



THE UNIVERSITY of TEXAS

HEALTH SCIENCE CENTER AT HOUSTON

Office of Technology Management

NICKEL TITANIUM WIRE BENDER

Market: In the United States, approximately forty million root canal treatments are performed annually. Reports estimated that the endodontic market in the United States was valued at \$220 million in 2005. There is a significant and growing market looking for better treatment options.

Competitors and Current Problems: At the current time, endodontic files are commonly used to clean and shape root canals. The problem commonly encountered by this system during canal preparation is severely curved canals. In these canals, restoring force (elastic memory) of endodontic files causes canal transportation and apical perforation (zipping) during canal preparation. All of the problems mentioned above could be minimized by using flexible NiTi files and pre-curving the files to have better adaptation with the shape of the canals. However, pre-curving the files is difficult and current methods use cold-working to plastically deform the alloy. However, NiTi does not exhibit the final desired properties when deformed under cold-worked conditions. To optimize super-elasticity and shape-memory performance, the material must be partially heat treated after the final cold-working step. Clearly there is a need for novel methods to shape these files.

The Technology: Researchers at the University of Texas Health Science Center at Houston (UTHSC-H) has developed methods and compositions for accurately bending endodontic NiTi files to conform to all canal curvatures. More specifically, the technology heats the NiTi files and bends them to a specific degree. Once the files have been constrained to the desired specifications, the file is heat-treated to permanently set a shape. This allows the user to create NiTi files that have better adaptation to the shape of canals, reducing the risks of canal transportation and apical perforation. The technology combines commercially available tools with novel technology using shape set strain annealing to shape the files in a handheld, cordless portable device.

NON-CONFIDENTIAL TECHNOLOGY DESCRIPTION

The preceding is intended to be a non-confidential summary of a novel technology created at the University of Texas Health Science center at Houston (UTHSC-H), for which the UTHSC-H has obtained patent protection.

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Inventors: Bohluli et al.

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License Available: world-wide; exclusive or non-exclusive

To obtain further information about this technology, please contact:
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