

[54] **APPARATUS AND METHOD FOR TONING TISSUE WITH A FOCUSED, COHERENT ELECTROMAGNETIC FIELD**

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[21] Appl. No.: **09/193,472**

[22] Filed: **Nov. 17, 1998**

[51] **Int. Cl.**<sup>7</sup> ..... **A61B 5/00**

[52] **U.S. Cl.** ..... **600/13**

[58] **Field of Search** ..... 600/13, 14

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

|           |        |              |        |
|-----------|--------|--------------|--------|
| 5,017,185 | 5/1991 | Baermann     | 600/15 |
| 5,030,196 | 7/1991 | Inoue        | 600/14 |
| 5,527,259 | 6/1996 | Grace et al. | 600/14 |

**FOREIGN PATENT DOCUMENTS**

|              |        |                      |
|--------------|--------|----------------------|
| 25 78 428A   | 9/1986 | France .             |
| 2510173      | 9/1976 | Germany .            |
| 31 06060     | 9/1992 | Germany .            |
| 40 40 96767  | 3/1992 | Japan .              |
| 40 41 97272  | 7/1992 | Japan .              |
| 20 14 852 C1 | 6/1994 | Russian Federation . |

**OTHER PUBLICATIONS**

Jacobs, H. Barry, MD; Critical Analysis of Medical Papers Concerning Pulsed electromagnetic Energy (Diapulse).  
Niemeyer, Henry J., MD; Wound Healing Stimulation.  
Li, Jack and Neurath, Peter W.; Electric and Magnetic Fields Near a Circular Loop at 27 MHz; IEEE Transactions on Bio-Medical Engineering, Jan. 1969.  
Wilson, D.H. and Jagadeesh, P.; The Effects of Pulsed Electromagnetic Energy on Peripheral Nerve Regeneration; Annals of the New York Academy of Sciences, vol. 238, pp. 575-580, Oct., 1974.  
Raji, A.R.M. and Bowden, R.E.M.; Effects of High-Peak Pulsed Electromagnetic Field on the Degeneration and Regeneration of the Common Peroneal Nerve in Rats; The Journal of Bone and Joint Surgery; vol. 65B, No. 4, Aug., 1983.

Fenn, J.E., MD; Effect of Pulsed Electromagnetic Energy (Diapulse) of Experimental Hematomas; The Canadian Medical Association Journal; vol. 100, pp. 251-254; Feb. 1, 1969.

Nadasdi, Miklos, MD; Inhibition of Experimental Arthritis by Athermic Pulsating Short Waves in Rats; Arthritis.

Goldin, J.H., et al.; The Effects of Daipulse on the Healing of Wounds; a Double-blind Randomised Controlled Trial in Man; British Journal of Plastic Surgery.

Bentall, R.H.C. and Edestein, H.B.; A Trial Involving the Use of Pulsed Electro-magnetic Therapy on Children Undergoing Orchidopexy; Originalarbeiten; vol. 17, No. 4, Nov., 1975.

Barclay, V. et al.; Treatment of Various Hand Injuries by Pulsed Electromagnetic Energy (Diapulse) Physiotherapy, vol. 60, No. 6, pp. 186-189 1983.

Itoh, Masayoshi, MD, et al.; Accelerated Wound Healing of Pressure Ulcers by Pulsed High Peak Power Electromagnetic Energy (Diapulse); Decubitus, Feb., 1991.

Silver, Harold, MD; Reduction of Capsular Contracture with Two-Stage Augmentation Mammoplasty and Pulsed Electromagnetic Energy (Diapulse Therapy); Plastic and Reconstructive Surgery, vol. 69, No. 5, May, 1982.

(List continued on next page.)

*Primary Examiner*—Max Hindenburg

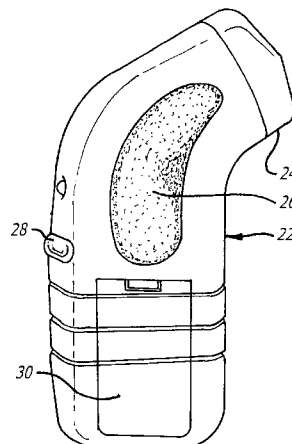
*Assistant Examiner*—Brian Szmal

[57]

**ABSTRACT**

An apparatus and method for toning tissue and particularly skin with a focused, coherent electromagnetic field employ a housing, a user-accessible switch positioned on the housing, and electronics and an electromagnet assembly positioned within the housing. The electromagnet assembly includes a static magnet and an electromagnet which are assembled relative to each other and positioned within the housing such that negative magnetic poles of the static magnet and the electromagnet both face outwardly from an end portion of the housing. The electronics provide a periodic current depending upon a setting of the switch. The electromagnet assembly generates a focused, coherent electromagnetic field in response to the periodic current.

