

[54] DENTAL TREATMENT ASSEMBLIES

[72] Inventor: Erich Heubeck, Erlangen, Germany
[73] Assignee: Siemens Aktiengesellschaft, Erlangen, Germany
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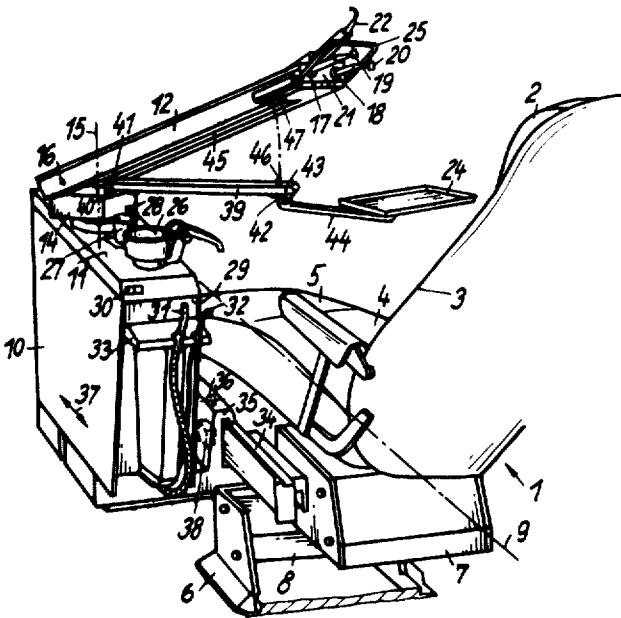
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[58] Field of Search 32/22; 4/263

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Primary Examiner—Robert Peshock
Attorney—Richards and Geier

[57] ABSTRACT
A dental treatment assembly comprises a patient's chair and a dental treatment unit supported by the chair which is mounted on a base for adjustment in a generally vertical direction relatively to the base. The dental treatment unit includes a housing, a dental hand appliance support arm pivotally connected to the upper surface of the housing and a dental spittoon unit mounted on the upper surface of the housing.

