Apple Inc., *et al.*,

Petitioners

v.

Global Touch Solutions, LLC,

Patent Owner

IPR2015-01171 (U.S. Patent No. 7,994,726 B2)*
IPR2015-01172 (U.S. Patent No. 7,498,749 B2)**
IPR2015-01603 (U.S. Patent No. 7,498,749 B2)***
IPR2015-01173 (U.S. Patent No. 7,329,970 B2)**
IPR2015-01174 (U.S. Patent No. 7,781,980 B2)*
IPR2015-01175 (U.S. Patent No. 8,288,952 B2)*

Trial Hearing

August 3, 2016

* Petitioners Apple Inc.; Motorola Mobility, LLC
** Petitioners Apple Inc.; Motorola Mobility, LLC; Toshiba America Information Systems, Inc.
*** Petitioners Apple Inc.; Toshiba America Information Systems, Inc.

Apple Inc., et al.
Exhibit 1040
Apple Inc., et al. v. Global Touch Solutions, LLC
IPR2015-01173

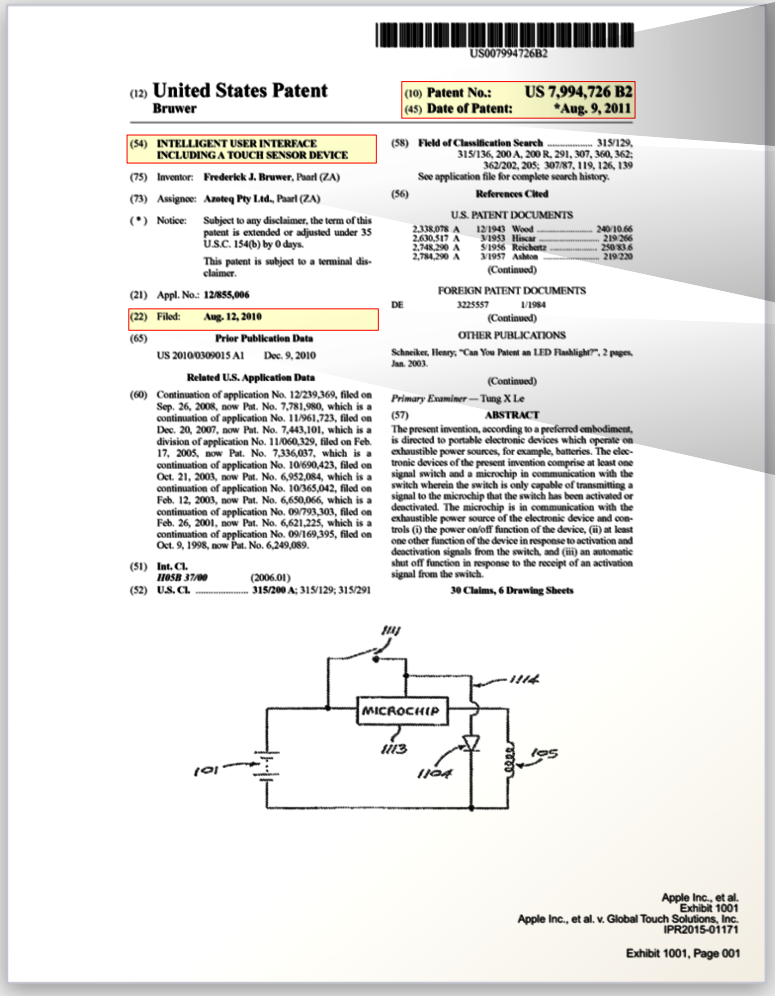
I. Brief Overview of the Patents

II. Brief Overview of the Prior Art References

III. Undisputed Issues

IV. Purported Deficiencies Raised By Patent Owner

The Patents Are Directed To Portable Electronic Devices With Touch Sensors And Exhaustible Power Sources



US007994726B2

(12) **United States Patent**
Bruwer

(10) **Patent No.: US 7,994,726 B2**
(45) **Date of Patent: *Aug. 9, 2011**

(54) **INTELLIGENT USER INTERFACE INCLUDING A TOUCH SENSOR DEVICE**

(75) Inventor: **Frederick J. Bruwer**, Paarl (ZA)

(73) Assignee: **Azoteq Pty Ltd.**, Paarl (ZA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/855,006**

(22) Filed: **Aug. 12, 2010**

(65) **Prior Publication Data**

US 2010/0309015 A1 Dec. 9, 2010

Related U.S. Application Data

(60) Continuation of application No. 12/239,369, filed on Sep. 26, 2008, now Pat. No. 7,781,980, which is a continuation of application No. 11/961,723, filed on Dec. 20, 2007, now Pat. No. 7,443,101, which is a division of application No. 11/060,329, filed on Feb. 17, 2005, now Pat. No. 7,336,037, which is a continuation of application No. 10/690,423, filed on Oct. 21, 2003, now Pat. No. 6,952,084, which is a continuation of application No. 10/365,042, filed on Feb. 12, 2003, now Pat. No. 6,650,066, which is a continuation of application No. 09/793,303, filed on Feb. 26, 2001, now Pat. No. 6,621,225, which is a continuation of application No. 09/169,395, filed on Oct. 9, 1998, now Pat. No. 6,249,089.

(51) **Int. Cl.**
H05B 37/00 (2006.01)

(52) **U.S. Cl.** ..... **315/200 A**; 315/129; 315/291

(58) **Field of Classification Search** ..... 315/129, 315/136, 200 A, 200 R, 291, 307, 360, 362; 362/202, 205; 307/87, 119, 126, 139
See application file for complete search history.

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(Continued)

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(Continued)

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Schneiker, Henry; "Can You Patent an LED Flashlight?", 2 pages, Jan. 2003.

(Continued)

Primary Examiner — Tung X Le

(57) **ABSTRACT**

The present invention, according to a preferred embodiment, is directed to portable electronic devices which operate on exhaustible power sources, for example, batteries. The electronic devices of the present invention comprise at least one signal switch and a microchip in communication with the switch wherein the switch is only capable of transmitting a signal to the microchip that the switch has been activated or deactivated. The microchip is in communication with the exhaustible power source of the electronic device and controls (i) the power on/off function of the device, (ii) at least one other function of the device in response to activation and deactivation signals from the switch, and (iii) an automatic shut off function in response to the receipt of an activation signal from the switch.

30 Claims, 6 Drawing Sheets

Apple Inc., et al.
Exhibit 1001
Apple Inc., et al. v. Global Touch Solutions, Inc.
IPR2015-01171

Exhibit 1001, Page 001

(10) **Patent No.: US 7,994,726 B2**
(45) **Date of Patent: *Aug. 9, 2011**

(54) **INTELLIGENT USER INTERFACE INCLUDING A TOUCH SENSOR DEVICE**

(22) **Filed: Aug. 12, 2010**

Ex. 1001 ('726 Patent)

See, e.g., IPR2015-01171 Pet. at 4

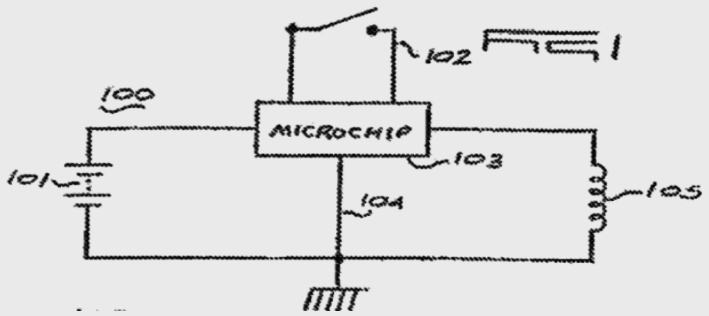
The Patents Are Directed To Portable Electronic Devices With Touch Sensors And Exhaustible Power Sources

'726 Patent

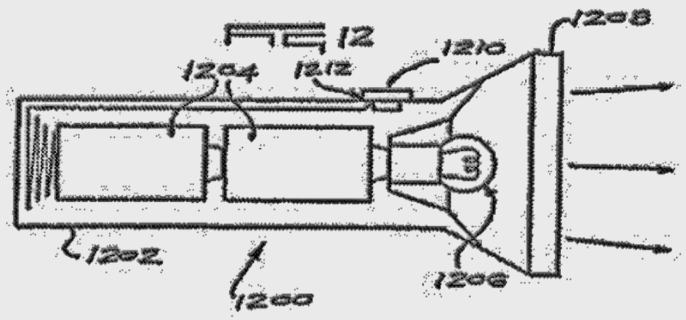
(57) **ABSTRACT**

The present invention, according to a preferred embodiment, is directed to portable electronic devices which operate on exhaustible power sources, for example, batteries. The elec-

IPR2015-01171 Ex. 1001 ('726 Patent), Abstract



IPR2015-01171 Ex. 1001 ('726 Patent), Fig. 1

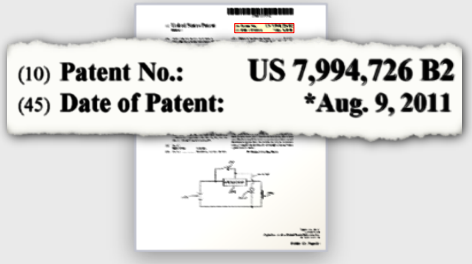


IPR2015-01171 Ex. 1001 ('726 Patent), Fig. 12

See, e.g., IPR2015-01171 Pet. at 5-6, 29

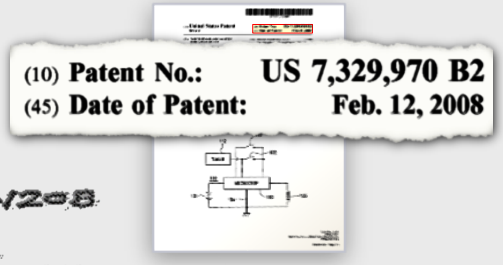
The Patents Are Directed To Portable Electronic Devices With Touch Sensors And Exhaustible Power Sources