**20 Claims, 2 Drawing Sheets**



## OTHER PUBLICATIONS

Cuocolo, R. et al.; Diapulse Therapy in the Treatment of Vertebral Column Neoplastic Pain; Paper presented at joint meeting of the European Chapters of the International Association for the Study of Pain, May, 1983.

Ionescu, Prof. Agrippa, MD, et al.; Study of Efficiency of Diapulse Therapy on the Dynamics of Enzymes in Burned Wound; Presented at the Sixth International Congress on Burns, Aug. 31, 1982, San Francisco, California.

Rhodes, Lord Cecil, DDS; The Adjunctive Utilization of Diapulse Therapy (Pulsed High Peak Power Electromagnetic Energy) in Accelerating Tissue Healing in Oral Surgery; Datapulse Therapy, vol. 39, No. 4, Jul., 1981 continued in vol. 40, No. 1, Oct., 1981.

Aronofsky, David H., DDS; Reduction of dental postsurgical symptoms using nonthermal pulsed high-peak-power electromagnetic energy; Oral Surgery; vol. 32, No. 5, Nov., 1971.

Erdman II, William James, MD; Peripheral Blood Flow Measurements During application of Pulsed High Frequency currents; General Orthopedics.

Valtonen, Erkki J., et al.; Effects of three modes of application of short wave diathermy on the cutaneous temperature of the legs; Europa Medicophysica.

Hedenius, Per, MD, et al.; Some Preliminary Investigations on the Therapeutic Effect of Pulsed Short Waves in Intermittent Claudication; Current Therapeutic Research, vol. 8, No. 7, Jul., 1966.

Bornstein, Leo A., MD; Acceleration of Transfer of Tube Pedicles and Flaps.

Wilson, David H., FRCS; Tenosynovitis, Tendovaginitis and Trigger Finger; Physiotherapy, vol. 69, No. 10, Oct., 1983.

Fenn, John E., MD; The Therapeutic Value of Pulsed Electromagnetic Energy (Diapulse) in the Treatment of the Post Partum Patient; Paper presented at Regional Meeting of the American Academy of Obstetrics and Gynecology, Indianapolis, Indiana, Sep. 22, 1967.

Kaplan, Earl G. and Weinstock, R.E.; Clinical Evaluation of Diapulse as Adjunctive Therapy Following Foot Surgery; Journal Of The American Podiatry Association; vol. 58, No. 5.

Hersh, Bernard J.; The Adjunctive Application of Diapulse Therapy for Foot Traumas; Current Podiatry, Feb., 1972.

Rubik, Beverly; Bioelectromagnetics and the Future of Medicine; Administrative Radiology; Aug., 1997.

Minck, Robert H.; The Ultimate Facial.

Kreguel, Louis, MD; Skin Deep; Dermoscope Magazine, Sep./Oct. 1988.

Abstract—Tardy effect of neurogenic muscular atrophy by magnetic stimulation; Am J Phys Med Rehabil 1994 Jul.-Aug.; 73(4):275-9.

Abstract—Skin symptoms after reduction of electric fields from visual display units; Scand J Work Environ Health 1995 Oct.; 21 (5):335-44.

Abstract—Movement of dissolved oxygen in a constant magnetic field; Biofizika 1978 Jan.-Feb.;23(1):159-61.

Abstract—Experimental study using a direct current electrical field to promote peripheral nerve regeneration; J Reconstr Microsurg 1995 May;11(3):189-93.

Abstract—Factors influencing the repair and adaptation of muscles in aged individuals: satellite cells and innervation; J Gerontol A Biol Sci Med Sci 1995 Nov.;50 Spec No(9):96-100.

Abstract—Depth-target efficient gene delivery and expression in the skin by pulsed electric fields: an approach to gene therapy of skin aging and other diseases; Biochem Biophys Res Commun 1996 Mar. 27; 220(3): 633-6.