7 Claims, 2 Drawing Figures



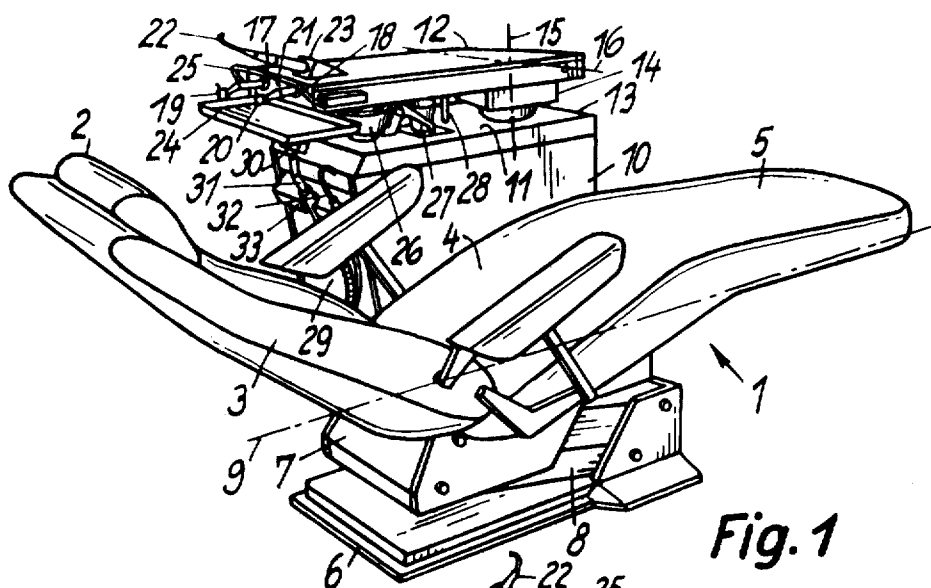


Fig. 1

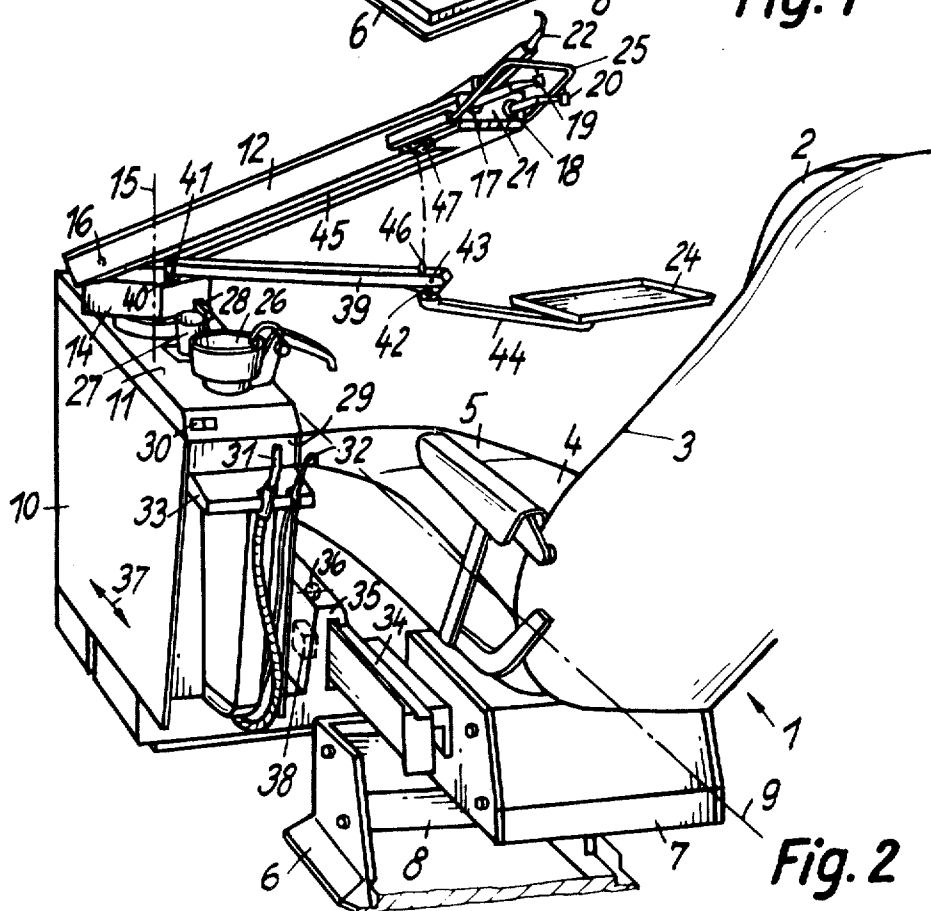


Fig. 2

INVENTOR:

E. Heubeck

BY
Richards & Geier
ATTORNEYS

DENTAL TREATMENT ASSEMBLIES

BACKGROUND OF THE INVENTION

a. Field of the Invention

This invention relates to a dental treatment assembly comprising a patient's chair and a dental treatment unit supported by the chair which is mounted on a base for adjustment in a generally vertical direction relatively to the base.

b. Description of the Prior Art

In dental treatment assemblies of this kind it is known to mount a horizontal support, which extends parallel to the longitudinal axis of the chair, at one of its ends on the vertically adjustable base part of the chair. On the free end of the horizontal support situated approximately in the region of the forward seat edge of the chair, a tubular upright is mounted near its end which bears resiliently on the floor through the agency of an extensible part, the dental unit being mounted on the upright to be rotatable about the upright by means of clips. The head of the dental unit is adapted to be inclined about a horizontal axis, and from one side surface of the inclinable head there can be pulled out a jib-like telescopic arm of relatively small cross-section which at its free end carries a housing unit for dental hand appliances, for syringing and drilling. The extendible conduits to the hand appliances and the like are disposed between the dental unit head and the head appliance housing in the open and, as long as the hand appliances are in their housings, are slightly tensioned by a winding device for the flexible conduits which is arranged in the dental unit. Owing to this construction, the dental unit with the telescopic arm can be pivoted about the tubular upright, the housing unit for the hand appliances describing, in a plane situated above the patient, an arc the radius of which is adapted to be varied by the variously selectable lengths to which the telescopic arm can be pulled out. Also, the height of the pivoting plane above the patient can be varied by different inclinations of the dental unit head.

The invention proceeds from the realization that the dental apparatus of the type described hereinbefore is disadvantageous since when the hand appliance housing unit is pivoted on an arc situated in a horizontal plane above the patient, the heavy dental unit must also be pivoted as well. Easy adjustment of the hand appliances is prejudiced as a result. Furthermore the dental unit cannot be used for fitting a dental spittoon unit, since the spittoon unit would vary its position relatively to the patient's chair in dependence on the pivoted position of the dental unit, and since the part of the dental unit necessary for fitting the spittoon unit would further prejudice easy movement.

The main object of the present invention is to provide a dental treatment assembly in which the aforesaid disadvantages are minimized or eliminated.

