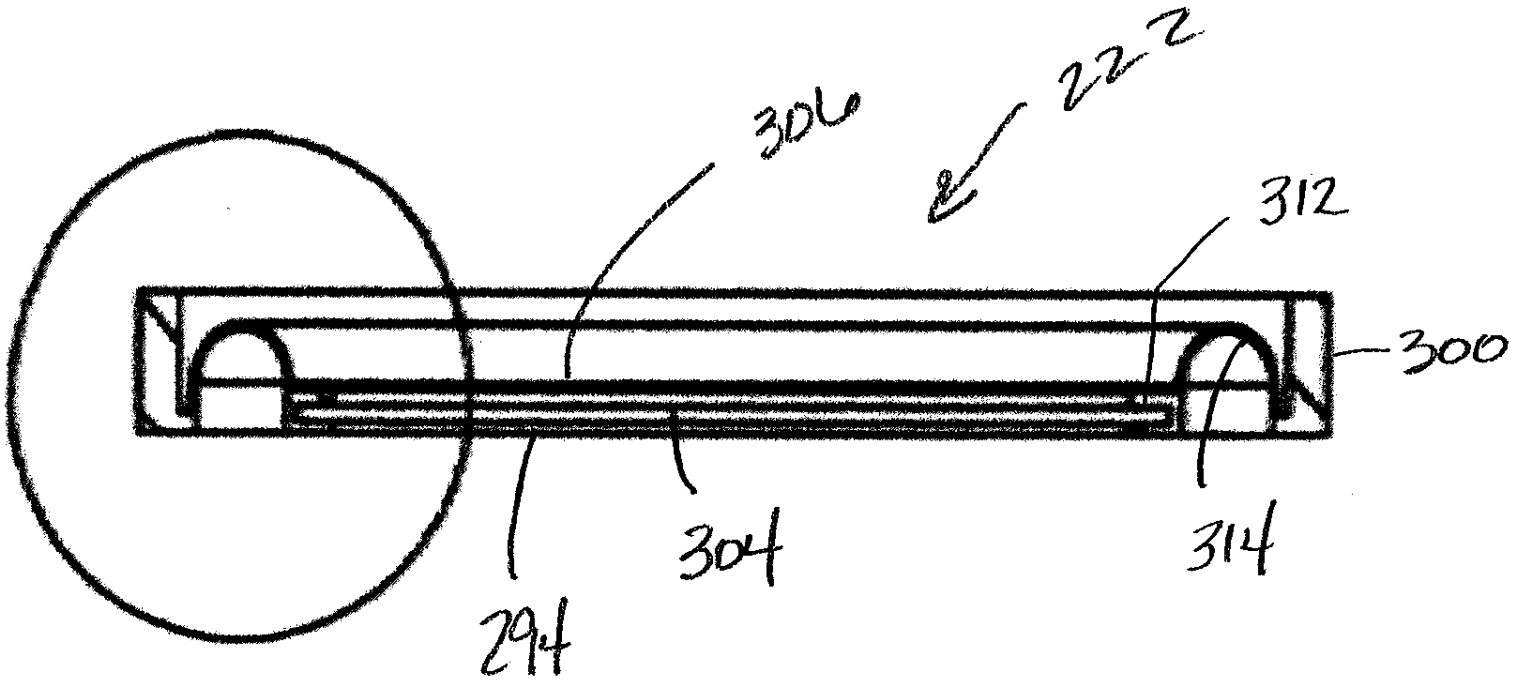


FIG. 6B

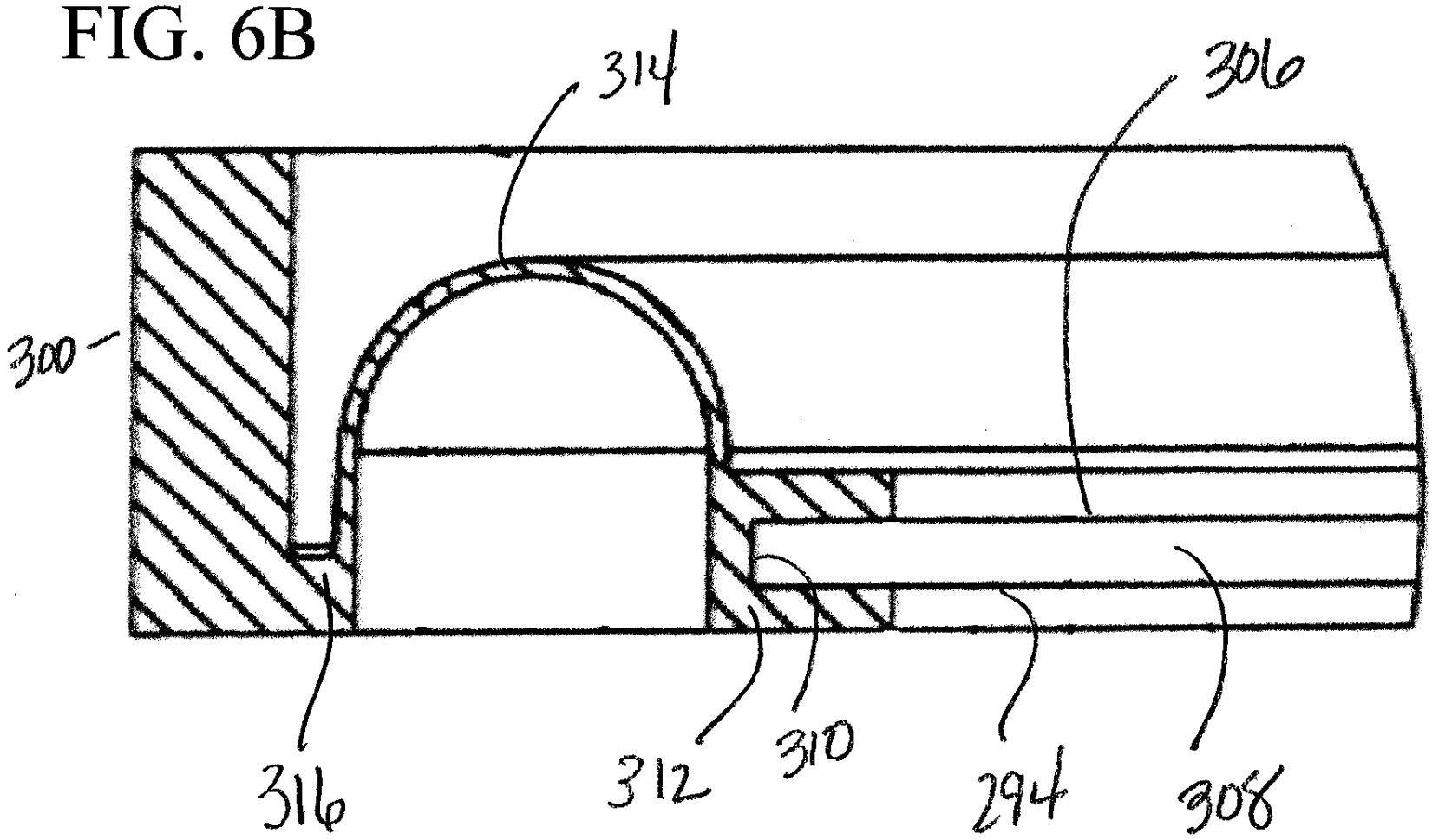

FIG. 7

