

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TCL Electronics Holdings Ltd.
(f/k/a TCL Multimedia Technology Holdings, Ltd.)

Petitioner,

v.

Maxell, Ltd.,

Patent Owner.

Case No. IPR2025-00135

U.S. Patent No. 10,219,020

Title: Portable Terminal

**Petition for *Inter Partes* Review of U.S. Patent No. 10,219,020
Under U.S.C. §§ 311-319 and 37 C.F.R. §§ 42.1-.8, 42.100-.123**

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EXHIBIT LIST

Exhibit No.	Document Description
EX1001	United States Patent 10,219,020
EX1002	Prosecution History of United States Patent 10,219,020
EX1003	Declaration of Andrew Wolfe, Ph.D.
EX1004	U.S. Patent Application Publication No. 20070124792 A1 (“Bennett”)
EX1005	U.S. Patent Application Publication No. 20030020693 A1 (“Nashida”)
EX1006	US20060212902A1 (“Seo”)
EX1007	A/53: ATSC Digital Television Standard
EX1008	United States Patent 7,555,006
EX1009	United States Patent 6,967,971
EX1010	Apple Reinvents the Phone with iPhone
EX1011	HP MediaSmart HDTV User’s Guide
EX1012	DLNA Wikipedia Page

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EX1013	P.R. 4-5(d) Joint Claim Construction Chart
EX1014	HDMI Specification 1.1
EX1015	Andrew Wolfe, Ph.D. Curriculum Vitae
EX1016	WKYC's Director's Cut with Frank Macek News HDTV Penetration at 28%
EX1017	Dictionary of Computing (5th ed.; 2004), p.239 ("operating instructions")

I. INTRODUCTION

Petitioner respectfully requests institution of *inter partes* review of claims 1–6, and 17–30 of U.S. Patent No. 10,219,020 (“’020 Patent”). EX1001.

Claims 1–6, and 17–30 of the ‘020 Patent are directed to a display apparatus which is controlled by an external mobile terminal to change what is shown on the display apparatus. Grounds 1 and 2 are supported by the expert declaration of Andrew Wolfe, Ph.D. EX1003. Dr. Wolfe qualifies as an expert on the relevant technology. EX1003, ¶¶5–18.

U.S. Patent Application Publication No. 20070124792 A1 (“Bennett”) (EX1004) discloses a system where a mobile phone interacts with a television system to control the selection and display of multimedia content from various sources. U.S. Patent Application Publication No. 20030020693 A1 (“Nashida”) (EX1005) teaches a system that allows the remote controller to display information, receive user inputs, and transmit operational information to the television to control the display of content. As explained below, the teachings of these prior art references rendered obvious to the person of ordinary skill in the art (“POSITA”) claims 1–6 and 17–30 of the ‘020 Patent.

II. MANDATORY NOTICES

A. Real Parties-in-Interest (37 C.F.R. § 42.8(b)(1))

In addition to the Petitioner, the real parties-in-interest for this proceeding are TCL Industries Holdings Co., Ltd.; T.C.L. Industries Holdings (H.K.) Limited; TTE Corporation; TCL Moka International Limited; TCL Moka Manufacturing S.A. De C.V.; TCL King Electrical Appliances (Huizhou) Co., Ltd.; Manufacturas Avanzadas S.A. De C.V.; TCL Smart Device (Vietnam) Co., Ltd.; Shenzhen TCL New Technology Co., Ltd.; TCL Optoelectronics Technology (Huizhou) Co., Ltd.; TCL Overseas Marketing Ltd.; TCL Technology Group Corporation (F/K/A TCL Corp.)

B. Related Matters (37 C.F.R. § 42.8(b)(2))

The '020 Patent was filed on August 30, 2018, claiming priority to application No. 15/845,680, filed on Dec. 18, 2017, which is a continuation of application No. 15/402,433, filed on Jan. 10, 2017, now U.S. No. 9,883,225, which is a continuation of application No. 14/919,367, filed on Oct. 21, 2015, now U.S. No. 9,578,369, which is a continuation of application No. 14/501,621, filed on Sep. 30, 2014, now U.S. No. 9,197,917, which is a continuation of application No. 14/029,548, filed on Sep. 17, 2013, now U.S. No. 8,892,688, which is a continuation of application No. 13/489,877, filed on Jun. 6, 2012, now U.S. No. 8,549,109, which is a continuation of application No. 12/170,938, filed on Jul. 10,

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2008, now U.S. No. 8,214,459. The earliest non-provisional application for the ‘020 Patent was filed on July 10, 2008, and the earliest foreign application to which the ‘020 Patent claims priority was filed on September 26, 2007. Pre-AIA 35 U.S.C. §§ 102-13 governs this patent. All references asserted herein are pursuant to pre-AIA statutes. *See* MPEP § 21.59.01; Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284, 293 § 3(n)(1) (2011).

Petitioner is contemporaneously filing Petitions for *Inter Partes* Review of U.S. Patent No. 10,375,341 (IPR2025-00120) and U.S. Patent No. 10,650,780 (IPR2025-00134). Other than this proceeding, Petitioner is not aware of any other *inter partes* review petition regarding the ‘020 Patent.

Inter Partes Review of U.S. Patent No. 9,578,369, the great-grandparent application of ‘020 Patent was instituted by PTAB in 2022. (IPR2022-01458) The parties there settled after institution.

Petitioner is aware of the following proceeding involving the ‘020 Patent:

Maxell, Ltd. v. TCL ELECTRONICS HOLDINGS LTD., et al, Case No. 5:23-cv-00108 (E.D. Tex.) (“Litigation”).

C. Lead and Back-Up Counsel (37 C.F.R. § 42.8(b)(3))

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D. Service Information (37 C.F.R. § 42.8(b)(4))

Please address all correspondence to lead counsel and back-up counsel at the addresses shown above. Petitioner consents to electronic service by email.

III. STANDING

Petitioner certifies that the ‘020 Patent is available for *inter partes* review and Petitioner is not barred or estopped from seeking *inter partes* review. Petitioner files this Petition within one year of service of the complaint filed by Patentholder against Petitioner in the related district court litigation.

IV. PRECISE RELIEF REQUESTED FOR EACH CHALLENGED CLAIM

Under 35 U.S.C. § 311, Petitioner requests review of and cancellation of Claims 1–6, 17–30 of the ‘020 Patent. These claims are unpatentable in view of the following prior art and Grounds:

Prior Art References	
Ref. 1:	U.S. Patent Application Publication No. 20070124792 A1 (“Bennett”), filed November 30, 2005, and published May 31, 2007, is prior art at least under pre-AIA Section 102(a) and 102(e).

	(EX1004).
Ref. 2:	U.S. Patent Application Publication No. 20030020693 A1 (“Nashida”), filed July 10, 2002, and published January 30, 2003, is prior art at least under pre-AIA Section 102(a), 102(b), and 102(e). (EX1005).

GROUND			
Ground	Challenged Claims	Asserted Prior Art	Statutory Grounds
1	1–6, 17–30	Bennett and the Knowledge of a POSITA	Pre-AIA 35 U.S.C. §103
2	1–5, 23, 30	Bennett, Nashida, and the Knowledge of a POSITA	Pre-AIA 35 U.S.C. §103

V. GROUND OF UNPATENTABILITY BASED ON PRIOR ART REFERENCES NOT APPLIED DURING PROSECUTION

Petitioner has not challenged the ‘020 Patent’s claims in any prior AIA trial. Nashida is not included amongst the references listed on the face of the ‘020 Patent. Bennett and Nashida were not addressed by the Examiner during prosecution of the ‘020 Patent. Further, the Examiner did not have access to the expert testimony of Dr. Wolfe describing the compelling motivations for a POSITA to combine Bennett, Nashida, and the Knowledge of a POSITA.

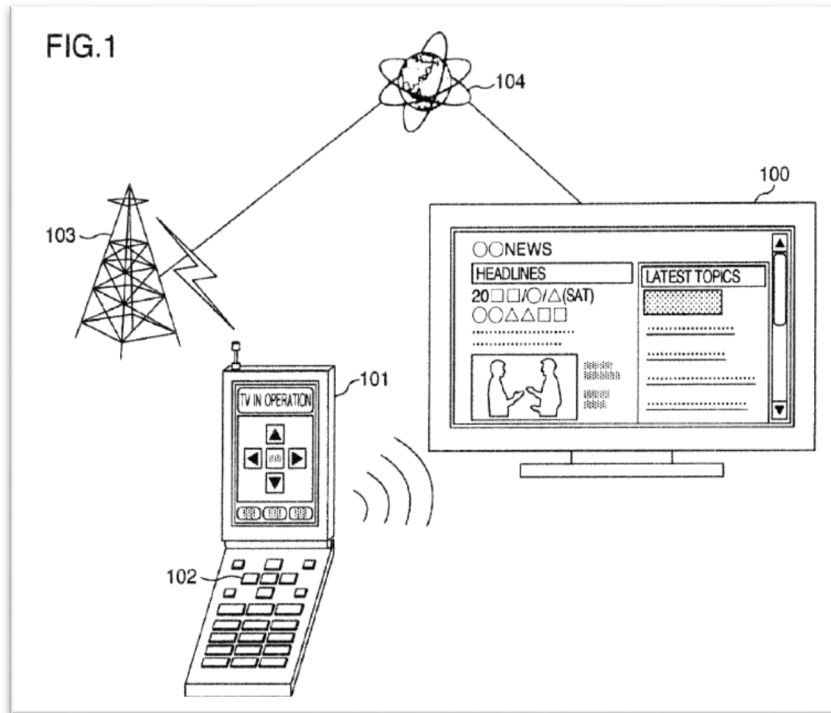
VI. THE ‘020 PATENT

A. Overview

The Challenged Claims include one independent apparatus claim. It is directed to a “*display apparatus*” that is controlled by an “*external mobile terminal*.” EX1001. The “*display apparatus*” displays “*a first video content*” from “*a digital broadcast signal*” and receives “*an identifier*” from the “*external mobile terminal*,” and in response, “*terminate[s] display of the first video content*” and displays “*a second video content*” from “*the internet*” and “*execute operation instructions*” received from the “*external mobile terminal*,” which is different from typical “*remote controller*.” EX1001.

The ‘020 Patent alleges that prior art video display systems had the drawback of requiring a “number of operation steps” to pass the display of content from a “mobile terminal” (e.g., a cell phone) to an “information processing apparatus” (e.g., a television). EX1001, 2:58-3:7; EX1003, ¶40. The ‘020 Patent purports to address this alleged problem by providing a system “wherein viewing of a content on a portable terminal is smoothly passed to an information processing apparatus.” EX1001, 3:8-12; EX1003, ¶40.

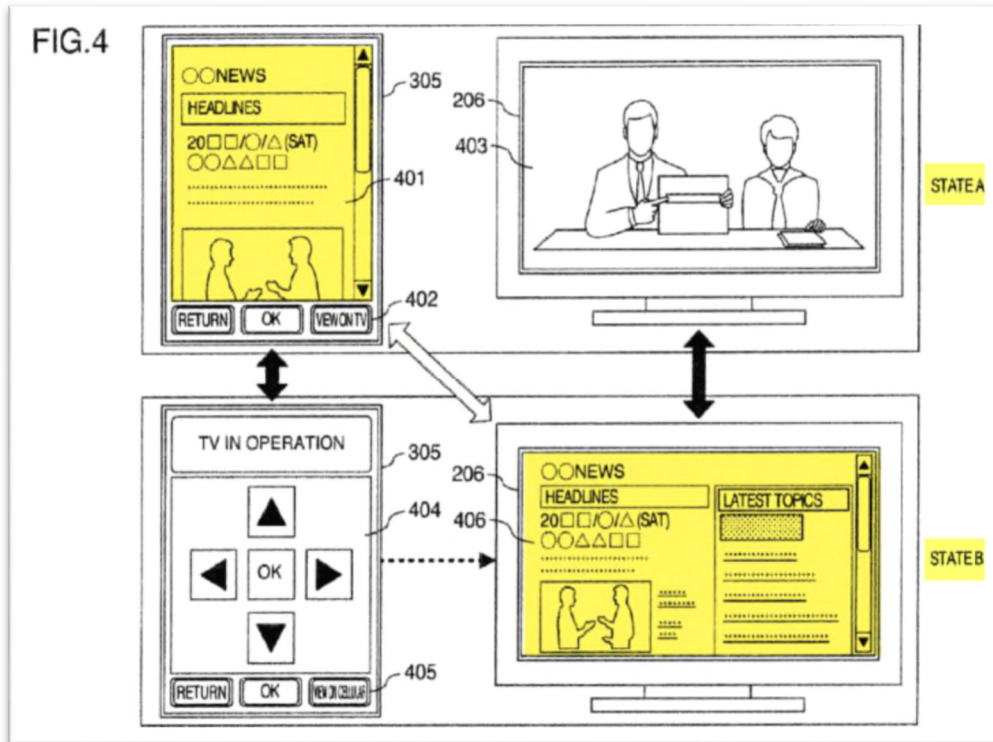
The system in the disclosed embodiment includes a “mobile terminal 101” and an “internet connection terminal 100” as depicted on Figure 1:



EX1001, FIG. 1 and FIG. 4, 4:42-50, 4:63-67; EX1003, ¶41.

