

Title of the invention

~~An additional stabilization device for endo-osseous dental implant~~

5 Background of the invention

The present invention relates to the general field of dental implants.

More particularly, the invention relates to endo-osseous dental implants and more specifically to the stabilization of these implants.

10 Presently, endo-osseous implants are conventionally based on the use of an anchoring foot, for example an anchoring screw, adapted so as to be installed in a jaw bone of a patient. This anchoring foot cooperates with an external pillar intended to be fixed in the anchoring foot. The external pillar therefore comprises means for being fixed in the anchoring foot and means for fixing a dental prosthetic element which will cap the
15 external pillar and protrude above the jaw bone of the patient in order to replace the missing dental element. The prosthetic outer pillar is stabilized relatively to the anchoring foot with anti-rotational means with which relative movements of the pillar relatively to this anchoring foot may be inhibited.

20 Further, it is necessary to ensure primary stability of the implant in the bone by ensuring stability of the anchoring foot in the bone. This factor is determining for osteo-integration of the implant. Indeed, masticatory movements of the patient are as many agents for destabilizing this assembly by torsion, rotation, compression, etc., which the implant
25 should be able to withstand.

Thus, two distinct cases occur in the treatment after laying down the anchoring foot.

30 In the first case, the bone is particularly dense and in a large amount, which alas is rare, and it is then possible to immediately place the prosthetic pillar which is attached on the anchoring foot and to adhesively bond the dental crown on the latter.

35 In the second case, the anchoring foot is placed « to be nursed » during a healing period. This means that the anchoring foot is placed in the bone and the gums are closed over it. In this case, no force is applied and there are no risks of mobilization of the anchoring foot during the

CLAIMS amended under article 19

1. A dental implantation assembly comprising an endo-osseous dental implant and an additional stabilization device (10) intended to be used in combination with the endo-osseous dental implant, this endo-osseous implant comprising at least one endo-osseous anchoring foot (21), an external pillar (22) and means (22b) for fixing a dental prosthetic element, the anchoring foot (21) being adapted for installation in a jaw bone (1) of a patient so as to cooperate with an external pillar (22) intended to be fixed in the anchoring foot (21), the anchoring foot (21) and the pillar (22) further comprising anti-rotational means (21a,22a) with which relative movements of the pillar (22) relatively to the anchoring foot (21) may be inhibited, once the pillar (22) is placed in the anchoring foot (21) with or without the installation of the additional device, the dental implantation assembly being characterized in that the additional stabilization device (10) comprises a substantially rigid central platform (11) perforated at its centre (11a) so as to allow the introduction of the pillar (22) into the anchoring foot (21) of the implant through the stabilization device (10), the perforation (11a) of the platform (11) being of such a shape that it cooperates with the anti-rotational means of the pillar (22) and of the anchoring foot (21) in order to inhibit the rotational movements of the pillar (22) in addition to the anti-rotational means of the pillar (22) and of the anchoring foot (21), the device (10) also comprising at least, on either side of the central platform (11), two flexible anchoring side slender extensions (12) so as to be able to be placed straddling the bone (1) of the jaw, flattened on either side of the latter, each extension (12) comprising at least one orifice (13) for positioning at least one fixing screw (30).

2. A dental implantation assembly according to claim 1, characterized in that at least one of the side extensions (12) of the additional stabilization device (10) is formed by a Y-shaped arm, each branch of the Y (12Va,12Vb,12Pa,12Pb) being provided with an orifice (13) in order to position a fixing screw (30).

3. A dental implantation assembly according to claim 2, characterized in that both orifices (13) of the branches (12Va,12Vb or 12Pa,12Pb) of a same Y of the additional stabilization device (10) are separated by at least the width of the endo-osseous implant.

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4. A dental implantation assembly according to claim 1, characterized in that at least one of the side extensions of the additional stabilization device (10) is formed by a T-shaped arm, each branch of the T being provided with an orifice for positioning a fixing screw.

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5. A dental implantation assembly according to any one of claims 2, 3 and 4, characterized in that both side extensions (12) of the additional stabilization device (10) are formed by Y-shaped or T-shaped arms, each branch of the Y or of the T being provided with an orifice (13) for positioning a fixing screw.

