

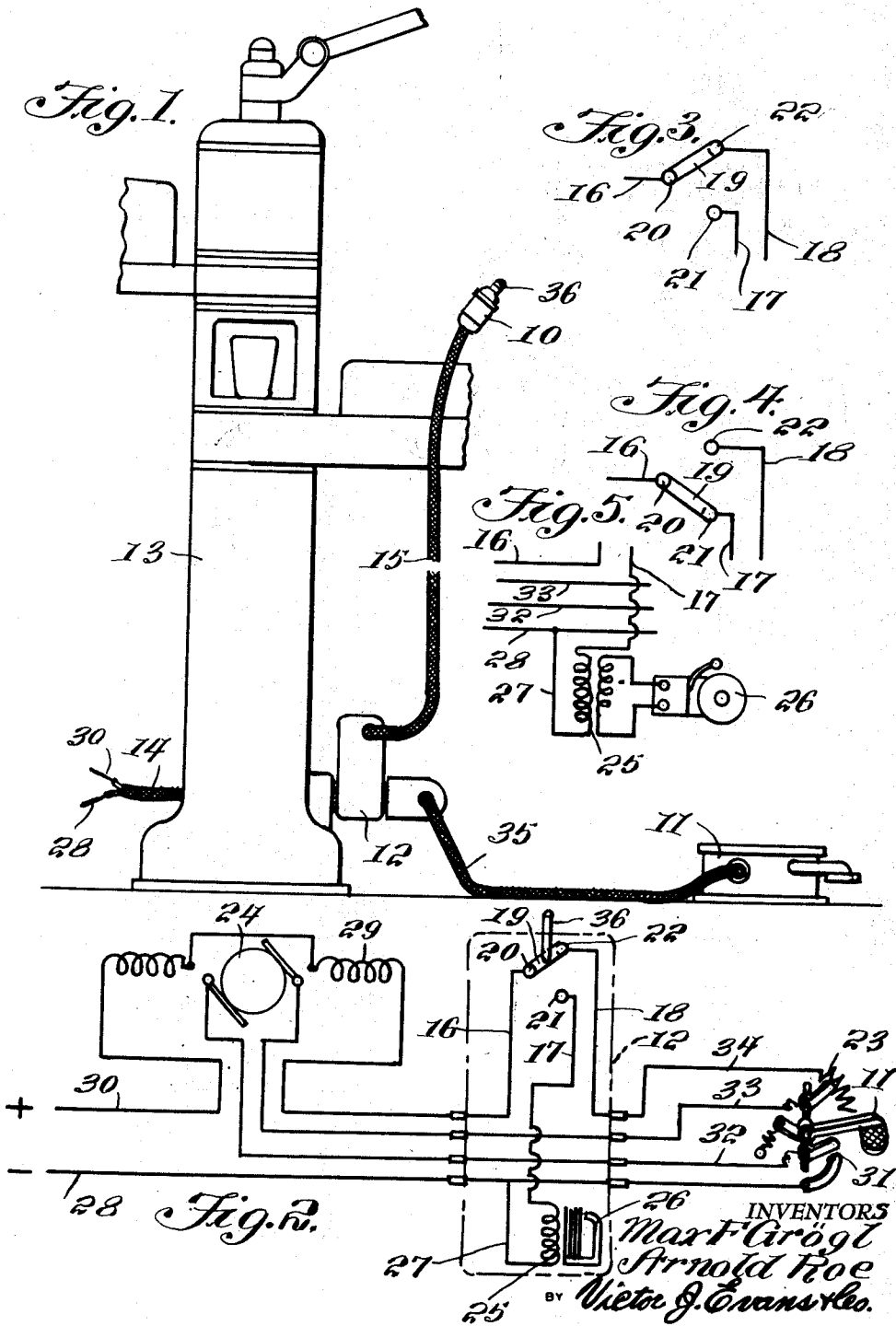
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2,648,043

PATIENT CONTROLLED ELECTRIC MOTOR FOR DENTAL UNITS

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ATTORNEYS

## UNITED STATES PATENT OFFICE

2,648,043

PATIENT CONTROLLED ELECTRIC MOTOR  
FOR DENTAL UNITSMax F. Grögl and Arnold Roe, Barranquilla,  
Colombia

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1 Claim. (Cl. 318—551)

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This invention relates to dental tools particularly used in combination with a dental chair or unit, and in particular the invention relates to an auxiliary switch and signal in the circuit to a dental hand piece or the like whereby a patient in whose mouth the dentist is operating may send a signal to the dentist or stop the tool the dentist is using by breaking the circuit thereto.

The purpose of this invention is to provide means whereby a patient in a dental chair may send a signal and or interrupt the electrical circuit of an electrically powered apparatus being used by the dentist.