In operation, a user can change what is displayed on “internet connection terminal 100” from a “a digital broadcast” to an “internet site” that was previously displayed on “mobile terminal 101.” EX1001, 7:1-55; 9:56-12:36; EX1003, ¶42. The ‘020 Patent refers to this as “change-over processing.” EX1001, 7:19-30; 7:45-50.

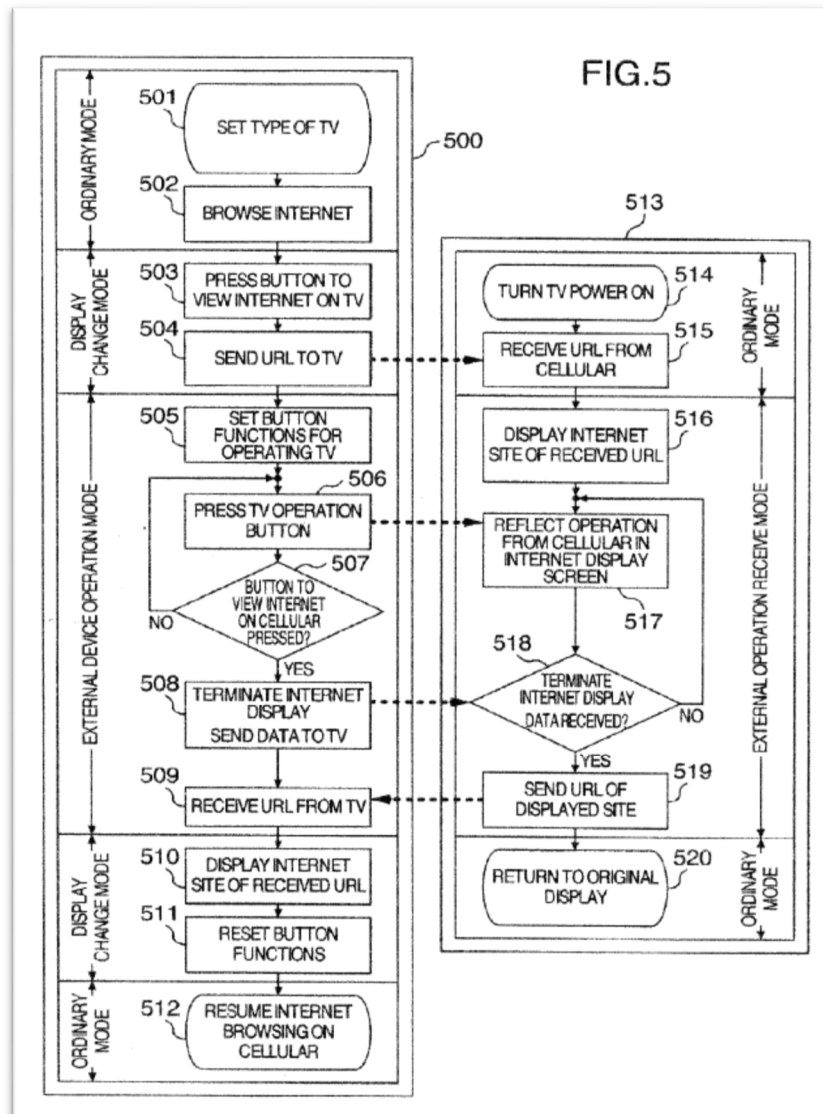
As depicted in Figure 4, in a first state (State A), “mobile terminal 101,” on the top left, is displaying an “internet site” on its “screen display 401” (highlighted yellow), and “internet connection terminal 100,” on the top right, is displaying a “TV program” on its “screen display 403”:



EX1001, FIG. 4, 7:11-30. The system transitions to a second state (State B) when the user presses a “view on TV” button 402 on the “mobile terminal 101.” EX1001, 4:38-49, 7:11-50, 9:11-17, 9:56-63, 10:37-11:29, 12:14-28, FIGS. 4, 5; EX1003, ¶43. In the second state (State B), “internet connection terminal 100” displays the “internet site” on its “screen display” 403/406 (highlighted yellow), and “mobile terminal 101” displays an “operation guide” on its “screen display” 401/404. *Id.* In this state (State B),

the user can use “mobile terminal 101” to browse the “internet site” on “internet connection terminal 100.” *Id.*

Figure 5 illustrates the foregoing sequence:



EX1001, FIG. 5; EX1003, ¶44. The steps performed by “mobile terminal 101” are shown on the left, in box 500, and the steps performed by “internet connection terminal 100” are shown on the right, in box 513.

EX1001, 9:56-12:36, FIG. 5; EX1003, ¶44.

The ‘020 Patent discloses that “mobile terminal 101” sends “data,” for example, a “URL of the internet site,” to the “internet connection terminal 100” to effectuate the “change over processing” and browsing of the “internet site” on “internet connection terminal 100.” *See, e.g.*, EX1001, 8:49-61, 10:37-11:55; EX1003, ¶45.

For browsing the “internet site” on “internet connection terminal 100,” “mobile terminal 101” sends, “data which indicates an operation for the TV set” to “internet connection terminal 100.” EX1001, 11:6-29; EX1003, ¶46.

B. The Prosecution History

The ‘020 Patent is the eighth in a series of continuation patents allowed by the same Examiner.¹ The Examiner issued a Notice of Allowance in October 2018, re-using a discussion of three prior art references (referred to as “Slotznick,” “Walker et al.,” and “Goto” in the Notice of Allowance) that were applied in a parent patent application from 2012. EX1003, ¶48. The Examiner also opined that certain claim limitations in claim 5 (now claim 1) are means-plus-function claims. EX1002, p. 44. However, after a subsequent Examiner interview in November 2018, the

¹ Like several related patents, the ‘020 Patent was allowed without any prior art rejection.

Examiner issued another Notice of Allowance and deleted the section that had applied the means-plus-function analysis. EX1002, pp. 26-30.

VII. THE LEVEL OF ORDINARY SKILL IN THE ART²

A person of ordinary skill in the art (“POSITA”) in September 2007 would have been familiar with display systems (such as television systems), remote controllers, control information, and user interaction. EX1003, ¶49. A POSITA would have had a working knowledge of computing, networking, and data representation. *Id.* A POSITA would have gained knowledge of these concepts through a mixture of education and industry experience, such as by having a Bachelor’s degree in computer science, computer communications, electrical engineering, or equivalent degree, coupled with two years of experience or by obtaining a Master’s degree in those fields with less experience. *Id.*

VIII. CLAIM CONSTRUCTION

In the Litigation, Patent Owner presented proposed claim construction for “operation instructions” as “*information for changing the display of the second video content such as move or select operations.*” See EX1013. The Patent Owner’s proposed construction is inappropriate because it improperly imported limitations from specific embodiments or examples in the specification into the claims. The proposed construction adds specific types of operations (move or

² Dr. Andrew Wolfe was a POSITA at least as of the ‘020 Patent’s earliest claimed priority date. EX1003, ¶50.

select) that are not necessarily required by the claim language itself, and would violate the claim differentiation in view of claim 5. EX1003, ¶54.

For purposes of this *inter partes* review, Petitioner provides the construction for “*operation instructions*” as “*commands and instructions used to operate a computer.*” Intrinsic Evidence: EX1001, at 7:1-58; FIG. 4; 15:7-32; 11:6-29; Fig. 5; 17:65-18:11; FIG. 9; 18:12-21; FIG. 10; 18:57-62; 19:10-18. Extrinsic Evidence: Dictionary of Computing (5th ed.; 2004), p.239 (“operating instructions”) (“commands and instructions used to operate a computer”). EX1017; PEX1003, ¶55.

Claims only need to be construed to resolve a controversy. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). Here, no remaining terms require express construction because the patent claims encompass the below prior-art mappings under any construction consistent with the *Phillips* standard.

IX. BACKGROUND OF THE ART

A basic description of the background of the relevant display technology and technologies is set forth in the Declaration of Andrew Wolfe. EX1003, ¶¶33-39.

X. DESCRIPTION OF THE ASSERTED PRIOR ART

Before the priority date, the prior art had already disclosed solutions to the problem identified—and purportedly solved—in the ‘020 Patent, namely providing

for “smooth” transition of the display of video from a portable terminal to a television. EX1001, 3:4-13; EX1003, ¶56.

A. Bennett (EX1004)

Bennett discloses a system where a mobile phone interacts with a television system to control the selection and display of multimedia content from various sources, including television broadcasts and the internet. EX1004, EX1003, ¶57. The phone receives user inputs, displays media guides, and transmits control signals to the television to display selected video content. *Id.*, EX1003, ¶58.

B. Nashida (EX1005)

Nashida discloses a remote control system comprising a remote controller and an image display apparatus (television). EX1005, EX1003, ¶59. The remote controller includes a display unit, an operation unit, and a communicator for communication with the television. *Id.*, EX1003, ¶59. The system allows the remote controller to display information, receive user inputs, and transmit operational information to the television to control the display of content. *Id.*, EX1003, ¶59. The remote controller can also receive display information from the television and display it on its own screen. *Id.*, EX1003, ¶59.

XI. DETAILED ANALYSIS OF GROUNDS

A. Ground 1: Bennett in View of a POSITA's Knowledge

1. Summary of Ground 1

Bennett discloses all elements of the challenged claims under Ground 1. To the extent that that Bennett does not specifically teach an element, a POSITA's knowledge discloses it. It would have been obvious to a POSITA to combine Bennett and a POSITA's knowledge to arrive at the apparatuses recited in the claims challenged under Ground 1, with a reasonable expectation of success.

2. Bennett and '020 Patent are Analogous Art

A prior art reference is deemed analogous to the challenged patent if one of two tests is satisfied: (i) the reference is within the same "field of endeavor" as the challenged patent, and (ii) even if the reference is not within the same field of endeavor, the reference is still reasonably pertinent to the particular problem with which the inventor is involved. *Donner Tech., LLC v. Bro Stage Gear, LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020). Here, Bennett satisfies both tests.

i. Bennett and '020 Patent are Within Same Field of Endeavor

Bennett is directed to multimedia display systems and user interaction with display apparatuses like televisions. EX1004. Therefore, Bennett is directed to the same field of endeavor as the '020 Patent. EX1003, ¶¶60.

ii. Bennett is Directed to the Same Problem as the ‘020 Patent

Bennett is directed to the same problem as the ‘020 Patent, namely problems related to enhancing user experience by enabling seamless control and interaction between external devices and television systems. EX1001. A POSITA would consider Bennett to be directed to the same problem as the ‘020 Patent. EX1003, ¶61. Both Bennett and the claimed invention pertain to systems that allow for the display of video content from various sources (broadcast and internet) and enable control via external devices. EX1003, ¶61.

