June 22, 1926.

1,589,973

J. S. LANDA

OCCLUSAL PLANE FINDER

Filed May 4, 1925

2 Sheets-Sheet 1

Fig. 1

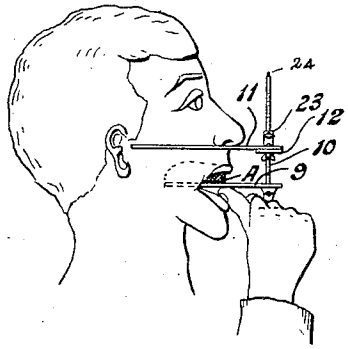


Fig. 3

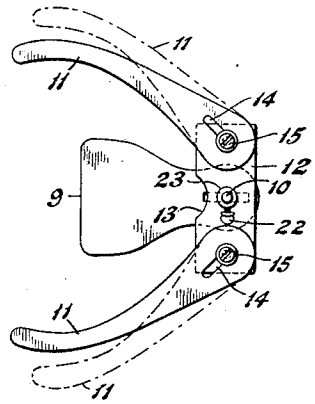


Fig. 2

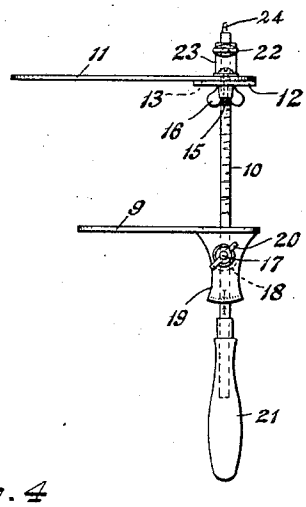
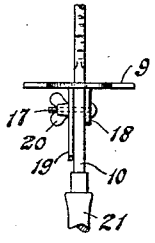


Fig. 4



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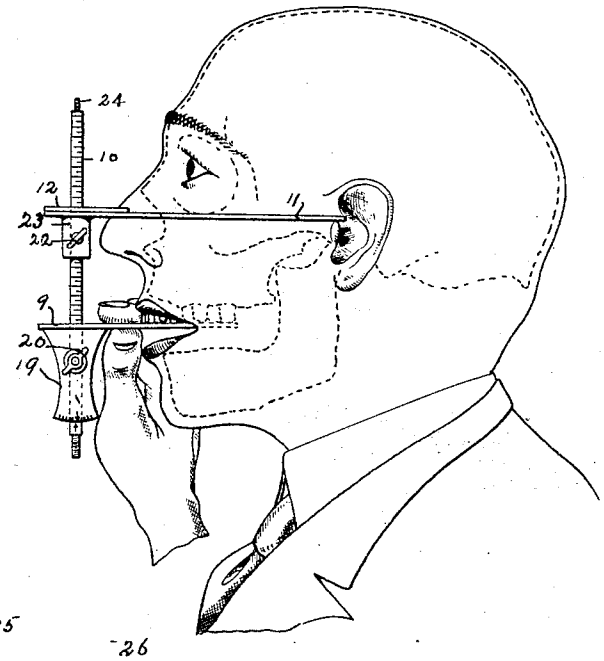


Fig. 5.

