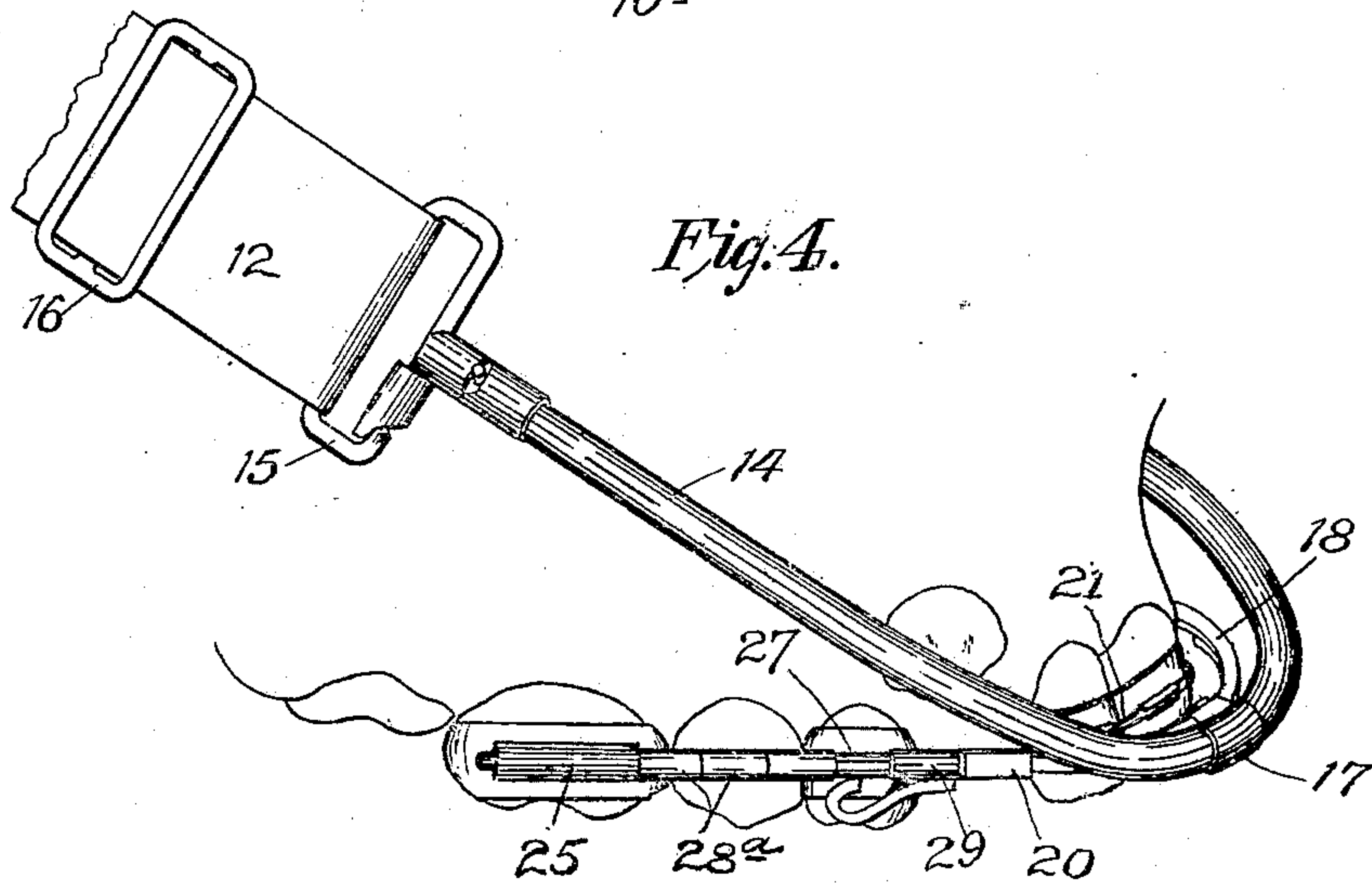
