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Marchitto et al.

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(54) **INDUCTIVE HEATING OF TISSUES USING
ALTERNATING MAGNETIC FIELDS AND
USES THEREOF**

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patent is extended or adjusted under 35
U.S.C. 154(b) by 175 days.

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(58) **Field of Classification Search**

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Primary Examiner — Michael F Peffley

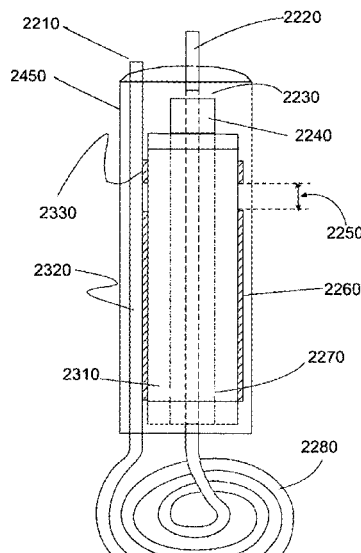
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(57) **ABSTRACT**

The present invention improves the cosmetic appearance of skin by controllably heating a superficial layer of skin thereby inducing acute tissue contraction or shrinkage and a wound response leading to the production of biomolecules, all of which result in improved cosmesis. The invention incorporates a source of radiofrequency electrical energy coupled to coil, with requisite impedance matching network, thereby resulting in the production of an alternating magnetic field. When tissue is brought into proximity of the alternating magnetic field, inductive heating of the tissue results as a consequence of either or both of dipole formation and oscillation, and eddy current formation. Optionally, cooling is provided to remove heat from the coil, the source of radiofrequency electrical energy, or the surface of the skin alone or in combination. The invention exhibits the significant benefits of, among other things, being non-invasive, not requiring electrical contact with the body of the subject, and providing controllable heating only to a thin layer of tissue.

16 Claims, 10 Drawing Sheets



- (51) **Int. Cl.**
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- (58) **Field of Classification Search**
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Fig 1

