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Medical/Surgical Instrument-Bending Device

Tech ID: 32535 / UC Case 2021-617-0

ABSTRACT

Researchers at the University of California, Davis have developed a device that allows needles to be reliably and easily bent to a range of specified and reproducible angles. The device also enables protection of the needle tip and the maintenance of needle sterility during bending.

FULL DESCRIPTION

Bending a needle or other medical or surgical instrument in a point-of-care setting or other point-of-use setting can involve certain challenges. If a user must manually bend the instrument in their hands, it may be difficult to form a bend having the necessarily precise angle or curvature and/or to create multiple bends having uniform angles and/or curvatures. A purely manual technique tends to be slow, inefficient, and increased handling could raise the risk of compromising the sterility or aseptic condition of the instrument. In the case of bending a hollow needle, a user may inadvertently crush the lumen of the needle, blunt the tip of the needle, and/or cause other structural damage as a result of applying excessive force to the needle.

Researchers at the University of California Davis have developed a medical/surgical instrument-bending device that overcomes the aforementioned challenges. The device is comprised of a handle and a head which serves as a bending die. The head contains a groove, an arch, and a slide slot. A needle/surgical instrument is then bent by being passed through the head's side slot till it is underneath the arch, then rolling the device along the needle. A series of markings allows specified and precise angles to be reliably reproduced. An estimated 8 million procedures are performed in the US annually that could be improved by this device. Other advantages of the device include the ability to bend a needle/surgical instrument at any desired point along its length, protect the tip of the needle, and maintain instrument sterility.

APPLICATIONS

- ▶ Any medical/surgical procedure that requires bending of a needle (e.g., spinal, joint, musculoskeletal procedures)
- ▶ Allows physicians/surgeons to avoid damaging of vulnerable structures, such as nerves and blood vessels, with a needle when performing a procedure

FEATURES/BENEFITS

- ▶ Improvement to an estimated 8 million procedures annually in the US
- ▶ Improved specificity and reproducibility in bend geometry
- ▶ Allows protection of needle tip
- ▶ Bend(s) can be induced anywhere along length of needle
- ▶ Usability in sterile clinical environments
- ▶ Inexpensive to manufacture
- ▶ No FDA approval required

PATENT STATUS

Patent Pending

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INVENTORS

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OTHER INFORMATION

KEYWORDS

medical instrument,
surgical instrument, needle

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Devices
 - ▶ Other
- ▶ **Sensors & Instrumentation**
 - ▶ Medical
 - ▶ Physical Measurement

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