

Aug. 11, 1953

S. K. AVERY

2,648,130

PROSTHETIC TRANSFER RECORDER

Filed Aug. 1, 1951

2 Sheets-Sheet 1

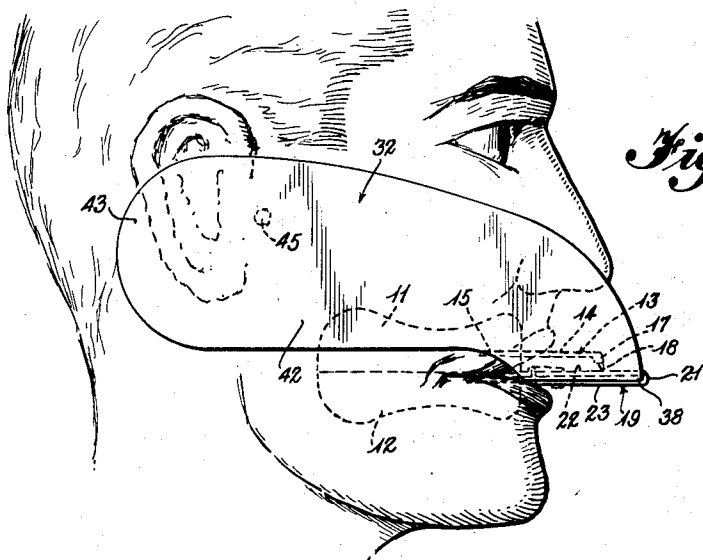


Fig. 1.

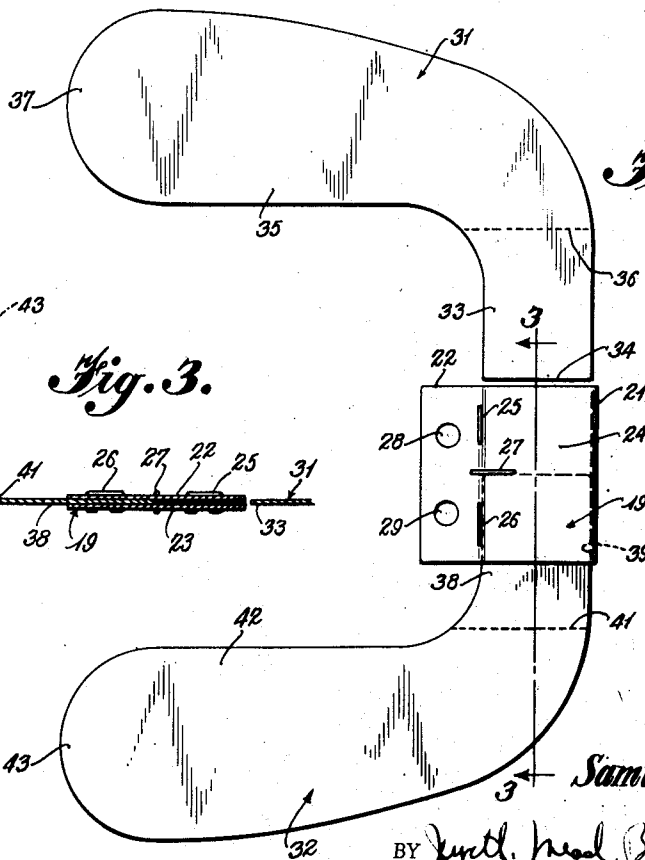


Fig. 2.

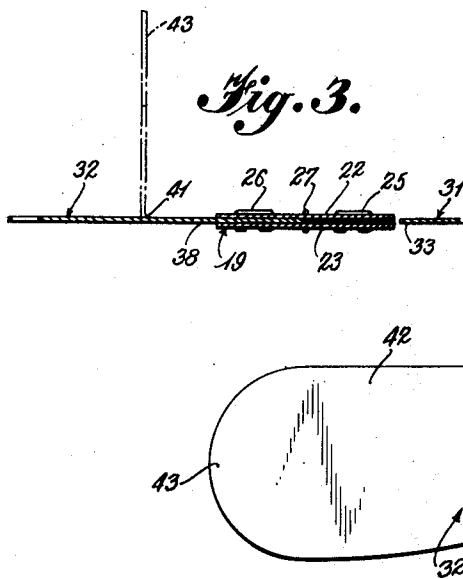


Fig. 3.

