

Hanshow America Inc. v. SES-imagotag Inc.

IPR2024-00189

February 18, 2025, Oral Hearing

Patent Owner's Demonstratives

SES-imagotag (VusionGroup)

Roadmap

Substantive Issues

1. No Vertical and Horizontal Positions
2. Not “Activated”
3. Petitioners’ NFC Problem
4. Dependent Claims 6 and 7
5. MTC Deficiencies

Motion to Exclude

The '340 Patent

The '340 Patent

(10) **Patent No.:** **US 10,674,340 B2**

(45) **Date of Patent:** **Jun. 2, 2020**

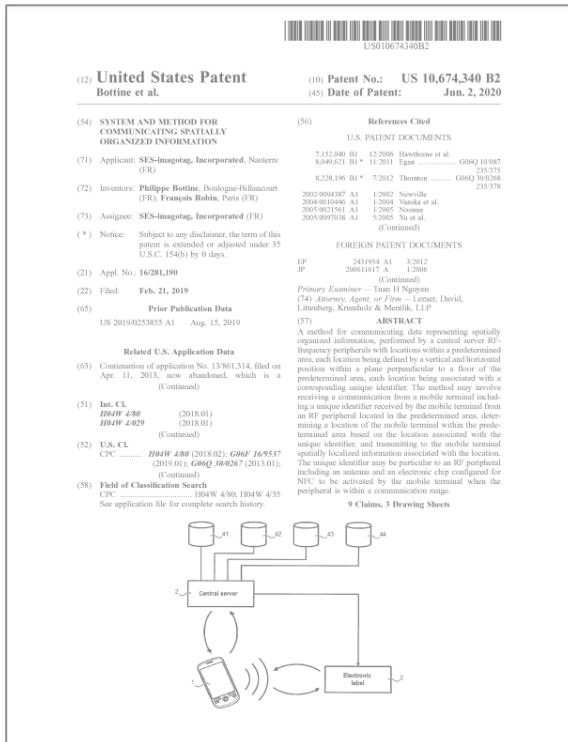
(54) **SYSTEM AND METHOD FOR
COMMUNICATING SPATIALLY
ORGANIZED INFORMATION**

(22) Filed: **Feb. 21, 2019**

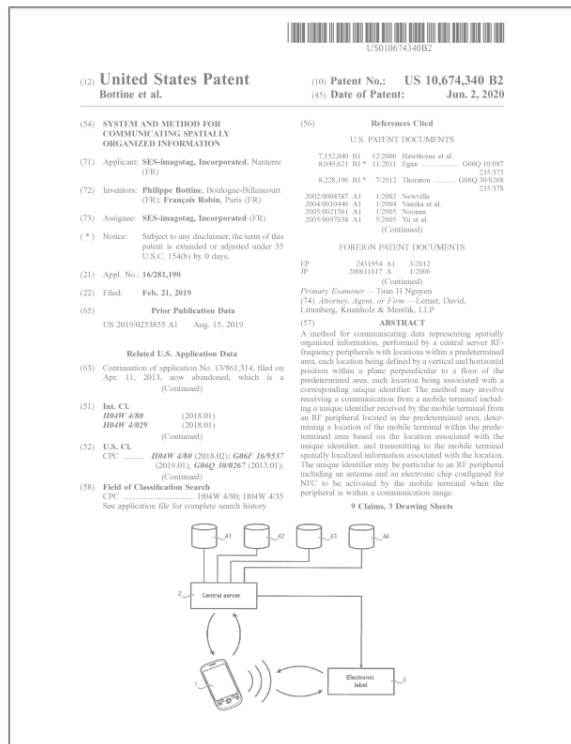
Related U.S. Application Data

(63) Continuation of application No. 13/861,314, filed on Apr. 11, 2013, now abandoned, which is a continuation of application No. PCT/FR2012/050791, filed on Apr. 11, 2012.

Ex. 1001 ('340 Patent), 1-2



The '340 Patent Concerns Providing Mobile Devices Location-Specific Information

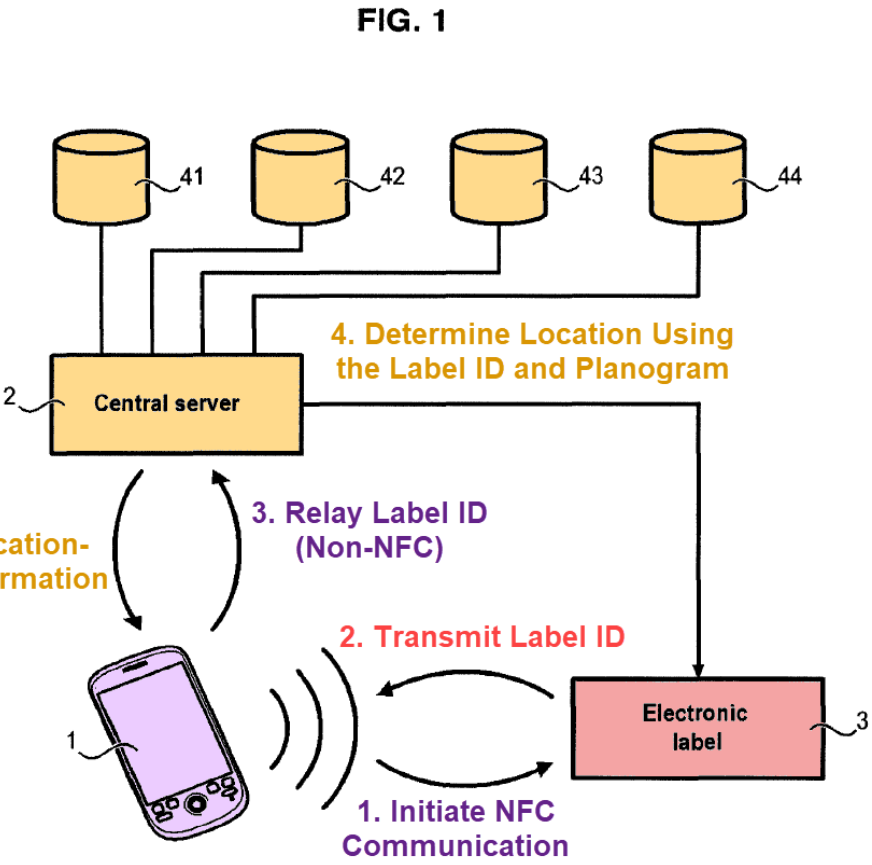
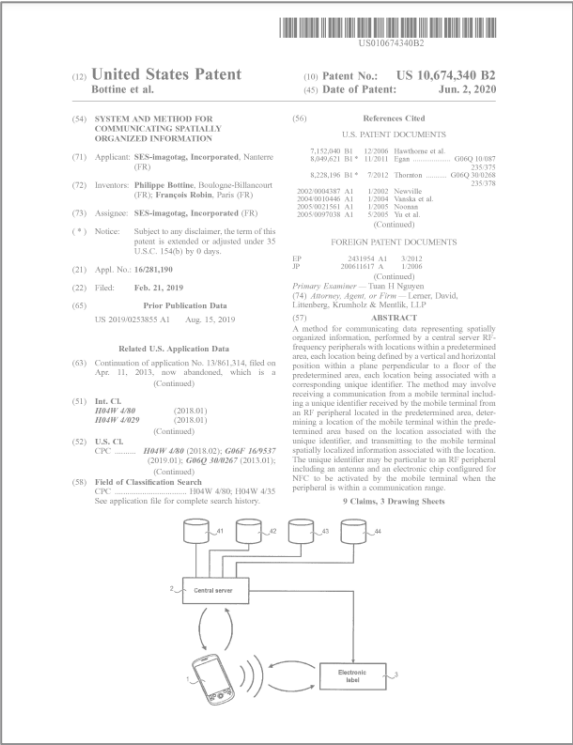


DESCRIPTION OF THE INVENTION

The present invention therefore sets out to propose means for providing consumers with spatially localized information, in relation to the place and context of a consumer, which complements the information already visually available in a sales area. A further objective is to be able to provide consumers at the point of sale with information that is specifically intended and personalized for this consumer.

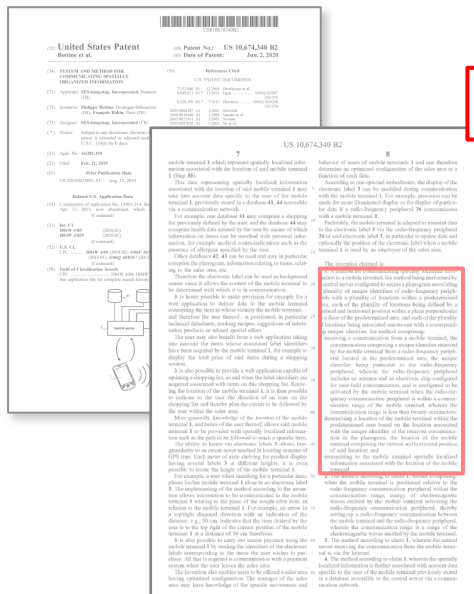
'340 Patent, 2:6-15

The Claimed System/Method Locates a Mobile Device Using NFC, a Shelf Label's Unique Identifier, and a Planogram



'340 Patent, Fig. 1 (annotated); see also Fig. 4

Claim 1



[1pre]

1. A method for communicating spatially localized information to a mobile terminal, the method being performed by a central server configured to access a planogram associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a plane perpendicular to a floor of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier, the method comprising:

[1a]

receiving a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral, wherein the radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters;

[1b]

determining a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the planogram, the location of the mobile terminal comprising the vertical and horizontal position of said location; and

[1c]

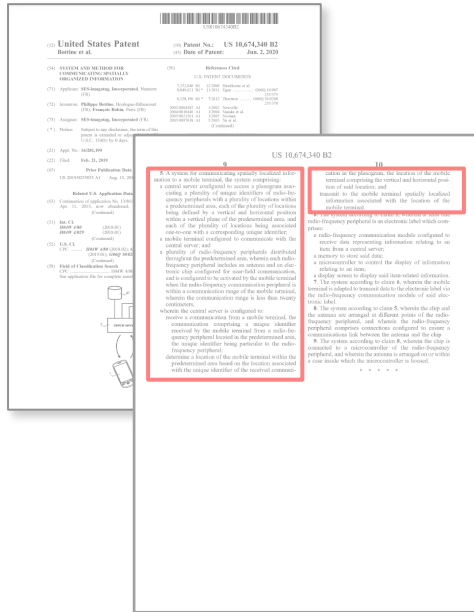
transmitting to the mobile terminal spatially localized information associated with the location of the mobile terminal.

'340 Patent, cl. 1

'340 Patent, cl. 1

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Claim 5



[5pre] 5. A system for communicating spatially localized information to a mobile terminal, the system comprising:

[5a] a central server configured to access a planogram associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a vertical plane of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier;

[5b] a mobile terminal configured to communicate with the central server; and

[5c] a plurality of radio-frequency peripherals distributed throughout the predetermined area, wherein each radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters,

[5d] wherein the central server is configured to:

[5e] receive a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral;

[5f] determine a location of the mobile terminal within the predetermined area based on the location associated with the unique identifier of the received communication in the planogram, the location of the mobile terminal comprising the vertical and horizontal position of said location; and

[5g] transmit to the mobile terminal spatially localized information associated with the location of the mobile terminal.

'340 Patent, cl. 5

Petitioners' Grounds and Prior Art

Petitioners Present Four Grounds

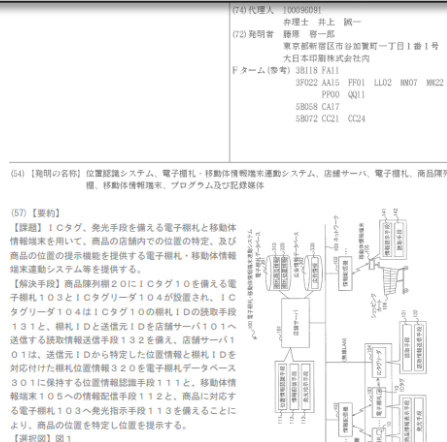
Grounds	Claims	Prior Art
1	1-9	Fujiwara
2	1-9	Fujiwara + Arntzen
3	1-5, 8-9	Bandy + Fowler
4	1-5, 8-9	Bandy + Fowler + Arntzen

Fujiwara Uses RFID to Track a Label's Shelf Number, and Can Send Shelf-Number and Product Information

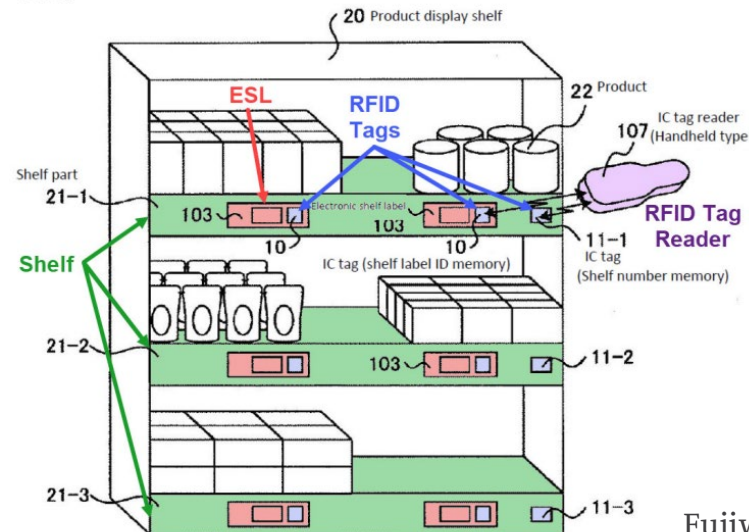
[0044]

The location information recognizing means 111 identifies the shelf number that is the location information of the IC tag reader from the sender ID and one or more electronic shelf label IDs, both received from the IC tag reader 104, associates the shelf number with the one or more electronic shelf label IDs, and registers and stores the shelf label location information 320 that specifies the location of the product in the electronic shelf label database 301. In addition, the shelf number and the electronic shelf label IDs are associated based on the shelf number and one or more electronic shelf label IDs, both received from the portable IC tag reader 107, and the shelf label location information 320 for specifying the location of the product is registered and stored in the electronic shelf label database 301.

The information distributing means 112 distributes advertising information 330 for the product to the mobile information terminal 105 using the advertising information database 302, and transmits the product information and shelf number corresponding to the one or more shelf label IDs 311 read from the mobile information terminal 105, as well as the advertising information 330 of the product, and the like.



