

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HANSHOW AMERICA INC. and HANSHOW TECHNOLOGY CO., LTD.,

Petitioners

v.

SES-IMAGOTAG GMBH

Patent Owner

Case IPR: IPR2024-00188

U.S. Patent No. 11,405,669

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,405,669**

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LIST OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 11,405,669
1002	Prosecution history of U.S. Patent No. 11,405,669
1003	Declaration of Dr. Manos M. Tentzeris
1004	US 2016/0134930 A1 by Swafford (“Swafford”)
1005	US 2017/0134690 A1 by Masumoto (“Masumoto”)
1006	US 2017/0171577A1 by Kipp (“Kipp”)
1007	JP2011-76222A by Takashi (“Takashi”)
1008	Certified translation of JP2011-76222A by Takashi (“Takashi”)
1009	WO 2008/073829 A2 by Clontz (“Clontz”)
1010	US 2018/0035018 A1 by Yamada (“Yamada”)
1011	<i>curriculum vitae</i> of Dr. Manos M. Tentzeris

LISTING OF CHALLENGED CLAIMS

Claim Element	Text
[1.0]	“A video playback system (1), comprising”
[1.1]	“a number of playback devices (6A, 6B) to playback a video on their screens (5),”
[1.2]	“each playback device (6A, 6B) comprises a memory to store video data (9) representing said video,”
[1.3]	“and a communication stage to communicate data with each other, wherein the devices (6A, 6B) are designed: to transmit video playback progress-data via the communication stage to the other device (6B, 6A); and, to determine based on the received progress data whether it is in a synchronous or asynchronous playback progress with the other devices (6B, 6A);”
[1.4]	“wherein the display devices (6A, 6B) are designed to display product information or product price related information by means of virtual electronic shelf labels displayed within a section of a screen's (5) display area overlapping with a video content or substituting a video content of said section.”
[2.0]	“The system (1) according to claim 1,”
[2.1]	“comprising a video distribution server (7) for distribution of the video data (9) to the devices (6A, 6B), in particular the entire video data (9) of a video upfront to playback start at the devices (6A, 6B).”
[3.0]	“The system (1) according to claim 1,”

[3.1]	“wherein the devices (6A, 6B) are designed to determine independently from a video distribution server (7) which distributed the video data (9) to the devices (6A, 6B) that they are in a synchronous or asynchronous playback progress.”
[4.0]	“The system (1) according to claim 1,”
[4.1]	“wherein the devices (6A, 6B) are designed: to playback compressed video data (9) that are structured in frames labeled by frame numbers, and to utilize a frame number that labels the frame that is currently played back as the progress-data to be transmitted.”
[5.0]	“The system (1) according to claim 4,”
[5.1]	“wherein each device (6A, 6B) is designed to compare a frame number received with a frame number of the frame currently played back at the device (6A, 6B) and to determine an asynchronous playback progress if the difference in the frame numbers compared with each other exceeds a pre-determined threshold value.”
[6.0]	“The system (1) according to claim 1,”
[6.1]	“wherein each device (6A, 6B) is designed to repeatedly transmit the progress-data, preferred in a periodic manner, more preferred every second.”
[7.0]	“The system (1) according to claim 1,”
[7.1]	“wherein each device is designed to broadcast adjustment data for adjusting the playback progress of the devices (6A, 6B) over its communication stage if it detects an asynchronous playback progress.”
[8.0]	“The system (1) according to claim 7,”

[8.1]	“wherein each device (6A, 6B) is designed to embed the adjustment data in a synchronization command.”
[9.0]	“The system (1) according to claim 8,”
[9.1]	“wherein each device (6A, 6B) is designed to receive the adjustment data and to adjust its playback progress according to the adjustment data, in particular to continue its playback of compressed video data that are structured in frames labeled by frame numbers with the frame number received in the broadcast of the adjustment data.”
[10.0]	“The system (1) according to claim 7,”
[10.1]	“wherein each device (6A, 6B) is designed: to receive the adjustment data; and to adjust its playback progress according to the adjustment data, in particular to continue its playback of compressed video data that are structured in frames labeled by frame numbers with the frame number received in the broadcast of the adjustment data.”
[11.0]	“The system (1) according to claim 1,”
[11.1]	“wherein the communication stage is designed to use UDP multicast data packets for the communication.”
[12.0]	“The system (1) according to claim 1,”
[12.1]	“wherein each display device (6A, 6B): comprises its screen (5) or a number of screens (5), or is connected to its external screen (5) or a number of screens (5) to be controlled by it.”
[13.0]	“The system (1) according to claim 1,”
[13.1]	“wherein said screen (5) is designed to realize a shelf rail (4) or part of it, or to cover a front of a shelf rail (4) or a part of it to which it is attachable.”

[14.0]	“The system (1) according to claim 1,”
[14.1]	“wherein the system realizes a video playback enabled electronic shelf label system.”
[15.0]	“A use of the system (1) according to claim 1 as video playback enabled electronic shelf label system for the playback of synchronized video content for a number of shelf rails (4),”
[15.1]	“wherein each of said shelves rails (4) is realized by a screen (5) or carries a screen (5).”

In accordance with 35 U.S.C. § 311, Petitioners, Hanshow America Inc. and Hanshow Technology Co., Ltd. (“Hanshow”), request *inter partes* review (“IPR”) of claims 1-15 (the “Challenged Claims”) of U.S. Patent No. 11,405,669 (Ex.1001, “the ’669 Patent”).

I. MANDATORY NOTICES

A. Real Party in Interest

The real parties-in-interest, pursuant to 37 C.F.R. § 42.101(b)(1), are Hanshow America Inc. (“Hanshow America”), having a place of business at 219 36th Street Box #25 Brooklyn, New York 11232, United States, and Hanshow Technology Co., Ltd. (“Hanshow Technology”), having a place of business at Floor 4, Building 1 and Floor 7, Building 5, Jiaxing Guangfu Innovation Park, No. 1288 Kanghe Road, Xiuzhou District, Jiaxing, Zhejiang Province, China (collectively, “Petitioners” or “Hanshow”).

B. Related Matters

The following litigation (the “Litigation”) involves accusations of non-infringement or invalidity of the ’669 Patent, and may be affected by a decision in this proceeding:

- *SES-IMAGOTAG SA, SES-IMAGOTAG GMBH, AND SES-IMAGOTAG INC. v. HANSHOW AMERICA INC. AND HANSHOW TECHNOLOGY CO., LTD.*, Case No. :23-cv-01667 (E.D.N.Y).

C. Counsel and Service Information

Petitioners provide the following designation of counsel, to which all correspondence should be addressed.

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II. GROUNDS FOR STANDING AND IDENTIFICATION OF CHALLENGE

A. Standing

Petitioners certify that the '669 Patent is available for IPR. Petitioners are not barred or estopped from requesting this IPR.

B. Statutory Grounds for Each Claim

The Challenged Claims are unpatentable based on the grounds noted in the table below, as further explained in this Petition and the Declaration of Dr. Manos M. Tentzeris. (Ex.1003).

Ground	Basis	Challenged Claims	Reference(s)
1	§103	1-15	Swafford, Masumoto

2	§103	1-15	Masumoto, Kipp, Takashi
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The claimed priority date of the '669 Patent is November 10, 2017 (the “Critical Date”).¹ (Ex.1001). Petitioners’ challenge is based on the following prior art references:

- **Swafford** - U.S. Patent Application No. 2016/0134930A1, published May 12, 2016. Swafford is AIA §§102(a)(1)-(2) prior art. Swafford is not cited art.
- **Masumoto** – U.S. Patent Application No. 2017/0134690 A1, published May 11, 2017. Masumoto is AIA §§102(a)(1)-(2) prior art. Masumoto is not cited art.
- **Kipp** - U.S. Patent Application No. 2017/0171577A1, published June 15, 2015. Kipp is AIA §§102(a)(1)-(2) prior art. Kipp is not cited art.
- **Takashi** - Japan Patent Application No. JP2011-76222A, published April 14, 2011. Takashi is AIA §102(a)(1) prior art. Takashi is not cited art.

The Office has not previously evaluated these references or related arguments.

C. Claim Construction

Petitioners submit that all claim terms should be construed according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R.

¹ Petitioners reserve the right to challenge the claimed priority date.

§ 42.100. Based on the evidence below and the prior art’s description of the claimed elements being similar to that of the ’669 patent specification, no formal claim constructions are necessary in this proceeding because “claim terms need only be construed to the extent necessary to resolve the controversy.” *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011).

Petitioners reserve the right to respond to any constructions offered by the Patent Owner or adopted by the Board. Furthermore, Petitioners are not conceding that each challenged claim satisfies all statutory requirements, such as 35 U.S.C. §§ 101 and 112. As this is an IPR petition, Petitioners are pursuing prior art-based grounds. Petitioners are not waiving any arguments concerning other grounds that can only be raised in district court.

D. How The Challenged Claims Are Unpatentable and Evidence Supporting Challenge

A detailed explanation of how the Challenged Claims are unpatentable is provided in the following sections. A list of exhibits is attached. *See* p.iii above. Relevance of the evidence, including identifying the specific portions of the evidence that support the challenge, may be found in the following sections.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. Background of the Field

As explained in more detail below, the '669 Patent is directed to a synchronized video system for playback on a number of playback devices. *See* Section III.B.

Such synchronized video systems are well established in the art. For example, Swafford discloses systems “for a merchandizing display related to a continuous display formed by electronic displays embedded along product shelves and on the packages stored on the product shelves.” Ex.1004, Abstract.

In another example, Masumoto discloses “a multi-display apparatus for displaying a single image by combining a plurality of displays.” Ex.1005, [0017]. Each display communicates specific information (e.g., frame number, time stamp) associated with the video to be displayed with each other to implement synchronization. *Id.* at [0017].

In another example, Kipp discloses systems “for synchronizing playback of segmented video content across multiple video playback devices.” Ex.1006, [0005]. “In this way, where multiple video playback devices are deployed to a common location (e.g., a sports bar) or at different locations, playback of the video content is synchronized across those playback devices when presented to the viewers.” *Id.*

B. Overview of the Alleged Invention

The '669 Patent discloses a video playback system for synchronized video playback on a number of playback devices (6A; 6B). Ex.1001, 1:37-40, and Fig. 1 (reproduced below).

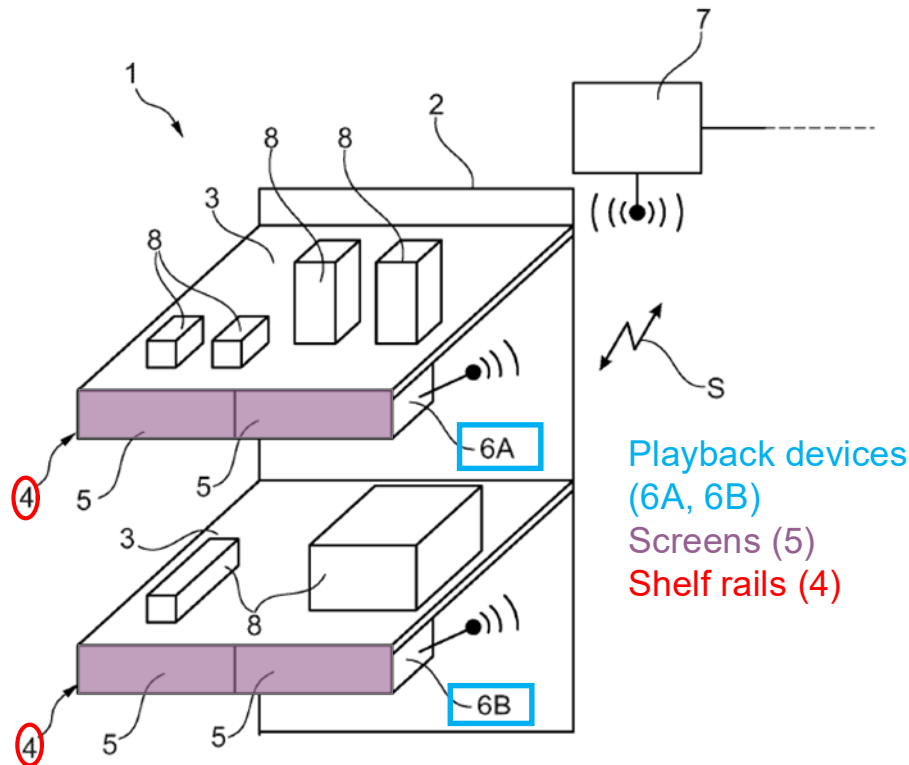
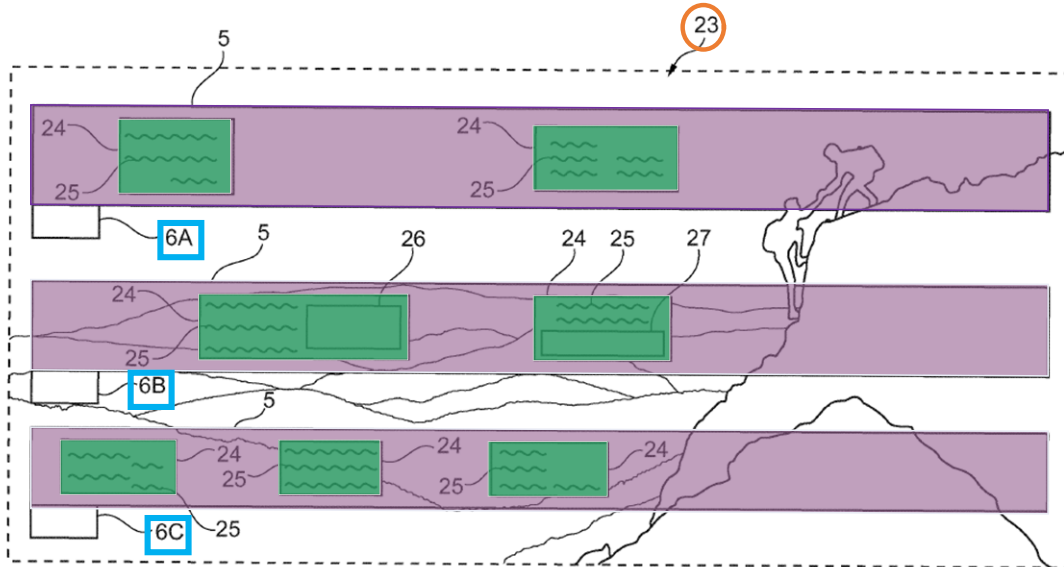


Fig. 1 of the '669 Patent

As shown in Fig. 1 above, “[t]he [video playback] system 1 is installed in a retail shop of which only a shelf 2 is shown.” Ex.1001, 5:23-24. “At its front, each shelf floor 3 comprises a shelf rail 4 (not shown in detail) to which two video screens 5 are attached along its entire length.” *Id.* at 5:25-28. “The first device 6A is connected to the screens 5 on the upper floor 3 and the second device 6B is connected to the screens 5 on the lower floor 3.” *Id.* at 5:29-31.

The '669 Patent further discloses that “[t]he video content (film) to be displayed on the screens 5 is supplied by a server 7 via a radio signal to both devices 6A and 6B.” *Id.* at 5:32-34. “[T]he server sends out the video to the devices 6A, 6B. In block 11 the devices 6A, 6B start playing back the video. In block 12 each device 6A and 6B attends the lapse of one second of its own clock. After one second has lapsed, the respective device 6A, 6B transmits the playback progress-data, which represent the frame number of the correctly used frame in the respective device 6A, 6B. The transmission of the playback progress-data of the device 6A is received at the device 6B and vice versa.” *Id.* at 5:46-55. “In block 13 the devices 6A, 6B compare the received frame number with the frame number currently in use in its own playback process.” *Id.* at 5:56-58. “[T]he device 6A or 6B that detected the difference sends out a synchronization commend [sic] immediately.” *Id.* at 5:60-62.

Fig. 6 (reproduced below) illustrates “a snapshot of a video 23 that was distributed to three display devices 6A, 6B, 6C.” *Id.* at 6:46-51. The (background) video 23 is played “in synchronous mode on the different screens 5 (annotated purple).” *Id.* at 7:34-38. “The content 24 (annotated green) may comprise static (textual) information related to product and/or price information indicated by wavy lines 25. The content 24 may also comprise individual video sequences 25 and 26 which are assigned to particular electronic shelf label 24.” *Id.* at 7:23-28.



Video (23)

Playback devices (6A, 6B, 6C)

Electronic shelf label content (of virtual electronic shelf labels) (24)

Fig. 6 of the '669 Patent

C. The Level of Skill in the Art

A person of ordinary skill in the art relating to the subject matter of the '669 patent as of the Critical Date ("POSITA") would have had at least a Master of Science Degree in an academic area emphasizing electrical engineering, computer engineering, wireless telecommunication systems, or an equivalent field (or a similar technical Master's Degree, or higher degree). Ex.1003, ¶33. Alternatively, a POSITA would have had a Bachelor's Degree (or higher degree) in an academic area emphasizing electrical engineering, computer engineering, wireless telecommunication systems, or an equivalent field with two or more years of work experience in electrical engineering, wireless telecommunication systems, computer

engineering, or an equivalent field. *Id.* Additional education in a relevant field or relevant industry experience may compensate for a deficit in one of the other aspects of the requirements stated above. *Id.*

D. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). “When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. In evaluating obviousness, “[t]he question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art.” *Id.* at 420.

The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *Id.* at 416. Such

obvious combination occurs when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, when a patent claims a device combining pre-existing elements that each did no more than they would in separate, sequential operation, and when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement. *Id.* at 416-7. When the claimed subject matter involves more than “the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement,” a reason to combine can still be found in the “interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art.” *Id.* at 418.

Prior art can be used to show the obviousness of a patent if the reference is “analogous art” to the patent, which means (1) the reference is from the same field of endeavor as the patent, regardless of the problem addressed or, (2) if the reference is not within the field of endeavor, it is reasonably pertinent to the particular problem with which the patent’s inventor was addressing. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). The field of endeavor is determined by reference to explanations of the alleged invention’s subject matter in the patent application, including the

embodiments, function, and structure of the claimed invention. *Id.* at 13256–26. A reasonably pertinent reference is one that—although it may be in a different field of endeavor—logically would have commended itself to an inventor’s attention in considering his problem because of the matter with which it deals. *Sci. Plastic Prod., Inc. v. Biotage AB*, 766 F.3d 1355, 1359 (Fed. Cir. 2014).

E. Ground 1: Claims 1-15 are Rendered Obvious over Swafford in view of Masumoto

Claims 1-15 are unpatentable because they are obvious in view of the combination of Swafford and Masumoto. In particular, each and every element of Claims 1-15 is disclosed by Swafford and Masumoto, and a POSITA would have had reason to combine them. Ex. 1003, §III.A.

1. Swafford

Swafford discloses systems “for a merchandizing display related to a continuous display formed by electronic displays embedded along product shelves and on the packages stored on the product shelves.” Ex.1004, Abstract; Ex.1003, ¶44. In particular, “[e]ach of the first electronic label device, the second electronic label device, the first group of electronic displays, and the second group of electronic displays may be configured to *simultaneously* output a different portion of the streaming video.” Ex.1004, [0243]; Ex.1003, ¶46.

FIG. 42 (reproduced below; FIG. 1 of the ’669 Patent is reproduced below for comparison) shows a system “of multiple continuous display shelf edge label

devices (circled blue)” and “[e]ach continuous display shelf edge label device includes a single display area 4210A-4210D oriented along an entire edge of a shelf 4230A-4230D.” Ex.1004, [0376]-[0377]. “[A]n array of continuous display shelf edge label devices may be configured, which can be configured to be combined together display a uniform image or *video*.” *Id.* at [0383].

