



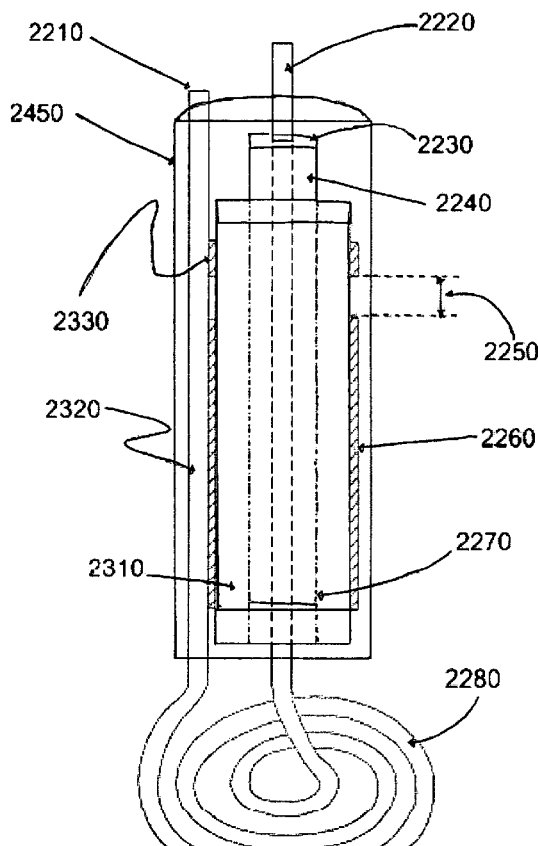
US 20200155221A1

(19) **United States**(12) **Patent Application Publication**
Marchitto et al.(10) **Pub. No.: US 2020/0155221 A1**(43) **Pub. Date: May 21, 2020**(54) **INDUCTIVE HEATING OF TISSUES USING
ALTERNATING MAGNETIC FIELDS AND
USES THEREOF**(52) **U.S. Cl.**CPC *A61B 18/14* (2013.01); *A61N 2/002*
(2013.01); *A61B 2018/00452* (2013.01); *A61N*
2/02 (2013.01); *A61N 2/004* (2013.01)(71) Applicant: **ROCKY MOUNTAIN
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(57)

ABSTRACT(72) Inventors: **Kevin S. Marchitto**, Golden, CO (US);
Stephen T. Flock, Arvada, CO (US)(21) Appl. No.: **16/600,677**(22) Filed: **Oct. 14, 2019****Related U.S. Application Data**(63) Continuation of application No. 12/927,746, filed on
Nov. 23, 2010, now Pat. No. 10,441,346, which is a
continuation-in-part of application No. 12/080,897,
filed on Apr. 7, 2008, now Pat. No. 10,271,900.(60) Provisional application No. 60/922,249, filed on Apr.
6, 2007.**Publication Classification**(51) **Int. Cl.***A61B 18/14* (2006.01)
A61N 2/00 (2006.01)
A61N 2/02 (2006.01)

Provided herein are methods and devices for inductively heating a tissue to effect a biological response in the tissue or in a biomolecule comprising the same. The methods and devices comprise means for applying a high frequency alternating magnetic field via an inductive coil comprising an applicator to the tissue and means for monitoring feedback from the alternating magnetic field to control and/or adjust heat, for example, in the tissue, which further includes a means for cooling the tissue. Particularly, the device may be a hand held piece that incorporates or has at least an applicator, including a radiofrequency energy generator and output, an inductive coil, an impedance matching system, a cooling system, including a thermally conductive surface and a coolant housing containing a coolant that circulates through the thermally conductive surface, and a feedback monitor. Optionally, the device may comprise a tissue-shaper.