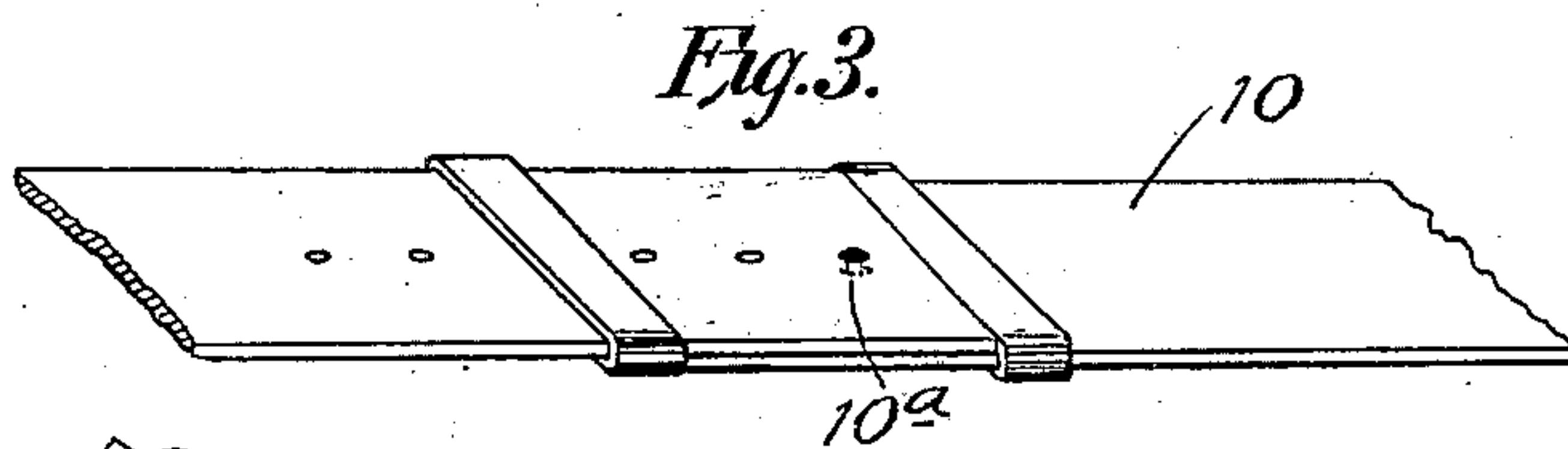
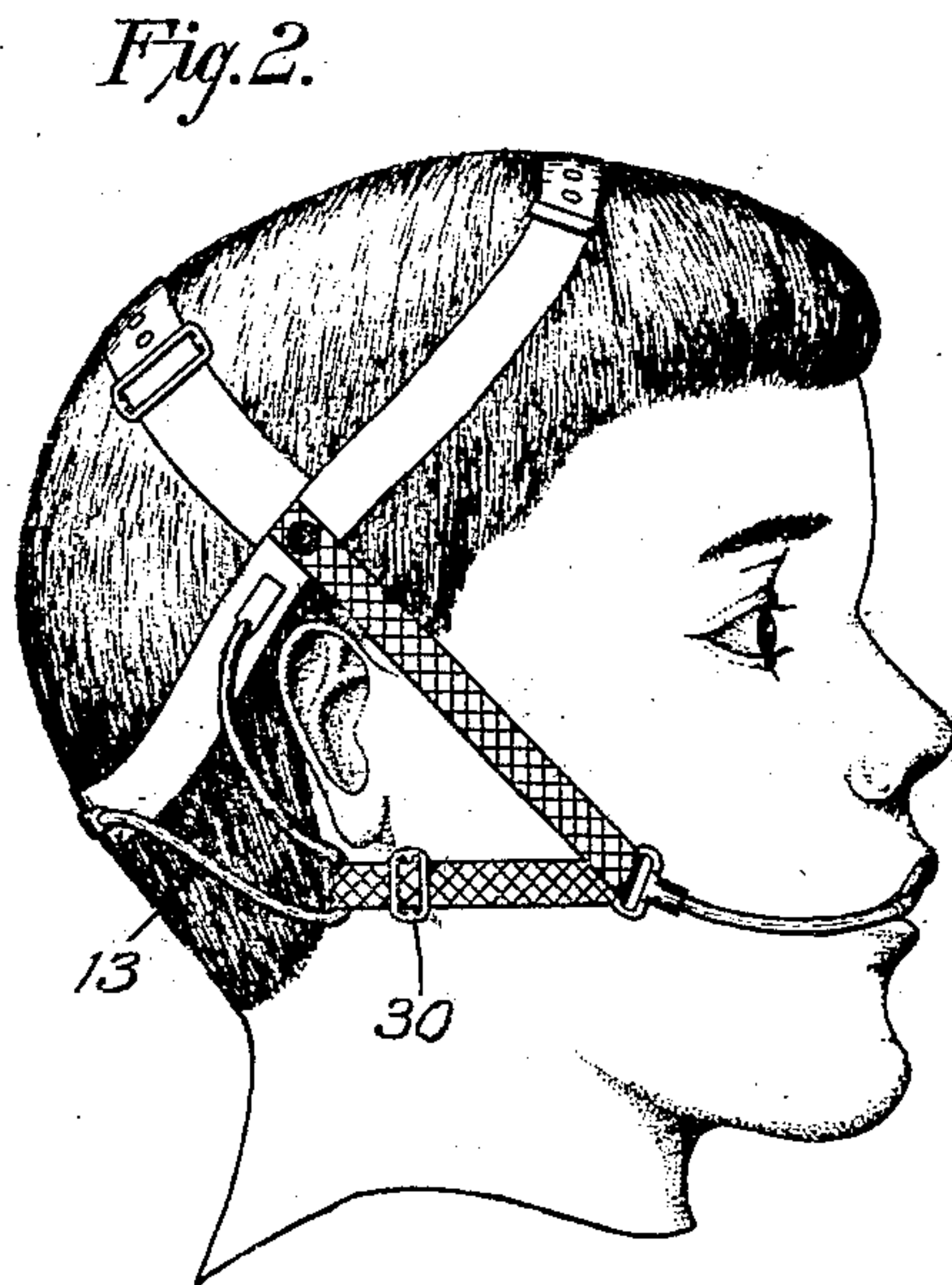