3. A POSITA Would Have Been Motivated to Combine Bennett and a POSITA’s Knowledge

A POSITA would have been motivated to combine Bennett and POSITA’s knowledge. EX1003, ¶61. Such motivation is evident from both Bennett and as well as many other exemplary prior art references.

A POSITA would have been motivated to try alternatives to Bennett. *Id.* ¶61. testifies that he is personally aware of such motivations prior to the ‘020 Patent. *Id.* In particular, Bennett, like the ‘020 Patent, is directed to a POSITA with substantial skill and accordingly relies on the POSITA’s knowledge to fill in basic details where doing so simply requires applying the POSITA’s ordinary and widespread knowledge of the relevant art. EX1003, ¶61.

B. Bennett as Modified by a POSITA's Knowledge Teaches All Elements of Challenged Claims Under Ground 1

1. Independent Claim 1

- i. **Preamble:** “a display apparatus for the display of video content acquired from a television broadcast and for the display of video content acquired via the internet”

Bennett discloses claim 1's preamble. Bennett discloses a comprehensive system that includes a phone coupled with a set top box and a remote media broadcaster. EX1004, FIG 6, ¶0056; EX1003, ¶62.

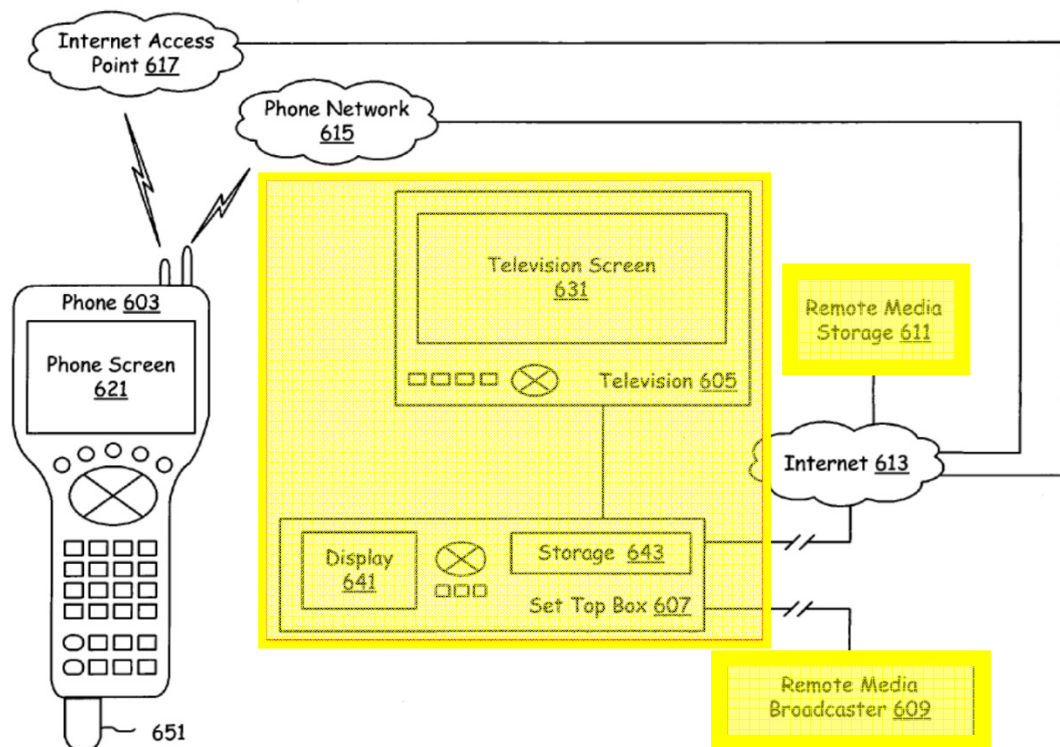


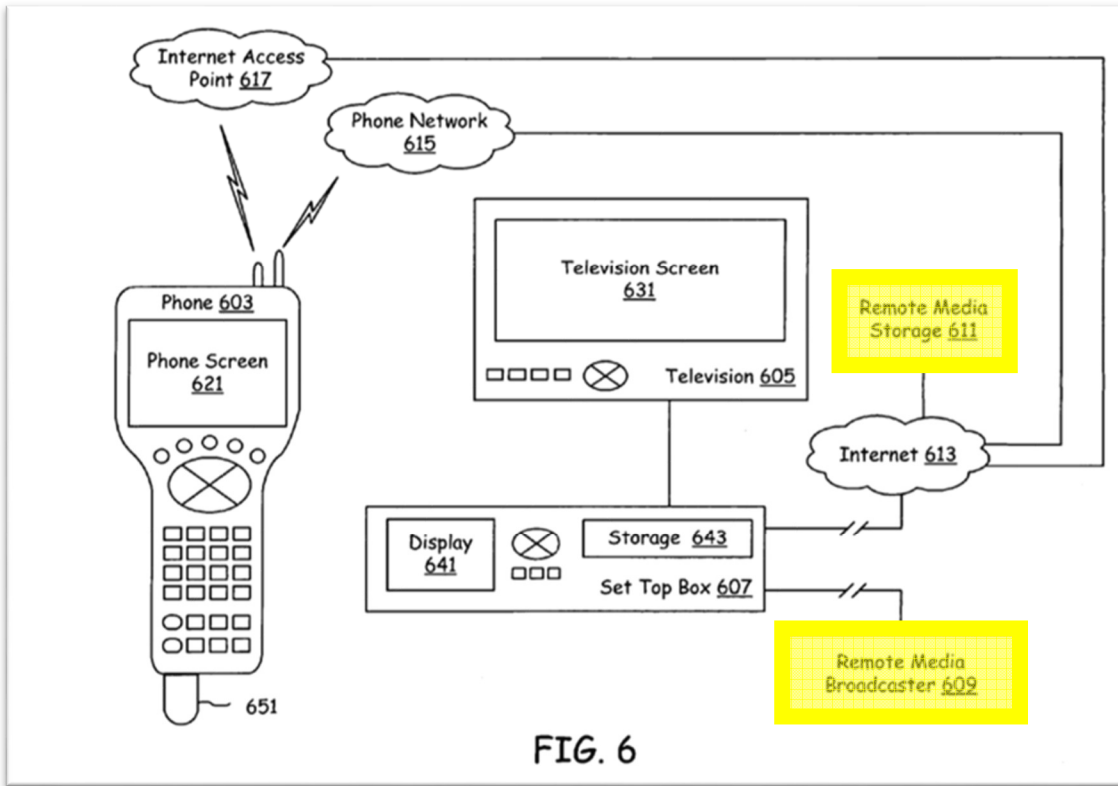
FIG. 6

As shown in Figure 6, above, Bennet's Set Top Box 607 receives Remote Media Broadcaster 609. *Id.*, EX1003, ¶63. This set top box has three communication interfaces: one for television communication, another for

communication with the remote media broadcaster, and a third for internet communication. *Id.*, EX1003, ¶63. This setup allows for the display of video content from both television broadcasts and the internet. EX1003, ¶63.

ii. Element [A]: “a digital broadcast receiver configured to receive a digital broadcast signal”

Bennett discloses media systems, including set top boxes and DVD players, with communication interfaces for handling digital broadcast signals transmitted from a remote media broadcaster. EX1004, FIG 6, ¶¶0010, 0056. Bennet further mentions that media sources were HDTV (High Definition Television) format. EX1004, ¶0031. A POSITA would have understood these media systems possessed capabilities for receiving digital broadcast signals. EX1003, ¶64. By the time of Bennett’s disclosure, digital broadcasting was a standard in the media industry. EX1003, ¶64. A POSITA would have been aware that set top boxes were compatible with these standards. EX1003, ¶64. A POSITA would have been familiar with the typical features and capabilities of set top boxes and DVD players, which routinely included digital signal processing capabilities. EX1003, ¶64.



In the alternative, this limitation would have been obvious over Bennett in view of a POSITA's knowledge. The Digital Television Transition and Public Safety Act of 2005 (Publ. No. 109-171, 120 Stat. 21 (2006)) mandated the cessation of analog broadcasting and the shift to digital broadcasting by April 2009, making digital receivers a regulatory requirement rather than innovation. EX1003, ¶65. The claimed feature of a digital broadcast receiver, therefore, represents a predictable response to changing regulatory requirements and technological standards. EX1003, ¶65. The integration of a digital broadcast receiver, as required by legislation and readily facilitated by then-existing technology, represents a predictable use of known technology for its established

purpose. EX1003, ¶65. Such integration would have been obvious to a POSITA. EX1003, ¶65.

By the priority date, digital broadcast technology had been widely implemented, as evidenced by the adoption of digital cable broadcasts in the mid-1990s. EX1003, ¶66. POSITAs would have recognized the benefits including improved picture quality and advanced features, making the adoption of digital receivers an obvious choice. EX1003, ¶66. Additionally, references like US20060212902A1 (“Seo”) (EX1006) explicitly disclose digital broadcasting receivers, confirming the well-understood nature of such technology in the relevant field. EX1006, Abstract; EX1003, ¶66.

iii. Element [B]: “a signal separator for de-multiplexing the digital broadcast signal into video data and audio data”

Bennett describes a system where “[e]ach television channel has an audio portion and a video portion.” EX1004, ¶0038. Bennett teaches on the separate processing of audio and video portions: “[t]ranscoding may... be performed to save bandwidth occupied by the audio portion, the video portion or both.” EX1004, ¶0041; EX1003, ¶67. Further, “[t]he audio portion of the first multimedia element is forwarded to the speaker 415 for listening, and the video portion is forwarded to the phone screen 414 for display.” EX1004, ¶0047, FIG. 4; EX1003, ¶67.

While Bennett does not explicitly mention a signal separator, a POSITA would recognize its necessity based on the POSITA's understanding of digital television technology, industry standards, and the functional requirements described in Bennett's disclosure. EX1003, ¶68. The broadcast digital standard (ATSC) in use at the time would have been well-known to a POSITA. EX1003, ¶68. This standard defines how audio and video data are multiplexed in the broadcast signal. EX1003, ¶68. To achieve the separate processing and routing of audio and video described by Bennett, the system must first isolate these components from the received signal. EX1003, ¶68. In the field of digital television systems, the use of demultiplexers or similar components to separate audio and video streams is well-established. EX1003, ¶68. Bennett's description of "Processing Circuitry" performing "*de-multiplexing the digital broadcast signal into video data and audio data*" strongly implies the presence of a signal separator. EX1004, FIG. 4; EX1003, ¶68.