Patients in dental chairs often experience pain and discomfort as teeth are being cleaned for filling or other dental work is being executed in relation to the teeth and with the mouth propped open it is substantially impossible to advise the dentist. With this thought in mind this invention contemplates a button held in the hand of the patient and connected to a bell, light, or buzzer and also connected in the circuit to tools used in combination with a chair in which the patient is positioned whereby the patient may send a signal or stop the operation of a tool used by the dentist.

The object of this invention is, therefore, to provide an auxiliary switch that may be incorporated in a circuit of a tool used in combination with a dental chair for interrupting a circuit to the tool and also for actuating a signal.

Another object of the invention is to provide an auxiliary patient actuated switch in combination with a dental unit that may be installed in dental chairs and other units now in use.

A further object of the invention is to provide an auxiliary patient actuated control switch for dental tools and units which is of a simple and economical construction.

With these and other objects and advantages in view the invention embodies an auxiliary circuit having a double throw switch therein and also having a transformer and signal in combination therewith that may be incorporated in a circuit for operating tools in combination with a dental chair or unit.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein:

Figure 1 is an elevational view illustrating a control post of a dental chair or unit showing a tool circuit supply cable extended from the lower end with a foot switch positioned to be actuated by a dentist and an auxiliary hand switch at the end of a cable positioned to be held in the hand of a patient.

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Figure 2 is a wiring diagram showing a buzzer therein and illustrating the point in a control circuit of a dental chair and tool in which the patient actuated auxiliary circuit may be connected.

Figure 3 is a detail illustrating, diagrammatically a double throw switch adapted to be used by the patient showing the switch in the upper position.

Figure 4 is a similar detail showing the switch actuated by the patient to actuate the signal or buzzer, and interrupt electrical circuit to dental tool.

Figure 5 is a detail illustrating a bell connected in the circuit of the patient actuated switch.

Referring now to the drawings wherein like reference characters denote corresponding parts the dental unit patient control device of this invention includes a button actuated hand switch 10, a foot control 11, a signal unit 12, a post 13, and a cable 14 for supplying current to a dental hand piece or other tool.

The switch 10 is positioned on the end of a cable 15 having wires 16, 17, and 18 therein and with an arm 19 extended from a terminal 20 to which the wire 16 is connected the circuit may be completed through the wire 17 through a terminal 21 or through the wire 18 through a terminal 22. For normal use the arm 19 is in the position shown in Figure 2 whereby the usual circuit is completed from a foot control switch 23 to the motor of the unit as indicated by the numeral 24 and when it is desired to send a signal the arm 19 is moved so that the outer end contacts a terminal 21 of the wire 17 so that a circuit is completed through the transformer 25 in the circuit of a bell or buzzer as indicated by the numeral 26. The opposite terminal of the transformer 25 is connected by a wire 27 to a source of current supply through a return wire 28, the circuit being completed through the wire 17, the arm 19 and the wire 16 to the field 29 of the motor 24 and from the motor field to the power supply wire 30.

As illustrated in Figure 2 the foot control 11 is provided with a control switch or rheostat 23 and an off and on switch 31, the switch 31 being connected by the wire 28 to a source of current supply and to the opposite terminal of the current supply by a wire 32 through the motor 24 and wire 30. The control switch or rheostat 23 is connected to the armature of the motor by a wire 33 and to the field of the motor through the arm 19 and wires 34 and 16.

The transformer and bell or other sound devices are incorporated in the casing 12 and the

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foot control 11 is connected to the casing by a cable 35 in which the wires are incorporated.

The arm 19 of the patient actuated switch 10 is operated by a button 36 and when the patient desires to send a signal to the dentist the button 36 is pressed inwardly to move the arm 19 to the position shown in Figure 4 whereby a circuit is completed to the bell or buzzer or to a light as may be desired.

With the parts arranged in this manner the patient in a dentist chair or unit may hold the switch 10 with one hand and when pain is severe or the patient is otherwise discomforted he may press the button to warn the dentist.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

In a dental unit, a vertically disposed dental post, a button actuated hand switch adapted to be held in a patient's hand while the dentist is working on the patient, a foot control switch adapted to be operated by the dentist, a signal unit, a cable including a pair of lines for supplying current from a source of supply to a dental tool, a cable extending between said hand switch and signal unit and including three wires, a ter-

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5 minal connected to each of said wires, an arm pivotally connected to one of said terminals and mounted for movement into and out of contact with the other of said terminals, a manually operable button for actuating said arm, said foot control switch including a rheostat and a motor having an armature and fields connected to said rheostat, and a casing arranged contiguous to the lower end of said dental post for supporting the signal device therein whereby the patient can manually depress the button to actuate the signal device and notify the dentist and simultaneously break the circuit leading to the dental tool, said casing being electrically and mechanically detachably interposed between said post and foot control switch.

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