



US 20080161819A1

(19) **United States**  
(12) **Patent Application Publication**  
**Yamada**

(10) **Pub. No.: US 2008/0161819 A1**  
(43) **Pub. Date: Jul. 3, 2008**

(54) **BONE GRAFTING MATERIAL PACKING INSTRUMENT**

**Publication Classification**

(76) Inventor: **Jason M. Yamada**, Rolling Hills Estates, CA (US)

(51) **Int. Cl.**  
**A61B 17/58** (2006.01)

Correspondence Address:

**Robert R. Meads**  
**214 Paseo de Suenos**  
**Redondo Beach, CA 90277**

(52) **U.S. Cl.** ..... **606/93; 606/92**

(21) Appl. No.: **11/895,812**

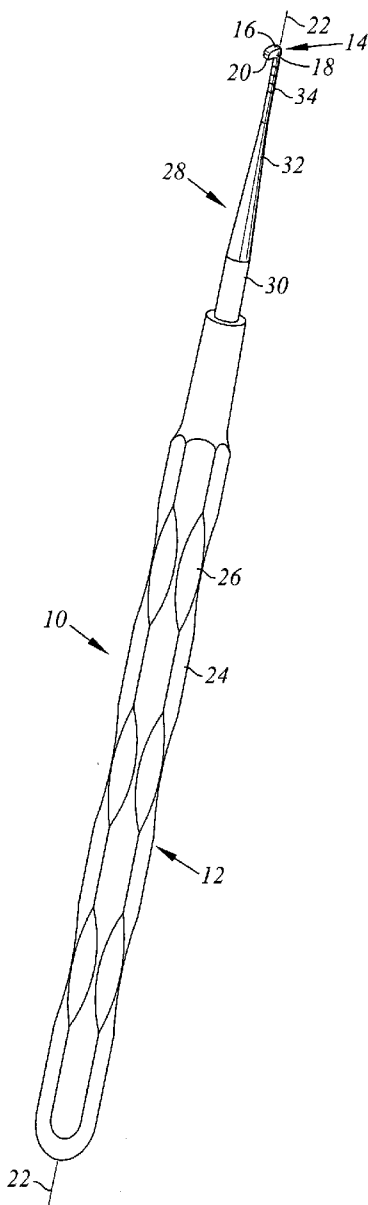
(57) **ABSTRACT**

(22) Filed: **Aug. 28, 2007**

A bone graft material packing instrument, comprising a longitudinally extending handle and a laterally extending distal head having a downwardly curved upper surface bounded by vertically extending substantially flat sides and a flat horizontally extending lower surface.

**Related U.S. Application Data**

(60) Provisional application No. 60/882,940, filed on Dec. 31, 2006.





**BONE GRAFTING MATERIAL PACKING INSTRUMENT**

**RELATED PATENT APPLICATIONS**

[0001] The present application claims the benefit of U.S. Provisional Patent application Ser. No. 60/882,940 filed Dec. 31, 2006, which is herein incorporated by reference. The present application also relates to the subject matter of the concurrently filed U.S. patent application Ser. No. \_\_\_\_\_, entitled "Internal Sinus Manipulation (ISM) Procedure For Facilitating Sinus Floor Augmentation In Dental Procedures" (Docket 07JY-1), which is incorporated herein by this reference.

**BACKGROUND OF INVENTION**

[0002] As stated in the above-identified concurrently filed United States patent application, during the described procedure, there is a pre-condensing and packing of a bone grafting material in a pocket between the sinus floor and the sinus membrane of a patient. This is accomplished using a bone condensing instrument. The present invention is directed to a preferred form of such a bone grafting material condensing instrument.

**SUMMARY OF INVENTION**

[0003] Basically, the bone grafting material condensing instrument of the present invention comprises a longitudinally extending handle carrying at its distal end a relatively small laterally extending bone graft material condensing head. The condensing head is designed to fit upward into a sinus bone channel containing a quantity of recently placed bone grafting material. The condensing head has a downwardly curved upper surface bounded by vertically extending substantially flat side surfaces and is employed to condense the bone graft packing material upon a simultaneous spinning of the handle on its longitudinal axis and a lateral movement of the instrument in the bone graft material.

**BRIEF DESCRIPTION OF ACCOMPANYING DRAWINGS**

[0004] FIG. 1 is a perspective view of the preferred bone graft material condensing instrument including a longitudinally extending handle and a relatively small laterally extending distal head having a downwardly curved upper surface, flat vertical sides and a flat lower surface extending horizontally relative to a longitudinal axis of the instrument.

[0005] FIG. 2 is an enlarged fragmentary sectional side view of an upper portion of the instrument of FIG. 1 showing the laterally extending distal head of the instrument.

**DETAILED DESCRIPTION OF INVENTION**

[0006] As depicted in FIG. 1, the bone graft material condensing instrument 10 of the present invention comprises a longitudinally extending handle 12 and a laterally extending distal head 14 having a downwardly curved upper surface 16 bounded by vertically extending substantially flat sides 18 and a flat horizontally extending lower surface 20.

[0007] As shown in FIG. 1, the handle 12 is longitudinally elongated on a longitudinal axis 22 of the instrument 10 and includes an enlarged lower hand-holdable portion 24 having a longitudinally fluted outer surface 26 for enhancing the gripability of the instrument 10.

