UNITED STATES PATENT OFFICE.

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OCCLUSAL-PLANE GAGE.

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To all whom it may concern:

Be it known that I, WILLIAM C. DALBEY, a citizen of the United States, residing at Duquoin, in the county of Perry and State of Illinois, have invented a certain new and useful Improvement in Occlusal-Plane Gages, of which the following is a full, clear, and exact description.

This invention relates to an occlusal plane gage or to an instrument which is adapted to be attached or applied by a dentist to the head of a patient for the purpose of establishing the occlusal plane, and to aid him in making anatomically articulated artificial dentures.

Prior to my invention, it has been customary for dentists to determine the occlusal plane by first drawing a line on the face of the patient from the lowermost point of the external meatus of the ear to the lowestmost point of the ala of the nose. This line, disregarding a slight error which my improved gage corrects or eliminates, is parallel to the occlusal plane which is located below the said line 1/4th of an inch below the upper lip at rest. Then the dentist would endeavor to shape or level to the occlusal plane the surface of the upper trial plate in the mouth of the patient, by means of an instrument such as the blade of an ordinary case knife, which he would hold or endeavor to hold parallel to the said line and the proper distance below the same.

The above described method of establishing an occlusal plane has numerous objections and disadvantages among which are:—The occlusal plane cannot thereby be determined with accuracy; the mento-ala line drawn on the face of the patient is distorted when the mouth is opened; it is objectionable to the patient to draw the line on his or her face; it is often the case that the line cannot be drawn, particularly if the patient has a beard; the shape of the line which is necessarily curved about the cheek, and also the position of the dentist or operator in manipulating the blade of the instrument while shaping the trial plate, render it almost impossible to obtain the best results.

By my invention, the above mentioned disadvantages and objections are entirely eliminated. More specifically, it is one of the objects of the present invention to provide a gage or instrument which can be attached to the head or face of the patient, and by which the occlusal plane can be established, easily, quickly, accurately, and without discomforting or discomforting the patient.

A further object is to provide a gage which not only establishes or locates the occlusal plane, but constitutes a base or abutment against which an instrument can be placed so as to be maintained in the occlusal plane, while the trial plate is being shaped or leveled thereby to the occlusal plane.

My invention may be briefly summarized as consisting in certain novel details of construction and combinations and arrangements of parts which will be described in the specification and set forth in the appended claims.

In the accompanying sheet of drawings wherein I have shown the preferred embodiment of my invention, Figure 1 is a perspective view showing the manner in which the gage is applied to the face or head of the patient, and the manner in which the gage is used in shaping or leveling the trial plate to the occlusal plane; Fig. 2 is a perspective view of the gage.

Referring now to the drawings, it will be seen that the gage includes a pair of side members or bars 10 and 11, consisting of rather thin flat strips, which at their forward ends are pivotally connected together by a pin 12 or screw, and at their rear ends are provided with tubular conical members 13 which are adapted to be inserted in the external openings of the ears of the patient. The conical members are hollow so as not to affect the patient's hearing while the instrument is in use. These side members 10 and 11 conform to the general lines of the face and project forwardly beyond the face, the front portions converging in substantially straight lines to the pivot pin 12. The front ends of the members 10 and 11 adjacent the pivot pin 12 are each offset so that both these side members lie in the same plane. The side members are connected and yieldingly pulled toward each other by a spring 14 which preferably is a coil spring extending between and connected at its ends to both side members as shown. The side members are bridged or connected together by two nose clamping or engaging
portions including a straight bar or piece 15 which is adapted to engage beneath or against the base of the nasal septum. This bar 15 is pivotally connected to one of the side members by a pin or screw 16 and at its other end has a sliding connection with the other side member. This is preferably accomplished by giving the said opposite end a forked or bifurcated form by securing to the lower side of the cross bar or member 15 a strip 17 of flexible material. A clamping or adjusting screw 18 passes between the outer free end of the cross bar 15 and of the strip 17 and by means of this screw, the two side members may be clamped in any position of adjustment. The side members 10 and 11 are also bridged or connected by an upper cross bar 19 which is located above and slightly to the rear of the cross bar 15 and is arched as shown, this cross member 19 being adapted to engage the bridge of the nose as shown in Fig. 1. This member is supported on a pair of upright pins 20 which extend upwardly from the two side members and pass through elongated slots 21 provided in the member 19 near its ends. Coil springs 22 surrounding the pins press the member upwardly against adjusting nuts 23 which engage suitably threaded upper ends of the pins 20 and enable the cross bar 19 to be adjusted to the proper height relative to the lower cross bar 15, and so as to render the instrument adaptable to any nasal characteristics.

