

Patenting Basics



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Patentability

United States Patent [19]
Chamberlain

[11] **Patent Number:** **6,068,649**
[45] **Date of Patent:** **May 30, 2000**

[54] **PACIFIER SECURING SYSTEM** 5,819,731 10/1998 Dyrud et al. 128/207.11

[76] Inventor: **Constance Chamberlain**, 14475
Maplewood St., Poway, Calif. 92064

Primary Examiner—Gary Jackson
Assistant Examiner—William W. Lewis

[21] Appl. No.: **09/311,415**

[22] Filed: **May 13, 1999**

[51] **Int. Cl.**⁷ **A61J 17/00**

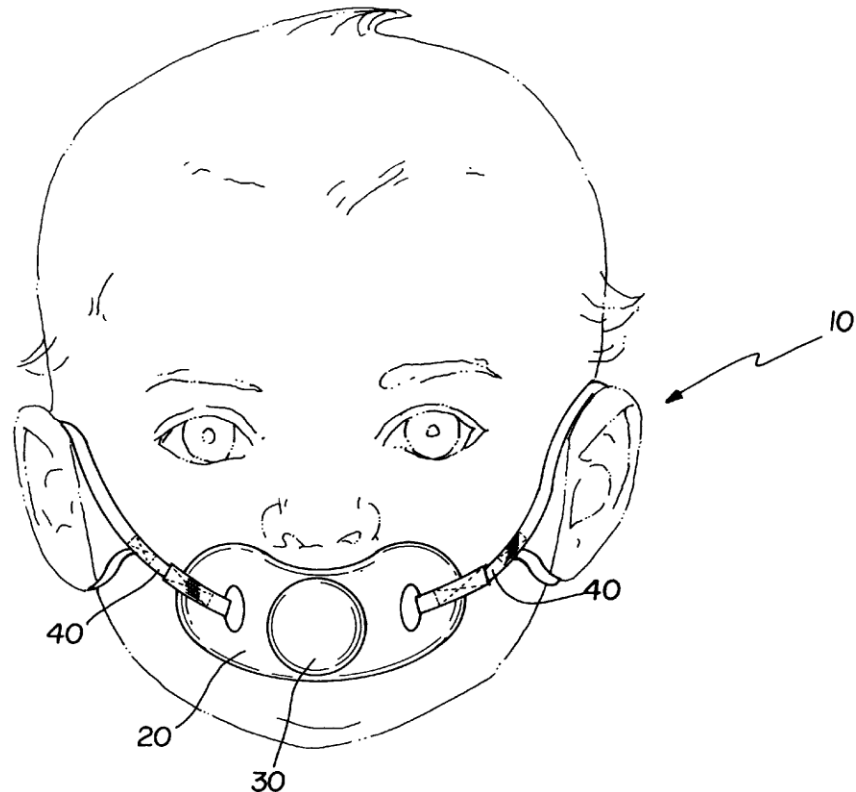
[52] **U.S. Cl.** **606/234**; 128/207.11; 128/207.17

[58] **Field of Search** 606/234–236;
128/206.13, 207.17, 207.11

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,237,988 8/1993 McNeese 128/207.17
5,513,633 5/1996 Islava 128/207.17



[54] **THUMB-SUCKING DISCOURAGEMENT DEVICE**

[76] Inventors: **Michael Pace; Alice L. Pace, 661 Sherwood Dr. B-1, both of Jonesboro, Ga. 30236; Frank Van Haltern, 1670 Montcliff Ct., Decatur, Ga. 30033**

[21] Appl. No.: **233,918**

[22] Filed: **Feb. 12, 1981**

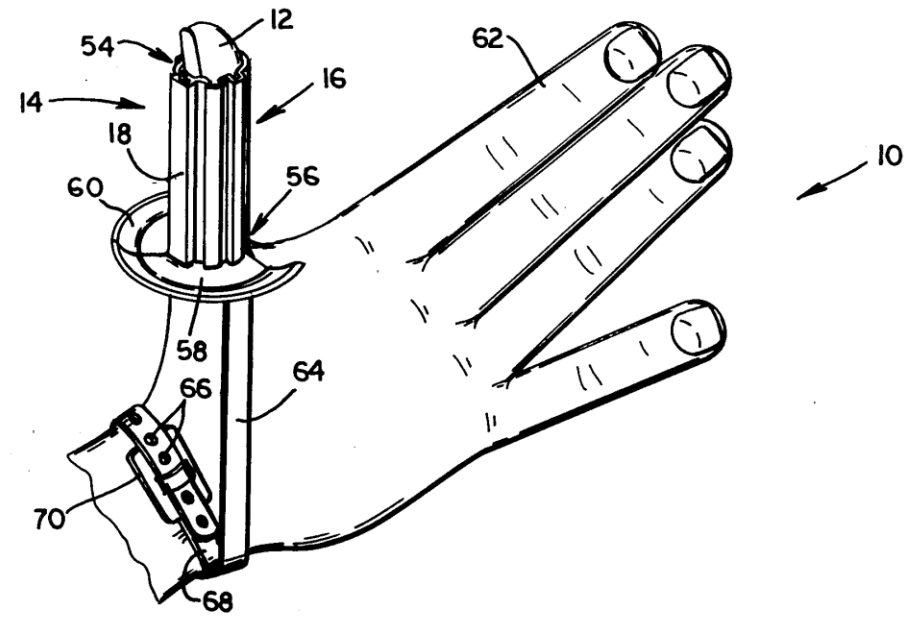
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[52] U
[58] F
[56]



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|-----------|---------|---------------|---------|
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| 2,303,675 | 12/1942 | Berghs | 128/133 |
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| 3,415,244 | 12/1968 | Block | 128/133 |

Primary Examiner—Michael H. Thaler
Assistant Examiner—C. W. Shedd
Attorney, Agent, or Firm—Jones & Askew

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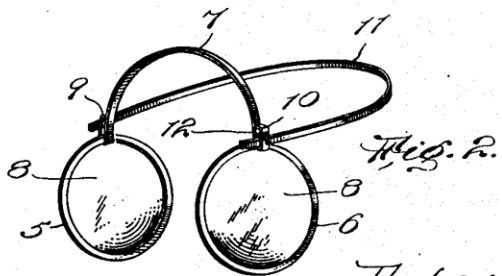
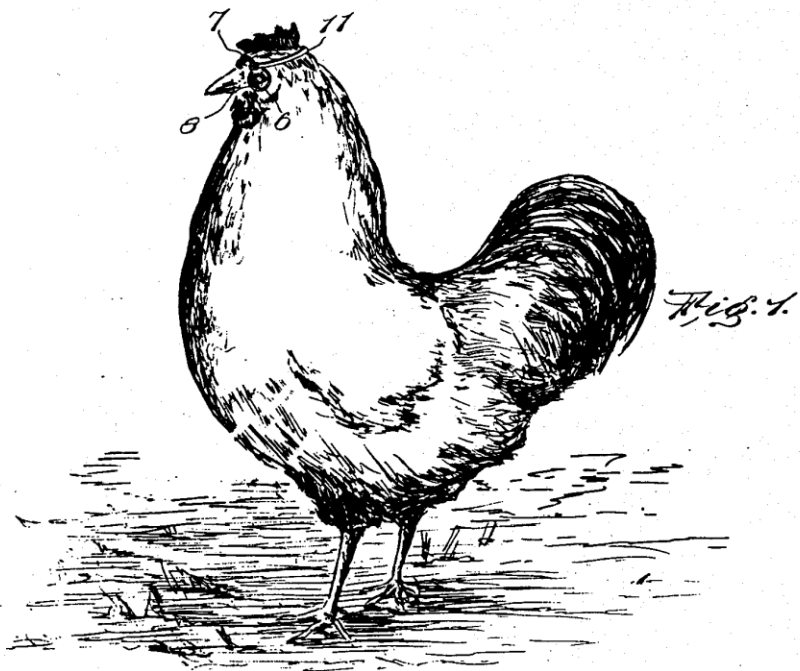


No. 730,918.

PATENTED JUNE 16, 1903.

A. JACKSON, JR.
EYE PROTECTOR FOR CHICKENS.
APPLICATION FILED DEC. 10, 1902.

NO MODEL.



Inventor.

Andrew Jackson, Jr.

Witnesses

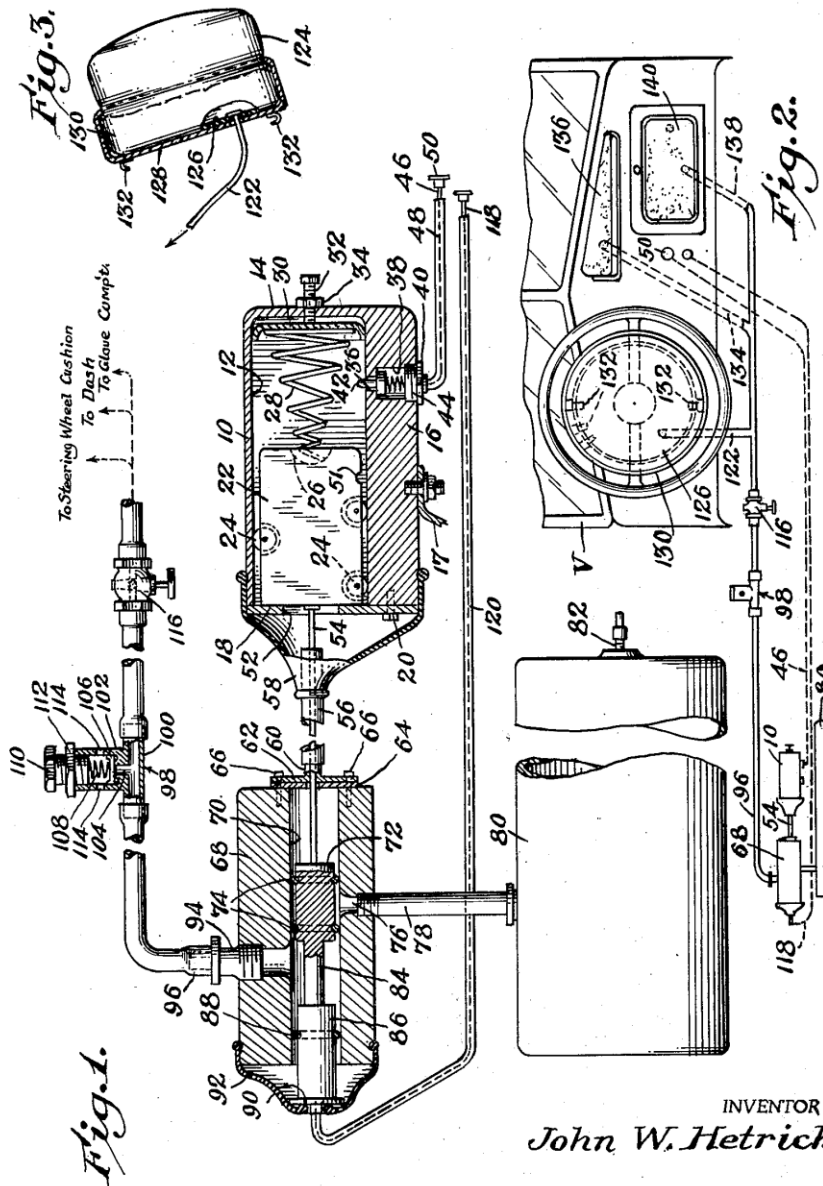
Charles ...

1899

Charles ...