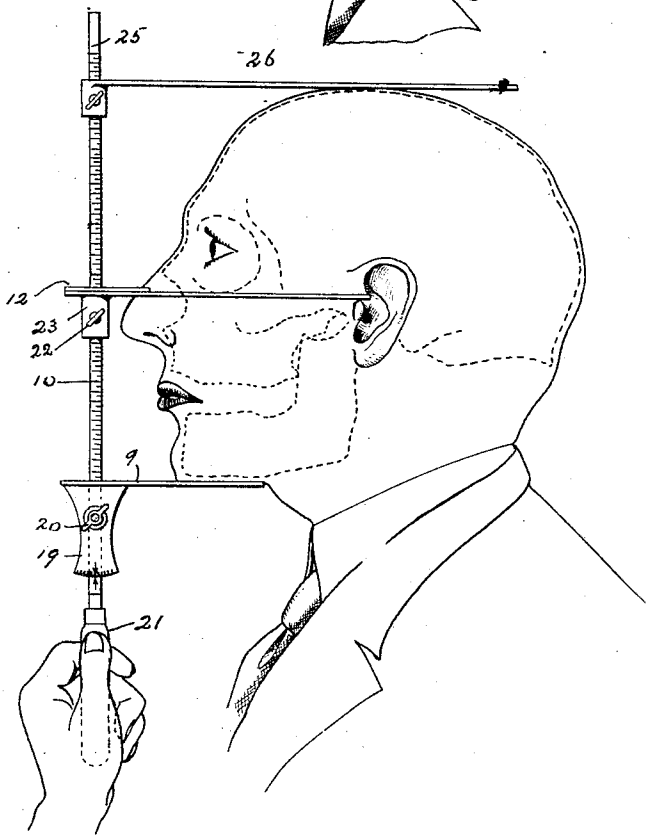


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOSEPH S. LANDA, OF NEW YORK, N. Y.

OCCLUSAL-PLANE FINDER.

Application filed May 4, 1925. Serial No. 27,732.

Among the principal objects which the present invention has in view are: to provide mechanical means for securing the correct occlusal plane for the manufacture of dental plates; to provide means for adapting an apparatus of the character mentioned to various key planes; and to secure greater accuracy in the manufacture of dental plates.

Drawings.

Figure 1 is a pictorial view showing an apparatus of the character mentioned as being employed.

Figure 2 is a side view of the apparatus.

Figure 3 is a top plan view thereof.

Figure 4 is a fragmentary view showing the supporting plate and means for pivotally mounting the same.

Figure 5 is a pictorial view showing the finder in use for ascertaining the occlusal plane when using what is known as the Frankfort horizontal plane.

Figure 6 is a pictorial view showing the finder in position on the human head for determining the disposition of the occlusal plane.

Description.

As seen in the drawings the wax model A in which the impression of the gum of the patient is to be made rests upon the supporting plate 9. The plate 9 is attached to a standard 10. The standard 10 is calibrated to indicate the distance between the supporting plate 9 and the leveling arms 11. The arms 11 are employed substantially as indicated in Figure 1 of the drawing for registering with certain features of the face or the bony structure of the head indicating a fixed or standardized plane having known relation to the occlusal plane. To illustrate, it will be seen that the arms 11 are registered with the tragi of the ears at the one end, and with the nostril adjacent the other or outer end of the arm.

To assist in placing the apparatus on the face, the cross bar 12 or supporting member as shown in Fig. 3 of the drawings has a recess 13 adapted to form the seat for or to rest upon the end of the nose. When using this plane of the face it will be observed, the supporting plate 9 is perpendicular to the standard 10 and parallel with the arms 11. It has been ascertained that the plane passing through the tragi of the ears and the nostrils of the nose, should be parallel with the occlusal plane of the teeth, any irregularity in the gum or jaw formation notwithstanding.

As seen in Fig. 3 of the drawings, the arms 11 are pivotally and movably connected with the bar 12. Having for this purpose, each arm a slot 14, through which shanks of screws 15 extend to be engaged by wing nuts 16. When the nuts 16 are tightened, the arms 11 are held rigidly in their adjusted positions.

When now it is desired to find the occlusal plane of the upper portion of the mouth or jaw, the wax model A, is provided with a level base and is then placed on the supporting plate 9. The model and plate are then inserted in the mouth of the patient and the plate and model are pressed upward into intimate contact with the roof of the mouth. Preferably, the patient by placing his or her thumb under the plate 9, can hold the apparatus in position. If the arms 11 are not adjusted to the features of the face as above referred to, the base of the model is altered until the arms 11 do register with the features. When this is accomplished it will be found that the correct occlusal plane for the dental work has been found.

While the apparatus has been shown herein as using a plane intersecting the head which is parallel with the occlusal plane, it may be employed in conjunction with what is known as the Frankfort plane which is an intersection embodying the tragi of the ears and the inner lower corners of the orbital sockets. This plane has a known standard angular relation to the correct dental occlusal plane. The plane 9 is pivotally mounted on the bolt 17 which extends through the standard 10, the wing lug 18, and the calibrated extension 19. A wing nut 20 engages threads formed on the bolt 17 which is used to clamp the parts in rigid relation when the proper setting of the plate with reference to the standard 10 has been secured, using for that purpose the calibrations on the lower edge of the extension 19. If some other standard plane should be used having a different angle, the

method of setting is identical with that herein disclosed.

