Claims

1. A system for ablating solid material in the oral cavity of a human or an animal comprising a fixation structure and insertion device (5, 9, 10, 11, 14, 16), wherein the insertion device includes at least one means (8, 9) for the touchless ablation of solid material and the fixation device (3) is set up for fixing the same in place on a human or animal head, particularly the jaw(1), characterized in that the fixation device (3) includes a first connecting means (6) and the insertion device (5, 9, 10, 11,14, 16) includes a second connecting means (7), wherein the connecting means (6, 7) are set up such that the second connecting means (7) can be rigidly connected to the fixation device (3),and in that the fixation device (3) and insertion device (5, 9, 10, 11, 14, 16) are configured such that the second connecting means (7), following the connecting action to the fixation structure (3) that is fixed on the head, is in a fixed position relative to a jaw bone (1) or a tooth (2) of a human or animal.

2. The system according to Claim 1, wherein the fixed position is a position that is predetermined by the fixation device (3) and the connecting means (6, 7).

3. The system according to any one of the previous Claims, wherein the fixation device (3) comprises a dental and/or jaw splint for clamping upon the jaw portion (1) and/or teeth (2) and/or implants.

4. The system according to any one of the previous Claims, wherein the at least one means for ablation comprises a pulsed laser (9) or a light guide (10) that is connected to a pulsed laser (9).

5. The system according to the previous Claim, characterized in that the insertion device comprises a scanner (11) for deflecting the at least one means (8, 9) for touchless ablation.

6. The system according to Claim 5, characterized in that the scanner (11) comprises at least one scanner mirror (12) that is fastened to a motion device (13) for the controllable deflection of the laser beam (8).

7. The system according to Claim 6, characterized in that the motion device (13) is rigidly connected to the second connecting means (7).

8. The system according to the previous Claim, characterized in that the insertion device comprises a scanner (11), which comprises at least one scanner mirror (12) that is fastened to a motion device (13) for the controllable deflection of the laser beam(8), and in that the motion device (13) is rigidly connectedto the second connecting means (7).

9. The system according to the any one of previous Claims for incorporating a, particularly angular, hole (4) in a jaw bone (1), particularly for inserting a fastening structure for an implant in a jaw bone (1).

10. The system according to any one of the previous Claims 1 to 7 set up for incorporating a hole (4) or a recess into a tooth (2).

11. The system according to any one of the previous Claims 1 to 7 set up for ablating jaw bone (1) in the direct vicinity of a tooth (2) for influencing the movement of the tooth (2) inside the jaw (1).

12. The system according to any one of the previous Claims wherein the insertion device (5, 9, 10, 11, 14, 16) comprises a distance-measuring device (17, 18).

13. The system according to Claim 11, characterized in that the distance-measuringdevice comprises means, particularly at least one microphone (17), for detecting an ablationnoise.

Claims

1. A system for ablating solid material in the oral cavity of a human or an animal comprising:
   a fixation device and an insertion device, wherein the insertion device includes at least one means for the touchless ablation of solid material and the fixation device is set up for fixing the fixation device in place on a human or animal head, wherein the fixation device includes a first connecting means and the insertion device includes a second connecting means, wherein the first and second connecting means are set up such that the second connecting means is rigidly connected to the fixation device, and wherein the fixation device and insertion device are configured such that the second connecting means, following the connecting action to the fixation device that is fixed on the head, is in a fixed position relative to a jaw bone or a tooth of a human or animal; wherein the insertion device comprises a distance-measuring device, wherein said distance measuring device comprises a triangulation means comprising a triangulation mirror, which is disposed in an additionally mounted triangulation arm, and a CCD; such that a laser beam being partially reflected can be redirected via the triangulation mirror to the CCD, for detecting the change relative to the depth of a hole by the displacement of the laser beam on the CCD.

2. The system according to Claim 1, wherein the fixed position is a position that is predetermined by the fixation device and the first and second connecting means.

3. The system according to Claim 1 or 2, wherein the fixation device comprises a dental and/or jaw splint for clamping upon a jaw portion and/or teeth and/or implants.

4. The system according to any one of Claims 1 to 3, wherein the at least one means for ablation comprises a pulsed laser or a light guide that is connected to a pulsed laser.

5. The system according to Claim 4, wherein the insertion device comprises a scanner for deflecting the at least one means for touchless ablation.

6. The system according to Claim 5, wherein the scanner comprises at least one scanner mirror that is fastened to a motion device for the controllable deflection of the laser beam.

7. The system according to Claim 6, wherein the motion device is rigidly connected to the second connecting means.

8. The system according to Claim 7, wherein the insertion device comprises a scanner, which comprises at least one scanner mirror that is fastened to a motion device for the controllable deflection of the laser beam, and in that the motion device is rigidly connected to the second connecting means.

9. The use of a system according to any one of Claims 1 to 8 for incorporating a particular angular hole in a jaw bone, particularly for inserting a fastening structure for an implant in a jaw bone.

10. The use of a system according to any one of Claims 1 to 7 for incorporating a hole or a recess into a tooth.

11. The system according to any one of Claims 1 to 7 for ablating jaw bone in the direct vicinity of a tooth for influencing the movement of the tooth inside the jaw.

12. The system according to Claim 11, wherein the distance-measuring device comprises means, particularly at least one microphone, for detecting an ablation noise.