SAFETY CUSHION ASSEMBLY FOR AUTOMOTIVE VEHICLES

Filed Aug. 5, 1952



INVENTOR
John W. Hetrick

BY
Mc Morrow, Bertram + Davidson
ATTORNEYS

United States Patent Office

3,167,440

Patented Jan. 26, 1965

1

3,167,440

PLASTIC MODELING COMPOSITION OF A SOFT, PLIABLE WORKING CONSISTENCY

Noah W. McVicker and Joseph S. McVicker, Cincinnati, Ohio, assignors to Rainbow Crafts, Inc., Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed May 17, 1960, Ser. No. 29,573

16 Claims. (Cl. 106—150)

It has been found that a very excellent compound may be produced within the following ranges wherein the components of the composition are as follows:

| | | |
|---|----------------|---------|
| Flour | -----pounds--- | 450-550 |
| Water | -----do---- | 450-550 |
| Salt | -----do---- | 75-200 |
| Hydrocarbon petroleum distillate | ----gallons-- | 1 to 3 |
| Hardening and astringent agent | ----pounds-- | 9-20 |
| Preservation, drying and antiseptic agent | -----do---- | 4-10 |
| Perfume | -----do---- | 1-2 |
| Coloring matter | -----do---- | 2 to 4 |

In addition to the specific foregoing examples and ranges, tests have shown that a suitable composition may

2

lump-free. The thin film coating in addition to giving the process mixture a soft and pliable texture also renders the mixture smooth and velvety so that it will not be sticky when coming into contact with other objects or the hands of the user.

Any grain flour may be used but wheat flour is preferred. However, any of the other grain flours may be used, and they may be used alone or in combination. Rye flour is preferred next to wheat flour. The grain flour

60 any m
named
heated
water
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65 ing co
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ings of
is soft
70 may b
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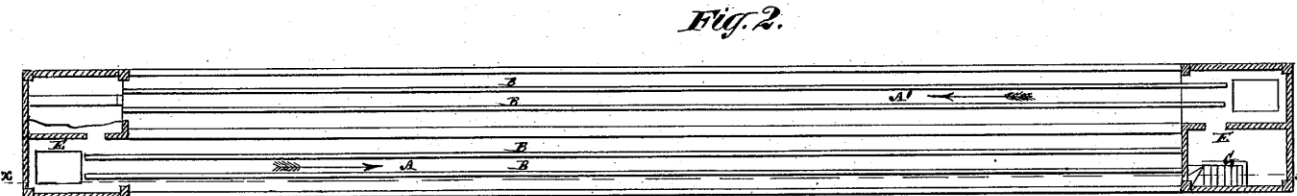
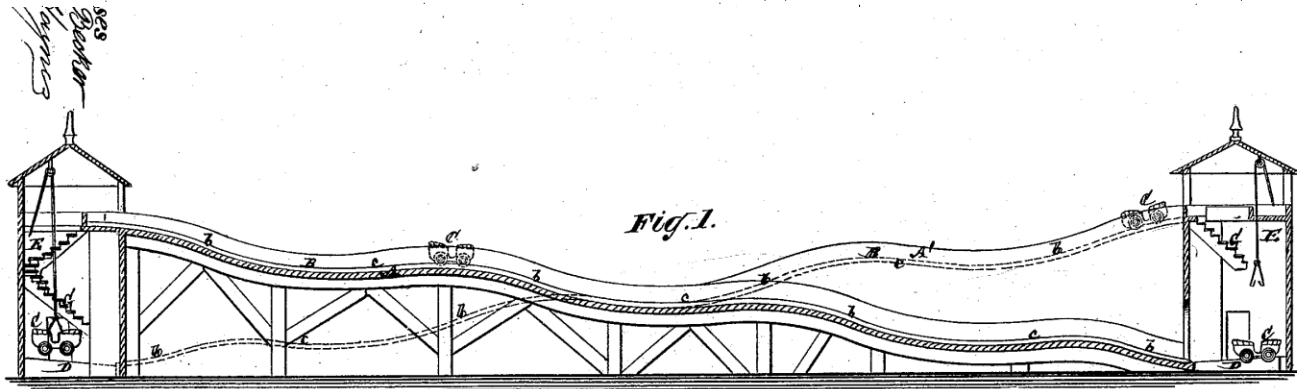
toxic (
should

UNITED STATES PATENT OFFICE.

RICHARD KNUDSEN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN INCLINED-PLANE RAILWAYS.

Specification forming part of Letters Patent No. **198,888**, dated January 1, 1878; application filed November 12, 1877.



*Richard Knudsen
by his Attorneys
Brown & Allen*

No. 198,888.

R. KNUDSEN.
Inclined-Plane Railway.

Patented Jan. 1, 1878.

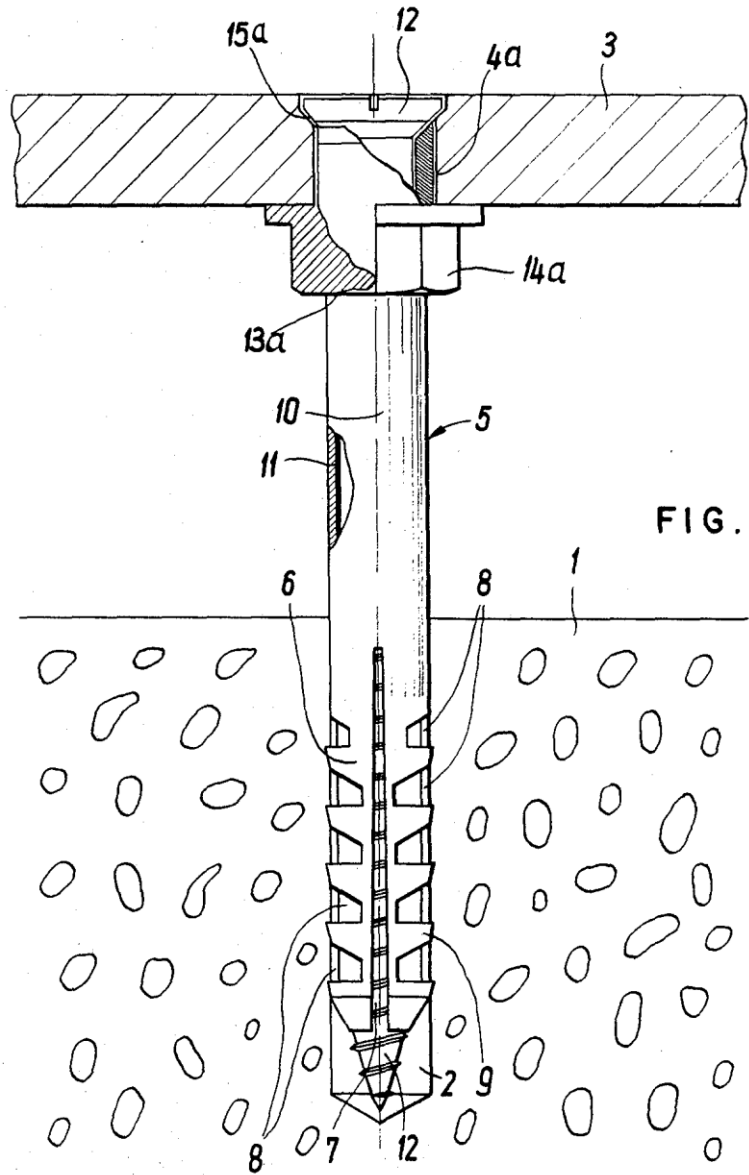


FIG. 2

UNITED STATES PATENT OFFICE

2,620,061

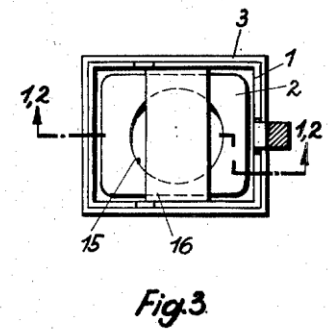
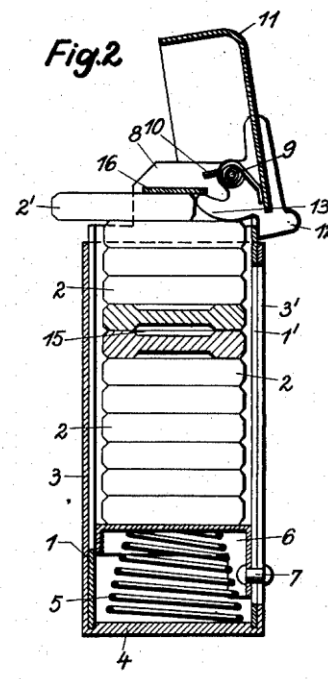
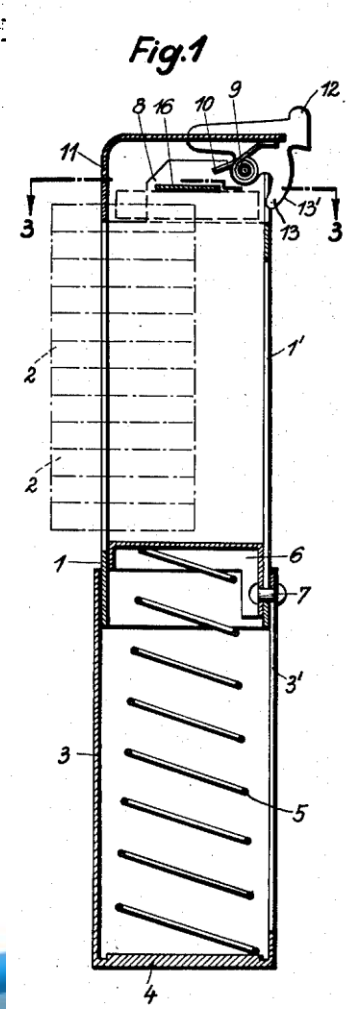
POCKET ARTICLE DISPENSING CONTAINER

Oskar Uxa, Vienna, Austria, assignor to Eduard Haas, Muhlbach-Attersee, Austria

Application October 14, 1949, Serial No. 121,251
In Austria October 28, 1948

3 Claims. (Cl. 206-42)

1



[54] **DIGITAL ENCODING PROCESS**

[75] Inventors: **Bernhard Grill**, Rednitzhembach;
Karl-Heinz Brandenburg, Erlangen;
Thomas Sporer, Fürth; **Bernd Kürten**;
Ernst Eberlein, both of
 Grossenseebach, all of Germany

[73] Assignee: **Fraunhofer Gesellschaft zur
 Foerderung der angewandten
 Forschung e.V.**, Munich, Germany

| | | | |
|-----------|---------|------------------|----------|
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| 4,972,484 | 11/1990 | Theille et al. | 395/2.36 |
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| 5,222,189 | 6/1993 | Fielder | 395/2.38 |
| 5,341,457 | 8/1994 | Hall, II et al. | 395/2.35 |

Primary Examiner—David K. Moore
Assistant Examiner—Tariq Hafiz
Attorney, Agent, or Firm—Evenson, McKeown, Edwards &
 Lenahan, P.L.L.C.

[21] Appl. No.: **380,135**

[22] Filed: **Jan. 26, 1995**

Related U.S. Application Data

[63] Continuation of Ser. No. 169,768, Dec. 20, 1993, abandoned, which is a continuation of Ser. No. 768,239, filed as PCT/DE90/00286, Apr. 12, 1990, abandoned.

[30] **Foreign Application Priority Data**

Apr. 17, 1989 [DE] Germany 39 12 605.6

[51] **Int. Cl.⁶** **G01L 3/02**; G01L 9/00

[52] **U.S. Cl.** **395/2.12**; 395/2.09; 395/2.1;
 395/2.91

[58] **Field of Search** 381/36-53, 29,
 381/31; 395/2, 2.87; 348/412

[56] **References Cited**

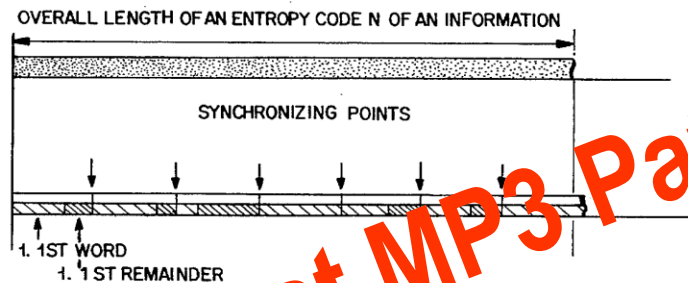
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[57] **ABSTRACT**

A digital encoding process for transmitting and/or storing acoustical signals and, in particular, music signals, in which scanned values of the acoustical signal are transformed by means of a transformation or a filter bank into a sequence of second scanned values, which reproduce the spectral composition of the acoustical signal, and the sequence of second scanned values is quantized in accordance with the requirements with varying precision and is partially or entirely encoded by an optimum encoder, and in which a corresponding decoding and inverse transformation takes place during the reproduction. An encoder is utilized in a manner in which the occurrence probability of the quantized spectral coefficient is correlated to the length of the code in such a way that the more frequently the spectral coefficient occurs, the shorter the code word. A code word and, if needed, a supplementary code is allocated to several elements of the sequence or to a value range in order to reduce the size of the table of the encoder. A portion of the code words of variable length are arranged in a raster, and the remaining code words are distributed in the gaps still left so that the beginning of a code word can be more easily found without completely decoding or in the event of faulty transmission.