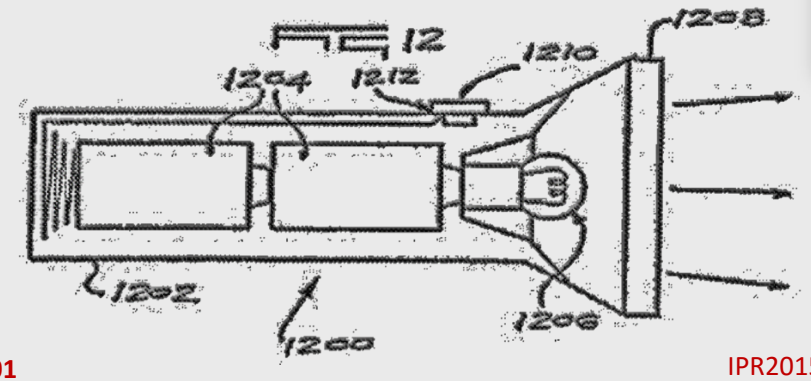
IPR2015-**01171 Ex. 1001**



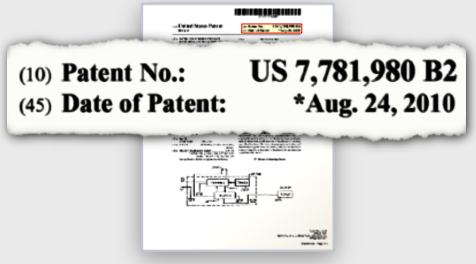
IPR2015-**01172,**
IPR2015-**01603 Ex. 1001**

IPR2015-**01173 Ex. 1001**

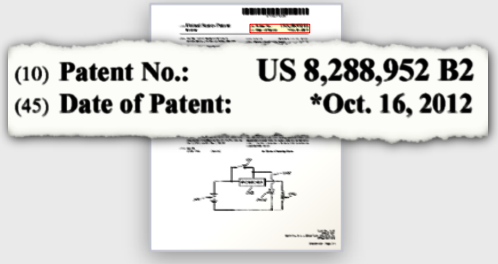




IPR2015-**01174 Ex. 1001**

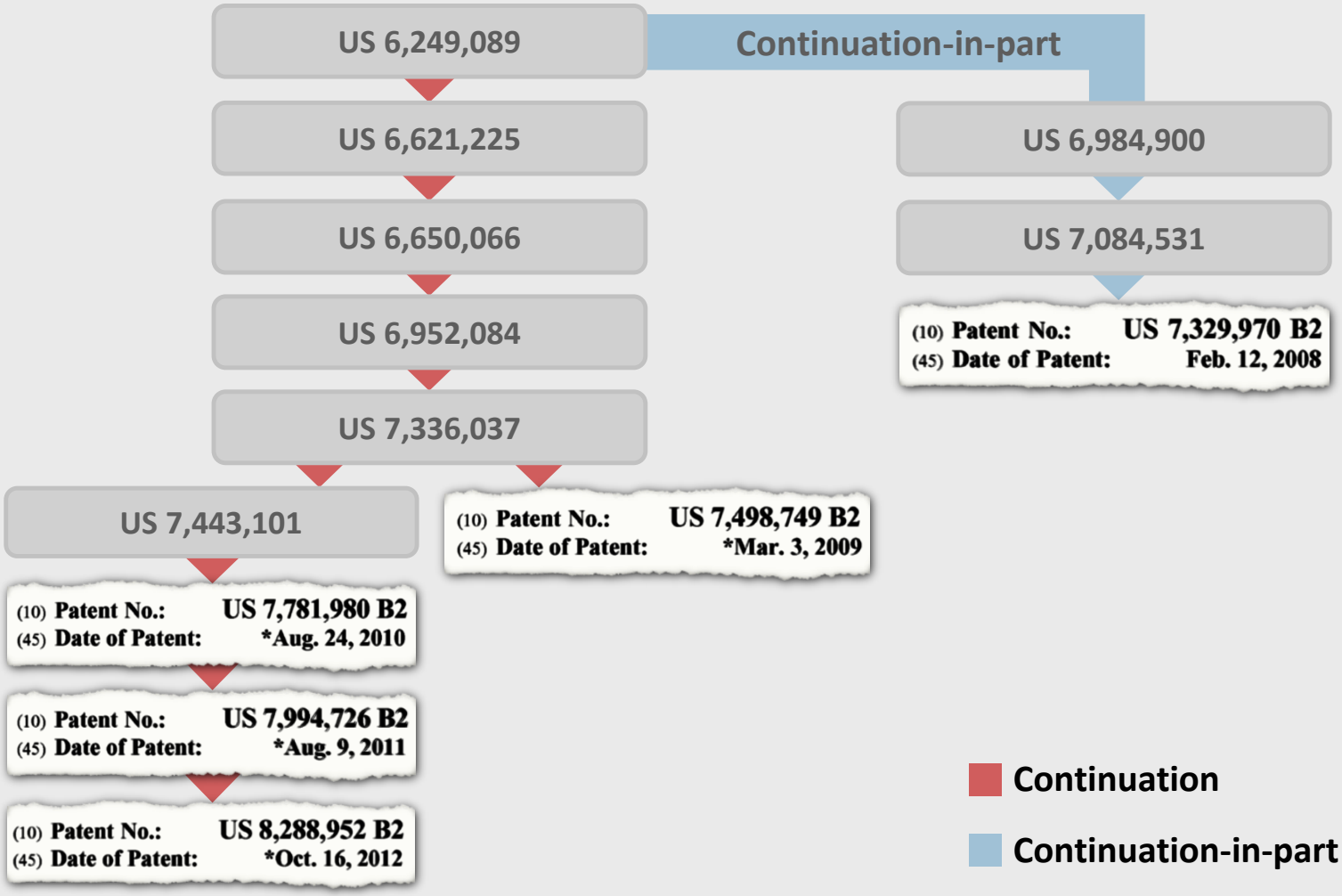


IPR2015-**01175 Ex. 1001**



See, e.g., IPR2015-01171 Pet. at 1; IPR2015-01172 Pet. at 1; IPR2015-01173 Pet. at 1; IPR2015-01174 Pet. at 1; IPR2015-01175 Pet. at 1; IPR2015-01603 Pet. at 1

The Patents Are Directed To Portable Electronic Devices With Touch Sensors And Exhaustible Power Sources



See, e.g., IPR2015-01171 Pet. at 1; IPR2015-01172 Pet. at 1; IPR2015-01173 Pet. at 1; IPR2015-01174 Pet. at 1; IPR2015-01175 Pet. at 1; IPR2015-01603 Pet. at 1

The Patents Are Directed To Portable Electronic Devices With Touch Sensors And Exhaustible Power Sources

'726 Patent Claim 1

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of a visible indication in response to an activation signal received from the user interface while operation of the load is unaffected.

IPR2015-01171 Ex. 1001 ('726 Patent), Claim 1

See, e.g., IPR2015-01171 Pet. at 28-36

I. Brief Overview of the Patents

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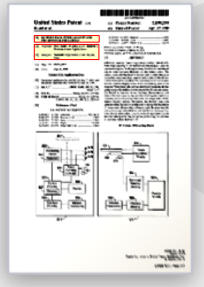
III. Undisputed Issues

IV. Purported Deficiencies Raised By Patent Owner

The Prior Art References

Ex. 1005



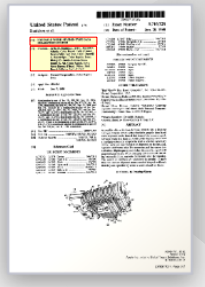
***Beard* '290 Patent;** IPR2015-01171 Ex. 1005

[54] **BATTERY PACK WITH CAPACITY AND PRE-REMOVAL INDICATORS**

[73] Assignee: **Norand Corporation,** Cedar Rapids, Iowa

[75] Inventors: **Paul Beard,** Milpitas, Calif.; **Robert J. Grabon,** Cedar Rapids, Iowa

Ex. 1007



***Danielson* '728 Patent;** IPR2015-01171 Ex. 1007

[54] **PORTABLE WORK STATION-TYPE DATA COLLECTION SYSTEM**

[73] Assignee: **Norand Corporation,** Cedar Rapids, Iowa

[75] Inventors: **Arvin D. Danielson,** Solon; **Darald R. Schultz,** Cedar Rapids, both of Iowa; **Dennis Silva,** San Jose, Calif.; **Darrell L. Boatwright,** Cedar Rapids, Iowa; **Rickey G. Austin,** Lisbon, Iowa; **Daniel E. Alt,** Cedar Rapids, Iowa; **Steve Darren Friend,** Felton; **Paul Beard,** Milpitas, both of Calif.

Ex. 1006

***Rathmann* '869 Patent;** IPR2015-01171 Ex. 1006

[54] **BATTERY PACK AND A METHOD FOR MONITORING REMAINING CAPACITY OF A BATTERY PACK**

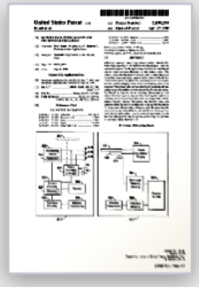
[76] Inventor: **Roland Rathmann,** Raiffeisenweg 3, B-85375 Neufahrn, Germany

The smart battery device of the present invention, referred to as a Duracell Battery Operating System (DBOS), is

See, e.g., IPR2015-01171 Pet. at 4; IPR2015-01172 Pet. at 4; IPR2015-01173 Pet. at 4; IPR2015-01174 Pet. at 4; IPR2015-01175 Pet. at 4; IPR2015-01603 Pet. at 5

Beard '290 Patent Discloses A Battery Pack And Terminal

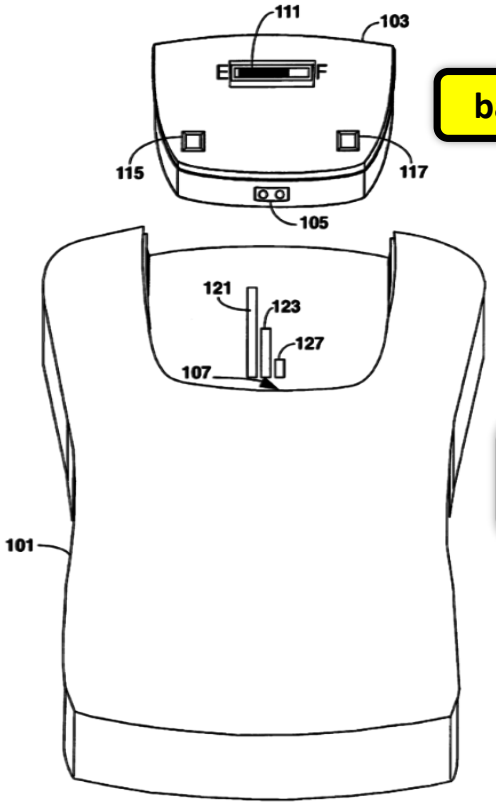
Ex. 1005



Ex. 1007

Ex. 1006

Beard '290 Patent



battery pack

battery powered electronic device

FIG. 8

IPR2015-01171 Ex. 1005 (*Beard*), Fig. 8

See, e.g., IPR2015-01171 Pet. at 11, 31; IPR2015-01172 Pet. at 10, 26; IPR2015-01173 Pet. at 11, 29; IPR2015-01174 Pet. at 11, 30; IPR2015-01175 Pet. at 10, 29; IPR2015-01603 Pet. at 13, 33

Beard '290 Patent Discloses A Battery Pack And Terminal

Beard '290 Patent

The battery pack **103** comprises an LCD display **111** that, upon request, provides an indication of current battery capacity. To request the indication, a user merely places one finger on a contact **115** and one finger on a contact **117** to complete a pathway monitored by a sensing circuit within the battery pack **103**. In response, the display **111** is activated to display the current battery capacity. As illustrated, the battery capacity is represented in a fuel-gauge type display with "E" and "F" designating "empty" and "full", respectively.