[FIG. 11]



Fujiwara, ¶44

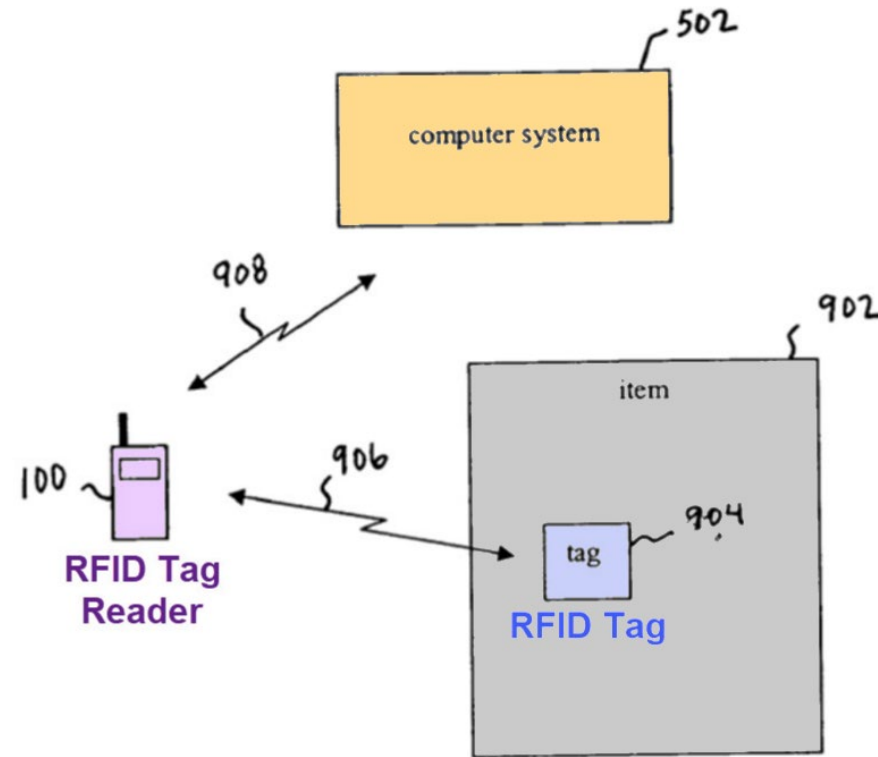
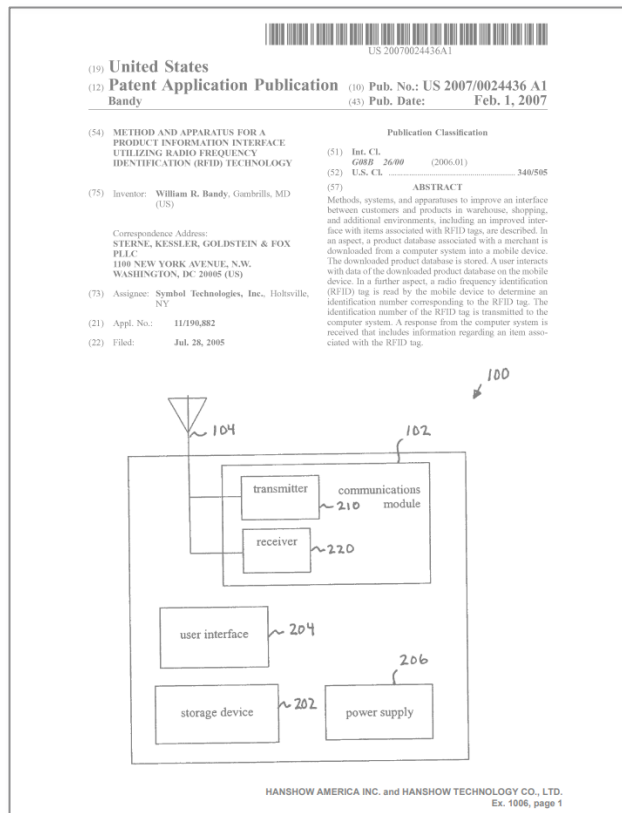
Fujiwara, Fig. 11 (annotated)

Fujiwara

POR, 10-12, 34; Surati, ¶¶84-86

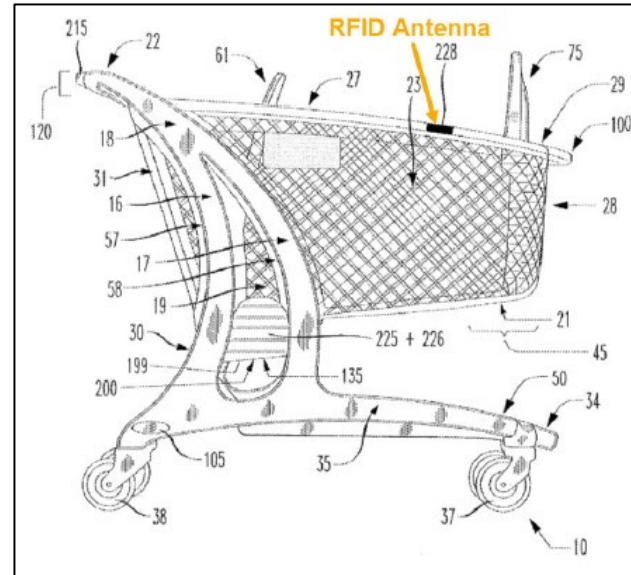
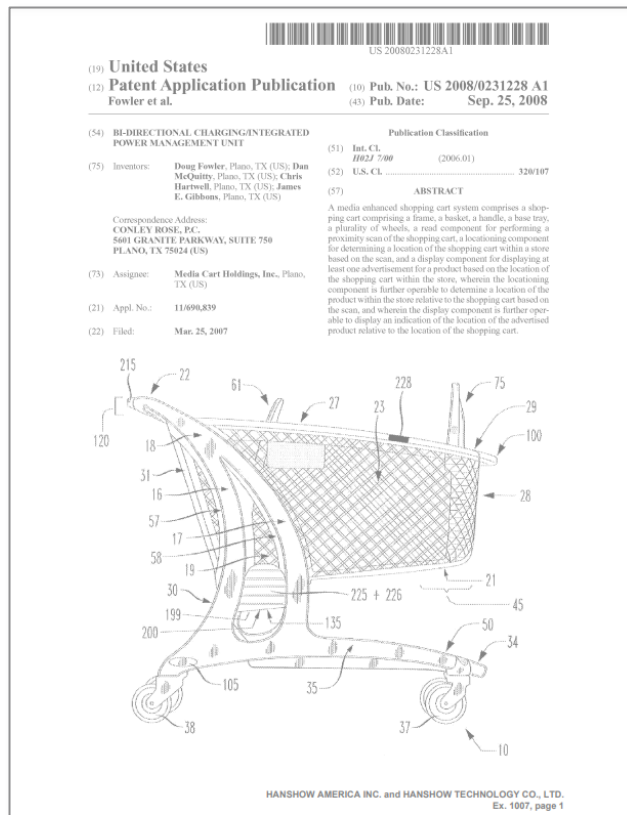
IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Bandy Downloads Product Databases and Uses RFID to Read Tags on Items of Interest

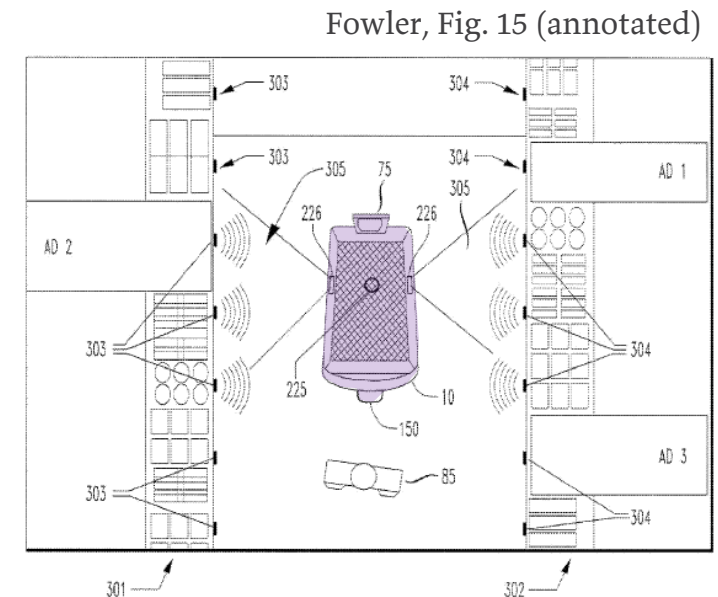


Bandy, Fig. 9 (annotated), ¶76

Fowler Uses RFID on Shopping Carts to Locate the Cart and Display Relevant Advertisements

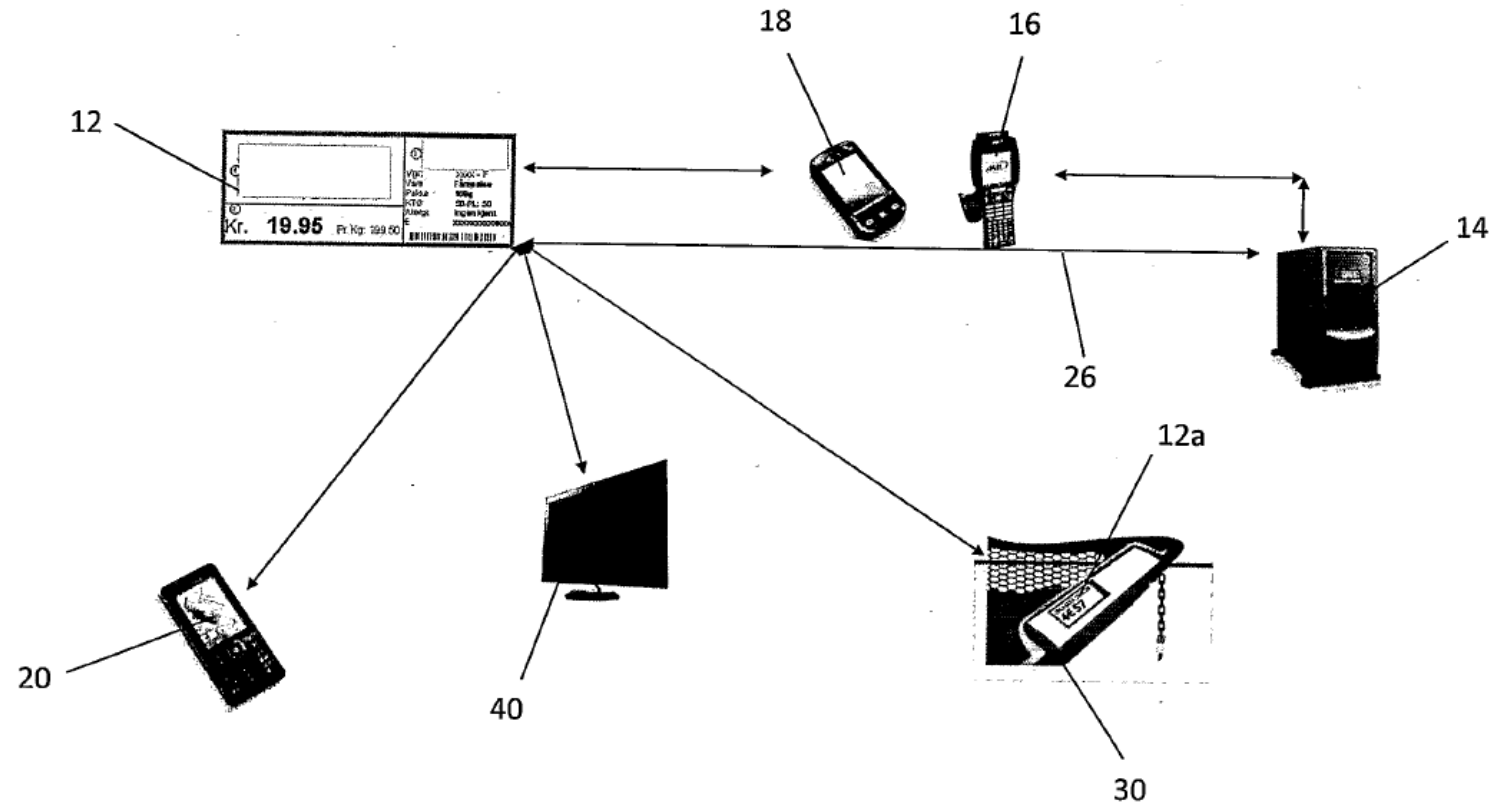
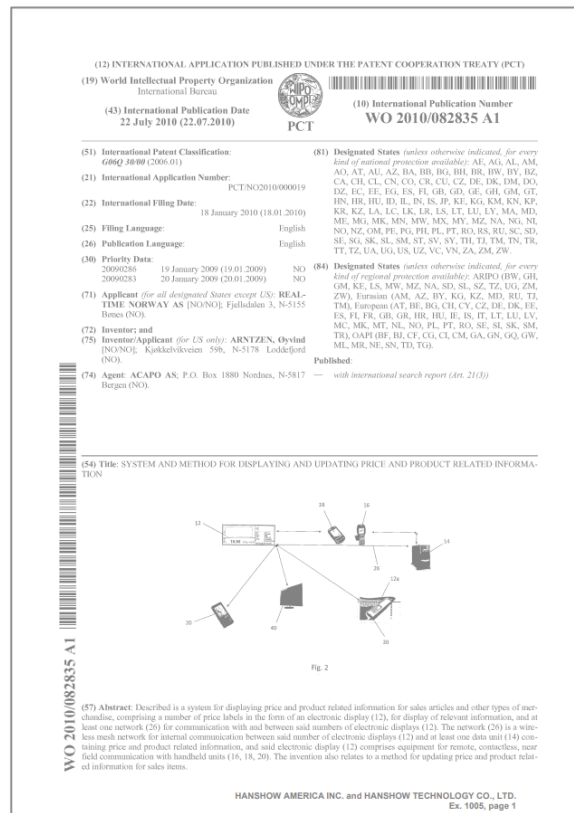


Fowler, Fig. 1 (annotated)



Fowler, Fig. 15 (annotated)