32 Claims, 2 Drawing Sheets



- ▬ Largest possible single word length equals synchronization frame
- ▬ First to N/Z word of an information beginning respectively after the length of the longest possible word
- ▨ Remainder left over per synchronization frame, which is filled with the remaining bits following the allocation of the sites having a defined beginning
- ▭ "extending" bits, which are arranged in the 1st remainder

The First MP3 Patent

(12) **United States Patent**
Biggs

(10) **Patent No.:** **US 6,800,312 B1**
(45) **Date of Patent:** **Oct. 5, 2004**

(54) **MARSHMALLOW SYSTEM**

(76) **Inventor:** **Miles J. Biggs**, 2850 McCammon Rd.,
Rockford, TN (US) 37853

(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 228 days.

(21) **Appl. No.:** **10/106,664**

(22) **Filed:** **Mar. 26, 2002**

(51) **Int. Cl.⁷** **A23G 3/00**

(52) **U.S. Cl.** **426/103; 426/571; 426/573;**
426/660

(58) **Field of Search** 426/103, 571,
426/573, 660, 466, 94

(56) **References Cited**

U.S. PATENT DOCUMENTS

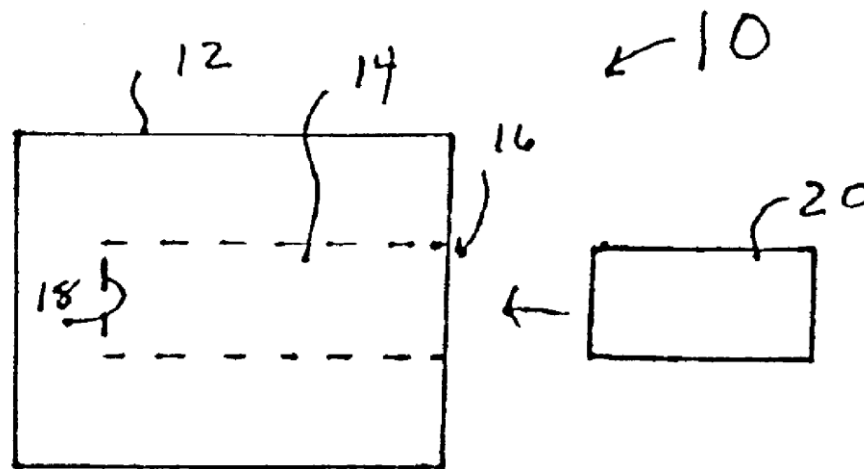
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6,616,963 B1 * 9/2003 Zerby et al. 426/660

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Primary Examiner—N. Bhat

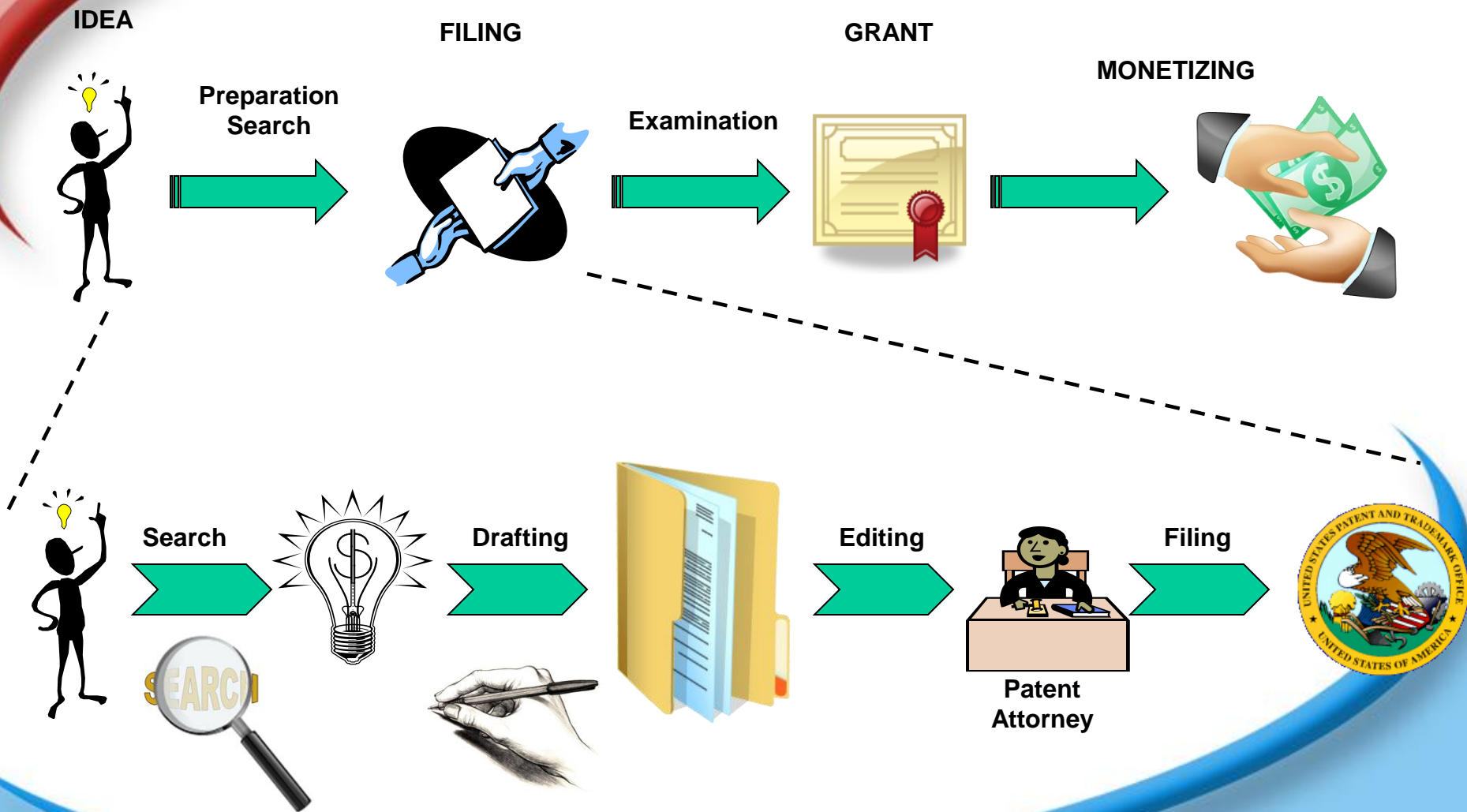
(74) *Attorney, Agent, or Firm*—Luedeka, Neely & Graham
PC



What is claimed is:

1. A marshmallow system, comprising a marshmallow having an axial open-ended bore defined therein having an open end defined adjacent an edge of the marshmallow and a solid chocolate portion configured for being received axially within the bore, wherein the chocolate may be positioned as a solid within the bore so as to remain within the open-ended bore at ambient temperatures and the thus prepared marshmallow/chocolate portion exposed to heat to toast the marshmallow and substantially melt the chocolate portion.

Workshop Structure



Search

- **Prior-Art:** Prior art is all information that has been disclosed to the public in any form about an invention before a given date.
- **Search** – To find closest prior art: Structure and benefits.
- Search:
 - Self
 - Search companies
 - Patent attorney

Search Step 1a

- Search Google for:
 - Products with similar structure
 - Products with similar benefits
- For each product, add:
 - Data sheet / brochure / manual describing the product

Search Step 1b

- Search using keywords in <http://www.google.com/patents>:
 - Patents with similar structure
 - Patents with similar benefits
- Make a list of patents / patent applications.

Public Patent Resources

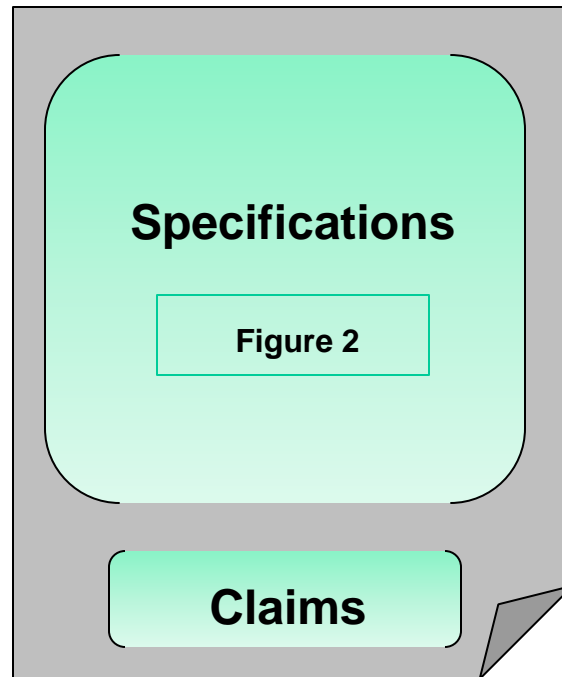
- www.google.com/patents
- www.uspto.gov
- www.pat2pdf.org
- ep.espacenet.com/
- www.patent.gov.uk
- <http://www.ilpatsearch.justice.gov.il/UI/>

Writing Specifications

Basic Guidelines

- Use English, Word and PowerPoint (preferred)
- B&W no colors recommended. Minimum gray levels. Recommended to avoid pictures.
- **More is better.** Nothing can be used against you, all are examples !!!
- Attachment of external public material allowed and recommended.

Utility Patent



Figures 2 - Example

- A block diagram of the “best to explain” example to someone like yourself

Figure 2 - STEPS

- Figure
- Numbering
- Block / connection description
- Story
- Benefits
- Definitions

Figure 2 - STEPS

- **Figure**
 - Numbering
 - Block / connection description
 - Story
 - Benefits
 - Definitions
- 3-10 Blocks preferred. If more, combine or split.
 - Include components ‘touching’ the invention
 - **No need** for production level description

Figure 2 - STEPS

- Figure
 - Numbering
 - Block / connection description
 - Story
 - Benefits
 - Definitions
- Name and number all blocks and connections