IPR2015-01171 Ex. 1005 (*Beard*) at 9:16-33

Beard '290 Patent

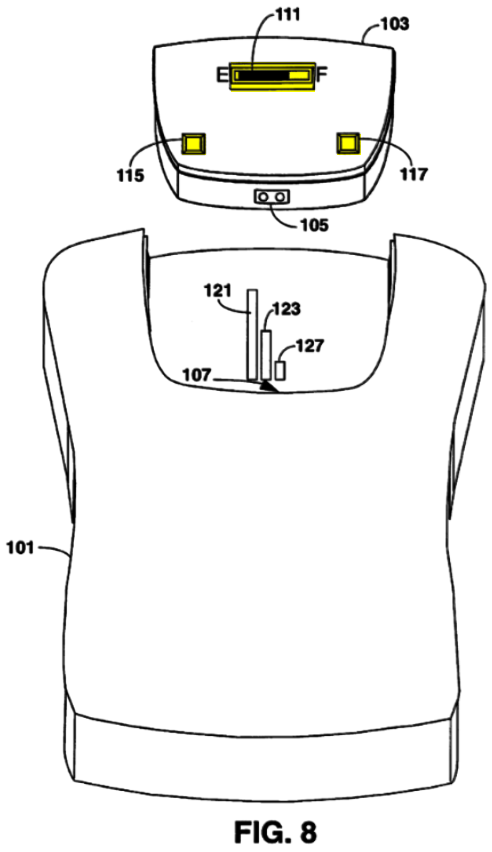


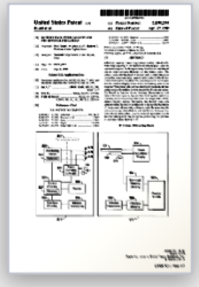
FIG. 8

IPR2015-01171 Ex. 1005 (*Beard*), Fig. 8

See, e.g., IPR2015-01171 Pet. at 12-13; IPR2015-01172 Pet. at 11-12; IPR2015-01173 Pet. at 12-13; IPR2015-01174 Pet. at 12-13; IPR2015-01175 Pet. at 11-12; IPR2015-01603 Pet. at 14-15

Beard '290 Patent Discloses A Battery Pack And Terminal

Ex. 1005



Ex. 1007

Ex. 1006

Beard '290 Patent

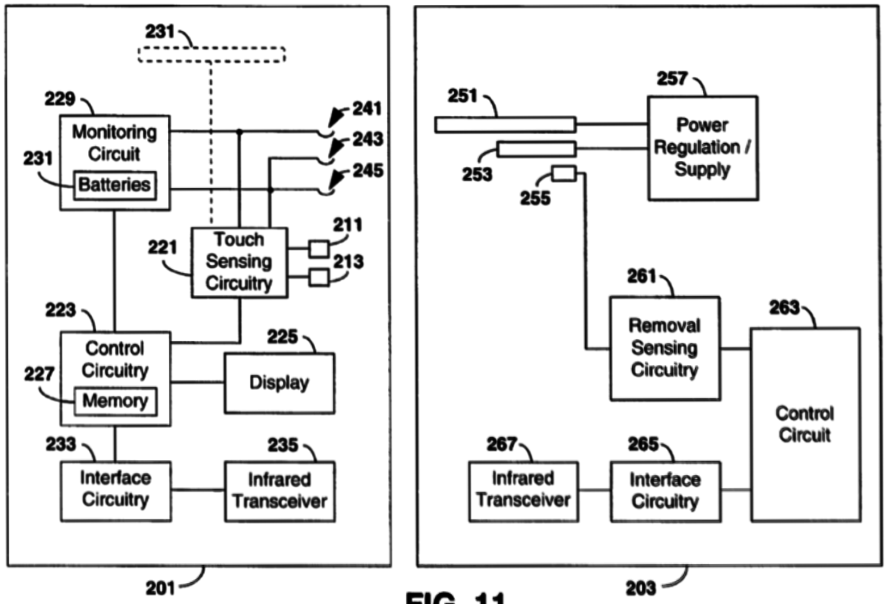


FIG. 11

battery pack

device

IPR2015-01171 Ex. 1005 (*Beard*), Fig. 11

See, e.g., IPR2015-01171 Pet. at 17, 31; IPR2015-01172 Pet. at 19, 26; IPR2015-01173 Pet. at 17, 29; IPR2015-01174 Pet. at 17, 30; IPR2015-01175 Pet. at 16, 29; IPR2015-01603 Pet. at 18, 33

Beard '290 Patent Discloses A Battery Pack And Terminal

Beard '290 Patent

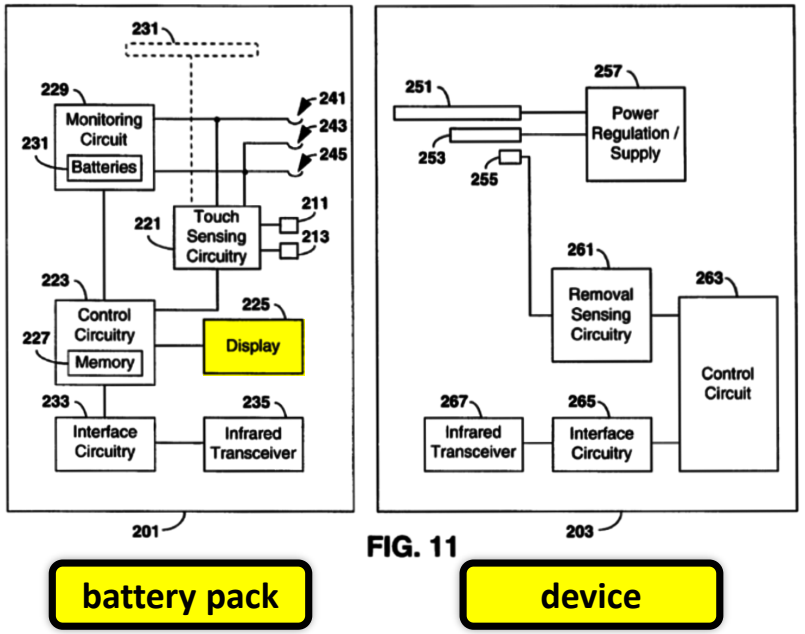
When the device **303** is operational, the processor **351** periodically communicates to the battery pack **301** to retrieve battery capacity information. The processor **351** uses such information along with information regarding the peak, typical and minimum loading characteristics of the device **303** to estimate the remaining operational time achievable with the presently installed battery pack. Such

IPR2015-01171 Ex. 1005 (*Beard*) at 12:59-65

battery life. Instead of (or in addition) displaying the percentage of available battery capacity, the control circuitry **223** interacts with the display **225** to deliver the time estimates to the operator. With peak, typical and low power

IPR2015-01171 Ex. 1005 (*Beard*) at 11:45-48

Beard '290 Patent



IPR2015-01171 Ex. 1005 (*Beard*), Fig. 11

See, e.g., IPR2015-01171 Pet. at 17, 31, Rep. at 15; IPR2015-01172 Pet. at 19, 26, Rep. at 19; IPR2015-01173 Pet. at 17, 29, Rep. at 11; IPR2015-01174 Pet. at 17, 30, Rep. at 15; IPR2015-01175 Pet. at 16, 29, Rep. at 17; IPR2015-01603 Pet. at 18, 33, Rep. at 20

Beard '290 Patent Discloses A Battery Pack And Terminal

Beard '290 Patent

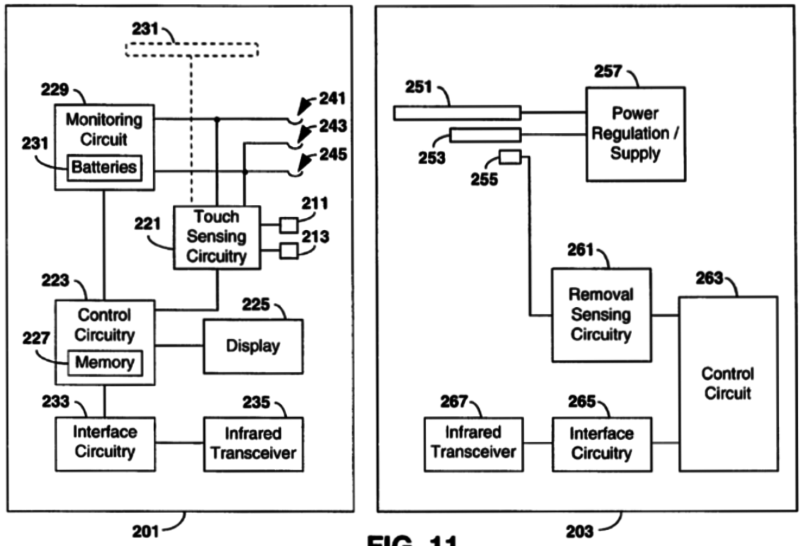
FIGS. 8–10. A battery pack **201** provides an operator with an indication of battery capacity whether or not it is inserted into a portable electronic device **203**. To initiate the display

IPR2015-01171, Ex. 1005 (*Beard*) at 11:10-12

pack contact 245. When fully inserted, the battery pack contacts **241, 243** and **245** engage the corresponding contacts **251, 253** and **255**, and, if sufficient power is available, the device **203** may enter a fully operational state when the operator so desires. Upon beginning to remove the battery

IPR2015-01171, Ex. 1005 (*Beard*) at 11:67-12:4

Beard '290 Patent

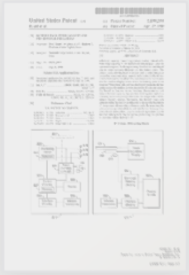


IPR2015-01171 Ex. 1005 (*Beard*), Fig. 11

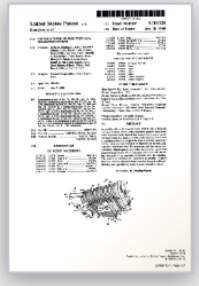
See, e.g., IPR2015-01171 Pet. at 12, 30; IPR2015-01172 Pet. at 11, 25; IPR2015-01173 Pet. at 12, 30; IPR2015-01174 Pet. at 12, 30; IPR2015-01175 Pet. at 11, 28; IPR2015-01603 Pet. at 14, 33