INVENTOR

Samuel K. Avery

BY *Justl. Neal Brown & Shufers*
ATTORNEYS

Aug. 11, 1953

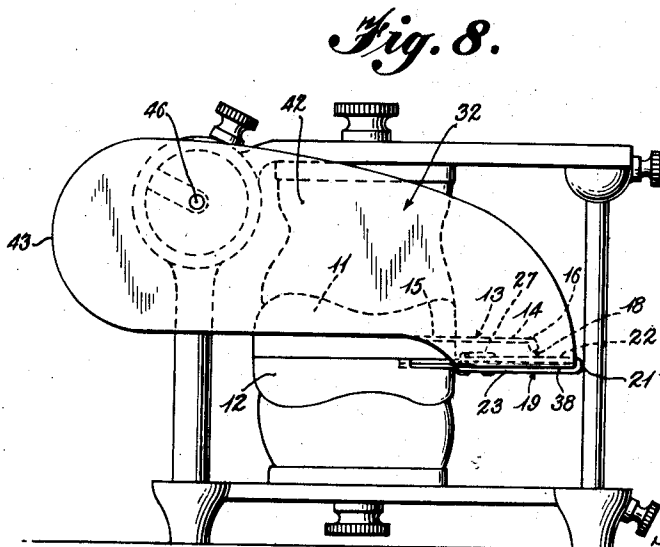
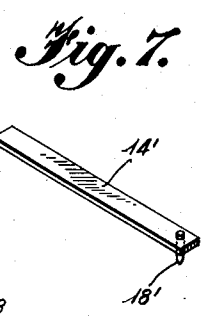
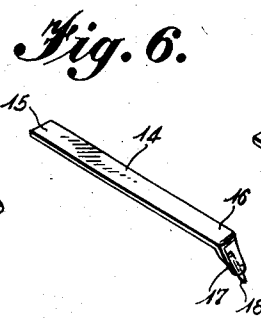
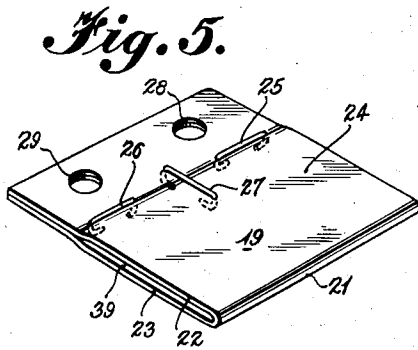
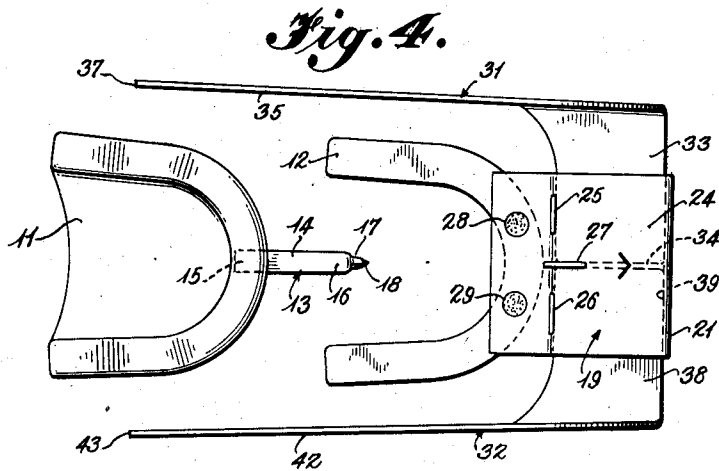
S. K. AVERY

2,648,130

PROSTHETIC TRANSFER RECORDER

Filed Aug. 1, 1951

2 Sheets-Sheet 2



INVENTOR

Samuel K. Avery

BY *J. M. Brown & Schaefer*

ATTORNEYS

UNITED STATES PATENT OFFICE

2,648,130

PROSTHETIC TRANSFER RECORDER

Samuel K. Avery, Dolton, Ill.

Application August 1, 1951, Serial No. 239,780

8 Claims. (Cl. 32—20)

1

This invention relates to a prosthetic transfer recorder and particularly concerns an appliance for locating and recording the relationship of bite blocks in a patient's mouth to the head of the patient's condyles.

In the customary practice of preparing dentures, the dentist usually molds bite blocks of wax, which bite blocks are fitted in the patient's mouth. With these bite blocks positioned in the mouth, lateral, mesial and distal movements of the lower jaw effect the tracing of a Gothic arch by relative movement of a scribe secured in one of the bite blocks and engaging a tracing plate secured in the other bite block. This tracing of the Gothic arch establishes the centric relation of the bite blocks and indicates relative movements of the jaws in the occlusal plane. Following the tracing of the Gothic arch, the bite blocks may be mounted in an articulator which has a pivot point so arranged that the movements of the two bite blocks correspond generally to the movements of the patient's jaws. While the Gothic arch indicates the centric relationship of the bite blocks and movements of the jaws in the occlusal plane, it does not establish the proper relationship between the bite blocks and the pivot point, that is, the head of the patient's condyles.