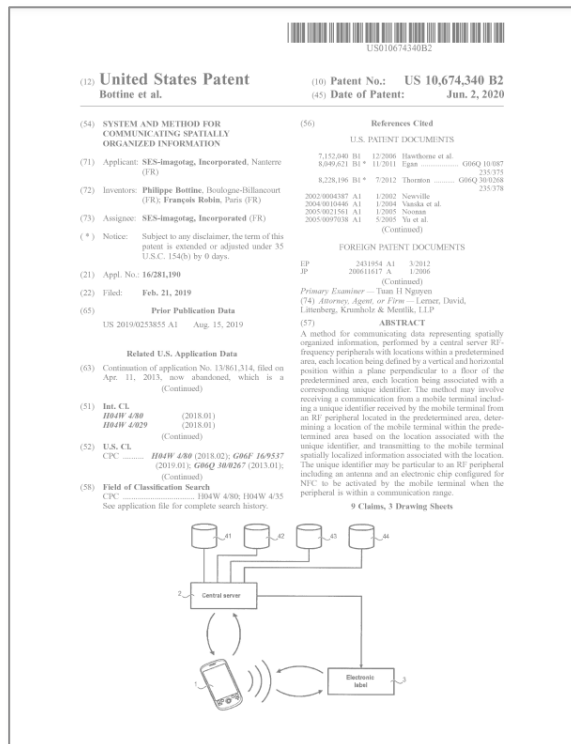
Arntzen Uses NFC, Bluetooth, or Zigbee to Interact with Shelf Labels



Arntzen, Fig. 2

Petitioners Have Not Shown The Prior Art Teaches
“Vertical and Horizontal Position[s]” As Recited
(All Claims, All Grounds)

The Independent Claims Require “Locations” with Vertical and Horizontal Positions and One-to-One Correspondence



1. A method for communicating spatially localized information to a mobile terminal, the method being performed by a central server configured to access a planogram associating a plurality of unique identifiers of radio-frequency peripherals with a plurality of locations within a predetermined area, each of the plurality of locations being defined by a vertical and horizontal position within a plane perpendicular to a floor of the predetermined area, and each of the plurality of locations being associated one-to-one with a corresponding unique identifier, the method comprising:

'340 Patent, cl. 1

Petitioners Contend Fujiwara's Electronic Shelf Database Teaches a "Planogram"

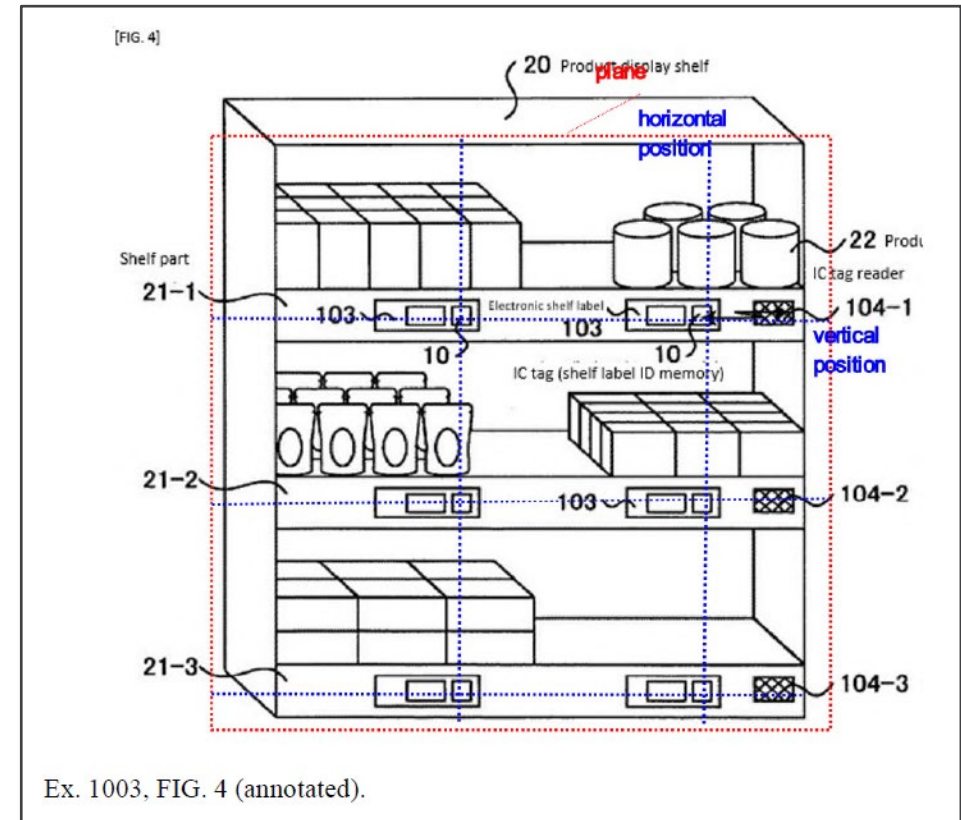
Thus, a POSITA would recognize that the **electronic shelf label database** is a **planogram** associating a **plurality of unique identifiers** (**shelf label ID 311**, as Fujiwara explicitly discloses that "[t]he shelf label ID 311 is the identification information of the electronic shelf label 103." Ex. 1003, [0062]) **of radio-frequency peripherals** (electronic shelf labels) **with a plurality of locations** (shelf label location) **within a predetermined area** (the sales floor). Ex. 1009, ¶¶72-73. And

Pet., 20

Petitioners Combine that Database with Fujiwara's Figure 4 to Teach the Claimed Horizontal Positions

Fujiwara further discloses that shelf label location information includes shelf label ID 311, shelf number 313, and the like, and that the shelf number 133 is the location information for each shelf part 21 of the product display shelf 20. Ex. 1003, [0062]. This, together with FIG. 4 of Fujiwara, discloses that each of the plurality of locations is defined by a **vertical position** (represented by **shelf number 313**) and a **horizontal position** (the horizontal position of the electronic shelf label along the horizontal shelf part 21, as shown in FIG. 4) within a plane (“the front side of the shelf”, *see* Ex. 1003, [0084]) perpendicular to a floor of the predetermined area (the sales floor). Ex. 1009, ¶75.

Pet., 21



Pet., 22 (original annotations)

Fujiwara's Database Provides Only Shelf Numbers as its "Locations"

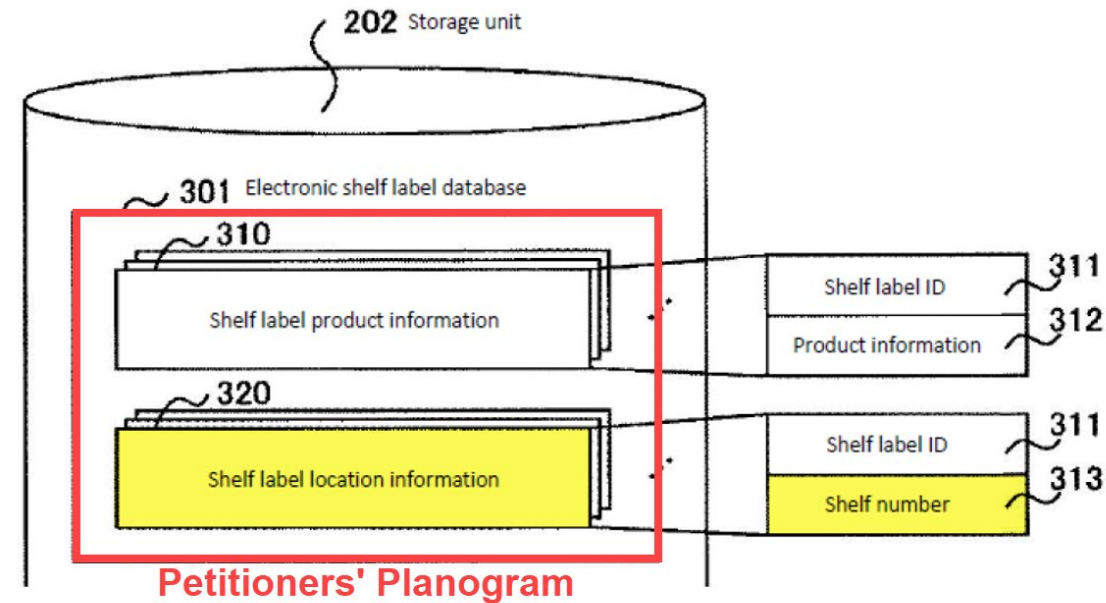
[0009]

"Product information" includes at least product ID and price information for the product.
 "Location information" is the shelf number of the product display shelf.

(10) 日本国特許庁 (JP)	(12) 公開特許公報 (A)	(11) 特許出願公開番号 特開2006-77131 (2006-77131A)
	(43) 公開日	平成20年4月3日 (2008.4.3)
G06Q Int. Cl.		
G06Q 50/00 (2006.01)	F1	テーマコード (参考)
G06Q 10/00 (2006.01)	G06F 17/00 118	3B118
A47F 5/00 (2006.01)	G06F 17/00 144	3F022
B65G 1/13 (2006.01)	G06F 17/00 510	5B058
G06K 17/00 (2006.01)	A47F 5/00 E	5B072
	B65G 1/137 A	
	審査請求 未請求	請求項の数 29 O.L. (全 26 頁) 最終頁に続く
(21) 出願番号	特許2006-252120 (2006-252120)	(71) 出願人 00002897
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		Fターム (参考) J0118 FAL1
		3F022 AAL5 FP01 LL02 NH07 NH22
		FP00 QX11
		5B058 CA17
		5B072 CC21 CC24

(57) 【要約】
 【課題】ICタグ、発光手段を備える電子棚札と移動体情報端末を用いて、商品の店舗内での位置の特定、及び商品の位置の提示機能を提供する電子棚札・移動体情報端末システム等を提供する。
 【解決手段】商品識別用2DにICタグ10を備える電子棚札103と1Dタグリーダ104が設置され、1Dタグリーダ104は1Dタグ10の棚札1Dの読取手段131と、棚札1Dと送信元1Dを店舗サーバ101へ送信する読取情報送信手段132を備え、店舗サーバ101は、送信元1Dから特定した位置情報と棚札1Dを対応付けた棚札位置情報320を電子棚札データベース301に保持する位置情報認識手段111と、移動体情報端末105への情報配信手段112と、商品に対応する電子棚札103へ発光指示手段113を備えることにより、商品の位置を特定し位置を提示する。
 【選択図】図1

[FIG. 3]



Fujiwara, Fig. 3 (annotated and excerpted)

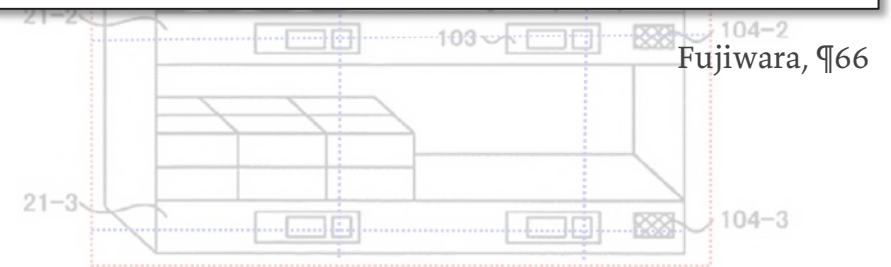
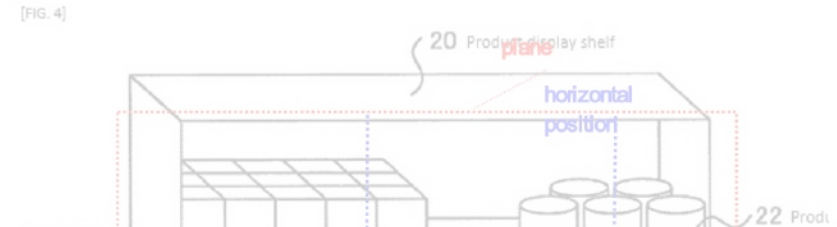
Figure 4 Is a Depiction of a Real-Life Shelf, and Does Not Represent the Contents of Fujiwara's Database

Fujiwara further discloses that shelf label location information includes shelf label ID 311, shelf number 313, and the like, and that the shelf number 133 is the location information for each shelf part 21 of the product display shelf 20. Ex. 1003,

[0066]

Next, with reference to FIG. 4, the appearance configuration of the electronic shelf label 103 (with integrated IC tag 10) and the IC tag reader 104 will be described. FIG. 4 is a diagram depicting the appearance configuration of the electronic shelf label 103 and IC tag reader 104.

horizontal position (the horizontal position of the electronic shelf label along the horizontal shelf part 21, as shown in FIG. 4) within a plane ("the front side of the shelf", see Ex. 1003, [0084]) perpendicular to a floor of the predetermined area (the sales floor). Ex. 1009, ¶75.



Ex. 1003, FIG. 4 (annotated).

Pet., 21

Fujiwara Has No Need To Track Horizontal Positions in a Database

[0006]

In light of the foregoing, an objective of the present invention is to provide a collaborative system of electronic shelf label and mobile information terminal, and the like, that provides a function for locating a product in a store and presenting the location of the product, by the use of an electronic shelf label equipped with an IC tag and a light emitting means, as well as the use of a mobile information terminal.