Danielson '728 Patent Discloses More Detail About The Terminal

Ex. 1005



Ex. 1007



Ex. 1006

Danielson '728 Patent

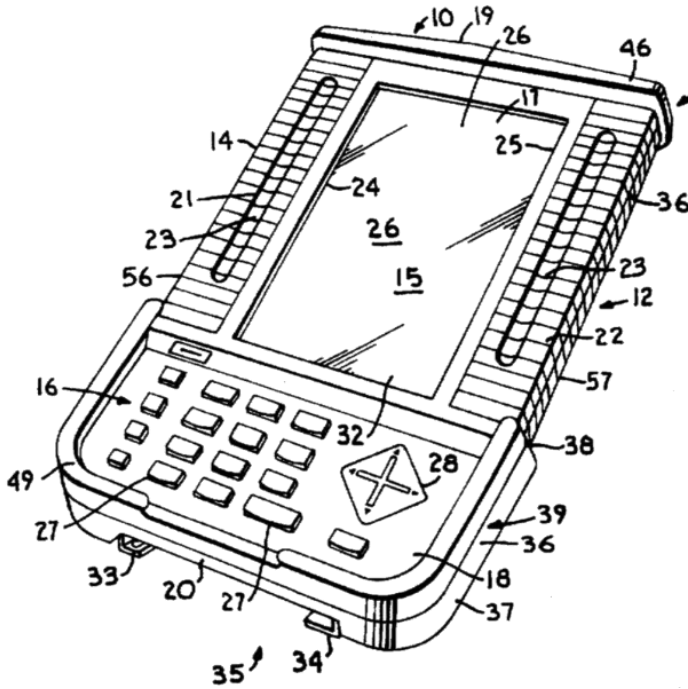


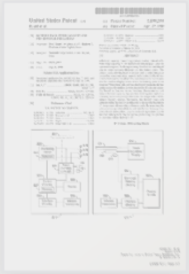
Fig. 1.

IPR2015-01171 Ex. 1007 (*Danielson*), Fig. 1

See, e.g., IPR2015-01171 Pet. at 17; IPR2015-01173 Pet. at 17; IPR2015-01174 Pet. at 17; IPR2015-01175 Pet. at 16; IPR2015-01603 Pet. at 17

Rathmann '869 Patent Discloses The Duracell Battery Operating System

Ex. 1005



Ex. 1007

Ex. 1006

Rathmann '869 Patent

The smart battery device of the present invention, referred to as a Duracell Battery Operating System (DBOS), is initially described in the following overview which includes the following sequential topics, ASIC Hardware, Architecture, CPU, A/D Converter, Current Measurement, Temperature Measurement, Pack Voltage Measurement, Cell Voltage Measurements, ROM, RAM, RAM Data Back-up Circuit, 12C/SMBus Interface, Clock generation circuit, Wake-up comparator circuit, LED Drivers, Interface circuits, Hardware Modes of Operation, Run Mode: Entry/Exit, Sample Mode: Entry/Exit and Sleep Mode: Entry/Exit.

IPR2015-01171 Ex. 1006 (*Rathmann*) at 5:48-58

See, e.g., IPR2015-01171 Pet. at 16; IPR2015-01172 Pet. at 16; IPR2015-01173 Pet. at 16; IPR2015-01174 Pet. at 16; IPR2015-01175 Pet. at 15; IPR2015-01603 Pet. at 16

I. Brief Overview of the Patents

II. Brief Overview of the Prior Art References

III. Undisputed Issues

IV. Purported Deficiencies Raised By Patent Owner

No Dispute Re Prior Art Priority Dates

No dispute *Beard* '290 is prior art under at least 35 U.S.C. § 102(e)

No dispute *Rathmann* is prior art under at least 35 U.S.C. § 102(e)

No dispute *Danielson* is prior art under at least 35 U.S.C. §§ 102(a) and 102(e)

See, e.g., IPR2015-01171 Pet. at 11, 14, 17; IPR2015-01172 Pet. at 10, 13; IPR2015-01603 Pet. at 13, 15, 17; IPR2015-01173 Pet. at 11, 14, 17; IPR2015-01174 Pet. at 11, 14, 17; IPR2015-01175 Pet. at 10, 13, 16

Unrebutted Testimony Re Motivation To Combine

Beard, Petitioners' Expert

VIII. MOTIVATIONS TO COMBINE THE PRIOR ART

A. Motivation to Combine Beard with Rathmann

95. In my opinion, a POSITA would have been strongly motivated to combine the teachings of Beard with Rathmann because both patents are directed to the same problem—enabling the user of a portable, battery-pack to readily determine the current state of battery charge. A POSITA would have looked to both complementary disclosures to obtain advantages when combined, as further discussed below. *See, e.g.*, Beard at 2:29-31 ("Thus, there lies ***a need*** for the

* * *

B. Motivation to Combine Beard and Rathmann with Danielson

106. Likewise, a POSITA would be highly motivated to combine Beard and Rathmann with Danielson. Beard and Rathmann disclose the hardware, software, and operation of intelligent battery packs with capacity indicators, but do not describe in detail the host products that use these intelligent battery packs, or how the host products may interact with the battery packs.

IPR2015-01171 Ex. 1003 (Beard Decl.) at ¶¶95, 103

Morley, Patent Owner's Expert

NO REBUTTAL

See, e.g., IPR2015-01171 Pet. at 19-28; IPR2015-01172 Pet. at 17-22; IPR2015-01173 Pet. at 19-27; IPR2015-01174 Pet. at 19-27; IPR2015-01175 Pet. at 17-26; IPR2015-01603 Pet. at 21-28

I. Brief Overview of the Patents

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IV. Purported Deficiencies Raised By Patent Owner

IV. Purported Deficiencies Raised By Patent Owner

(1) *Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Energy Consuming Load" ('726, '749, '952, '980)

(2) *Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose Microchip Control Of Both The "Energy Consuming Load" And The Indicator ('970)

(3) *Beard* In View Of *Rathmann* Does Not Disclose Deactivation Of A "Function" In Addition To The Visible Indicator (All Patents)

(4) *Beard* In View Of *Rathmann* Does Not Disclose A Different Activation Signal For The Function ('726, '952, '970)

(5) *Beard* In View Of *Rathmann* Does Not Disclose A Power Source Enclosed In The Product Housing ('726, '952, '980)

(6) *Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose A Touch Sensor And On/Off Switch In The Same User Interface ('726, '980)

(7) *Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Location Indicator" ('970)

(8) *Beard* In View Of *Rathmann* Does Not Disclose Activation Of A Visible Indication Without Activating Load ('980)

IV. Purported Deficiencies Raised By Patent Owner

	Argument	'726 Patent IPR2015-01171	'749 Patent IPR2015-01172	'749 Patent IPR2015-01603	'970 Patent IPR2015-01173	'980 Patent IPR2015-01174	'952 Patent IPR2015-01175
(1)	*Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Energy Consuming Load"	X	X	X		X	X
(2)	*Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose Microchip Control Of Both The "Energy Consuming Load" And The Indicator				X		
(3)	*Beard* In View Of *Rathmann* Does Not Disclose Deactivation Of A "Function" In Addition To The Visible Indicator	X	X	X	X	X	X
(4)	*Beard* In View Of *Rathmann* Does Not Disclose A Different Activation Signal For The Function	X			X		X
(5)	*Beard* In View Of *Rathmann* Does Not Disclose A Power Source Enclosed In The Product Housing	X				X	X
(6)	*Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose A Touch Sensor And On/Off Switch In The Same User Interface	X				X	
(7)	*Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Location Indicator"				X		
(8)	*Beard* In View Of *Rathmann* Does Not Disclose Activation Of A Visible Indication Without Activating Load					X	

Patent Owner's Consistent Errors

Patent Owner impermissibly reads limitations from embodiments in the specification into the claims

Patent Owner misreads the claim language to add new limitations not required by the claims

Patent Owner misreads the plain disclosure of the prior art

See, e.g., IPR2015-01171 Rep. at 2-10, 13-15, 18-25; IPR2015-01172 Rep. at 2-12, 14-20; IPR2015-01173 Rep. at 5-15; IPR2015-01174 Rep. at 2-10, 13-24; IPR2015-01175 Rep. at 2-10, 13-19, 20-22; IPR2015-01603 Rep. at 2-12, 14-21

IV. Purported Deficiencies Raised By Patent Owner

(1) *Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Energy Consuming Load" ('726, '749, '952, '980)

(2) *Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose Microchip Control Of Both The "Energy Consuming Load" And The Indicator ('970)

(3) *Beard* In View Of *Rathmann* Does Not Disclose Deactivation Of A "Function" In Addition To The Visible Indicator (All Patents)

(4) *Beard* In View Of *Rathmann* Does Not Disclose A Different Activation Signal For The Function ('726, '952, '970)

(5) *Beard* In View Of *Rathmann* Does Not Disclose A Power Source Enclosed In The Product Housing ('726, '952, '980)

(6) *Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose A Touch Sensor And On/Off Switch In The Same User Interface ('726, '980)

(7) *Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Location Indicator" ('970)

(8) *Beard* In View Of *Rathmann* Does Not Disclose Activation Of A Visible Indication Without Activating Load ('980)

Claims Require "Energy Consuming Load"

'726 Patent Claim 1

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of a visible indication in response to an activation signal received from the user interface while operation of the load is unaffected.

IPR2015-01171 Ex. 1001 ('726 Patent), Claim 1

See, e.g., IPR2015-01171 Pet. at 28, Rep. at 3; IPR2015-01172 Pet. at 23, Rep. at 3; IPR2015-01603 Pet. at 31, Rep. at 3; IPR2015-01174 Pet. at 29, Rep. at 3; IPR2015-01175 Pet. at 27, Rep. at 3

Plain Meaning Of "Energy Consuming Load" Undisputed

Beard, Petitioners' Expert

116. A POSITA would have understood this plain and ordinary meaning to be "any part of the product that consumes energy when the product is used." The '726 patent uses the term "energy consuming load" consistently with this plain and ordinary meaning. The '726 patent specification identifies the load in two embod-

IPR2015-01171 Ex. 1003 (Beard Decl.) at ¶116

Morley, Patent Owner's Expert

A. Okay. So I believe that something could be an energy-consuming load whether, in general, whether it's under control of a micro or not. If it's a load and it consumes energy, it's an energy-consuming load, generically speaking, yes.