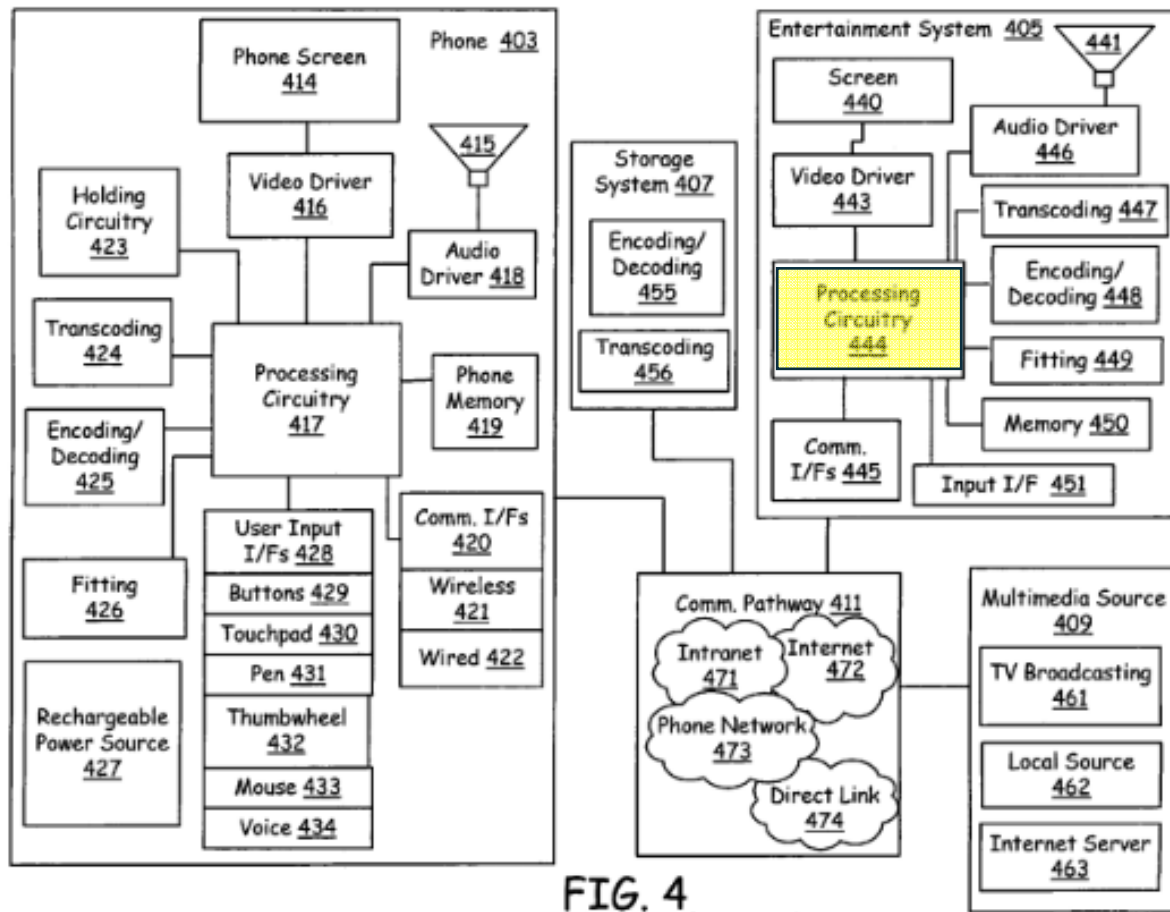


FIG. 4

EX1004, FIG. 4.

By the priority date, signal separators were standard in digital broadcast systems driven by industry practices and legislative requirements, making the claimed signal separator an obvious implementation to a POSITA. EX1003, ¶¶69.

A POSITA would have been motivated to use a signal separator in Bennett's system for several reasons: Bennett explicitly discloses separate processing of audio and video portions. EX1004, ¶¶0041; EX1003, ¶¶70. A signal separator would

enable this efficient, separate processing. EX1003, ¶70. Bennett discusses “save bandwidth occupied by the audio portion, the video portion or both.” *Id.*; EX1003, ¶70. A signal separator would facilitate this bandwidth optimization by allowing independent processing of each portion. EX1003, ¶70. Bennett mentions making “the audio and the video portion of the television channel compatible with an encoding standard” *Id.*; EX1003, ¶70. A signal separator would advantageously allow for independent format conversion of audio and video portions. EX1003, ¶70. Bennett discloses streaming of multimedia information. EX1004, ¶0006, FIG. 4, ¶0046; EX1003, ¶70. A POSITA would recognize that efficient streaming often requires separation of audio and video data. EX1003, ¶70.

Other prior art, provided as background information, confirms the concept of a signal separator was well-known at the time of the ‘020 Patent. Seo discloses in FIG. 2 “the demultiplexer 210 receives the demodulated MPEG-2 TS data outputted from the demodulator 120, and separates each of the received data into audio, video, and other data.” EX1006, ¶¶0067-0068, FIG. 3; EX1003, ¶71.

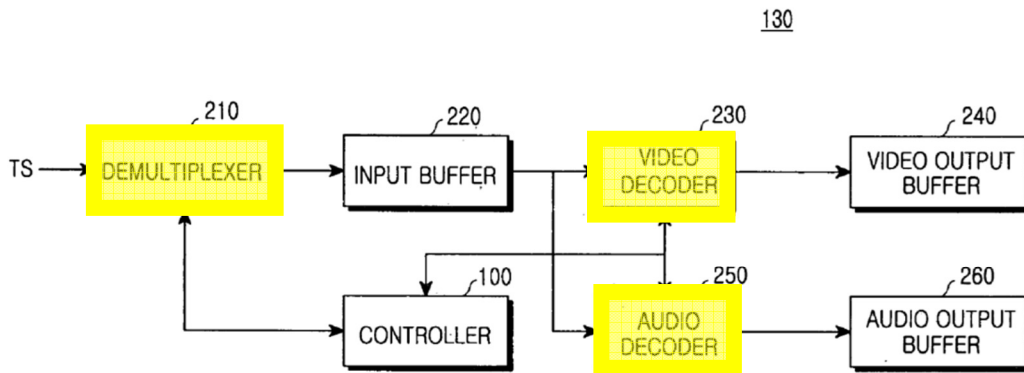


FIG.2

EX1006, FIG. 2

Given the explicit teachings of Bennett regarding separate processing of audio and video portions, combined with the well-known nature of signal separators as evidenced by references like Seo, it would have been obvious to a POSITA to incorporate a signal separator in Bennett’s system. EX1003, ¶72. This modification would yield the predictable result of efficiently separating the broadcast signal into its constituent audio and video portions for subsequent processing, as required by Bennett’s disclosure. EX1003, ¶72.

iv. Element [C]: “a video processor configured to convert the format of the video data”;

Bennett discloses processing “*media elements*,” which include video data, for specific display devices. EX1004, ¶0028. The processing can be performed by the phone, the television, and the media source. *Id.* The processing may convert the

format of the video data via “*transcoding, encoding and decoding.*” EX1004, ¶¶0028, 0041; EX1003, ¶73. Bennett discloses the processors configured to convert the format of video data in blocks 119, 127, 143, and 145 of FIG.1.

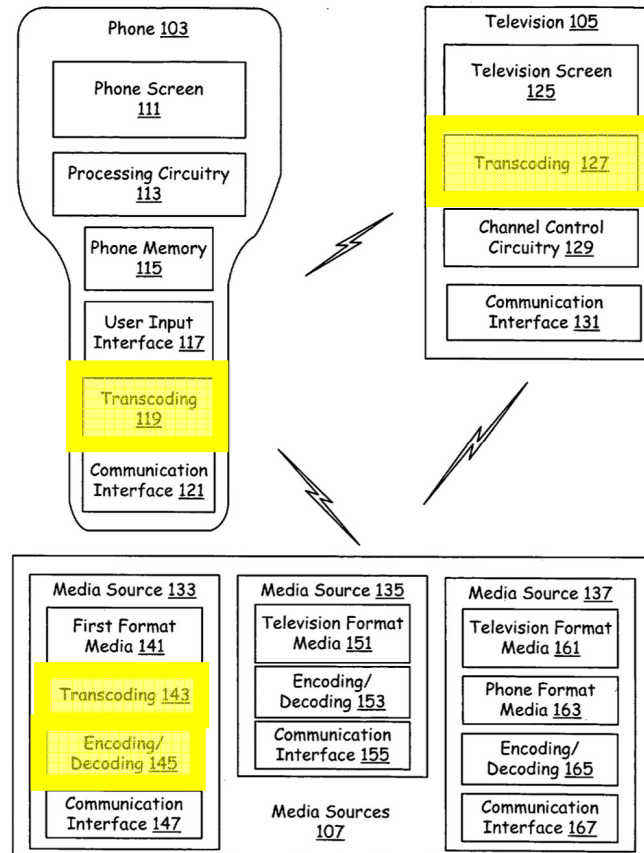


FIG. 1

EX1004, FIG. 1; EX1003, ¶73.

v. Element [D]: “an audio processor configured to convert the format of the audio data”

Bennett discloses processing “*media elements,*” which include audio data, for specific display devices. EX1004, ¶0028; EX1003, ¶74. The processing can be performed by the phone, the television, and the media source. *Id.*; EX1003, ¶74.

The processing may convert the format of the audio data via “*transcoding, encoding and decoding.*” EX1004, ¶¶0028, 0041; EX1003, ¶74. Bennett discloses the processors configured to convert the format of audio data in blocks 119, 127, 143, and 145 of FIG.1. EX1004, FIG. 1; EX1003, ¶74.

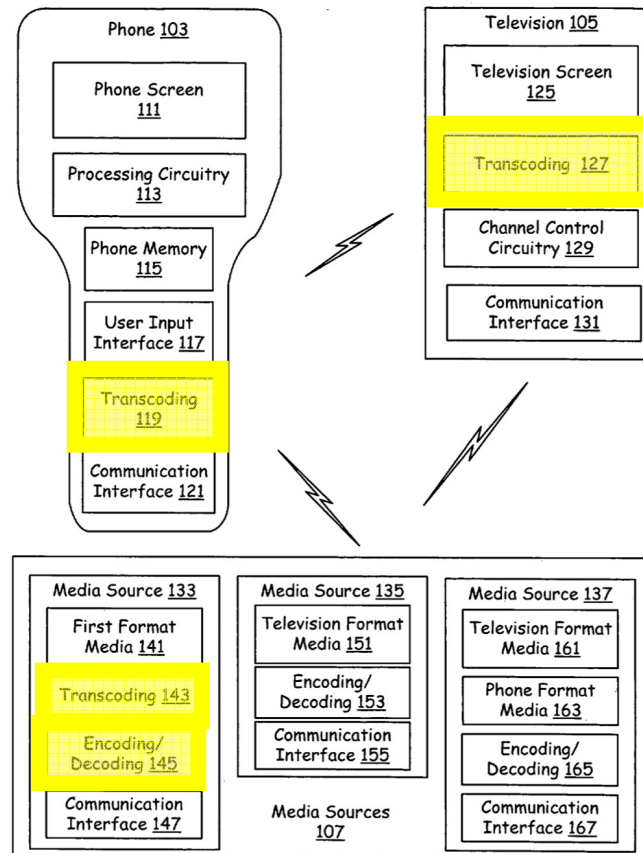
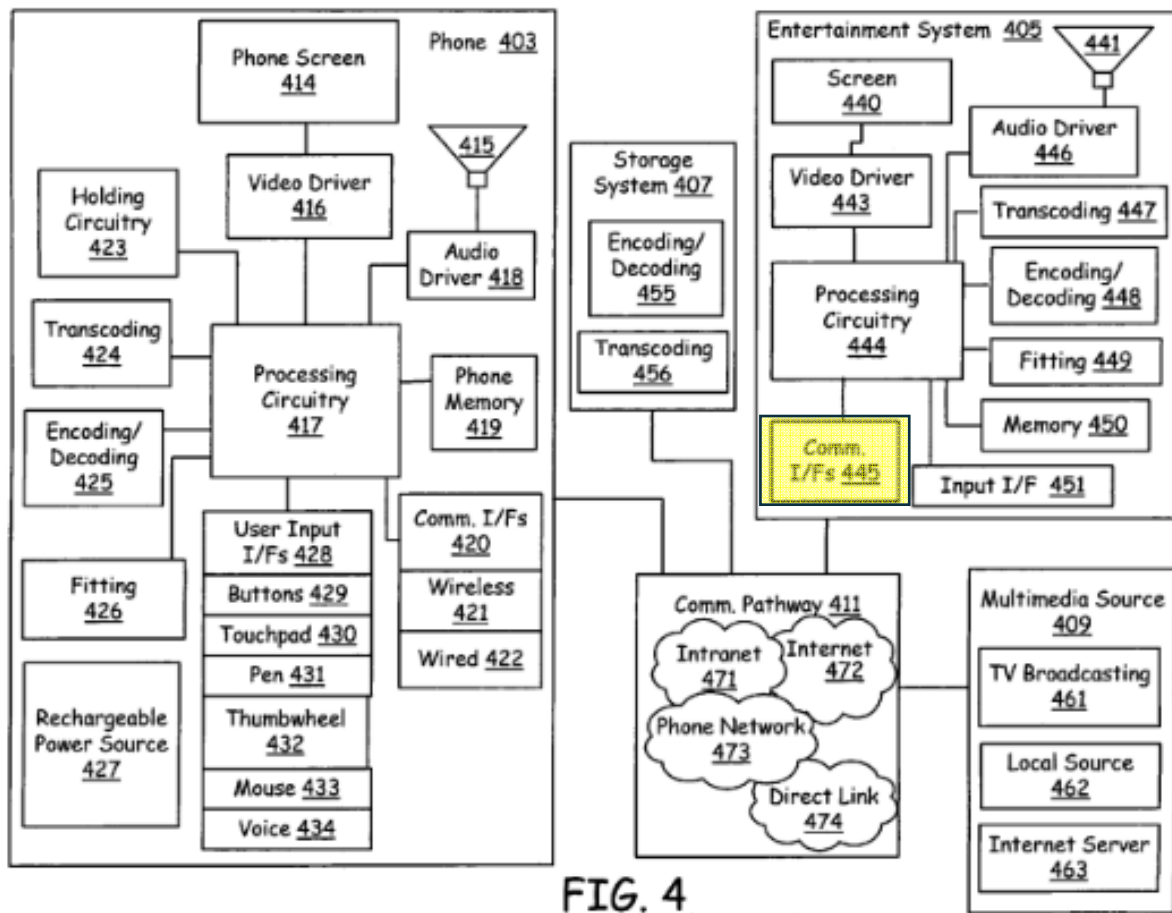