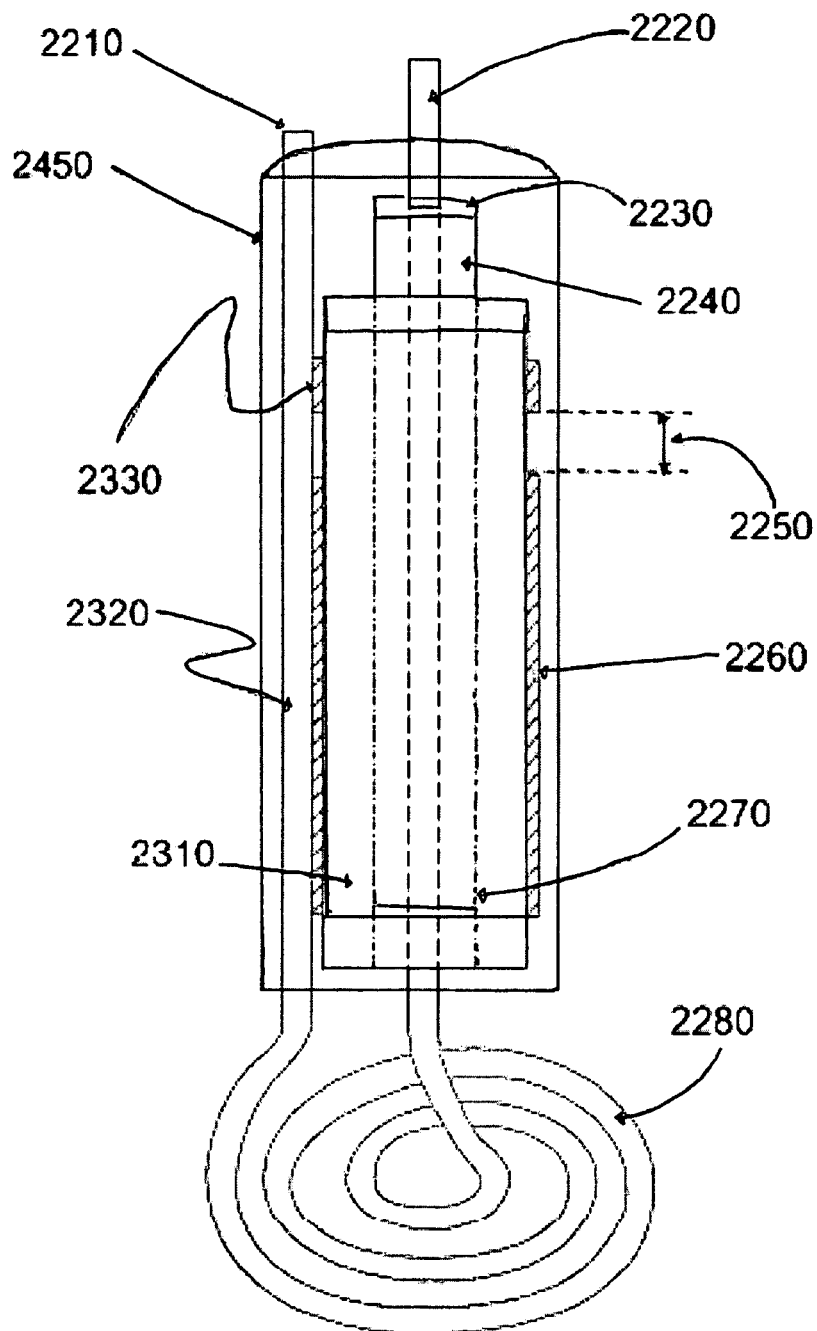


FIG. 1

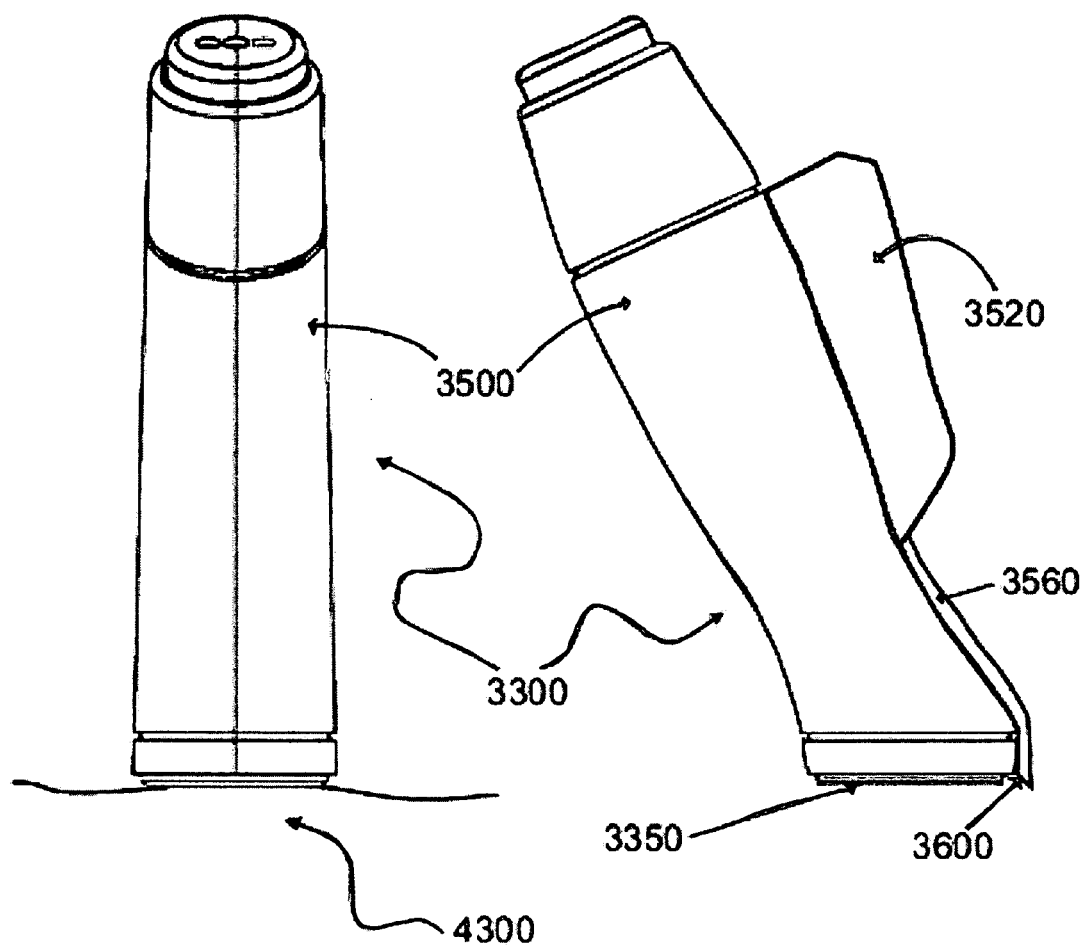