IPR2015-01171 Ex. 1036 (Morley Microsoft Tr.) at 102:1-5

See, e.g., IPR2015-01171 Pet. at 8, Rep. at 3-4; IPR2015-01172 Pet. at 9, Rep. at 4; IPR2015-01173 Pet. at 9; IPR2015-01174 Pet. at 8, Rep. at 3-4; IPR2015-01175 Pet. at 8, Rep. at 4; IPR2015-01603 Pet. at 10, Rep. at 4

PO Argues Petitioners' Construction Is Improperly Broad

PO's Response

Petitioners and Petitioners' expert (Paul Beard) point to "any of the exemplary energy consuming components depicted in device 203 in Figure 11" of Beard for an alleged teaching of the claimed load. Paper 3 at p. 31, and Ex. 1003 at ¶ 129. This is because the Petition relies on an improperly broad construction of "load" that entirely dissociates the load from the claimed microchip. Ex. 2002 at ¶ 51. Consistent with this improper construction, Petitioners cite to the components

IPR2015-01171 Paper 14 (PO Resp.) at 25

See, e.g., IPR2015-01171 Resp. at 25; IPR2015-01172 Resp. at 12; IPR2015-01174 Resp. at 23; IPR2015-01175 Resp. at 31; IPR2015-01603 Resp. at 12

Patent Owner Admits That *Beard* '290 Discloses "Energy Consuming Load" Under Plain And Ordinary Meaning

Morley, Patent Owner's Expert

Q. So if the board does not adopt your construction of energy consuming load, but it views it as energy consuming component of the device, *Beard* would disclose that claim limitation, correct?

A. Yes.

IPR2015-01171 Ex. 1035 (Morley Tr.) at 170:2-7

Beard '290 Patent

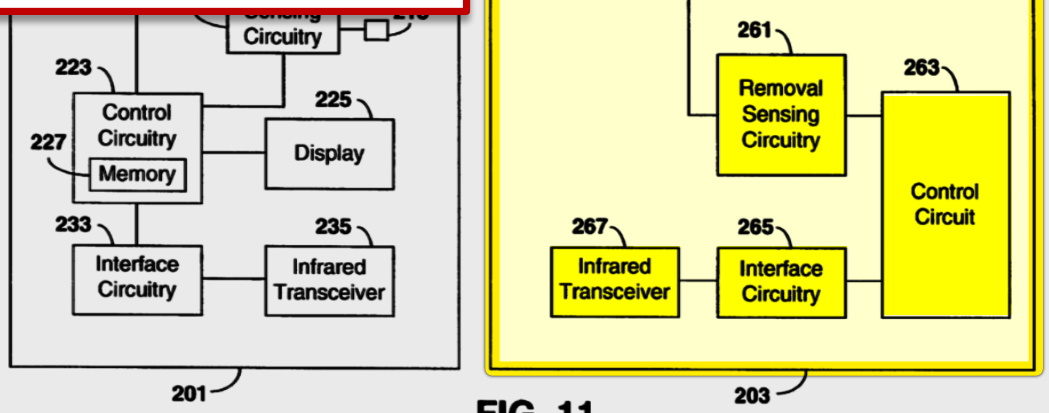


FIG. 11

IPR2015-01171 Ex. 1005 (*Beard*) at Fig. 11

See, e.g., IPR2015-01171 Rep. at 10-11; IPR2015-01172 Rep. at 12-13; -IPR2015-01174 Rep. at 10-11; IPR2015-01175 Rep. at 10-12; IPR2015-01603 Rep. at 12-13

PO's Proposed Construction Should Be Rejected

Term	Petitioner's Proposed Construction	Patent Owner's Proposed Construction
"Energy Consuming Load"	plain meaning; ("any part of the product that consumes energy when the product is used")	"an energy-consuming component *that receives power from the power source under the control of the microchip*"

The issue is whether the specification disclaims or deviates from the plain and ordinary meaning

See, e.g., IPR2015-01171 Pet. at 8, Resp. at 20; IPR2015-01172 Pet. at 9, Resp. at 12; IPR2015-01173 Pet. at 9; IPR2015-01174 Pet. at 8, Resp. at 20; IPR2015-01175 Pet. at 8, Resp. at 31; IPR2015-01603 Pet. at 10, Resp. at 11

Board Declined To Construe "Energy Consuming Load"

Petition

1. "energy consuming load"

The term "energy consuming load" is used in challenged independent claims 1 and 27. Beard Decl. at ¶ 114. A POSITA would have generally understood "energy consuming load," as used in the claims of the '726 patent, to have its plain and ordinary meaning. *Id.* at ¶ 115.

IPR2015-01171 Paper 3 (Petition) at 8

Institution Decision

Petitioner proposes constructions for "energy consuming load" and "mains." Pet. 8–10. For purposes of this decision, we determine that only "mains" requires express construction.

IPR2015-01171 Paper No. 8 (Inst. Dec.) at 4

See, e.g., IPR2015-01171 Pet. at 8, Inst. Dec. at 4; IPR2015-01172 Pet. at 9, Inst. Dec. at 4; IPR2015-01173 Pet. at 9, Inst. Dec. at 5; IPR2015-01174 Pet. at 8, Inst. Dec. at 5; IPR2015-01175 Pet. at 8, Inst. Dec. at 4-5; IPR2015-01603 Pet. at 10, Inst. Dec. at 5

Claims Do Not Require Microchip To Control Power To The Load

'726 Patent, Claim 1

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of a visible indication in response to an activation signal received from the user interface while operation of the load is unaffected.

IPR2015-01171 Ex. 1001 ('726 Patent), Claim 1

The claims do not require microchip to control power to the load

See, e.g., IPR2015-01171 Pet. at 28, Rep. at 3; IPR2015-01172 Pet. at 23, Rep. at 3; IPR2015-01603 Pet. at 31, Rep. at 3; IPR2015-01174 Pet. at 29, Rep. at 3; IPR2015-01175 Pet. at 27, Rep. at 3

Claims Do Not Require Microchip To Control Power To The Load

Morley, Patent Owner's Expert

Q. There's nothing in the language of claim 1 that requires the energy consuming load to receive power under the control of the microchip, is there?

THE WITNESS: There is no specific mention of controlling that.

IPR2015-01171 Ex. 1035 (Morley Tr.) at 91:22-93:7 (objection omitted)

See, e.g., IPR2015-01171 Rep. at 3; IPR2015-01172 Rep. at 3; IPR2015-01603 Rep. at 3; IPR2015-01174 Rep. at 3; IPR2015-01175 Rep. at 3

Features Found In Every Embodiment Should Still Not Be Read Into The Claims

PO's Response

Every single embodiment disclosed in the '726 Patent includes such a microchip-controlled switch that manages conducting of current to the load. *See, e.g.*, Ex. 1001 at 3:61-66, 6:66-7:4, 7:17-31, 8:56-63, 9:4-12, and FIGS. 1-7, 8A-8B, and 9-17. For example, in the embodiment of FIG. 1, the "[m]icrochip 103…

IPR2015-01171 Paper 14 (PO Resp.) at 19

***Thorner*:**

"It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must 'clearly express an intent' to redefine the term."

Thorner v. Sony Computer Entertainment America LLC, 669 F.3d 1362, 1365 (2012)

See, e.g., IPR2015-01171 Rep. at 6-7; IPR2015-01172 Rep. at 5-6; IPR2015-01603 Rep. at 5-6; IPR2015-01174 Rep. at 6-7; IPR2015-01175 Rep. at 6-7

PO Attempts To Limit Claims To Specific Embodiments

PO's Response

Namely, the "very character of the invention" disclosed in the '726 Patent is a microchip-controlled switch that manages conducting of current to the load using a man-machine interface (MMI) device (*e.g.*, touch sensor) that itself does not conduct the current to the load. *See, e.g.*, Ex. 1001 at 3:61-66 and FIGS. 1-7, 8A-

IPR2015-01171 Paper 14 (PO Resp.) at 16

SUMMARY OF THE INVENTION

According to one embodiment of the present invention, there is provided a microchip controlled switch to manage both the current conducting functions and the MMI functions in an electronic device, such as a flashlight, on a low current basis i.e. without the MMI device having to conduct or switch high current. According to one aspect of the invention, the

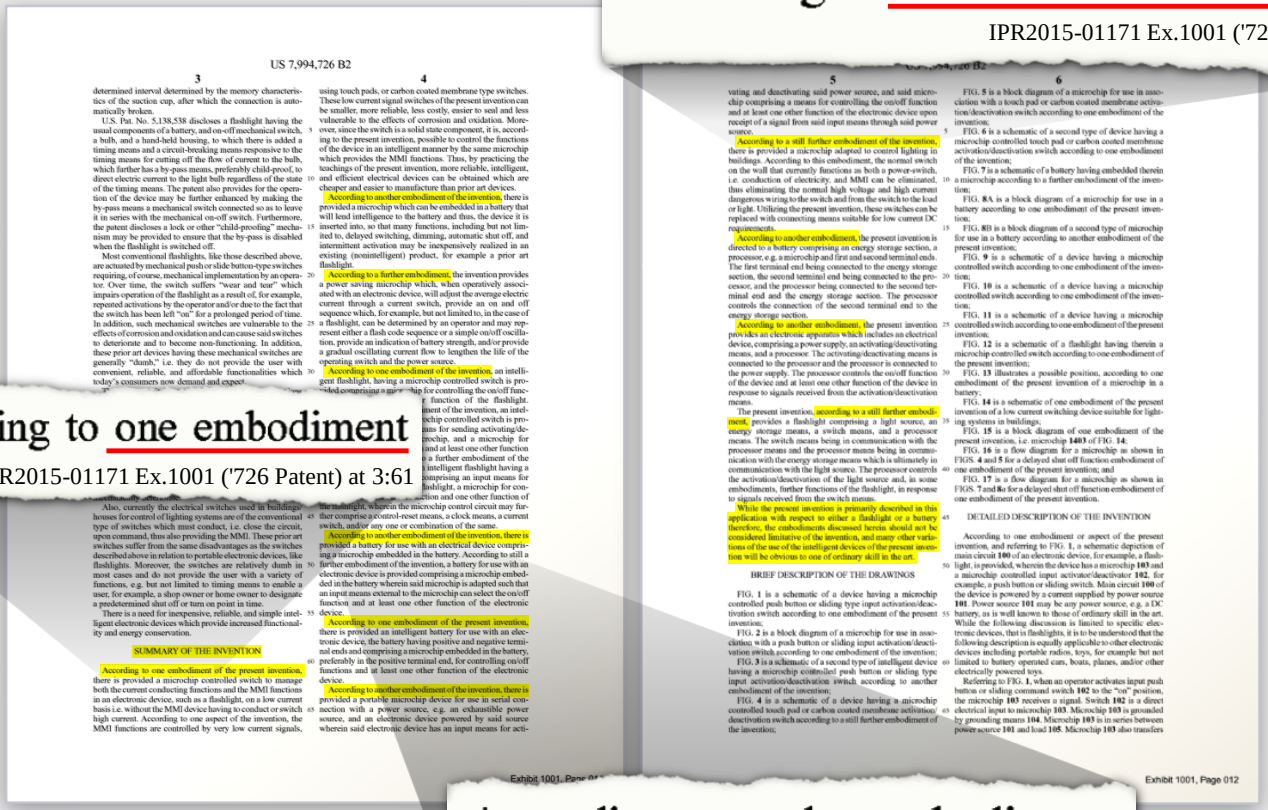
IPR2015-01171 Ex.1001 ('726 Patent) at 3:61-66