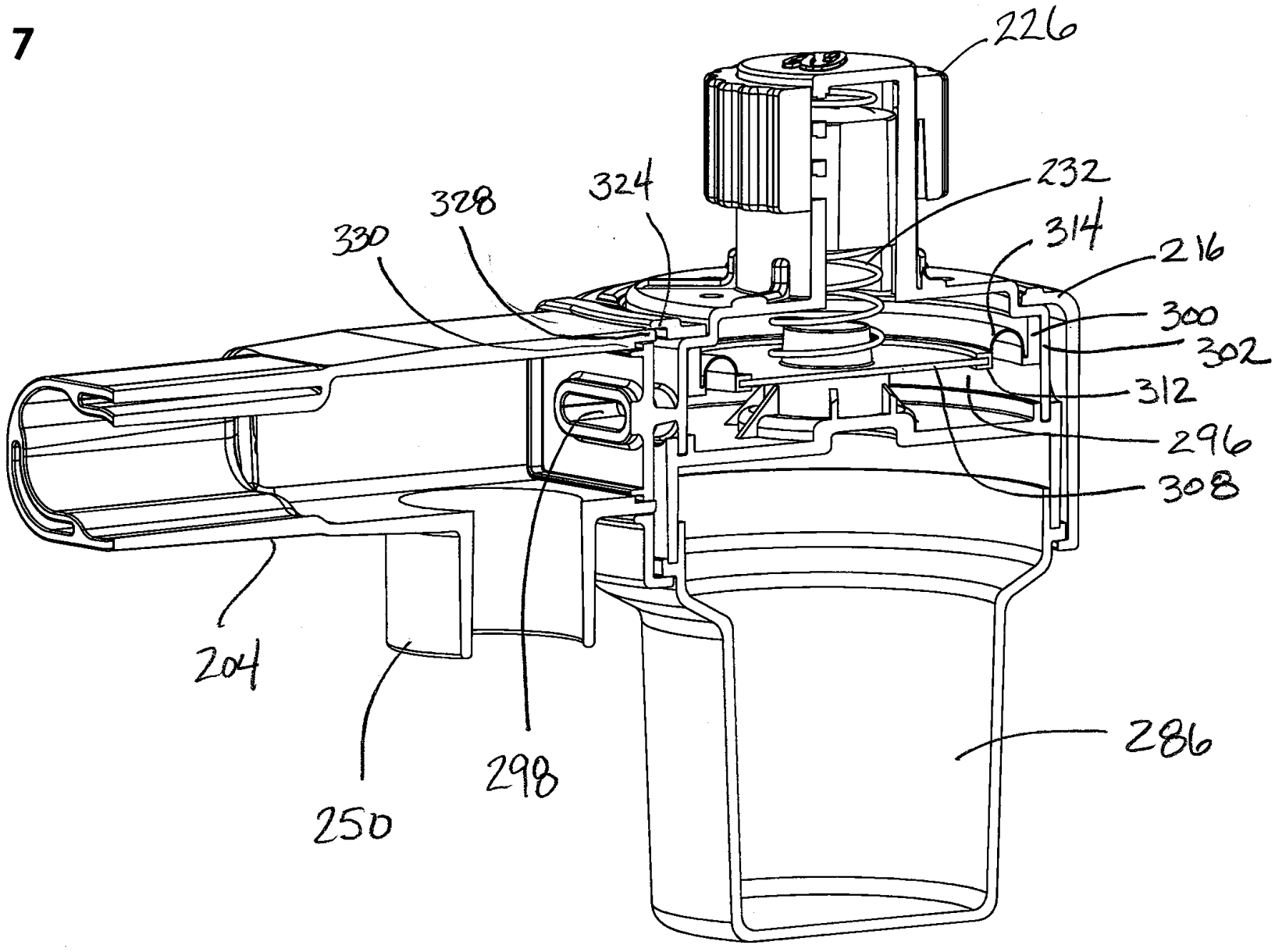
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FIG. 8

