

Recent Patents^a

4,258,815
Wier et al. Mar. 31, 1981

- [54] **AMBULATOR DRIVE MECHANISM**
 [75] Inventors: **John P. Wier; Robert A. Garrett,**
 both of San Diego, Calif.
 [73] Assignee: **The United States of America as**
represented by the Secretary of the
Navy, Washington, D.C.
 [21] Appl. No.: **7,285**
 [22] Filed: **Jan. 29, 1979**

[57] **ABSTRACT**

A drive mechanism is provided particularly suitable for use in ambulators having a mobile platform that transports a paraplegic in a standing position, the unique drive mechanism enabling the platform to be of a minimum size with a very low center of gravity, and being movable about three axes to provide maximum maneuverability and access to confined spaces.

2 Claims, No Drawings

4,249,267
Voss Feb. 10, 1981

- [54] **MAGNETIC FABRIC FASTENER AND**
CLOSURE MEANS
 [76] Inventor: **Clifford C. Voss,** 406 Donald Ave.,
 Clawson, Mich. 48017
 [21] Appl. No.: **72,020**
 [22] Filed: **Sep. 4, 1979**

[57] **ABSTRACT**

A fastener means for fabrics and clothing and which includes a magnetic tape material which is sewn into or otherwise applied to next adjacent edges of cloth material intended to be overlapped. Such magnetic material being relatively thin and light weight, pliable and flexible, capable of being cut to desired lengths and having the general characteristics of a narrow strip of fabric or cloth material itself.

5 Claims, 12 Drawing Figures

4,257,405
Colville Mar. 24, 1981

- [54] **BONE GRAFT MATERIALS**
 [76] Inventor: **James Colville,** Foxrock Co. Dublin,
 Eire, Ireland
 [21] Appl. No.: **9,896**
 [22] Filed: **Feb. 6, 1979**

[57] **ABSTRACT**

A bone graft material, especially for repairing skeletal defects, formed of carbonized wood; best results have been achieved with carbonized stemwoods of climbing plants, e.g. Clematis, which have the most advantageous pore size and porosity to accept bone ingrowth upon implantation.

2 Claims, No Drawings

4,245,652
Kelly et al. Jan. 20, 1981

- [54] **DEVICE AND METHOD FOR PREVENTING**
FOREIGN SUBSTANCE MIGRATION
THROUGH AN OPENING IN LIVING
ANIMAL TISSUE
 [75] Inventors: **Leonard T. Kelly,** Carson, Calif.;
Esther V. M. Hamel, St. Ignatius,
 Mont.
 [73] Assignee: **Hamelly International, Inc.,** St.
 Ignatius, Mont.
 [21] Appl. No.: **949,910**
 [22] Filed: **Oct. 10, 1978**

[57] **ABSTRACT**

A relatively permanent barrier device which serves as a barrier to migration of foreign substances, as for example, bacteria or other disease promoting agents, through

^aPatents may be ordered by number from the Commissioner of Patents, Washington, D.C. 20231, at 50¢ each.

an opening in living animal tissue. The barrier device also aids in promoting healing of the animal tissue around the opening. In a preferred embodiment, the opening is designed to receive a percutaneous member or similar member for relatively permanent implant in the animal.

4,254,776

Tanie et al.

Mar. 10, 1981

[54] **APPARATUS FOR TRANSMISSION OF INFORMATION BY ELECTROSTATIC STIMULI**

[75] Inventors: **Kazuo Tanie, Yokohama; Susumu Tachi, Tokyo, both of Japan**

[73] Assignees: **Agency of Industrial Science & Technology, Japan; Ministry of International Trade & Industry, both of Tokyo, Japan**

[21] Appl. No.: **7,425**

[22] Filed: **Jan. 29, 1979**

[57] **ABSTRACT**

An apparatus for use in a system for transmitting information in the form of electric stimuli to a subject through the medium of a multiplicity of electrodes attached to the subject, which apparatus comprises analogue switches provided one each for the electrodes at their respective input sides and a decoder adapted to effect the "ON-OFF" control of these analogue switches.

