

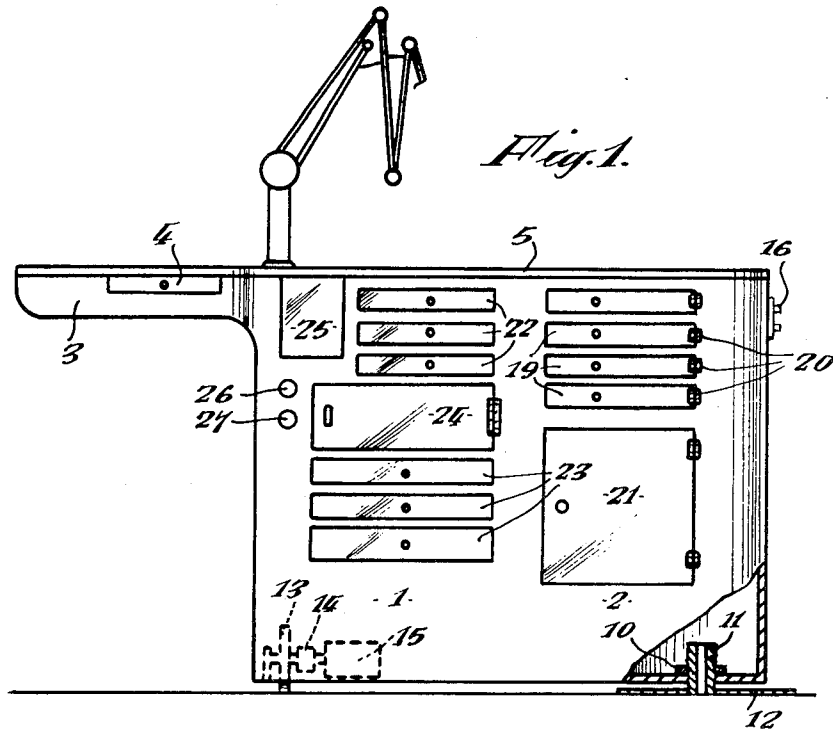
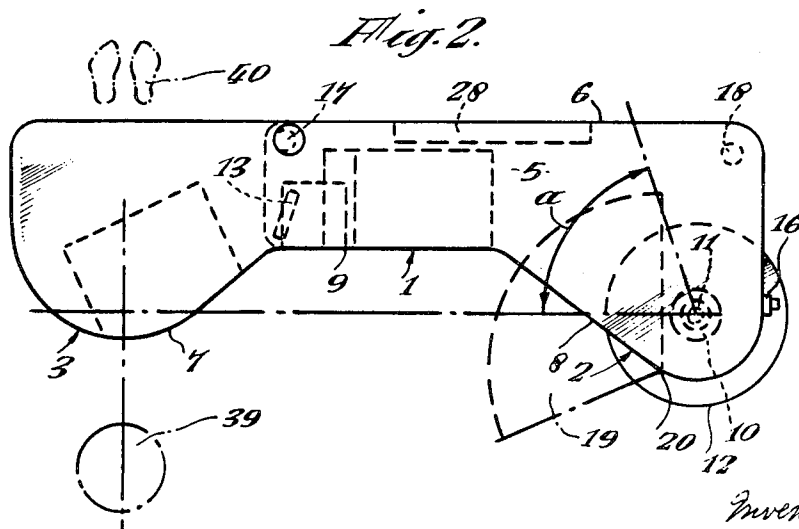
June 23, 1964