SUMMARY OF THE INVENTION

According to the present invention there is provided a dental treatment assembly comprising a patient's chair and a dental treatment unit supported by the chair which is mounted on a base for adjustment in a generally vertical direction relatively to the base, the treatment unit including,

- a. a housing disposed on one side of and connected to the patient's chair, the housing presenting an upper surface,
- b. a support arm mounted at one end on that part of the upper surface of the housing which is remote from the base of the chair for pivotal arcuate movement in a substantially horizontal plane relatively to the housing,
- c. a dental hand appliance unit carried by the other end of the arm, and
- d. a dental spittoon unit mounted on that part of the upper surface of the housing which is nearer the base of the chair.

Preferably the support arm is articulated to a vertical pivot bearing so that it is situated so far above the upper side of the dental unit that the mouth rinsing tumbler and the spittoon dish or funnel are accommodated therebelow.

By arranging the vertical pivot bearing on the dental unit itself, when the hand appliance housing unit is pivoted horizontally, it is simply necessary to pivot the support arm instead of the entire heavy dental unit. Furthermore, the dental unit always now retains its position relatively to the patient's chair, so that it can be provided with a spittoon unit. Owing to the arrangement of the vertical pivot bearing for the horizontal jib near that side wall of the dental unit which is adjacent the foot end of the patient's chair, the greater part of the cross-section of the dental unit is freed for the fittings of the spittoon unit, such as a heating device for water, the automatic system of the mouth rinsing tumbler filling device, settling vessel for the suction installation, etc. The dental unit can also be made to extend so far towards the head end of the patient's chair (with an elongated, narrow cross-section) that the part equipped with the spittoon unit can easily be reached by the patient. The feature whereby the support arm at its underside is articulated to the vertical pivot bearing at such a distance above the upper side of the dental unit that the mouth tumbler and the spittoon dish or funnel are accommodated below it, has the advantage that the support arm can be pivoted over the dental unit when not in use. In this inoperative position, dental unit and support arm occupy only a relatively small space so that they constitute a very small obstacle e.g. when cleaning the rooms in which the apparatus is situated.

Within the framework of the invention it is advantageous for the vertical pivot bearing arranged on the upper surface of the dental unit, for the horizontal support arm, to be constructed in such a manner that the support arm can be pivoted through at least 50° to each side of a substantially vertical axis passing through the center of the bearing from its inoperative position above the dental unit in order that the dental unit can be used selectively supported on the left-side or right-side of the chair both for right-handed users and left-handed users.

A further advantageous development of the subject of the invention consists in that at the side wall of the dental unit which is adjacent the head end of the patient's chair, housings are provided for a strong-suction nozzle and a saliva extractor nozzle. If these nozzles are arranged in this region they are particularly comfortably within the reach of the dental nurse, who usually operates these.

If the inclination of the back rest of the patient's chair is altered, the patient's head moves farther away from the foot end of the patient's chair. The mouth rinsing tumbler and the spittoon dish or funnel, therefore, cannot be reached equally satisfactorily by the patient in all positions of the back rest. Therefore, to obviate these disadvantages, according to the invention it is proposed that the support for the dental unit on the patient's chair comprises an elongate support member in the form of a guide rail which extends parallel to the longitudinal axis of the patient's chair and along which the dental unit is guided so as to be displaceable and lockable in desired positions.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be more fully understood an embodiment in accordance therewith will now be described by way of example with reference to the accompanying drawing, in which:

FIG. 1 shows a dental treatment assembly in an inoperative position, and

FIG. 2 shows the dental assembly of FIG. 1 in an operative position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1, 1 designates the patient's chair which comprises a head part 2, a back rest 3, a seat part 4, a foot part 5, a base 6 which supports the chair on the floor, and a vertically adjustable base part 7 which is connected to the seat part 4, and a parallelogram arm 8 which connects the two parts 6 and 7 to one another. The dot-dash line 9 represents the longitudinal axis of the patient's chair.

The dental treatment unit includes an upright and elongate housing 10 which is disposed to one side, i.e. the left-hand side, of the patient's chair 1 with its longitudinal extent parallel to the longitudinal axis 9 of the patient's chair 1. A support arm 12 is connected at one end through the agency of a rigid casing 14 on that part of the upper surface 11 of the housing which is remote from the base of the chair 6 for pivotal arcuate movement in a substantially horizontal plane about a substantially vertical axis 15. The connection of the arm 12 is adjacent the end 13 of the housing, which end 13 is nearer the foot part 5 of the patient's chair. Also, the arm 12 is connected to the casing 14 for pivotal upward and downward movement about a substantially horizontal axis in the form of a pin 16. The dental hand appliances are supported on the other, free end of the arm 12, the housings 17 and 18 for a turbine handpiece 19 and a micromotor handpiece 20 inset into the end face 21 of the arm 12, and a dental syringe 22 rests in a housing 23 fixed to the upper surface of the arm 12. A dental instrument tray 24 is supported in a manner to be described below the hand appliances 19, 20, 22. A stirrup-shaped handle 25 is also mounted on the free end of the arm 12 between the syringe 22 and the handpieces 19, 20.

