

Jan. 13, 1948. **K. A. S. KARLSTRÖM** **2,434,320**
 DEVICE FOR THE FIXING OF DENTAL APPARATUS IN THE CAVITY OF THE
 MOUTH IN A DEFINITE POSITION RELATIVE TO THE TEETH
 Filed Jan. 22, 1944

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DEVELOPMENT OF A DEVICE FOR THE FIXING OF DENTAL APPARATUS IN THE CAVITY OF THE MOUTH IN A DEFINITE POSITION RELATIVE TO THE TEETH

Fig. 1

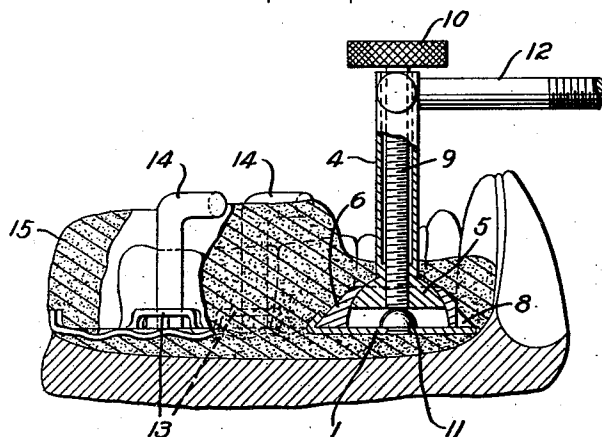
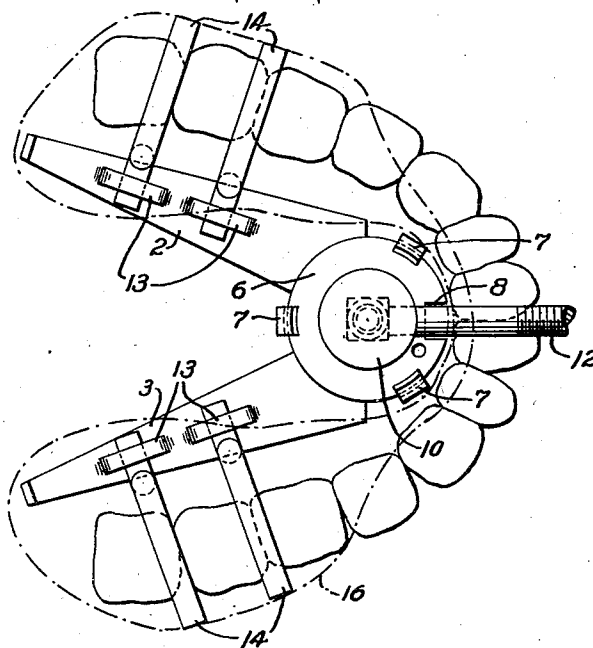


Fig. 2



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UNITED STATES PATENT OFFICE

2,434,320

DEVICE FOR THE FIXING OF DENTAL APPARATUS IN THE CAVITY OF THE MOUTH IN A DEFINITE POSITION RELATIVE TO THE TEETH

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Application January 22, 1944, Serial No. 519,312
In Sweden December 12, 1942

3 Claims. (Cl. 32-67)

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The present invention refers to dental apparatus serving as tool holders and adapted to be fixed in the cavity of the mouth in a definite position relative to the teeth, a base portion of the apparatus then bearing on the inside of the jaw and the teeth through the intermediary of a mouldable mass which fills out the space of the jaw lying between the teeth is hard at body-temperature. Apparatus of this type shall permit of being taken out of the mouth and of being reinserted in place, without the position of the apparatus relatively to the teeth being altered thereby. It has been found to be difficult under such circumstances to obtain sufficient strength in the portions of the mass bearing against the teeth, for the reason that a certain pressure must be exerted on the mass at the insertion of the apparatus and perhaps, also for the purpose of retaining the apparatus in the desired position. According to the present invention, this drawback is obviated by the feature that the base portion of the apparatus is provided with reinforcing members in the form of upwardly and laterally extending arms, abutments or the like which, when the apparatus is fixed in the mouth, are embedded in the mass and form a reinforcement therefor. The supporting members thus embedded in the mass form a reinforcement which increases the strength of the mass to a considerable extent and ensures steady fixing of the apparatus in an unalterable position relative to the teeth.