To exactly simulate, in the articulator, relative movement of the mandible with respect to the upper jaw, the pivot point of the articulator with respect to the bite blocks should correspond to the positions of the condyle heads relative to the occlusal plane of the patient. Heretofore, this relationship of the pivot point has been approximated by the technician or the dentist. While various appliances have been proposed for recording facial measurements, and articulators may have their pivot points positioned according to such measurements, it has been necessary to record various dimensions of the face so the dentist or technician may set the pivot point of the articulator according to the recorded dimensions. This is of course subject to error on the part of the dentist taking the measurements and the dentist or technician setting up the articulator. Furthermore, time is consumed in both the recording and setting up operations.

A major object of the present invention is to provide a prosthetic transfer recorder which has locators for the heads of the condyles to indicate on devices which accompany the bite blocks, just as the Gothic arch tracing accompanies the bite blocks, the heads of the condyles with respect to the occlusal plane of the bite blocks positioned in the patient's mouth.

2

More particularly, an object of the invention is to provide a condyle head locator which may be used in connection with the Gothic arch tracer to indicate the relative position of the condyle heads with respect to the bite blocks. Specifically, an object of the invention is to provide a disposable Gothic arch tracing device with a disposable condyle head locator or a pair of condyle head locators.

In accordance with these objects, one important feature of the invention resides in the provision of a bracket for attachment to one of the bite blocks in the patient's mouth with a condyle head locator having one end secured to the bracket and shaped so the other end extends laterally and distally from the bracket so the free end of the locator overlies the head of the condyle of the patient in whose mouth the bite blocks are located. Preferably, a pair of locators are supported in predetermined relation in the bracket, but are removable from the bracket so they may be transmitted with the bite blocks and the bracket to a technician who may handle the bite blocks and set them up in an articulator.

An important feature of the invention resides in the provision of a Gothic arch tracing plate made of disposable sheet material and condyle head locators, also of disposable sheet material, the locators being detachably mountable on the plate in predetermined relation and shaped to overlie the heads of the condyles of the patient in whose mouth the bite blocks are located.

Other objects of the invention will become apparent from the following specification taken in conjunction with the accompanying drawings wherein:

Fig. 1 is an elevational view of a prosthetic recorder illustrating a preferred form of the invention inserted in the mouth of a patient;

Fig. 2 is a top plan view of a preferred form of the condyle head locator appliance embodying the invention and illustrating the locators in a flattened position;

Fig. 3 is a partial sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a top plane view of the prosthetic recorder shown in Fig. 1, the parts being mounted in bite blocks displaced mesio-distally for purposes of illustration;

Fig. 5 is a perspective view of the bracket and tracer plate forming a part of the recorder;

Fig. 6 is a perspective view of a suitable scribe of the type shown in Fig. 4;

Fig. 7 is a perspective view of a modified form of scribe; and

3

Fig. 8 is an elevational view showing the recorder with condyle head locators mounted in an articulator holding the bite blocks and casts of the mouth in the proper position.

In Fig. 1, an upper bite block 11 and lower bite block 12 are shown inserted in the mouth of a patient. Secured in the upper bite block and extending mesially between the lips of the patient is a scriber member 13 having a flat spring body portion 14 (Fig. 6) with one end 15 embedded in the upper bite block 11. Free end 16 of the scriber member 13 is formed with a tubular socket 17 for receiving the scriber point 18. Any suitable scriber may be used for tracing the Gothic arch. For example, the modified form of scriber shown in Fig. 7 has its flat spring body portion 14' provided with a hole in which is mounted scriber point 18'. While the scriber is illustrated as formed of metal, it may be made of any suitable material and have a shape whereby the scriber is supported in the upper bite block by the wax of the bite block with the scriber itself extending mesially between the lips of the patient and the scriber point projecting downwardly from the exposed end of the scriber.

For the purpose of tracing the Gothic arch and also providing a support for condyle head locators, a bracket 19, of cardboard or other suitable sheet material, is made of a double thickness by being folded along front edge 21 to form an upper layer 22 and a lower layer 23. The exposed upper face of upper layer 22 forms a tracing plate 24 across which scriber 18 moves during lateral, mesial and distal manipulations of the mandible with respect to the upper jaw, thereby tracing on plate 24 a Gothic arch.