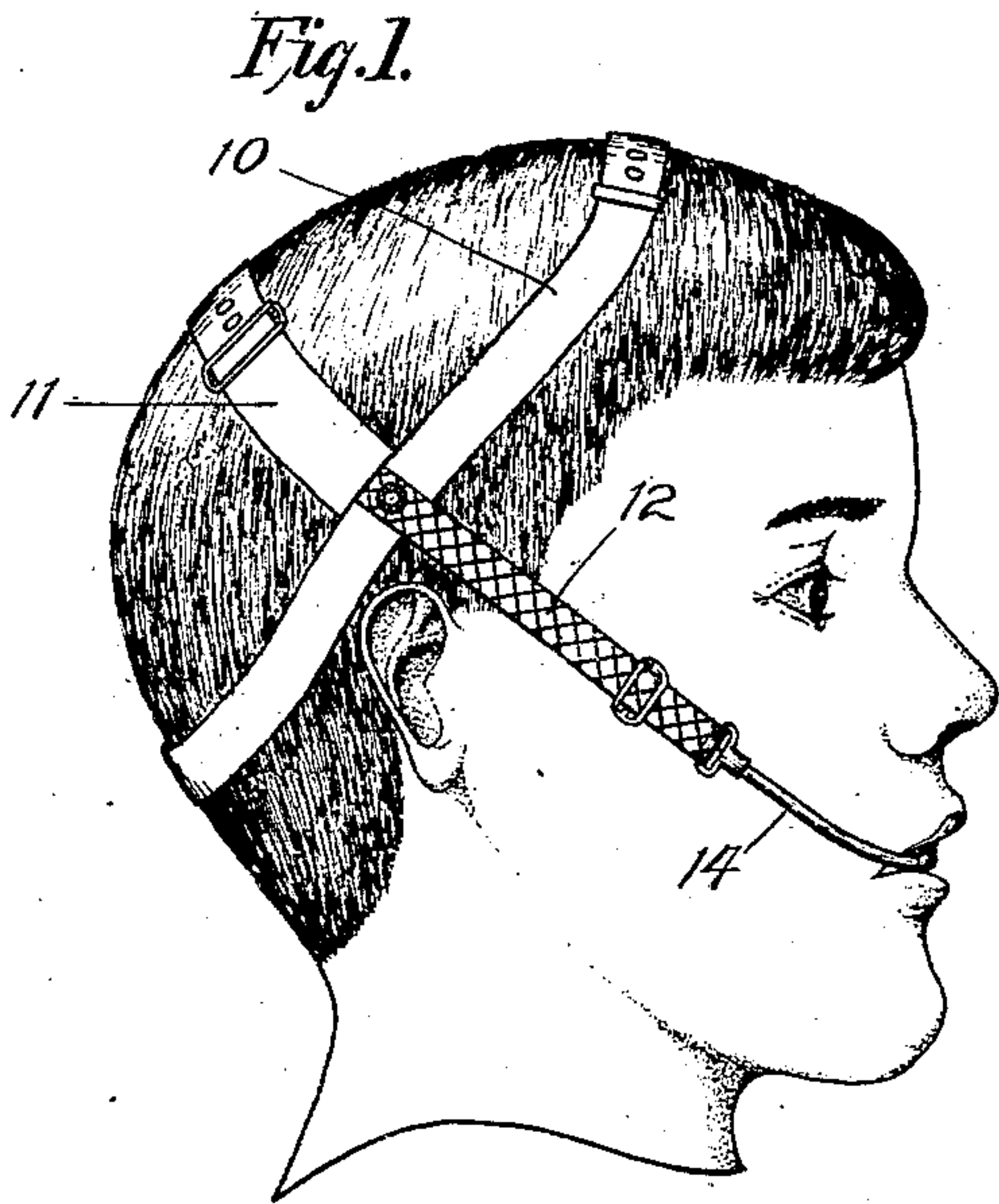