W. A. McMASTER
DENTAL CABINET UNITS

3,138,415

Filed April 10, 1962

2 Sheets-Sheet 1



Inventor
William A. McMaster
by Alfred Jacobs
Attorney

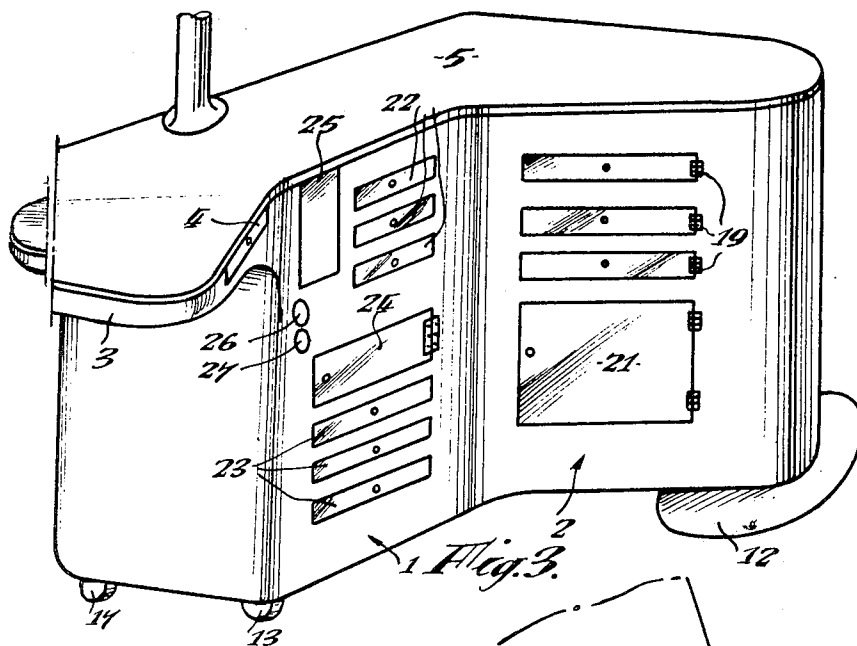
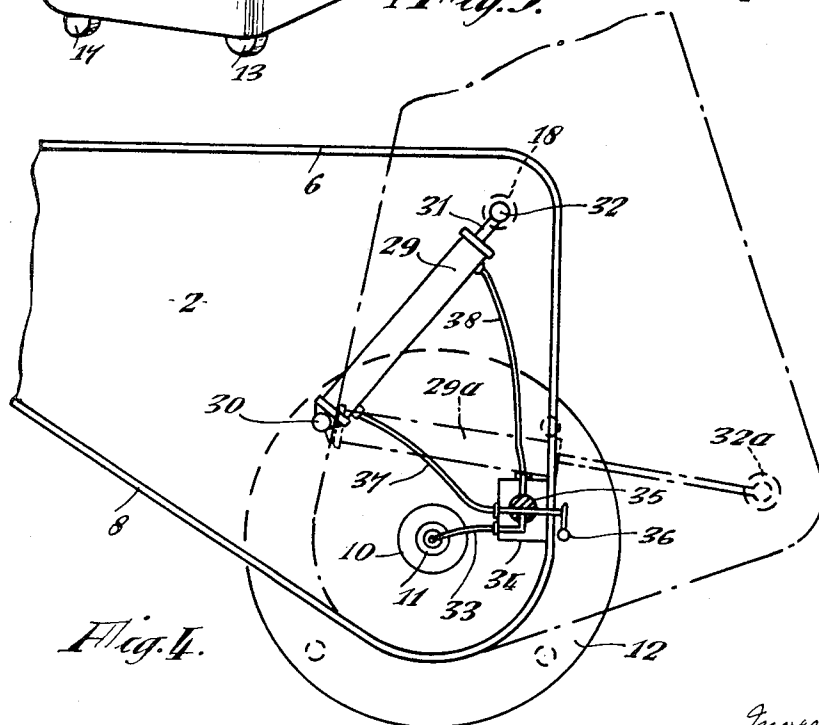
June 23, 1964

W. A. McMASTER
DENTAL CABINET UNITS

3,138,415

Filed April 10, 1962

2 Sheets-Sheet 2



Inventor
William A. McMaster
by Albert J. Jacobs
Attorney

1

3,138,415

DENTAL CABINET UNITS

William Alexander McMaster, 41 Darlington Road,
Hartburn, Stockton-on-Tees, England

Filed Apr. 10, 1962, Ser. No. 186,551

Claims priority, application Great Britain Apr. 28, 1961

1 Claim. (Cl. 312—209)

This invention relates to dental cabinet units of the kind which provide a readily accessible instrument tray, instrument housing and storage drawers or other compartments, and an upper work surface, such as to facilitate the operations of a dentist upon a patient seated in a dental chair, by presenting any one of numerous instruments readily to hand as and when required. Such a cabinet unit is known as and will hereinafter be called a "dental unit."