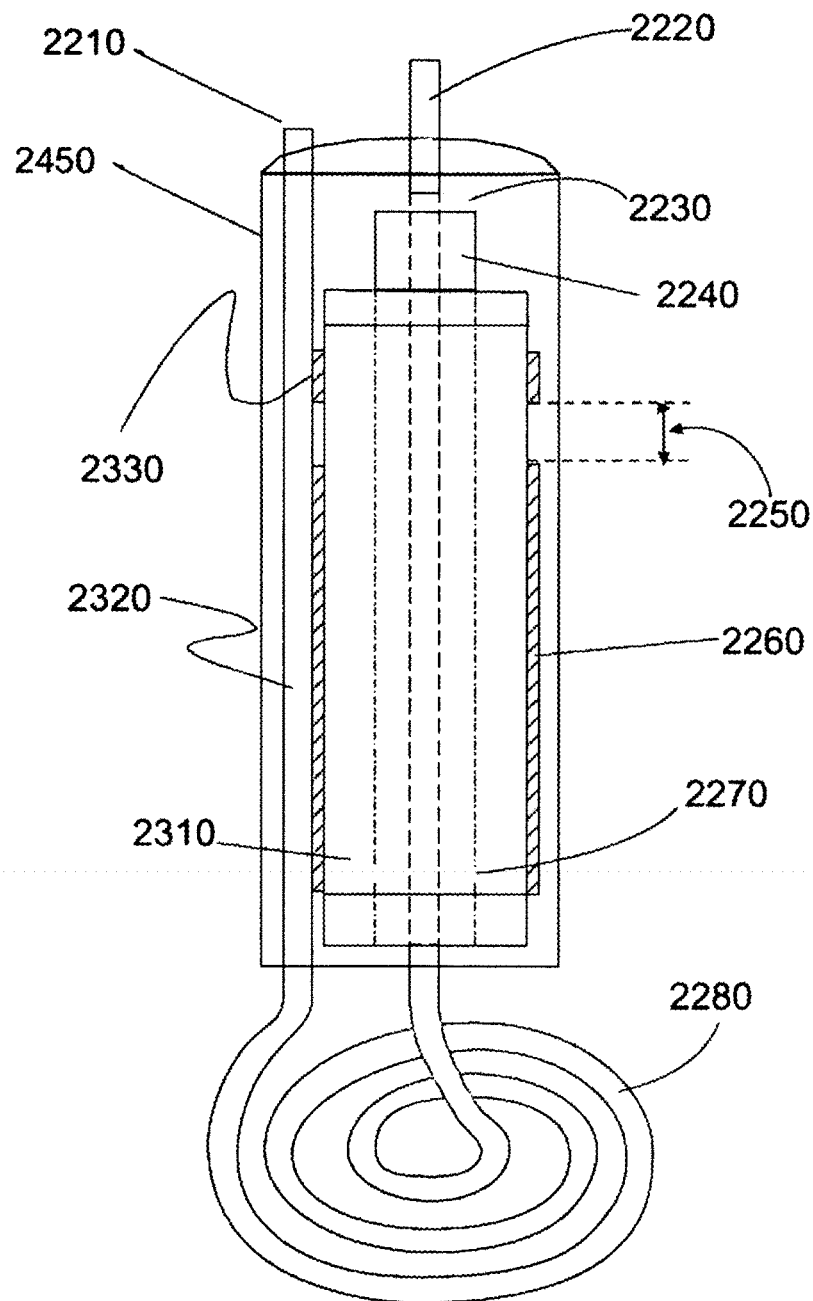


Fig 2

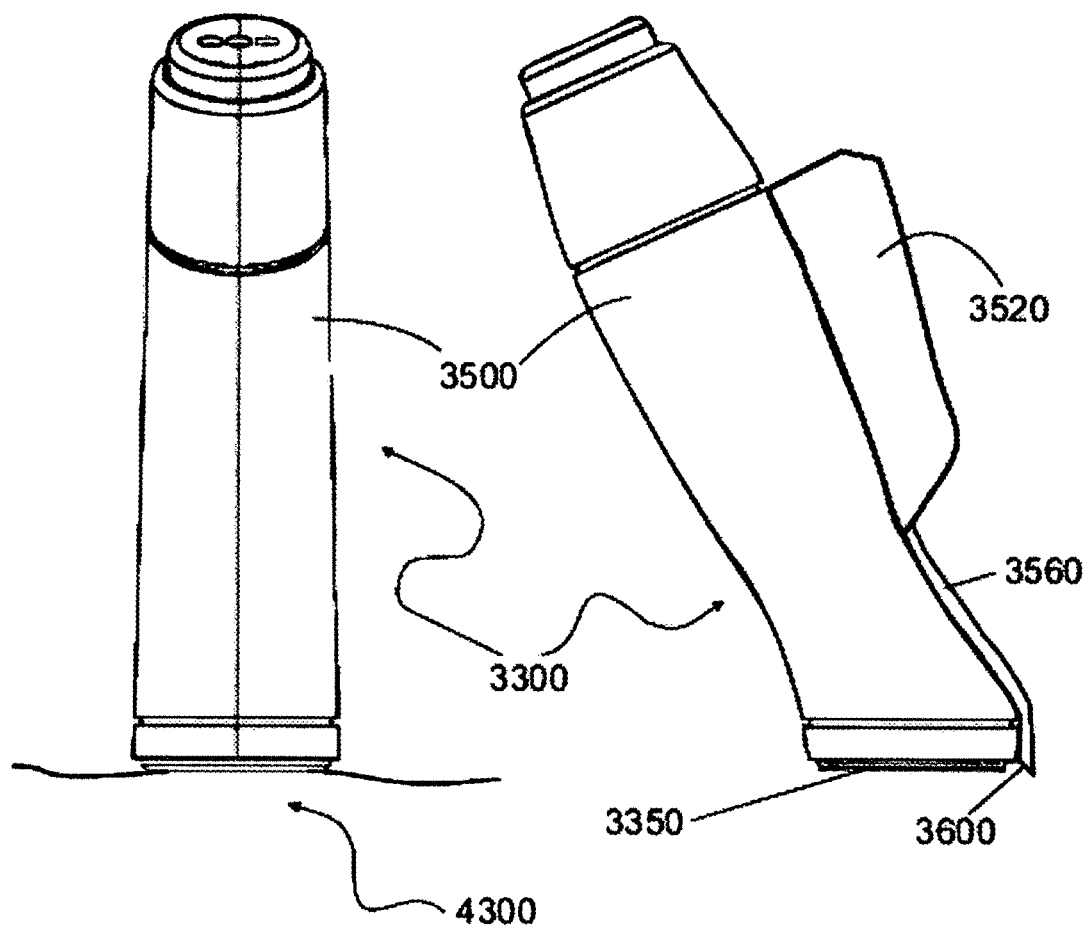