FIG. 2A

FIG. 2B

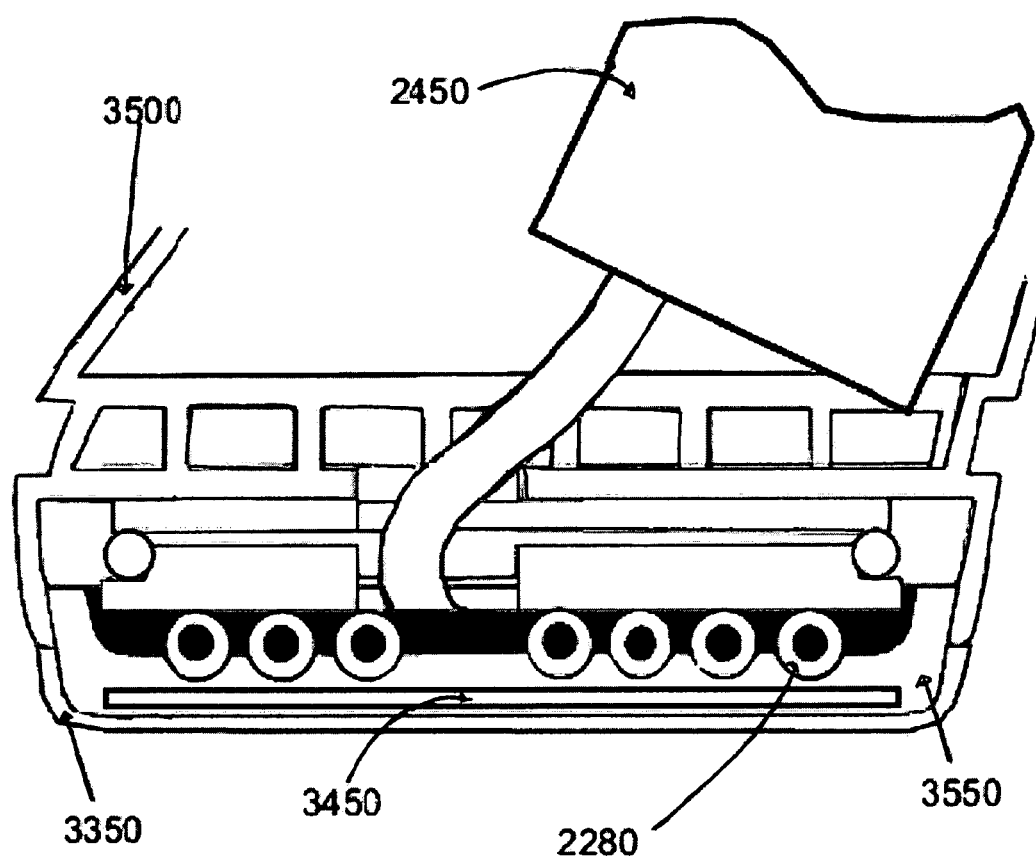


FIG. 3