For the purpose of retaining the two layers of bracket 19 together, staples may be inserted through the two layers. For example, a pair of laterally disposed staples 25 and 26 may be arranged to define, with the fold along edge 21, a socket extending laterally through the bracket 19 between the layers thereof. To divide this socket into two parts, another staple 27 may be inserted through the layers and arranged along the medial plane thereby dividing the socket into two parts, one on each side of the center of the bracket.

For the purpose of supporting the bracket 19 in the lower bite block, the distal portion of the bracket is formed with a pair of holes 28 and 29. These holes provide devices whereby the bracket may be secured, as by wax or otherwise, to the lower wax bite block 12. Thus, the bracket is actually embedded in the wax of the bite block and securely retained in position so it extends mesially between the lips of the patient beneath the scriber 13.

As previously explained, the Gothic arch traced on tracing plate 24 is useful in determining the centric relation of the upper and lower bite blocks and also in determining relative movements of the bite blocks in the occlusal plane.

For the purpose of recording the relative positions of the upper and lower bite blocks with respect to the condyle heads of the patient, a pair of condyle head locators 31 and 32 are shaped and arranged to extend laterally and distally from the bracket and overlie the patient's condyle heads. For this purpose, condyle head locator 31 has one end 33 shaped and arranged to be received in the socket defined by folded front edge 21, lateral staple 25 and mesial distal staple 27. The innermost edge 34 of the locator engages, when properly positioned, the mesial distal staple 27, which thus serves as an abutment to

4

determine when the locator is in a predetermined position with respect to the bracket 19. Inasmuch as the locator 31 is made of cardboard or other suitable disposable sheet material, it preferably has a score-line 36 substantially parallel to the end 34 which engages abutment staple 27, so the locator may be folded with the inner surface of distally extending portion 35 overlying the cheek of the patient. It will be noted that the upper and lower edges of distally extending portion 35 diverge toward free end 37 of the locator so the portion of the locator at the free end overlies the condyle head of the patient.

Similarly, locator 32 has a mounting end 38 shaped and arranged to be received in socket 39 formed by folded front edge 21, lateral staple 26 and the same abutment staple 27. With the innermost end of locator 28 engaged with abutment staple 27, the locator 32 is arranged in a predetermined position with respect to bracket 19. When locator 32 is folded on its score-line 41, distally extending portion 42 has its inner surface overlying the other cheek of the patient and overlying the head of the condyle. As in the case with locator 31, distally extending portion 42 of locator 32 has an enlarged portion with a free end 43 overlying the head of the condyle.

In use, the scriber 13 is embedded in the upper bite block and bracket 19 is secured in the lower bite block by wax extending through mounting holes 28 and 29 so the mounting holes and the bracket surrounding them are actually embedded in the wax of the bite block. Both the scriber and the bracket 19 extend mesially through the lips of the patient. The scriber is positioned above the upper exposed surface of the bracket which forms a tracing plate for the Gothic arch. Lateral, mesial and distal manipulations of the lower jaw effect a relative movement between scriber 18 and tracer plate 24 so a Gothic arch is traced on the tracing plate. This part of the structure is effectively an extra-oral Gothic arch tracer.

Locators 28 and 29 have their respective end portions inserted in corresponding sockets of the bracket 19 and are folded along their respective score-lines so the two locators extend laterally from the bracket and have distally extending portions overlying the heads of the patient's condyles. Prior to the insertion of the bite blocks in the mouth of the patient, or prior to the positioning of the condyle head locators, a spot of coloring, such as that indicated at 45, is placed on the cheek of the patient at the head of the condyles. Then, with the bite blocks positioned in the patient's mouth in centric relation, and the two locators positioned in the bracket, the locators are pressed against the colored spots on the cheeks of the patient thereby transferring a portion of the color onto the free end portions of each of the locators. Then a hole is punched to receive the projecting ends on the articulator which represents the heads of the condyles of the patient.

Subsequently, the bite blocks, with the locators and the Gothic arch tracer, may be removed from the mouth of the patient. The bite blocks are fastened together in centric relation prior to removal. The bite blocks are then placed on casts of jaws with the bracket secured in the lower bite block. Then the casts and bite blocks, with the condyle head locators, may be used by the dentist or forwarded to a technician. The condyle head locators may be temporarily removed from the bracket sockets, if desired for mailing.

5

The technician reinserts the locators in the sockets in the bracket, and then mounts the bite blocks in an articulator, in a manner illustrated in Fig. 8, so that the pivot 46 of the articulator passes through the two colored marks on the locators. In this fashion, the bite blocks are accurately positioned in the articulator so the pivot of the articulator has the same position relative to the occlusal plane of the bite blocks as the condyle heads of the patient have to the occlusal plane. Hence, any manipulation of the bite blocks in the articulator corresponds exactly to the manipulation of the bite blocks in the patient's mouth.