1) No mention nor definition of "energy consuming load"

2) Does not say microchip controls power to load

See, e.g., IPR2015-01171 Rep. at 4-5; IPR2015-01172 Rep. at 6; IPR2015-01603 Rep. at 6; IPR2015-01174 Rep. at 4-5; IPR2015-01175 Rep. at 5

'726 Patent Summary Of The Invention



According to a still further embodiment

IPR2015-01171 Ex.1001 ('726 Patent) at 5:6

According to one embodiment

IPR2015-01171 Ex.1001 ('726 Patent) at 3:61

According to another embodiment

IPR2015-01171 Ex.1001 ('726 Patent) at 4:47

See, e.g., IPR2015-01171 Rep. at 4-5; IPR2015-01172 Rep. at 6; IPR2015-01603 Rep. at 6; IPR2015-01174 Rep. at 4-5; IPR2015-01175 Rep. at 5

PO's Support Does Not Describe Microchip Control Of Power To The Load

PO's Response

Thus, unlike conventional MMI switches that directly connect a power source to a load, central to the invention of the '726 Patent is its explicit distinction over this conventional configuration by virtue of providing a low-current MMI switch that does not itself conduct current to the load:

> It is important to recognize, however, that it is control circuit 201 which activates current switch 202 upon acting on an input from MMI switch 102. Unlike heretofore known prior art devices, activating switch 102 does not conduct current to load 105, but is only a command input mechanism which can, according to the invention, operate on very low current.

Id. at 7:23-29.

IPR2015-01171 Paper 14 (PO Resp.) at 18

This passage does not require the microchip to control power to the load

See, e.g., IPR2015-01171 Rep. at 5; IPR2015-01174 Rep. at 5; IPR2015-01175 Rep. at 6

PO's Support Describes Exemplary Embodiment In Fig. 2

'726 Patent

The structure and operational parameters of such a microchip **103** are explained in greater detail below with respect to FIG. **2**. As shown in FIG. **1**, power is supplied to microchip **103** by power source **101**. When an operator activates input switch **102** to the "on" position it represents a command which is communicated to microchip **103**. Input means **102** requires very low current in preferred embodiments. In one embodiment of the invention, microchip control/reset means **201** simply allows the current switch **202** to pass current provided from power source **101** to load **105** in an unimpeded manner when the MMI switch **102** is activated, and, in the case of a flashlight, illumination is obtained. It is important to recognize, however, that it is control circuit **201** which activates current switch **202** upon acting on an input from MMI switch **102**. Unlike heretofore known prior art devices, activating switch **102** does not conduct current to load **105**, but is only a command input mechanism which can, according to the invention, operate on very low current. For example, according to the invention, touch sensor input or carbon coated membrane type switch devices are preferred.

IPR2015-01171 Ex.1001 ('726 Patent) at 7:12-31

'726 Patent

FIG. 2 is a block diagram of a microchip for use in association with a push button or sliding input activation/deactivation switch according to one embodiment of the invention;

IPR2015-01171 Ex.1001 ('726 Patent) at 5:57-59

This is not the "very character" of the invention

See, e.g., IPR2015-01171 Rep. at 5; IPR2015-01174 Rep. at 5; IPR2015-01175 Rep. at 6

PO's Expert Testimony Should Be Given No Weight

Morley, Patent Owner's Expert

A. To paraphrase that because, as you read it, it looked a little bit on the clumsy side, I would say that back to my -- I think I said this earlier -- what I think the patent teaches is an energy consuming load is a load whose power supply is controlled by the microchip. So there has to be a switch in series between the power supply, or exhaustible power supply if it's a battery -- there's the switch that is controlled by the microchip, and then there's the load downstream so that in order for power to come from the power source and get to the load, it has to go through that switch that is controlled by the microchip.

1
2
3
4

IPR2015-01171 Ex. 1035, "Morley Tr." at 88:4-19

See, e.g., IPR2015-01171 Rep. at 5-6; IPR2015-01172 Rep. at 7; IPR2015-01603 Rep. at 7; IPR2015-01174 Rep. at 6; IPR2015-01175 Rep. at 6

Applying PO's Construction Consistently Would Add A Microchip To Claims That Do Not Require One

Claim requires a microchip:

'726 Patent

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of a visible indication in response to an activation signal received from the user interface while operation of the load is unaffected.

IPR2015-01171 Ex. 1001 ('726 Patent), Claim 1

Claim DOES NOT require a microchip:

'749 Patent (sibling of the '726 Patent)

21. A method of implementing a user interface for a product comprising connections for a power supply and at least one energy consuming load, using at least a touch sensor user interface switch and a visible indicator, wherein the method includes the steps of:

(a) activating the indicator in response to a user interface switch activation signal;

(b) activating the indicator when the load is not activated by the user;

(c) performing an automatic delayed deactivation of a function that was activated in response to an activation signal received via the user interface switch.

IPR2015-01171 Ex. 1041 ('749 Patent), Claim 21

Applying PO's construction to this claim would add a microchip that is nowhere in the claim language

See, e.g., IPR2015-01171 Rep. at 10; IPR2015-01172 Rep. at 3; IPR2015-01603 Rep. at 3; IPR2015-01174 Rep. at 10; IPR2015-01175 Rep. at 10

When Patentee Wished To Include A Requirement That The Microchip Control Power To The Load, It Did So

'726 Patent

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of a visible indication in response to an activation signal received from the user interface while operation of the load is unaffected.

IPR2015-01171 Ex. 1001 ('726 Patent), Claim 1

'970 Patent (CIP sibling of the '726 Patent)

52. A method of operating a product which includes a visible luminous indicator, an energy consuming load and a power source for powering the load, the method including the steps of operating a user interface switch, that is a touch sensor type switch which is not a serial link in a circuit from the power source to the load to power the load, to control the operation of a microchip, using the microchip to control the connection of the power source to the load and the activation of the indicator, and to activate the indicator to show at least one of the following when the load is not activated: a condition of the product, an activation of the switch, and a power level of the power source.

IPR2015-01171 Ex. 1037 ('970 Patent), Claim 52

See, e.g., IPR2015-01171 Rep. at 7-8; IPR2015-01172 Rep. at 9-10; IPR2015-01603 Rep. at 9-10; IPR2015-01174 Rep. at 7-8; IPR2015-01175 Rep. at 8

PO's Construction Contradicts Controlling Law

'726 Patent

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of a visible indication in response to an activation signal

'970 Patent (CIP sibling of the '726 Patent)

52. A method of operating a product which includes a visible luminous indicator, an energy consuming load and a power source for powering the load, the method including the steps of operating a user interface switch, that is a touch sensor type switch which is not a serial link in a circuit from the power source to the load to power the load, to control the operation of a microchip, using the microchip to control the

***In re Rambus Inc.*:**

"[U]nless otherwise compelled the same claim term in the same patent or related patents carries the same construed meaning."

In re Rambus Inc., 694 F.3d 42, 48 (Fed. Cir. 2012) (internal quotations and alterations omitted)

See, e.g., IPR2015-01171 Rep. at 8-9; IPR2015-01172 Rep. at 10-11; IPR2015-01603 Rep. at 10-11; IPR2015-01174 Rep. at 8; IPR2015-01175 Rep. at 9

PO Avoids Construing "Energy Consuming Load" For The '970 Patent

'726 Patent

1. A method for controlling a product comprising a power source, or a connection for a power source, and an energy consuming load, said method including the step of providing an electronic module comprising an electronic circuit including a microchip and a touch sensor forming part of a user interface, said microchip adapted to control the activation of

'970 Patent (CIP sibling of the '726 Patent)

52. A method of operating a product which includes a visible luminous indicator, an energy consuming load and a power source for powering the load, the method including the steps of operating a user interface switch, that is a touch sensor type switch which is not a serial link in a circuit from the power source to the load to power the load, to control the

Patent Owner's Proposed Construction

"an energy-consuming component that receives power from the power source under the control of the microchip"

IPR2015-01171 Paper 14 (PO Resp.) at 20

Patent Owner's Proposed Construction

IPR2015-01171 Ex. 1039 (IPR2015-01173 PO Resp.)

See, e.g., IPR2015-01171 Rep. at 8-9; IPR2015-01172 Rep. at 11; IPR2015-01603 Rep. at 10-11; IPR2015-01174 Rep. at 8-9; IPR2015-01175 Rep. at 8-9

Applying PO's Construction Consistently Would Make Claim 52 Redundant

'970 Patent (CIP sibling of the '726 Patent)

52. A method of operating a product which includes a visible luminous indicator, an energy consuming load and a power source for powering the load, the method including the steps of operating a user interface switch, that is a touch sensor type switch which is not a serial link in a circuit from the power source to the load to power the load, to control the operation of a microchip, using the microchip to control the connection of the power source to the *[energy-consuming component that receives power from the power source under the control of the microchip]* and the activation of the indicator, and to activate the indicator to show at least one of the following when the load is not activated: a condition of the product, an activation of the switch, and a power level of the power source.

IPR2015-01171 Ex. 1037 ('970 Patent), Claim 52

See, e.g., IPR2015-01171 Rep. at 9-10; IPR2015-01172 Rep. at 11-12; IPR2015-01603 Rep. at 11; IPR2015-01174 Rep. at 9; IPR2015-01175 Rep. at 9-10

PO's Reliance On *Alloc* Is Misplaced

Alloc:

"[I]t is impermissible to read the one and only disclosed embodiment into a claim without other indicia that the patentee so intended to limit the invention."