FIG. 1

vi. Element [E]: “a network communication module configured to communicate over the internet”

Bennett discloses a system that retrieves video content from media sources, including an “*Internet server.*” EX1004, ¶¶0045; EX1003, ¶75. Bennett also describes the “*communication interfaces,*” of the phone and set-top box,

configured to “*communicate over the internet.*” EX1004, ¶0056; EX1003, ¶75. The “*network communication module*” function can be performed by e.g. communication interface 445 in FIG 4. EX1004, FIG. 4; EX1003, ¶75.



vii. Element [F]: “a radio receiver for receiving data from an external mobile terminal”

Bennett describes the set-top box receiving control signals from a phone. EX1004, ¶0058; EX1003, ¶76. Bennet teaches that “[t]he phone 103 is communicatively coupled to the television 105 ... over ... wireless links,” where

“[t]he wireless links may comprise characteristics of any of a variety of communication link types (e.g., Bluetooth, IEEE 802.11, IEEE 802.15, cellular telephony (e.g., GSM/GPRS/EDGE, CDMA, CDMA2000, UMTS, WCDMA, etc., Ultra WideBand, standard/proprietary, etc.” EX1004, ¶0030. This indicates that the set-top box has a receiver capable of receiving data from an “*external mobile terminal*” (the phone). Bennett discloses a system using “*a cellular transmission, 802.11, Bluetooth, and an infrared transmission*” for wireless communication. EX1004, ¶0052. A POSITA would understand these wireless technologies require a radio receiver for operation. EX1003, ¶76. A radio receiver is fundamental to the functioning of these wireless communication methods, as recognized by those skilled in the field. EX1003, ¶76.

To the extent that Bennett does not expressly disclose the radio receiver, this limitation would have been obvious to a POSITA. Bennett discloses various wireless communication technologies (RF, Bluetooth, Wi-Fi, cellular) that are well-known to use radio receivers. EX1004, ¶0052; EX1003, ¶77. It was common knowledge in the field at the time of the invention that these wireless technologies required radio receivers to function. EX1003, ¶77. The use of a radio receiver to receive data from an external mobile terminal (such as a phone or remote control) would have been an obvious implementation choice for a POSITA, given the disclosed wireless communication capabilities in Bennett. EX1003, ¶77. A

POSITA would have been motivated to use a radio receiver to enable the wireless communication features described in Bennett, as it would allow for convenient, remote control and data exchange between devices. EX1003, ¶77.

viii. Element [G]: “an infra-red (IR) receiver for receiving commands from a remote controller”

Bennett discloses as the background “[a] remote generally sends a control signal to a TV using infrared or RF transmission” to change TV channels and settings. EX1004, ¶0008; EX1003, ¶78. Bennett teaches four different mobile phones, each of which can be a remote controller that remotely control the entertainment system using an “infrared link.” EX1004, ¶¶0072, 0075; EX1003, ¶78. This explicit mention of infrared communication indicates that the system includes an infra-red receiver for receiving commands from a remote controller. EX1003, ¶78.

In the alternative, this limitation is obvious over Bennett in view of the knowledge of a POSITA. Bennet discusses infrared remotes as being well known in the art. EX1004, ¶0008; EX1003, ¶79. Bennet further teaches that its invention contemplates receiving communications from cellular devices acting as remotes through **infrared** link. EX1004, ¶¶0033, 0052; EX1003, ¶79. In view of these disclosures, a POSITA would have determined Bennet to have *an infrared receiver*, or at least would have found it obvious to include one. Using an infrared remote control and receiver would have been obvious in view of the teachings,

suggestions, and motivations in Bennett that would have led a POSITA to modify or combine the prior art references. EX1003, ¶¶79.

ix. Element [H]: “a display panel”

Bennett discloses a “*display panel*,” which is a “*television screen 125*” or “*screen 440*.” EX1004, FIGS.1, 4, ¶¶0024, 0044.

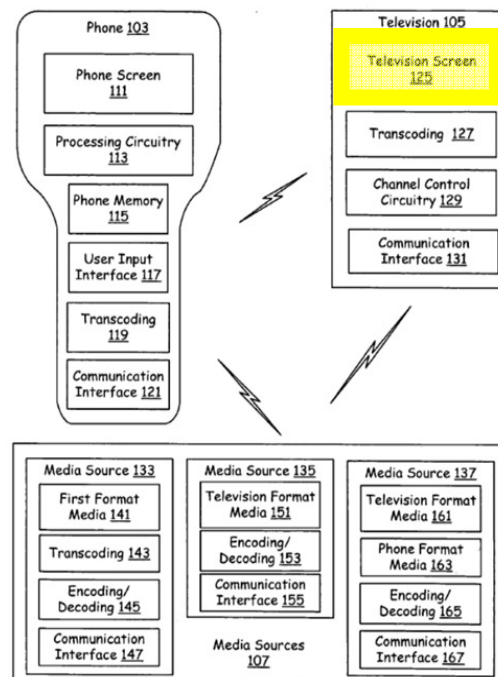


FIG. 1

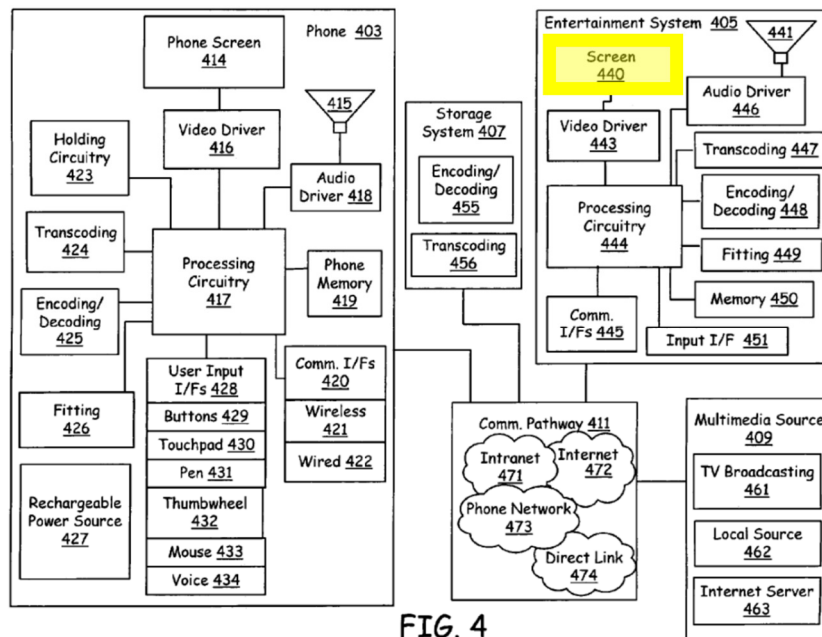


FIG. 4

EX1004, FIGS.1, 4; EX1003, ¶80.

x. Element [I]: “a system controller configured to control the display apparatus to”

Bennett discloses the “*processing circuitry*” in the “*set-top box*” (“*system controller*”) controlling the distribution of multiple television channels to different display screens. EX1004, ¶0039; EX1003, ¶81. Moreover, Bennett discloses an entertainment system with integrated “*processing circuitry*,” (“*display apparatus*”) which controls the entertainment system (“*display apparatus*”). EX1004, ¶0044; EX1003, ¶81.

xi. Element [I.1]: “receive a first video content via the received broadcast signal”

Bennett discloses a “*set-top box*” (“*system controller*”) “*receives the first television channel from the media source 309 and forwards the video portion* (“a

first video content”) of the first television channel (“broadcast signal”) to the television screen 325 (“display panel”).” EX1004, ¶0038; EX1003, ¶82. In FIG.6 below, Bennett also discloses the “set-top box 607” controls the “Television 605,” (“display panel”) which receives and displays the broadcast signal the “set-top box 607” received from the “Remote Media Broadcaster 609.” EX1004, ¶0056, FIG.6; EX1003, ¶82.

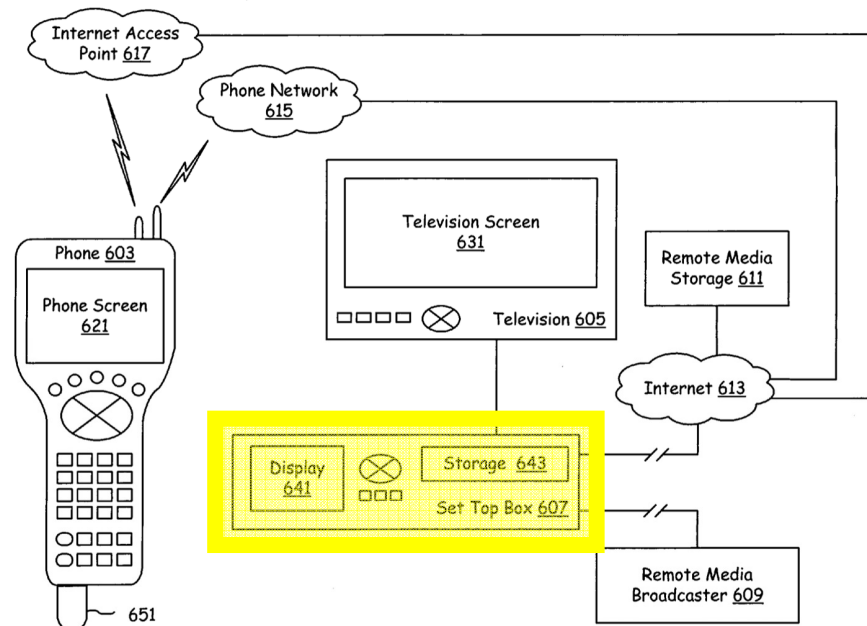


FIG. 6

EX1004, FIG.6.

xii. Element [I.2]: “to display the first video content on the display panel”

Bennett discloses a “set-top box” (“system controller”) “forwards the video portion (“a first video content”) of the first television channel to the television screen 325 (“display panel”)” for display. EX1004, ¶0038; EX1003, ¶83. In FIG.6 below, Bennett also discloses the “set-top box 607” controls the “Television 605,”

(“*display panel*”) which displays the video content. EX1004, ¶0056, FIG.6; EX1003, ¶83.