In addition to providing a simple method and device for locating the condyle heads with respect to the bite blocks, the use of disposable condyle head locators with simple mounting devices for positioning them in predetermined arrangement in the bracket secured to the lower bite block enables these cardboard locators to be transported from place to place with the bite blocks. It is unnecessary to supply facial measurements and dimensions or to send any sort of a gauge along with the bite blocks. The cardboard locators and the tracing plate bracket may be discarded following the completion of the dentures.

As the preferred form of the invention herein described may be modified and altered without departing from the invention defined by the appended claims, the foregoing description and the accompanying drawings are to be construed as illustrative and not in a limiting sense.

What is claimed is:

1. A prosthetic recorder comprising a plate having thereon means for mounting the plate in a bite block, a pair of disposable condyle head locators formed of sheet material, and cooperating means on said plate and said locators for attaching one end of each of said locators to said plate, said locators being so arranged that the free flat ends thereof project from opposite sides of said plate and overlie the condyle heads of a patient.

2. A prosthetic transfer recorder comprising a tracer plate, means on said plate for mounting it in one of a pair of bite blocks so said plate receives tracings from a stylus mounted in the other bite block of the pair when arranged in a patient's mouth, a pair of disposable condyle head locators formed of sheet material, and cooperating means on said plate and said locators for attaching one end of each of said locators to said plate, said locators being so shaped and arranged that the free flat ends thereof project from opposite sides of said plate and overlie the condyle heads of the patient.

3. In a prosthetic recorder, a condyle head locating appliance comprising a bracket having thereon means for securing the bracket on a bite block, and a disposable condyle head locator on said bracket extending laterally and distally therefrom, said locator being formed of sheet material and so shaped and arranged that a flat portion of the locator overlies the head of a condyle when the bite block is inserted in a patient's mouth.

4. In a prosthetic transfer recorder, a condyle head locator appliance comprising a bracket having thereon means for securing the bracket in a

6

bite block, said bracket being formed with a socket, and a disposable condyle head locator having one end portion shaped to enter said socket for supporting said locator in predetermined relation on said bracket, said locator being formed of sheet material so shaped that the free flat end thereof overlies the head of a condyle when the bite block is inserted in the mouth of a patient.

5. In a prosthetic transfer recorder, a condyle head locator appliance comprising a bracket having thereon means for securing the bracket in a bite block, said bracket being formed with a socket, and a disposable condyle head locator having one flat end portion shaped to enter said socket for supporting said locator in predetermined relation on said bracket, said locator being formed of sheet material shaped in a manner such that the other flat end thereof overlies the condyle head of a patient in whose mouth the bite block is inserted.

6. In a prosthetic transfer recorder, a condyle head locator comprising a bracket having thereon means for securing the bracket in a bite block, said bracket being formed with a pair of sockets, a pair of disposable condyle head locators formed of sheet material having flat end portions for insertion respectively in said sockets, said end portions fitting snugly in said sockets so said locators are held in predetermined relation with respect to said bracket, the shape of said locators being such that the free flat ends thereof overlie the condyle heads of a patient in whose mouth the bite block is inserted.

7. In a prosthetic transfer recorder, a condyle head locator comprising a bracket having thereon means for securing the bracket in a bite block, said bracket being formed with a pair of sockets, and a pair of disposable condyle head locators of sheet material, one flat end of each of said locators being shaped and arranged to enter one of the sockets, said locators being shaped and arranged in a manner such that the other flat ends of the locators project laterally and distally and overlie the condyle heads of a patient in whose mouth the bite block is located.

8. A prosthetic transfer recorder comprising a bracket having thereon means for securing the bracket in one of a pair of bite blocks, a tracer plate on said bracket positioned to receive tracings from a stylus mounted in the other bite block of the pair when both bite blocks are inserted in the mouth of a patient, a pair of disposable condyle head locators of sheet material, said bracket being formed with a pair of sockets, one flat end of each of said locators being shaped to enter one of said sockets supported thereby on said bracket, said locators being shaped and arranged to extend laterally and distally from said bracket so the free flat ends of said locators overlie the condyle heads of the patient in whose mouth the bite blocks are inserted.

SAMUEL K. AVERY.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,052,806	Evans	Feb. 11, 1913
1,703,105	Hawksworth	Feb. 26, 1929
1,764,115	Mulcahy	June 17, 1930