4,251,179

Thorley

Feb. 17, 1981

[54] **WHEELCHAIR LIFT**

[75] Inventor: **Graham R. Thorley, San Diego, Calif.**

[73] Assignee: **Transportation Design & Technology, Inc., San Diego, Calif.**

[21] Appl. No.: **41,943**

[22] Filed: **May 24, 1979**

[57] **ABSTRACT**

A hoisting device particularly suitable for lifting handicapped persons with or without wheelchairs, into a vehicle. The lift can be installed into the door well of a public transit bus or of a railroad car. It could also be incorporated into a step structure inside a building.

4,266,936

Rose et al.

May 12, 1981

[54] **BRAILLE DISPLAY READER**

[75] Inventors: **Leonard Rose, 184 Seapit Rd., East Falmouth, Mass. 02536; Stanley E. Rose, 9 Broadway, Saugus, Mass. 01906**

[73] Assignees: **Leonard Rose; Stanley Rose, both of Falmouth, Mass.**

[21] Appl. No.: **958,253**

[22] Filed: **Nov. 6, 1978**

[57] **ABSTRACT**

A portable braille display unit which presents an entire page of braille characters in response to data stored on a storage medium, such as a tape cassette. The display unit is the size of a conventional braille page, and the display unit may be made portable and self-powered. Each braille character is displayed by a braille cell display module in which spring actuated pins are controlled by bimetallic latches. Each module includes six

4,264,989

Wiley

May 5, 1981

[54] **ARTIFICIAL LARYNX**

[76] Inventor: **Jack P. Wiley, P.O. Box 136, Linden, Tex. 75563**

[21] Appl. No.: **86,735**

[22] Filed: **Oct. 22, 1979**

[57] **ABSTRACT**

An improved acoustical artificial larynx comprises a sound chamber having an air inlet, an outlet for vibrating air, a mouth air discharge communicating with said outlet, a tone-producing element having an edge that is vibratable in the human voice range in response to air flow from said inlet, and spreader means for said vibratable edge. The latter element acts as a whispering control and has other utility. Additionally, the pitch can be modulated and, uniquely, the range of that modulation is adjustable.

4,265,478**Korsgaard****May 5, 1981****[54] SAFETY LOCKING MECHANISM FOR WHEELCHAIRS**[76] Inventor: **Carl E. Korsgaard**, Rte. 2, Smith Rd., Concord, Tenn. 37922[21] Appl. No.: **37,521**[22] Filed: **May 9, 1979****[57] ABSTRACT**

Apparatus for use in combination with all types of standard wheelchairs for immobilizing or restraining the wheelchair in a stationary condition when the wheelchair is loaded or carried on a vehicle, transport system or other structure subject to bouncing, random motion or acceleration and deceleration forces is disclosed.

4,259,547**Valley et al.****Mar. 31, 1981****[54] HEARING AID WITH DUAL PICKUP**[75] Inventors: **Robert A. Valley**, Branford; **David S. MacDonald**, Cheshire, both of Conn.[73] Assignee: **Earmark, Inc.**, Hamden, Conn.[21] Appl. No.: **11,728**[22] Filed: **Feb. 12, 1979****[57] ABSTRACT**

A conventional hearing aid for a hard-of-hearing person has a microphone input for sensing sounds or voice communication. In a high noise environment, a somewhat remotely located speaker wishing to communicate with the person talks into a microphone input to a transmitter so that his spoken word is transmitted as a modulated carrier wave. The hard-of-hearing person is provided with a receiver which receives and detects the modulated carrier wave. The detected signal is applied to a transducer to reproduce the spoken word. A hollow elongated conduit comprising a flexible tube having a small bore extending therethrough, conducts the audible sound representing the spoken word from the transducer to the microphone input of the hearing aid, thus enabling the wearer of the hearing aid to hear the remotely spoken sounds of a lower level than the ambient noise while at the same time hearing the ambient noise.