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6. A dental implantation assembly according to any one of the preceding claims, characterized in that the endo-osseous implant having anti-rotational means such that the anchoring foot (21) and the pillar (22) respectively comprise female and male portions of matching regular polygonal shapes, the stabilization device (10) is such that the perforation (11a) of the platform (11) has a regular polygonal shape with which the relative movement of the male portion of the pillar (22) and of the stabilization device (10) may be inhibited by contact of the surfaces of the polygonal male portion of the pillar (22) with the polygonal surfaces of the perforation (11a) of the platform (11).

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7. A dental implantation assembly according to claim 6, characterized in that the regular polygonal shape of the perforation (11a) of the platform (11) is the same as that of the male and female portions of the anchoring foot (21) and of the pillar (22).

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8. A dental implantation assembly according to claim 6, characterized in that as the polygonal shapes of the pillar (22) and of the anchoring foot (21) have N sides, the perforation (11a) of the stabilization device (10) has a polygonal shape with 2N sides, the regular polygonal

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shape of the perforation (11a) of the platform (11) thereby allowing more positions of the stabilization device than a regular polygonal shape identical with that of the pillar (22).

5 9. A dental implantation assembly according to claim 8, characterized in that as the polygonal shapes of the pillar (22) and of the anchoring foot (21) are hexagonal, the perforation (11a) of the stabilization device (10) has a dodecagonal shape.

10 10. A dental implantation assembly according to claim 8, characterized in that as the polygonal shapes of the pillar (22) and of the anchoring foot (21) are square, the perforation (11a) of the stabilization device (10) has an octagonal shape.

15 11. A dental implantation assembly according to any one of claims 1 to 5, characterized in that the endo-osseous dental implant having anti-rotational frictional means, the device (10) is such that the size of the perforation (11a) and the shape of the surface surrounding the perforation (11a) in the platform (11) are such that they allow the anti-rotational
20 frictional surfaces of the pillar (22) and of the anchoring foot (21) to be in frictional contact with the central platform (11) of the stabilization device (10).

25 12. A dental implantation assembly according to claim 11, characterized in that, as the anti-rotational frictional means are such that the anchoring foot (21) and the pillar (22) respectively comprise female and male matching conical shapes (21b, 22d), the stabilization device (10) is such that the central platform (11) is embossed as a cone (11b) around the central perforation (11a).

30 13. A dental implantation assembly according to any one of the preceding claims, characterized in that one of the side extensions (12V) of the additional stabilization device (10) is longer than the other one (12P) and then intended to be fixed on the vestibular side of the jaw.

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14. A dental implantation assembly according to any one of the preceding claims, characterized in that the thickness of the stabilization device (10) is comprised between 0.2 and 1 millimeter, and preferably between 0.4 and 0.8 millimeter.

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15. A dental implantation assembly according to any one of the preceding claims, characterized in that the length of the stabilization device (10) is comprised between 6 and 25 millimeters and preferably between 7 and 16 millimeters.

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16. A dental implantation assembly according to claim 13, characterized in that the lengths of the side extensions (12P,12V) of the additional stabilization device (10) are comprised between 3 and 6 millimeters on the palatine side and between 4 and 10 millimeters on the vestibular side.

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17. An optional additional stabilization device (10) intended to be used in a dental implantation assembly according to any one of claims 1 to 16 by cooperating with an endo-osseous dental implant comprising at least one endo-osseous anchoring foot (21) adapted for installation in a jaw bone (1) of a patient so as to cooperate with an external pillar (22) intended to be fixed in the anchoring foot (21) and further comprising means (22b) for fixing a dental prosthetic element, the anchoring foot (21) and the pillar (22) further comprising anti-rotational means (21a,22a) with which the relative movements of the pillar (22) relatively to the anchoring foot (21) may be inhibited once the pillar (22) is placed in the anchoring foot (21) with or without installation of the additional device, the additional stabilization device comprising a substantially rigid central platform (11) perforated at its centre (11a) so as to allow the introduction of the pillar (22) into the anchoring foot (21) of the implant through the stabilization device (10), the perforation (11a) of the platform (11) being of such a shape that it cooperates with the anti-rotational means of the pillar (22) and of the anchoring foot (21) in order to inhibit the rotational movements of the pillar (22) in addition to the anti-rotational means of the pillar (22) and of the anchoring foot (21), the device (10) also comprising at least, on either side of the central platform (11), two flexible

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anchoring side slender extensions (12) so as to be able to be placed straddling the bone (1) of the jaw, flattened on either side of the latter, each extension (12) comprising at least one orifice (13) for positioning at least one fixing screw (30).