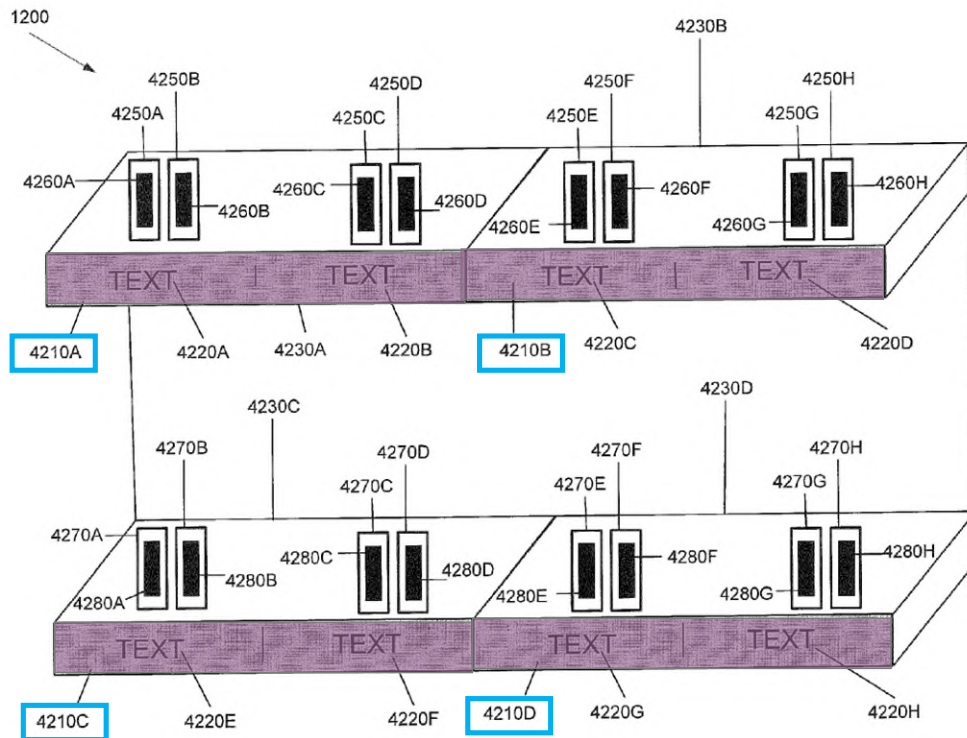


FIG. 42 of Swafford

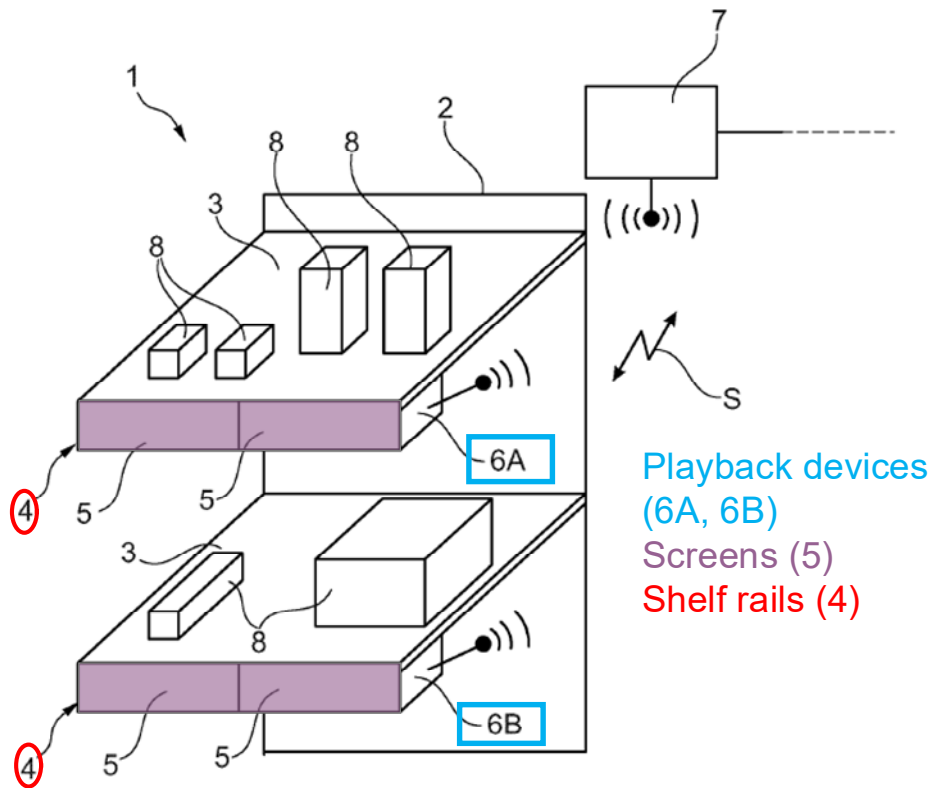


FIG. 1 of the '669 Patent

Swafford describes various embodiments in its disclosure. FIG. 43 (annotated below) illustrates that “[c]ontinuous display shelf edge label device 43001 can be provided with any number of displays” in which, for example, displays 43002 and 43003 (annotated in purple) provide information on products 43006A-B and 43007A-B placed above, display 43002 “may also display a static or dynamic advertisement 43004 (annotated in green)” and “the backgrounds of displays 43002 and 43003 (annotated in purple) may display additional information, such as static images or *streaming video* of products 43006A-B and 43007A-B, promotional content, good-will messages, advertisements or any related information.” *Id.* at [0388].

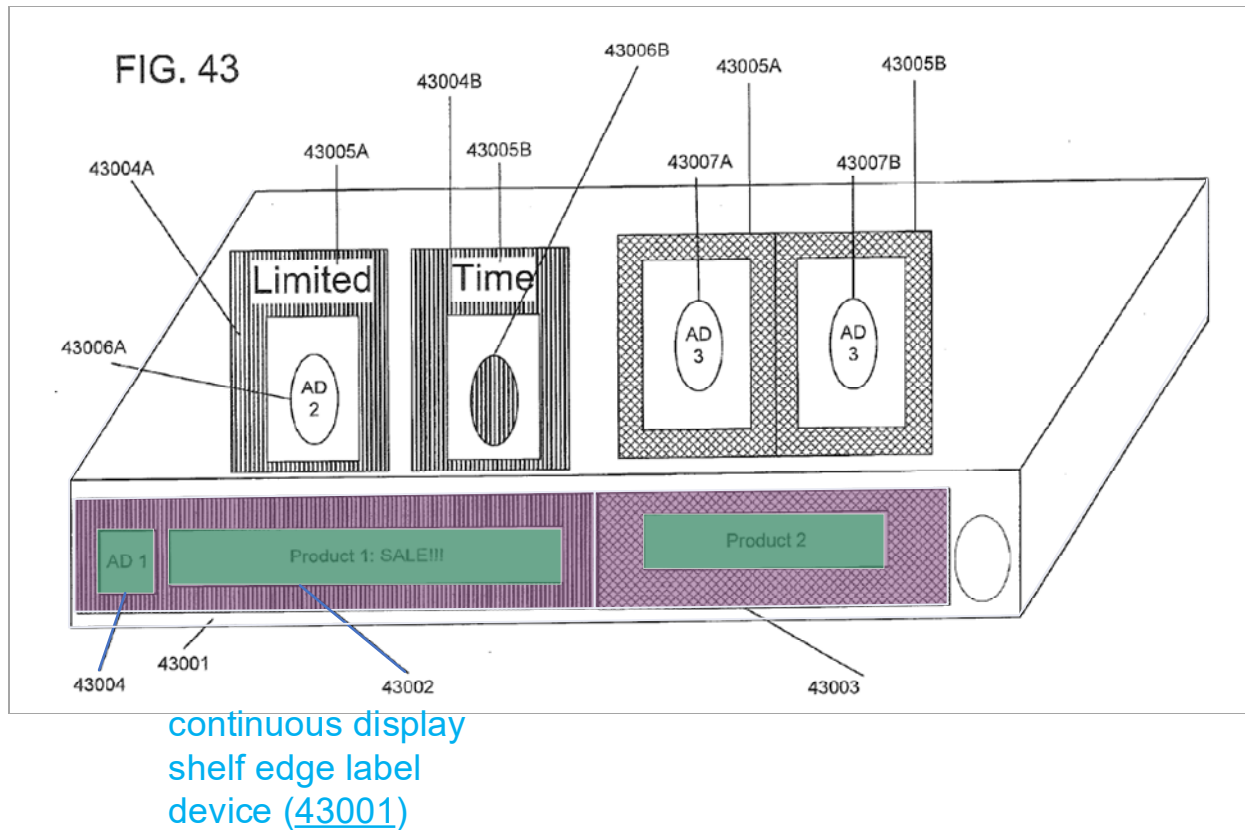


FIG. 43 of Swafford

Swafford qualifies as prior art under 35 U.S.C. §§ 102(a)-(b) because it was published on May 12, 2016, which is more than one year before the '669 Patent's November 10, 2017, claimed priority date. *Id.* at [43].

Swafford is analogous art to the '669 Patent because it is from the same field of endeavor as the '669 Patent. Ex.1001 at 1:15-16. In particular, the '669 Patent is directed to “[a] video playback system, comprising a number of playback devices to playback a video on their screens” and “display production information or product price related information by means of virtual electronic shelf labels” and Swafford is directed to systems “for a merchandizing display related to a continuous display

formed by electronic displays embedded along product shelves and on the packages stored on the product shelves” and “[e]ach of the displays may simultaneously output a different portion of the streaming video.” *See* Ex.1001; 1:15-16, Claim 1; *see also* Ex.1004, Abstract. Thus, both the ’669 Patent and Swafford are in the same field of endeavor for synchronously displaying video related to products on multiple screens or displays. Ex. 1003, ¶54.

2. Masumoto

Masumoto discloses “a multi-display apparatus for displaying a single image by combining a plurality of displays.” Ex.1005, [0017]. “In FIG. 1, image transmission server 100 sends an arbitrary video signal to network-connected display A210, display B220, display C230, and display D240.” *Id.* at [0039]. “Image transmission server 100 sends same video signal to each of display A210 to display D240 *simultaneously*.” *Id.* “All displays have the same structure.” *Id.* at [0040]. Each display includes a display unit 212 to display a video and the display unit 212 includes “a liquid crystal display panel.” *Id.* at [0040], FIG. 2. “The controller [in one display] sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display. The controller gives notification of correction to the other display sending the specific information with a difference when the specific

information received differs from specific information of a video signal that is supposed to be displayed.” *Id.* at [0017].

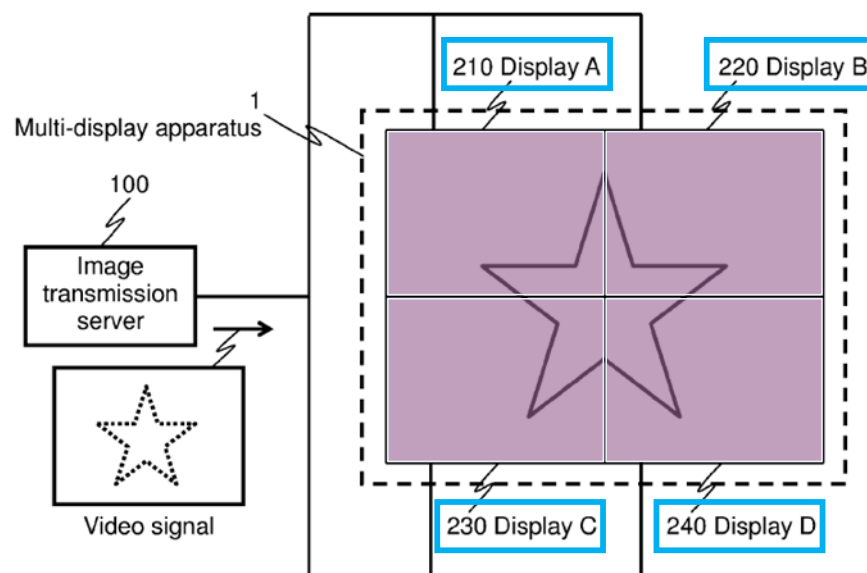


FIG. 1 of Masumoto

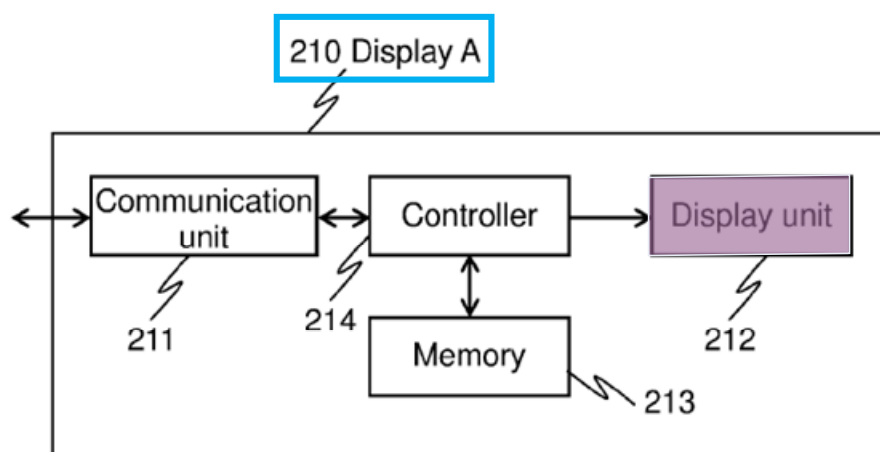


FIG. 2 of Masumoto

Masumoto qualifies as prior art under 35 U.S.C. §102(a) because it was published on May 11, 2017, which is before the '669 Patent's November 10, 2017, claimed priority date. Ex.1005 at [43]. Masumoto is analogous art to the '669 Patent

because it is from the same field of endeavor as the '669 Patent. Ex.1001 at 1:15-16. In particular, the '669 Patent is directed to “[a] video playback system, comprising a number of playback devices to playback a video on their screens” and Masumoto is directed to “a multi-display apparatus for displaying a single image by combining a plurality of displays.” *See* Ex. 1001 at Abstract, Claim 1, and 1:15-16; *see also* Ex.1005 at [0017] and FIG. 1. Thus, both Masumoto and the '669 Patent are in the same field of endeavor for synchronously displaying videos on multiple screens or displays. Ex. 1003, ¶55.

3. The combination of Swafford and Masumoto discloses every element of Claims 1-15

a. Claim 1

(1)[1.0]

The preamble of claim 1 is not limiting because it merely states the purpose or intended use of the alleged invention. It does not define any of the claim limitations, which are set forth fully in the body of the claim (i.e., a video playback system).

To the extent the preamble is limiting, Swafford discloses systems “for a merchandizing display related to a continuous display formed by electronic displays embedded along product shelves and on the packages stored on the product shelves” and “[a] streaming video may then be apportioned among displays on electronic

label devices and the packages. Each of the displays may simultaneously output a different portion of the streaming video.” (Ex.1004, Abstract; Ex.1003, ¶55).

In the same field of endeavor (e.g., video playback system), Masumoto discloses “a multi-display apparatus for displaying a single image by combining a plurality of displays.” (Ex.1005, [0017]; Ex.1003, ¶56).

(2)[1.1]

Swafford and Masumoto each discloses this element. (Ex.1003, ¶¶57-64).

Specifically, Swafford discloses that “continuous display shelf edge label devices arranged in side by side (4210A and 4210B or 4210C and 4210D) orientation and stacked on top of each other like shelves (4210A and 4210C or 4210B and 4210D), an array of continuous display shelf edge label devices may be configured, which can be configured to be combined together display a uniform image or video.” (Ex.1004, [0383], FIG. 42). Furthermore, FIG. 43 shows another example of one continuous display shelf edge label device 43001 which “can be provided with any number of displays.” (Ex.1004, [0388], FIG. 43).

Thus, each continuous display shelf edge label device 4210A - 4210D, 43001 corresponds to a playback device in [1.1] and the multiple continuous display shelf edge label devices are designed to display a video on their displays as in [1.1]. (Ex.1003, ¶60).

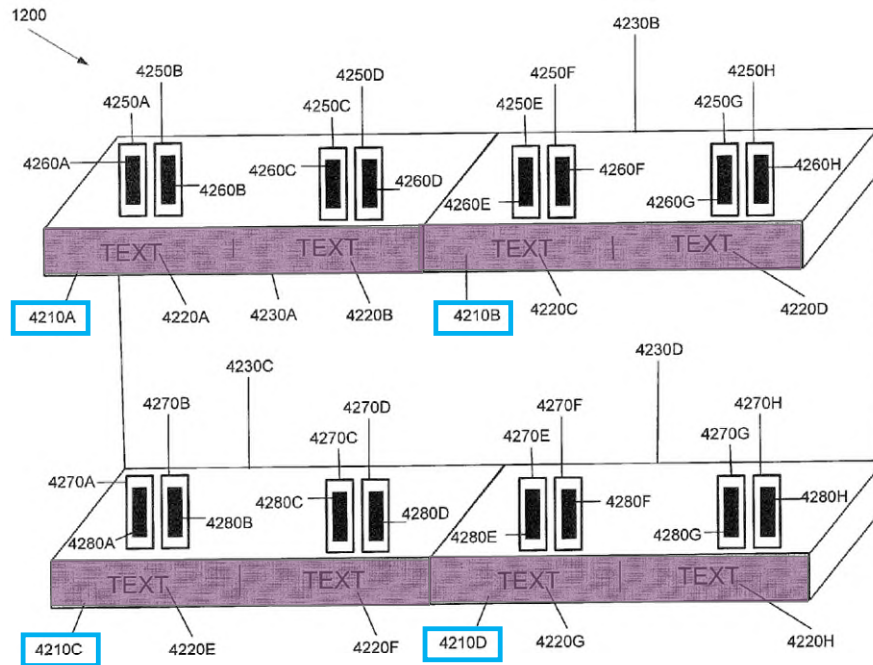


FIG. 42 of Swafford

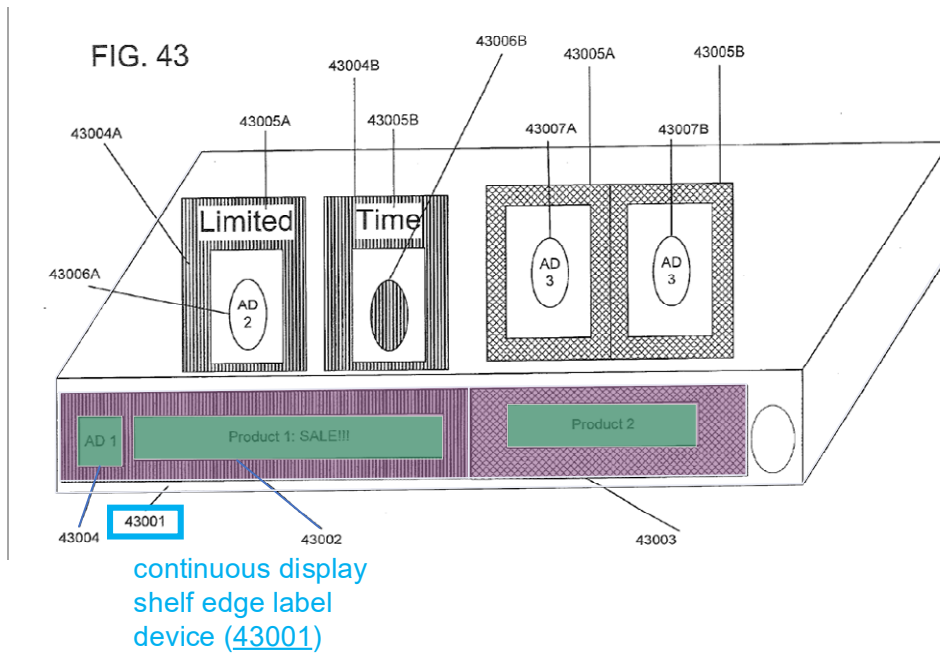
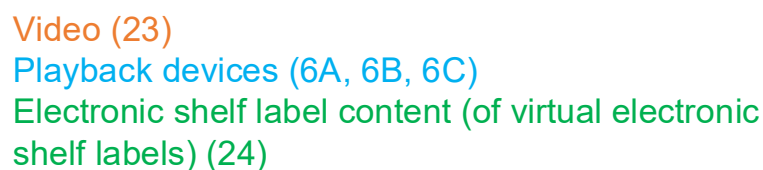


FIG. 43 of Swafford



Additionally, Masumoto discloses a plurality of displays to playback a video on their display units by disclosing “a multi-display apparatus for displaying a single image by combining a plurality of displays.” (Ex.1005, [0017]). “Image transmission server 100 sends same video signal to each of display A210 to display D240 simultaneously.” (Ex.1005, [0039]). “All displays have the same structure.” (Ex.1005, [0040]). “[M]ulti-display apparatus 1 may be used for simultaneously displaying multiple video signal A and video signal B from image transmission server 100.” (Ex.1005, [0094]). Each display includes a display unit 212 to display a video and the display unit 212 includes “a liquid crystal display panel.” (Ex.1005, [0040], FIG. 2). Thus, the plurality of displays A210-D240 in Masumoto correspond

to a number of playback devices in [1.1] and the plurality of displays A210-D240 are configured to display a video on their display units. (Ex.1003, ¶¶61-63).

