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Interbody Cage with Spill-free Biological Material Compartment

Summary

Spine surgeons often require the use of interbody cages to facilitate corrections of spinal deformities and to promote bone fusion in the disc spaces in between vertebrae. Current interbody cages have cavities that can be packed with bone graft material. However, it is difficult to keep the bone graft material contained in the cage cavity while it is being inserted into the intradiscal space. A unique interbody cage that prevents the bone graft and biological material being dislodged during cage insertion have been designed.

Key Investigator
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Field
Neurology
Spine

Technology
Spinal Stabilization
Interbody cage
Spine Fusion

Advantages
Improved spinal fusion
Decreased surgical complications

Status
Available for licensing
Available for sponsored research

Patent Status
U.S. Patent Application 16/047,473

UMB Docket Reference
CS-2016-080

Market

According to a December 2018 report produced by BCC Research, the total market for spinal fusion surgical devices was $6.6 billion in 2017. The worldwide market for spinal fusion surgical devices is expected to grow to $8.7 billion by 2023 according to this BCC Research report.

A March 26, 2019 Market Watch press release (Market Watch) indicates that the Spinal Fusion Market is expected to grow because of the aging population, increasing prevalence of spinal disorders, and advancements in spine surgery.

Technology

Often significant force is required to insert interbody cages between the segments of the spine to be fused. The vibration imposed during the insertion makes it difficult to retain bone graft material within the interbody cage. Surgeons use metal shims placed on top of the cages to retain the graft material. The shims often migrate during cage insertion resulting in serious surgical complications.

Figure 1: Cage with Cover Removed

The disclosed interbody cage provides a spill-free, biological material compartment that prevents loss of the bone graft material that often occurs when standard interbody cages are used. The novel interbody cage comprises a solid frame that surrounds a central compartment designed to hold the graft material. The graft material is retained in the central compartment by the use of a removable cover. With the cover removed, bone graft material can be inserted into the central compartment of the interbody cage by the surgeon. When closed, the locked cover retains the bone graft material in the central body and prevents its loss during cage insertion into the intradiscal space.

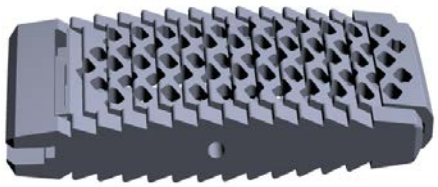

Figure 2: Cage with Cover Present

The design of the interbody cage also has several features that make it unique when compared to commercially available devices. The device is convex in on both the top and bottom so that it can comply more closely with the shape of the space between vertebrae. Also, the top and bottom of the cage are porous to facilitate bone growth and spinal fusion.

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