The invention provides a dental unit wherein a shelf-like projection from the body of the unit comprises or affords a location for an instrument tray, said body being mountable for angular displacement, about a fixed vertical pivot spaced from one side of a dental chair, between one position wherein said tray is located substantially above the seat of the chair with space for the dentist's operating location at the same side of the chair, and another position permitting free movement of a patient into and from the chair, or of the dentist around and over the footrest of the chair, the unit including power means whereby it is displaceable to and between said positions.

A dental unit as aforesaid may have a concave or recessed inner side, such as to afford an operating location when the vertical pivot is substantially in line laterally with the seat of the chair or rearwards of such line.

In a dental unit as aforesaid, the vertical pivot is located at or adjacent the end of the unit remote from said projection. The power means may be a motor driving at least one floor-engaging wheel mounted on an axis radial to said pivot.

Dental units usually accommodate a dental drill driven by a compressed air motor or turbine, and often an accessory electrically driven drill, as well as other instruments or means requiring air or electric current supply. In a dental unit according to the invention, said vertical pivot may be a tubular or otherwise hollow floor mounting, so that an air supply duct and/or electric current leads may pass from beneath the floor into the unit. Thus, in a unit according to the invention, a floor-engaging wheel for effecting the angular displacement may be driven through speed reduction gearing by an air motor or an electric motor housed within the lower part of the unit. Alternatively, the power means may be a pneumatic ram, or with suitable supply means a hydraulic ram.

An embodiment of a dental unit according to the invention, and a modification thereof, will be described by way of example with reference to the accompanying diagrammatic drawings, wherein:

FIG. 1 is a front elevation of the unit,

FIG. 2 is a plan view of the same,

FIG. 3 is a perspective view of the same, and

FIG. 4 is a fragmentary horizontal section showing a modification.

The dental unit as illustrated in FIGS. 1-3 comprises a middle section 1 which is rectangular in plan and a conjoint end section 2, trapezoidal in plan, at one end thereof, with a shelf-like projection 3 from the other end which comprises or affords a location for an instrument tray 4. Both of said sections and said projection may have a unitary top surface 5 in one horizontal plane. The outer side 6 (FIG. 2) of such unit is defined by a vertical plane, and the inner side 7 of said projection 3 is convex or substantially semicircular, so that between the convexity

2

thereof and an inward projection 8 at the other trapezoidal end 2 there is a recess, adjacent the inner side 9 of the middle section, which affords the dentist's operating location.

In the base of the inwardly projecting portion of the trapezoidal end 2 there is a socket 10 adapted to engage a vertical tubular spigot 11 mounted by means of a disc or plate 12 on the floor. Further, a floor-engaging wheel 13 is mounted in one of the lower corners of the base of said middle section 1, remote from the pivot constituted by said socket and spigot, on a horizontal axis radial to said spigot, said wheel being connected by speed-reduction gearing 14 to an air motor or electric motor 15 so that the peripheral speed of the wheel is about 1-4 feet per second. The motor may be operable by compressed air or electric current supplied through said tubular spigot 11, under the control of switch means 16 exposed at a suitable location on a surface of the unit. Said switch means may alternatively be remotely located on the chair or a stool displaceably attached to the chair, or on the floor adjacent the chair. Free-running castors 17, 18 may be mounted in the base of the unit for stable support thereof.

The pivoted trapezoidal end section may contain a plurality of drawers 19 preferably hinged at their front corners 20 adjacent the end of the unit, with a cupboard 21 beneath them. The middle section may comprise a plurality of sliding drawers 22, 23 optionally with at least one cupboard 24, and also afford housings for instruments such as an air-driven drill 25, an air syringe 26 and an air spray bottle 27. The shallow drawer 4 in said projection 3 may contain low voltage instruments, their controlling switches, being suitably mounted on said projection. All the aforesaid drawers and cupboards open inwardly, and the outer vertical surface 6 of the unit may comprise a shallow cupboard or recess 28 of substantial height and width.

