Title (en)

Testing device for testing the dental pulp of a tooth.

Title (de)

Gerät zur Prüfung der Pulpenvitalität von Zähnen.

Title (fr)

Appareil pour la vérification de l'état de la pulpe dentaire.

Publication

EP 0000556 A1 19790207 (EN)

Application

EP 78100459 A 19780720

Priority

US 80873777 A 19770622

Abstract (en)

A system for testing the dental pulp of a tooth by electrically stimulating the pulp with a pulsating signal having a continuously increasing amplitude. The system includes a probe (12) having an electrode (78) adapted to contact the tooth, and a contact detection device for sensing when the probe electrode makes contact with the tooth. At initial probe contact the contact detection device (82,98) causes the amplitude of the stimulus to start increasing from an initial value. The intensity continues to increase as long as the probe electrode (78) is in contact with the tooth. The electrical stimulus may be generated by a voltage controlled pulse generator (28) driving the primary of a transformer (66), with the secondary of the transformer connected between the probe electrode (78) and another electrode (74) in electrical contact with the patient. The transformer (66) has a relatively low cutoff frequency so that the amplitude of the signal across the secondary is proportional to the pulse width of the incoming signal. Consequently, as the control voltage (36,38) to the voltage control pulse generator (28) increases, the amplitude of the pulses across the secondary also increases. The voltage control pulse generator (28) drives a counter (54,100), and the output of the counter is indicated on a digital display (102,104). Since the amplitude of the control voltage is a function of the number of pulses generated by the pulse generator (28), the output of the counter (54,100) indicates the amplitude of the electrical stimulus. Alternatively, a ramp generator (200,210) having its output connected to one end of the primary periodically grounded responsive to fixed frequency, fixed duration pulses from the output of an oscillator. Consequently, the amplitude of the pulses across the secondary of the transformer (66) increases with time.

IPC 1-7

A61B 5/05; A61C 19/04; A61N 1/36

IPC 8 full level

A61B 5/053 (2006.01); **A61C 19/04** (2006.01); **A61N 1/36** (2006.01)

CPC (source: EP US)

A61B 5/0534 (2013.01 - EP US); **A61C 19/04** (2013.01 - EP); **A61N 1/0548** (2013.01 - EP); A61N 1/36034 (2017.07 - EP US)

Citation (search report)

- CH 572346 A5 19760213 - AUFRANC EGGER CHARLES WALTER
- US 3894532 A 19750715 - MOREY ROBERT EARL
- US 3128759 A 19640414 - BELLIS RICHARD P
- US 3768017 A 19731023 - NARDIZZI A, et al
- BIOMEDICAL ENGINEERING, vol. 11, no. 1, January 1976, London (GB) J.M. MUMFORD & D.G. LEWIS: "Electronic tooth stimulator for pain research", pages 22 + 23

Cited by

CN111565635A; DE3719911A1; EP1302172A1; EP0356632A3; EP2496173A4; US7744605B2; WO2005079668A1

Designated contracting state (EPC)

CH DE FR GB SE

DOCDB simple family (publication)

EP 0000556 A1 19790207; **EP 0000556 B1 19810311**

DOCDB simple family (application)

EP 78100459 A 19780720