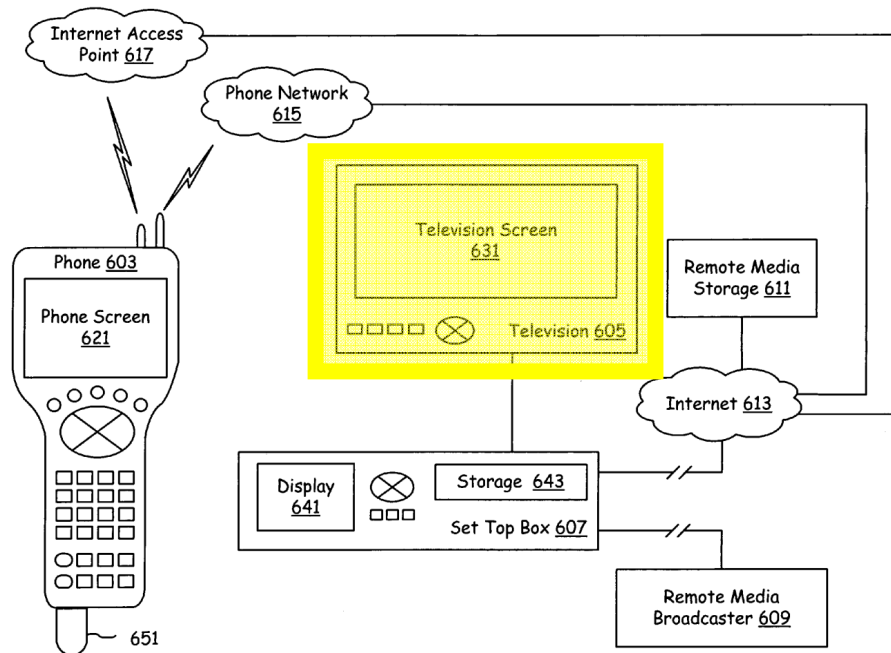


FIG. 6

EX1004, FIG.6.

xiii. Element [I.3]: “receive an identifier for identifying a second video content from the external mobile terminal”

Bennet describes the cellphone communicating to display multimedia elements on the display device. EX1003, ¶84. Bennett discloses a phone (“*external mobile terminal*”) delivering a “*control signal*,” (“*identifier*”) to the set top box 507 which “*directs* (“*identifying*”) *display of the second video stream on the television screen 231.*” EX1004, ¶0032; EX1003, ¶84. Subsequently, “[*t*]he set top box 207... receives the second video stream (“second video content”).” *Id.* Bennett further discloses the videos may be selected from a “*media guide*” (“*identifier*”) ”

which may “*comprise a list that **identifies** a plurality of media elements,*” which includes “*a second video.*” EX1004, ¶0034; EX1003, ¶84. Bennett also discloses “[t]he control signal from the phone 503 to the set top box 507 **identifies** a media element.” EX1004, ¶0055. Based on these disclosures, a POSITA would recognize that Bennett’s system receives an “*identifier*” from the phone for identifying the second video content. EX1003, ¶84. The combination of the control signal directing the display of a specific video stream, the media guide identifying various media elements including a second video, and the explicit statement that the control signal from the phone identifies a media element, would lead a POSITA to understand that an identifier for the second video content is received from the phone. EX1003, ¶84. This understanding aligns with standard practices in video content delivery systems known to a POSITA. EX1003, ¶84.

In the alternative, this feature is at least obvious over Bennett, in view of the knowledge of a POSITA. Bennett discloses the use of a “*media guide,*” (“*identifier*”), for the user to select video content to be displayed on the entertainment system. EX1004, ¶0034; EX1003, ¶85. Bennett also discloses a control signal from the phone “*identifies*” a media element for the television, which in turn receives the media element from the remote media source. EX1004, ¶0055; EX1003, ¶85. Therefore, Bennett teaches, suggests, and motivates a POSITA to use an “*identifier,*” such as a “*media guide,*” in the control signal sent to the

television such that the television can retrieve the selected multimedia element (e.g., video) from the media source. EX1003, ¶85.

xiv. Element [I.4]: “acquire the second video content via the internet using said identifier”

Bennett discloses a system using an identifier from the phone for identifying the second video content from the media source. (*See Supra Section XI.B.1.xiii. Element [I.3]*) Bennett further discloses that the “*media source*” comprises an “*Internet server*.” EX1004, ¶0055; EX1003, ¶86. Therefore, Bennett discloses that the video content can be acquired “*via the internet*” using “*said identifier*.” EX1003, ¶86. Additionally, Bennett discloses a system in FIG. 6 below where the set-top box retrieves the video content from “*Internet 613*” using the “*control signal*.” EX1004, FIG.6; EX1003, ¶86.

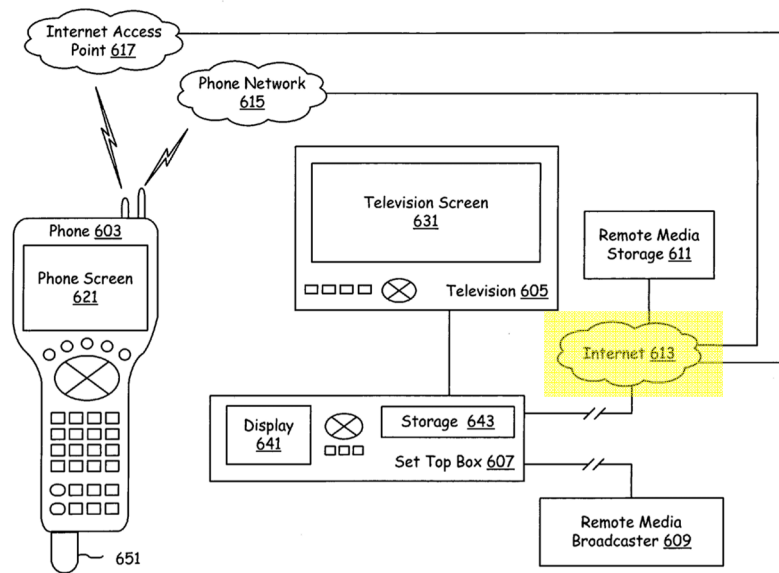


FIG. 6

EX1004, FIG.6.

Alternatively, it would have been obvious to a POSITA to use an identifier such as URL in Bennett's system to retrieve video content from the Internet. EX1003, ¶87. A POSITA would understand that Bennett's system retrieves video content "via the internet" using "said identifier." EX1003, ¶87. This understanding stems from the POSITA's knowledge of how internet servers typically operate and how content is generally accessed over the internet. EX1003, ¶87. Furthermore, Bennett discloses a system where the set-top box retrieves video content from "Internet" using the "control signal." EX1004, FIG.6; EX1003, ¶87. A POSITA, with their understanding of internet protocols and content retrieval methods, would recognize that accessing content from an internet server typically involves the use

of an identifier such as URLs. EX1003, ¶87. A POSITA would readily appreciate that an identifier is a standard and necessary component for retrieving specific content from an internet server. EX1003, ¶87. It is logical extension of Bennett's disclosed "control signal" to include necessary identifying information for content retrieval. EX1003, ¶87.

xv. Element [I.5]: "display the second video content on the display panel"

Bennett discloses "[i]f the media element is meant for the television 505, then the set top box 507 receives the media element from the remote media source 509 and forwards the received media element to the television 505. The media element is subsequently displayed on the television screen 531." EX1004, ¶0055, EX1003, ¶88. Bennett also discloses a system in FIG. 6 below, where "*set-top box 607*" retrieves and forwards the media element including "*the second video content*" to the "*television 605*" ("display panel") for display, after identifying and retrieving "*the second video content.*" EX1004, FIG.6 EX1003, ¶¶88.

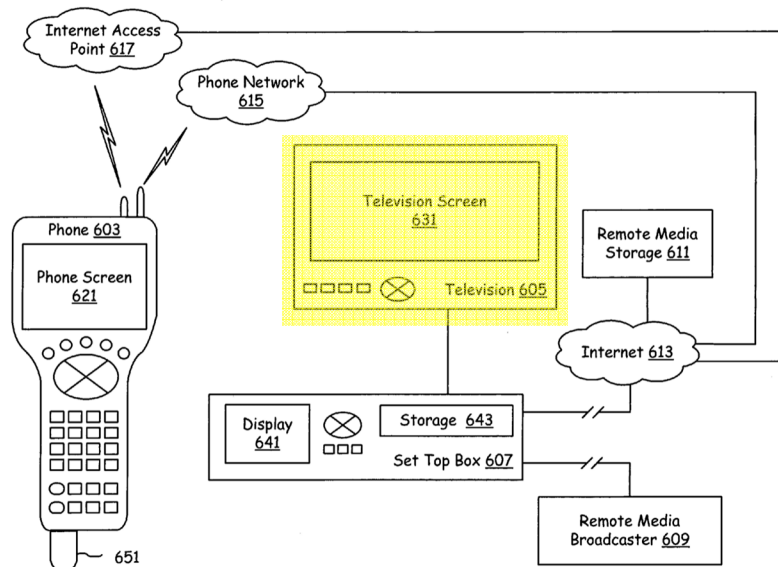


FIG. 6

EX1004, FIG.6.

xvi. Element [I.6]: “terminate display of the first video content prior to display of the second video content”

Bennett discloses a “*media swapping*,” in which the phone sends a control signal that directs the multimedia source to deliver “*a second multimedia element*” to the entertainment system, while it is presenting “*a first multimedia element*.” EX1004, ¶¶0051, 0067; EX1003, ¶89. The entertainment system then terminates the display of the first multimedia element and commences the display of the second multimedia element. *Id.*; EX1003, ¶89.

xvii. Element [I.7]: “execute operation instructions received from the external mobile terminal via the radio receiver while the second video content is being displayed”

Bennett discloses “*a radio receiver for receiving data from an external mobile terminal.*” (See *supra* Section XI.B.1.vii. Element [F]) Bennett further discloses “*the processing circuitry 417 of the phone 403 then delivers a control signal (“operation instructions”) via the communication interface 420 that directs application of the different setting (“execute operation instructions”) to the entertainment system 405.*” EX1004, ¶0050; EX1003, ¶90. Bennett further discloses a “*media swapping,*” in which the phone sends a control signal that directs (“*operation instructions*”) the display of other multimedia elements while one media element (“*the second video content*”) is being displayed. EX1004, ¶¶0051, 0067; EX1003, ¶90.

xviii. Element [I.8]: “execute commands received from the remote controller, wherein said remote controller is a different device than the external mobile terminal.”

Bennett discloses a system that includes an “*infra-red receiver*” for receiving commands from a “*remote controller.*” (See *supra* Section XI.B.1.viii. Element [G]) A POSITA would recognize that such a system necessarily includes a system controller to process and execute the received commands. EX1003, ¶91. This understanding stems from the POSITA’s knowledge of standard practices in

electronic control systems, where received signals must be interpreted and acted upon by a control unit. EX1003, ¶¶91.

Bennett further discloses the typical “*remote control*,” which is used to change TV channels, audio and video settings of the TV and control power supply to the TV. EX1004, ¶0008; EX1003, ¶92. Based on this description, a POSITA would conclude that the “remote controller” disclosed by Bennett is not designed for transmitting identifiers of specific video content to the system controller. EX1003, ¶92. Instead, its function aligns with traditional TV remote control capabilities. EX1003, ¶92. In contrast, Bennett teaches the “*phone*” (“*external mobile terminal*”) is used to send identifiers and control signals to “*direct the display of video information*.” EX1004, ¶¶0025, 0032; EX1003, ¶92. Besides, the “*phone*” disclosed in Bennett can make “*phone calls*.” EX1004, ¶0037; EX1003, ¶92. Given these distinct capabilities, a POSITA would recognize the “phone” as a separate device from the “remote controller,” each serving different purposes within the system. EX1003, ¶92. Also, a POSITA would have understood that the televisions came standard with the “typical remote” described in Bennett and would have determined it obvious not to dispense with it. EX1003, ¶92.

Further, FIG. 10 of Bennett illustrates five different phones as remote controls, each of which can include one or more communication interfaces, including a radio frequency interface and/or an “*infrared link*.” EX1004, FIG. 10,

¶0075; EX1003, ¶93. A POSITA would have understood that the phone that communicates over infrared meets the limitation of the “remote controller”.