It is obvious that by adjusting the arms 11 up and down on the standard 10 to correspond with the operating planes, the distance from the occlusal plane and the setting or registering plane is mechanically ascertained, and thereby the characteristic feature of length of the upper jaw is ascertained. A set screw 22 which is mounted in the perforated box 23 is used for setting the cross bar rigidly on the standard 10, when the same is properly adjusted.

In Figures 2 and 4 of the drawings, I have shown a removable handle 21 which may be employed to assist the patient in holding the plate 9, while the adjustment of the arms 11 is being effected. I prefer, however, to dispense with the handle 21 and have the patient support the plate 9 and parts associated therewith in the working position in the manner shown in Fig. 1 of the drawings.

In Figures 5 and 6 of the drawings, I have shown the apparatus as employed for establishing the relation of the occlusal plane with the Frankfort plane; and for determining the vertical location of the occlusal plane.

The standard 10 is provided with a reduced threaded end 24. The end 24 is engaged by an extension 25 upon which is slidably mounted a blade 26. The blade 26 as shown in Figure 6 of the drawings is for finding the top of the cranium to measure the distance between the arms 11 or the plane in which they rest and the blade 26 or the plane in which it rests.

When using the instrument for this purpose, the plate 9 is disposed beneath the chin of the patient—the arms 11 are adjusted to the Frankfort plane—and the blade 26 is placed over the cranium. The reason for this is that there is an established ratio in the measurement between underside of the chin to the Frankfort plane—and from the Frankfort plane and the top of the cranium. From this it is obvious that if the patient has (for instance) lost his or her teeth, the distance between the plate 9 and the plane of the arms 11 would be relatively short when the lower jaw is closed upon the upper jaw. The deficiency thus ascertained by the calibrations on the standard 10 and extension 25, would indicate the length of the teeth to be provided on the plates. Thus the apparatus completes the operation of ascertaining first the occlusal plane, and second the vertical location thereof.

Claims.

1. An apparatus as characterized comprising a supporting member, a plate, and finding arms associated with said member in spaced relation to said plate for registering with certain facial features of the human head, and connective means for maintaining the operative relation of said plate and arms, said means embodying a standard arranged for measuring the distance between said plate and arms.

2. An apparatus as characterized comprising a supporting member, a plate, and finding arms associated with said member in spaced relation to said plate for registering with certain exterior features of the human head occupying a known plane, and connective means for maintaining the operative relation of said plate and arms, said means embodying a standard arranged for measuring the distance between said plate and arms, said standard being calibrated for ascertaining the adjusted distance.

3. An apparatus as characterized comprising a supporting member, a plate, and finding arms associated with said member in spaced relation to said plate for registering with certain features of the human head, and connective means for maintaining the operative relation of said plate and arms, said connective means being so constructed that the angular relation between said plate and arms may be changed.

4. An apparatus as characterized comprising a plate, a plurality of pivotally mounted finder arms, said arms being adapted to swing in the same plane, a standard operatively connecting said plate and arms, and means for securing said arms in adjusted position on said standard.

5. An apparatus as characterized comprising a supporting plate, a bar, a plurality of finder arms pivotally mounted on said bar, said arms being adapted to swing in the same plane, a standard operatively connecting said plate and bar, means for securing said bar in adjusted position on said standard, and means for changing the angular relations of the planes of extension of said plate and said arms.

6. An apparatus as characterized comprising a supporting plate, a bar, a plurality of finder arms pivotally mounted on said bar, said arms being adapted to swing in the same plane, a standard operatively connecting said plate and bar, means for securing said bar in adjusted position on said standard, and means permitting changing of the angular relations of the planes of extension of said plate and said arms, said means embodying an extension on said plate for pivotally mounting said plate, one edge of said extension having calibrations to be read in conjunction with the said standard for ascertaining the angular relation of said plate to said stadard.

7. An apparatus as characterized comprising a supporting plate, a bar, a plurality of finder arms pivotally mounted on said bar, said arms being adapted to swing in the

same plane, a standard operatively connecting said plate and bar, means for securing said bar in adjusted position on said standard and means permitting changing of the angular relations of the planes of extension of said plate and said arms, said means embodying an extension on said plate for pivotally mounting said plate, said extension having calibrations to be read in conjunction with the said standard for ascertaining the angular relation of said plate to said standard, and means for holding said arms in perpendicular relation to said standard.

JOSEPH S. LANDA.