18 Claims, 6 Drawing Figures**4,265,253****Abraham****May 5, 1981****[54] SKIN CONDUCTING ELECTRODE AND ELECTRODE ASSEMBLY**[75] Inventor: **William W. Abraham**, New Hartford, N.Y.[73] Assignee: **Consolidated Medical Equipment Inc.**, Utica, N.Y.[21] Appl. No.: **55,812**[22] Filed: **Jul. 9, 1979****[57] ABSTRACT**

A disposable skin conducting electrode assembly and electrode is disclosed for use on a patient wherein the electrode assembly comprises a gel pad, an electrode and an adhesive pad. The electrode is a thin conductive wire having a non-linear configuration such that the electrode extends across a width of skin substantially greater than the width of the wire. In one particular embodiment, the wire is in a saw-toothed configuration.

4,260,035**Loveless et al.****Apr. 7, 1981****[54] CHIN CONTROLLER SYSTEM FOR POWERED WHEELCHAIR**[75] Inventors: **John H. Loveless**, Westminster; **Woodrow Seamone**, Rockville, both of Md.[73] Assignee: **The Johns Hopkins University**, Baltimore, Md.[21] Appl. No.: **60,856**[22] Filed: **Jul. 26, 1979****[57] ABSTRACT**

An improved chin controller system, for controlling a motor-driven wheelchair or the like, comprises an elongated control arm which extends unobtrusively to a location adjacent to occupant's chin and there supports an actuator mechanism, designed with very low profile to present minimum obstruction in front of the user-patient's face. The controller unit is designed so that when not in use, the user may readily move the controller to one side. The actuator carried on the control arm is engageable by the underside of the user's chin and may be moved vertically (depressed) to provide proportional speed control of the wheelchair, and laterally

(from side-to-side) in a horizontal plane, to provide proportional left/right steering control. The actuator also comprises means enabling the user to select the desired forward or reverse direction of travel for the wheelchair and also to select between different drive torque levels for the drive motors.

29 Claims, 16 Drawing Figures

4,248,256

Thomas

Feb. 3, 1981

[54] **PLATFORM CRUTCH ATTACHMENT FOR AN INVALID WALKER**

[75] Inventor: **Morton I. Thomas**, Nyack, N.Y.

[73] Assignee: **Temco Products, Inc.**, Passaic, N.J.

[21] Appl. No.: **72,012**

[22] Filed: **Sep. 4, 1979**

[57] **ABSTRACT**

A platform crutch attachment having a wide selection of adjustments may be attached to a conventional invalid walker. The handle can be tilted, moved backwards or forwards, or rotated sideways and then securely locked to provide the user with the optimum grip position. A comfortable break-away cuff is located near the handle and positioned so that it is directly above the attaching points to the invalid walker.

4,266,305

Kavaloski et al.

May 12, 1981

[54] **WHEELCHAIR FOR TRANSPORTATION VEHICLES**

[75] Inventors: **Peter P. Kavaloski**, Los Angeles; **Thomas K. Hale**, Glendale, both of Calif.

[73] Assignee: **Lockheed Corporation**, Burbank, Calif.

[21] Appl. No.: **94,397**

[22] Filed: **Nov. 14, 1979**

[57] **ABSTRACT**

A wheelchair for the transportation of a disabled person throughout the cabin of a transportation vehicle and into a lavatory of the vehicle having a bench type toilet, the wheelchair having a seat stabilizer extendable there-

from to engage the top surface of the toilet, a translating seat assembly for the disabled person with a seat opening transferable over the toilet opening, and a slidable foot rest for the person during transportation on the vehicle and when using the toilet.

20 Claims, 11 Drawing Figures

4,261,663

Grimnes

Apr. 14, 1981

[54] **MACHINES FOR WRITING BRAILLE TYPE**

[76] Inventor: **Knut Grimnes**, Granhaugen 6, NO-7081 Sjetnhaugen, Norway

[21] Appl. No.: **964,085**

[22] Filed: **Nov. 27, 1978**

[57] **ABSTRACT**

Machines for writing braille type having two opposing rows of embossing units each with a support holding a punch-forming stamp guidable between an inactive position and a pushed-out embossing position with abutment against a die member disposed opposite the embossing unit. An electromagnet for each unit controls the stamp with a displaceable plunger.