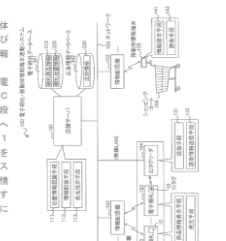
(10) 日本銀行発行 (JP)	(11) 日本銀行保証 (JP)	(12) 日本銀行保証 (JP)
特種2008-77131 (2008-77131A) (43) 公開日 平成20年4月2日 (2008.4.2)		特種2008-77131 (2008-77131A) (43) 公開日 平成20年4月2日 (2008.4.2)
G1) Int. Cl. G06Q 50/00 (2008.01) G06Q 10/00 (2008.01) A47F 5/00 (2008.01) B65G 1/137 (2008.01) G06K 17/00 (2008.01)	F 1 G06F 17/00 118 G06F 17/00 144 G06F 17/00 510 A47F 5/00 E B65G 1/137 A	テーマコード (参考) 3B118 3F022 5P058 5B072
審査請求 未請求 請求書の数 29 OL (全 26 頁) 最終頁に続く		

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		Fターム(参考)	J3118 FA11 3F022 A415 FF01 LL02 MM07 NN02 PP01 QQ11 5B058 CA17 5B072 CC21 CC24

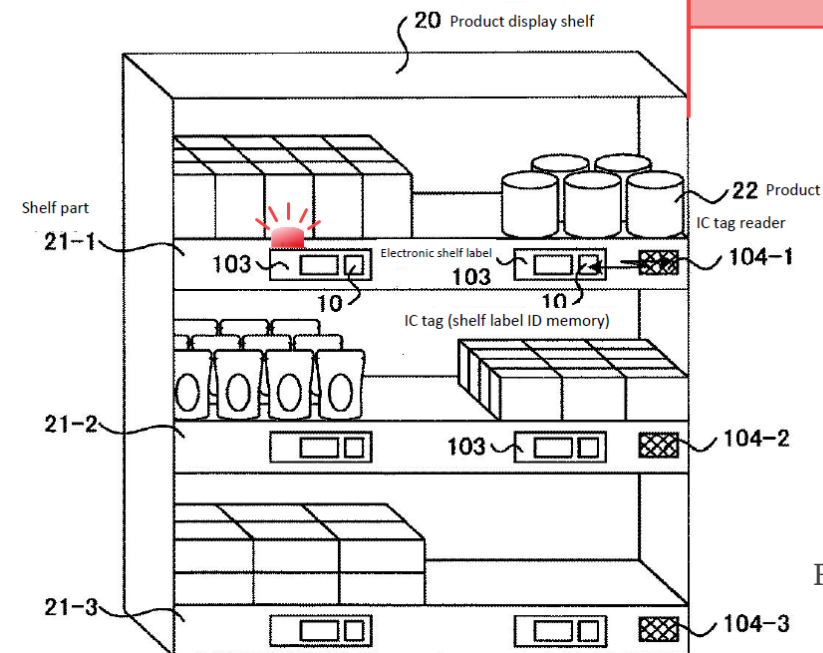
(54) 【発明の名称】位置認識システム、電子棚札・移動体情報端末運動システム、店舗サーバ、電子棚札、商品陳列棚、移動体情報端末、プログラム及び記録媒体

(57) 【要約】
【課題】 ICタグ、発光手段を備える電子棚札と移動体通信端末とを用いて、商品の店内での位置の特定、及び商品の位置の履歴を管理する電子棚札、移動体通信端末とを備えるシステムを提供する。
【解決手段】 商品陳列棚20にICタグ10を備える電子棚札13とICタグ14とICタグ14の棚組D1が設置され、ICタグ14の104はICタグ10の棚組D1の識別番号131と、棚組D2と連関するIDを棚組D1の識別番号131へ送受信する読取情報送受信手段32を有する。店舗サーバ11は、送受信ID109から特定した位置情報と読取情報111とを対応付けた棚組位置情報32を電子棚札データベース120に保持する。位置情報認識手段111と、移動体通信端末105の位置情報認識手段112と、商品に対応する電子棚札103へ発光指示信号113を伝えることにより、商品の位置を特定し位置を提示する。

【選択図】図1



[FIG. 4]



Fujiwara, Fig. 4 (annotated)

Fujiwara, ¶6

Petitioners' New Reply Argument is Unsupported and Contradicts the Petition

Petition

Thus, a POSITA would recognize that the electronic shelf label database is a **planogram associating a plurality of unique identifiers** (shelf label ID 311, as Fujiwara explicitly discloses that “[t]he shelf label ID 311 is the identification information of the electronic shelf label 103.” Ex. 1003, [0062]) **of radio-frequency**

* * *

[0062]. This, together with FIG. 4 of Fujiwara, discloses that each of the plurality of locations is defined by a **vertical position** (represented by shelf number 313) and a **horizontal position** (the horizontal position of the electronic shelf label along the horizontal shelf part 21, as shown in FIG. 4) **within a plane** (“the front side of the

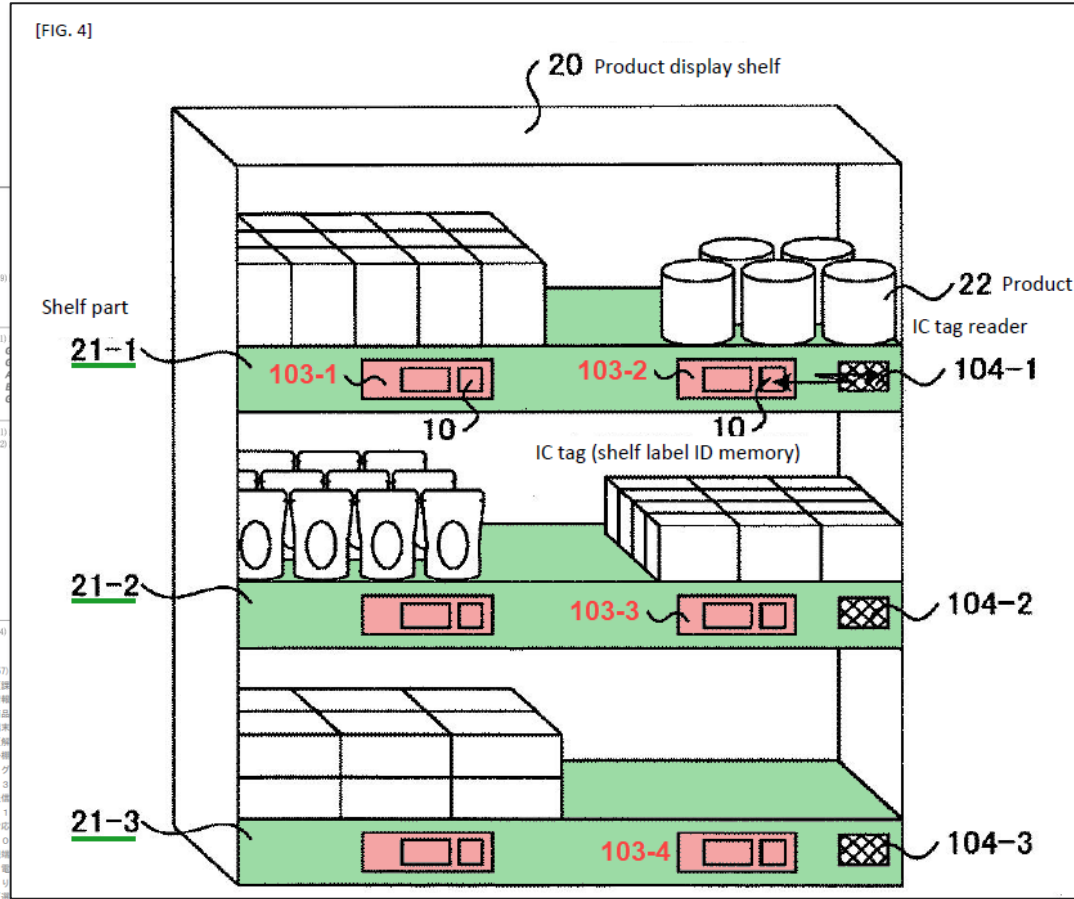
Pet., 20-21

Reply

define the shelf label location information – and a POSITA would understand, based on the disclosures of Figure 4, that the **shelf label ID 311 would supply the horizontal information missing from shelf number 313**. There is no reason to limit Fujiwara’s

Reply, 12

Because Fujiwara Tracks Only Shelf Numbers, Fujiwara Also Does Not Disclose a One-to-One Correspondence



Fujiwara, Fig. 4 (annotated)

Shelf Label ID	Shelf Number
103-1	21-1
103-2	21-1
103-3	21-2
103-4	21-3

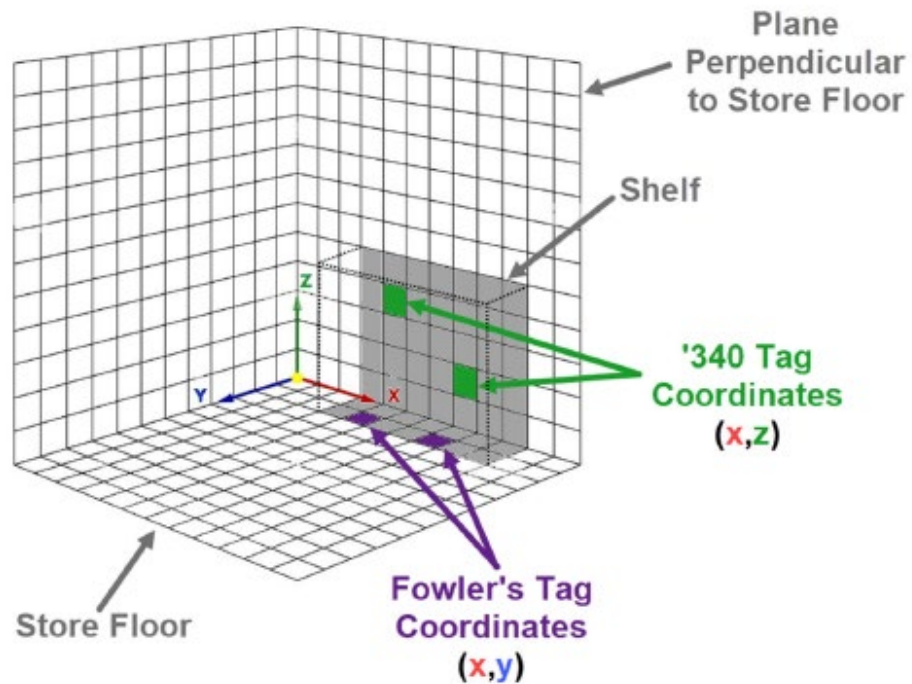
Surati, ¶¶113-14 (annotated)

Grounds 3-4: Petitioners Concede Bandy Does Not Disclose “Locations” With Vertical and Horizontal Positions Either

Therefore, Bandy-Fowler discloses each and every limitation of [1pre] because Bandy alone discloses all of them except for the “vertical and horizontal position” limitation, while Fowler supplements that limitation. Ex. 1009, ¶192. As

Pet., 69

Fowler's x,y Coordinate Is Not In the Recited Plane



POR, 60; Surati, ¶176

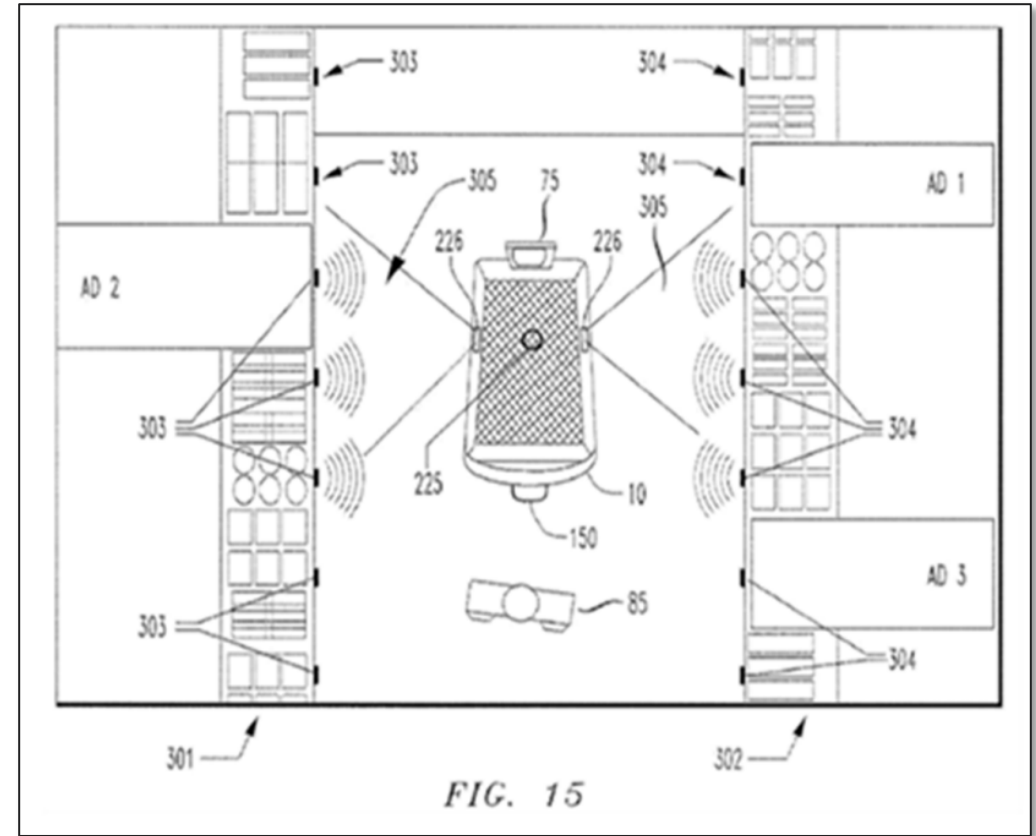
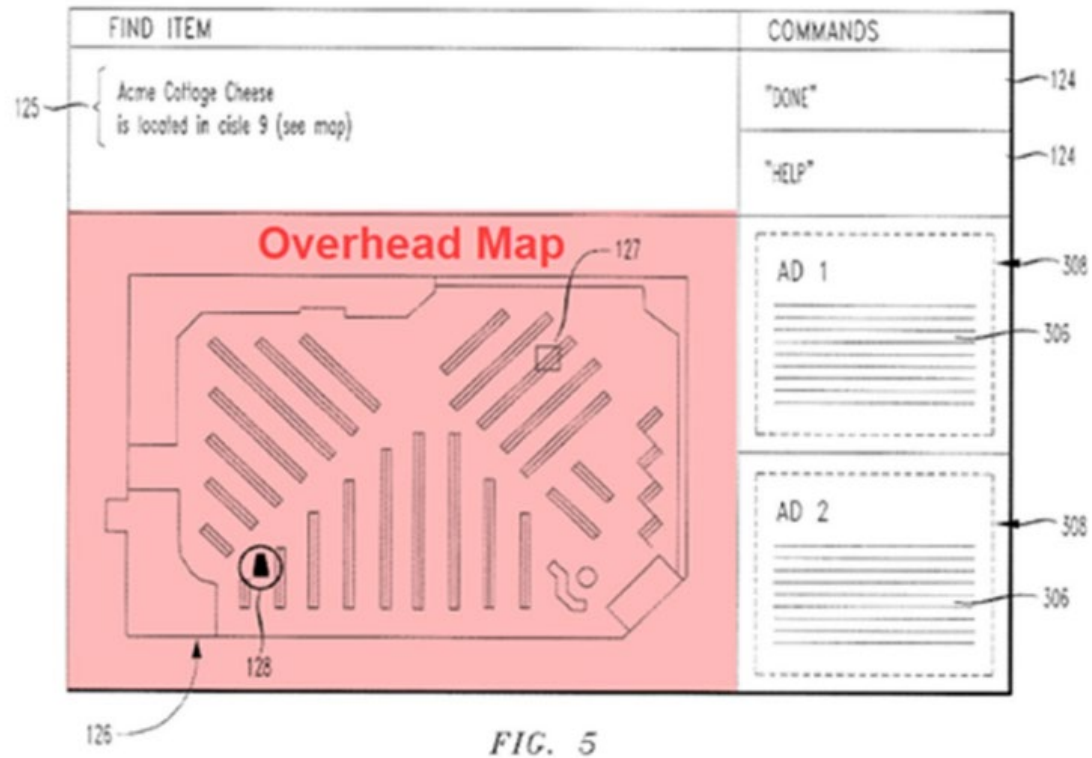
As can be seen, Fowler's top-down map would show a representation of the x,y plane (e.g., store floor), which does not account, and does not need to account, for any vertical information provided by the (z) coordinate. In my opinion, therefore, Fowler does not disclose ever tracking the vertical position of a label in a planogram, as claimed.