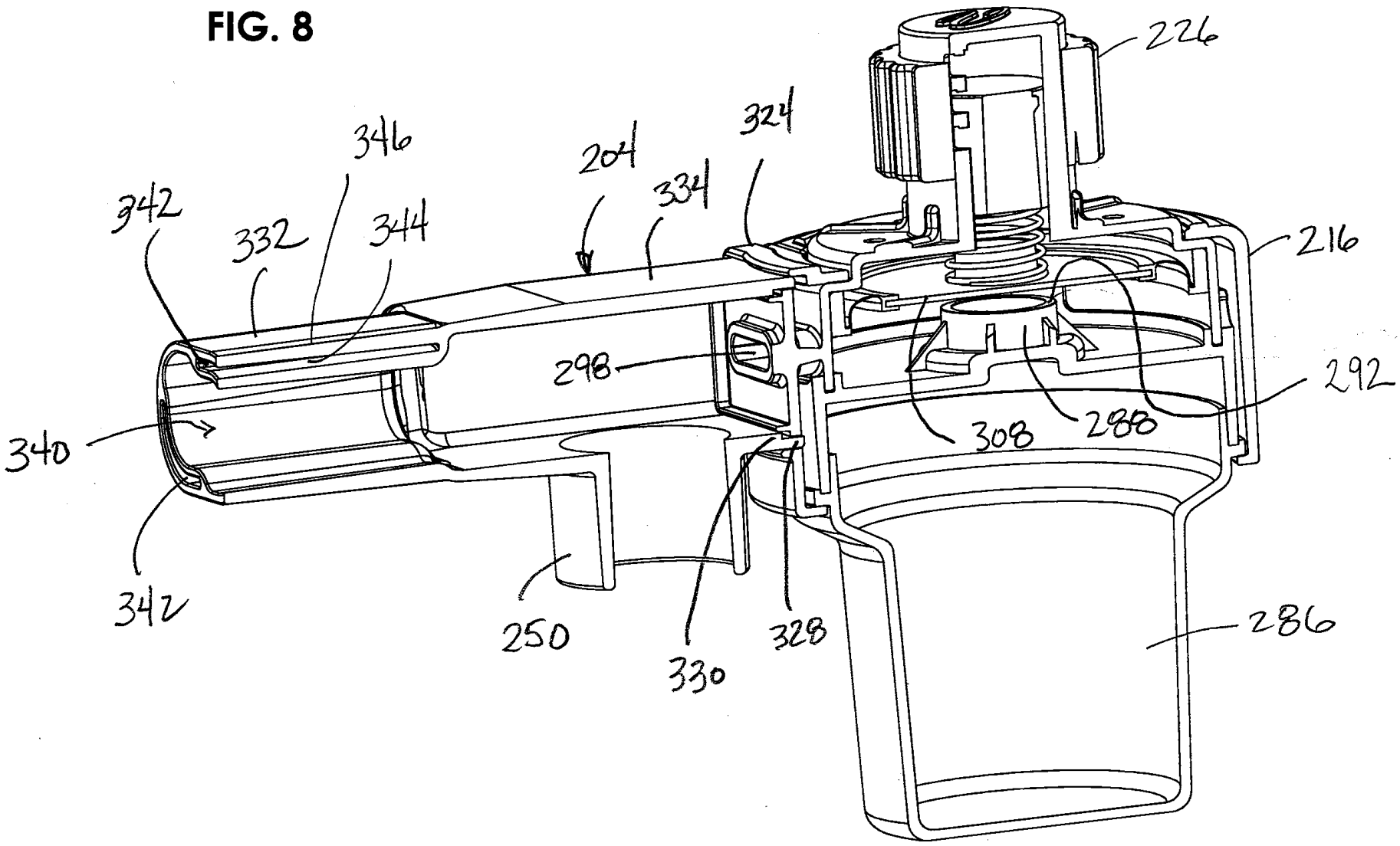
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FIG. 9