The invention is illustrated in the accompanying drawing which, in Figure 1, shows a section through a lower jaw with a tool holder inserted therein. Figure 2 is a plan view showing the position of the tool holder relative to the teeth.

The tool holder may be of any suitable type. The holder shown by way of example in the drawing is intended for the parallel guidance of burr-drills for the boring of parallel pin channels in the teeth. It consists of a base plate comprising a central portion 1 and two legs 2, 3 projecting therefrom and a standard 4 extending from the base plate, said standard being connected with the base plate through a ball and socket joint 5, 6 so as to permit of being adjusted to various angular positions relatively to the teeth. The lower end 5 of the standard is of semi-spherical shape and fitted into an externally conical and internally semi-spherical bearing sleeve 6, which is retained on the plate 1 by means of three lugs 7 projecting therefrom, said lugs gripping about the lower edge of the bearing sleeve. When the ball and socket joint is assembled, the bearing

sleeve 6 is first turned to such position that a recess 8 provided in the edge is located opposite one of the lugs 7, whereupon the bearing sleeve is locked by being turned so that the recess 8 will be located between two lugs 7.

The standard 4 is tubular and receives a threaded center pin 9 which is threaded into the lower semi-spherical member 5. The pin 9, which is provided with a head 10 at the upper end thereof, bears with its lower end on a stud 11 riveted to the plate 1, said stud having a semi-spherical surface concentric to the bearing surface of the ball and socket joint. After the standard 4 has been adjusted in the desired angular position, the center pin 9 is turned by means of the head 10, while the spherical surface of the member 5 is retained in frictional engagement with the internal surface of the bearing sleeve 6. The standard 4 is thus locked in the adjusted position. When the position of adjustment is to be changed, the standard is loosened by the pin 9 being turned in the opposite direction. Extending from the standard 4 in a radial direction is an arm 12 rigidly connected with the standard, said arm carrying in known manner a device for the parallel guidance of the burr-drill, which device is not shown in the drawing, however.

The legs 2, 3 are provided with loop strips 13 punched out of the plate material and serving as means of attachment for a number of reinforcing members 14 in the form of angularly bent arms extending upwardly in a vertical direction from the loops 13 and having their upper ends bent outwardly, so that they will be located at some distance above the row of teeth when the tool holder is inserted in its place in the jaw. In the example shown, the holder is inserted into a lower jaw through the intermediary of a thermoplastic mass 15 which is hard at body-temperature, said mass having the base plate of the holder embedded therein and extending laterally by preference as far as indicated by the dotted line in Figure 2. The mass, which is partly broken away in Figure 1 to show one of the arms 14 and a tooth therebehind, is shaped so as to conform to the row of teeth and to cover some of the rear teeth on both sides of the holder. Otherwise, the mass is fitted so as to permit of being taken out and reinserted in its place together with the tool holder as required without any reshaping of the mass. The reinforcing members reinforce the portions of the mass lying adjacent and over the teeth, so that the mass

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may be set up firmly against the jaw and the teeth with the requisite pressure.

The arrangement described may of course also be applied in the upper jaw, the holder and the mass being then kept pressed against the palate either manually or by means of a suitable attaching means.

Preferably, the arms 14 are secured loosely in the loops 13 in a manner such as to permit of being swung in a lateral direction relative to the teeth, before said arms are embedded in the mass 15, in order thus to uncover the teeth to be treated. The arms may either be angularly bent or straight, depending at the level on which it is desired to fix the holder relative to the teeth.

I claim:

1. A device for holding dental tools comprising a mouldable mass fitting the space of the jaw lying within the row of teeth and partially formed to overlie teeth at the opposite sides of the row, a base member embedded in said mass, and arms embedded in the overlying part of said mass projecting from said base member in a

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direction parallel to and adjacent to the sides of opposed teeth of the row, said base member and arms constituting a reinforcement for preserving the shape of the mass incident to manipulation thereof.

2. A device as claimed in claim 1 wherein the ends of the arms are extended angularly over the teeth but being free with respect thereto.

3. A device as claimed in claim 1 wherein the arms are mounted to be swung laterally with respect to said base member prior to being embedded in said mouldable mass.

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The following references are of record in the file of this patent:

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