Abstract—Measurement of the activating function of magnetic stimulation using combined electrical and magnetic stimuli; J Med Eng Technol 1995 Mar.-Jun.;19(2-3): 57-61.

Abstract—Magnetically induced muscle contraction is caused by motor nerve stimulation and not by direct muscle activation; Muscle Nerve 1994 Oct.;17(10): 1170-5.

Abstract—Patino, O., et al.; Pulsed electromagnetic fields in experimental cutaneous wound healing in rats; Journal of Burn Care & Rehabilitation, 1996 Nov.-Dec.; 17 (6 part 1): 528-31.

Abstract—Isakov, E., et al.; Electromagnetic stimulation of stump wounds in diabetic amputees; Journal of Rehabilitation Sciences 1996; 9(2): 46-8.

Abstract—Markov MS and Pilla AA; Review: electromagnetic field stimulation of soft tissues: pulsed radio frequency treatment of post-operative pain and edema; Wounds: A Compendium of Clinical Research and Practice; 1995 Jul.-Aug.; 7(4):143-51.

Abstract—Mayrovitz, HN and Larsen, PB; A preliminary study to evaluate the effect of pulsed peri-ulcer skin microcirculation of diabetic patients; Wounds: A compendium of clinical Research and Practice 1995 May-Jun.; 7(3):90-3.

Abstract—McLeod KJ and Rubin CT; Clinical use of electrical stimulation in fracture healing; Physical Medicine and Rehabilitation: State of the Art Reviews, 1995 Feb.; 9 (1):67-76.

Abstract—Stetkarova I, et al.; Characteristics of the silent period after transcranial magnetic stimulation; American Journal of Physical Medicine & Rehabilitation 1994 Apr.; 73 (2) : 98-102.

Abstract—Engelbreton J. and Wardell D; A contemporary view of alternative healing modalities; Nurse Practitioner: American Journal of Primary Health Care 1993 Sep.; 18(9) : 51-5.

Abstract—Currier, DP, et al.; Effects of electrical and electromagnetic stimulation after anterior cruciate ligament reconstruction; Journal of Orthopaedic and Sports Physical Therapy; 1993 Apr.; 17(4) : 177-84.

Abstract—Martin CJ, et al.; Electromagnetic fields from therapeutic diathermy equipment: a review of hazards and precautions; Physiotherapy; 1991 Jan.; 77(1):3-7.

Abstract—Frank R; Treatment of the perineum by pulsed electro magnetic therapy . . . obstetric and gynecological patients; Midwives Chronical; 1985 Nov.; 98 (1174): 297-8. Safety Guide for Experiments at CERN 1995 (Excerpt).

Advertisement: M+ Flexible Magnetic Pads; MTT Inc.; Internet Web page at <http://www.nutrmed.com/Magnetic.htm>.

Advertisement: Bio-Pulse(tm) 3000 Cordless Magnetic Therapy; Internet at <http://www.nmia.com/~pegasus/bio3000.html>.

Internet Article: Your Health, Jim Townsend's Magnets at <http://206.171.105.130:80/magnets/heapow/>.

LA Times Article: The Buzz Over Electric Wrinkle Remover; Feb. 2, 1988, Part V.

Article from Internet: How magnetic Fields Affect the Living Body; at <http://www.nutrmed.com/Biomag.htm>.

Article from Internet: Magnetic Therapy at <http://www.lonet.ca/comm/.../history/history.htm>.

Advertisement: The Electric Facelift; Allied Health Digest.

Advertising: Various Magnetic products from Internet at  
<http://www.lonet.ca/comm/magna-pak/tens/tens.htm>.

Advertising: Exerpt from brochure Anti-Aging International, Inc.

Magnetic Field Therapy; Alternative Therapies; pp.  
330-338.