Title of the invention

Dental Implantation Assembly |

5 Background of the invention

The present invention relates to the general field of dental implants. More particularly, the invention relates to endo-osseous dental implants and more specifically to the stabilization of these implants.

10 Presently, endo-osseous implants are conventionally based on the use of an anchoring foot, for example an anchoring screw, adapted so as to be installed in a jaw bone of a patient. This anchoring foot cooperates with an external pillar intended to be fixed in the anchoring foot. The external pillar therefore comprises means for being fixed in the anchoring foot and means for fixing a dental prosthetic element which will cap the
15 external pillar and protrude above the jaw bone of the patient in order to replace the missing dental element. The prosthetic outer pillar is stabilized relatively to the anchoring foot with anti-rotational means with which relative movements of the pillar relatively to this anchoring foot may be inhibited.

20 Further, it is necessary to ensure primary stability of the implant in the bone by ensuring stability of the anchoring foot in the bone. This factor is determining for osteo-integration of the implant. Indeed, masticatory movements of the patient are as many agents for destabilizing this assembly by torsion, rotation, compression, etc., which the implant
25 should be able to withstand.

Thus, two distinct cases occur in the treatment after laying down the anchoring foot.

30 In the first case, the bone is particularly dense and in a large amount, which alas is rare, and it is then possible to immediately place the prosthetic pillar which is attached on the anchoring foot and to adhesively bond the dental crown on the latter.

35 In the second case, the anchoring foot is placed « to be nursed » during a healing period. This means that the anchoring foot is placed in the bone and the gums are closed over it. In this case, no force is applied and there are no risks of mobilization of the anchoring foot during the

CLAIMS

1. A dental implantation assembly comprising an endo-osseous dental implant and an additional stabilization device (10) intended to be used in combination with the endo-osseous dental implant, this endo-osseous implant comprising at least one endo-osseous anchoring foot (21), an external pillar (22) and means (22b) for fixing a dental prosthetic element, the anchoring foot (21) being adapted for installation in a jaw bone (1) of a patient so as to cooperate with an external pillar (22) intended to be fixed in the anchoring foot (21), the anchoring foot (21) and the pillar (22) further comprising anti-rotational means (21a,22a) with which relative movements of the pillar (22) relatively to the anchoring foot (21) may be inhibited, once the pillar (22) is placed in the anchoring foot (21) with or without the installation of the additional device, the dental implantation assembly being characterized in that the additional stabilization device (10) comprises a substantially rigid central platform (11) perforated at its centre (11a) so as to allow the introduction of the pillar (22) into the anchoring foot (21) of the implant through the stabilization device (10), the perforation (11a) of the platform (11) being of such a shape that it cooperates with the anti-rotational means of the pillar (22) and of the anchoring foot (21) in order to inhibit the rotational movements of the pillar (22) in addition to the anti-rotational means of the pillar (22) and of the anchoring foot (21), the device (10) also comprising at least, on either side of the central platform (11), two flexible anchoring side slender extensions (12) so as to be able to be placed straddling the bone (1) of the jaw, flattened on either side of the latter, each extension (12) comprising at least one orifice (13) for positioning at least one fixing screw (30).
2. A dental implantation assembly according to claim 1, characterized in that at least one of the side extensions (12) of the additional stabilization device (10) is formed by a Y-shaped arm, each branch of the Y (12Va,12Vb,12Pa,12Pb) being provided with an orifice (13) in order to position a fixing screw (30).

3. A dental implantation assembly according to claim 2, characterized in that both orifices (13) of the branches (12Va,12Vb or 12Pa,12Pb) of a same Y of the additional stabilization device (10) are separated by at least the width of the endo-osseous implant.