Alloc, Inc. v. International Trade Commission, 342 F.3d 1361, 1370 (Fed. Cir. 2003)

Here:

There is no 'other indicia' needed to limit the claims

See, e.g., IPR2015-01171 Rep. at 7; IPR2015-01172 Rep. at 8-9; IPR2015-01603 Rep. at 8-9; IPR2015-01174 Rep. at 7; IPR2015-01175 Rep. at 7

PO's Reliance On *Alloc* Is Misplaced

Alloc:

"The applicant expressly disavowed systems without play during prosecution of the parent '621 application. *See Middleton, 311 F.3d at 1388*."

Alloc, Inc. v. International Trade Commission, 342 F.3d 1361, 1373 (Fed. Cir. 2003)

Here:

PO points to no express disavowal during prosecution

See, e.g., IPR2015-01171 Rep. at 7; IPR2015-01172 Rep. at 8-9; IPR2015-01603 Rep. at 8-9; IPR2015-01174 Rep. at 7; IPR2015-01175 Rep. at 7

PO's Reliance On *Alloc* Is Misplaced

Alloc:

"Moreover, unlike the patent-at-issue in *Sunrace*, the '907 specification also distinguished the prior art on the basis of play. *Id.*"

Alloc, Inc. v. International Trade Commission, 342 F.3d 1369IPR2015-01171 (Fed. Cir. 2003)

Here:

'726 Patent distinguishes the prior art based on "activating switch 102 does not conduct current to the load 105," not based on the microchip controlling power to the load

See, e.g., IPR2015-01171 Rep. at 7; IPR2015-01172 Rep. at 8-9; IPR2015-01603 Rep. at 8-9; IPR2015-01174 Rep. at 7; IPR2015-01175 Rep. at 7

PO's Reliance On *Alloc* Is Misplaced

Alloc:

"Here, the '907 specification indicates that the invention is indeed exclusively directed toward flooring products including play."

Alloc, Inc. v. International Trade Commission, 342 F.3d 1369IPR2015-01171 (Fed. Cir. 2003)

Here:

'726 Patent indicates that the disclosure is only exemplary embodiments

IPR2015-01171 Ex.1001 ('726 Patent) at Abstract; 3:61-66; 4:12, 20, 30, 47, 56, 63; 5:6, 16, 25, 34-35, 44-49, 57-59; 7:14, 18-23; 12:21-25

See, e.g., IPR2015-01171 Rep. at 7; IPR2015-01172 Rep. at 8-9; IPR2015-01603 Rep. at 8-9; IPR2015-01174 Rep. at 7; IPR2015-01175 Rep. at 7

Even Under PO's Incorrect Construction, *Beard* '290 Discloses An "Energy Consuming Load"

See, e.g., IPR2015-01171 Rep. at 11-12; IPR2015-01172 Rep. at 12-14; IPR2015-01603 Rep. at 12-14; IPR2015-01174 Rep. at 11-12; IPR2015-01175 Rep. at 10-12

Even Under PO's Incorrect Construction, *Beard* '290 Discloses An "Energy Consuming Load"

Patent Owner's Proposed Construction

"an energy-consuming component that receives power from the power source under the control of the microchip"

IPR2015-01171 Paper 14 (PO Resp.) at 20

Beard '290 Patent

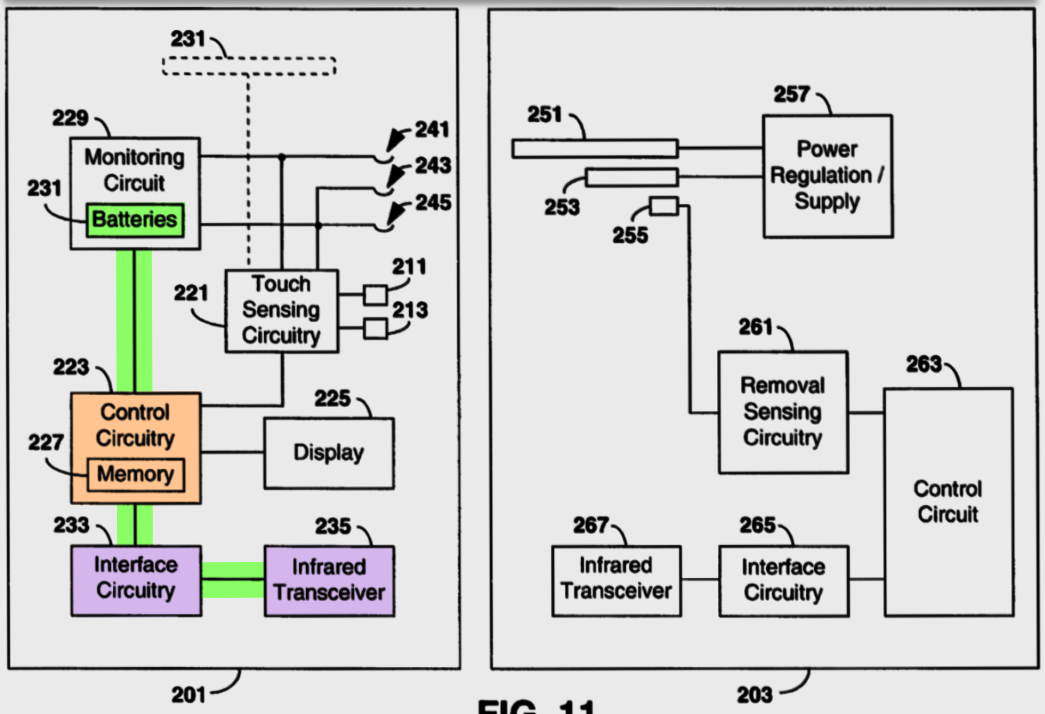


FIG. 11

IPR2015-01171 Ex. 1005 (*Beard*) at Fig. 11

See, e.g., IPR2015-01171 Rep. at 11-12; IPR2015-01172 Rep. at 12-14; IPR2015-01603 Rep. at 12-14; IPR2015-01174 Rep. at 11-12; IPR2015-01175 Rep. at 10-12

Even Under PO's Incorrect Construction, *Beard* '290 Discloses An "Energy Consuming Load"

Patent Owner's Proposed Construction

"an energy-consuming component that receives power from the power source under the control of the microchip"

IPR2015-01171 Paper 14 (PO Resp.) at 20

Morley, Patent Owner's Expert

Q. Okay. Continuing along the diagram, beneath the control circuitry there's interface circuitry and an infrared transceiver that you mentioned a moment ago, right?
A. Yes.
Q. Both of those also consume energy, correct?
A. Yes.
Q. And then the interface circuitry would receive that power from the batteries, right?
A. Correct.
Q. The infrared transceiver is another component that would receive energy from the batteries?
A. Yes.

IPR2015-01171 Ex. 1035 (Morley Tr.) at 143:19-144:11

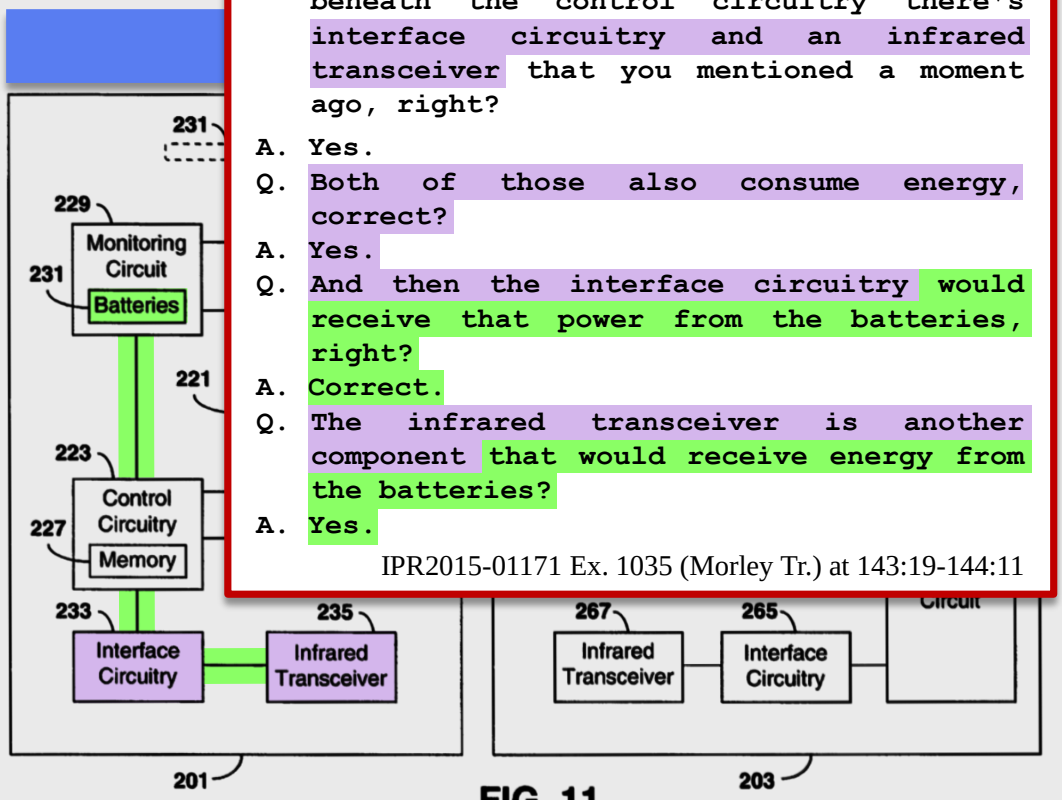


FIG. 11

IPR2015-01171 Ex. 1005 (*Beard*) at Fig. 11

See, e.g., IPR2015-01171 Rep. at 13; IPR2015-01172 Rep. at 14; IPR2015-01603 Rep. at 13-14; IPR2015-01174 Rep. at 13; IPR2015-01175 Rep. at 13

Even Under PO's Incorrect Construction, *Beard* '290 Discloses An "Energy Consuming Load"

Patent Owner's Proposed Construction

"an energy-consuming component that receives power from the power source under the control of the microchip"

IPR2015-01171 Paper 14 (PO Resp.) at 20

Beard, Petitioners' Expert

6. A person of ordinary skill in the art reviewing Figure 11 and the associated text in columns 11 and 12 would understand that, while not a claimed feature in the Beard patent, the arrangement of the control circuitry, batteries, infrared transceiver and interface circuitry indicates that the control circuitry controls power from the batteries to the transceiver and interface.