FIG. 1

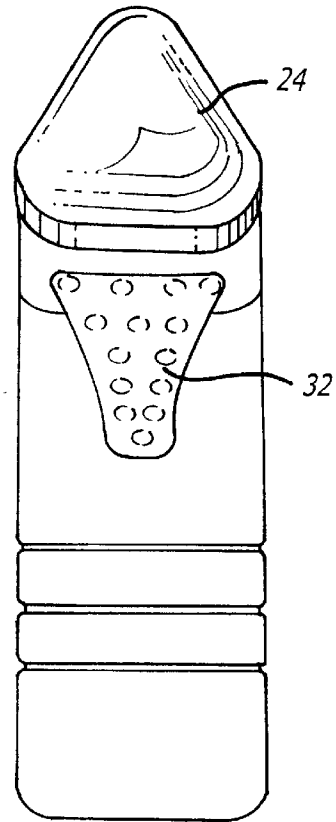
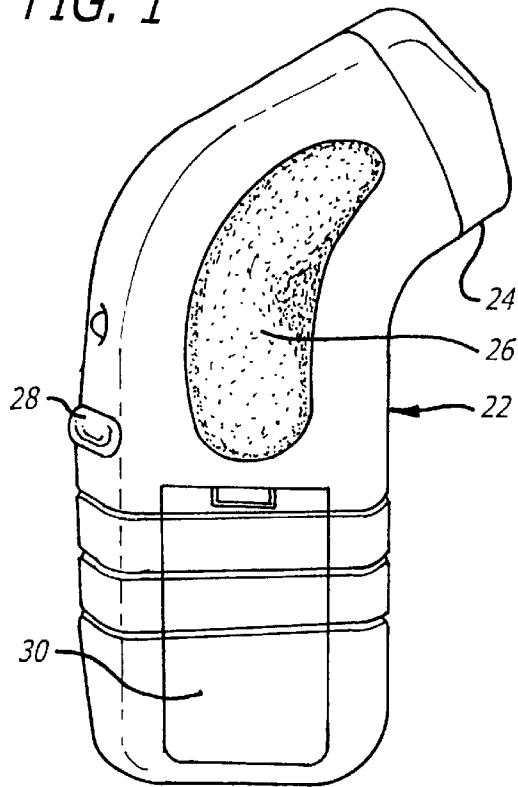


