Partially degradable glaucoma stent for controlled intraocular pressure reduction

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Technology description

UNMET NEED

There are a number of parameters that affect the electrospinning process including polymer, solvent, polymer: solvent ratio, flow rate, voltage, distance to collector, collector type and speed, and needle size.5 Typical electrospinning setups allow for the manufacture of aligned or random fiber mats composed of nano- or micro-fibers. These setups usually do not have precise control of each of the parameters that affect the process, and also do not allow for simple interchange of collector types. And while several modifications have been made to the needle, spinneret, and spraying process to allow for different fibers and conformations, there has been little innovation in collector type.

PROBLEM SOLVED

Johns Hopkins inventors have developed a unique and scalable system that provides for the manufacture of polymeric fibers ranging from the nano- to micro-scale in the form of both traditional mats and monofilaments as well as in the manufacture and uniform coating of medical devices such as sutures and stents in a sterile manner. The system is highly controlled, allowing for facile adjustment of distance to collector, voltage, flow rate, rotation direction, and rotation speed.

Advantages

•The inventors have developed two unique applications for this advanced electrospinning techniques.
•Ultra-thin, High Strength, Absorbable Sutures Capable of Controlled Drug Release
•Partially degradable glaucoma stent for controlled intraocular pressure reduction

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