Figure 2 - General

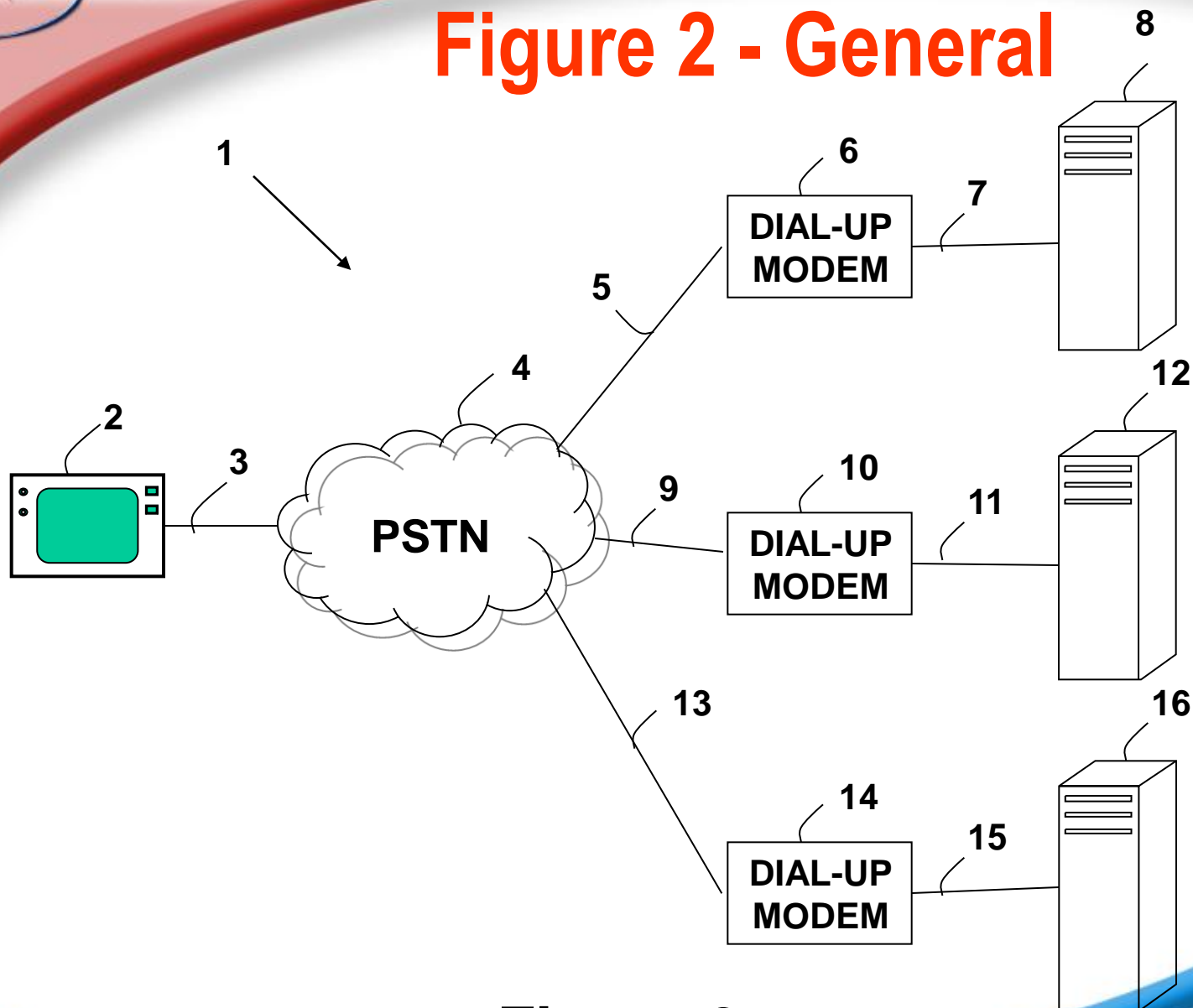
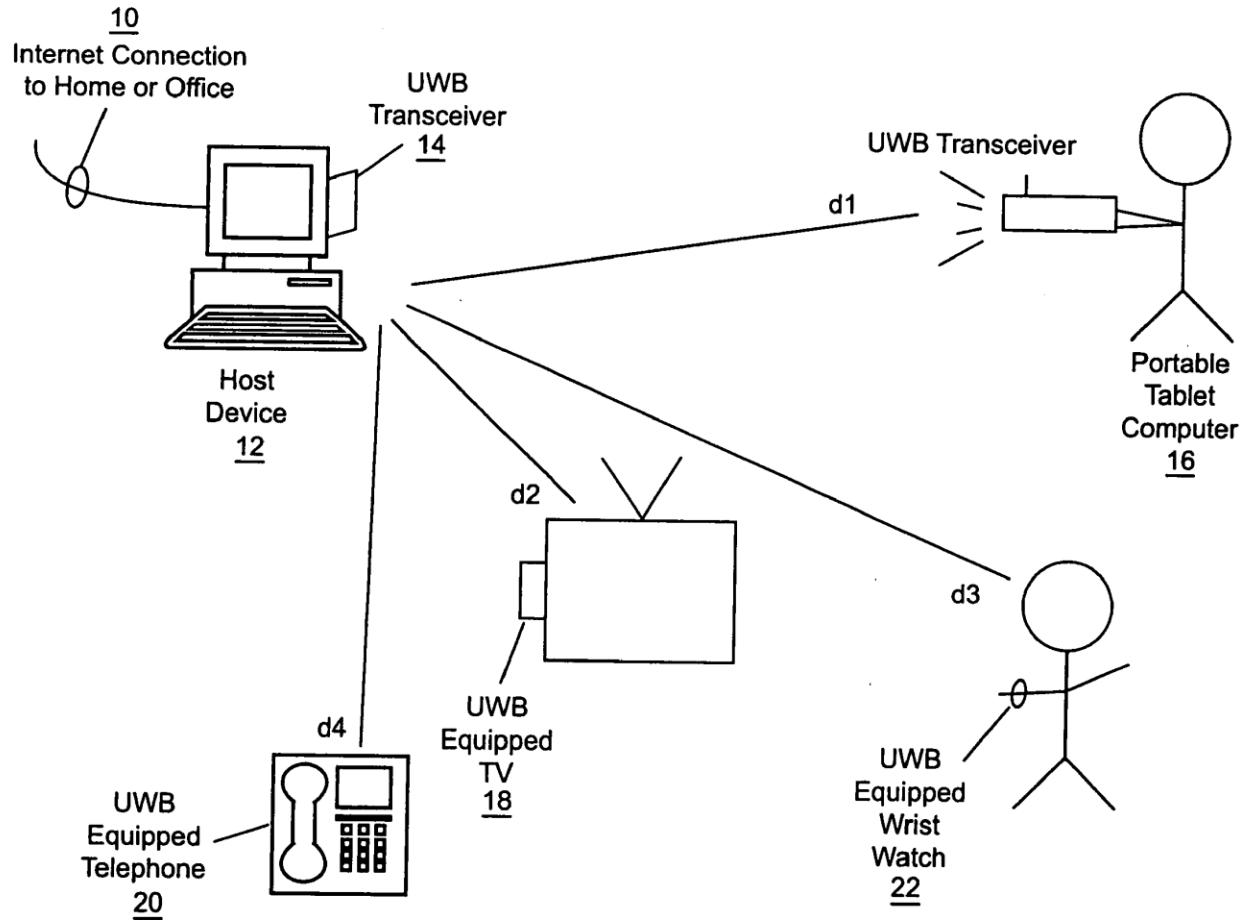


