Southern Illinois University System

Systems and Methods for Magnetic Induction of Penile Prosthesis

Erectile dysfunction (ED) is a multifactorial disease that affects approximately 30 million American men and is continuing to increase along with the upsurge in diabetes, hypertension and cardiovascular disease. When first line and second line medications or direct injections fail, surgical implantation of a penile prostheses offers a permanent solution. Two broad classes of penile prostheses are typically used, the inflatable prosthesis and the semi-rigid prosthesis. The inflatable penile prosthesis relies on a closed system of reservoirs, pumps, valves and hydraulic pressure being more complex and prone to mechanical failure. The semi-rigid prosthesis is simpler and more reliable but appears constantly erect, exerts more force on the surrounding tissues and has an increased risk for erosion.

Applications

- Penile prosthesis

Inventors

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Invention

SIU researchers have developed a penile prosthesis that works through magnetic induction. The magnetic induction system includes a wand that has a coil arrangement, covered with a thermal and electrical insulator sheath, which operates to generate an alternating magnetic field. The penile prosthesis may be made from a shape memory material such that the application of alternating magnetic fields generated by the magnetic induction system induces eddy currents that raise the temperature of the penile prosthesis above the austenitic transformation temperature allowing the penile prosthesis to achieve an erect state.

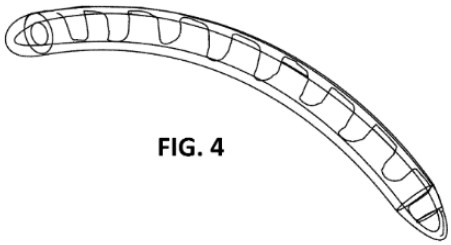

FIG. 4

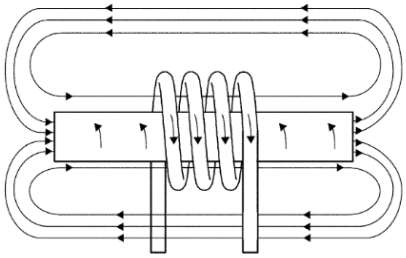

FIG. 5

Key Advantages

- Simple system which is easier to implant and less prone to failure
- System response is highly tunable based on electrical current

Status

U.S. patent #10,195,034 was issued on February 5, 2019, and U.S. patent application #16/230,905 was filed on December 21, 2018. The technology is available for license.

Other opportunities related to this technology, included but not limited to sponsored and/or collaborative research, may be available. Please reach out to the designated contact identified at left for more information.

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