Surati, ¶176

POR, 60; Surati, ¶176

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Fowler *Never* Suggests Tracking Vertical Positions in a Planogram



Fowler, Figs. 5 and 15 (annotated)

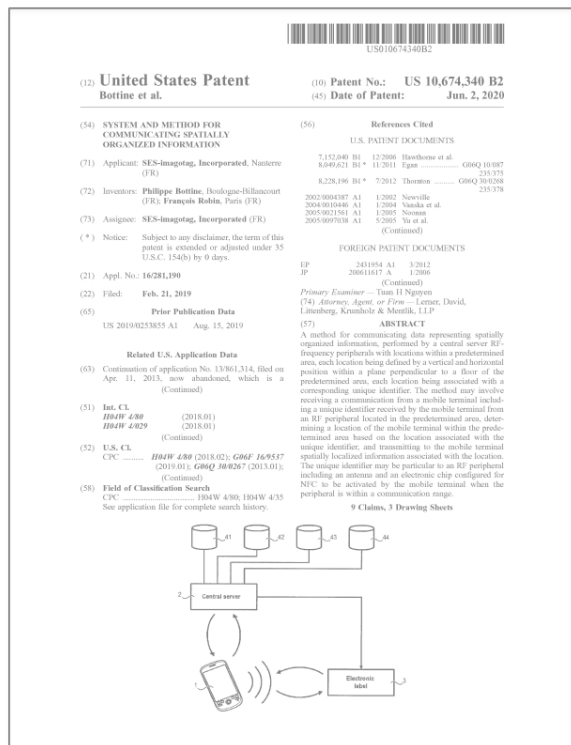
On Reply, Petitioners Limit Their Reliance on Fowler, But that Still Fails to Teach Tracking *Vertical* Positions in a *Planogram*

SES misses the point. The issue is not whether *Fowler* needs a vertical position, it is whether a POSITA would be motivated to modify *Bandy* to incorporate Fowler's disclosures that products and tags can be located on different shelves, counters, and heights (Ex. 1007, [0137], [0145], FIGS. 15, 18), so that the modified planogram will associate tags with locations defined by vertical and horizontal positions. See Paper 2, at 65-67, 87-90. On this point, there is no dispute that Fowler

Reply, 19

“Activate”

The Claims State that the Mobile Terminal *Activates* the Shelf Label by Providing it “Energy”



1. A method for communicating spatially localized information to a mobile terminal, the method being performed by

* * *

peripheral, wherein the radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the

'340 Patent, cl. 1

The Parties Dispute the Proper Construction of “Activated” / “Activating”

Patent Owner’s Position	Petitioners’ Position
“powered/powering”	“to put into action”

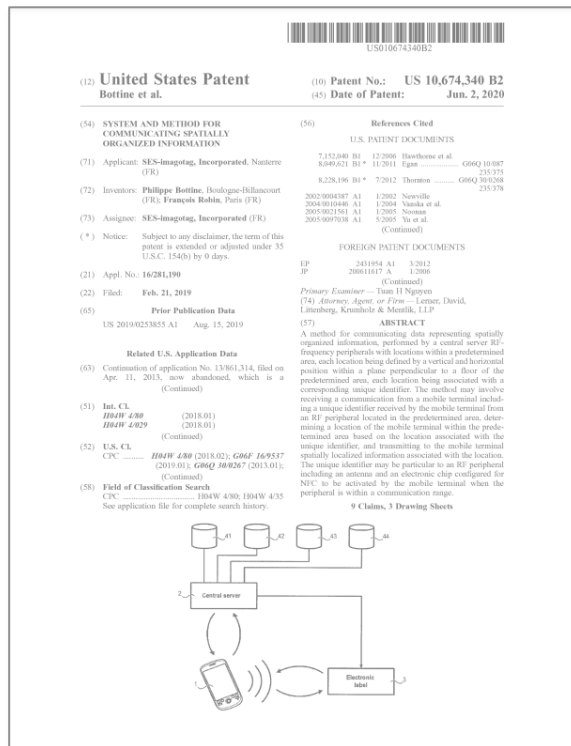
POR, 24-26

Reply, 6-8

Sur-Reply, 6-9

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The Specification Describes Only *Passive* Shelf Labels that Are Powered Wirelessly by the Mobile Terminal



said radio-frequency peripheral is activated by the energy of the electromagnetic waves emitted by the mobile terminal in order to set up communication via radio-frequency between the radio-frequency peripheral of the electronic label and the mobile terminal;

'340 Patent, 2:51-56

The radio-frequency peripheral **36** is then activated by the energy of the electromagnetic waves emitted by the mobile terminal 1 to set up communication via radio-frequency with the radio-frequency peripheral **36** of the electronic label **3**.

'340 Patent, 6:6-9

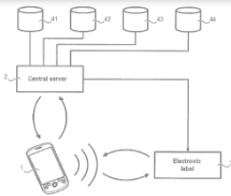
The Standards Referenced in the Specification Are Directed to Passive Systems

This part of **ISO/IEC 14443** describes the electrical characteristics of two types of contactless interface between a proximity card and a proximity coupling device. **The interface includes both power and bi-directional communication.** It is intended to be used in conjunction with other parts of ISO/IEC 14443.

Ex. 2008, v.

A radio-frequency peripheral of NFC type corresponds to the **ISO 14443 protocol**, which is highly secure with encrypting. NFC communication is tending to be become widespread in personal mobile terminals such as mobile telephones and therefore offers the advantage of massive deployment.

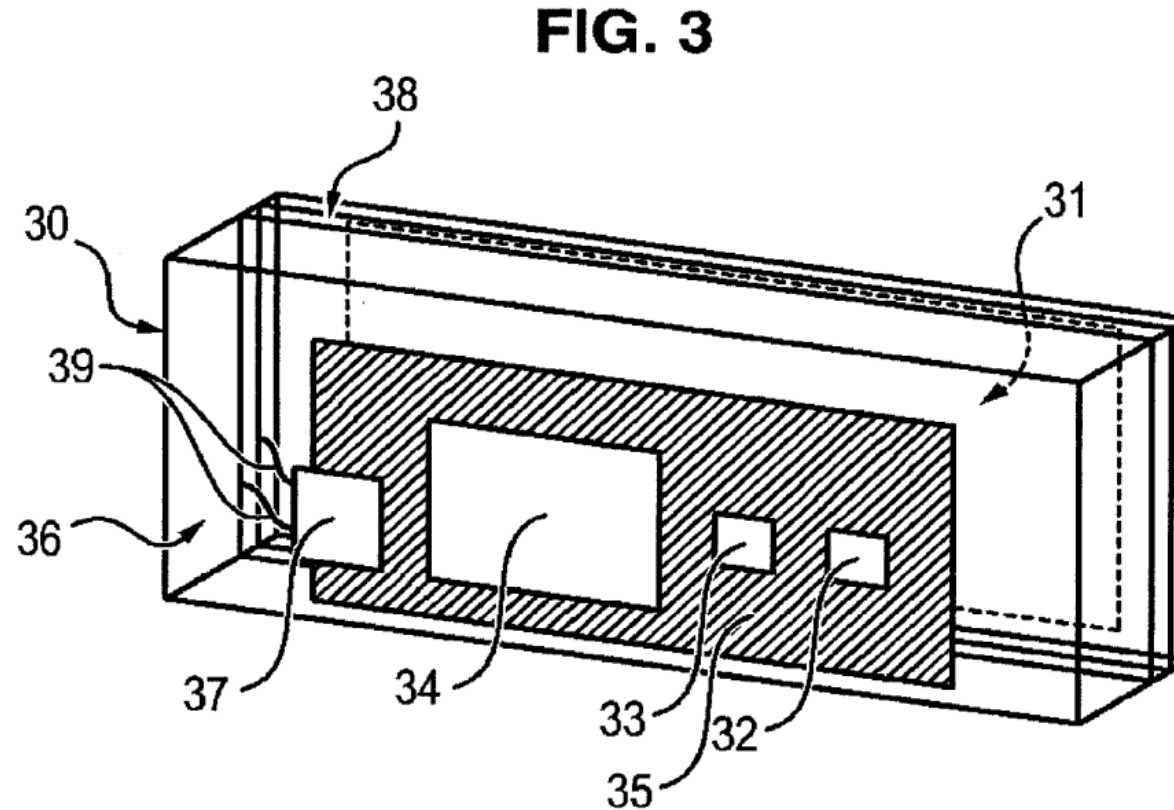
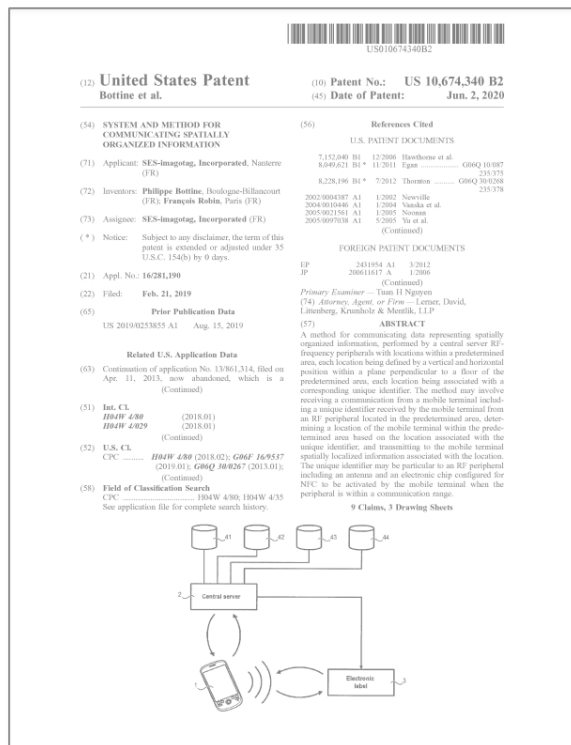
The application thereof to electronic labels **3** does not require a high level of security which means that a **radio-frequency peripheral of RFID HF type (ISO 15693 protocol)** is fully adapted to this use and its low cost makes it attractive.



This part of **ISO/IEC 15693** defines the electrical characteristics of the contactless interface between a vicinity card and a vicinity coupling device. **The interface includes power and bi-directional communications.**

Ex. 2009, v.

'340 Figure 3



'340 Patent, Fig. 3

'340 Patent, Fig. 3

A POSITA Would Have Understood the '340 Patent as Being Limited to Passive-Tag Systems

81. In my opinion, a POSITA would have understood that, in the context of the '340 Patent, the terms “activated” and “activating” means “powered” or “powering,” in that the radio-frequency peripheral is *powered* by the mobile terminal. Specifically, the '340 specification (which is also reflected in the claims)

* * *

communication. See Sections V.C. This understanding is also consistent with the ISO/IEC 14443-2 and ISO/IEC 18092 standards, which specify that the tags are activated by power transfer, in particular through magnetic induction. Ex-2008 at V (“The interface includes both power and bidirectional communication.”) (ISO/IEC 14443-2); Ex-2011 at 30 (“The Target gets power from the operating field generated by the Initiator”) (ISO/IEC 18092).

Surati, ¶81

A POSITA Would Have Understood the '340 Patent as Being Limited to Passive-Tag Systems

82. The petition appears to recognize that the '340 Patent relates to passive tags that are powered and activated wirelessly as well. For instance, the petition states that “NFC tags are activated *passive* RFID tags *powered and activated by electromagnetic waves*,” Petition, 39, and that “NFC communication...employs the claimed *electromagnetic wave activation*,” *id.*, 54. The Petition also references some of the same ISO/IEC standards which I refer to above. *Id.*, 71, 90 (referencing ISO 14443).

Surati, ¶81

Petitioners Conflate Broad Communication Technology *Types* with Specific *Operation Modes*

Types

Modes

Here, there is clear indication in the intrinsic record to the contrary. *See* Ex. 1001, 4:50-53 (disclosing that the RF peripheral could be NFC-type or RFID-type, without limiting it to be passive); *see also* Ex. 1032, ¶14. As shown by SES's own expert and exhibit, NFC and RFID tags can be active (with internal power source) or passive (without internal power source). Ex. 2001, ¶57; Ex. 2010, at 4; *see also* Ex. 1032, ¶15.

Reply, 6

Petitioners' Foreign Entity Argued the European Counterpart of the '340 Patent Was Limited to Passive Tags

In the name and on behalf of

Hanshow Germany GmbH

Ria-Thiele-Straße 2a, 40549

Duesseldorf, Germany

(hereinafter the "Opponent")

Based on this technical knowledge on the priority date, the skilled person understands that the original disclosure relates to an electronic tag with a radio frequency peripheral device which communicates in passive mode and cannot establish communication itself because it has no power supply from the radio frequency peripheral device and is therefore dependent on the mobile terminal device to establish communication and activate it energetically. This is particularly clear from the original claim 3 (parent application) and claim 6 (application in dispute/divisional application):

Ex. 2025, 25-26

The Prosecution History Does Not Suggest Active Tags Were Envisioned

Prosecution History

Consider claim 1, Rasband teaches a method for communicating spatially localized information to a mobile terminal (12a), the method being performed by a

* * *

communication (fig. 1, page 2 [0023]), and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal (fig. 1, page 3 [0031]); and transmitting to the mobile

Ex. 1002, 42

Rasband

[0031] Moreover, tag 14 may be an active, passive, semi-active tag, among other types of tags. For example, an active

Ex. 1011, ¶31

The prosecution history also shows that the patentee did not intend to limit this term. The examiner once mapped this term to the disclosures of FIG. 1 and paragraph [0031] of prior art Rasband (Ex. 1011). Ex. 1002, at 42. FIG. 1 of Rasband generally shows communications between tags and mobile devices, and [0031] discloses that tag 14 may be an active tag that use batteries to power its circuitry throughout the tag interrogation process. Ex. 1011, [0031].