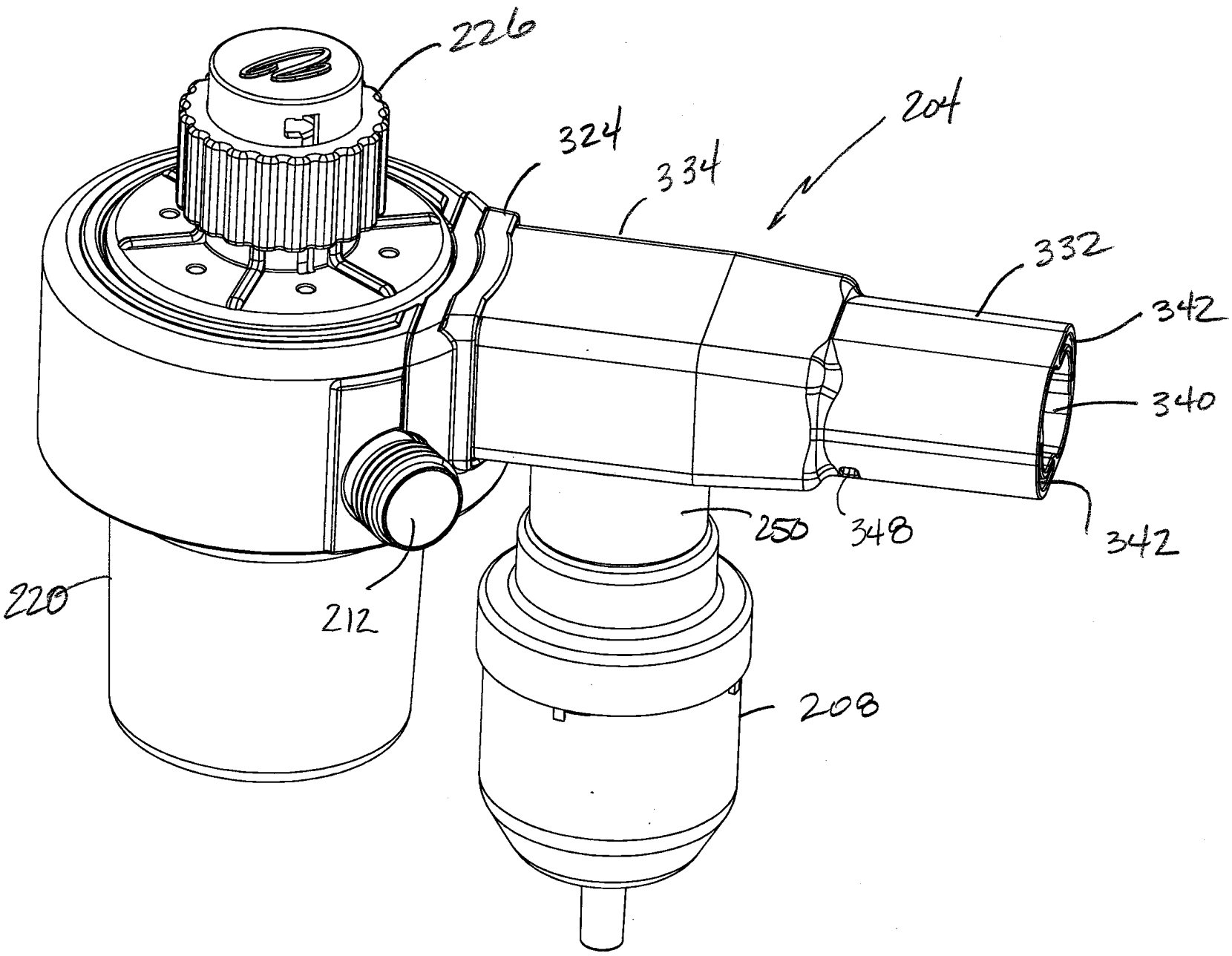
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FIG. 10