In the modification shown in FIG. 3 the trapezoidal end section 2 houses in its base a pneumatic ram 29 (or an equivalent hydraulic ram) as a power means for angularly displacing the unit, in place of the drive wheel 13 and motor 15 shown in FIG. 1. The cylinder of the ram is articulated to a pivot 30 upstanding from the floor plate 12, and its piston rod 31 is articulated to a pivot 32 secured within the base of said end section 2. Fluid under pressure for operating said ram is brought by a pipe 33 upwards through said tubular spigot 11 to a control unit 34 (diagrammatically illustrated) comprising a three-way valve 35 actuable by a handle 36. The ram 29 is double-acting, and flexible pipes 37, 38 are taken from the valve 35 to the ends of the cylinder.

In use, a unit as described may be located with its pivot 11 spaced apart from and to one side of the seat of a dental chair, the positions of the head and feet of a patient seated in such chair being indicated at 39, 40. Thus, in one, working, limit position said projection 3 is located substantially above the seat. From this position, the unit may be angularly displaceable through an angle α , as indicated by dotted lines in FIG. 2, or in chain-dot lines, FIG. 4, of about 70-90°, to its other limit position to afford free movement of a patient into or from the chair, or to permit the dentist to move around or over the footrest. To effect this movement, the motor 15 shown in FIG. 1, which is reversible, may be suitably energised by means of the switches operated by controls 16. Limit switches may be provided to arrest movement of the unit when it reaches either of the limit positions, so that manual arrest is not needed. Alternatively, in the modification shown in FIG. 4, pressure fluid may be admitted to one end of the cylinder of ram 29, and released from the other end thereof, by operating the lever 36 of valve 35, whereby extension or retraction of the

piston rod 31 causes the ram to displace the unit between the position shown in full lines and that shown in chain-dot lines about the spigot 11, the ram bearing against the fixed vertical pivot 30 provided on the floor plate 12 and moving between the positions 29 and 29a, while its articulation to the unit moves between the positions 32 and 32a.

There are occasions when it is essential to operate on the patient from a directly frontal position. Should this be necessary, the dental chair may be rotated through an angle of about 160° clockwise (as seen in plan) so that the unit extends at an acute angle to the patient's left side. The operating stool, even if it is of the fixed swivel type, is locatable relative to the chair and the unit so as to be usable in such operating position.

What I claim and desire to secure by Letters Patent is:

A dental unit of the kind comprising a body including housings for instruments, storage drawers and other compartments, said body having a mounting for angular displacement relative to a dental chair about a fixed vertical pivot laterally spaced from the seat of said chair, said vertical pivot comprising a pedestal securable to a floor and a hollow vertical member on which said mounting is displaceable, power means within said body for displacing it relative to said chair, a power supply lead passing through said hollow member, one end of which is connected to said power means and the other end of which passes beneath the floor and is connected to a power source, wherein an end portion of said body surmounting said pivot and extending therefrom towards the

side of said chair is a cabinet extending from adjacent the floor and affording an upper table surface, and presenting accessibly from an inner side of said body said instrument housings, storage drawers and other compartments, and said cabinet has a shelf-like, shallow, endwise, cantilever projection of sufficient depth to include solely an instrument tray, said projection further extending across the plane of said inner side and affording a continuation of said working surface, said end portion of said body surmounting said pivot being trapezoidal and projecting across the plane of said inner side, said pivot being located beneath the projection, and said body with said projecting end portion and said shelf-like projection affording a recessed operating location, the body being angularly displaceable between one position wherein said tray is located substantially above the seat of the chair with space for the dentist's operating location at the same side of the chair, and another position permitting free movement of a patient into and from the chair, and of the dentist around and over the footrest of the chair.

References Cited in the file of this patent

UNITED STATES PATENTS

2,185,763	De Lisle	Jan. 2, 1940
2,419,370	Roof	Apr. 22, 1947
2,424,729	Andreasen	July 29, 1947
2,781,524	Andes	Feb. 19, 1957

FOREIGN PATENTS

966,455	Germany	July 25, 1957
---------	---------	---------------