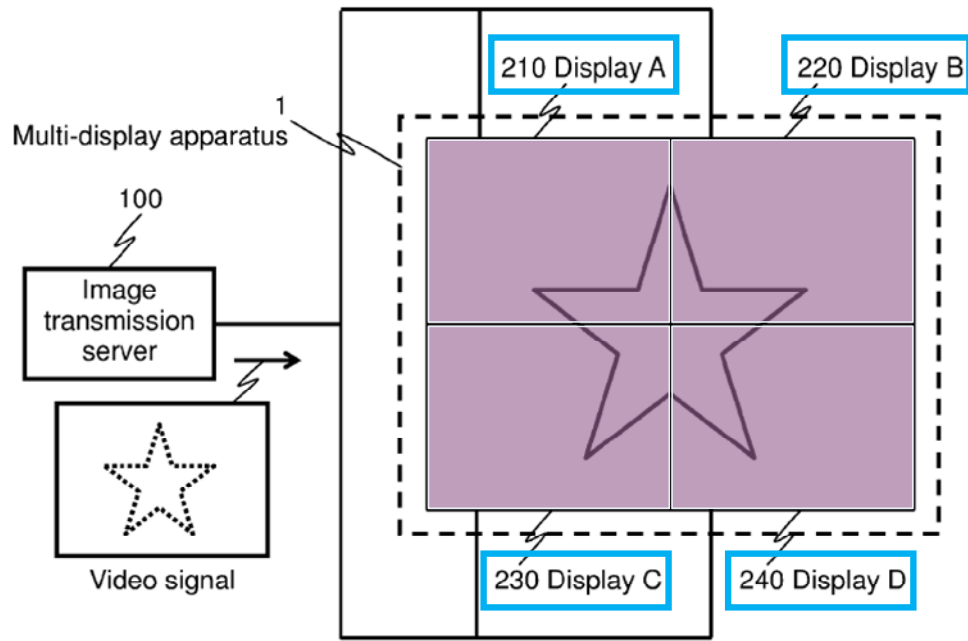


FIG. 1 of Masumoto

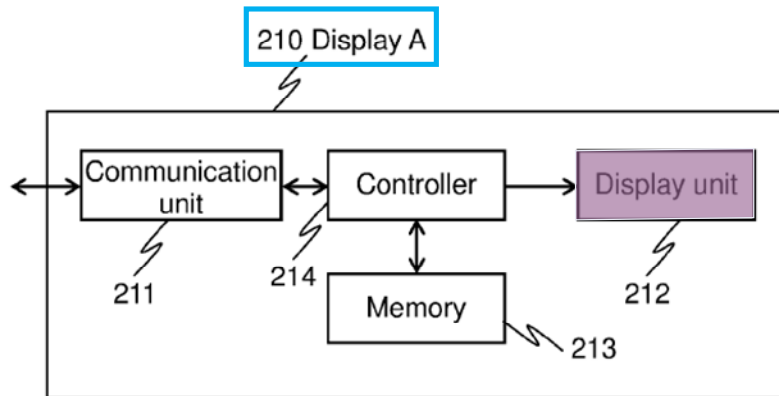


FIG. 2 of Masumoto

(3)/1.2/

Masumoto discloses this element. (Ex.1003, ¶¶69-70).

First, Swafford discloses that “[o]ne or more *memories 27102, 27103, 27104, and/or 27105* may include a stored address location and display data location data” and “[d]isplay data location data may be used by processor 27101 to format data to be displayed on display 27111.” (Swafford, [0265], FIG. 27). “Although shown in FIG. 27 as being outside of computing device 27100, display 27111 also may be integrated into a same physical housing and/or structure as computing device 27100.” (Swafford, [0265]).

“As shown illustratively in the examples of FIGS. 29-34B, display 27111 may be configured to be oriented along an entire edge of a shelf of a retailer.” (Ex.1004, [0266]). Thus, display 27111 may be the continuous display 34801 oriented along an entire edge of a shelf as shown in FIG. 34A and has one or more memories to store video data representing video. (Ex.1003, ¶67). Therefore, Swafford discloses that each continuous display 34801 includes one or more memories to display data location data that may be used to format data to be displayed on display. (Ex.1003, ¶68).

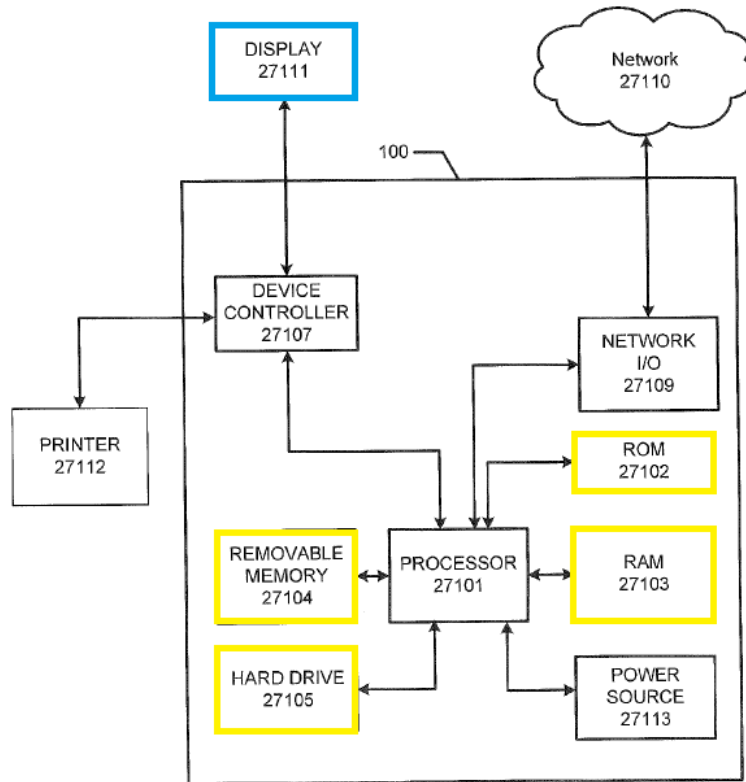


FIG. 27 of Swafford

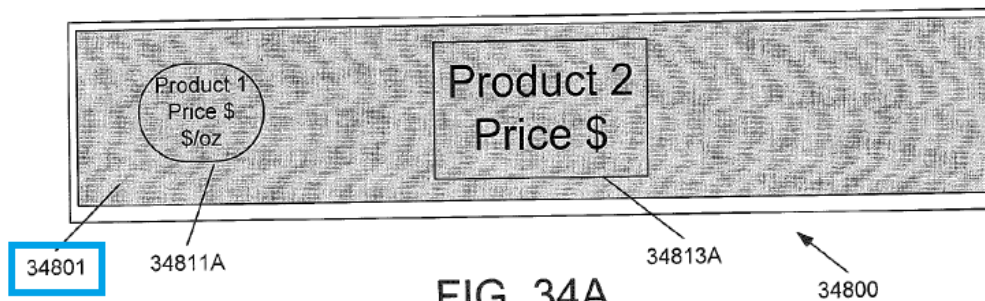


FIG. 34A

FIG. 34A of Swafford

Additionally, Masumoto discloses that each display includes a memory to store video data representing the video by disclosing that “[d]isplay A210 includes

communication unit 211 for communication via network, display unit 212 including a liquid crystal display panel, **memory 213 for storing a range of data**, and controller 214 for controlling these communication unit 211, display unit 212, and memory 213.” (Ex.1005, [0040]). “**Data stored in memory 213 is specifically a video signal** sent from the image transmission server and a video signal for display is generated by cutting out a portion of this video signal.” *Id.*

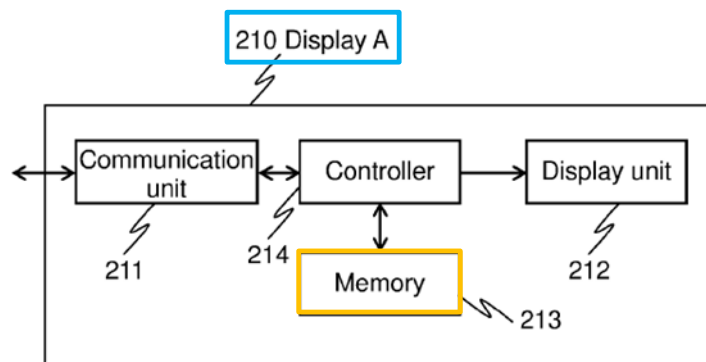


FIG. 2 of Masumoto

(4) [1.3]

Swafford in view of Masumoto discloses this element. (Ex.1003, ¶¶71-85).

Specifically, Swafford discloses that “**[e]ach of the vertically-stacked multiple continuous displays**, user interfaces, and packages may then **simultaneously** output a different part of the message” and “[t]he message may include graphics, text, animations, **streaming video**, or any combination thereof.” (Ex.1004, [0287]). Further, Swafford discloses that “**a continuous display shelf edge**

label device may determine or *receive data from another continuous display shelf edge label device* about a competitive product and/or related product (such as toothpastes to toothbrushes).” (Ex.1004, [0315]). “The electronic label devices may be configured to receive a streaming video and apportion the streaming video between the one or more electronic label devices and the plurality of packages.” (Ex.1004, [0421]).

Swafford does not explicitly describe that the video playback progress-data is transmitted from one continuous display shelf edge label device to another continuous display shelf edge label device, i.e., Swafford does not explicitly disclose that “the devices (6A, 6B) are designed to transmit video playback progress-data via the communication stage to the other device (6B, 6A).” This modification would be obvious in view of Masumoto. (Ex.1003, ¶74).

Specifically, Masumoto discloses that the displays can communicate data with each other and are designed to transmit specific information of a video signal displayed on the display (*corresponding to the video playback progress-data*), such as the frame number or the time stamp, to the other display and to determine synchronization or asynchronization based on the video playback progress-data by disclosing that “[t]he multi-display apparatus includes the plurality of displays connected to a network. Each of the plurality of displays includes a communication unit that communicates via the network and a controller. *The controller [in one*

display] sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display. The controller gives *notification of correction* to the other display sending the specific information with a difference when the specific information received differs from specific information of a video signal that is supposed to be displayed.” (Ex.1005, [0017]). Thus, Masumoto discloses that the displays can communicate data with each other and the displays are designed to transmit specific information of a video signal displayed on one display to the other display and to determine synchronization or asynchronization based on the specific information. Masumoto discloses the specific information of a video signal displayed on one display as the video playback progress-data in [1.3]. (Ex.1003, ¶¶75-76).

Furthermore, as shown in FIG. 9, Masumoto discloses that “the frame number is an example of specific information of the video signal, and the time [stamp] is also another example of the specific information of the video signal.” (Ex.1005, [0107]). Therefore, Masumoto discloses that the displays transmit video playback progress-data, such as the frame number or the time stamp, between each other to determine synchronization/asynchronization. (Ex.1003, ¶¶77-80).

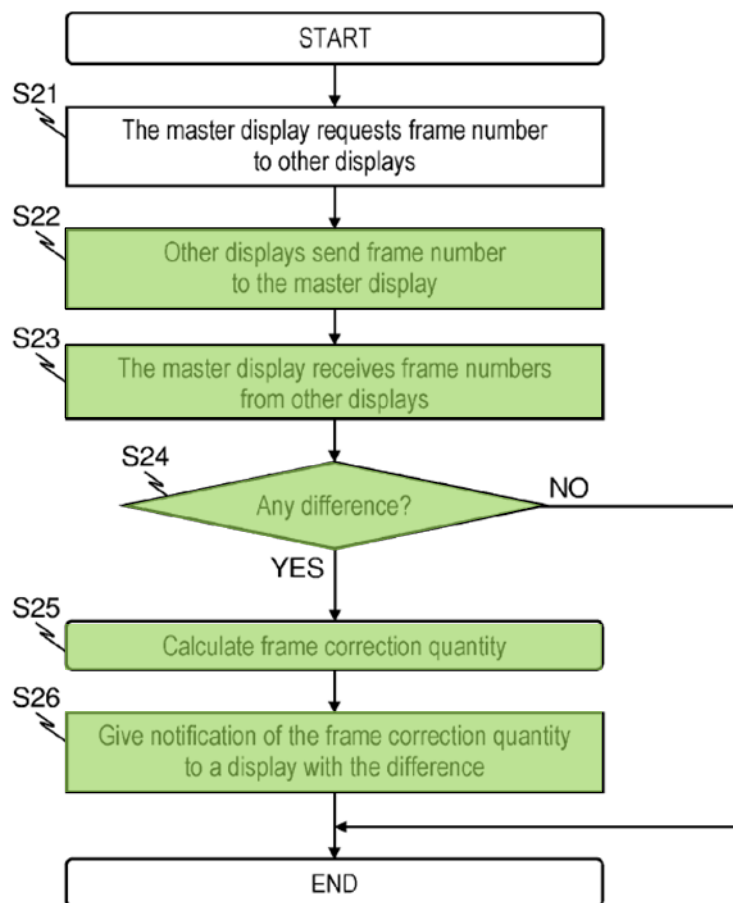


FIG. 9 of Masumoto

Thus, Swafford in view of Masumoto discloses each and every limitation of [1.3]. (Ex.1003, ¶¶71-80).

A POSITA would have been motivated to implement Masumoto's displays, in Swafford's system, as described above, for the following reasons. (Ex.1003, ¶¶81-85). As discussed in Section III.E.4 below, a POSITA would have been motivated and able to modify Swafford by using Masumoto's displays, and thus reach the combination of Swafford and Masumoto that discloses all of the limitations of [1.3].

(5)[1.4]

Swafford discloses this element for the following reasons. (Ex.1003, ¶¶86-90).

Specifically, Swafford discloses that the display shelf edge label device 43001 includes different displays area 43002 and 43003 as shown in FIG. 43. “Display 43002 provides information on products 43006A and 43006B and may also display a static or dynamic advertisement 43004. For example, the background of display 43002 may display the logo representing the manufacturer of products 43006A and 43006B. Display 43003 can provide information on products 43007A and 43007B. Also the background of display 43003 may display the logo representing the manufacturer of products 43007A and 43007B, where the logo displayed on the background of display 43003 may differ from the logo displayed on the background of display 43002. However, it is contemplated that *the backgrounds of displays 43002 and 43003 may display additional information, such as static images or streaming video of products 43006A-B and 43007A-B, promotional content, good-will messages, advertisements or any related information.*” (Ex.1004, [0388]).

Therefore, Swafford discloses that the display shelf edge label device 43001 is designed to display both static images and streaming video of products. (Ex.1003, ¶87). As shown in FIG. 43, static information about Product 1 or Product 2

(annotated in green) may overlap with a streaming video as a background (annotated in purple). Furthermore, the dynamic advertisement 43004 (annotated in green), information about Product 1 or Product 2 are respectively occupies one section in the displays area 43002 or 43003. The dynamic advertisement 43004 may inherently include same content as the streaming video displayed in the backgrounds of displays 43002 and 43003 by virtue of “advertisement.” (Ex.1003, ¶88).

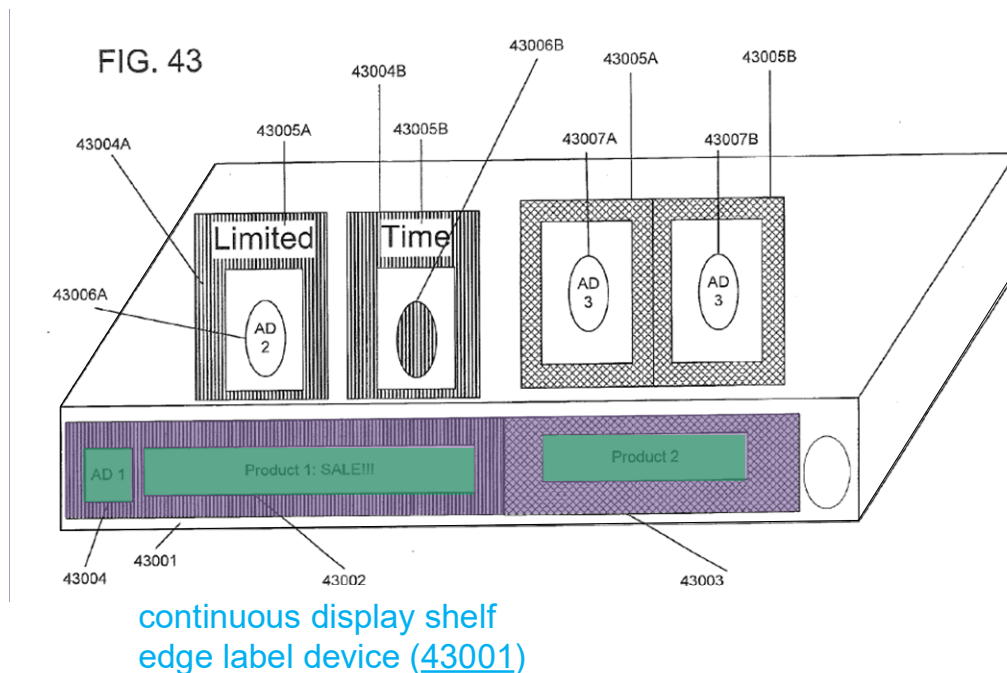


FIG. 43 of Swafford

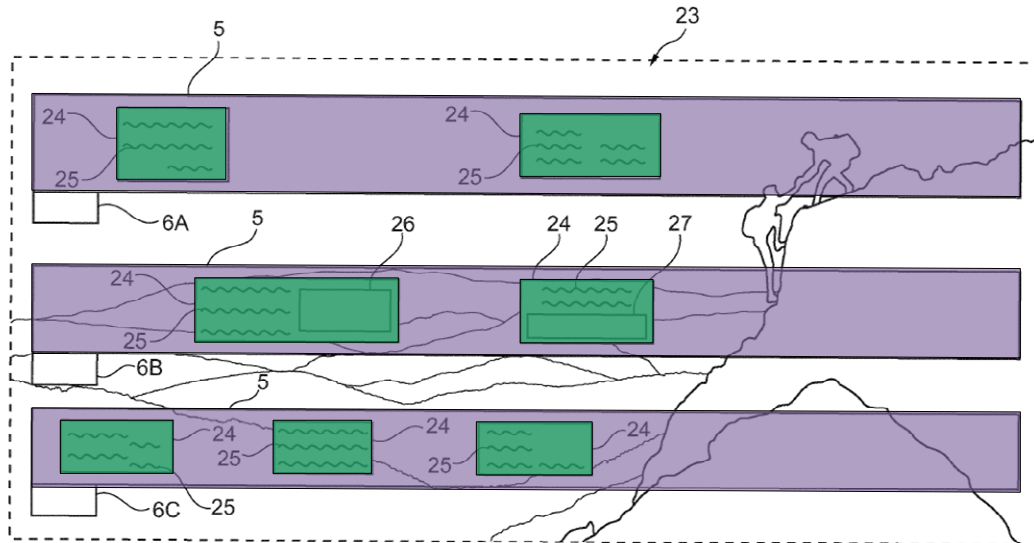


Fig. 6 of the '669 Patent

Moreover, a POSITA would understand that designing substitutive video contents in overlapping display areas is commonly used to “provide additional information to a customer or to attract a customer’s attention.” (Ex.1004, [0404]; Ex.1003, ¶89).

b. Claim 2

(1) [2.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2) [2.1]

Masumoto discloses this element. (Ex.1003, ¶91-96).