When the instrument so far described has been secured upon the face or head of the patient, with the conical tubular members 13 in the external openings of the ears, and the cross members 15 and 19 engaging respectively the bottom of the nasal septum and the bridge of the nose, the side members 10 and 11 are in a plane which is parallel to the occlusal plane, or, in other words, in the plane which heretofore dentists have endeavored to establish or locate by drawing a line across the face of the patient from the lowermost point of the external meatus of the ear to the lowermost point of the ala of the nose. I have discovered, however, that the plane of the line heretofore drawn on the face of the patient between the two stated points is not precisely parallel to the occlusal plane, and that the plane of the line should be from a point slightly below the lowermost point of the external meatus of the ear, to the lowermost point of the ala of the nose. In my improved gage, this slight error is corrected, and the side members are properly located with reference to the occlusal plane or are accurately parallel thereto when the gage is applied to a patient.

Depending from one of the side members of the gage are a pair of pins 24, which extend downwardly at right angles thereto, and which carry a pair of inwardly or laterally projecting gage fingers 25 which are secured to the pins by set screws 26 in a manner such that they may be adjusted vertically or toward and away from the side members. These gage fingers will be adjusted by the dentist the correct distance from the side member, so that the instrument or tool (shown by dotted lines at 27) which is used in shaping the trial plate in the mouth of the patient will have its working face in the true occlusal plane. In other words, these members will be adjusted along their respective pins 24 so that they or the lower faces thereof are in a plane parallel to the side members 10 and 11, and the gage is adapted to engage beneath the upper lip at rest. These fingers therefore constitute abutments against which a suitable instrument 27 may be held, and retained in the occlusal plane, while the trial plate or one side thereof is being accurately shaped or leveled to the occlusal plane.

The side members 10 and 11 are preferably provided with a suitable number of openings 28 which enable the parts to be adjusted when necessary forwardly or rearwardly, by simply placing or attaching the supporting pins or screws, such as the pins 20 and 24, in different openings. This feature, together with the other features of construction, including the adjustability of the angle between the side bars or members 10 and 11, and the adjustability of the upper cross bar 19, give the instrument the necessary wide range of adjustment.

While I have shown merely the preferred form of the gage, it will be apparent that the same may be modified in many respects without materially affecting its purpose or efficiency, and I do not wish to be confined to any details of construction, except so far as I am expressly limited by the terms of the appended claims.

Having thus described my invention, what I claim is:

1. An occlusal plane gage for use in making anatomically articulated artificial dentures adapted to be attached to the head of a patient, and comprising ear engaging means, nose engaging means comprising a part adapted to engage the base of the nasal septum and a pair of side members connected to and extending between both the ear and nose engaging means, and lying in a plane having a predetermined relationship with respect to the occlusal plane when the gage is applied to the head of the patient.

2. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising ear engaging means, nose engaging means, and means connected to both the ear and nose engaging means, and lying in a plane parallel to the
occlusal plane when the gage is applied to the head of the patient, said means having beneath the same and supported therefrom an abutment adjustable toward and away from said member.

3. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of side members, the rear portions of said members having ear engaging members adapted to be inserted in the external openings of the ears and having forwardly of the same, a nose engaging member adapted to engage the bottom of the nasal septum, said side members lying in a plane having a fixed relationship with respect to the occlusal plane when the gage is applied to the head of a patient.

4. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of the patient, and comprising a pair of side members having ear engaging members adapted to be inserted in the external openings of the ears and having forwardly of the same nose engaging means adapted to engage the bottom of the nasal septum, said side members lying in a plane having a predetermined relation to the occlusal plane when the gage is applied to the head of a patient, and one of said side members having depending therefrom an abutment adjustable toward and away from said side member.

5. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of side members having ear engaging means adapted to be inserted in the external openings of the ears and having forwardly of the same nose engaging members, one arranged below the other and adapted to engage the bottom of the nasal septum, said side members lying in a plane having a predetermined relation to the occlusal plane when the gage is attached to the head of a patient.

6. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of side members provided at their rear ends with inwardly projecting members adapted to be inserted in the external openings of the ears, said side members having between the front and rear ends cross members including a lower member adapted to engage the base of the nasal septum, and an upper member adapted to engage the nasal bridge, and means whereby said upper cross member may be adjusted toward and away from the said side members, the said side members lying in a plane having a definite relation with respect to the occlusal plane when the gage is attached to the head of the patient.

7. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of side members converging forwardly and pivotally connected together at their front ends and having at their rear ends inwardly projecting members adapted to engage in the external openings of the ears, and a pair of nose engaging cross members extending between the side members, including a lower cross member adapted to engage the base of the nasal septum, and an upper cross member at the rear of the lower cross member adapted to engage the nasal bridge, means whereby said upper cross member may be moved toward and away from the lower cross member, said side members lying in a plane having a predetermined relationship with respect to the occlusal plane when the gage is applied to the head of a patient.

8. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of side members converging forwardly and pivotally connected together at their front ends and having at their rear ends inwardly projecting members adapted to engage in the external openings of the ears, means yieldingly pressing the side members together, a pair of nose engaging cross members extending between the side members, including a lower cross member adapted to engage the base of the nasal septum, and an upper cross member adapted to engage the nasal bridge, means whereby said upper cross member may be moved toward and away from the lower cross member, said side members lying in a plane having a predetermined relationship with respect to the occlusal plane when the gage is applied to the head of a patient, and one of said side members having beneath the same gage means adjustable toward and away from the side member, and extending parallel to the plane of said side members.

9. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of forwardly converging side members pivotally connected at their forward ends and having at their rear ends, inwardly projecting members adapted to be inserted in the external openings of the ears, and provided between the forward and rear ends with two nose engaging cross members, including a lower cross member adapted to engage the base of the nasal septum, and an upper cross member adapted to engage the nasal bridge and
adjustable toward and away from the side members, the lower cross member having means for clamping the side members at any angle, the said side members lying in a plane having a predetermined relationship with respect to the occlusal plane when the gage is in position on the head of a patient.

10. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient, and comprising a pair of forwardly converging side members pivotally connected at their forward ends and having at their rear ends tubular, conical, inwardly projecting members adapted to be inserted in the external openings of the ears, and provided between the forward and rear ends with two nose engaging cross members, including a lower cross member extending directly between the said members and adapted to engage the base of the nasal septum, and an arched upper cross member adapted to engage the nasal bridge, and adjustable toward and away from the side members, means yieldingly pressing the side members together, the lower cross member having means for clamping the side members at any angle, the said side members lying in a plane having a predetermined relationship with respect to the occlusal plane when the gage is in position on the head of a patient, and one of the side members having beneath the same gage means adjustable toward and away from the side members and lying in a plane parallel to the plane of said side members.

11. An occlusal plane gage for use in making anatomically articulated artificial dentures, adapted to be attached to the head of a patient and comprising a pair of side members pivotally connected at their forward ends so that they may be moved toward and from each other at their rear ends, and provided at said ends with ear engaging means, and between their ends with nose engaging means extending between the side members.

12. An occlusal plane gage for use in making anatomically articulated artificial dentures adapted to be attached to the head of a patient and comprising a pair of side members provided at their rear ends with ear engaging means and provided forwardly of the ear engaging means with nose engaging means, said nose engaging means including a lower member adapted to engage the base of the nasal septum, and an upper member adapted to engage the upper part of the nose.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

WILLIAM C. DALBELY.

Witnesses:
C. M. BERGMAN,
H. WORTHINGTON.

Copies of this patent may be obtained for five cents each, by addressing the “Commissioner of Patents, Washington, D. C.”