No. 862,881.

PATENTED AUG. 13, 1907.

C. S. CASE.
DENTAL APPLIANCE.
APPLICATION FILED JAN. 25, 1904.

2 SHEETS—SHEET 1.



Witnesses;

Cyril C. Brick.
Chas. H. Ebert

Inventor,

Calvin S. Case.

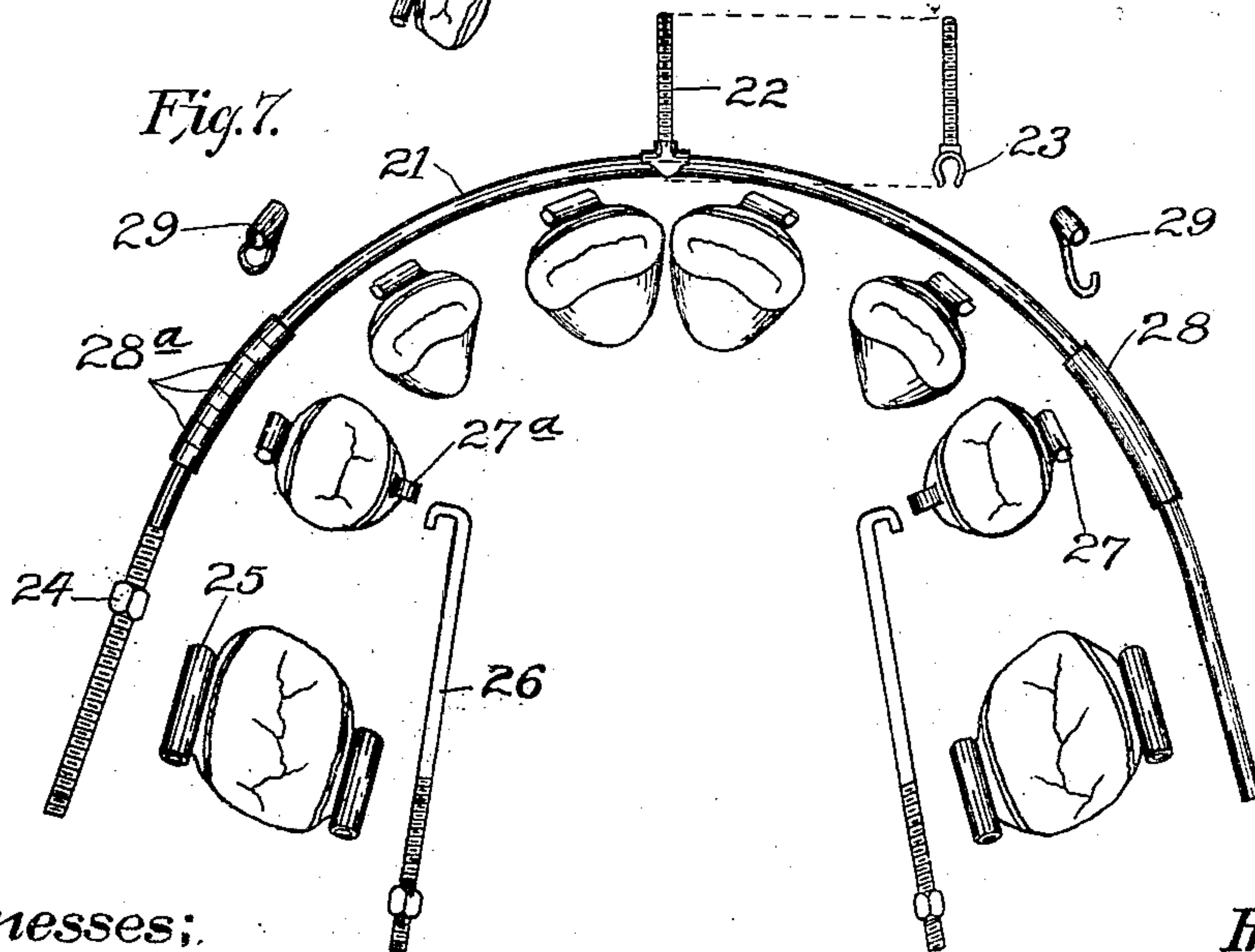
