"MECO FIXATION SYSTEM" VCU #13-035

Applications

- Fixation system to realign medial column of human foot
- Screw guide to ensure proper alignment
- Treatment of Diabetic Charcot foot

Advantages

- Relieves joint pain and increases stability of the joint
- System induces compressive forces to promote fusion of midfoot bones
- Reduces the risk of failure
- Maintains compression over larger periods of time compared to other available systems

Inventors

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Market Need

During bone reabsorption diseases, such as osteoarthritis, bones begin to lose stability and result in misalignment of joints. Specifically in the medial column of the human foot, reabsorption causes both loss of stability and potential ulcer development due to unnatural load dispersion. The goal of a midfoot fixation system is to realign the bones and create compressive forces to induce bone fusion. Current systems include the use of washers and screws to mechanically stabilize the bones. These systems can be too complicated for correct installation and provide inadequate compression over all bones.

Technology Summary

The MECO fixation system changes current practices by supplying a system that simplifies installation and provides adequate compressive forces to increase stability. This system allows the user to install the screw and washer plate devices with precise application due to its guide that aligns screws perpendicularly into the main lag screw. It also ensures an even level of compressive forces throughout the midfoot by implementing a washer plate to further stabilize the area. With an even level of compressive forces, the bones are able to fuse together in a pattern that reduces joint pain and increases stability. Risk of failure is reduced due to the system's application guide and decreases the amount of screws/washers needed to stabilize the joint.

Technology Status

This device has been analyzed through in situ Finite Element Analysis (FEA).
Patent pending: U.S. and Foreign Rights available.
This technology is available for licensing to industry for further development and commercialization.