Reply, 7

Petitioners' Claim Differentiation Argument Fails: the Mobile Terminal Must Both Provide Energy and Set Up Communication

Further, if adopted, SES's position would render claim 2 superfluous. If "activated"/"activating" requires powering a passive NFC tag, then the claim language "energy of electromagnetic waves emitted by the mobile terminal activating the radio-frequency communication peripheral" (8:33-35) becomes surplusage because there is no other way of "activating" under SES's proposed construction, and claim 2 collapses into a reiteration of claim 1. SES's proposal

Reply, 8

2. The method according to claim 1, further comprising: when the mobile terminal is positioned relative to the radio-frequency communication peripheral within the communication range, energy of electromagnetic waves emitted by the mobile terminal activating the radio-frequency communication peripheral, thereby setting-up a radio-frequency communication between the mobile terminal and the radio-frequency peripheral, wherein the communication range is a range of the electromagnetic waves emitted by the mobile terminal.



'340 Patent, Cl. 2

Petitioners' Unsupported Arguments Fail to Meet Their Burden

Further, a POSITA would find it obvious, based on the POSITA's background knowledge or on Arntzen's disclosures⁴, to implement Fujiwara's IC tags with passive NFC tags. Paper 2, at 27-29, 54-56. SES admits that a passive NFC tag will

Reply, 14



VSR Indus., Inc. v. Cole Kepro Int'l, LLC, IPR2015-00182, Paper 33, 22 (Apr. 28, 2016)

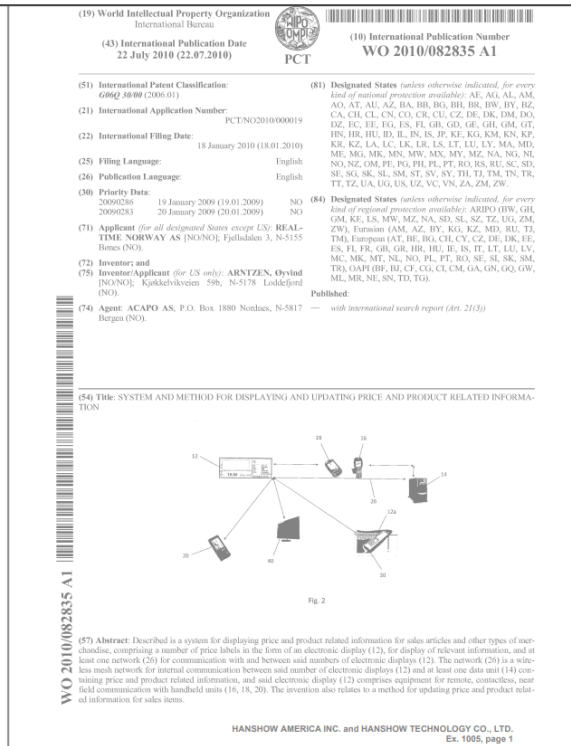
"Petitioner does not cite any evidence in the record to support this attorney argument.... [Thus,] Petitioner has not shown by a preponderance of the evidence that [the claim] would have been obvious in view of the disclosure of [the prior art]."

Reply, 14; Sur-Reply, 11

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Petitioners Fail to Demonstrate that Arntzen Limits the “Active” Elements to the “Display,” with a Passive NFC Component

least one network (26) for communication with and between said numbers of electronic displays (12). The network (26) is a wireless mesh network for internal communication between said number of electronic displays (12) and at least one data unit (14) containing price and product related information, and said electronic display (12) comprises equipment for remote, contactless, near field communication with handheld units (16, 18, 20). The invention also relates to a method for updating price and product related information for sales items.



Arntzen, Abstract

Said object is achieved with a system as described in the independent claim 1, in that the network is a wireless mesh network for internal communication between the number of electronic displays and at least one data unit containing price and product related information, and said electronic display comprises equipment for remote, contactless, near field communication with handheld units.

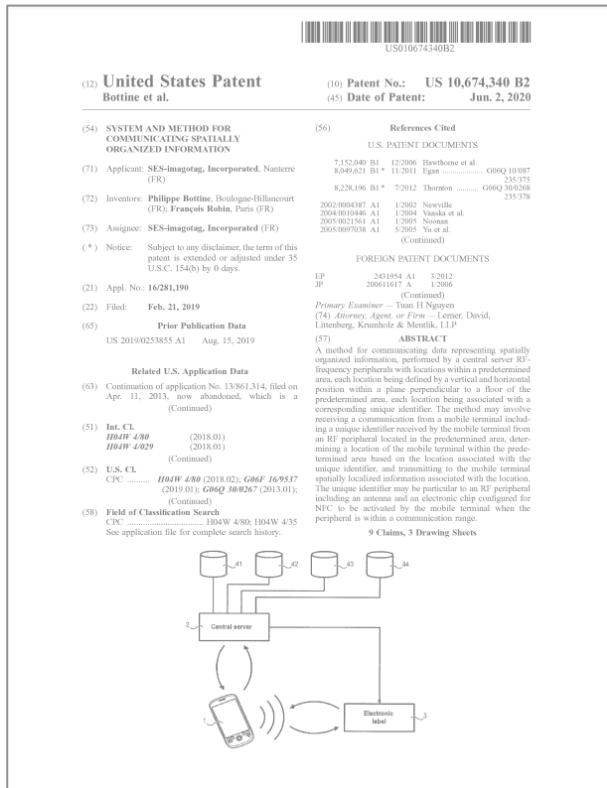
Arntzen, 8:20-26

The electronic display can be a battery free unit and be connected to a current conducting fastening rail. The

Arntzen, 9:17-18

A POSITA Would Not Modify
Fujiwara or Bandy to Use NFC
(All Claims, All Grounds)

The Independent Claims Require Passive NFC Antenna and Chip



receiving a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral, wherein the radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, and a plurality of radio-frequency peripherals are distributed throughout the predetermined area, with

'340 Patent, cl. 5

'340 Patent, cl. 1

a plurality of radio-frequency peripherals distributed throughout the predetermined area, wherein each radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters,

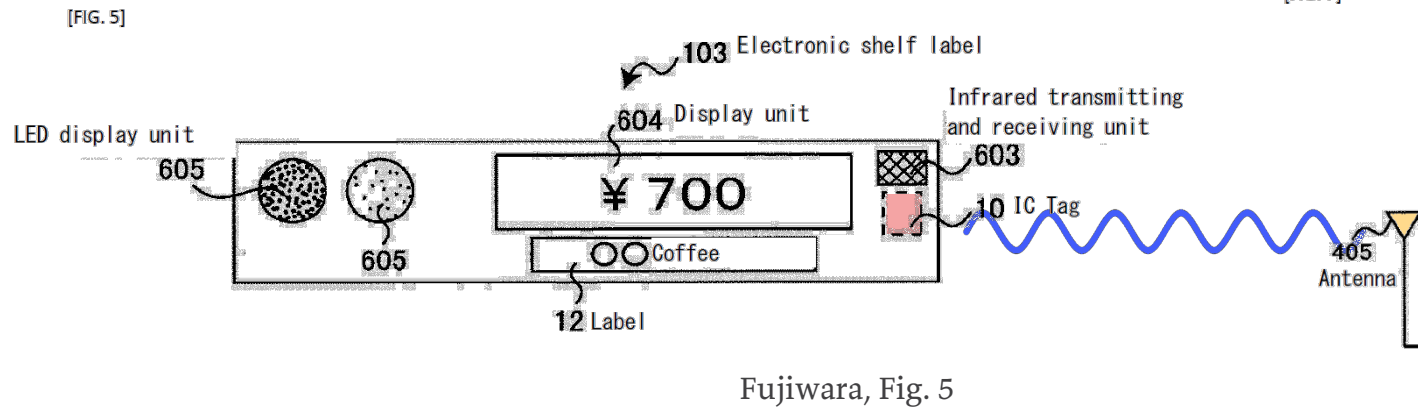
Fujiwara's Tags Use Active Microwave Communication

JP 2008-17121 A 2008.4.2					
日本郵政特許(特)		公開特許公報(英)		特許出願登録公開番号 特開2008-77121 (2008-77)B4	
				出願公開日 平成20年4月9日(2008.4.9)	
発明の名称	G06G 30/00 (2006.07)	F 1	G06F 11/00	E 1 H	ネットワーク (導管) E 1 H 1 B

[0076]

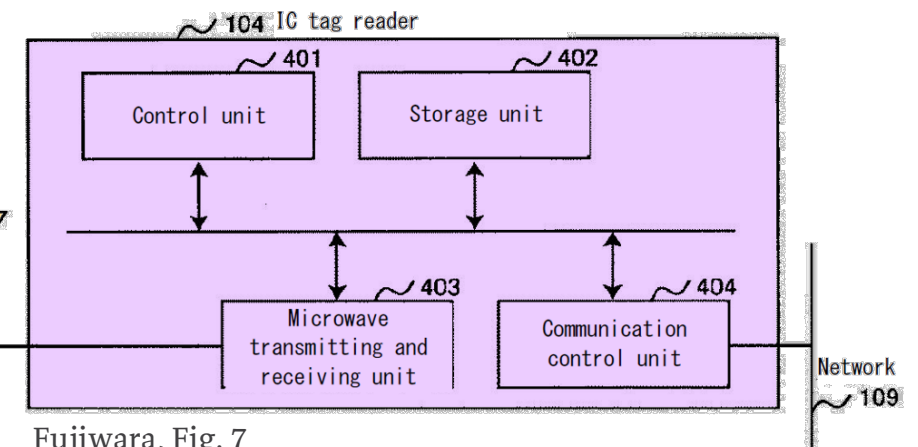
The microwave transmitting and receiving unit 403 is a wireless communication interface that mediates communication between the IC tag reader 104 and the IC tag 10 via an antenna 405, and receives information stored in the memory of the IC tag 10.

Fujiwara, ¶76



Fujiwara, Fig. 5

[FIG. 7]



Fujiwara, Fig. 7

Pet., 47; POR, 10, 41-42

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Bandy's Tags Use UHF RFID Communication

[0077] In the present embodiment, die 1604 is an integrated circuit that performs RFID operations, such as communicating with one or more tag readers (not shown) according to various interrogation protocols. Exemplary interrogation protocols are described in U.S. Pat. No. 6,002,344 issued Dec. 14, 1999 to Bandy et al. entitled System and Method for Electronic Inventory, and U.S. patent application Ser. No. 10/072,885, filed on Feb. 12, 2002, both of which are incorporated by reference herein in their entirety. Example protocols include Class 0, Class 1, EPC Gen 2, and further protocols. Die 1604 includes a plurality of contact pads that each provide an electrical connection with related electronics 1606.

Bandy, ¶77

In a preferred embodiment, the instructions are transmitted by tag reader 104 using a phase-modulated RF signal using a several hundred kilohertz baud rate and a 900 megahertz carrier frequency. The instructions are sent by the

Ex. 2013, 4:48-51

be motivated and able to use the NFC standards.” Petition, 71. But Bandy discloses as examples “binary protocols, slotted aloha protocols, and those required by the following standards: Class 0, Class 1, and Gen 2.” Ex-1006, [0055]. None of these protocols are related to NFC. Rather they are all RFID protocols. Bandy further

Surati, ¶186

Modulator 320 transmits the data provided by counter/shift register 312 to tag reader 104 via antenna 302 using amplitude-modulated (AM) RF back scatter signals. In a preferred embodiment a several hundred kilohertz baud rate is used with a 900 megahertz carrier frequency. Because the tag system clock is derived from the signal provided by the tag reader, the data sent by the tag to the reader is clock-synchronized with the reader.

Ex. 2013, 5:36-43

Near-field (NFC) and Microwave Communications Are Fundamentally Different Technologies

NFC

Ex. 2011

INTERNATIONAL
STANDARD

ISO/IEC
14443-2

Ex. 2008

INTERNATIONAL
STANDARD

ISO/IEC
18090-2

Short Range (~20 cm)

Magnetic Coupling

Interference with Metal or Liquids

“Coil,” Coplanar Antennas

Omnidirectional

SES-2009
Hanshow Am. Inc. v. SES-Imagotag Inc.
IPR2024-00189

Surati, ¶¶63-67, 81, 187; Ex. 2006, R102-R105; Ex. 2008; Ex. 2011;
Ex. 2024, 33:15-34:14

Microwave/ UHF

JFS R: Concise Reviews and Hypotheses in Food Science

Overview of RFID Technology and Its
Applications in the Food Industry

R. KIM, H.M. BUNTS, J. SUTHERLAND, K.R. SUTHERLAND, AND R.D. FRAYN

ABSTRACT: Radio frequency identification (RFID) is an alternative technology with a potential to replace tradi-

Longer Range (~10 m)

Radiative Coupling and Backscatter (Far-field)

Less Interference

Dipole/Serpentine Antenna

Omni or Unidirectional

Hanshow Am. Inc. v. SES-Imagotag Inc.
IPR2024-00189

Surati, ¶¶55-62, 127, 188; Ex. 2006, R102-R105

On Reply Petitioners Argue That Fujiwara Reads “One” Label

SES’s expert argues that Fujiwara requires its readers to operate at a range larger than 20cm so as to read multiple labels. Ex. 2001, ¶¶139-141, 151-152. This argument is wrong for two reasons. First, Fujiwara discloses reading IC tags from “one or more electronic shelf labels” (Ex. 1003, [0066], [0090]) -- including just “one” label. Second, nothing in Fujiwara restricts the placement of the on-shelf tag reader 104 (or the mobile reader 107) to one end of the shelf, so Fujiwara is compatible with an 80-cm shelf having two tags placed at 20- and 60-cm positions and a reader at 40-cm position. SES’s imagined scenario that “Fujiwara’s labels would need to be spaced extremely close together” (Ex. 2001, ¶142) with a 20cm range is simply wrong.