First, Swafford discloses one or more servers for distributing video data to end-point devices. Specifically, Swafford discloses various servers for distributing video data to end-point devices including the electronic label devices by disclosing

that a plurality of end-point devices 39202-39210 associated with a product shelf including electronic shelf labels 39208 can be configured to transmit information to the hub 39100 or to receive information from the hub 39100 configured to send and receive information to and from the *various servers 39322, 39324, 39326 or the cloud 39320*. (Ex.1004, [0328]).

Additionally, Masumoto discloses that an image transmission server is configured to distribute video data to the displays, and specifically to distribute the video data to be displayed on a display upfront to the memory of the display. (Ex.1003, ¶¶93).

Masumoto “offers a multi-display apparatus that can match an image display timings and image display positions of the entire image by connecting an image transmission server and multiple displays to a network.” (Ex.1005, [0015]). Specifically, Masumoto discloses that “[i]n FIG. 1, image transmission server 100 sends an arbitrary video signal to network-connected display A210, display B220, display C230, and display D240. In general, since a network bandwidth is limited, a video signal sent from image transmission server 100 is compressed to an appropriate size, and then sent via the network.” (Ex.1005, [0039]). “*Data stored in memory 213 is specifically a video signal sent from the image transmission server* and a video signal for display is generated by cutting out a portion of this video signal.” (Ex.1005, [0040]). “In general, *a video signal is sent from image*

transmission server 100 in a streaming format or file format, and stored in each display.” (Ex.1005, [0039]). Therefore, Masumoto discloses that the transmission server 100 loads the video data upfront to each memory of the displays. (Ex.1003, ¶¶94-95).

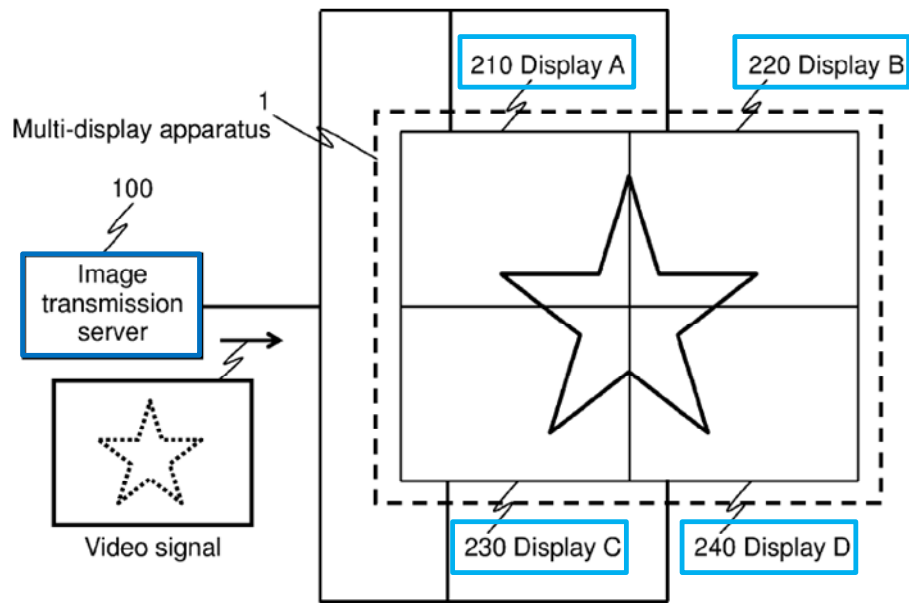


FIG. 1 of Masumoto

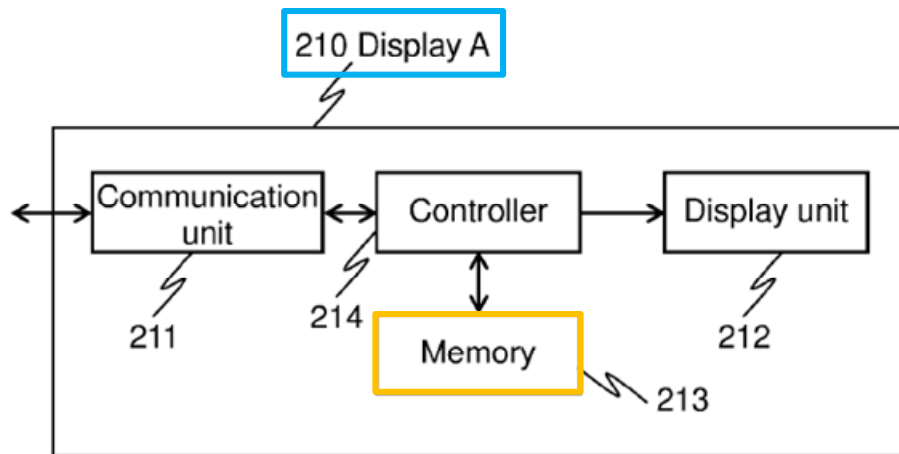


FIG. 2 of Masumoto

c. Claim 3

(1) [3.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2) [3.1]

Masumoto discloses that the displays determine synchronous or asynchronous status based on specific information of video signal (e.g., frame number, time stamp) that is transmitted among the displays, independently from the transmission server. (Ex.1003, ¶¶97-101).

Specifically, as shown in FIG. 9, “[f]irst, one display requests other displays to notify the frame number or time stamp of the video signal displayed on each of other displays (Step S1).” (Masumoto, [0108]). “Other display A210 to display C230 to which display D240 requests for a notice (Step S21) send a frame number of the video signal displayed in each display A210 to display D240 (Step S22).” (Ex.1005, [0110]). “Next, *display D240 receives a frame number of video signal displayed in each display at specific time from other display A210 to display [C]230 (Step S23).*” (Ex.1005, [0112]). “*Display D240 calculates a desired frame number at specific time notified in Step S21, and compares its calculation result with the frame number received in step S23 for each display to determine any difference (Step S24).*” (Ex.1005, [0113]). “*When a frame number different from the desired frame number (difference exists) is detected (Yes in Step S24), display*

D240 calculates a frame correction quantity (Step S25).” (Ex.1005, [0117]). “Display D240 notifies delayed display A210 of the frame correction quantity calculated in Step S25 (Step S26).” (Ex.1005, [0118]). “*If there is no difference (NO in Step S24) in Step S24*, controller 214 of display D240 ends without processes in Steps S25 and S26.” (Ex.1005, [0118]).

As discussed in Masumoto, “[i]n the exemplary embodiment, for convenience, a display requesting this notice is called a master display.” Ex.1005 (Masumoto), [0108]. That is, as shown in FIG. 9, the master display is display D240 requesting for a notice in Step S21. Thus, when any of the different displays starts the request, any of the different displays A210 – D240 may be the master display here for convenience.

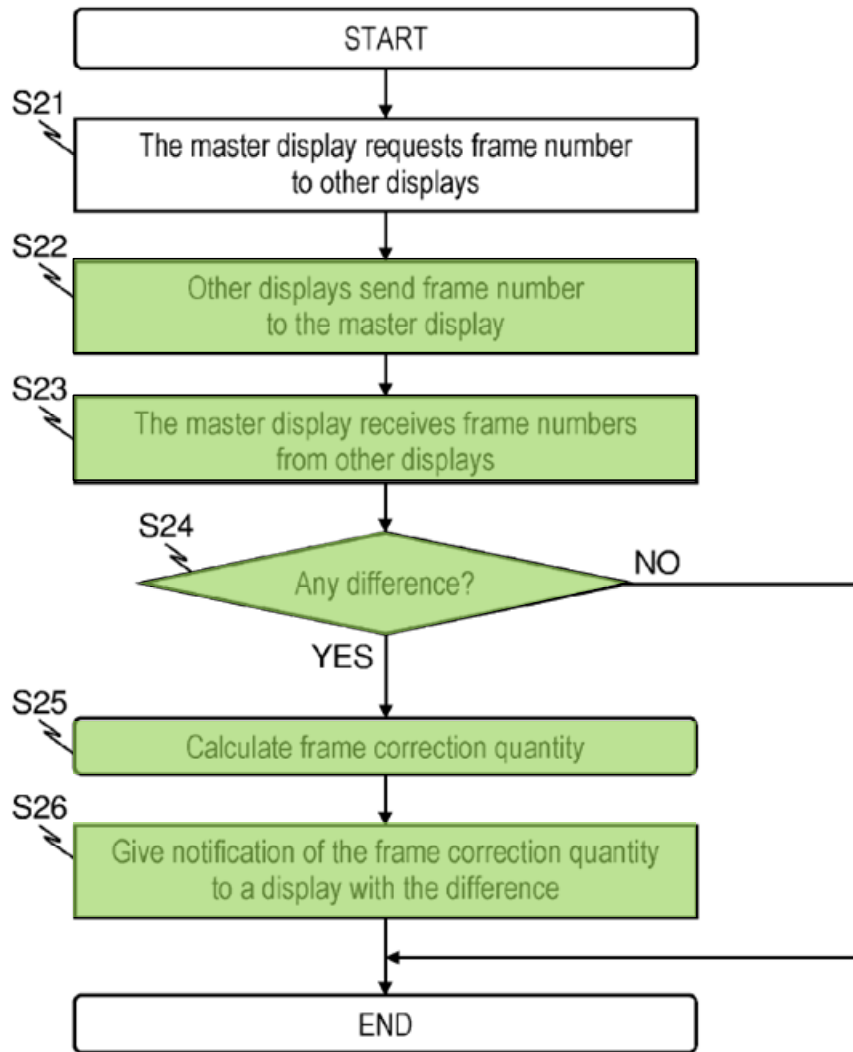


FIG. 9 of Masumoto

d. Claim 4

(1)[4.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2)[4.1]

Masumoto discloses this Element. (Ex.1003, ¶¶102-106).

Specifically, Masumoto discloses that “[i]n general, since a network bandwidth is limited, a video signal sent from image transmission server 100 is ***compressed*** to an appropriate size, and then sent via the network.” (Ex.1005, [0039]). “Display A210 to display D240 receiving a video signal ***compressed*** by an arbitrary compression system sent from image transmission server 100 decode and reproduce each signal. General known video signal compression systems include H.264 and MPEG4-AVC.” (Ex.1005, [0045]). Thus, the displays in Masumoto are configured to play compressed video data. (Ex.1003, ¶103).

Additionally, “[t]he controller sends a request signal requesting other display to transmit ***specific information of a video signal displayed on the other display***, and ***receives the specific information from the other display***. The controller gives notification of correction to the other display sending the specific information with a difference when the specific information received differs from specific information of a video signal that is supposed to be displayed.” (Ex.1005, [0017]). “A frame number or time stamp is added as specific information of video signal to each frame or a reference frame in the video signal sent from image transmission server 100. In other words, ***the frame number is an example of specific information of the video signal***, and the time sample is also another example of the specific information of the video signal.” (Ex.1005, [0107]). Thus, Masumoto discloses video displays using

frame number as the video playback progress-data in the video signal sent and received by different video displays. (Ex.1003, ¶104).

e. Claim 5

(1)[5.0]

Same as Ground 1, Elements [1.0]-[1.4], [4.1].

(2)[5.1]

Masumoto discloses that the display (D240) is designed to compare difference between a frame number of the video signal displayed in the display (A210; B220; C230) at specific time notified in a request from the Display D240 to the display (A210; B220; C230) and a desired frame number at specific time calculated by the display D240 and to determine that there is asynchronization if the different exists (i.e., exceeding zero). (Ex.1003, ¶¶107-114).

Specifically, Masumoto discloses that “display D240 receives a frame number of video signal displayed in each display at specific time from other display A210 to display [C]230 (Step S23).” (Masumoto, [0112]). “Display D240 calculates a desired frame number at specific time notified in Step S21, and *compares its calculation result with the frame number received in step S23 for each display to determine any difference (Step S24).*” (Ex.1005, [0113]).

“For example, a desired frame number displayed at 2 minutes and 0 second in a 60-fps video signal is frame No. 7200 according to the next formula. $120 \text{ sec} \times 60$

fps=Frame No. 7200. (Ex.1005, [0114]). If the frame number received from display A210 in Step S23 is No. 7190, display on display A210 is delayed from the required value for: ***(Frame No. 7200) – (Frame No. 7190) = 10 frames***, or $10 \text{ frames} \times (1/60 \text{ fps}) = 0.16 \text{ sec.}$ (Ex.1005, [0115]). “When a frame number different from the desired frame number (difference exists) is detected (Yes in Step S24), display D240 calculates a frame correction quantity (Step S25). In the above example, this frame correction quantity will be: (Frame No. 7200) – (Frame No. 7190) = 10 frames.” (Ex.1005, [0117]).

“Display D240 notifies delayed display A210 of the frame correction quantity calculated in Step S25 (Step S26). In Step S26, display A210 receiving the frame correction quantity displays a video signal of the frame number after skipping the frame correction quantity received. For example, in the above example, when display A210 is displaying the video signal of frame No. 8600, next frame number to be displayed is supposed to be No. 8601. However, the above frame correction quantity is applied according to the next formula, and frame No. 8611 is displayed. (Frame No. 8601) + (Frame correction quantity: 10 frames) = Frame No. 8611.” (Ex.1005, [0118]).

“There are various correction methods, such as correction of two frames for five times, so as to suppress the number of frames skipped at once for reducing a sense of incongruity of viewers watching multi-display apparatus 1. If there is no

difference (NO in Step S24) in Step S24, controller 214 of display D240 ends without processes in Steps S25 and S26.” (Ex.1005, [0119]).

Therefore, Masumoto teaches that the display (D240) is designed to compare difference between a frame number of the video signal displayed in the display (A210; B220; C230) at specific time and a desired frame number at the specific time calculated by the display D240 and to determine that there is asynchronization if the different exists, i.e., exceeding a pre-determined threshold value of zero. Furthermore, based on Masumoto’s teaching of comparing frame numbers to be displayed at the same specific time to determine synchronization, for the same purpose of determining synchronization or asynchronization, a POSITA would have been motivated to try to compare difference between the received frame number and a frame number currently played back at the same time to determine synchronization or asynchronization. (Ex.1003, ¶¶113-114).

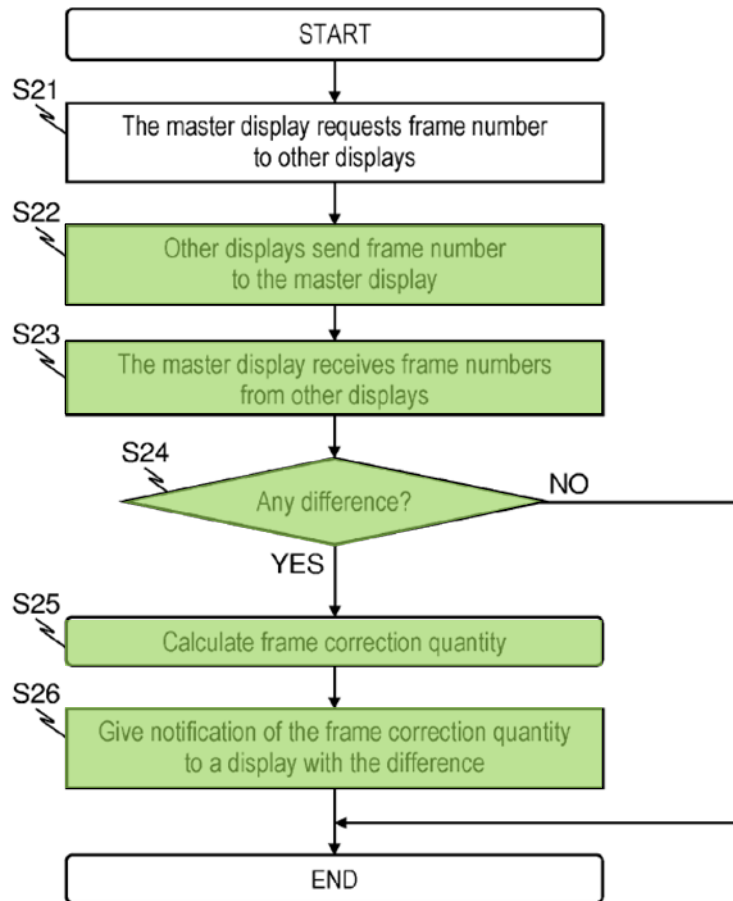


FIG. 9 of Masumoto

f. Claim 6

(1)[6.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2)[6.1]

Masumoto discloses that “the controller of each of the plurality of displays conducts mutual time synchronization *periodically*.” (Ex.1005, claim 8). Designing

every second in a periodic manner setting would be one of commonly used techniques. (Ex.1003, ¶¶115-117).

g. Claim 7

(1)[7.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2)[7.1]

Masumoto discloses that the display D240 is configured to broadcast a frame correction quantity (*corresponding to the adjustment data in [7.1]*) for correcting the playback progress of delayed display (A210; B220; C230) when frame number difference is detected. (Ex.1003, ¶¶118-124).

Specifically, Masumoto discloses that “[w]hen a frame number different from the desired frame number (difference exists) is detected (Yes in Step S24), display D240 calculates a frame correction quantity (Step S25). In the above example, this frame correction quantity will be: (Frame No. 7200) – (Frame No. 7190) = 10 frames.” (Ex.1005, [0117]).

“Display D240 notifies delayed display A210 [(B220; C230)] of the frame correction quantity calculated in Step S25 (Step S26). In Step S26, ***display A210 receiving the frame correction quantity*** displays a video signal of the frame number after skipping the frame correction quantity received. For example, in the above example, when display A210 is displaying the video signal of frame No. 8600, next

frame number to be displayed is supposed to be No. 8601. However, the above frame correction quantity is applied according to the next formula, and frame No. 8611 is displayed. (Frame No. 8601) + (Frame correction quantity: 10 frames) = Frame No. 8611.” (Ex.1005, [0118]).

“There are various correction methods, such as correction of two frames for five times, so as to suppress the number of frames skipped at once for reducing a sense of incongruity of viewers watching multi-display apparatus 1. If there is no difference (NO in Step S24) in Step S24, controller 214 of display D240 ends without processes in Steps S25 and S26.” (Ex.1005, [0119]).

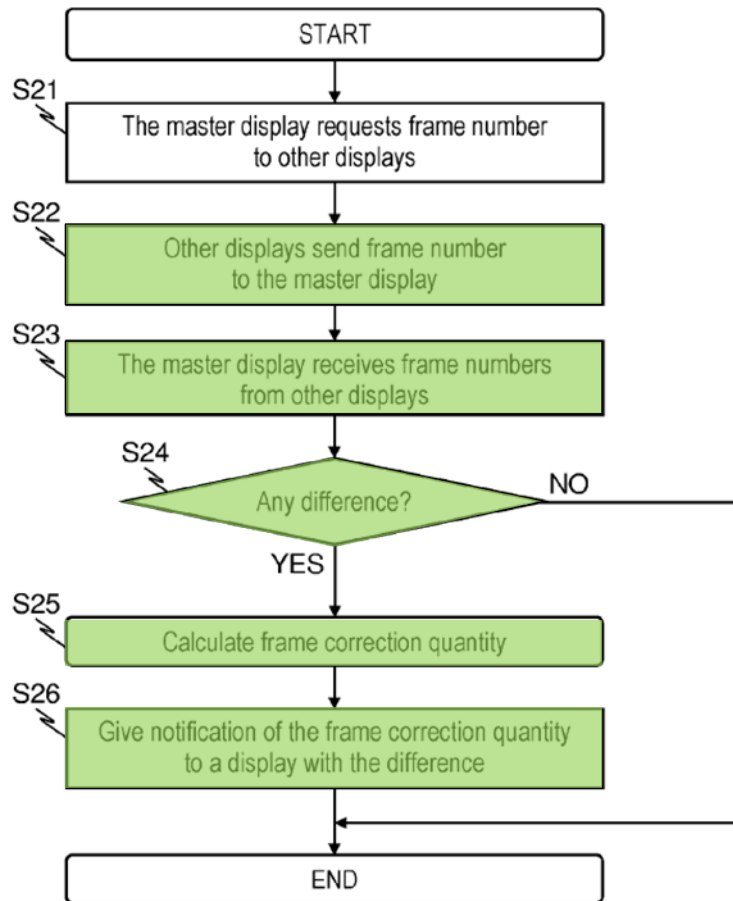


FIG. 9 of Masumoto

h. Claim 8

(1)[8.0]

Same as Ground 1, Elements [1.0]-[1.4] and [7.0]-[7.1].