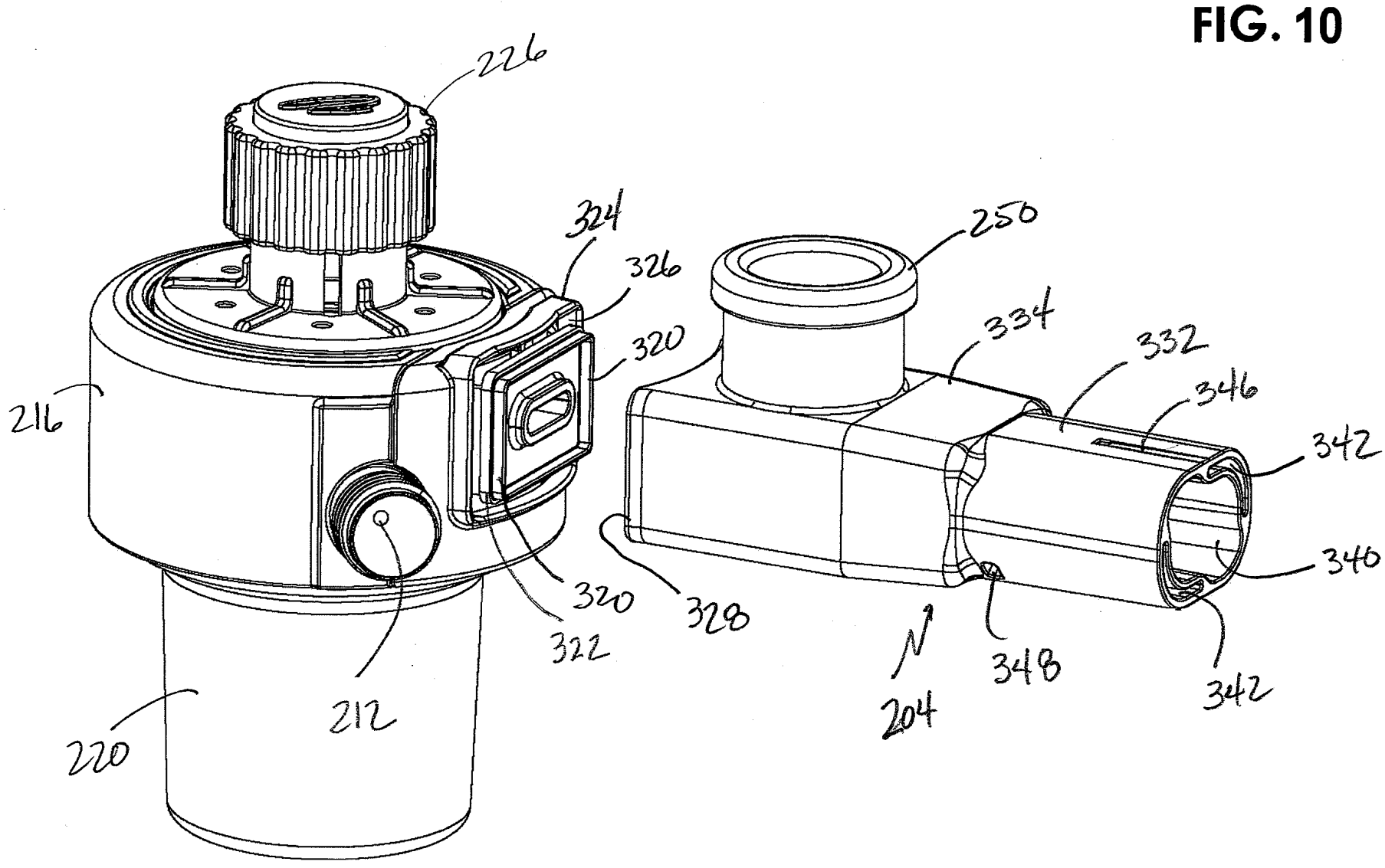
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FIG. 11A