Reply, 16

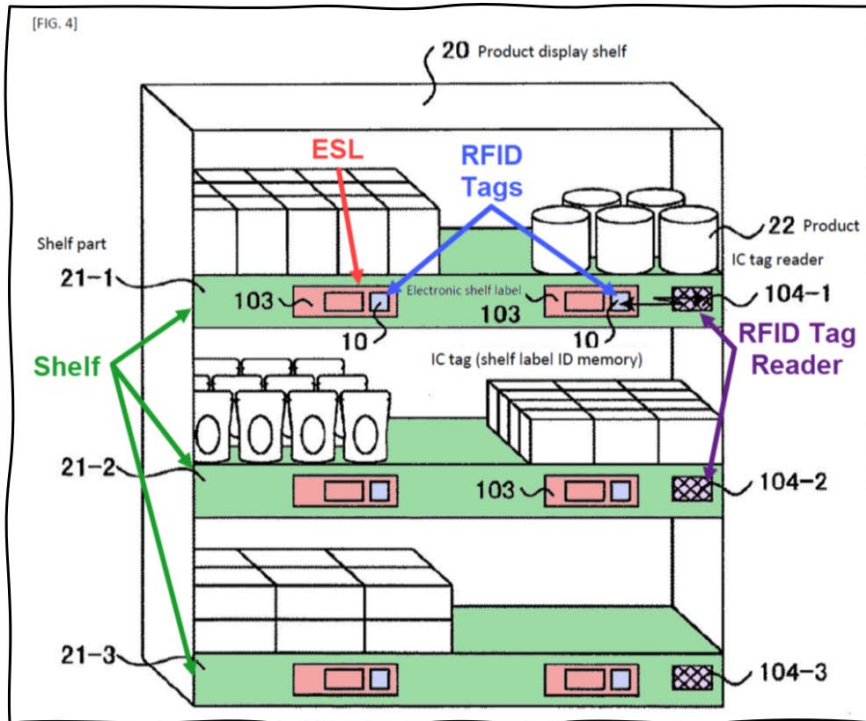
Reply, 15-17

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

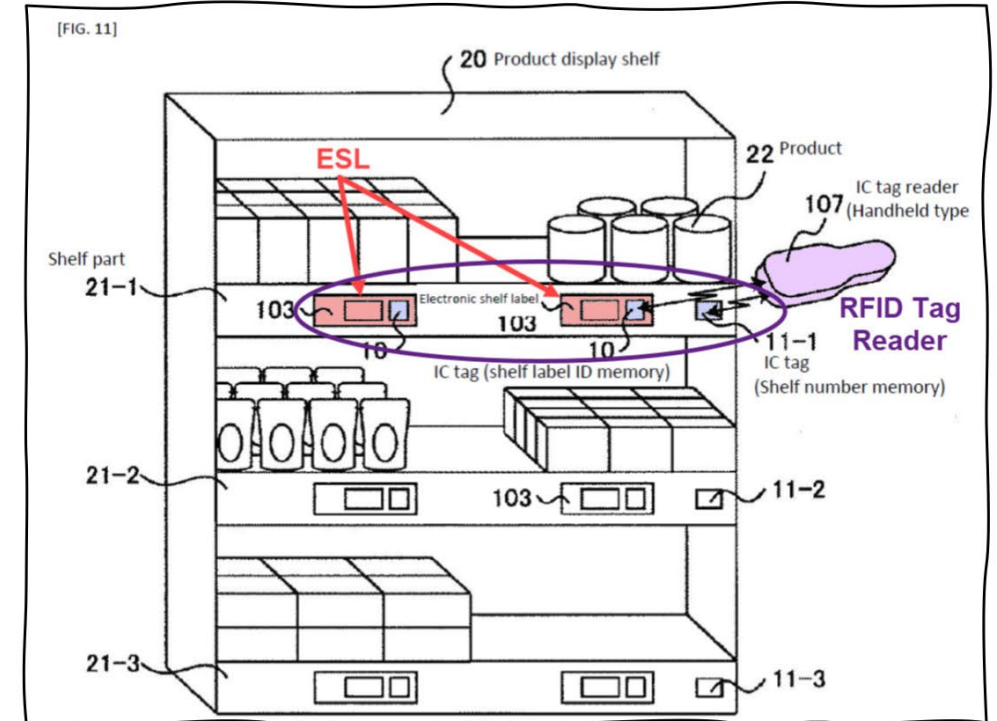
Fujiwara's Reader Must Read More than One Shelf Label

The IC tag readers 104-1, 104-2, ... are provided in a state where the shelf label ID stored in the IC tag 10 integrated in one or more electronic shelf labels 103 on the same shelf part 21 on the front side of the shelf can be read collectively without contact at each shelf part 21-1, 21-2, ... of the product display shelf 20.

Fujiwara, ¶66



Fujiwara, Fig. 4 (annotated)



Fujiwara, Fig. 11 (annotated)

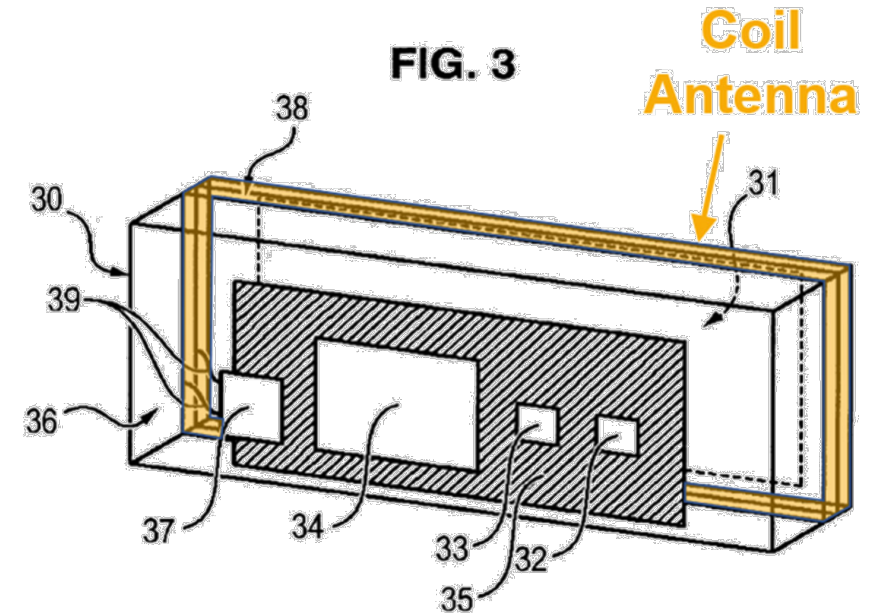
The hand-held type IC tag reader 107 reads the IC tags 10 (shelf label ID 311 memory) of one or more electronic shelf labels 103 of each shelf part 21 of the product display shelf 20 and the IC tag 11 (shelf number 313 memory).

Fujiwara, ¶90

Coil Antennas Are Required for NFC

antennas are not compatible with NFC. As explained in Section V.C.2., NFC uses magnetic induction to communicate with and power the tag. A POSITA would have known that such a configuration requires a coil antenna with sufficient turns to receive the magnetic field. *Id.*; Ex-1001, Fig. 4, 5:38-44. I have annotated '340 Patent's Figure 3, below, highlighting the disclosed coil antenna.

Surati, ¶187



'340 Patent, Fig. 3 (annotated)

Petitioners' Expert Agrees Coils Are Required for NFC

Q. Okay. And for NFCs that use magnetic inductive coupling, they use coiled antennas to create the magnetic field; correct?

A. They use a combination of components. So typically, NFC systems, I would consider this to be a subsystem of the RFID technologies. So mostly they utilize an antenna, which is the coil for the magnetic field. They utilize IC, Integrated Circuit, that's what

* * *

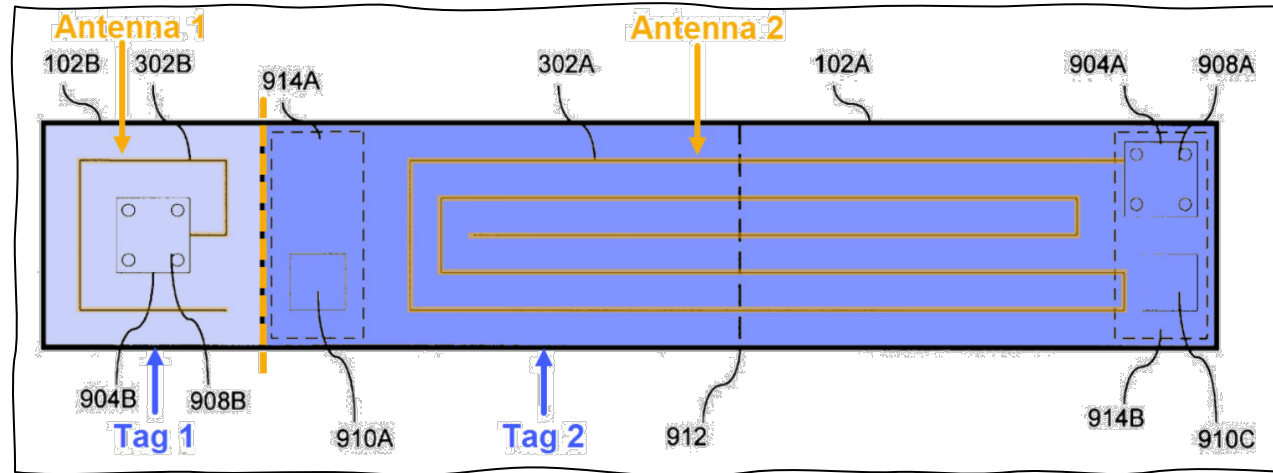
But eventually, I would say the answer to your question is, a coiled antenna and IC or a microchip are the fundamental elements of this type of device.

Ex. 2024, Tentzeris Deposition, 11:12-12:14

Reply, 23; Sur-reply, 21-22; Ex. 2024, Tentzeris Deposition, 11:12-12:14; Ex. 1032, Tentzeris Reply Decl., ¶20

IPR2024-00189 DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Bandy's Antennas Are Not Coils and are Incompatible with NFC



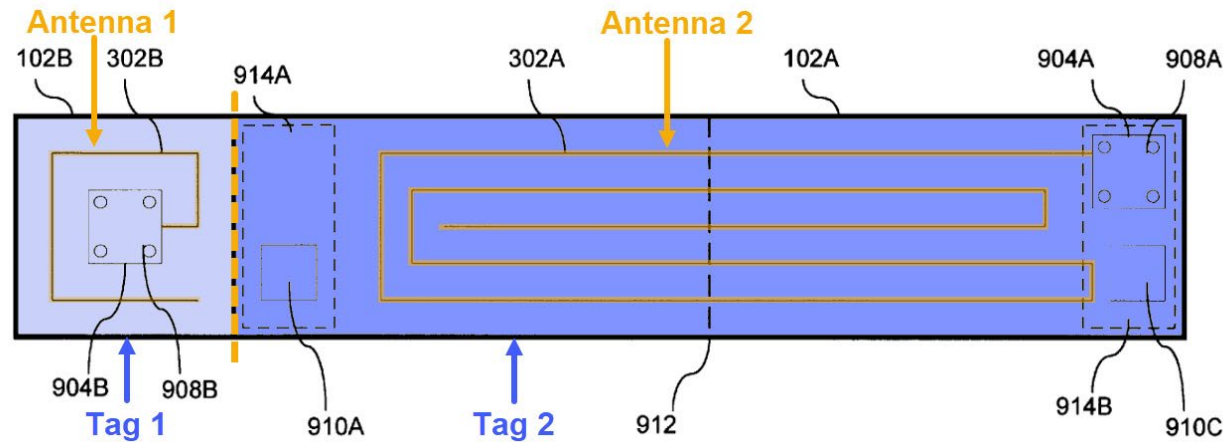
Ex. 2013, Fig. 9 (annotated)

188. I have annotated Figure 9 of Bandy '344 below, showing the antennas in Bandy's RFID tag are configured for receiving radiated energy. Antenna #1 has incomplete turns and antenna #2 is a serpentine shape, thus both are not coils. Thus, unlike the '340 Patent's coil antenna, Bandy's antenna would not effectively receive magnetically coupled energy. In my opinion, a POSITA would not have been

Surati, ¶188

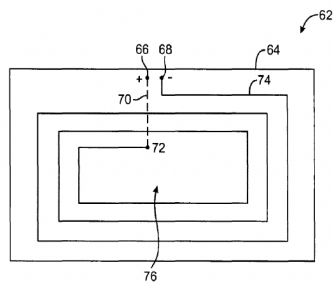
Bandy's Antennas Are Not "Similar" to Coils

Incomplete/
Serpentine

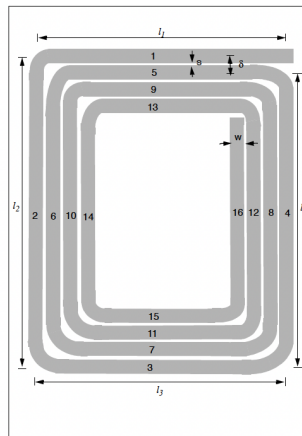


Ex. 2013, Fig. 9 (annotated)

Coils

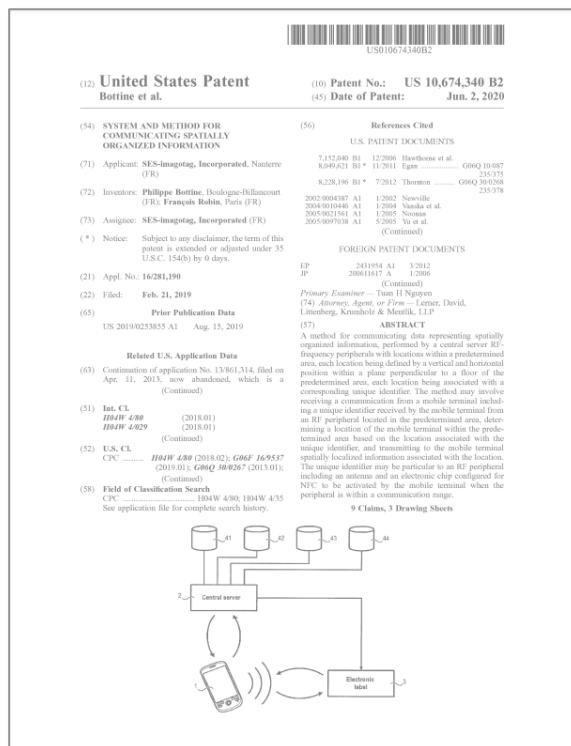


Ex. 1022, FIG. 3



Fujiwara, Alone or in Combination,
Fails to Teach Claims 6 and 7

The Claims Require a “Radio-Frequency” Communication Module to Communicate With a Central Server



6. The system according to claim 5, wherein at least one radio-frequency peripheral is an electronic label which comprises:

a radio-frequency communication module configured to receive data representing information relating to an item from a central server;

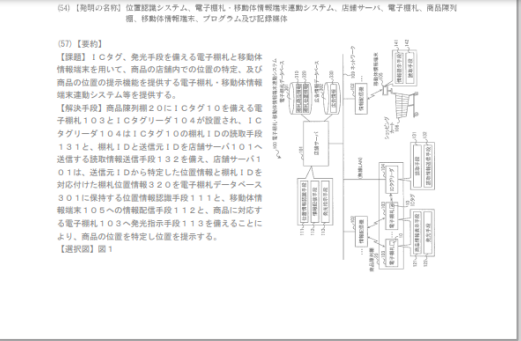
7. The system according to claim 6, wherein the mobile terminal is adapted to transmit data to the electronic label via the radio-frequency communication module of said electronic label.