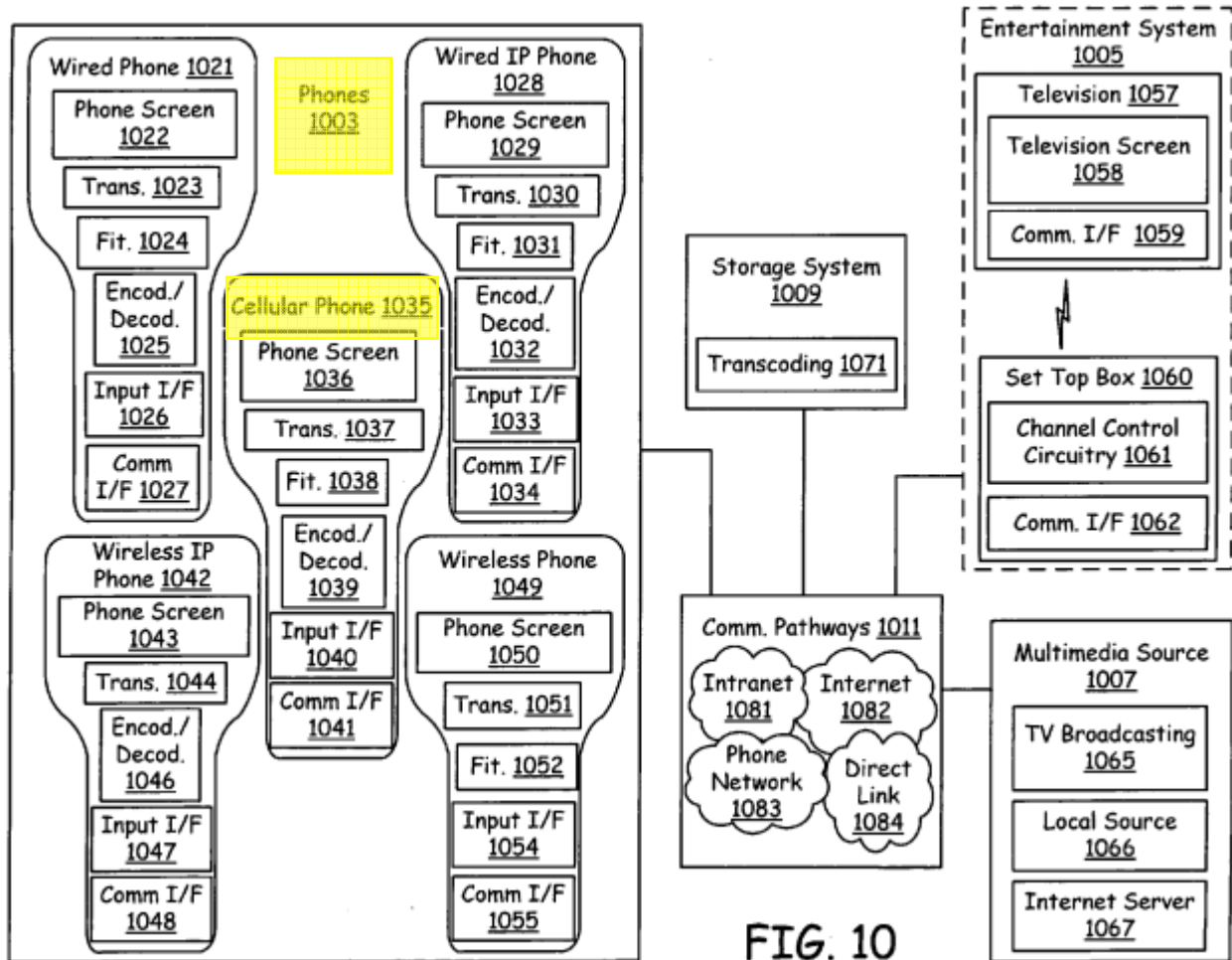


FIG. 10

EX1004, FIG. 10; EX1003, ¶93.

In the alternative, this limitation is obvious over Bennett in view of the knowledge of a POSITA. For example, using a separate, infrared remote control would have been obvious in view of the teachings, suggestions, and motivations in Bennett that would have led one of ordinary skill to modify or combine the prior art references. EX1003, ¶94. More specifically, FIG. 10 of Bennett expressly

illustrates five different phones as remote controls, each of which can include one or more communication interfaces, including a radio frequency interface and/or an “*infrared link*.”. EX1004, FIG. 10, ¶0075; EX1003, ¶94.

Furthermore, the mobile phones disclosed in Bennett are used to control an entertainment system, which by its nature, is shared by more than one user. EX1003, ¶95. Therefore, it would have been obvious to a POSITA to configure the entertainment system of Bennett to be controlled by two mobile devices at the same time, one via radio frequency and the other via infrared. EX1003, ¶95. This modification would employ known techniques and yield predictable results—namely, the effective control of an entertainment system through diverse remote controller devices. EX1003, ¶95.

Thus, the apparatus claimed in claim 1 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶96. Accordingly, the Board should cancel claim 1 based on 35 U.S.C. § 103.

2. Dependent Claim 2: “The display apparatus according to claim 1, wherein the second video content comprises video content displayed on the external mobile terminal.”

Bennett discloses the action of displaying video content from a phone (“*external mobile terminal*”) onto an entertainment system (“*display apparatus*”). EX1004, ¶0051, FIG.8; EX1003, ¶98. Bennett further discloses a “*media swapping*” mechanism where a control signal from the phone directs the

multimedia source to deliver a second “*multimedia element*” (“*second video content*”), which is originally displayed on the “*phone*” (“*external mobile terminal*”), to the entertainment system. EX1004, ¶0067; EX1003, ¶98.

Thus, the apparatus claimed in claim 2 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶99. Accordingly, the Board should cancel claim 2 based on 35 U.S.C. § 103.

3. Dependent Claim 3: “*The display apparatus of claim 2, wherein the display apparatus is further configured to receive display state information for the second video content.*”

Bennett discloses the TV (“*display apparatus*”) is configured to receive settings and state information related to the display of video content. For example, the TV receives the control signal applying the “*user-selected setting to the media displayed on the television screen 125*” after a user selection. EX1004, ¶0029; EX1003, ¶101. Further, Bennett teaches “[t]he set top box” “*receives the second video stream*” and delivers it to TV for display. EX1004, ¶¶0032, 0064; EX1003, ¶101. Here, the POSITA would have understood the television receives the second video stream from the set-top box for display. EX1003, ¶101.

A POSITA would understand that for a television to correctly render video content received from a set-top box, certain display state information must be communicated along with the video stream. EX1003, ¶102. This information typically at least includes: resolution, format, aspect ratio. EX1003, ¶102. A

POSITA would recognize that without this information, the television would not be able to properly display the received video content. EX1003, ¶102. A POSITA would be aware that in the display technology industry, it is standard practice for video streams to include metadata that carries essential display state information. EX1003, ¶102. This practice ensures compatibility and proper rendering across different display devices. EX1003, ¶102. A POSITA would have understood that the reception of display state information is a functional necessity for the system described by Bennett to operate as intended. EX1003, ¶102.

Bennett also teaches the user using a phone to select and control multimedia elements displayed on the entertainment system, which includes display “*settings*” (“*display state information*”). EX1004, ¶¶0046, 0050; EX1003, ¶103. A POSITA would interpret Bennett’s disclosure of receiving multimedia elements to necessarily include the reception of display state information required for proper playback on the display apparatus. EX1003, ¶103. This interpretation is based on the POSITA’s understanding of how display systems function and the requirements for successful video playback. EX1003, ¶103.

Thus, the apparatus claimed in claim 3 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶104. Accordingly, the Board should cancel claim 3 based on 35 U.S.C. § 103.

4. Dependent Claim 4: “The display apparatus of claim 3, wherein the display state information comprises position information.”

Bennett discloses how media elements displayed on different devices can be interchanged upon user commands. EX1004, ¶0051; EX1003, ¶106. A POSITA would understand that such functionality necessitates the handling of display state information, including “position information,” which is crucial for the swapping process and “fitting functionalities” described. EX1003, , ¶106.

A POSITA would recognize that fitting functionalities involve adjusting the multimedia content to fit the display. EX1003, ¶107. Based on their knowledge and experience in the field, a POSITA would understand that this process encompasses managing position information such as alignment, scaling, and placement on the screen. EX1003, ¶107.

Bennett further discloses “[a] user uses the phone 403 to control selection and display of a multimedia element on the screen 440 of the entertainment system 405.” EX1004, ¶0046, EX1003, ¶108. A POSITA, drawing from their expertise in display systems and user interfaces, would recognize that this control process necessarily involves the transmission of position information to the display apparatus. EX1003, ¶108. This information is essential for managing how and where content is displayed on the screen. EX1003, , ¶108.

In systems allowing content interchange between devices, a POSITA would know that maintaining display state is crucial. EX1003, ¶109. This state includes position information to ensure proper content placement after swapping. EX1003, ¶109. A POSITA would understand that “fitting” content to a display requires knowledge of the content’s current position and the target display’s dimensions. EX1003, ¶109. This necessitates the use of position information in the fitting process. EX1003, ¶109. When a user controls content display from a separate device (like the phone in Bennett’s disclosure), a POSITA would recognize that position data must be communicated to achieve accurate content placement on the target display. EX1003, ¶109. Given the described functionalities, a POSITA would conclude that position information must be handled by the system, even if not explicitly stated, as it is a technical necessity for the described operations to function as intended. EX1003, ¶109. Based on common practices in the field of multimedia display systems, a POSITA would expect position information to be a fundamental component of any system managing content across multiple displays. EX1003, ¶109.

By considering these points, a POSITA would conclude that Bennett’s system, while not explicitly mentioning “position information,” must handle such data to perform the described functions effectively. EX1003, ¶110.

Thus, the apparatus claimed in claim 4 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶111. Accordingly, the Board should cancel claim 4 based on 35 U.S.C. § 103.

5. Dependent Claim 5: “The display apparatus according to claim 2, wherein said operation instructions include move and select operations.”

Bennett discloses the phone-based remote control interacting with the television system to perform various control functions, including navigating media guides, selecting media content, and adjusting settings. EX1003, ¶112. A POSITA would recognize that these functionalities necessarily involve move and select operations. EX1003, ¶112.

Bennett discloses that “*the phone 103 receives a selection from a user*” “*identifying a video selection*” using “*user input interface 117.*” EX1004, ¶0025. “*The selection may be performed using a media guide,*” which may “*comprise a list that identifies a plurality of media elements available with the media sources 107.*” *Id.* A POSITA would understand that navigating through a list of media elements and making a selection requires move operations to scroll through the list and select operations to choose the desired content. EX1003, ¶114. This understanding stems from common implementations of media guides and user interfaces in television systems at the time. EX1003, ¶114.

Bennett also details the user input interface of the phone, including components such as “*buttons*,” a “*touchpad*,” a “*pen*,” a “*thumbwheel*,” a “*mouse*.” EX1004, ¶0043. A POSITA would recognize that these interface components are specifically designed to facilitate move and select operations. For instance: buttons are commonly used for directional navigation (move) and confirmation (select); touchpads and mice are used for cursor movement (move) and clicking (select); thumbwheels are typically employed for scrolling (move) and pressing (select). EX1003, ¶115. The inclusion of these specific input methods would signal to a POSITA that the system is designed to support move and select operations. EX1003, ¶115.

Bennett discloses that the phone can also “*control various television system settings*,” including “*settings related to media displayed on the television screen*,” by receiving user input and sending control signals to the television system. EX1004, ¶0029; EX1003, ¶116. A POSITA would understand that the process of controlling settings typically involves navigating through menus or lists of settings (move operations); selecting specific settings to modify (select operations); adjusting values or options within those settings (additional move and select operations). EX1003, ¶116. This understanding is based on standard practices in user interface design for television systems and remote controls at the time. EX1003, ¶116.

Given these disclosures and a POSITA's understanding of typical implementations in television control systems, it would be clear to a POSITA that Bennett's system incorporates move and select operations as fundamental aspects of its functionality, even without explicit use of these terms. EX1003, ¶117. The described user interactions and control capabilities necessitate these basic operations for effective navigation and selection within the system's interfaces. EX1003, ¶117.

Thus, the apparatus claimed in claim 5 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶118. Accordingly, the Board should cancel claim 5 based on 35 U.S.C. § 103.

6. Dependent Claim 6: “The display apparatus according to claim 5, wherein the display apparatus is not configured to transmit an identifier that identifies said first video content displayed on the display panel to the external mobile terminal.”