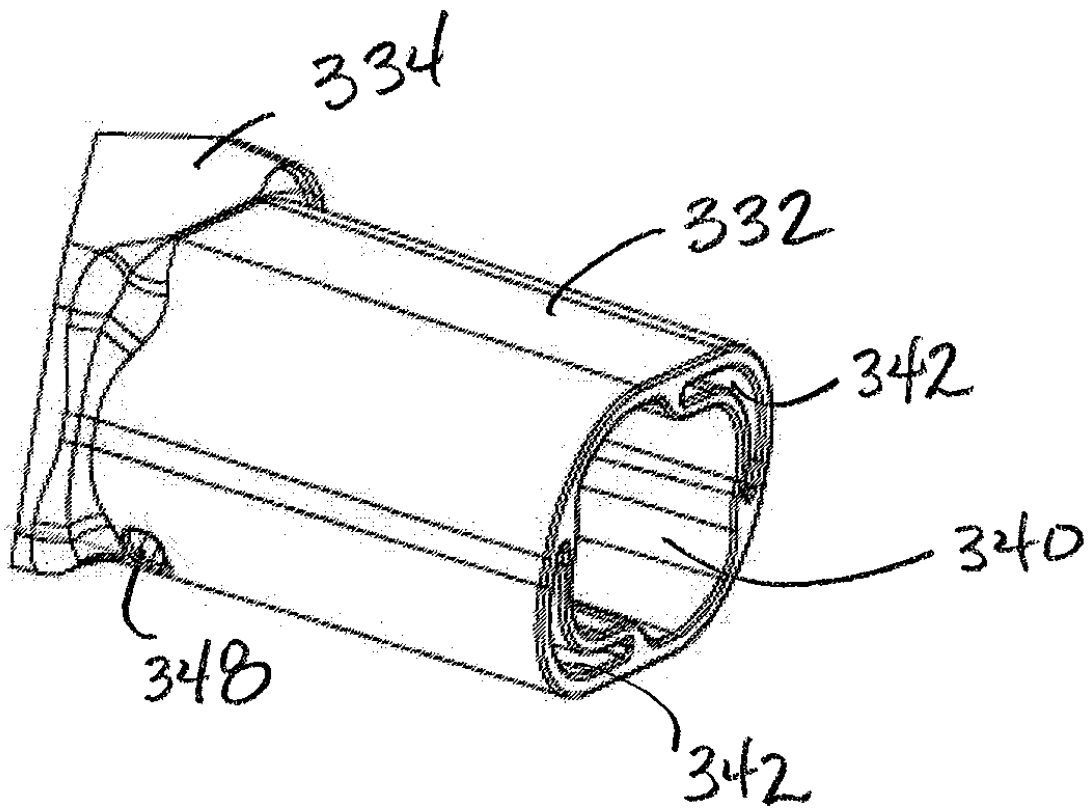



FIG 11B

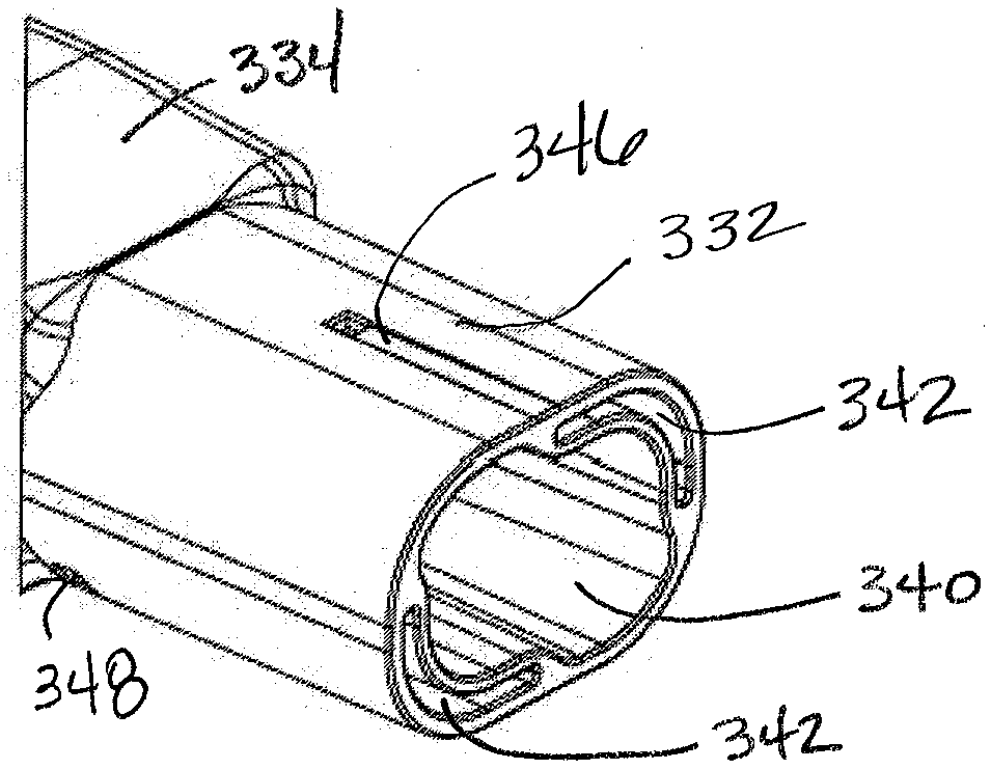



FIG 11C

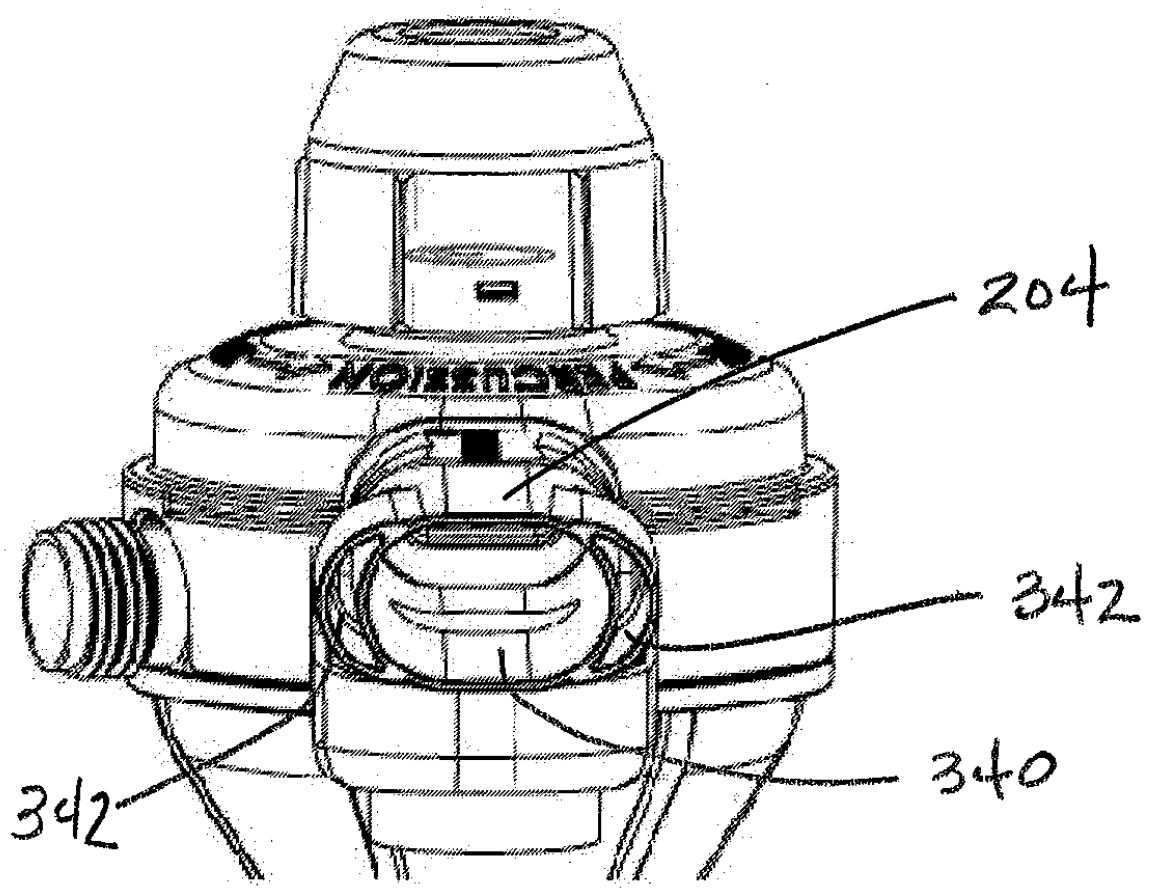


FIG.12A

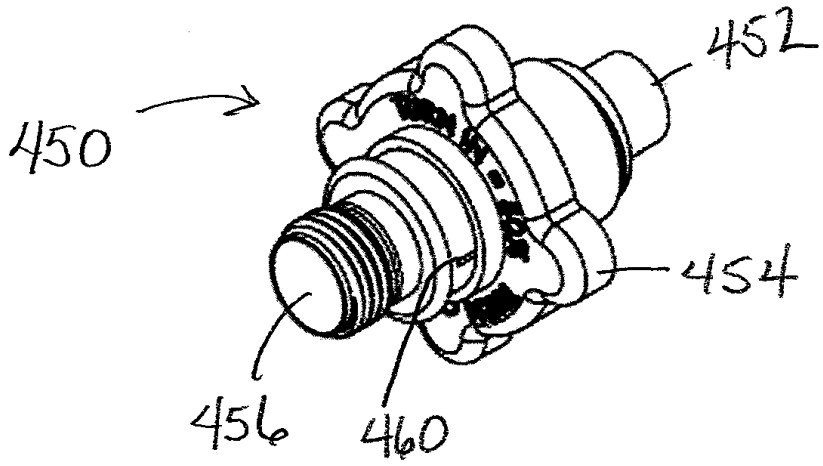



FIG.12B

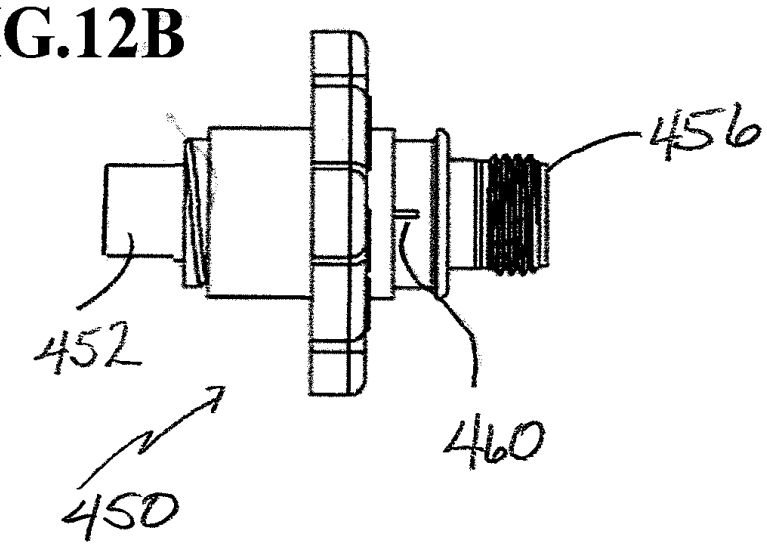
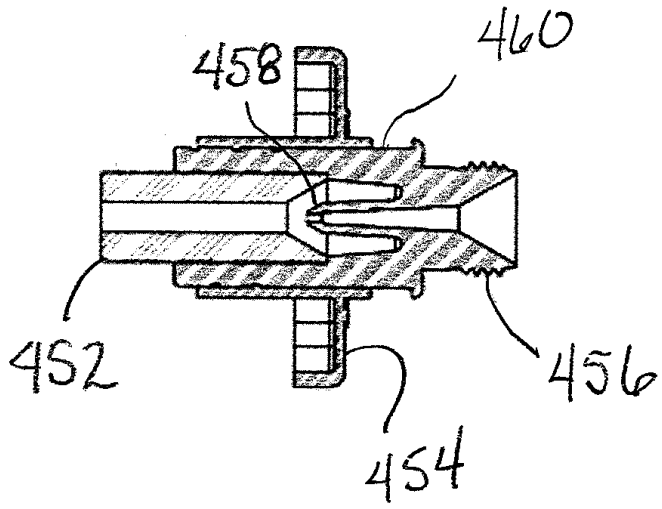



FIG. 12C




Hide drawings

A valve assembly attached to a capacitor such that pressurizing the capacitor to a first positive pressure threshold induces the valve assembly to open, the pressurized air is released to the patient, and then as the pressure in the capacitor drops to a second pressure threshold the valve closes and the capacitor begins to build pressure until the first positive pressure threshold is achieved and the process repeats. Relative to the valve assembly and integrated therein, is an incrementally adjustable index knob to vary the rate of a biasing force performing work against the actionable valve face