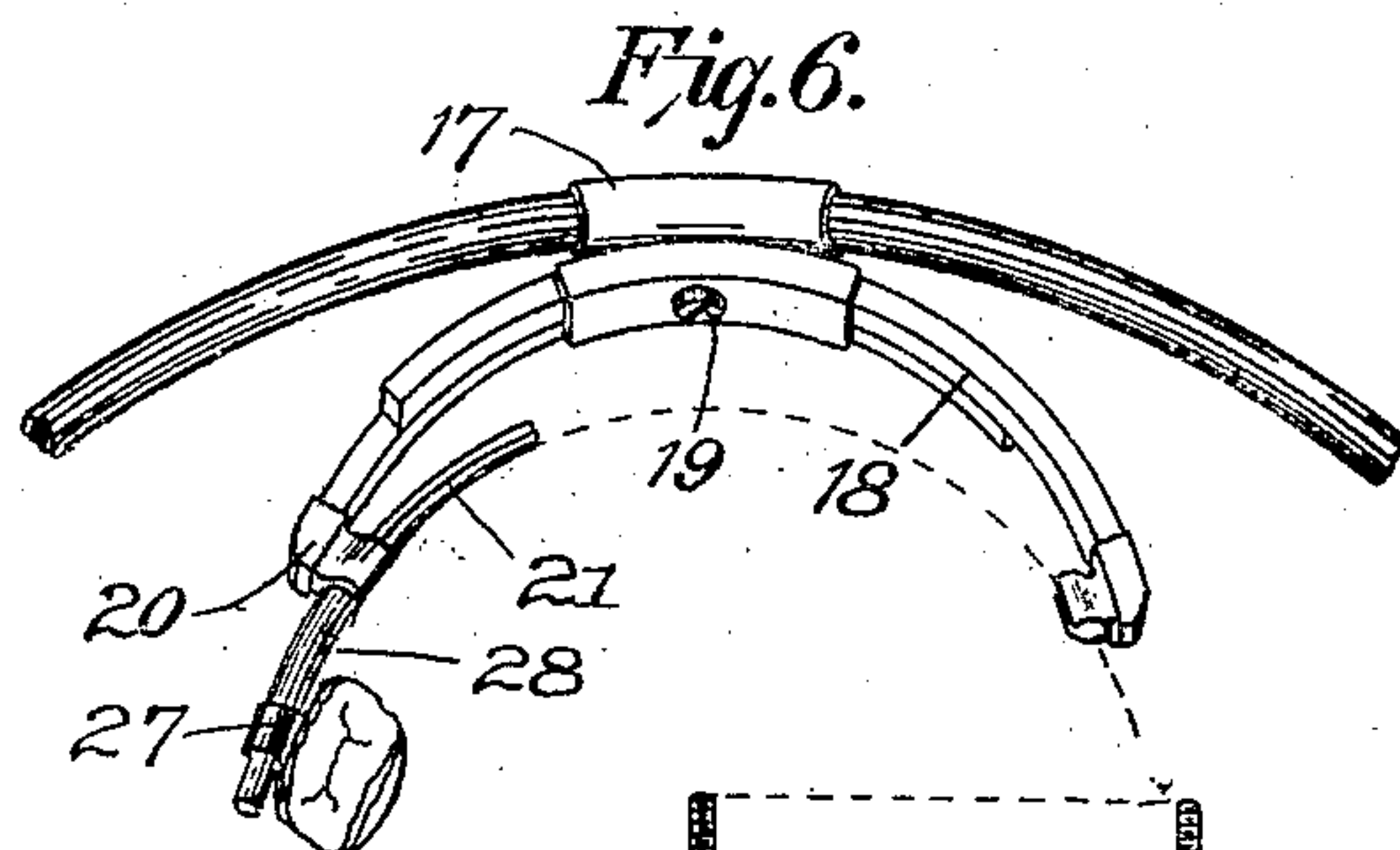
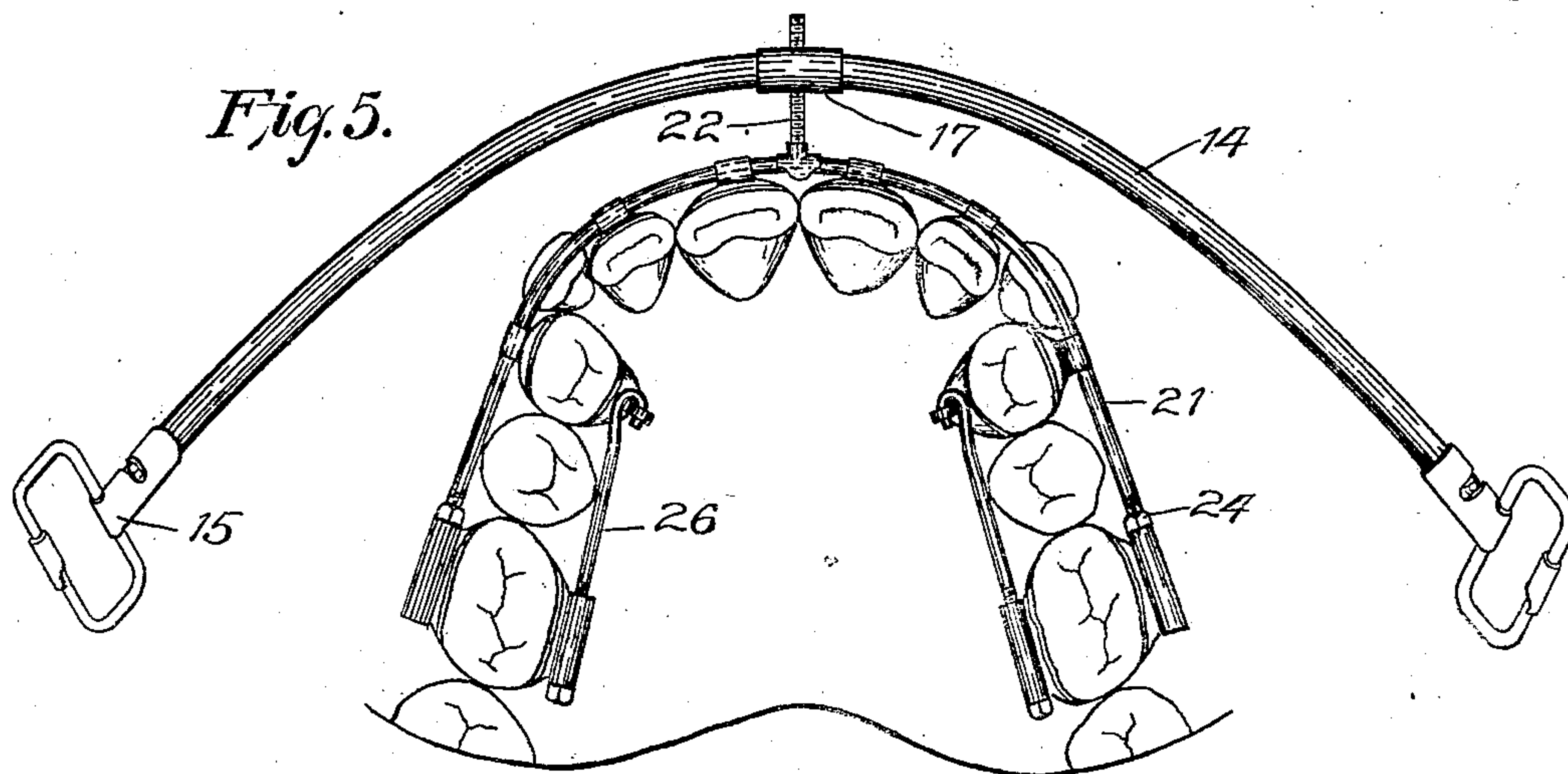
per Paul Symmes
Att'y.

