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The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

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Katherine Kelly Vidal

DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



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(12) **United States Patent**
Behroozian et al.

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(54) **LINGUAL SPLINT FOR HUMAN JAWS
FIXATION FOR ORTHOGNATHIC SURGERY**

A61C 5/90; A61B 17/68; A61B 90/16;
A61F 5/05891; A61F 5/566; Y10S
602/902; A61D 15/00

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See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

2006/0174897 A1 * 8/2006 Sarkisian A61F 5/566
128/859

2010/0263676 A1 * 10/2010 Thornton A61F 5/566
128/848

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1086 days.

* cited by examiner

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(58) **Field of Classification Search**
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(57) **ABSTRACT**

A splint for releasably fixing a maxillary jaw and a mandibular jaw of a patient together during orthognathic surgery. The splint may include a locking mechanism including a lower section and an upper section. The lower section may be attached fixedly to the mandibular jaw. The lower section may include a horizontal locking pin moveable along a horizontal axis. The upper section may include a vertical locking key attached fixedly to the maxillary jaw. The vertical locking key may include a horizontal pin receiving hole provided along a diameter of the vertical locking key. The horizontal pin receiving hole may be configured to receive the horizontal locking pin. The maxillary jaw and the mandibular jaw may be fixed together responsive to the horizontal pin receiving hole is aligned with the horizontal axis and the horizontal locking pin is inserted into the horizontal pin receiving hole.

16 Claims, 10 Drawing Sheets