2 Claims, 2 Drawing Figures

4,259,965

Fukuda et al.

Apr. 7, 1981

[54] **SKIN ELECTRODE**

[75] Inventors: **Kotaro Fukuda**, Tokyo; **Yosinori Okamoto**, Fujimi; **Masakatsu Shimada**, Iwatsuki; **Toshiaki Kato**; **Katsuhiko Tabuchi**, both of Chiba; **Makoto Shimura**, Yokosuka; **Takashi Fujiwara**, Nagareyama, all of Japan

[73] Assignee: **TDK Electronics Co., Ltd.**, Tokyo, Japan

[21] Appl. No.: **23,287**

[22] Filed: **Mar. 23, 1979**

[57] **ABSTRACT**

In a skin electrode for connecting monitoring equipment to the surface of the skin which is separable into two assemblies: a base assembly adapted to be mounted to the surface of the skin and having a sensing element,

and; a terminal assembly adapted to be releasably coupled with the base assembly and having a lead for connection to the monitoring equipment, an improvement wherein the terminal assembly is provided with a magnet while the base assembly is provided with a ferromagnetic element, whereby the releasable coupling and electrical connection of the assemblies may be ensured by the action of the magnet.

4 Claims, 12 Drawing Figures

4,256,116

Meretsky et al.

Mar. 17, 1981

[54] **TRANSCUTANEOUS PAIN RELIEVER**

[75] Inventors: **Paul L. Meretsky; Amiram Carmon,**
both of Haifa, Israel

[73] Assignee: **Technion Research and Development
Foundation, Limited, Haifa, Israel**

[21] Appl. No.: **921,344**

[22] Filed: **Jul. 3, 1978**

[57] **ABSTRACT**

A transcutaneous pain reliever which utilizes a plurality of battery powered inductive energy generators, which are sequentially and individually activated, a clocking system which has means for automatically inhibiting pulsing of an energy generator until a previous energy generator has delivered its energy, and an antiadapt system to prevent a patient from becoming acclimated to the sensations.

4,246,661

Pinson

Jan. 27, 1981

[54] **DIGITALLY-CONTROLLED ARTIFICIAL
HAND**

[75] Inventor: **George T. Pinson, Huntsville, Ala.**

[73] Assignee: **The Boeing Company, Seattle, Wash.**

[21] Appl. No.: **20,575**

[22] Filed: **Mar. 15, 1979**

[57] **ABSTRACT**

An artificial forearm and hand having a fully-articulated wrist motion. The invention provides an integrated digitally-controlled remote manipulator device capable of reproducing all of the major motions of the human forearm, wrist and hand in a compact in-line

package. This motion is accomplished without the requirement for feedback thereby making the invention ideally suited to digital computer control. The packaging of the device permits it to be sealed, meaning that it can be used as a remote manipulator that can reproduce human arm and hand motions. The packaging also produces a lightweight, cosmetically pleasing prosthetic device for use by humans.

4,251,105

Barker

Feb. 17, 1981

[54] **MOBILITY AID**

[76] Inventor: **Alfred W. Barker, "Panorama", Petit
Port, St. Brelade, Jersey, Channel
Islands**

[21] Appl. No.: **54,424**

[22] Filed: **Jul. 3, 1979**

[57] **ABSTRACT**

A mobility aid comprises a four-legged walking frame characterized by the front legs of the frame having ground-engaging wheels with axes movable in unison in the direction of the lengths of the legs, by one-way wheel-driving means responsive to upwards movement of said wheel axes to cause forward rotational motion of the wheels, and by resilient means acting to urge said wheel axes downwardly of the front legs.

In the freestanding condition of the frame, the resilient means lift the front of the frame so that when the frame is pressed down by the user bearing down on the frame, the wheels are caused to rotate in the sense to cause forward movement of the aid, the rear legs dragging as a result. A repeated bearing down action, easily accomplished even by the severely handicapped, thus results in easily controllable forward motion of the aid.

15 Claims, 9 Drawing Figures