FIG. 2

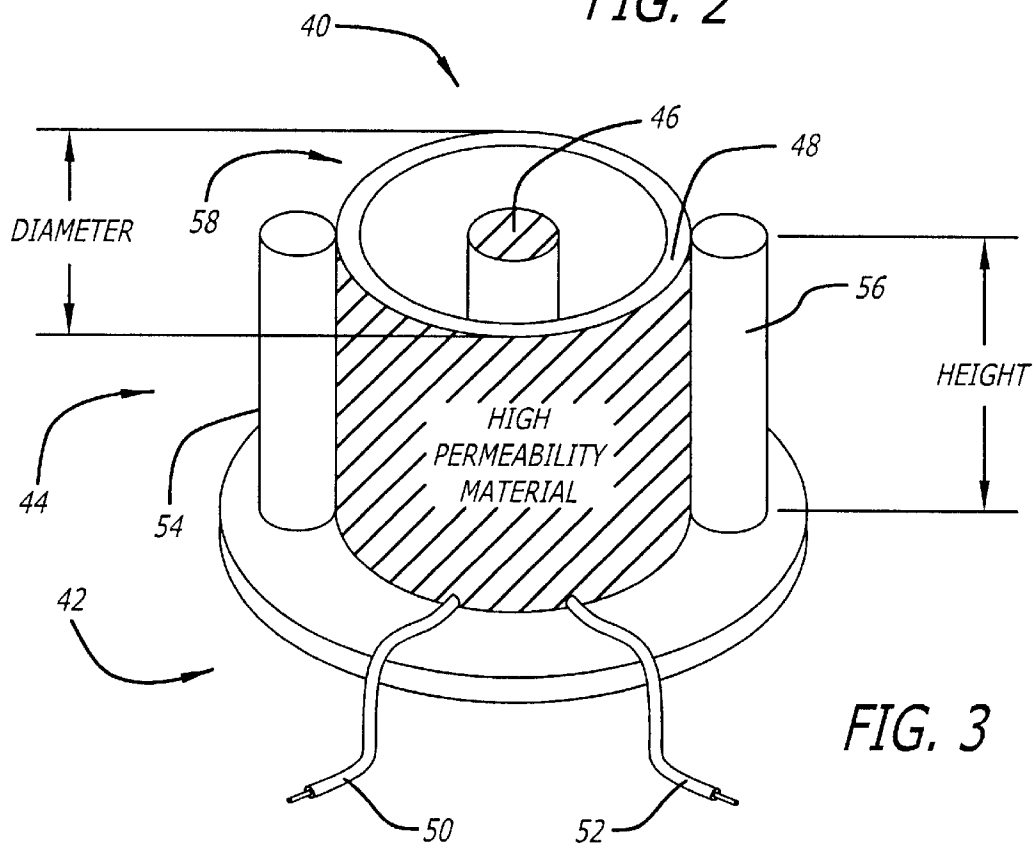


FIG. 3

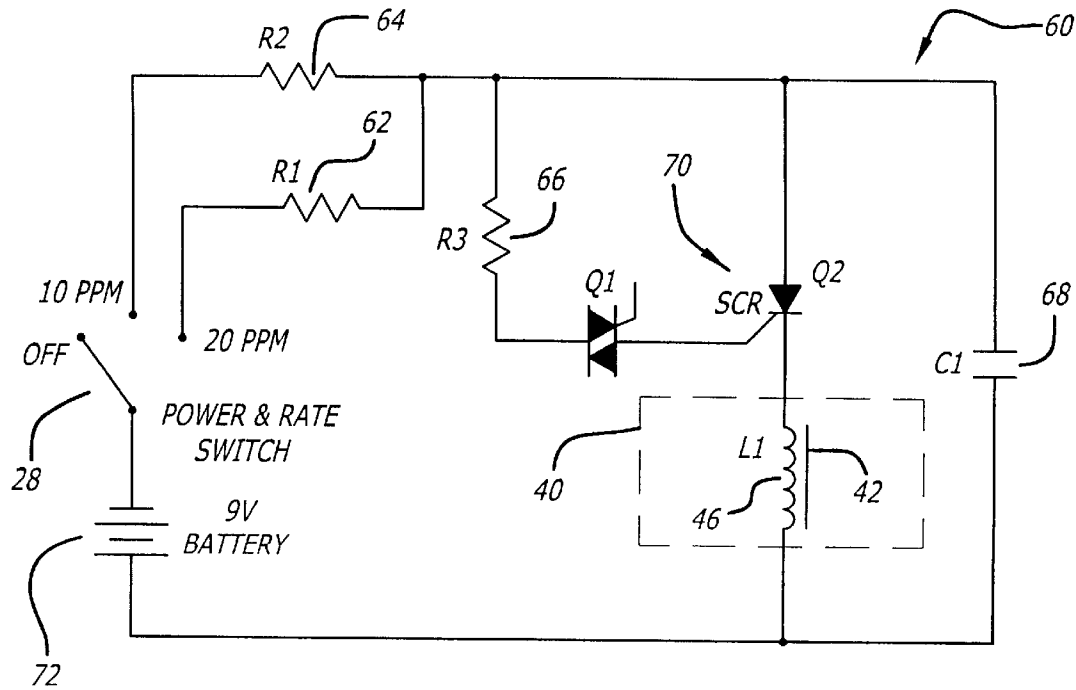


FIG. 4

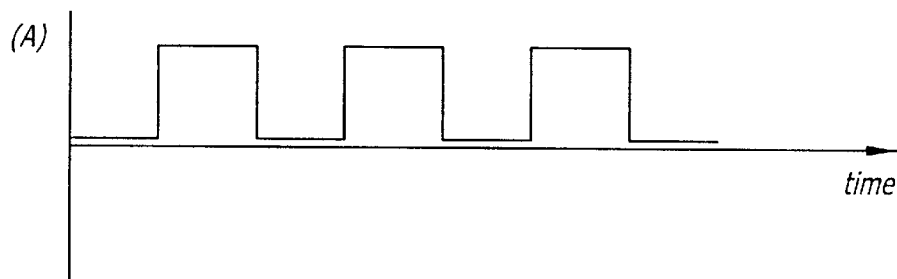


FIG. 5

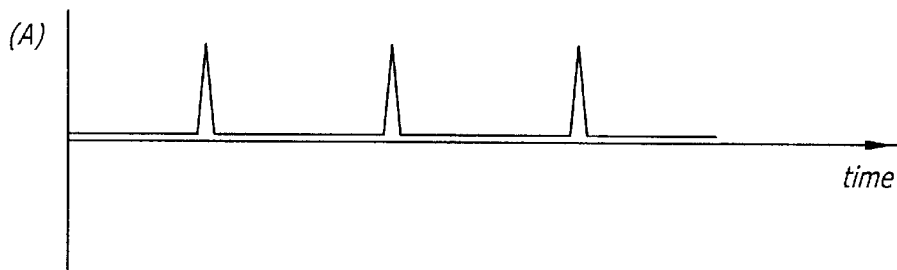


FIG. 6

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