Figure 2

Figure 2 – General Block Diagram



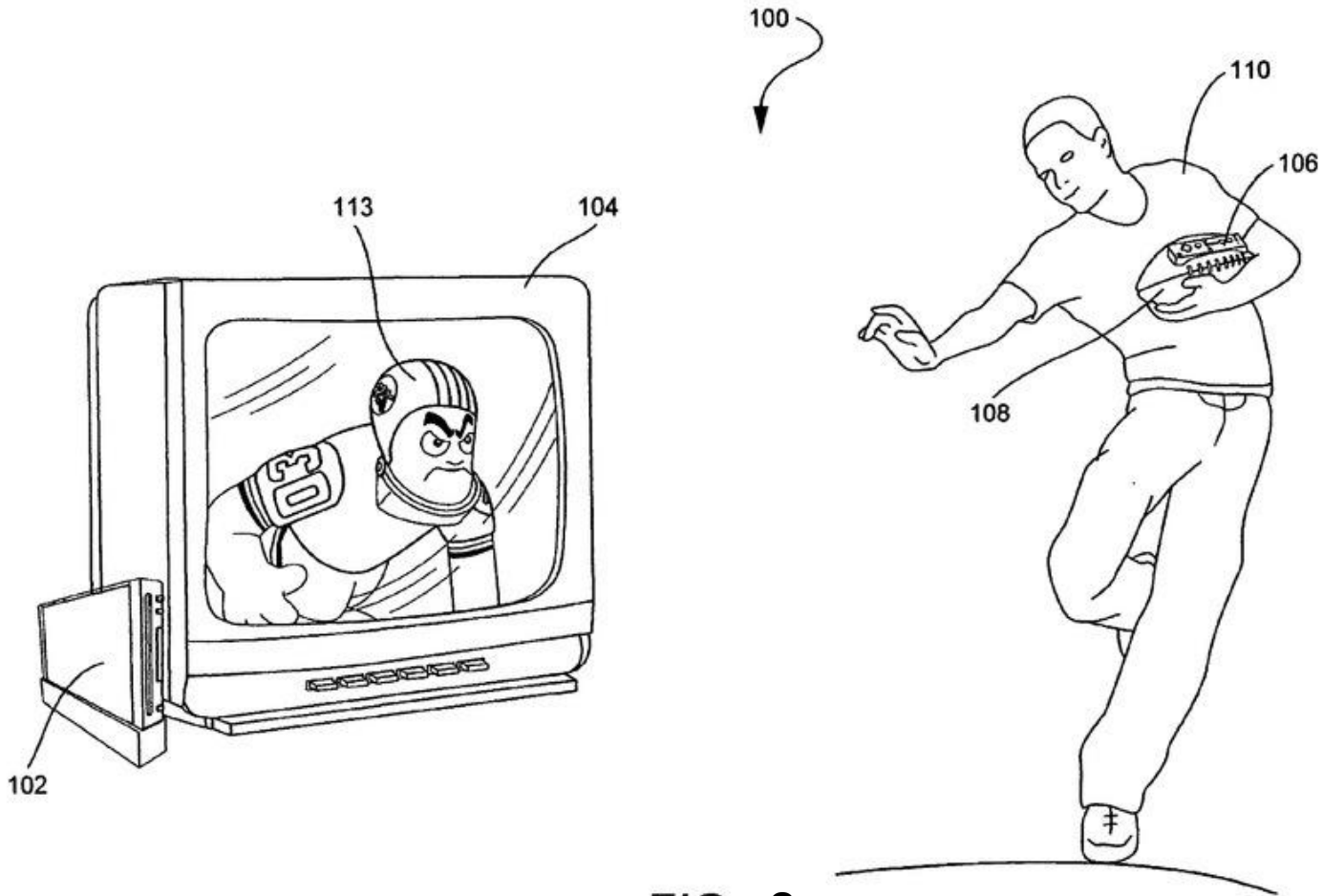


FIG. 2

Figure 2 - Mechanical

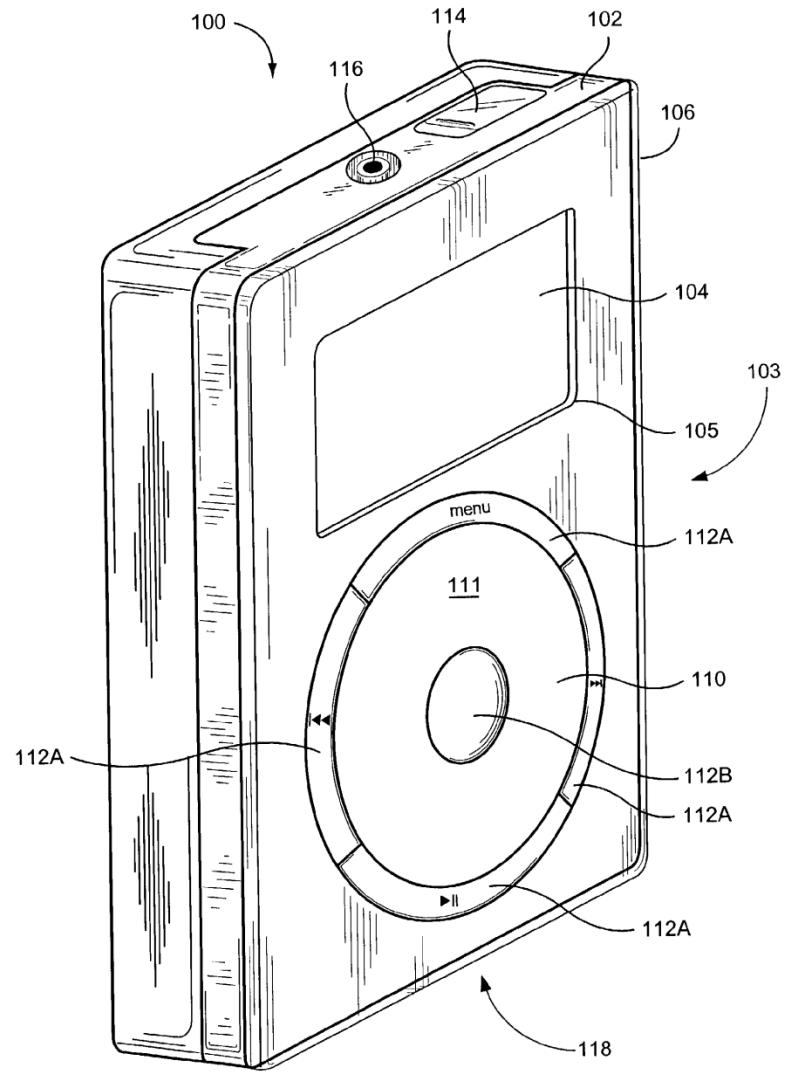
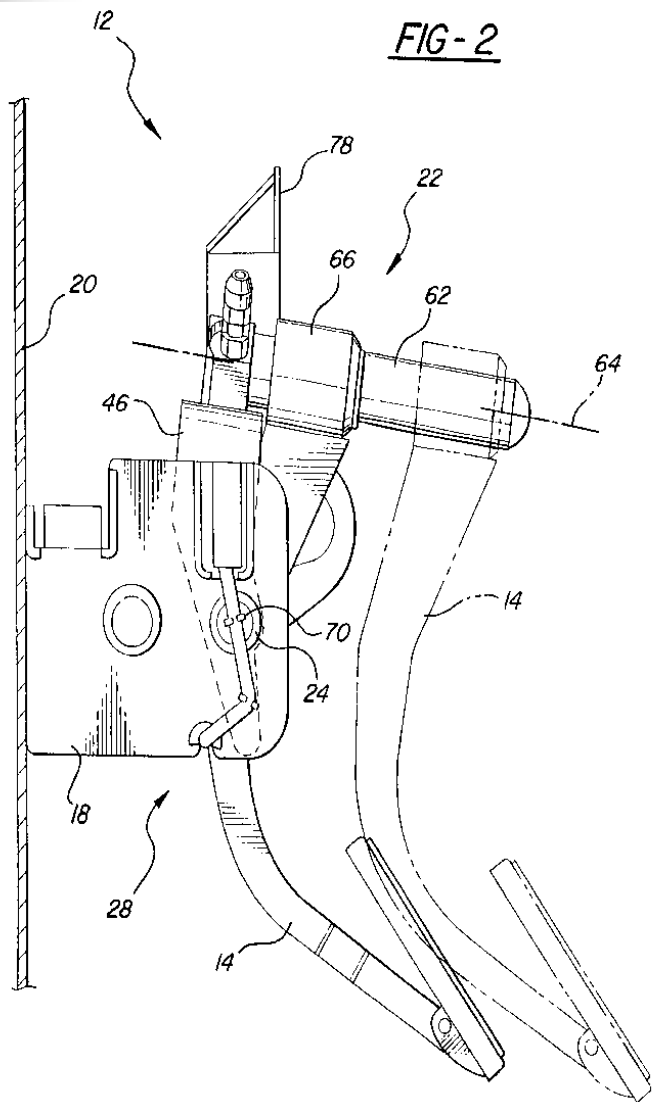