(2)[8.1]

Masumoto discloses this Element by disclosing that “[d]isplay D240 *notifies delayed display A210 of the frame correction quantity calculated* in Step S25 (Step S26). In Step S26, display A210 receiving the frame correction quantity displays a

video signal of the frame number after skipping the frame correction quantity received.” Therefore, Masumoto inherently discloses that the display D240 transmits a notification (*corresponding to a synchronization command*) which has frame correction quantity (*corresponding to the adjustment data*) embedded. (Ex.1003, ¶¶126-127).

i. Claim 9

(1)[9.0]

Same as Ground 1, Elements [1.0]-[1.4], [7.0]-[7.1].

(2)[9.1]

Masumoto discloses that the display (A210; B220; C230) is configured to receive the frame correction quantity and correct its playback progress according to the frame correction quantity by applying the frame correction quantity to the frame number to be displayed on the display. (Ex.1003, ¶¶129-133).

Specifically, Masumoto discloses that “[*d*]isplay **D240 notifies delayed display A210 [(B220; C230)] of the frame correction quantity** calculated in Step S25 (Step S26). In Step S26, **display A210 receiving the frame correction quantity** displays a video signal of the frame number after skipping the frame correction quantity received. For example, in the above example, when display A210 is displaying the video signal of frame No. 8600, next frame number to be displayed is supposed to be No. 8601. However, **the above frame correction quantity is applied**

according to the next formula, and frame No. 8611 is displayed. (Frame No. 8601) + (Frame correction quantity: 10 frames) = Frame No. 8611.” (Ex.1005, [0118]).

“There are various correction methods, such as correction of two frames for five times, so as to suppress the number of frames skipped at once for reducing a sense of incongruity of viewers watching multi-display apparatus 1. If there is no difference (NO in Step S24) in Step S24, controller 214 of display D240 ends without processes in Steps S25 and S26.” (Ex.1005, [0119]).

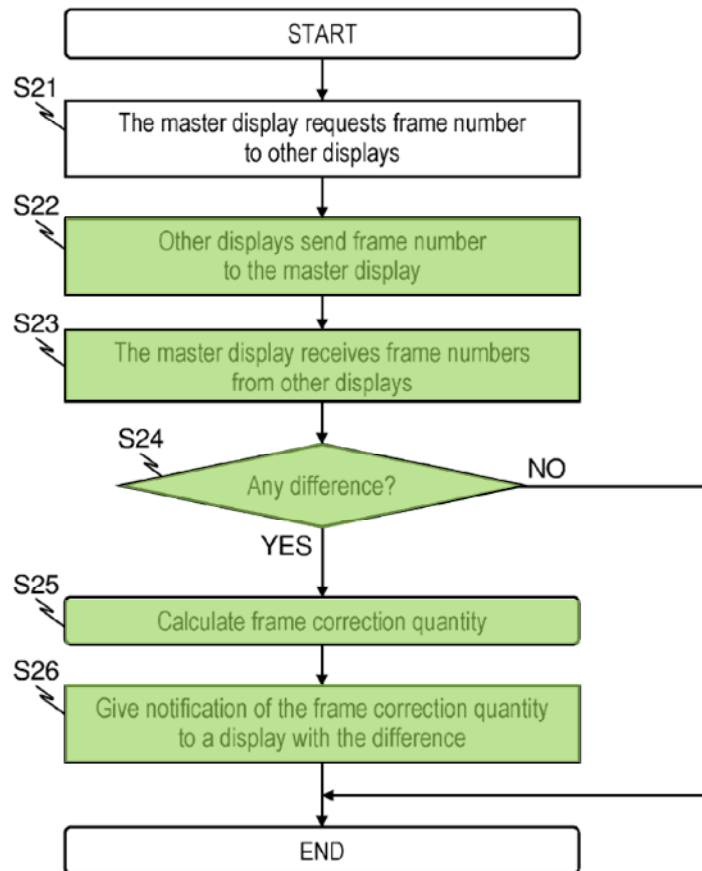


FIG. 9 of Masumoto

j. Claim 10

(1)[10.0]

Same as Ground 1, Elements [1.0]-[1.4] and [7.1].

(2)[10.1]

This Element is the same as [9.1]. Same as Ground 1, element [9.1].

k. Claim 11

(1)[11.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2)[11.1]

Swafford discloses that “[a]lthough illustratively shown as a wireless communication, the transmission path between continuous display shelf edge label devices 28200A-200C and products 28201A-201C may be a wired communication path, through network 28210.” (Ex.1004, [0274]).

UDP is a well-known communication protocol. A POSITA would understand to use UDP multicast data packets for the communication in Swafford. (Ex.1003, ¶¶136-137).

l. Claim 12

(1)[12.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2)[12.1]

Swafford in view of Masumoto discloses this Element. (Ex.1003, ¶¶136-138).

Swafford discloses that the “[c]ontinuous display shelf edge label device 43001 can be provided with *any number of displays*.” (Ex.1004, [0388]). Therefore, Swafford teaches that each continuous display shelf edge label device has its screen or multiple screens. (Ex.1003, ¶139).

Furthermore, Swafford teaches that a display 27111 oriented along an entire edge of a shelf of a retailer may be controlled by a device controller 27107. (Ex.1004, [0267]). As shown in FIG. 43, the entire edge of the shelf may have multiple displays like 43002, 43003. Thus, Swafford discloses the continuous display shelf edge label device is connected to its external display or multiple displays to be controlled by it. (Ex.1003, ¶140).

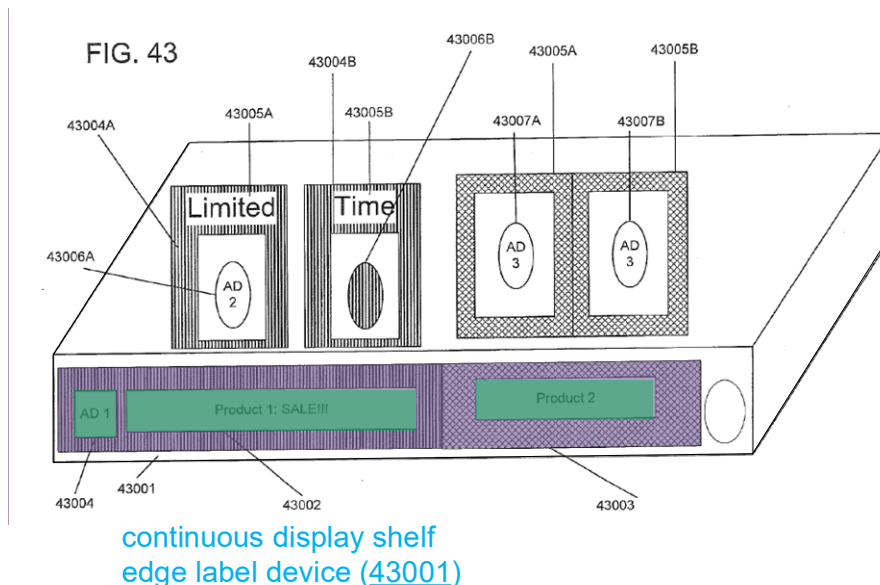


FIG. 43 of Swafford

m. Claim 13

(1)/13.0/

Same as Ground 1, Elements in [1.0]-[1.4].

(2)/13.1/

Swafford disclose this Element. (Ex.1003, ¶¶141-143).

Swafford discloses that “[e]ach continuous display shelf edge label device includes a single display area 4210A-4210D oriented along an entire edge of a shelf 4230A-4230D.” (Ex.1004, [0377], FIG. 42). Further, “continuous display shelf edge label device 43001 can be provided with any number of displays” covering the front of shelf as shown in FIG. 43. “[T]he displays 4210A-4210D can be *embedded into their respective shelves* 4230A-4230D.” (Ex.1004, [00378]). Thus, Swafford discloses that the display is designed to be integrated into a shelf or part of it, or to cover the front of the shelf or part of it. (Ex.1003, ¶142).

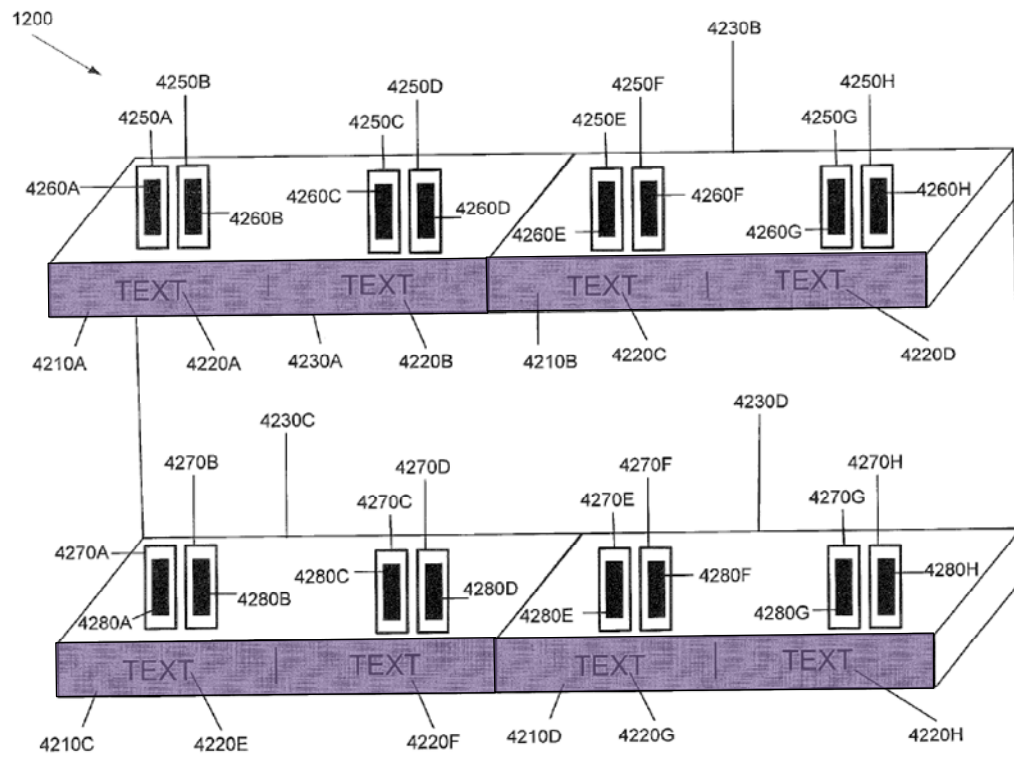


FIG. 42 of Swafford

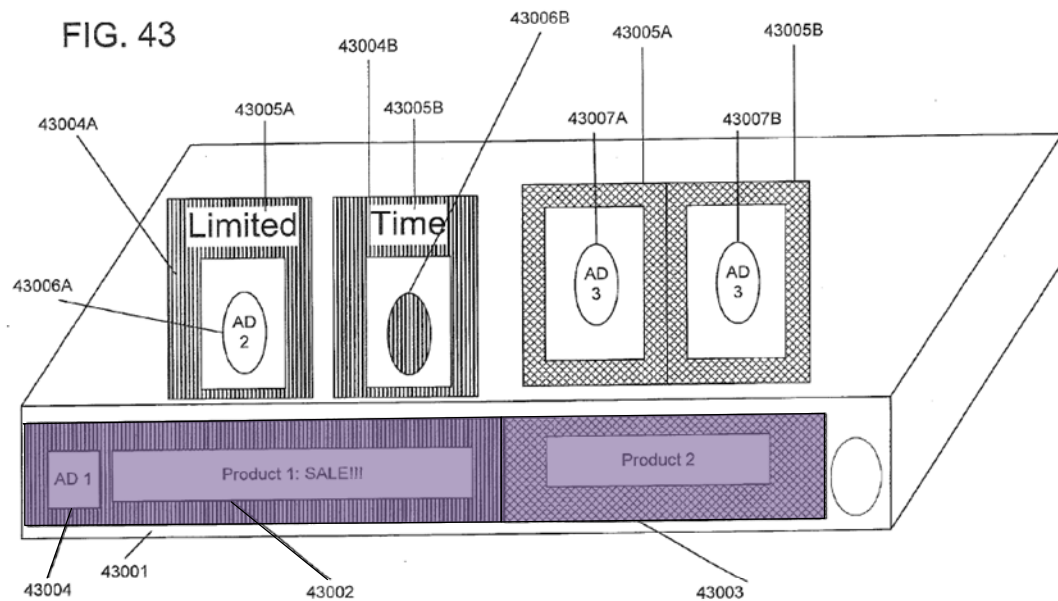


FIG. 43 of Swafford

n. Claim 14

(1) [14.0]

Same as Ground 1, Elements [1.0]-[1.4].

(2) [14.1]

Swafford disclose this Element. (Ex.1003, ¶¶143-145).

Swafford discloses that “*continuous display shelf edge label devices* arranged in side by side (4210A and 4210B or 4210C and 4210D) orientation and stacked on top of each other like shelves (4210A and 4210C or 4210B and 4210D), an array of continuous display shelf edge label devices may be configured, which can be configured to be combined together display a uniform image or *video*.” (Ex.1004, [0383]).

o. Claim 15

(1) [15.0]

Same as Ground 1, Elements [1.0]-[1.4] and [14.1].

(2) [15.1]

Swafford discloses that each of the shelves is realized by a display or carries a display. (Ex.1003, ¶148).

Swafford discloses that “[e]ach continuous display shelf edge label device includes a single display area 4210A-4210D oriented along an entire edge of a shelf 4230A-4230D.” Ex.1004, [0377], FIG. 42. Further, “continuous display shelf edge

label device 43001 can be provided with any number of displays” covering the front of shelf as shown in FIG. 43. “[T]he displays 4210A-4210D can be embedded into their respective shelves 4230A-4230D.” Ex.1004 (Swafford), [00378]. Thus, Swafford discloses that the display is designed to be integrated into a shelf or part of it, or to cover the front of the shelf or part of it. (Ex.1003, ¶148).

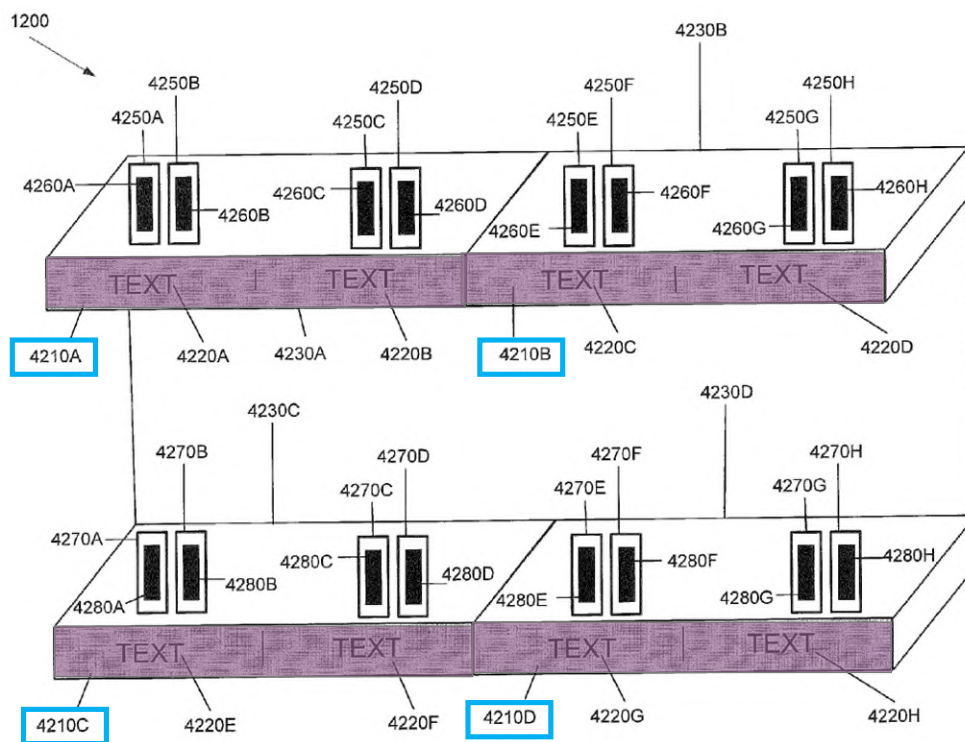


FIG. 42 of Swafford

4. A POSITA would have had reason to combine Swafford with Masumoto

As discussed above (supra, §III.E.1-3) and for the reasons provided below, a

POSITA would have found it obvious to apply multiple displays communicating video playback progress-data (e.g., the frame number, the time stamp) with each other, as taught in Masumoto, in Swafford's system.

Swafford's "electronic label devices may be configured to receive a streaming video and apportion the streaming video between the one or more electronic label devices and the plurality of packages." Ex.1004, [0421].

Similar to Swafford, Masumoto describes each "[t]he multi-display apparatus includes the plurality of displays connected to a network. Each of the plurality of displays includes a communication unit that communicates via the network and a controller." (Ex.1005, [0017]).

A POSITA would have been motivated to implement Masumoto's display displays, in Swafford's system, as described above, for the following reasons. (Ex.1003, ¶¶152-158).

First, a POSITA would have been motivated to combine Swafford with Masumoto because Swafford and Masumoto are designed to achieve the same goal to synchronize a video across multiple displays. *See*. Ex.1004, Abstract, [0423] ("Each of the first electronic label device, the second electronic label device, the first group of electronic displays, and the second group of electronic displays may be configured to ***simultaneously*** output a different portion of the streaming video"); *see also* Ex.1005, [0004] ("mutually synchronizing displays to match the frame number

contained in the image marker. This enables to display one entire image by multiple displays without a sense of incongruity”).

Specifically, Masumoto teaches that “[t]he controller [in one display] sends a request signal requesting other display to transmit specific information of a video signal displayed on the other display, and receives the specific information from the other display. The controller gives notification of correction to the other display sending the specific information with a difference when the specific information received differs from specific information of a video signal that is supposed to be displayed.” Ex.1005, [0017]. As such, a POSITA would have been motivated and able to use the teaching of Masumoto modify Swafford in order to fulfill Swafford’s express objective of “simultaneously output[ting] a different portion of the streaming video.” Ex.1004, [0423].

Second, it would have been obvious to a POSITA to have looked to Masumoto’s disclosure of transmitting video playback progress-data from one display to another display because it provides a solution to a well-recognized need in synchronizing video displays – a need for low bandwidth and simple, inexpensive hardware, as identified in Yamada, Kipp, Masumoto, and the ’669 Patent. *See* Ex.1001, 1:28-40; *see also* Ex.1010, [0011] (“[I]ts object is to provide a video information reproduction system that can accurately synchronize a plurality of video signals output from a plurality of video information reproduction devices **without**

making the configuration complex and to provide the video information reproduction device”); *see also* Ex.1006, [0026] (“Playback devices can thus achieve synchronization even when clock *drift* occurs at the video server or the individual playback devices”); *see also* Ex.1005, [0079] (“to configure the simple determination step.”)