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4. A dental implantation assembly according to claim 1, characterized in that at least one of the side extensions of the additional stabilization device (10) is formed by a T-shaped arm, each branch of the T being provided with an orifice for positioning a fixing screw.

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5. A dental implantation assembly according to any one of claims 2, 3 and 4, characterized in that both side extensions (12) of the additional stabilization device (10) are formed by Y-shaped or T-shaped arms, each branch of the Y or of the T being provided with an orifice (13) for positioning a fixing screw.

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6. A dental implantation assembly according to any one of the preceding claims, characterized in that the endo-osseous implant having anti-rotational means such that the anchoring foot (21) and the pillar (22) respectively comprise female and male portions of matching regular polygonal shapes, the stabilization device (10) is such that the perforation (11a) of the platform (11) has a regular polygonal shape with which the relative movement of the male portion of the pillar (22) and of the stabilization device (10) may be inhibited by contact of the surfaces of the polygonal male portion of the pillar (22) with the polygonal surfaces of the perforation (11a) of the platform (11).

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7. A dental implantation assembly according to claim 6, characterized in that the regular polygonal shape of the perforation (11a) of the platform (11) is the same as that of the male and female portions of the anchoring foot (21) and of the pillar (22).

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8. A dental implantation assembly according to claim 6, characterized in that as the polygonal shapes of the pillar (22) and of the anchoring foot (21) have N sides, the perforation (11a) of the stabilization device (10) has a polygonal shape with 2N sides, the regular polygonal

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shape of the perforation (11a) of the platform (11) thereby allowing more positions of the stabilization device than a regular polygonal shape identical with that of the pillar (22).

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15 11. A dental implantation assembly according to any one of claims 1 to 5, characterized in that the endo-osseous dental implant having anti-rotational frictional means, the device (10) is such that the size of the perforation (11a) and the shape of the surface surrounding the perforation (11a) in the platform (11) are such that they allow the anti-rotational
20 frictional surfaces of the pillar (22) and of the anchoring foot (21) to be in frictional contact with the central platform (11) of the stabilization device (10).

25 12. A dental implantation assembly according to claim 11, characterized in that, as the anti-rotational frictional means are such that the anchoring foot (21) and the pillar (22) respectively comprise female and male matching conical shapes (21b, 22d), the stabilization device (10) is such that the central platform (11) is embossed as a cone (11b) around the central perforation (11a).

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14. A dental implantation assembly according to any one of the preceding claims, characterized in that the thickness of the stabilization device (10) is comprised between 0.2 and 1 millimeter, and preferably between 0.4 and 0.8 millimeter.

15. A dental implantation assembly according to any one of the preceding claims, characterized in that the length of the stabilization device (10) is comprised between 6 and 25 millimeters and preferably between 7 and 16 millimeters.

16. A dental implantation assembly according to claim 13, characterized in that the lengths of the side extensions (12P,12V) of the additional stabilization device (10) are comprised between 3 and 6 millimeters on the palatine side and between 4 and 10 millimeters on the vestibular side.

17. A dental implant assembly according to claim 1 wherein said endosseous anchoring foot (21) comprises a cavity which forms a female portion (21a) and said external pillar (22) comprises a base which forms a male portion (22a), said male portion of the pillar being able to be introduced into said female portion and to cooperate with said female portion of the anchoring foot so as to thereby forming anti-rotational means inhibiting any movement of the pillar relative to the anchoring foot once the male portion of the external pillar is placed into the female portion of the anchoring foot, and wherein the stabilization device comprises a platform (11) perforated at its center with a perforation (11a) allowing the introduction of said male portion of the pillar into said female portion of the anchoring foot through the stabilization device, the said perforation (11a) of the platform (11) being of such a

shape that it cooperates with said male portion of the pillar and with said female portion of the anchoring foot, in order to inhibit the rotational movements of the pillar in addition to the anti-rotational means of the pillar and of the anchoring foot thereby immobilizing said stabilization device relatively to said endo-osseus implant once the said pillar is fixed to said anchoring foot.

18. A dental implantation assembly according to claim 1, wherein said stabilization device is removable by removing the said fixing screws from the jaw bone and by separating said pillar from said anchoring foot while allowing placing and fixing the pillar back into the anchoring foot without the said stabilization device.