No. 862,881.

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C. S. CASE.
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APPLICATION FILED JAN. 25, 1904.

2 SHEETS—SHEET 2.



Witnesses:
Cyril C. Bricks
Chas. H. Eberk

Inventor,
Calvin S. Case.
per Paul Symmestredt
Atty.

UNITED STATES PATENT OFFICE.

CALVIN S. CASE, OF CHICAGO, ILLINOIS.

DENTAL APPLIANCE.

No. 862,881.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed January 25, 1904. Serial No. 190,615.

To all whom it may concern:

Be it known that I, CALVIN S. CASE, a citizen of the United States, residing at Chicago, in the State of Illinois, have invented certain new and useful Improvements in Dental Appliances, of which the following is a specification.

My invention relates to apparatus for dental surgery, and has for its principal object the provision of means for the retrusion and alinement of the teeth and otherwise applying force to the teeth, by means of resilient connections supported by a framework on the head. Other objects are, to provide adjustable devices for applying pressure to the teeth which will not necessarily interfere with the movement of the lips, and a head gear therefor which does not press upon the cheeks and render the patient uncomfortable; and to provide means for applying the pressure to any particular tooth without disturbing the rest. These objects and other advantages which will hereinafter appear, I attain by means of the construction and assemblage of parts as illustrated in preferred form in the accompanying drawings, wherein—

Figure 1 represents the head gear and parts of the apparatus in place as arranged for retrusion of the front teeth.

Figure 2 represents a slight modification of the head gear, in which there is provision for application of the force in a more nearly horizontal direction;

Figure 3 illustrates a mode of adjusting the head bands;

Figure 4 shows the retruding bow attached to the dental bow and alinement rod acting upon certain teeth;

Figure 5 is an under plan view of the retruding bow and alinement rod applied directly together and acting on several of the upper teeth at once;

Figure 6 is a fragmentary view of parts showing the application of pressure on a particular tooth by the dental bow, and

Figure 7 is a view showing the parts all separated and some modifications of features, to be hereinafter described.

In the practice of what in dental surgery is called the application of orthopedic force, for the purpose of properly alining the teeth in the mouth, it has been found that the efficiency and practicability of this method of adjusting the teeth depends very much upon the comfort with which the apparatus and head support may be worn by the patient, and upon the easy and ready adjustability of the same by the operator or by the patient himself, in order that it may readily be placed in comfortable position or removed when necessary. In most cases a head piece or skull cap has been formed of netting attached to a rigid wire hoop which encircles the crown of the head, and the result has been so uncomfortable as to largely negative the value of the apparatus, while in all the devices of

which I am aware it has been customary to use simple rubber bands to provide the necessary elasticity, attached in such a way that they press upon the cheeks and other tissues and render the apparatus uncomfortable in sleep and difficult to handle.

In the apparatus which I use, the force is applied to the teeth by a bow adapted to be worn outside of the mouth, engaging with appliances attached to the teeth, and is of sufficient length to support elastic bands free from contact with the patient's cheeks, from a head gear anchorage which is itself comfortable to wear at all times. The head frame is composed preferably of thin metallic bands, 10, 11, one part being cut to conform to the shape of the zone of the head on which it is to be worn and provided with some adjusting device as the holes and pin 10^a in Figure 3. The part 11 is preferably a straight and somewhat wider metallic band, which is also provided with some kind of sliding adjustment, and is pivoted to the band 10 as shown, so as to permit of adjusting it to any desired angle which is comfortable to the patient, and also allowing the band when not in use to turn down under the band 10 in order to take up less room.

In order to apply a constant pull upon the retruding bow 14 I preferably employ a band of elastic webbing, 12, which is attached to the bands and is provided with a sliding adjustment buckle 16 in order to alter its length, and attach it to the head 15 of the bow 14. This end of the bow is made in a swivel form, in order that the elastic band may conform itself to the cheek, as desired.

Where it is desired to lower the direction of the applied force, I vary the apparatus as shown in Figure 2, in which one end of the elastic band, 30, is held at a point beneath the ear, by providing the stiff wire brace 13 which is attached to the band 10 at two points. It will be understood that this brace is fixed upon the band in such form as to stand out free from the patient's neck and head, in order to be more comfortable and to prevent the elastic band from pressing against the cheek.

The retruding bow 14 is provided with some attachment at its center for applying the pressure upon the teeth in various ways. In the form as shown in Figure 5 it has a standard 22, which may be attached by means of screw threads in order to make it adjustable in length, and is provided with a resilient clasp 23 (see Fig. 7) in order to engage a portion of the alinement rod 21. It is preferably so shaped as to enter the interproximate space between the central incisor teeth, in order to prevent it from slipping from one side to the other.

But in my preferred form of the apparatus as illustrated in Figures 4 and 6, the retruding bow 14 is attached directly by means of screw 19 to a sleeve carrying an arched dental bow composed of the two parts 18, which slide upon each other in order to adjust the

length along the bow between the two end block rests 20, as shown in Figure 6, which are intended to clasp the dental alinement bow and apply pressure directly upon the side and back teeth, as may be desired. It will be understood that this coöperates with the alinement rod 21, and the blocks 20 may slide along the alinement rod until they come into contact with engaging points that act directly or indirectly upon the tooth which it is desired to engage. With this device the pressure can be applied directly to the cuspids, bi-cuspids, or molars, without exerting any force upon the teeth anterior to its points of application. It will be observed also that a molar on one side of the mouth and a cuspid or bi-cuspid on the other side, can be made to receive equal and counteracting forces. When it is desired to reach a molar the sliding spacer tube 28 is used as shown in Figure 6, and when desired a series of short sliding tubes 28^a are used as in Figure 4, where the force may be applied simultaneously to two separated teeth, engaging the stop tubes 25 and 27.