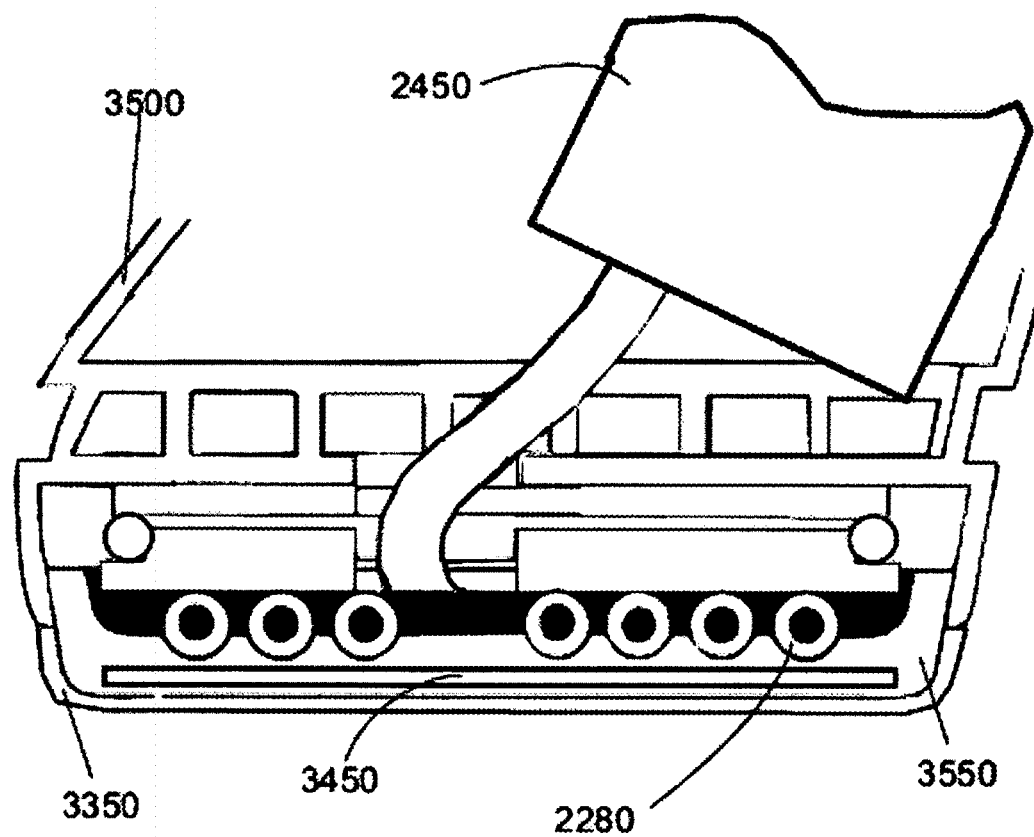


Fig 3



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