Figure 2 – General Block Diagram

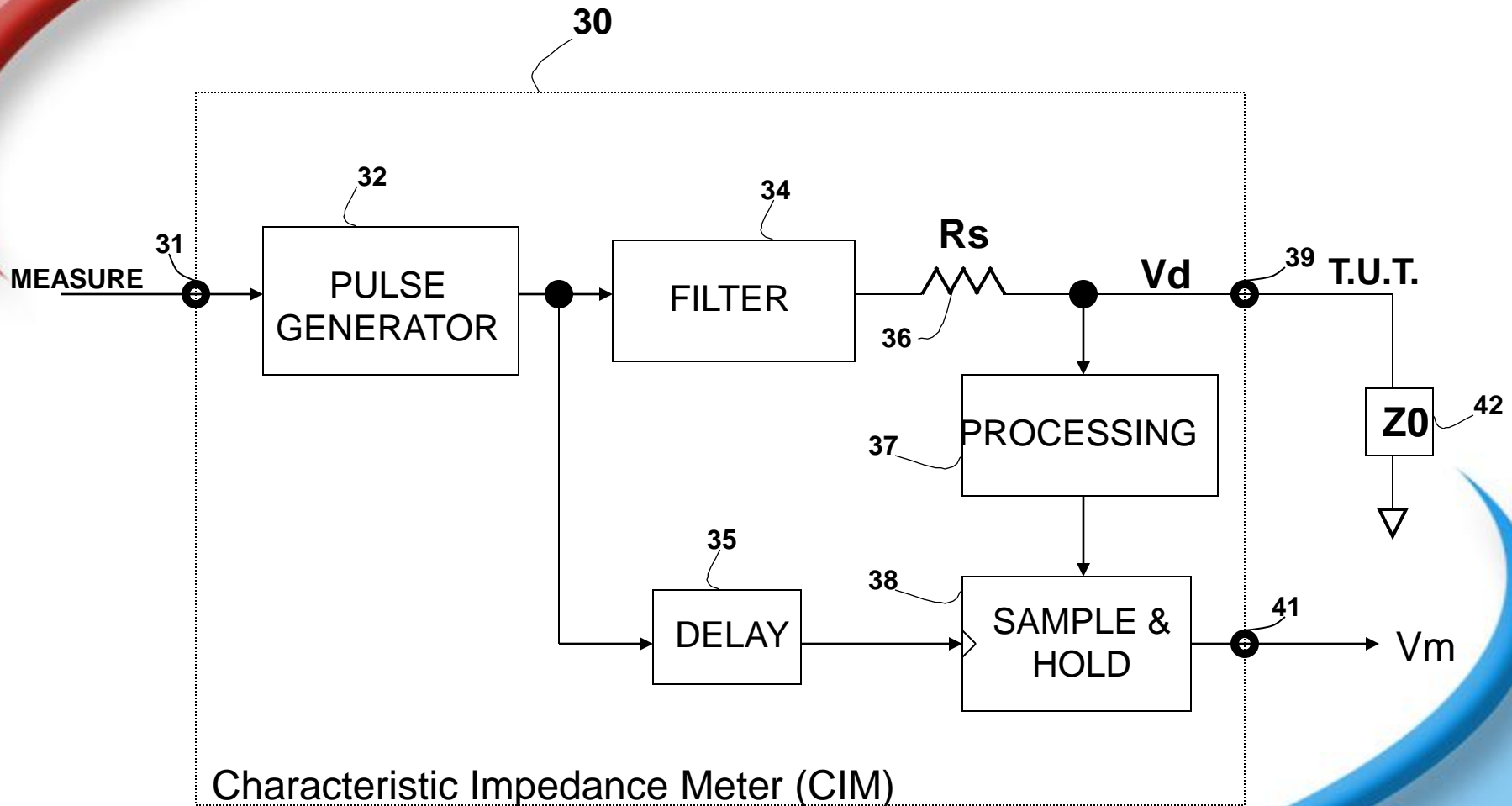


Figure 2 – System

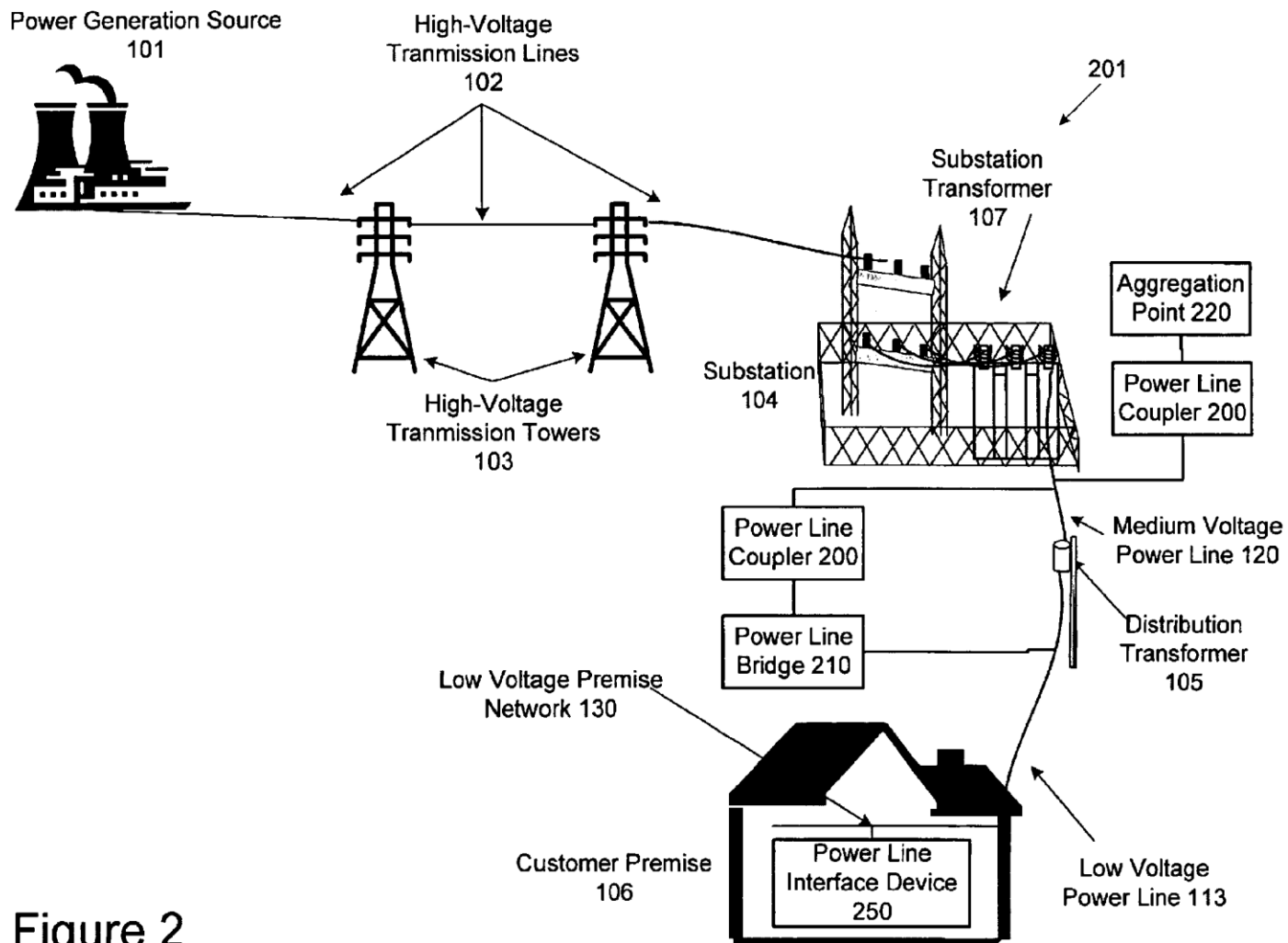


Figure 2

Figure 2 – Flow Chart

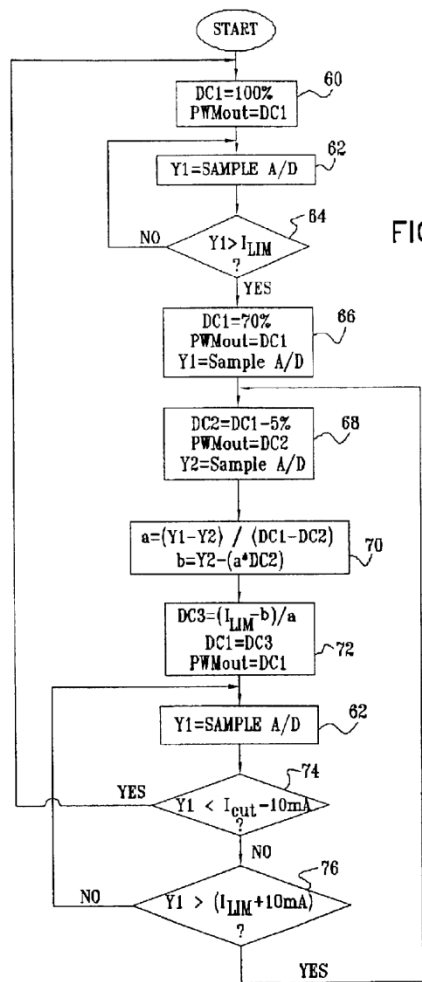


FIG. 5

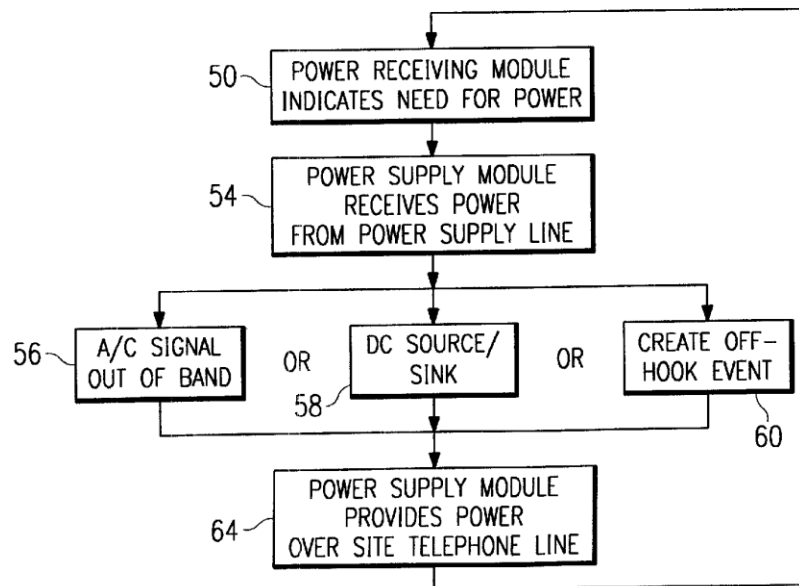
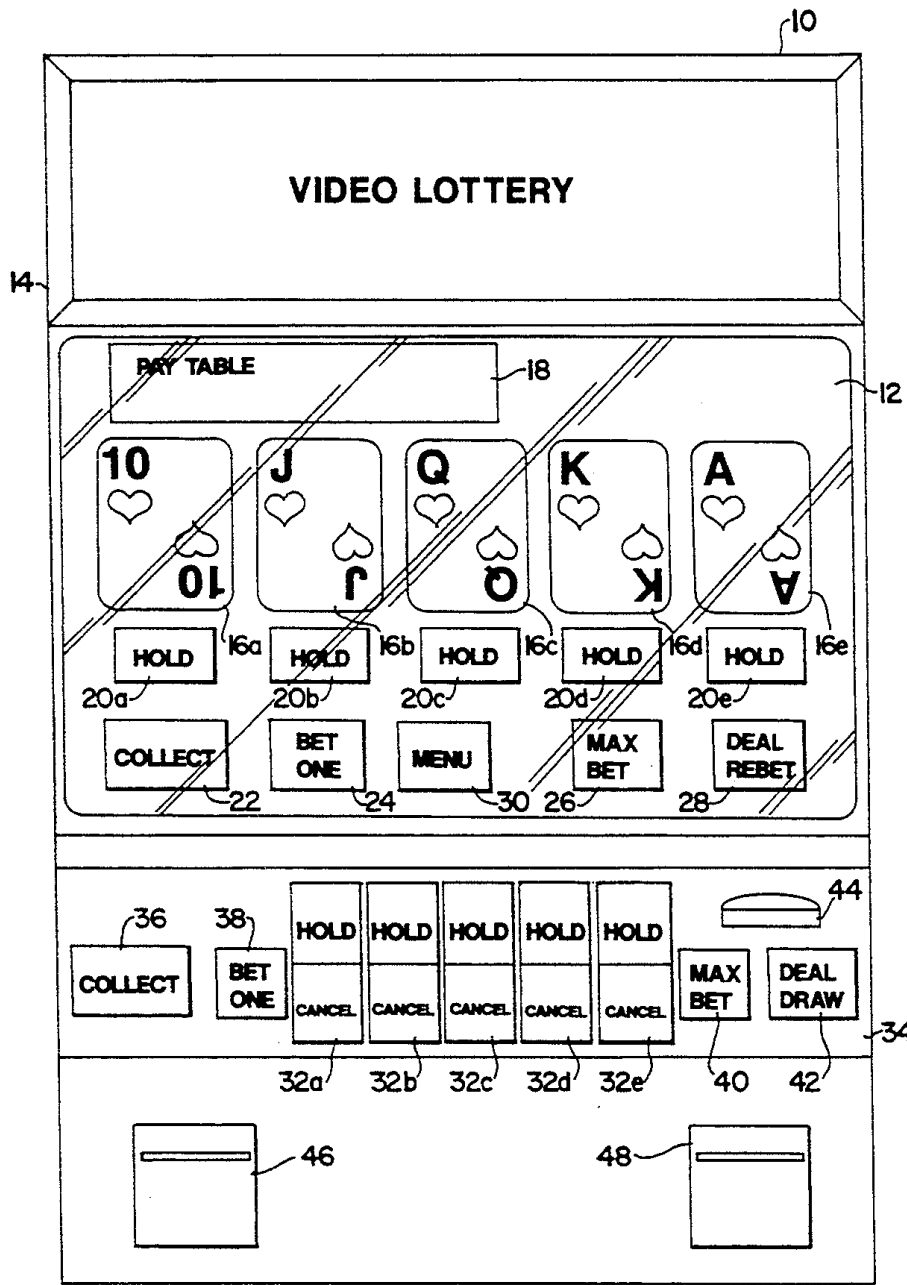


FIG. 2

-Use also if the device has few states.
-Identify the states and the shifting conditions



Figures 2

- Figure
 - Numbering
 - **Block / connection description**
 - Story
 - Benefits
 - Definitions
- For each block:
 - Name
 - Inputs / Outputs
 - Build, main components
 - Use and Function
 - How the function is implemented
 - More general describing info

Figures 2

- Figure
 - Numbering
 - **Block / connection description**
 - Story
 - Benefits
 - Definitions
- For each connection:
 - Description
 - Type / Medium
 - What is being transferred
 - How connects to the two blocks
 - If electronic signal: Add time / frequency chart
 - If data: What data? What structure?

Figures 2

- Figure
 - Numbering
 - Block / connection description
 - **Story**
 - Benefits
 - Definitions
- Describe the operation of the whole Figure 2, using above terms and numbering.

Figures 2

- Figure
 - Numbering
 - Block / connection description
 - Story
 - **Benefits**
 - Definitions
- A **COMPREHENSIVE** list of **MANY** benefits / advantages, even those that seems non-important !!!
 - For each benefit, how the structure provides this benefit.

Figures 2

- Figure
- Numbering
- Block / connection description
- Story
- Benefits
- **Definitions**
 - For each technical term, add the definition.
 - Make sure the definition fits !!!!
 - Use Google 'define: XXX', Wikipedia, technical books, dictionaries or search the Internet.

More Figures 2, 2a, 2b...

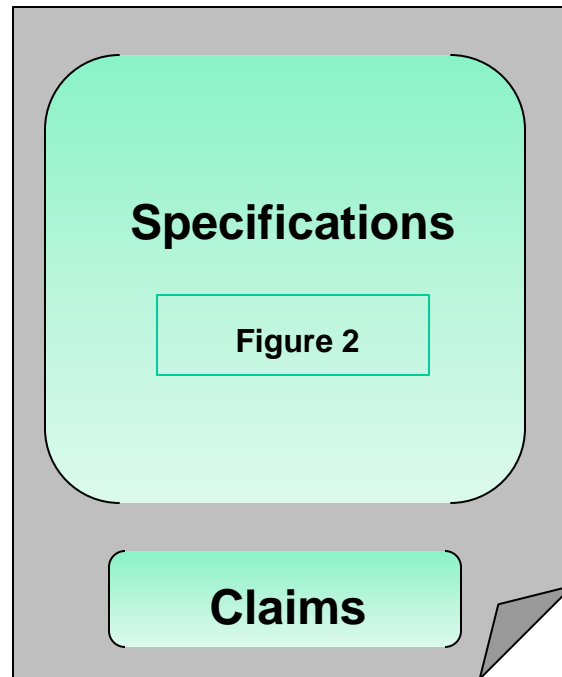
- For each block, identify – **available (BUY)** or **new (MAKE)**:
 - If available: Attach a data sheet / application note / brochure / manual ... of a good example
 - If new: Make Figure 2a for this block, and go through all steps for the new Figure 2a.

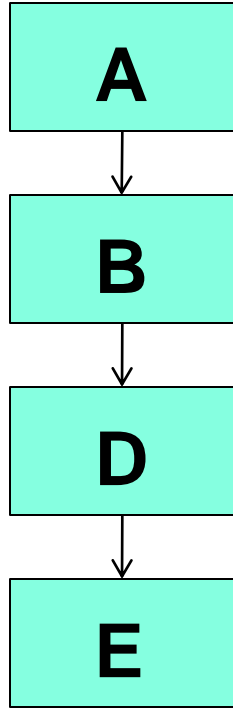
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Basic Guidelines

- Use English, Word and PowerPoint (preferred)
- B&W no colors recommended. Minimum gray levels. Recommended to avoid pictures.
- **More is better.** Nothing can be used against you, all are examples.
- Attachment of external material **allowed** and **recommended**.

Utility Patent





**Figure 1
(PRIOR ART)**

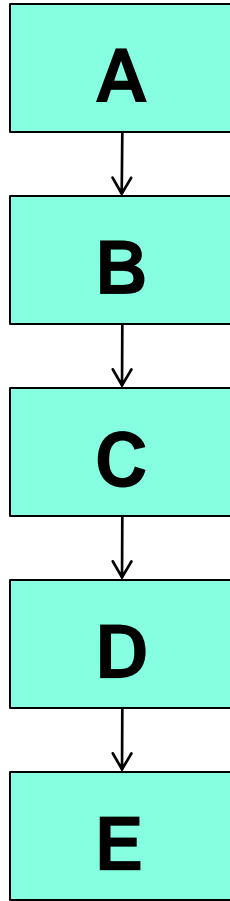
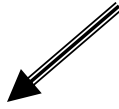


Figure 2

Figure 1 – Prior Art

- A block diagram of the closest prior-art, having the most same blocks as Figure 2
- Repeat Step #1 for Figure 1
- A detailed list of ALL disadvantages / deficiencies of the prior-art Figure 1.