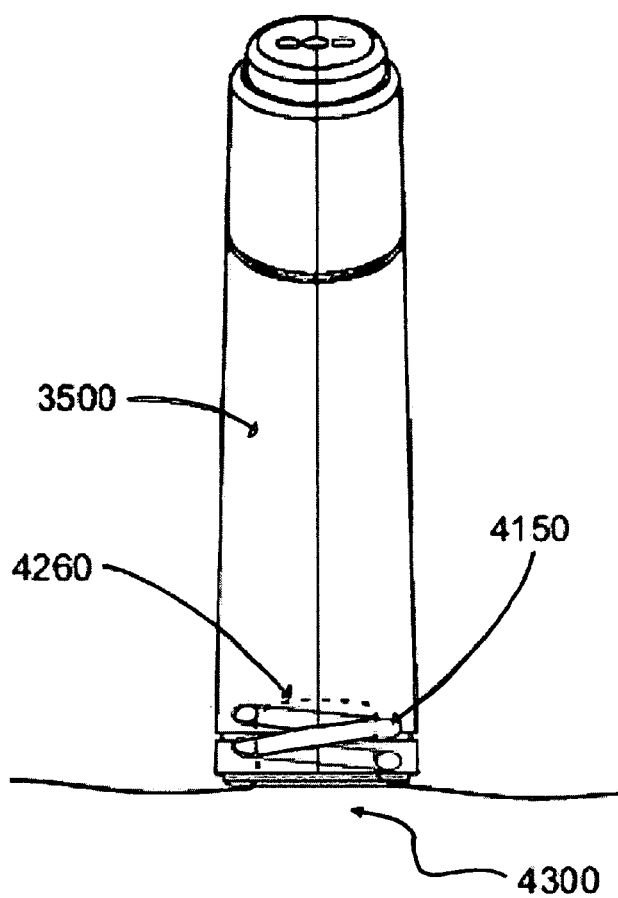


FIG. 4

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