'340 Patent, Claims 6, 7

Fujiwara Discloses an Infrared Communication Module to Provide Long-Distance Communication to a “Distributing Device”



[0067]
FIG. 5 is an appearance diagram of the electronic shelf label 103.
As depicted in FIG. 5, the electronic shelf label 103 has a wireless transmitting and receiving unit (infrared transmitting and receiving unit) 603, a display unit 604, one or more LED display units 605, a label 11, and the like, on the surface, and an IC tag 10 is provided inside the electronic shelf label 103.



Fujiwara, ¶67

Petitioners Abandoned the Petition's Motivations of Replacing Infrared to "Harmonize" Communication Technologies

Petition

wording of "for example" (Ex. 1003, [0067]). Ex. 1009, ¶134. Thus, a POSITA, familiar with the well-known and conventional radio frequency communication, and in particular with the widespread use of low-cost RFIDs in electronic shelf labels, would find it obvious to substitute infrared communication with well-known and conventional radio frequency communication, thus simplifying the design of the electronic shelf label by utilizing mature and conventional component, and saving costs. *Id.* This would also harmonize the internal design of two different components (wireless transmitting and receiving unit 603 and IC tag 10) of Fujiwara's electronic shelf label 103 by employing one single communication method for both, instead of two methods, and thus allow a POSITA to reuse hardware and software solutions for both, simplifying the design, reducing the cost, and facilitating maintenance. *Id.*

Pet., 45-46

Reply

ground 2. Petitioner did not. Instead, the proposed modification was to replace infrared with RF communication (which includes more than NFC or Zigbee) in both grounds. Paper 2, at 46, 55. SES's strawman argument thus fails.

Reply, 18

A POSITA Would Not Have Combined
Bandy and Fowler

Bandy's and Fowler's Systems Are Fundamentally Incompatible

Bandy

associated with an item of interest. *Id.*, [0034]. In particular, Bandy describes using a mobile communications device such as a cell phone, laptop computer, or handheld computing device to “enhance[] access to items for a user.” *Id.*, [0036]. The purpose

* * *

Thus, Bandy discloses using RFID technology in a reader operated by the user to gain information about specifically scanned products, but fails to disclose anything related to the location of the reader.

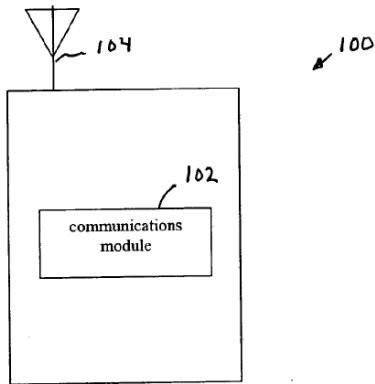


FIG. 1

Bandy, Fig. 1

Surati, ¶¶194

Fowler

195. Fowler, to the contrary, uses RFID technology in an entirely different way. Fowler does not use a hand-operated reader that the user can move around freely. *Id.* Instead, Fowler discloses a shopping cart that is provided with a number of RFID antennas. Ex-1007, [0136]. The reader itself may be kept in the housing of

Id., [0004]. Thus, Fowler discloses using RFID technology in a way that is invisible to the user, to locate the cart within the store.

Surati, ¶¶ 195-96

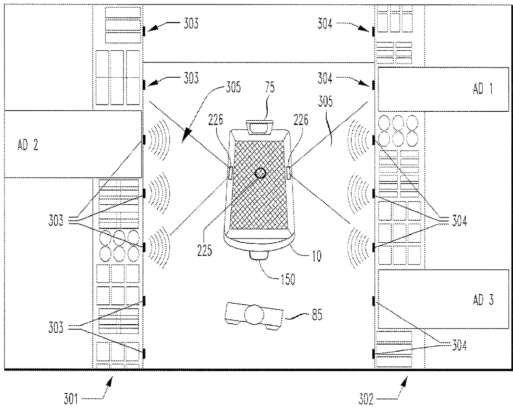


FIG. 15

Fowler, Fig. 15

POR, 70-73; Surati, ¶¶ 193-202

Bandy's and Fowler's Systems Are Fundamentally Incompatible

Bandy

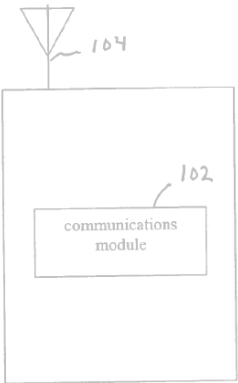
associated with an item of interest. *Id.*, [0034]. In particular, Bandy describes using a mobile communications device such as a cell phone, laptop computer, or handheld

computing device to “enhance the user’s experience by providing a user with a

Thus, Bandy discloses using a mobile communications device to gain information about spatial

related to the location of the item of interest.

197. In my opinion, Petitioners do not provide any adequate explanation for why a POSITA would be motivated to take the user-driven, location-agnostic system of Bandy and combine it with the user-passive, location-based system of Fowler.



Bandy, Fig. 1

Surati, ¶194

Fowler

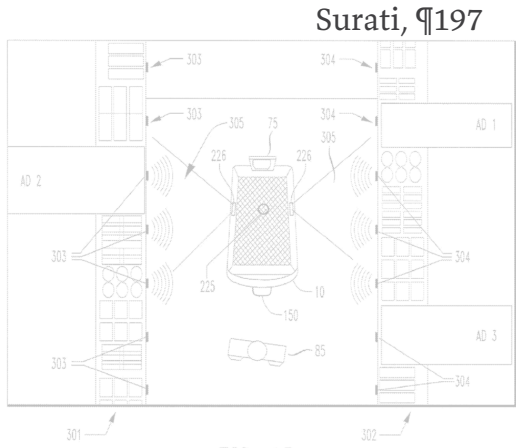
195. Fowler, to the contrary, uses RFID technology in an entirely different way. Fowler does not use a hand-operated reader that the user can move around

freely. *Id.* Instead, Fowler discloses a shopping cart that is provided with a number

of antennas in the housing of

way that is invisible

Surati, ¶¶ 195-96



Fowler, Fig. 15

POR, 70-73; Surati, ¶¶ 193-202

Fowler Provides No Additional Benefit to Bandy's Operation

store of the merchant. In a further embodiment, the user can interact with the mobile communications device to download additional information about selected items of the merchant. In a still further embodiment, the user can utilize the mobile communications device to interrogate a tag associated with an item of interest to identify the item, and to use the identification information to download further information about the item.

Bandy, ¶34

197. In my opinion, Petitioners do not provide any adequate explanation for why a POSITA would be motivated to take the user-driven, location-agnostic system of Bandy and combine it with the user-passive, location-based system of Fowler.

Petitioners suggest that the combination would “make it easier for the customer to find products.” Petition, 88. But Bandy discloses a system where the customer has already found the product and scanned it with the reader. Ex-1006, [0034] (“[T]he

* * *

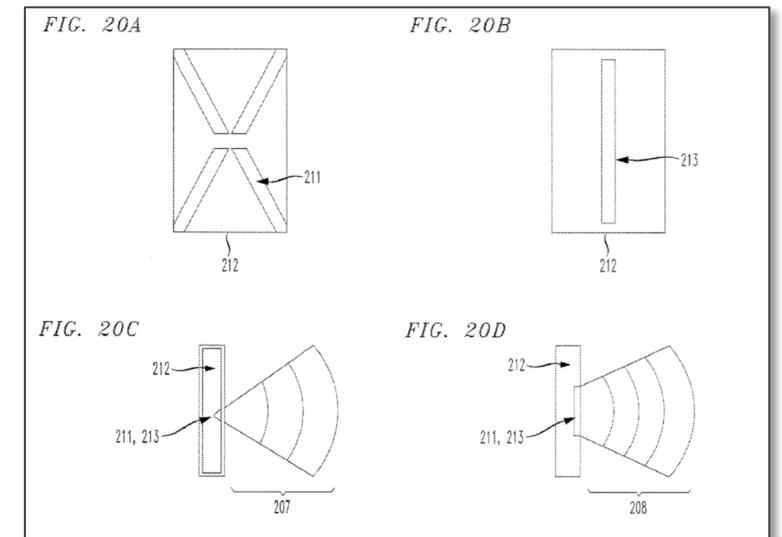
to download further information about the item.”), Fig. 8. Petitioners do not explain how this would enhance Fowler in any way, and therefore a POSITA would fail to see the benefit(s) Petitioners attribute to Fowler.

Surati, ¶197

Petitioners Failed to Explain How Bandy and Fowler Can Be Combined

Combination Scenarios	Problems
Steering Fowler's cart towards specific products to get information on those products.	A POSITA would have considered this a worse solution than simply holding a handheld reader up to a product.
Incorporating Fowler's location system into a handheld device.	Petitioners provide no explanation of how that would be accomplished, given Fowler's extensive and explicit use of multiple of specially designed antennas with a particular beam shape and size (Figs. 20A-20D) to properly scan RFID tags without user involvement.

Surati, ¶198



Fowler, Figs. 20A-20D

Petitioners Failed to Show How the Purported Bandy-Fowler Combination Meets Claim Limitations

receiving a communication from a mobile terminal, the communication comprising a unique identifier received by the mobile terminal from a radio-frequency peripheral located in the predetermined area, the unique identifier being particular to the radio-frequency peripheral, wherein the radio-frequency peripheral includes an antenna and an electronic chip configured for near-field communication, and is configured to be activated by the mobile terminal when the radio-frequency communication peripheral is within a communication range of the mobile terminal, wherein the communication range is less than twenty centimeters;

'340 Patent, claim 1 (limitation 1[a])

Petitioners further fail to show how the purported Bandy-Fowler combination meets the limitations of the claims. Ex-2001, ¶199. Instead, Petitioners assert various portions of limitations are met by Bandy or Fowler alone. *Id.* For example, for [1a], Petitioners first assert that Bandy meets a portion of the limitation. Petition, 70-72. Petitioners then assert that Fowler meets some other portion of the limitation. *Id.*, 72-73. Then Petitioners take an improper logical leap by concluding “Bandy-Fowler discloses each and every limitation of [1a]....” *Id.*, 73; Ex-2001, ¶199. But Petitioners never described what the “Bandy-Fowler” combination is. Ex-2001, ¶199.

POR, 73

The Board Should Exclude
Petitioners' Untimely and Non-Compliant Evidence

Exhibits 1013 Through 1021 Are Untimely and Prejudicial



Q. So why did you not include Exhibits 1013 through 1021?

A. Because for my reply declaration, I thought additional exhibits would provide much more complete and even more clarified view addressing some of the topics listed in the declaration of Dr. Surati. I don't think any of these additional references change anything about my opinion listed in 10,000. I just -- additional references. And actually, even without these references, I would have come to the same conclusion. They did not change

Ex. 2028, Tentzeris Deposition, 73:3-12

Q. Was it a machine translation?

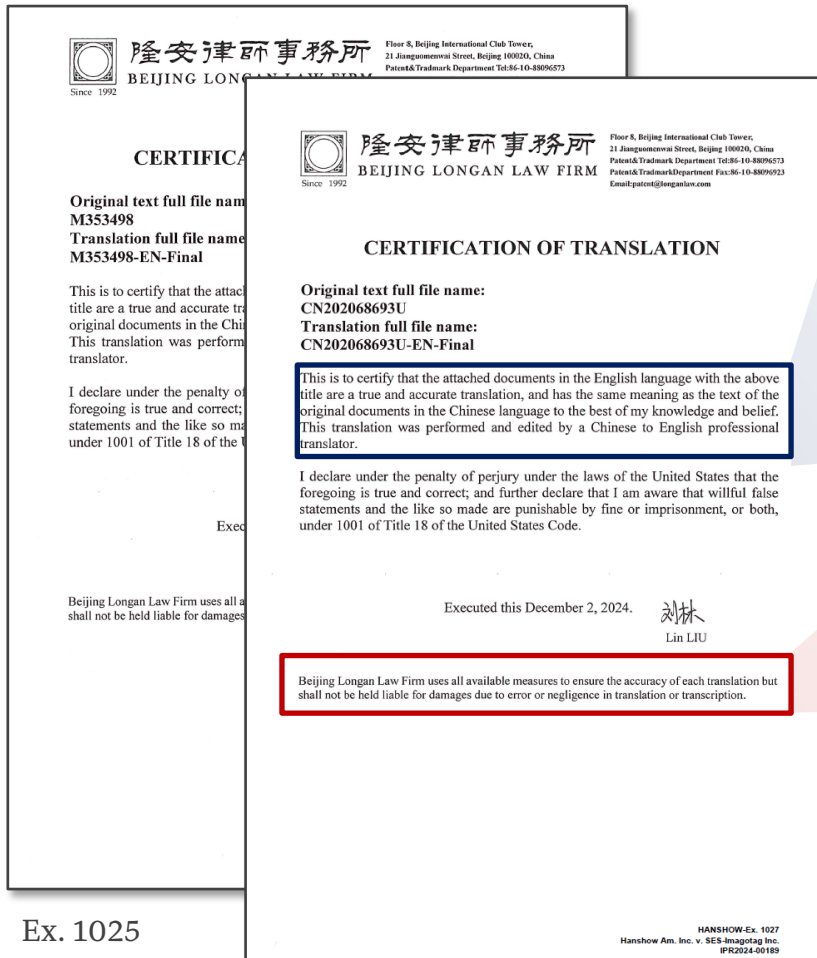
A. I -- I cannot give you any information about this. The only thing I can tell you was an unofficial translation covering the -- the patent -- this Japanese patent. Japanese patent 2007-155383A. That's all I can tell you.

Q. Do you still have a copy of that?

A. No, I don't. I just have the official exhibit.

Ex. 2028, Tentzeris Deposition, 79:15-21

Exhibits 1024 Through 1027 Do Not Comply With the Rules



Ex. 1025

Ex. 1027

This is to certify that the attached documents in the English language with the above title are a true and accurate translation, and has the same meaning as the text of the original documents in the Chinese language to the best of my knowledge and belief. This translation was performed and edited by a Chinese to English professional translator.

Beijing Longan Law Firm uses all available measures to ensure the accuracy of each translation but shall not be held liable for damages due to error or negligence in translation or transcription.