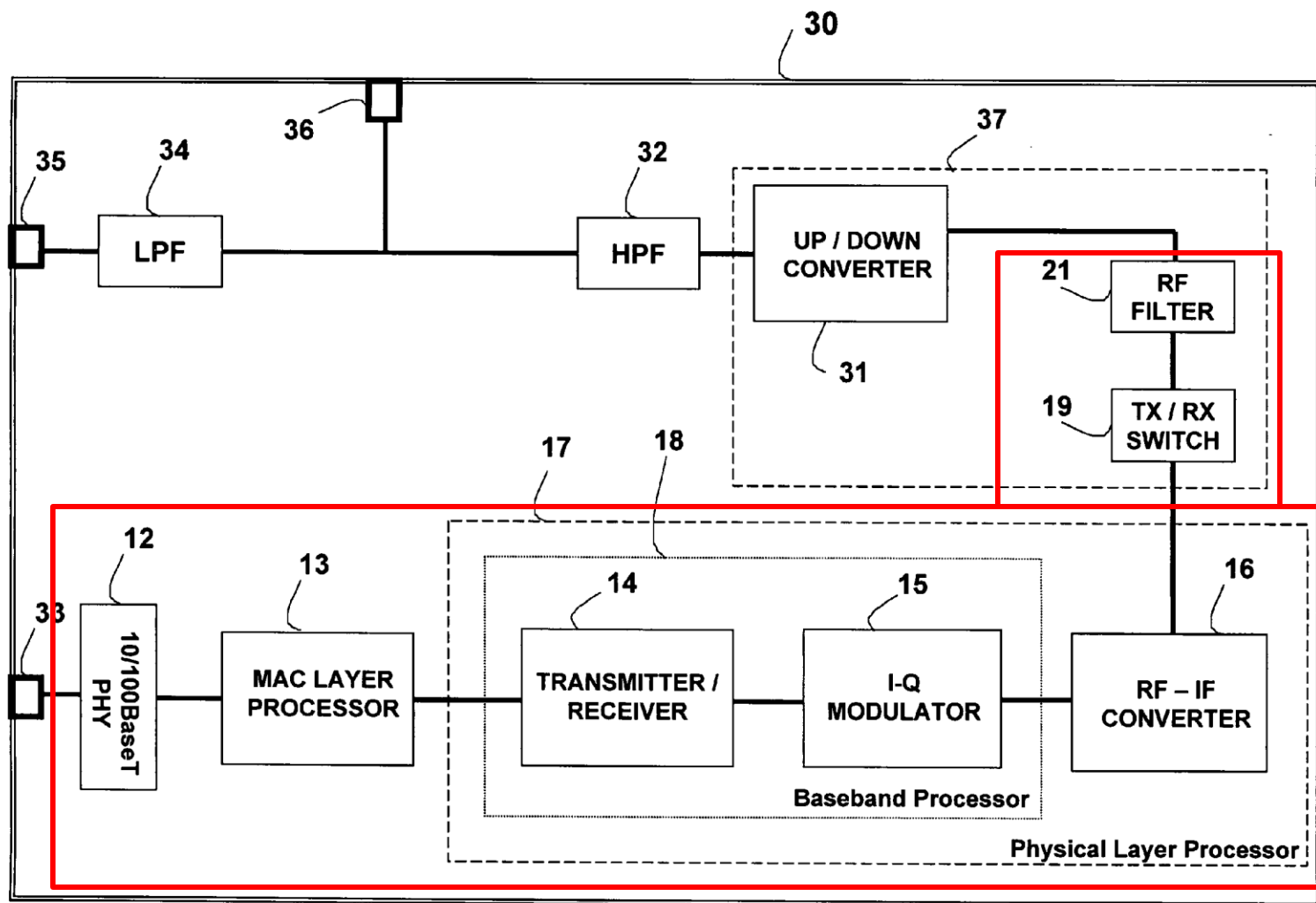


Figure 2

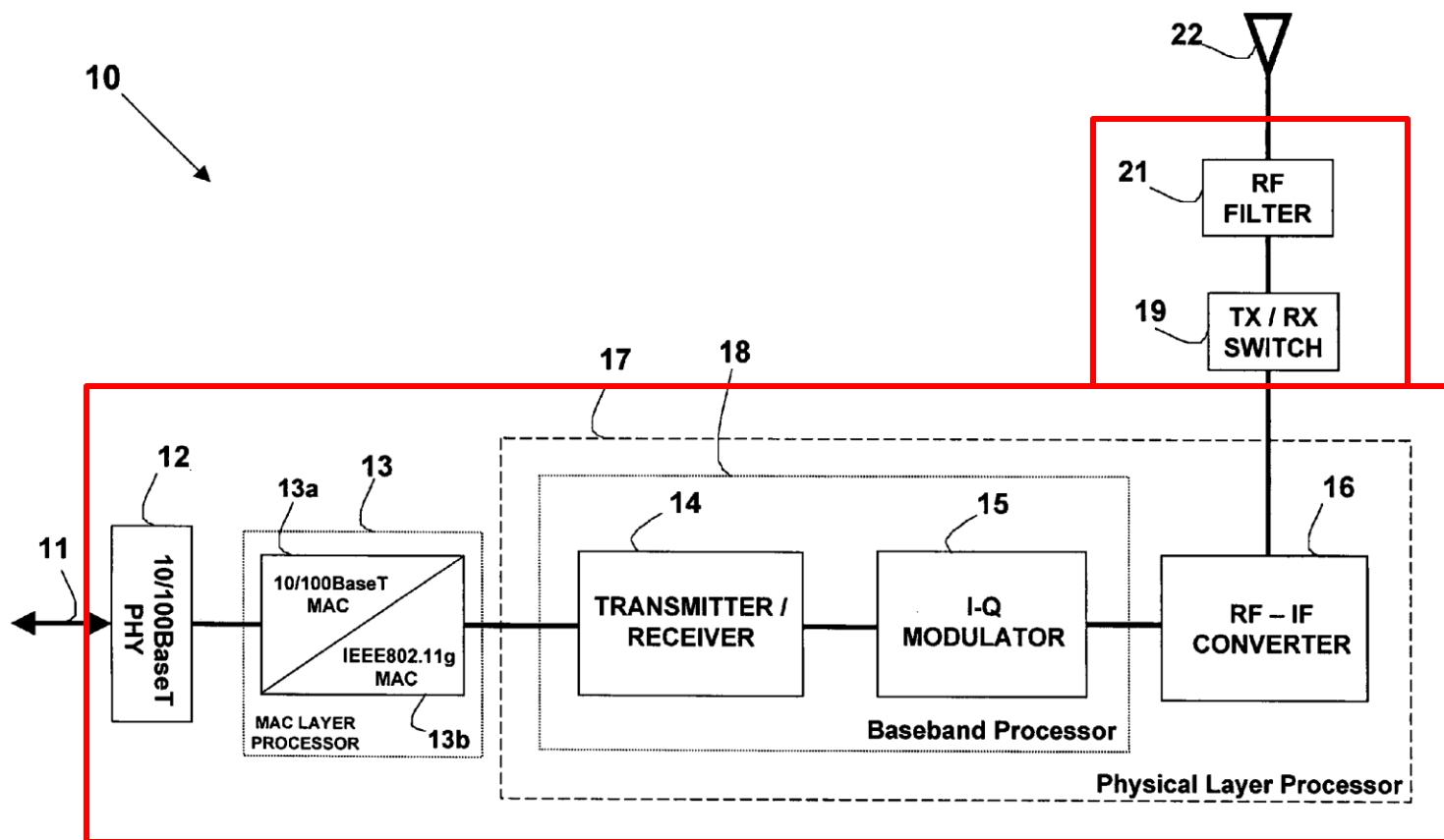


Figure 1 (Prior Art)

Prior Art Chapter

- The prior-art chapter includes:
 - Figure 1 and its description
 - Paragraph for each prior-art patent / article / products found:
 - Identification of product / patent / publication
 - Summary
 - Relation to the invention
 - Deficiencies

power communication network.

U.S. Pat. No. 5,937,342 is a system and method to connect standard telephone subscriber equipment (telephone, facsimile, personal computer) to a fixed wireless terminal via power lines. The system comprises fixed wireless terminals connected to a power line interface device. Subscriber equipment is connected to the power line interface device thereby allowing telecommunication signals to be transmitted to the fixed wireless terminal for subsequent wireless transmission. The fixed wireless terminal exists at an individual subscriber's home/business within a given step-down power transformer cluster. The step-down power transformer provides signal isolation so that the same or similar addresses can be used between clusters without confusion as to the identity of the individual subscriber. The fixed wireless terminal is also connected to the power meter at a subscriber location such that power utilization can be communicated to the power company in a wireless fashion.

The disadvantage of this invention is that it only allows the power company to see vital statistics of electrical usage while not allowing the power communication network to function beyond the local transformer. The invention also does not allow multiple wireless subscribers to utilize the power communication system.

U.S. Pat. No. 5,864,284 is a coupling system for trans-

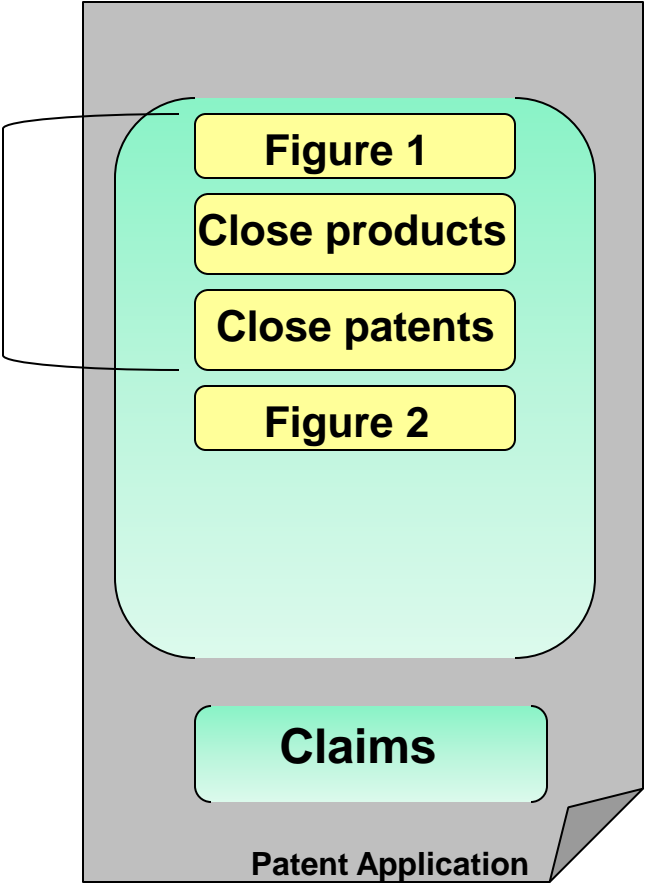
cables are treated as transmission-lines when the component wavelengths of the propagating signal, such as an electrical signal in a cable, is shorter than the physical length of the transmission-line. The importance of a proper line termination is discussed for example in National Semiconductor Corporation Application Note 108 (July 1986) entitled: "Transmission Line Characteristics". A proper line termination typically enables better ability to reliably recover a transmitted signal by using simpler means, as well as improving noise susceptibility.

Analysis of reflections can be found in the National Semiconductor Corporation Application Note 807, (March 1992) entitled: "Reflections: Computations and Waveforms", and the manner in which reflections impact on data transmission systems is described in the National Semiconductor Corporation Application Note 903 (August 1993) entitled: "A Comparison of Differential Termination Techniques".

Generally, in order to avoid reflection, the termination impedance should match the characteristic impedance of the

Similarly, a network in a house based on using powerline-based home network is also known in the art. The medium for networking is the in-house power lines, which is used for carrying both the mains power and the data communication signals. For the sake of simplicity, the power related functions are not shown in the Figure. A PLC modem converts data communication interface (such as Ethernet IEEE802.3) to a signal which can be carried over the power lines, without affecting and being affected by the power signal available over those wires. An example for such PLC modem is HomePlug1.0 based Ethernet-to-Powerline Bridge model DHP-100 from D-Link® Systems, Inc. of Irvine, Calif., USA.

Background



[0026] U.S. Pat. No. 5,657,325 describes an improved wireless transmitter and method for transmitting incremental redundancy.

[0027] U.S. Pat. No. 5,657,358 describes a toll quality terrestrial wireless digital multiple access terrestrial communication system having a base station in communication with telephone lines and with mobile subscriber stations.

[0028] U.S. Pat. No. 5,661,802 describes a telephone and auxiliary power distribution system in a building that has a flexible multi-conductor signal and power distribution cable.

[0029] U.S. Pat. No. 5,666,398 describes a radio telephone system that is designed to meet the basic telecommunication needs of areas, which are insufficiently or not yet covered.

[0030] U.S. Pat. No. 5,677,927 describes an impulse radio communications system that uses one or more subcarriers to communicate information from an impulse radio transmitter to an impulse radio receiver.

[0031] U.S. Pat. No. 5,678,202 describes an antenna system and method for use in a portable unit of a wireless telephone headset, wireless telephone headset adapter, or other telecommunication device.

[0032] U.S. Pat. No. 5,687,194 describes a system for the wireless transmission of multiple information signals that utilizes digital time division circuits between a base station and a plurality of subscriber stations.

[0033] U.S. Pat. No. 5,710,798 describes a system and method for wireless transmission of information, which is subject to fading by using a RF carrier modulated with a subcarrier modulated with the information.

[0034] U.S. Pat. No. 5,715,516 describes a cellular communications system that includes forward channel communications to users and corresponding reverse channel communications from mobile users.

[0035] U.S. Pat. No. 5,717,737 describes an apparatus and method is provided for transparent communication between a wireless remote or mobile device and a fixed wired communication host network.

[0036] U.S. Pat. No. 5,734,678 describes a terrestrial RF telephone system that provides a plurality of voice signal channels on a plurality of forward direction carrier frequencies.

[0037] U.S. Pat. No. 5,745,532 describes a system and method for wireless transmission of information which is subject to fading by using a RF carrier modulated with a subcarrier modulated with the information.