It is to be observed that this provides means for applying force directly to the side and back teeth from a head gear anchorage and without interfering with the other teeth, or without forming an abutment against the anterior teeth, as has been customary heretofore. As an example of the use of this device and this method of applying force to the teeth, it will be observed in Figure 5, which shows an irregularity in which it has heretofore been supposed to be necessary to laterally extend the arch or else to extract one of the bi-cuspids in order to make room for the full eruption and alinement of the cuspids, my apparatus may apply the force directly to the rear tooth, and by the hook 26 may move the three rear teeth backward, and when desired, the pressure may be applied also to protrude the front teeth (by means of nut 24 thrusting rod 21 forward) at the same time the rear teeth are retruded, as will be clearly understood. But it is frequently of the highest importance that the rear teeth may be retruded without interfering with the front teeth, in order to bring the molars and bi-cuspids to their normal occlusion with the lower teeth.

In Figure 4 where the entire apparatus is shown in position, it will be seen that the bow 18 by means of its blocks directly engages the tubular stops 27 which are soldered on to the bi-cuspid bands, and as these are forced back along the alinement rod their movement may either bring a pressure to bear upon the adjoining back teeth, or the back tooth may be acted on directly by the tubes 28^a. The ends of the alinement rod resting in tubes soldered to the molar band, may be threaded at the anterior end as at the left of Fig. 7, in order to prevent the alinement rod (through friction or otherwise) from moving and dragging back the incisors to which it is attached. Or, when so desired, the incisors may be forced forward, by the alinement rod being made to re-act upon the molar anchorages. When desired, the short sliding intervening tube 29 may be placed on the alinement rod and provided with

a hook, to which may be attached rubber bands in order to yieldingly act upon the cuspid, indirectly applying the pressure of the dental bow. This is for adding to the pressure, and also for the purpose of retaining the position of the teeth during times when the head gear cannot be worn.

Many other advantages of the device will readily occur to those familiar with the art and with the use of such apparatus.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:

1. In dental apparatus a retruding bow provided with swivel connections for elastic bands at its end and attached at the middle to the alinement rod by means admitting adjustment of distance between the bow and the rod.
2. The combination with a retruding bow and means for exerting pressure upon the same at its central point, of an adjustable segmental arch with sliding attachment to said bow, substantially as described.
3. The combination with an alinement rod and a retruding bow, of a pair of dental bows overlapping one another to telescope and attached to said retruding bow and provided with sockets at their ends engaging the alinement rod, substantially as described.
4. The combination with a retruding bow and means for exerting pressure thereon, of an adjustable supplemental bow 18 for the application of force at two points only upon an alinement bow for the teeth, substantially as described.
5. The combination with the retruding bow and the adjustable dental bow 18 of an alinement rod and means for attaching the dental bow at any desired point on the alinement rod, substantially as described.
6. The combination with a retruding bow and an alinement rod, of a dental bow of adjustable length and sliding application tubes on the said rod, to engage the dental bow and any particular tooth desired.
7. The combination with an alinement rod and screw threaded means for its attachment to the rear teeth, of a retruding bow and an intermediate dental bow attached at one point to the retruding bow and engaging the alinement rod at two points.
8. The combination with a retruding bow and means to apply pressure thereon from a head anchorage, of an alinement rod and a supplemental dental bow having shiftable contact ends to engage the alinement rod, substantially as described.
9. In dental appliances the combination of an anchorage frame comprising a skull encircling metallic band 10 and the cross band 11 attached thereto by a pivoted connection, and both bands being adjustable in length, the elastic strap 12 adjustable in length, an application bow 14, and a swivel connection between the head anchorage and said bow, whereby the strap may conform to the contour of the check without twisting the bow, substantially as described.
10. In a dental appliance the combination with a head anchorage, of an application bow 14 having swivel connections to the head anchorage, the alinement bow 21, and an adjustable connection between the application bow and the alinement bow, and means for applying pressure at two points only on the alinement bow, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of the two subscribed witnesses.

CALVIN S. CASE.

Witnesses:

CARL B. CASE,
JOSEPHINE C. BERG.