of the diaphragm functional surface to set the performance of the valve assembly, thereby increasing the potential for correct operation across a range of oscillating rates supporting a broad spectrum of patient therapies and types.

## Claims

**1**. A percussive respiratory apparatus, comprising:

a pneumatic valve assembly having a housing, a diaphragm positioned in the housing that moves between a first position and a second position, a first fluidic communication port, wherein the diaphragm abuts and closes the fluidic communication port when in the first position and is spaced from the first fluidic communication port in the second position, and a second fluidic communication port spaced from the first fluidic communication port;

a biasing member positioned on a first side of the diaphragm and applying a force on the diaphragm to move the diaphragm from the second position to the first position;

an adjustable knob associated with the biasing member to vary the force applied by the biasing member on the diaphragm;

a gas receiving chamber in fluidic communication with the first fluidic communication port;

a patient interface in fluid communication with the second fluidic communication port, wherein the patient interface includes a divided lumen having at least a first pathway adapted to provide an inhalation fluid and at least a second pathway adapted to channel exhalation fluid away from a patient;

wherein when the diaphragm moves from the first position gas within the gas receiving chamber moves through the first and second fluidic communication ports to the patient interface through at least the first pathway, when the diaphragm is in the first

position, no gas exits the receiving chamber, and at least the second pathway is configured to receive gas exhaled from a patient.

Show 19 dependent claims

## Description