[0038] U.S. Pat. No. 5,751,773 describes a system for wireless serial transmission of encoded information which are subject to fading that causes erroneous uncorrectable bit errors.

[0039] U.S. Pat. No. 5,761,621 describes a network and method of operating a network of wireless service providers that is adapted to interact with a plurality of omni-modal wireless products within a given geographic area in a manner to permit the wireless service providers to "borrow" radio frequencies from other wireless service providers within the same geographic region.

[0040] U.S. Pat. No. 5,784,402 describes a binary and quadrature Feher's modulation transmitter-receiver system and circuit.

[0041] U.S. Pat. No. 5,805,667 describes an apparatus for, and method of, range-testing a cordless communication device.

[0042] U.S. Pat. No. 5,812,539 describes a method and apparatus of communicating information using Time Division Multiple Access and adaptive transmission and reception.

[0043] U.S. Pat. No. 5,835,863 describes a wireless telephone set that performs digital communication and that employs light-emitting diodes for illumination.

[0044] U.S. Pat. No. 5,844,596 describes a system that provides video signal communication between a source of the video signal and a plurality of units that include destinations of the video signal.

[0045] U.S. Pat. No. 5,845,203 describes a method for seamlessly transmitting application specific messages over cellular radio system control channels and switches.

[0046] U.S. Pat. No. 5,852,604 describes a power-conserving time division multiple access radiotelephone system.

[0047] U.S. Pat. No. 5,854,985 describes a frequency and protocol agile wireless communication produce and chipset for forming the same.

[0048] U.S. Pat. No. 5,890,055 describes a wireless communications system that includes a number of clusters of repeaters wherein all repeaters within a cluster are connected to a common hub via respective millimeter-wave radio links.

[0049] U.S. Pat. No. 5,896,569 describes a system and method for providing wireless access to a telephone line of a telephone network that uses a mobile terminal and a crossconnect base station.

[0050] U.S. Pat. No. 5,901,246 describes an adaptive interface for a programmable system, for predicting a desired user function.

[0051] U.S. Pat. No. 5,909,491 describes a method for sending a secure message in a telecommunications system using public encryption keys.

[0052] U.S. Pat. No. 5,913,163 describes an integrated local communication system that comprises a plurality of locally-positioned communication devices, at least one of which locally-positioned communication devices is operably coupled to a local interface module.

[0053] U.S. Pat. No. 5,915,021 describes a method for sending a secure message in a telecommunications system that uses public encryption keys.

[0054] U.S. Pat. No. 5,915,207 describes a device for implementing a multimedia communication dissemination system.

[0055] U.S. Pat. No. 5,920,821 describes an analog cellular voice telephone system and subscriber stations that are controlled to conserve power and to provide alternate service carriers.

[0056] U.S. Pat. No. 5,930,719 describes a cordless system that comprises a laptop computer with a modem connected to a modem data port on a cordless telephone handset.

DISTRIBUTED SERIAL CONTROL SYSTEM

FIELD OF THE INVENTION

This invention relates to the field of wired communication and control systems, in particular to such systems which provide for simultaneous distribution of power and message information along the same wires in a network having a plurality of sensors, actuators and processing elements.

BACKGROUND OF THE INVENTION

Distributed control systems are known comprising a number of intelligent "cells" to which power and data are fed and to which may be coupled external payload elements such as one or more sensors and actuators and in which the actuators operate responsive to a control signal produced by a processor which itself is responsive to the data signals as well as sensor signals produced by the sensors.

Such a network is shown, for example, in U.S. Pat. No. 4,918,690 (Markkula, Jr. et al.) assigned to Echelon Corporation in whose name are various other U.S. patents relating to this art. Each of the programmable cells is assigned during manufacture with a 48 bit unique identification number (ID) which remains permanently within the cell. The cells can be coupled to different media such as power lines, twisted pair, radio frequency etc. to form a network.

Groups of cells within a network are formed to perform particular functions and are addressed via their respective IDs. Some cells (announcers) are assigned the task of sensing, for example, the condition of a switch, and others (listeners) the task of controlling, such as controlling a light. Cells can perform multiple tasks and can be members of different groups within a network. For example, a cell can function as a repeater for one group and as a listener for another group.

FIG. 1 shows a typical network configuration 1 such as described in U.S. Pat. No. 5,454,008 (Baumann et al.) also assigned to Echelon Corporation. The cells are denoted by a plurality of nodes 2 which are interconnected by twisted pair lines 3. The lines form numerous branches each having a single node connected thereto and all of which receive power over the twisted pair lines from a central power supply 4. The power supply 4 is connected to the network 1 through a source coupler 5. Thus, in such an arrangement, each node forms an effective line termination so that more nodes can be accommodated in the network simply by connecting additional branches where required and terminating each branch with a new node.

Such a network configuration permits relatively easy extension so as to accommodate additional nodes whilst reducing the cabling overhead as compared with known star topologies. However, the bus topology shown in FIG. 1 requires complicated addressing in order to permit each cell or node to be individually addressed. Moreover, a transmitting node ties up the whole network thus preventing two or more nodes from transmitting data simultaneously.

Furthermore, the nodes or cells shown in above-mentioned U.S. Pat. No. 4,918,690 as well as in other prior art systems generally employ a centralized management whereby each node operates in accordance with logic external to the nodes themselves.

The evolution of control networks of the kind described derives from the superimposition of data on a power signal in a manner such as is described in U.S. Pat. No. 5,148,144 (Sutterlin et al.) also assigned to Echelon Corporation. Such topologies are dictated by the topology of domestic and

industrial wiring distribution systems which have, for the most part, employed radial or star topologies whereby each power outlet is connected in a radial fashion to a central distribution board. Thus, in such a system, if each cell is adapted for coupling to a respective power outlet, then it will necessarily form a non-distributed network having a star topology.

It will be apparent that prior art configurations suffer from several drawbacks. Generally, communication is effected between an output of one cell and a corresponding input of a plurality of cells connected thereto. This results in limited data transfer in the system. Furthermore, in the event of communications problems, such as noise coupled to a part of the network, it is more difficult to locate the source of the problem owing to the parallel connection of several cells and the noise causes degradation of the whole network.

Additionally, such configurations are power-limited because the available power is split at the junction between adjoining branches: each branch thus receiving only a fraction of the power provided by the power supply.

Finally, as noted above, addressing must be effected by means of a unique ID burnt into the cell during manufacture or manually during installation. This renders the network inflexible because the controller must be programmed so as to know in advance the location in the network of each cell. Therefore, if cells are interchanged, added or removed then the controller must be re-programmed accordingly: there being no provision in such topologies to allocate addresses "on the fly" during processing in real time.

SUMMARY OF THE INVENTION

It is therefore an object of the invention to provide a distributed topology wherein each cell can be controlled via control logic stored integrally therein instead of, or in addition to, an external control manager and which allows serial connection of cells so as thereby to reduce cabling.

These objectives are realized in accordance with a preferred embodiment of the invention by means of a network topology allowing distributed sensing, control and communication, comprising:

- a power source,
- a plurality of line-Powered, Serially connected Intelligent Cells (PSICs) coupled to the power source and to each other via respective communication channels each allowing mutually independent communication and comprising at least two electrical conductors,
- addressing means for uniquely referencing each of said PSICs, and
- at least one payload element coupled to one of the PSICs for operating in accordance with control logic embedded in or fed to said one of the PSICs.

The use of such a topology allowing serial connection of the cells, also allows for data to be passed in either direction from one cell to an adjacent cell. Furthermore, communication between one pair of adjacent cells is independent of a simultaneous communication between another pair of adjacent cells. This, of course, is not possible with hitherto proposed systems employing a star or bus topology.

According to one embodiment of the invention, control data is superimposed on the power signal and is extracted within each cell from the power signal received from a preceding cell in the network and, likewise, is superimposed on the power signal fed to a succeeding cell in the network.

Alternatively, power can be fed discretely to all of the cells in the network in a bus-type of arrangement, only the

Background

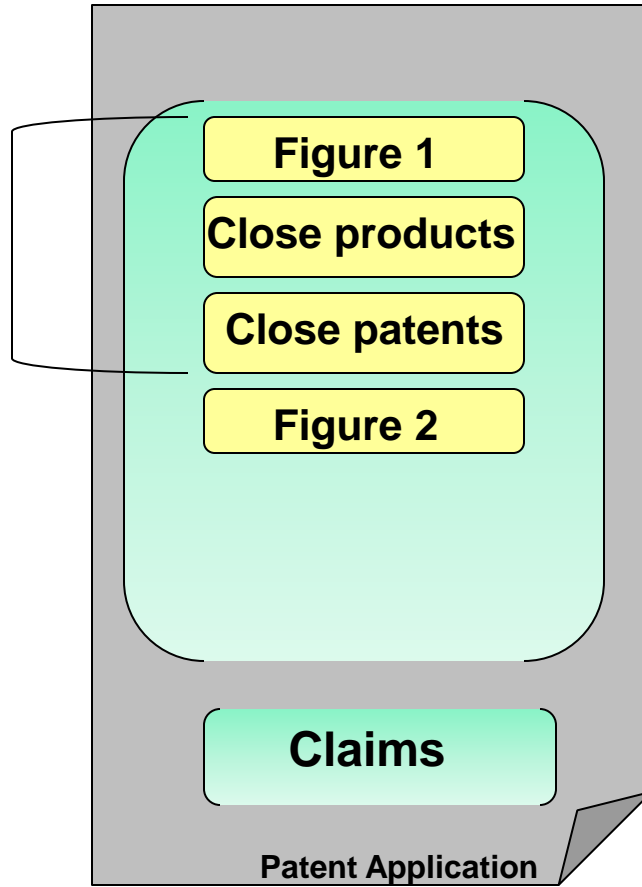


Figure 3 – The Core Broadening the invention

- Remove Figure 2 blocks / connections to a minimum configuration:
 - Still new and inventive
 - Benefits may be reduced
 - May be expensive or even less practical
- Check definitions of the remaining parts.

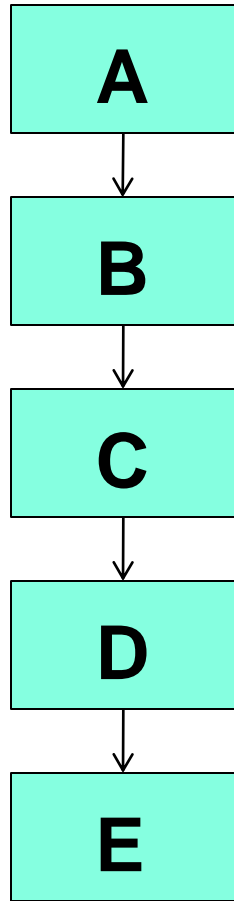


Figure 2

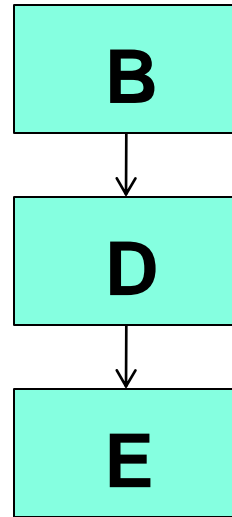
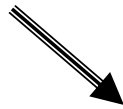


Figure 3

Figure 3

Broadening the invention

- Broaden definitions by eliminating words / widening coverage
- Example: Internet : “*a computer network consisting of a worldwide network of computer networks that use the TCP/IP network protocols to facilitate data transmission and exchange* “
- Broadening example: “*Any network connecting computers.*”
 - Still new and inventive
 - **Benefits may be reduced**
 - May be expensive or even less practical

Figure 3

Broadening the invention

- Broaden definitions by eliminating words / widening coverage
- Example: electrical connector : *“A device (or, more precisely, a mating pair of devices, often a plug and a socket) for connecting together two wires, cables, or hoses, allowing electricity or fluid to flow but also allowing easy disconnection and reconnection when necessary”*
- Broadening example: *“Any electrical connection”*
- E.G. Wireless, fixed connection.
 - Still new and inventive
 - **Benefits may be reduced**
 - May be expensive or even less practical