That part of the upper surface 11 of the housing 10 which is nearer the chair base 6 i.e. adjacent the head part 2 of the patient's chair 1 is constructed as a spittoon unit and carries at the upper surface 11 a removable spittoon bowl 26, a mouth rinsing tumbler 27 and a mouth rinsing tumbler filling device 28. Also arranged at the narrow end 29 of the dental unit 10 are operating pushbuttons 30 (for the tumbler filling device, operation of the syringe and the like) and below these operating pushbuttons 30 a strong-suction nozzle 31 and a saliva extractor nozzle 32 are arranged removably in respective supports in a housing 33.

As shown in FIG. 2 an elongate support member in the form of a substantially horizontal guide rail 34 which extends parallel to the longitudinal axis 9 of the patient's chair 1 is mounted on the vertically adjustable base part 7. A carriage 35 supporting the dental unit is supported to be displaceable lengthwise of the chair (arrow 37) by means of bearings in the form of rollers 36 (for the sake of simplicity, only one roller is illustrated) and to be lockable by means of a releaseable locking device constituted by an electromagnetic brake 38. FIG. 2 also shows the way in which the tray 24 situated below the hand appliances 19, 20 and 22 is supported. The tray 24 is supported by a counterbalanced arm assembly 39 including a parallelogram linkage which is disposed below the arm 12 and which at one of its ends is mounted for pivotal movement about two substantially horizontal axes 40 and 41 of the casing 14, the axes 40 and 41 being disposed one above the other. The axes corresponding to the pivoting axes 40 and 41 at the tray-side end of the parallelogram arm 39 are designated as 42 and 43. For substantially horizontal pivoting of the tray 24 towards and away from the housing 10, there is also arranged

between the tray-side end of the arm 39 and the tray itself a substantially horizontal pivoting arm 44. Provided at the undersurface of the arm 12 is a recess 45 into which the arm 39 can be sunk over its entire length. The parallelogram arm 39 can be connected-up to the arm 12 in this recess 45 by means of press stud means comprising a stud part 46 which is fixed on the parallelogram arm 39 and with which there is associated a corresponding counter-part 47 within the recess 45.

I claim:

1. A dental treatment assembly, comprising in combination with a patient's chair having a back and a seat, a floor-mounted base and means connecting said base with the seat of the chair for vertically adjusting the chair; a dental treatment unit comprising an elongated housing having an upper surface located to one side of the chair and extending in the direction of the chair, said upper surface having a surface portion located closer to the back of the chair than another more remote surface portion, a dental spittoon unit mounted upon that surface portion which is located closer to the back of the chair, a support arm, means carrying one end of said support arm upon that surface portion which is more remote from the back of the chair for pivotal arcuate movement about a vertical axis in a substantially horizontal plane, and a dental hand appliance unit carried by the other end of said support arm.

2. An assembly as set forth in claim 1, wherein the arm is mounted on said housing for generally vertical pivotal movement from and to a substantially horizontal position relatively to the housing, the arm being disposed in a plane above the spittoon unit in said position.

3. An assembly as set forth in claim 1, wherein the spittoon unit comprises a mouth rinsing tumbler filling device and a spittoon bowl.

4. An assembly as set forth in claim 2, wherein said one end of the arm is pivotally connected to a bearing which is constructed to permit pivotal arcuate movement of the arm through at least 50° to each side of a substantially vertical axis passing through the center of the bearing.

5. An assembly as set forth in claim 3, wherein a suction nozzle and a saliva extractor nozzle are mounted on respective supports which are carried by that end of the housing which is nearer the base of the chair.

6. An assembly as set forth in claim 2, wherein the housing is connected to the chair by means of an elongate support member rigidly secured to one side of, and extending lengthwise of the housing and the chair, the connection between the support member and the housing being capable of permitting linear movement of the housing relatively to the chair.

7. An assembly as set forth in claim 6, wherein releasable locking means are connected between the support member and the chair for securing the dental unit in any desired position.

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