IPR2015-01171 Ex. 1034 (Beard Suppl. Decl.) at ¶6

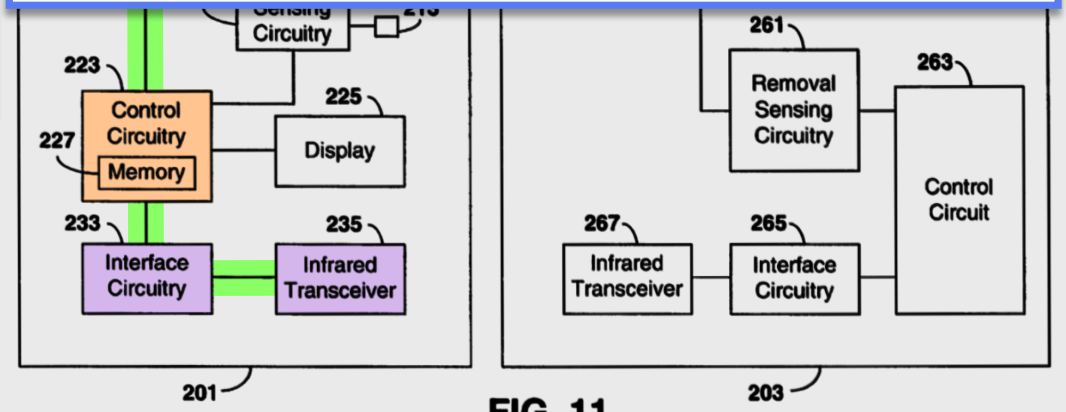


FIG. 11

IPR2015-01171 Ex. 1005 (*Beard*) at Fig. 11

See, e.g., IPR2015-01171 Rep. at 13; IPR2015-01172 Rep. at 14; IPR2015-01603 Rep. at 14; IPR2015-01174 Rep. at 13; IPR2015-01175 Rep. at 13

IV. Purported Deficiencies Raised By Patent Owner

~~*Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Energy Consuming Load" ('726, '749, '952, '980)~~

(2) *Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose Microchip Control Of Both The "Energy Consuming Load" And The Indicator ('970)

(3) *Beard* In View Of *Rathmann* Does Not Disclose Deactivation Of A "Function" In Addition To The Visible Indicator (All Patents)

(4) *Beard* In View Of *Rathmann* Does Not Disclose A Different Activation Signal For The Function ('726, '952, '970)

(5) *Beard* In View Of *Rathmann* Does Not Disclose A Power Source Enclosed In The Product Housing ('726, '952, '980)

(6) *Beard* And *Rathmann* In View Of *Danielson* Does Not Disclose A Touch Sensor And On/Off Switch In The Same User Interface ('726, '980)

(7) *Beard* In View Of *Rathmann* Does Not Disclose The Claimed "Location Indicator" ('970)

(8) *Beard* In View Of *Rathmann* Does Not Disclose Activation Of A Visible Indication Without Activating Load ('980)

'970 Patent Claim 52 Expressly Requires Microchip Control Of Power To Load In Addition To Indicator

'970 Patent, Claim 52

52. A method of operating a product which includes a visible luminous indicator, an energy consuming load and a power source for powering the load, the method including the steps of operating a user interface switch, that is a touch sensor type switch which is not a serial link in a circuit from the power source to the load to power the load, to control the operation of a microchip, using the microchip to control the connection of the power source to the load and (1) (2) the activation of the indicator, and to activate the indicator to show at least one of the following when the load is not activated: a condition of the product, an activation of the switch, and a power level of the power source.

IPR2015-01173 Ex. 1001 ('970 Patent), Claim 52

See, e.g., IPR2015-01173 Pet. at 48-58, Rep. at 2

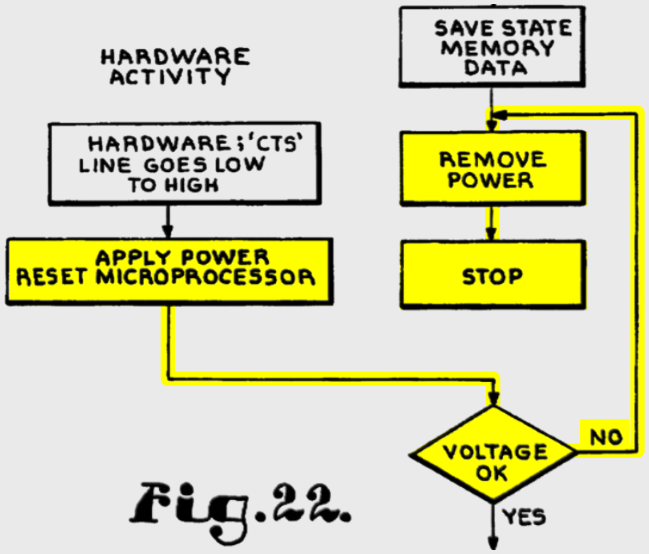
No Dispute *Danielson* Discloses Using Microchip To Control Power To The Load

1

Danielson '728 Patent

Pursuant to the unique power management procedure which is enabled by the described circuit function, power to the data terminal **10** may be shut down any time the data terminal **10** is not in use, or during any of a number of alarm or defect conditions. Such defect condition may occur when

IPR2015-01173 Ex. 1007 (*Danielson*) at 23:18-25



IPR2015-01173 Ex. 1007 (*Danielson*), Fig. 22 (excerpt)

Patent Owner's Response

NO DISPUTE

See, e.g., IPR2015-01173 Pet. at 54-56, Resp. at 7-12

No Dispute *Beard* '290 Discloses Using Microchip To Control Activation Of The Indicator

2

Beard '290 Patent

battery life. Instead of (or in addition) displaying the percentage of available battery capacity, the control circuitry **223** interacts with the display **225** to deliver the time estimates to the operator. With peak, typical and low power

IPR2015-01173 Ex. 1005 (*Beard*) at 11:45-48

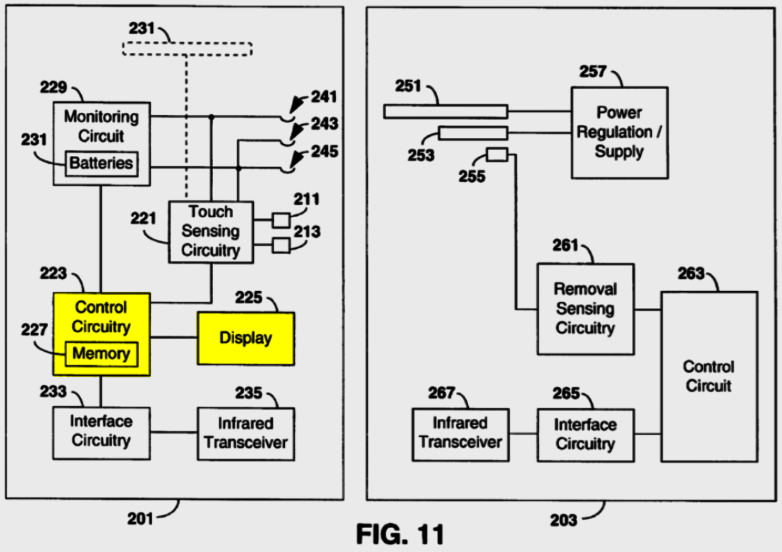


FIG. 11

IPR2015-01173 Ex. 1005 (*Beard*) at Fig. 11

Patent Owner's Response

NO DISPUTE

See, e.g., IPR2015-01173 Pet. at 56, Resp. at 7-12

PO Contends It Would Not Have Been Obvious To Combine These Features In The Same Microchip

See, e.g., IPR2015-01173 Resp. at 10-12

Beard '290 And *Danielson* Both Describe Starting Device Only If Sufficient Power Is Available, But *Danielson* Provides More Detail

POSITA needed only to use more detailed startup procedures from *Danielson* in the control circuit 223 of *Beard* '290

IPR2015-01173 Ex. 1003 (Beard Decl.) at ¶250-254

Beard '290 Patent

pack contact 245. When fully inserted, the battery pack contacts **241**, **243** and **245** engage the corresponding contacts **251**, **253** and **255**, and, if sufficient power is available, the device **203** may enter a fully operational state when the operator so desires. Upon beginning to remove the battery

IPR2015-01173 Ex. 1005 (*Beard*) at 11:67-12:4

Danielson '728 Patent

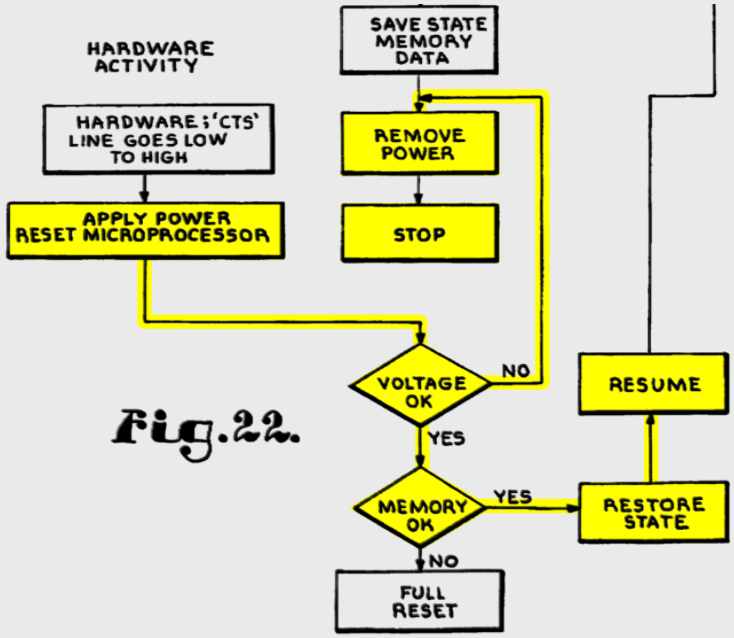


Fig.22.

IPR2015-01173 Ex. 1007 (*Danielson*), Fig. 22 (excerpt)

See, e.g., IPR2015-01173 Pet. at 53-56, Rep. at 2-3

Obvious To Combine Features From Two Microchips Into One Microchip

Beard '290 Patent

functions. The microcontroller **64** is preferably a Microchip PIC 16C71 microcontroller. The array of contact terminals

IPR2015-01173 Ex. 1005 (*Beard*) at 7:44-48

Beard, Petitioners' Expert

255. Third, both Danielson and Beard are concerned with allowing a device to become fully operational only if sufficient power is available, because a device that attempts to start up without sufficient power available could crash unexpectedly without a safe shutdown. Finally, the microchip control circuit 223 in Beard would be the natural place to implement the functionality described in Danielson because, as described above in ¶ 77, this was a well-known general purpose programmable microchip capable of performing numerous functions, and as the microchip connected to the battery power source, it is the obvious choice to control the connection of the battery power source to the device load.

IPR2015-01173 Ex. 1003 (Beard Decl.) at ¶255

See, e.g., IPR2015-01173 Pet. at 49, 55-56, Rep. at 2-3