Third, a POSITA would have expected that Swafford’s system would likely be subjected to the way of transmitting video playback progress-data among different displays addressed in Masumoto because of the structural similarity between Swafford’s and Masumoto’s devices. Swafford discloses that “[t]he display can in one example be LCD display, or any other known display types.” Ex.1004, [0330]. Masumoto discloses that “display unit 212 including a liquid crystal display panel,” Ex.1005 (Masumoto), [0040], and describes details of how different displays communicate with each other (e.g., transmitting specific information of a video signal displayed on the display, using frame numbers as the specific information, broadcasting the frame correction quantity to implement synchronization, loading the video data upfront to play, transmitting the video data as compressed data, transmitting the specific information repeatedly, embedding the frame correction quantity in a synchronization command) to synchronously display a video. Ex.1005, [0017], [0107]-[00118]. Given the structural similarity between Swafford’s and Masumoto’s devices (e.g., both Swafford and Masumoto are using LCD displays to

play videos), a POSITA would have understood, from Masumoto's teaching, that different electronic label devices would likely to be designed to transmit the video playback progress-data between each other. Furthermore, as details of how different displays communicate with each other to synchronously display a video (e.g., transmitting specific information of a video signal displayed on the display at specific time, using frame numbers as the specific information, broadcasting the frame correction quantity to implement synchronization, loading the video data upfront to play, transmitting the video data as compressed data, transmitting the specific information repeatedly, embedding the frame correction quantity in a synchronization command) have been used in Masumoto's displays, a POSITA would recognize that it would improve Swafford's similar device (i.e., electronic label device including the LCD displays) in the same way. *KSR*, 550 U.S., at 417.

Fourth, in my opinion, a POSITA would have been readily able to incorporate Masumoto's displays that transmit video playback progress-data (e.g., frame numbers) and Masumoto's memory that stores video data representing the video into Swafford's electronic label devices with an expectation of success. Swafford's electronic label devices all play the same role in the '669 Patent as synchronously displaying advertisement videos in the existing video playback art. Accordingly, it would have been routine for a POSITA to combine or modify the Swafford's electronic label devices to arrive at the purported invention of the '669 Patent.

For at least the above reasons, a POSITA would have found it obvious to incorporate Masumoto's teaching to Swafford's system so as to transmit the video playback progress-data from one electronic label device to another electronic label device.

F. Ground 2: Claims 1-15 are Rendered Obvious over Masumoto, Kipp, and Takashi

Claims 1-15 are unpatentable because they are obvious in view of the combination of Masumoto, Kipp, and Takashi. In particular, each and every element of Claims 1-15 is disclosed by Masumoto, Kipp, or Takashi, and a POSITA would have had reason to combine them. Ex. 1003, §III.B.

1. Kipp

Kipp discloses "a system for synchronizing segmented video streams across multiple playback devices." Ex.1006, [0012], FIG. 2; Ex.1003, ¶159.

In particular, "[a]s seen in FIG. 2 (reproduced below; FIG. 1 of the '669 Patent is reproduced below for comparison), a content provider system 200 is in signal communication with multiple playback devices 202a-e (collectively 202) via a network 204. Each playback device 202a-e is connected to a respective display device 206a-e (collectively 206)." Ex.1006, [0035]. "As also seen in FIG. 2, some of the playback devices are co-located with one another. For example, playback devices 202a, 202b, and 202c are co-located at a site 208, and playback devices 202d and 202e are similarly co-located with each other at a site 210" and "[s]uch

arrangements may be found, for example, at sports bars, classrooms, meeting rooms, and other locations where it may be desirable to have multiple display devices presenting the same content.” *Id.* at [0036]. Kipp’s approach of “multiple display devices presenting the same content” can be extended to different content that needs to be synchronized such as in Masumoto.

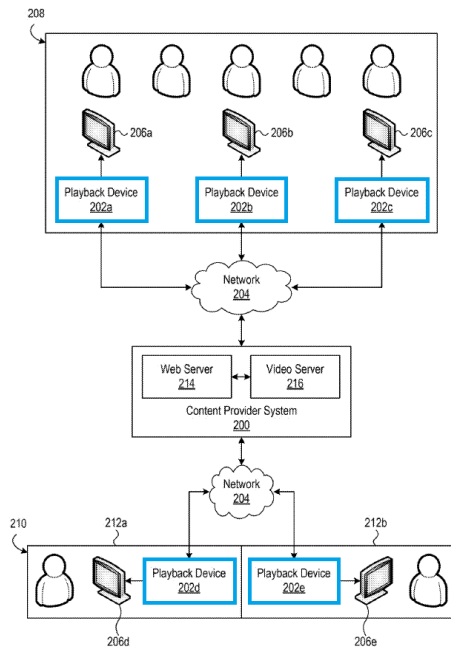


FIG. 2 of Kipp

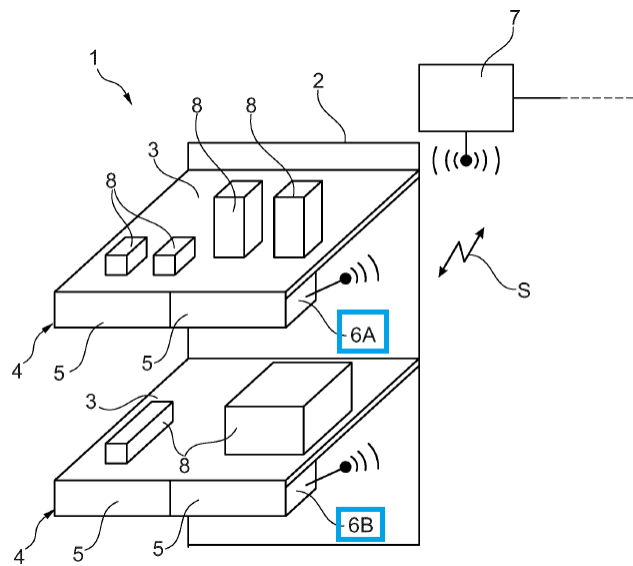


FIG. 1 of the '669 Patent

“An example premise 102a, such as a home, may include an interface 120. The interface 120 can include any communication circuitry needed to *allow a device to communicate on one or more links 101 with other devices* in the network.” *Id.* at [0034]. “Playback devices may synchronize playback of a segmented video stream *regardless of the clock time at the video server or the respective clock times of the playback devices*” and “a playback device estimates the live-point time of the video

server in terms of its own clock time. A playback device similarly schedules playback of the video fragments in terms of its own clock time. Playback devices can thus achieve synchronization even when clock drift occurs at the video server or the individual playback devices.” *Id.* at [0026].

Furthermore, the segmented video stream that is played on the playback devices may include “advertisements” that is formatted and inserted “in a video stream being transmitted to the premises 102.” Ex.1006 at [0033]. “Some example scenarios of on-demand or scheduled playback include selecting sports highlights for playback on multiple display screens at a sports bar, selecting music videos for playback on multiple display screens at a nightclub, selecting advertisements for playback on multiple digital billboards.” *Id.* at [0124].

Kipp qualifies as prior art under 35 U.S.C. § 102(a) because it was published on June 15, 2017, which is before the ’669 Patent’s November 10, 2017, claimed priority date. Ex.1006 at [43]. Kipp is analogous art to the ’669 Patent because it is from the same field of endeavor as the ’669 Patent. Ex.1001 at 1:15-16. In particular, the ’669 Patent is directed to “[a] video playback system, comprising a number of playback devices to playback a video on their screens” and Kipp is directed to “a system for synchronizing segmented video streams across multiple playback devices.” Ex.1006 at [0012]. Thus, both Kipp and the ’669 Patent are in the same

field of endeavor for synchronously displaying information on multiple screens. Ex. 1003, ¶168.

2. Takashi

Takashi discloses a “merchandise information display system” that is “provided with a shelf tag terminal 70 as merchandise information display terminal.” Ex.1008, Abstract; Ex.1003, ¶163.

In particular, “as shown in FIG. 14 (reproduced below), the merchandise information display system 1 may include a merchandise information display terminal 80A having a first display portion 70aA that mainly displays text information about the merchandise, and a display portion D serving as a second display portion that has a display portion larger than the first display portion 70aA and mainly displays images about the merchandise.” Ex.1008, [0051]. “This can be said to be an integral combination of the shelf tag terminal 70 and the image display terminal 80 (i.e., 80A in FIG. 4).” *Id.* “[T]he image display terminal 80 (i.e., 80A in FIG. 14) may display not only the appearance of the merchandise, but also cross-sections and other images, display still images, and display *videos* such as usage and *commercial video*.” *Id.* at [0051].

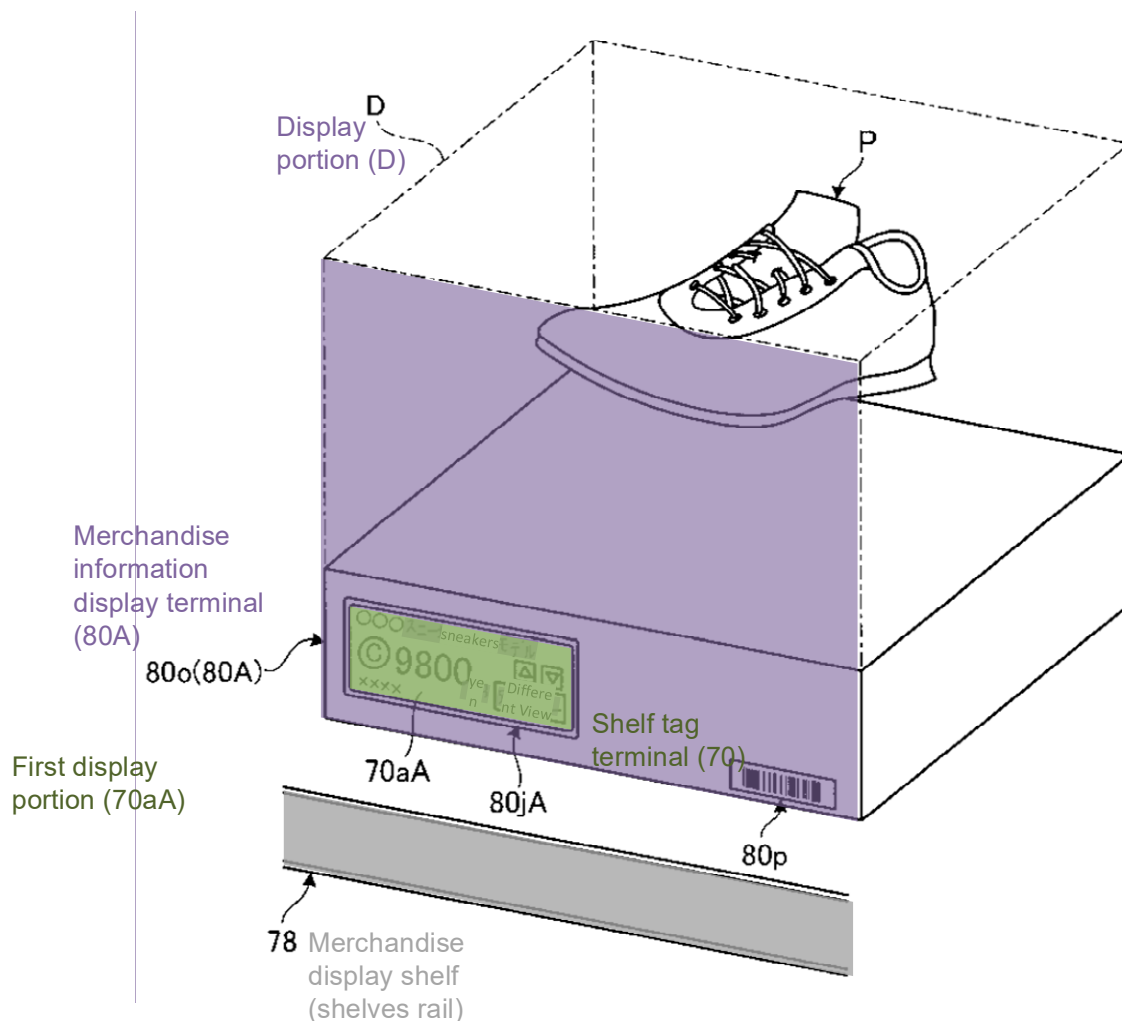


FIG. 14 of Takashi

Takashi further discloses that “the shelf tag terminal is not limited to what is illustrated in the above embodiments” and “the image display terminal [80; 80A] or the second display unit [D] may display text information about the merchandise along with images relating to the merchandise.” *Id.* at [0052].

Takashi qualifies as prior art under 35 U.S.C. §§ 102(a)-(b) because it was published on April 24, 2011, which is more than one year before the '669 Patent's November 10, 2017, claimed priority date. Ex.1008 at [43]. Takashi is analogous art

to the '669 Patent because it is from the same field of endeavor as the '669 Patent. Ex.1001 at 1:15-16. In particular, the '669 Patent is directed to “[a] video playback system, comprising a number of playback devices to playback a video on their screens” and the video playback system is provided in a retail store to display product information and Takashi is directed to a “merchandise information display system” that is “installed in a store” and includes “a shelf tag terminal that displays text information relating to the merchandise, and an image display terminal that has a larger display area than the shelf tag terminal and displays images relating to the merchandise.” *See* Ex. 1001 at Abstract, Claim 1, and 1:15-16; *see also* Ex.1008 at [0006]. Thus, both the '669 Patent and Takashi are in the same field of endeavor for displaying product information including video on multiple screens. Ex. 1003, ¶168.

3. The combination of Masumoto, Kipp, and Takashi discloses every element of Claims 1-15

a. Claim 1

(1)[1.0]

The preamble of claim 1 is not limiting because it merely states the purpose or intended use of the alleged invention. It does not define any of the claim limitations, which are set forth fully in the body of the claim (i.e., a video playback system).

To the extent the preamble is limiting, Masumoto discloses “a multi-display apparatus for displaying a single image by combining a plurality of displays.” (Ex.1005, [0017]).

In the same field of endeavor (e.g., video playback system), Kipp discloses a system for synchronizing segmented video streams across multiple playback devices, and Takashi also discloses an electronic shelf tag system in which multiple display units are used to display information including a video relating to a product. (Ex.1006, [0012]; Ex.1008, [0051], FIG. 14).

(2)[1.1]

Masumoto and Kipp each discloses this Element. (Ex.1003, ¶¶168-171).

First, Masumoto discloses [1.1] as addressed in Ground 1, element [1.1]. (Ex.1003, ¶170).

Additionally, Kipp discloses this element because Kipp discloses that “[a]s seen in FIG. 2, a content provider system 200 is in signal communication with ***multiple playback devices 202a-e (collectively 202)*** via a network 204. Each playback device 202a-e is connected to ***a respective display device 206a-e (collectively 206)***.” (Ex.1006, [0035], FIG. 2). Thus, the multiple playback devices 202a-e (collectively 202) corresponding to “a number of playback devices (6A, 6B)” that playback a video on their respective display device 206a-e (collectively 206) in [1.1]. (Ex.1003, ¶171).

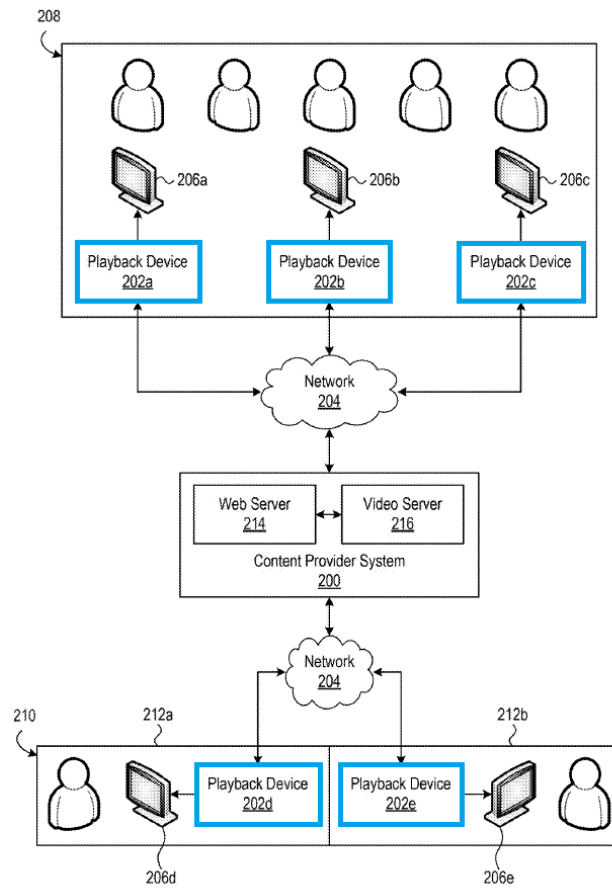


FIG. 2 of Kipp

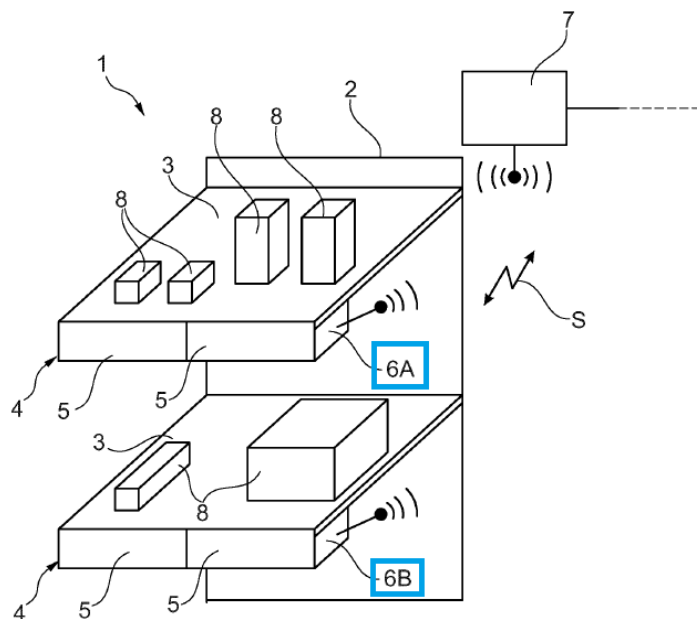


FIG. 1 of the '669 Patent

(3)[1.2]

Masumoto and Kipp each discloses this Element. (Ex.1003, ¶¶173-175).

First, Masumoto discloses [1.2] as addressed in Ground 1, element [1.2]. (Ex.1003, ¶173).

Additionally, Kipp discloses that “[t]he playback device 400, in this example, includes *a video content buffer 406 configured to store a set 408 video fragments 410*, a video content playlist 411 that includes the age 413 of the video content playlist, video content playback instructions 412, a clock 414 that provides a clock time 416 for the playback device, and configuration information 418.” (Ex.1006, [0056], FIG. 4). Thus, the video content buffer 406 corresponds to the “memory” in [1.2]. (Ex.1003, ¶174).

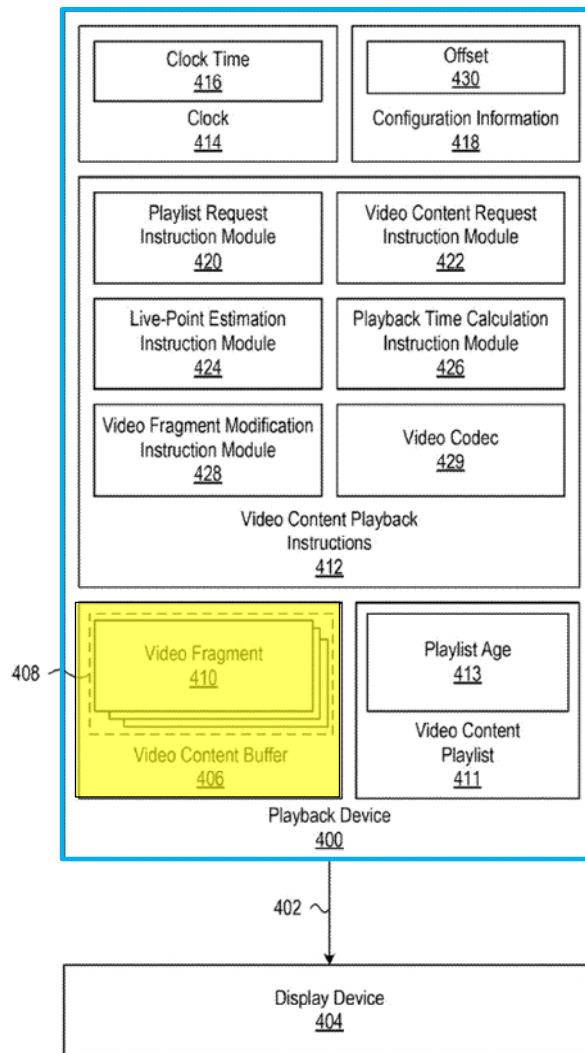


FIG. 4 of Kipp

(4)[1.3]

Masumoto discloses this Element. (Ex.1003, ¶¶176-177).