[0008] As illustrated, the distal head 14 is secured to the handle by an intermediate longitudinally extending portion 28 of the instrument 10 comprising a cylindrical lower section 30, an axially elongated frusto-conical middle section 32 and an upper cylindrical section 34 of reduced diameter compared to the diameter of the lower section 30. As depicted in FIG. 1, the cylindrical lower section 30 is secured to and is of a slightly reduced diameter relative an upper end of the hand-holdable portion 24 of the handle 12. The bottom of the frusto-conical middle section 32 is secured to a top of the lower section 30, is axially elongated on the axis 22 and is reduced in lateral diameter as to approaches its relatively small upper end joined to a lower end of the upper cylindrical section 34. The upper cylindrical section 34, in turn, extends longitudinally on the axis 22 upward to support the distal head 14 that is secured to and supported by the end of the cylindrical section 34, as best shown in FIG. 2.

[0009] As shown in FIGS. 1 and 2, the outer surface of the upper cylindrical section 34 below the distal head 14 carries a plurality of horizontal vertically and evenly spaced depth markers 36 for indicating the user of the instrument 10 the depth of the instrument in a bone channel prior to use in the condensing of bone graft forming material. By way of example, the vertical spacing of the depth markers 36 may be about 2 millimeters.

[0010] As most clearly shown in FIG. 2, the distal head 14 extends upwardly from the upper end of the upper cylindrical section 34 and laterally from the longitudinal axis 22 of the instrument 10. An upper surface 38 of the distal head 14 is curved downwardly from a downwardly curved rear portion 40 to a rounded forward end 42 of the head 14. Preferably, the head 14 is about 2.5 millimeters from the forward-most edge of the section 34 to a forward-most point on the surface 42 as shown in FIG. 2. Also, from the a mid-point on the curve of the forward end 42 of the head 14 to the plane of the lower surface 20 is about 0.5 millimeters and from the lower surface 20 to a topmost portion of the upper surface 16 preferably is about 2 millimeters. In addition, the spacing of vertical sides 18 of the head 14 as they extend vertically between the upper surface 38 and the flat horizontally extending lower surface 20 preferably is about 1.5 millimeters and, as depicted in FIG. 2, the angle of the horizontally extending lower surface 20 to the vertically extending longitudinal axis 22 of the instrument 10 is preferably about 90 degrees.

[0011] As illustrated in FIG. 7 of the previously referenced concurrently filed patent application, the instrument 10 preferably is designed in outward shape with the foregoing dimensions to efficiently pre-condense and pack the bone graft packing material in a pocket formed between the a sinus membrane and the floor of the sinus upon a spinning of the instrument on its longitudinal axis 22 while moving the instrument laterally and vertically in the pocket.

[0012] While a particular preferred embodiment of the instrument 10 has been illustrated and described above, it is appreciated that changes and modifications may be made in the illustrated embodiment without departing from the spirit of the invention. Accordingly, the scope of present invention is to be limited only by the terms of the following claims.

1. A bone graft material packing instrument, comprising, comprising:
  - a longitudinally extending handle and
  - a laterally extending distal head having a downwardly curved upper surface bounded by vertically extending substantially flat sides and a flat horizontally extending lower surface.

2. The instrument of claim 1 wherein:  
the handle is longitudinally elongated on a longitudinal axis of the instrument and includes an enlarged lower hand-holdable portion having a longitudinally fluted outer surface for enhancing the gripability of the instrument.

3. The instrument of claim 1 wherein:  
the distal head is secured to the handle by an intermediate longitudinally extending portion of the instrument comprising a cylindrical lower section, an axially elongated frusto-conical middle section and an upper cylindrical section of reduced diameter compared to the diameter of the lower section,

the cylindrical lower section being secured to and being of a slightly reduced diameter relative an upper end of the hand-holdable portion of the handle,

a bottom of the frusto-conical middle section being secured to a top of the lower section, axially elongated on the axis of the instrument and reduced in lateral diameter as to approaches a relatively small upper end joined to a lower end of the upper cylindrical section, and

the upper cylindrical section extending longitudinally on the axis of the instrument upward to support the distal head secured to and supported by the end of the cylindrical section.

4. The instrument of claim 1 wherein:  
the distal head is secured to the handle by an intermediate longitudinally extending portion of the instrument and the lower surface of the distal head extends laterally toward the longitudinal axis at an angle of about 90 degrees.

5. The instrument of claim 4 wherein:  
the inclined lower surface of the distal head extends laterally from the intermediate portion and from the longitudinal axis of the instrument.

6. The instrument of claim 5 wherein:  
the head includes a rounded forward end extending between the vertically extending sides.

7. The instrument of claim 6 wherein:  
the head is about 2.5 millimeters from a forward-most edge of a connection of the handle to the head and a forward-most point on the rounded forward end of the head and from a mid-point on the round of the forward end of the head **14** to a plane of the lower surface is about 0.5 millimeters and from the lower surface to a topmost portion of the upper surface is about 2 millimeters and the vertical sides the head as they extend vertically between the upper surface and the flat horizontally extending lower surface are spaced about 1.5 millimeters.

\* \* \* \* \*