As discussed in Gound 1, Element [1.3], Masumoto teaches that the displays can communicate data with each other and are designed to transmit specific information of a video signal displayed on the display (*corresponding to the video playback progress-data*), such as the frame number or the time stamp, to the other

display and to determine synchronization or asynchronization based on the video playback progress-data. (Ex.1003, ¶177).

(5)/1.4/

Kipp and Takashi disclose this Element. (Ex.1003, ¶¶178-182).

Kipp discloses that the video content displayed on the multiple playback devices may include various content to the users at their premises. (Ex.1003, ¶177). For example, “[t]his content may be, for example, video on demand movies, television programs, songs, text listings, etc.” (Kipp, [0032]). The premises may include “for example, at sports bars, classrooms, meeting rooms, and other locations where it may be desirable to have multiple display devices presenting the same content.” (Ex.1006, [0036]). Kipp’s approach of “multiple display devices presenting the same content” can be extended to different content that needs to be synchronized such as in Masumoto. In Kipp, the segmented video stream that is played on the multiple playback devices may include “advertisements” that is formatted and inserted “in a video stream being transmitted to the premises 102.” (Ex.1006, [0033]). “Some example scenarios of on-demand or scheduled playback include selecting sports highlights for playback on multiple display screens at a sports bar, selecting music videos for playback on multiple display screens at a nightclub, selecting *advertisements* for playback on multiple digital billboards.” (Ex.1006, [0124]).

Thus, Kipp teaches that the multiple playback devices may display advertisement video contents associated with the premise. Therefore, a POSITA would understand that in a business premise, such as a retail store, the content associated with the premise will include product information. (Ex.1003, ¶178).

Furthermore, Takashi discloses an electronic shelf tag system in which multiple display units are used to display information including a video relating to a product. (Takashi, Abstract). “As shown in FIG. 5, the image display terminal 80 is provided with a display area D that is larger than the display portion 70a of the shelf tag terminal 70, and this display area D displays images P relating to the merchandise. 5 illustrates a case in which the display device is configured as a display device which displays a three-dimensional image (the image P) showing the appearance of the merchandise.” (Ex.1008, [0020]). “It is also possible to configure the image display terminal 80 as a known display device (e.g., a cathode ray tube (CRT) or liquid crystal display (LCD)) that displays two-dimensional images of the merchandise. In such cases, the display area D is flat.” *Id.* “Note that the image display terminal 80 may display not only the appearance of the merchandise, but also cross-sections and other images, display still images, and display *videos* such as usage and commercial video.” (Ex.1008, [0021], FIG. 5). “[T]he shelf tag terminal 70 is provided with a display portion 70a that displays information including *text information relating to merchandise such as merchandise name and price* on the

front side of the thin plate (label-shaped) housing.” (Ex.1008, [0019], FIG. 5). Thus, FIG. 5 of Takashi discloses the shelf tag 70 (*corresponding to the virtual virtual electronic shelf labels*) including display portion 70a displaying product information or product price related information and the image display terminal 80 including display area displaying display *videos* such as usage and commercial video. (Ex.1003, ¶179).

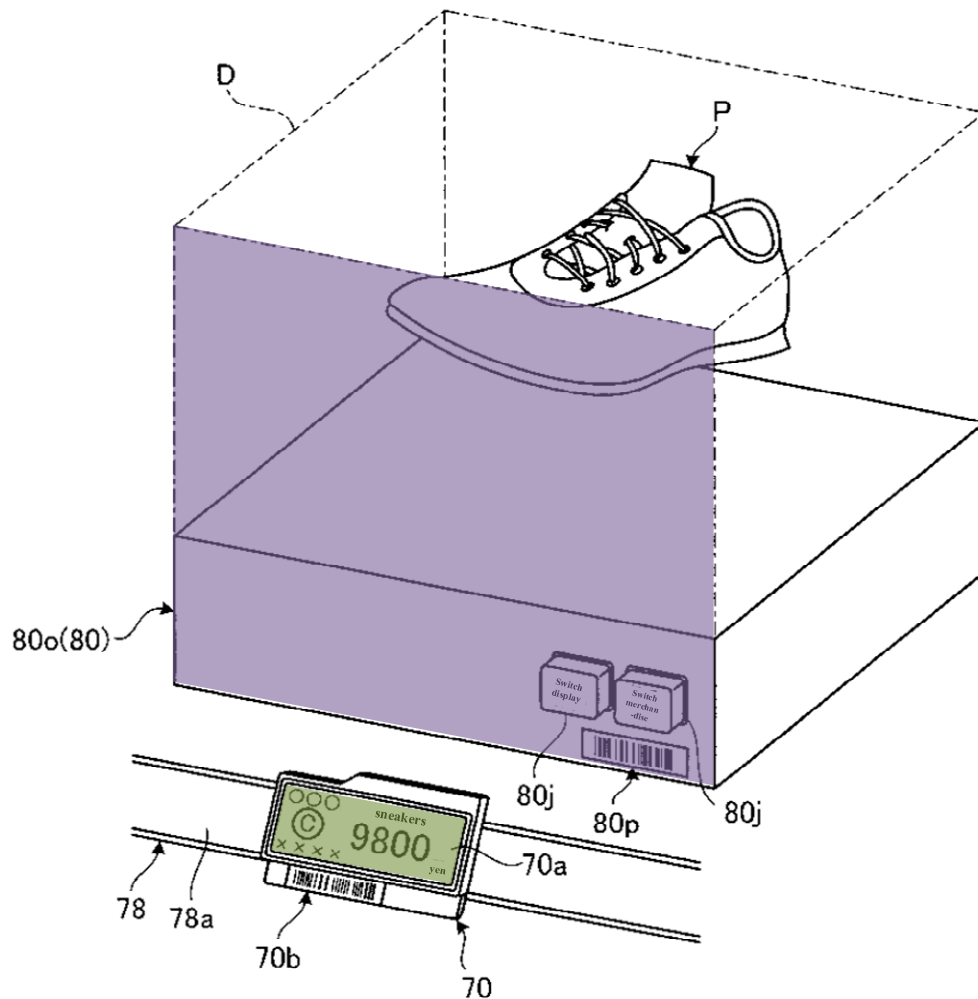


FIG. 5 of Takashi

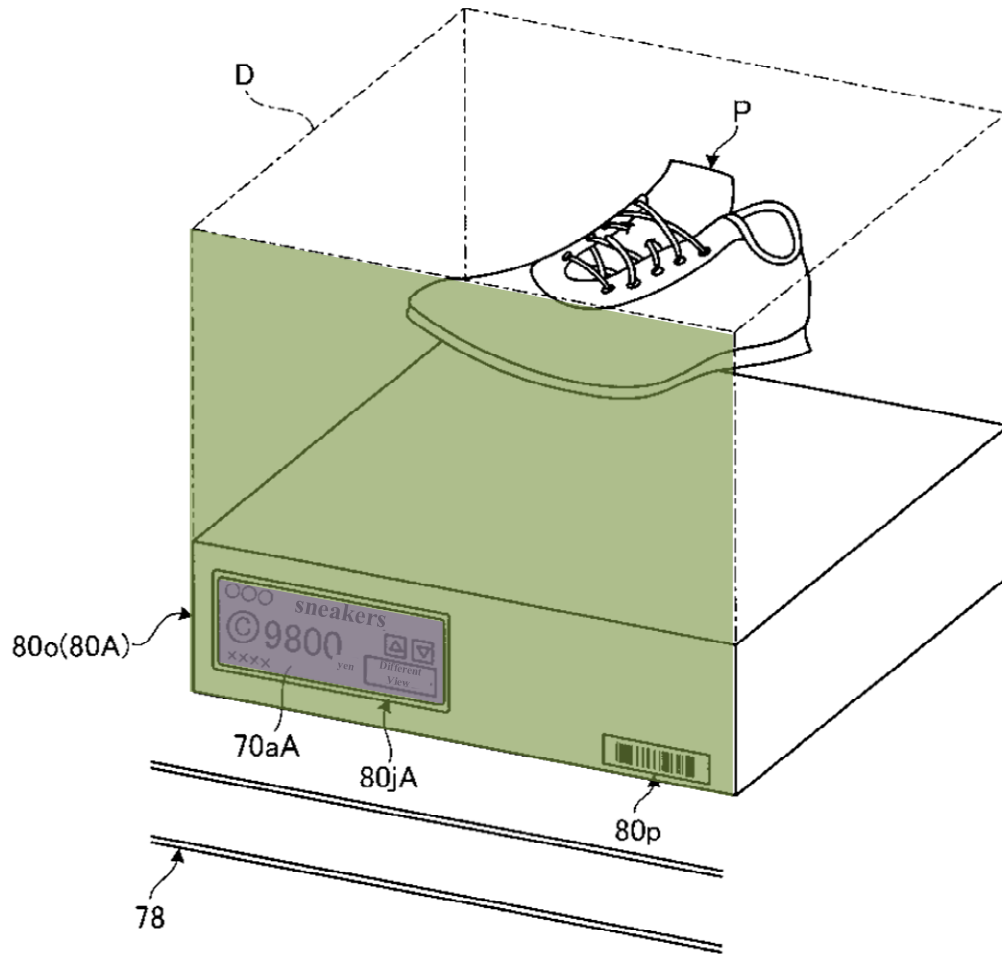


FIG. 14 of Takashi

In another embodiment, as shown in FIG. 14, “the merchandise information display system 1 may include a merchandise information display terminal 80A having a first display portion 70aA that mainly displays text information about the merchandise, and a display portion D serving as a second display portion that has a display portion larger than the first display portion 70aA and mainly displays images about the merchandise” and “[t]his can be said to be an integral combination of the shelf tag terminal 70 and the image display terminal 80.” (Ex.1008, [0051], FIG.

14). *The display portion D of the image display terminal 80 may display video as well.* (Ex.1008, [0021]). Therefore, FIG. 5 of Takashi shows displaying *text information relating to merchandise such as merchandise name and price* by means of virtual electronic shelf labels (i.e., 70) displayed within a section of the merchandise information display terminal 80A's display area overlapping with a video content, as recited in [1.4]. (Ex.1003, ¶180).

Takashi further discloses that “the shelf tag terminal is not limited to what is illustrated in the above embodiments” and “*the image display terminal [80; 80A] or the second display unit [D] may display text information about the merchandise along with images relating to the merchandise.*” (Ex.1008, [0052]). Thus, the area in the image display terminal [80; 80A] or the second display unit [D] that displays text information about the merchandise correspond to the virtual electronic shelf labels in [1.4]. (Ex.1003, ¶181).

Therefore, Takashi discloses that the image display terminal is configured to display text information about the merchandise via virtual electronic shelf labels displayed within a section of the display area of the merchandise information display terminal 80; 80A that is overlapping with the video displayed, as featured in [1.4]. (Ex.1003, ¶181).

Moreover, a POSITA would understand that designing substitutive video content in overlapping display areas is commonly used to attract customers’

attention. *See* Ex.1004, [0404] (“provide additional information to a customer or to attract a customer’s attention.”) (Ex.1003, ¶182).

A POSITA would have been motivated to implement the video content displayed on Kipp’s multiple playback devices and the product content displayed on Takashi’s image display terminal, in Masumoto’s multiple displays when applying Masumoto’s multiple-display apparatus in a specific business premise. (Ex.1003, ¶¶182-190). As discussed in Section III.F.4 below, a POSITA would have been motivated and able to modify Masumoto’s multiple displays by using Kipp’s multiple playback devices and the product content displayed on Takashi’s image display terminal, and thus reach the combination of Masumoto, Kipp, and Takashi that discloses all of the limitations of [1.4]. (Ex.1003, ¶¶183-191).

b. Claim 2

(1)[2.0]

The requirements of claim 1, in [1.0]-[1.4], have been addressed.

(2)[2.1]

As discussed in Ground 1, Element [2.1], Masumoto discloses that an image transmission server is configured to distribute video data to the displays, and specifically to distribute the video data to be displayed on a display upfront to the memory of the display. (Ex.1003, ¶¶192-194).

c. Claim 3

(1)[3.0]

The requirements of claim 1, in [1.0]-[1.4], have been addressed.

(2)[3.1]

As discussed in Ground 1, Element [3.1], Masumoto discloses this Element by disclosing that the displays determine synchronous or asynchronous status based on specific information of video signal (e.g., frame number, time stamp) that is transmitted among the displays, independently from the transmission server. (Ex.1003, ¶¶196-198).

Additionally, Kipp discloses that “playback devices may synchronize playback of a segmented video stream *regardless of the clock time at the video server or the respective clock times of the playback devices*” and “a playback device estimates the live-point time of the video server in terms of its own clock time. A playback device similarly schedules playback of the video fragments in terms of its own clock time. Playback devices can thus achieve synchronization even when clock drift occurs at the video server or the individual playback devices.” (Ex.1006, [0026]). “Synchronization across the multiple playback devices occurs as a result of each playback device scheduling playback of the video fragments based on their estimations of the live point time of the video server and modifying their respective

video fragments until the actual playback times of the video fragments align with the scheduled playback times.” Ex.1006, [0061]; Ex.1003, ¶198.

d. Claim 4

(1)[4.0]

The requirements of claim 1, in [1.0]-[1.4], have been addressed.

(2)[4.1]

As discussed in Ground 1, Element [4.1], Masumoto discloses this Element. (Ex.1003, ¶¶199-201).

Masumoto discloses that the displays are configured to play compressed video data that are structured in frames labeled by frame numbers, and to use a frame number that labels the frame as the video playback progress-data that is transmitted among the displays. (Ex.1005, [0017], [0039], [0045], [0107]).

e. Claim 5

(1)[5.0]

The requirements of claim 1, in [1.0]-[1.4], have been addressed.

(2)[5.1]

Same as Ground 1, Element [5.1]. (Ex.1003, ¶202).

f. Claim 6

(1)[6.0]

Same as Ground 2, Elements [1.0]-[1.4].

(2)[6.1]

Same as Ground 1, Element [6.1]. (Ex.1003, ¶203)

g. Claim 7

(1)[7.0]

Same as Ground 2, Elements [1.0]-[1.4].

(2)[7.1]

Same as Ground 1, Element [7.1].

h. Claim 8

(1)[8.0]

Same as Ground 2, Elements [1.0]-[1.4] and [7.0]-[7.1].

(2)[8.1]

Same as Ground 1, Element [8.1].

i. Claim 9

(1)[9.0]

Same as Ground 2, Elements [1.0]-[1.4], [7.0]-[7.1], and [8.0]-[8.1].

(2)[9.1]

Same as Ground 1, Element [9.1].

j. Claim 10

(1)[10.0]

Same as Ground 2, Elements [1.0]-[1.4] and [7.0]-[7.1].

(2)[10.1]

Same as Ground 2, Element [9.1].

k. Claim 11

(1)[11.0]

Same as Ground 2, Elements [1.0]-[1.4].

(2)[11.1]

UDP is a well-known communication protocol. (Ex.1003, ¶208). For example, Kipp discloses that “some examples of network communication protocols that may be employed to deliver video fragments from a video server to a playback device include TCP/IP, HTTP/1.1, HTTP/2.0, and QUIC (Quick **UDP** Internet Connections).” (Ex.1006, [0129]).

A POSITA would understand to use UDP multicast data packets for the communication among the displays in Masumoto. (Ex.1003, ¶¶209-210).

I. Claim 12

(1)/12.0/

Same as Ground 2, Elements [1.0]-[1.4].

(2)/12.1/

Masumoto, Kipp and Takashi disclose this Element. (Ex.1003, ¶¶211-214).

First, Masumoto discloses that each display has a display unit. (Ex.1005, FIG. 2).

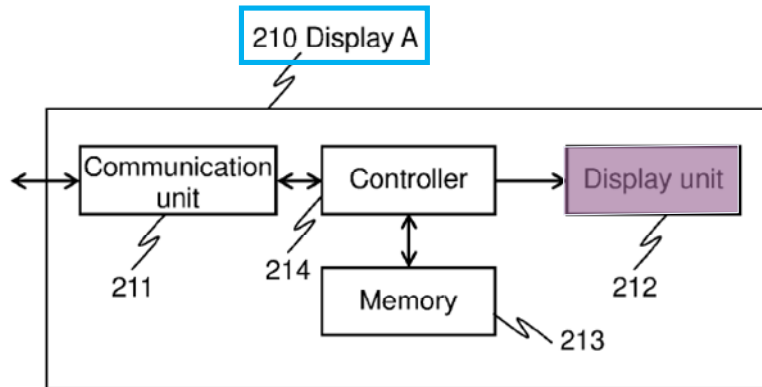


FIG. 2 of Masumoto

Additionally, Kipp discloses that “each display device comprises its screen.” (Ex.1006, [0041]-[0042], FIG. 2). Kipp discloses that “although the playback devices 202 are shown to be separate from their respective display devices 206, this need not be the case. In example implementations, a single device may incorporate both the playback device and the display device.” (Ex.1006, [0042]). Thus, Kipp discloses that each display device comprises its screen or is connected to its external screen. (Ex.1003, ¶213).

Additionally, Takashi discloses that the image display terminal 80 may include the first display unit 70aA and the second display unit D (corresponding to a number of screens in [12.1]). Thus, Takashi discloses that the image display terminal 80 comprises a number of screens. Moreover, it would be obvious for a POSITA to try connecting to multiple external screens as taught in Takashi. (Ex.1003, ¶214).

m. Claim 13

(1) [13.0]

Same as Ground 2, Elements [1.0]-[1.4].

(2) [13.1]

Takashi discloses this Element. (Ex.1003, ¶¶215-218).

Takashi discloses that “[t]he shelf tag terminal 70 is provided at an edge 78a, etc., of a merchandise display shelf 78 in the store.” (Ex.1008, FIG. 5). Thus, Takashi discloses that shelf tag terminal 70 having the first display portion 70a is designed to realize part of the merchandise display shelf 78 and covers part of the edge of the merchandise display shelf 78. (Ex.1003, ¶216).

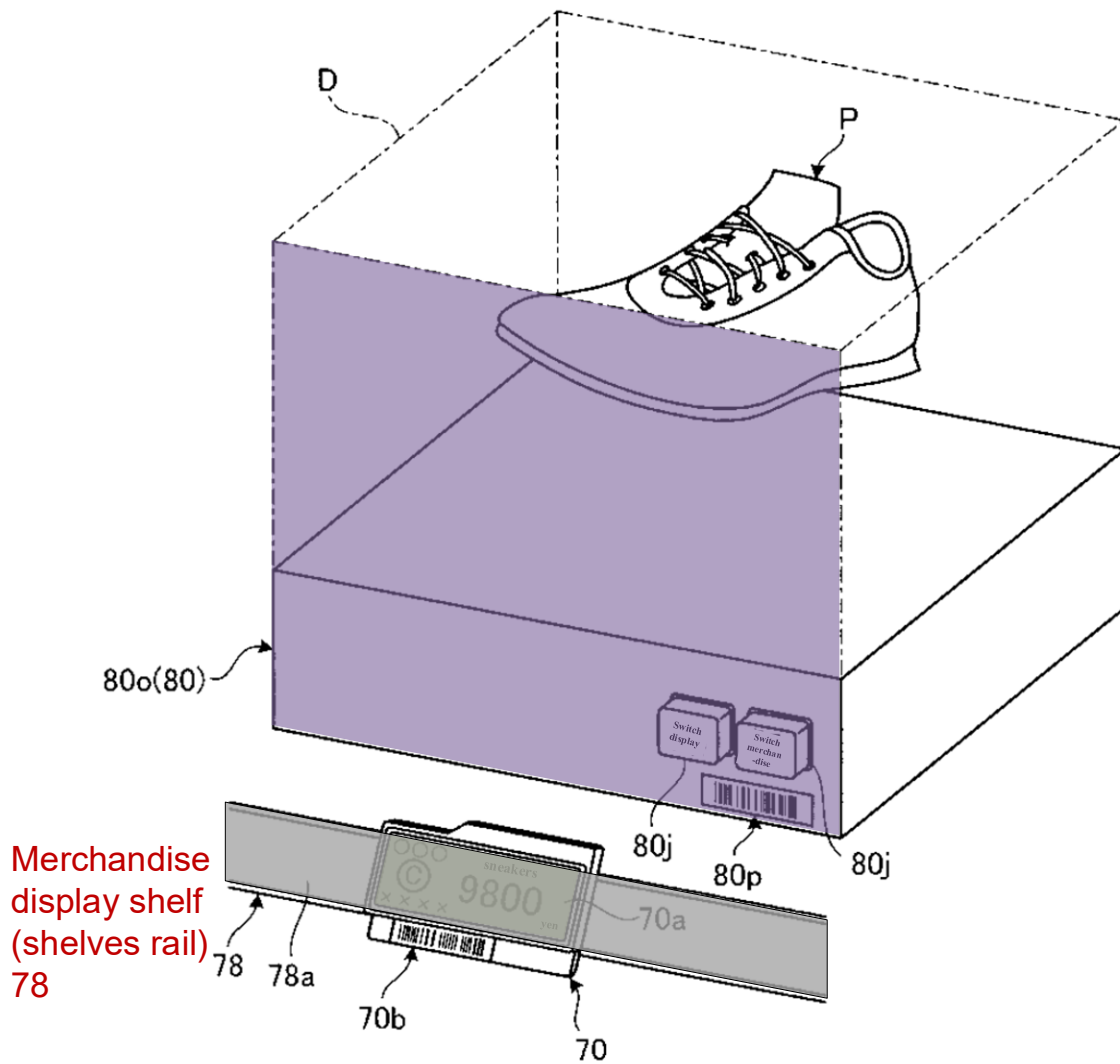


FIG. 5 of Takashi

Furthermore, a POSITA would understand to enlarge the screen size, e.g., design a whole shelf rail with screen or cover the whole rail front, for the purpose to attract customers, as taught in Takashi. (Ex.1003, ¶217).

It is a universal, obvious goal of all such systems to attract customers' attention but less intrusive in a business premise. *See* Ex.1009, [0008] (“Electronic components, such as a video display device, audio speakers, a printer or a wireless

transmitting device used to deliver content to shoppers in the vicinity of the shelf can be housed securely within the enclosure of the shelf”). Takashi describes placing the shelf tag terminal 70 and the image display terminal 80 on or close to shelves. (Ex.1008, FIG. 5.) A POSITA reading Masumoto and Kipp would have been motivated to apply the shelf tag terminal 70 and the image display terminal 80/80A to the combination of Masumoto and Kipp. (Ex.1003, ¶218).

n. Claim 14

(1)[14.0]

Same as Ground 2, Elements [1.0]-[1.4].

(2)[14.1]

Takashi discloses a video playback enabled electronic shelf label system. ((Ex.1008, FIGS. 5, 14). (Ex.1003, ¶220).

o. Claim 15

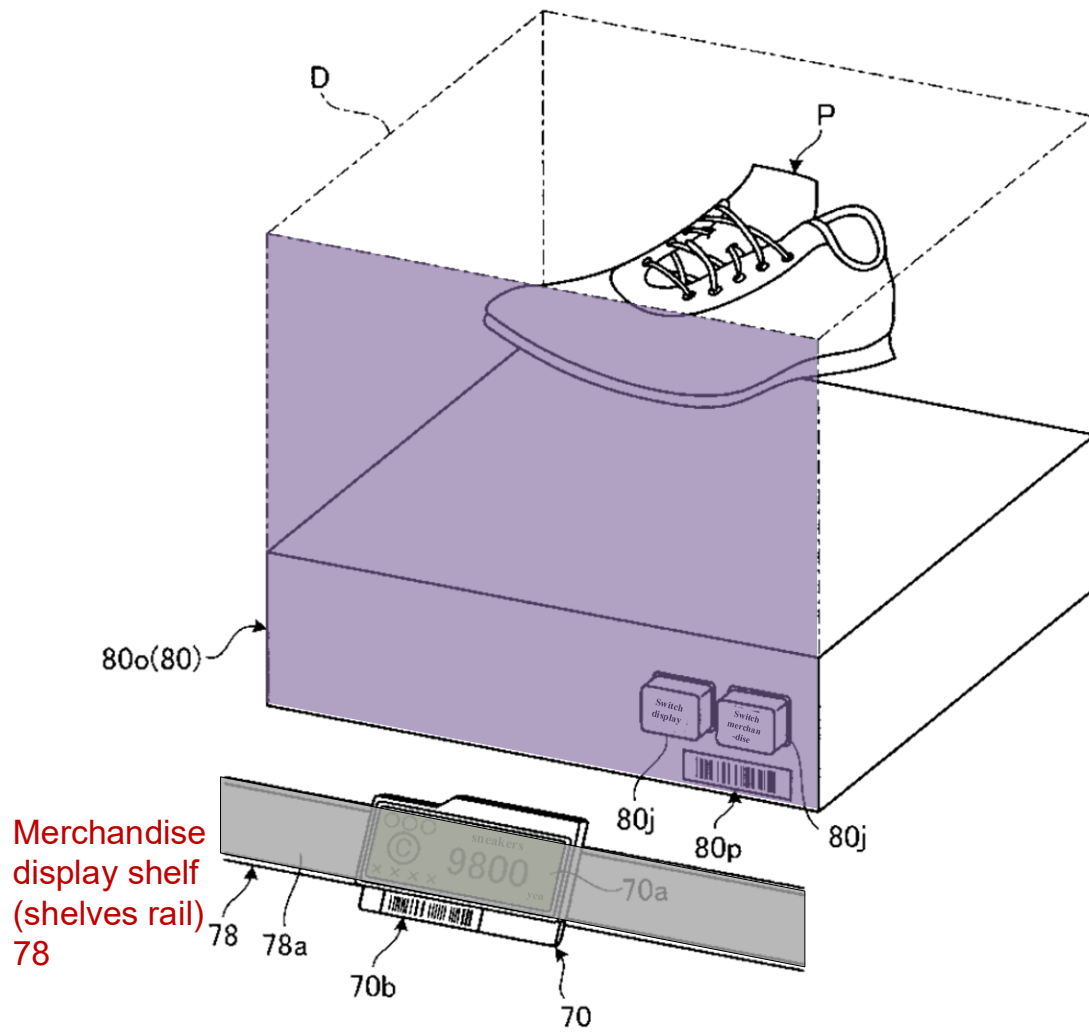
(1)[15.0]

Same as Ground 2, Elements [1.0]-[1.4].

Takashi teaches a video playback enabled electronic shelf label system. (Ex.1008, FIGS. 5, 14). (Ex.1003, ¶222).

(2)[15.1]

Takashi discloses that “[t]he shelf tag terminal 70 is provided at an edge 78a, etc., of a merchandise display shelf 78 in the store.” (Ex.1008, [0019], FIG. 5). In FIG. 14, Takashi shows that the image display terminal 80 having the first display portion 70aA and the display portion D are placed above the merchandise display shelf 78. Therefore, Takashi discloses that the merchandise display shelf 78 carries different displays. (Ex.1003, ¶222). Furthermore, according to Takashi, a store inherently has multiple shelves to display different products. (Ex.1003, ¶223).



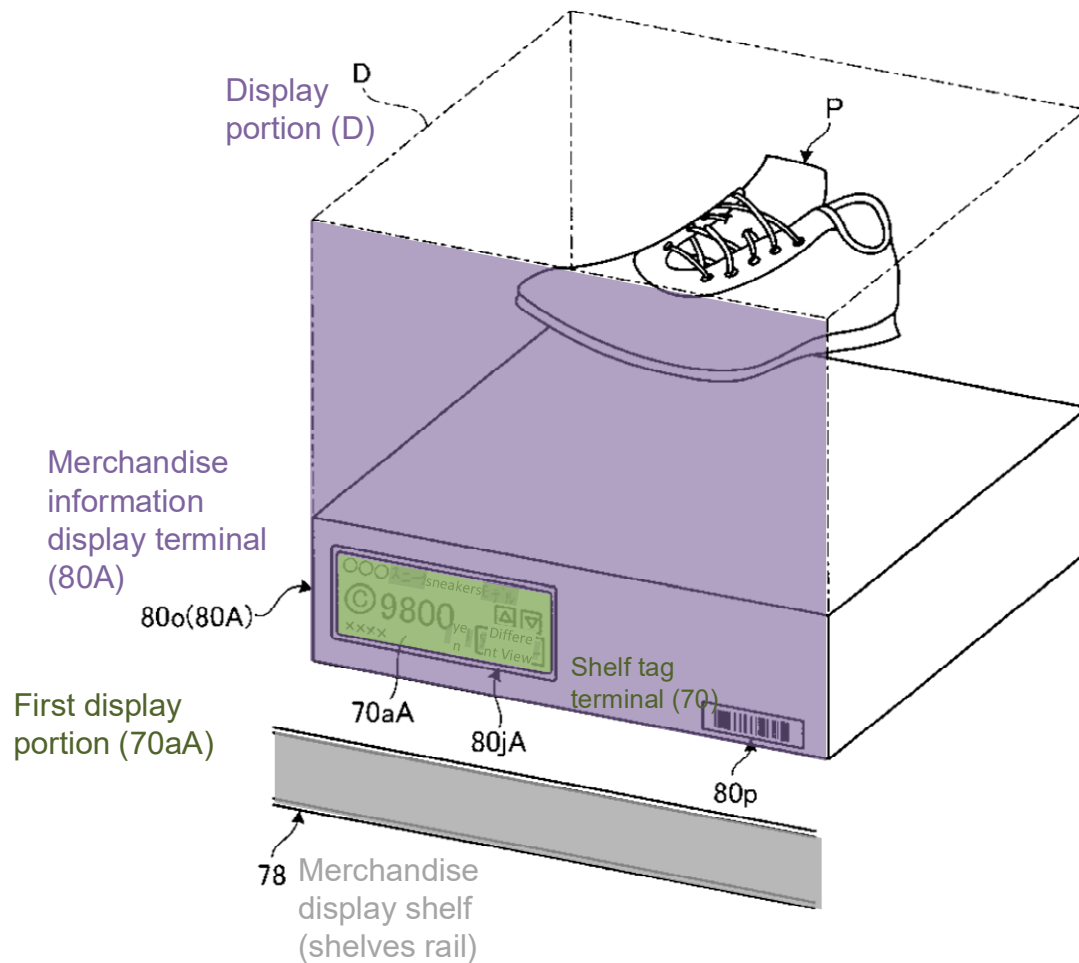


FIG. 14 of Takashi

4. A POSITA would have had reason to combine Kipp with Masumoto and Takashi

As discussed above (*supra*, §III.E.2 and §III.F.1-3) and for the reasons provided below, a POSITA would have been motivated to combine the teachings of Masumoto with Kipp and Takashi in the manner described below. In particular, a POSITA reading Masumoto in view of Kipp and Takashi would have found it obvious to implement the video content displayed on Kipp's multiple playback devices and the product content displayed on Takashi's image display terminal, in

Masumoto's multiple displays when applying Masumoto's multiple-display apparatus in a specific business premise, e.g., a retail store for the following reasons. (Ex.1003, ¶224).

First, a POSITA would have been motivated to combine Masumoto with Kipp because Masumoto and Kipp are designed to achieve the same goal to synchronize a video across multiple displays. Masumoto's multiple-display apparatus is capable of "mutually synchronizing displays to match the frame number contained in the image marker. This enables to display one entire image by multiple displays without a sense of incongruity." Ex.1005, [0004]. Kipp recognizes that "[t]herefore a need exists for synchronizing video streams across multiple playback devices." Ex.1006, [0003]. (Ex.1003, ¶225).

Second, it would have been obvious to a POSITA to have looked to Kipp's disclosure of synchronously displaying advertisement content associated with a premise where the multiple playback devices are co-located when applying Masumoto's multiple-display apparatus in a specific business premise, e.g., a retail store, to solve a well-recognized need in a business premise – a need for synchronously providing clients with promotional information or advertisement. *See* the '669 Patent, 1:28-40, 7:29-38 ("playing back synchronized video [e.g., advertisement video] on a number of devices comprised of relatively inexpensive hardware"); *see also* Ex.1006, [0023], [0124] ("playback devices deployed to a

common location (e.g., a sports bar, a residence, etc.) may synchronize a segmented video stream presented to viewers on multiple displays at that location” and “selecting advertisements for playback on multiple digital billboards”); *see also* Ex.1009, [0032] (the shelf may be implemented with “connected” displays that “run the same ads all the time”). (Ex.1003, ¶226).

Third, a POSITA would have expected using Masumoto’s multiple displays to display advertisement video as in Kipp and Kipp’s approach of presenting the same content can be extended to different content that needs to be synchronized as in Masumoto. Kipp’s display devices may “be any type of device configured to receive a video signal and output visual images corresponding to that video signal,” including “televisions, computer monitors, computer screens, touchscreens, video projectors, head-up displays, head-mounted displays, digital billboards, and other types of devices configured to generate visual images from a video signal received.” (Ex.1006, [0041]). Masumoto’s each display receives video signals from the image transmission server and displays images from the video signals that are received. (Ex.1005, [0039]). Therefore, given the structural similarity between Kipp’s and Masumoto’s displays, a POSITA would have recognized, from Kipp’s teaching, that it would improve Masumoto’s similar device (i.e., displays) as displaying an advertisement video and presenting different video contents that need to be

synchronized in multiple displays, when applying Masumoto's device in a business place, e.g., retail store (Ex.1003, ¶227).

Fourth, a POSITA would have had have been readily able to combine Masumoto's displays with Kipp's display devices that display information related to a premise and Takashi's manner of displaying production information and advertisement with an expectation of success. The displays in Masumoto, the multiple display devices in Kipp, and the image display terminal in Takashi all play the same role as displaying video content in the existing video playback art. Accordingly, it would have been routine for a POSITA to combine or modify the existing prior art features to arrive at the purported invention of the '669 Patent. (Ex.1003, ¶228).

Fifth, a POSITA would also have looked to Takushi for displaying promotion content related to products in a business premise, e.g., a retail store. It is a universal, obvious goal of all such systems to display promotion content related to the premise where the systems are located. Both Kipp and Takushi disclose that, the video content displayed on the multiple playback devices or the image display terminal may include various content to the users at their premises. Ex.1006, [0032], [0036]; Ex.1008, [0020], [0042]. A POSITA reading Masumoto and Kipp naturally would have looked to Takushi for additional details regarding how to display advertisement contents in a business premise such as a retail store. (Ex.1003, ¶229).

Moreover, a POSITA would have understood that to attract customers (e.g., Ex.1004, [0404] - “provide additional information to a customer or to attract a customer’s attention”), designing other promotion contents to substitute a part of advertisement video is a commonly used promotional strategy in a business premise, e.g., a retail store. (Ex.1003, ¶230).

Furthermore, it is a universal, obvious goal of all such systems to attract customers’ attention but less intrusive in a business premise. *See* Ex.1009, [0008] (“Electronic components, such as a video display device, audio speakers, a printer or a wireless transmitting device used to deliver content to shoppers in the vicinity of the shelf can be housed securely within the enclosure of the shelf”). Takashi describes placing the shelf tag terminal 70 and the image display terminal 80 on or close to shelves. (Ex.1008, FIG. 5.) A POSITA reading Masumoto and Kipp would have been motivate to apply the shelf tag terminal 70 and the image display terminal 80/80A to the combination of Masumoto and Kipp. (Ex.1003, ¶218).

Thus, it would be obvious to a POSITA, in view of Takashi, to use the multiple displays in the combination of Masumoto and Kipp to display the product information in the similar manner as Takashi in the premise of a retail store. (Ex.1003, ¶231).

For at least the above reasons, a POSITA would have found it obvious to incorporate Kipp’s synchronously displaying advertisement content associated with

a premise where the multiple playback devices are co-located and Takashi's manner of displaying promotion content in Masumoto's system. (Ex.1003, ¶232).

IV. SECONDARY CONSIDERATIONS

Petitioners are not aware of any evidence regarding secondary considerations of non-obviousness, and Patent Owner has not identified any such evidence in the patent specification, prosecution history, or related district court complaints. Ex. 1003, ¶233. To the extent Patent Owner identifies evidence of secondary considerations at a later point in the proceeding, Petitioners reserve the right to address it at that time.

V. THE BOARD SHOULD INSTITUTE IPR

The Board should decline to exercise its discretion to deny institution.

A. No Discretionary Denial Under *Fintiv*

Among the six *Fintiv* factors, factor 1 is not in favor of exercising discretion because the Eastern District of New York, where the parallel proceeding is pending, has a record of granting stays pending the resolution of the IPR². Factors 2 and 3 are also not in favor because the District Court case is still in its early stage, with

² Among all of the six rulings in that District on opposed motions to stay pending IPR, only two resulted in a denial, one of which involves the peculiar scenario of a patent owner requesting a post-institution stay (*Autronic Plastics, Inc. d/b/a Clear-Vu Lighting v. Apogee Lighting, Inc.*, Case No. 2-19-cv-06268, Dkt. 134 (Oct. 15, 2021), and the other was denied without prejudice (*Yeoshua Sorias v. National Cellular USA, Inc.*, Case No. 1-14-cv-02897, Dkt. 101 (Jun. 15, 2015))).

discovery just beginning and *Markman* Hearing is proposed in August – September 2024, and the parties have not invested much in the Litigation. Factor 6 is neutral because Petitioners are not aware of any other circumstances that might impact the Board’s exercise of discretion.

For factor 4, Petitioners are stipulating that, should the Board institute this Petition, Petitioners will not pursue in the District Court the specific grounds asserted herein or any other ground that was raised or could have been reasonably raised in an IPR. In view of this stipulation, the Board should decline to exercise its discretion to deny institution under *Fintiv*. Interim Procedure for Discretionary Denials (PTAB Jun. 21, 2022), at 7-8.

Finally, the strong merits presented herein also weigh in favor of not exercising discretionary denial. Overall, the factors weigh in favor of the Board declining to exercise its discretion to deny the petition.

B. No Discretionary Denial Under §325(d)

The Board has consistently “held that a reference that ‘was neither applied against the claims nor discussed by the Examiner’ does not weigh in favor of exercising [] discretion under §325(d).” *Fasteners for Retail, Inc. v. RTC Indus., Inc.*, IPR2019-00994, Paper 9 at 7-11 (PTAB Nov. 5, 2019). In particular, when the Examiner, apart from initialing the asserted art in an IDS, did not indicate a substantive evaluation of the asserted art, such asserted art does not weigh in favor

of exercising discretion under §325(d). *Scientific Design Company, Inc. v. Shell Oil Company*, IPR2021-01537, Paper 7 at 25 (PTAB Mar. 18, 2022). Here, no reference used in the Grounds above was cited during prosecution. Thus, there is nothing in favor of exercising discretion under §325(d).

VI. CONCLUSION

Petitioners respectfully request that the Board institute an IPR for Claims 1–15 of the '669 Patent and find the claims unpatentable.

Date: November 13, 2023

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

I hereby certify that the foregoing Petition for *Inter Partes Review* of U.S. Patent No. 11,405,669 includes 13,301 words (as calculated by Microsoft Word), excluding those in the table of contents, table of authorities, mandatory notices, certificate of service, certificate of word count, and appendix of exhibits. Accordingly, this Petition is under the word count limit of 14,000 words.

Date: November 13, 2023

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify on November 13, 2023, that a true and correct copy of the Petition for *Inter Partes Review* of U.S. Patent No. 11,405,669 was served in its entirety via e-mail and courier service to the Patent Owner by serving the correspondence address of record for the '669 Patent:

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Chicago, IL, 60606

and via electronic mail to the attorneys of record for Plaintiff in the concurrent litigation matter:

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