Bennett discloses a **one-way** communication where the phone delivers control signals to the television. EX1004, ¶0025, EX1003, ¶120. A POSITA would recognize that Bennett's disclosure does not include any indication that the television sends back any identifier of the content it is displaying to the phone. EX1003, ¶120. Given the explicit description of the one-way communication from the phone to the television, a POSITA would have understood that Bennett's system operates without any transmission of content identifiers from the television

to the phone. EX1003, ¶120. Bennett clearly describes the communication as one-way, from phone to television. A POSITA would have interpreted this as precluding any return communication. EX1003, ¶120. Bennett's disclosure lacks any mention of return communication or content identifiers being sent from the television. EX1003, ¶120. A POSITA would recognize this absence as significant in a technical document. EX1003, ¶120. A POSITA would have understood that Bennett's system achieves its stated purpose without requiring the television to send content identifiers to the phone. EX1003, ¶120. Based on the state of the art at the time, a POSITA would have recognized that if such a return communication were part of the system, it would have been explicitly mentioned due to its technical significance. EX1003, ¶120. A POSITA would have also appreciated that the one-way communication design described by Bennett offered advantages in terms of simplicity and efficiency, which would be compromised by adding unnecessary return communication. EX1003, ¶120.

Therefore, based on the information provided in Bennett and the knowledge of a POSITA, the POSITA would have understood Bennett's system operates without the television sending any identifier of the content it is displaying back to the phone. EX1003, ¶121. Thus, the apparatus claimed in claim 6 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶121. Accordingly, the Board should cancel claim 6 based on 35 U.S.C. § 103.

7. Dependent Claim 17: “The display apparatus according to claim 1, wherein the system controller is not configured to receive the identifier from the remote controller.”

Bennett discloses “[a] typical remote control” used to “change TV channels,” “audio and video settings” and “control power supply.” EX1004, ¶0008. This indicates that the remote controller is used for basic functions other than transmitting identifiers of specific video content to the system controller. EX1003, ¶124. Meanwhile, Bennett teaches the “phone,” not the remote controller, is used to send identifiers and control signals “adapted to direct the display of video information corresponding to the video selection.” EX1004, ¶¶0025, 0036, 0055. The POSITA would have thus understood that in Bennett the system controller was not configured to receive the identifier from the remote control. EX1003, ¶124.

Thus, the apparatus claimed in claim 17 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶125. Accordingly, the Board should cancel claim 17 based on 35 U.S.C. § 103.

8. Dependent Claim 18: “The display apparatus according to claim 1, wherein the display apparatus is not configured to transmit an identifier that identifies video content displayed on the display panel to the external mobile terminal.”

Bennett discloses a **one-way** communication where the phone delivers control signals to the television. EX1004, ¶0025, EX1003, ¶127. There is no indication that the television sends back any identifier of the content it is

displaying to the phone. EX1003, ¶127. A POSITA would have understood that Bennett's system operated without such transmission from the television to the phone. EX1003, ¶127.

Thus, the apparatus claimed in claim 18 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶128. Accordingly, the Board should cancel claim 18 based on 35 U.S.C. § 103.

9. Dependent Claim 19: “The display apparatus according to claim 1, wherein said operation instructions include move and select operations.”

Claim limitation 19 is identical to Claim 5. Accordingly, Bennett teaches limitation 19 for the same reasons. *See Supra* Section XI.B.5.

Thus, the apparatus claimed in claim 19 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶129. Accordingly, the Board should cancel claim 19 based on 35 U.S.C. § 103.

10. Dependent Claim 20: “The display apparatus according to claim 1, wherein the external mobile terminal is capable of receiving the second video content via a cellular base station.”

Bennett teaches that the “*phone*” (“*external mobile terminal*”) is capable of receiving video content via cellular networks. A POSITA would have understood that cellular networks, as described by Bennett, operated through cellular base stations. EX1003, ¶131. This understanding stems from the fundamental

architecture of cellular networks that a POSITA would have been familiar with at the time of the invention. EX1003, ¶131.

Bennett discloses that the phone “*retrieves via the communication interface 121 a first video stream... from the media sources 107.*” EX1004, ¶0025. Bennett further discloses the phone is “*communicatively coupled to the media sources 107 over respective wireless links*” which involve “*cellular telephony (e.g., GSM/GPRS/EDGE, CDMA, CDMA2000, UMTS, WCDMA, etc.)*,” which operate via cellular base stations. EX1004, ¶0030; EX1003, ¶132. A POSITA, with their knowledge of cellular network technologies, would have recognized that the cellular telephony standards mentioned by Bennett (GSM/GPRS/EDGE, CDMA, CDMA2000, UMTS, WCDMA) all relied on a network architecture that includes cellular base stations. EX1003, ¶132. These cellular standards are and were designed to facilitate communication between mobile devices (like the phone in Bennett’s disclosure) and the broader network infrastructure through cellular base stations. EX1003, ¶132. The “wireless links” described by Bennett, in the context of cellular telephony, would have been understood by a POSITA to involve transmission between the phone and cellular base stations. EX1003, ¶132. The retrieval of video streams “from the media sources 107” over cellular networks, as described by Bennett, would have necessarily involved the phone communicating

with cellular base stations to access the broader network and reach these media sources. EX1003, ¶132.

Thus, a POSITA would have concluded that Bennett’s disclosure of a phone receiving video content via cellular networks implicitly describes communication through cellular base stations, as this is a fundamental aspect of how cellular networks operate. EX1003, ¶133.

Thus, the apparatus claimed in claim 20 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶134. Accordingly, the Board should cancel claim 20 based on 35 U.S.C. § 103.

11.Dependent Claim 21: “The display apparatus according to claim 1, wherein the external mobile terminal comprises a smart phone.”

A POSITA at the time of the invention would recognize that the functionality described in Bennett for a “phone” was consistent with the capabilities of smartphones. EX1003, ¶136.

Bennett describes a “*phone*” that interacts with a television system to control media display, retrieve video content, and issue control commands to the television. EX1004, ¶0012; EX1003, ¶137. A POSITA would have recognized these as advanced features are associated with smartphones, which are (and were at the time of Bennett) essentially mobile computers with telecommunication capabilities. EX1003, ¶137.

Bennett also discloses that the “*phone*” implements transcoding, encoding, decoding, and formatting functionalities, which are advanced computing capabilities typical of smartphones. EX1004, ¶¶0028, 0048, 0063, 0072; EX1003, ¶138. A POSITA would have understood these sophisticated computing operations to be a characteristic of smartphones rather than basic mobile phones. EX1003, ¶138.

Bennett also discloses the “*phone*” has functionality of retrieving media from a media source and displaying it on either the phone or the television. EX1004, ¶0025; EX1003, ¶139. A POSITA would have associated this capability with smartphones, which are and were known for their ability to handle and display various types of media. EX1003, ¶139.

Bennett discloses the “*phone*” exhibits wireless and wired communication interfaces, which enable it to control multimedia systems, showing the phone’s interaction with multiple media sources. EX1004, ¶¶0042, 0043; EX1003, ¶140. A POSITA would have recognized this level of connectivity and versatility to be typical of smartphones. EX1003, ¶140.

Bennett further discloses a “*phone*” having functionality to control the selection and delivery of media to an entertainment system (EX1004, ¶0072; EX1003, ¶141). A POSITA would have understood that this level of control and

interaction aligns with the capabilities of smartphones, given their computing power and connectivity features. EX1003, ¶141.

Given these advanced features described in Bennett, a POSITA at the time of the invention would interpret the “phone” as a smartphone. EX1003, ¶142 This interpretation is based on the POSITA’s understanding of mobile phone technology evolution and the characteristic features that distinguish smartphones from basic mobile phones. EX1003, ¶142. The combination of advanced computing capabilities, multimedia handling, diverse connectivity options, and the ability to control other electronic devices are all hallmarks of smartphone functionality that a POSITA would recognize in Bennett’s description. EX1003, ¶142.

While Bennett may not explicitly use the term “smartphone,” a POSITA would have understood that the described device fell under this category based on its capabilities and the context of mobile technology at the time of the invention. EX1003, ¶143. The POSITA’s knowledge of the rapid advancements in mobile phone technology at the time and the trend towards integrating advanced computing features into handheld devices would have further informed this interpretation of Bennett’s disclosure. EX1003, ¶143. Thus, the apparatus claimed in claim 21 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶144. Accordingly, the Board should cancel claim 21 based on 35 U.S.C. § 103.

12.Dependent Claim 22: “The display apparatus according to claim 1, wherein the display apparatus is not configured to transmit an identifier that identifies said first video content displayed on the display panel to the external mobile terminal.”

Claim limitation 22 is identical to Claim 6. Accordingly, Bennett teaches limitation 22 for the same reasons. *See supra* Section XI.B.6.

Thus, the apparatus claimed in claim 22 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶¶145-146. Accordingly, the Board should cancel claim 22 based on 35 U.S.C. § 103.

13.Dependent Claim 23: “The display apparatus according to claim 1, wherein the identifier comprises a URL.”

Bennett discloses a system that retrieves video content from media sources, including a “*Internet server*.” EX1004, ¶0045. Bennett discloses the users may select media element using a “*media guide*” comprising “*a list that identifies a plurality of media elements available with the media sources*.” EX1004, ¶0026.

Given that the media sources include Internet servers, and standard practice for retrieving content from Internet servers involves using URLs, it would have been well-known to a POSITA that the identifier used for retrieving resources from such servers would likely be a URL. EX1003, ¶149. At the time of Bennett, it was well-known in the art that URLs are used to identify and retrieve resources from Internet servers. EX1003, ¶149. The use of URLs to access multimedia content over the Internet was a common and standard practice. EX1003, ¶149. Therefore, it

would have been obvious to the POSITA to use a URL as the identifier when retrieving video content from an Internet server. EX1003, ¶149.

Thus, the apparatus claimed in claim 23 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶150. Accordingly, the Board should cancel claim 23 based on 35 U.S.C. § 103.

14. Dependent Claim 24: “The display apparatus according to claim 1, wherein the system controller is further configured to control the network communication module to acquire the second video content without a user having to perform a log-in operation through the display apparatus.”

Bennett teaches the phone interacts with a television via a set-top box to manage video streams. EX1004, ¶0032. The process involves the user selecting video content on the phone, which then communicates with the set-top box to display the selected content on the television. *Id.*; EX1003, ¶152. This allows the television to acquire and display video content based on the phone's commands without necessitating a direct user log-in via the television. EX1003, ¶152. Bennett further teaches a video content is selected through the phone and transmitted for display on the television via a set-top box. EX1004, ¶0055; EX1003, ¶152. The content delivery to the television does not require any log-in authentication performed on the television itself. EX1003, ¶152.

Bennett also teaches that the purchasing or credential verification processes are executed **via the phone** and not through the display apparatus (television).

EX1004, ¶0062. If a log-in is needed, “*the phone may perform credential verification functionalities.*” *Id.* Bennett further discloses **the phone** “*purchases the selected media element*” using “*key based*” methods and “*user interactive steps,*” which clearly includes “*a log-in operation*” claimed here. *Id.*; EX1003, ¶153.

Thus, the apparatus claimed in claim 24 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶154. Accordingly, the Board should cancel claim 24 based on 35 U.S.C. § 103.

15.Dependent Claim 25: “The display apparatus according to claim 1, wherein the display apparatus further includes a memory for storing a user operation history.”

Bennett discloses “[t]he entertainment system 405 has a screen 440, a speaker 441, a memory 450.” EX1004, ¶0044. While Bennett does not explicitly state that the memory stores a user operation history, a POSITA would have recognized that such functionality was a common and expected use of memory in interactive systems. EX1003, ¶156. This understanding stems from the POSITA’s knowledge of standard practices in the field of interactive entertainment systems at the time of Bennett’s disclosure. EX1003, ¶156.

Bennett teaches “[t]he phone 103 may... control various television system settings... The processing circuitry 113 of the phone 103 then delivers a control signal... that directs application of the user-selected setting to the media displayed

on the television screen 125.” EX1004, ¶0029. Since the television system must process these inputs, the POSITA would have reasonably concluded that it would store user operation history to facilitate user preferences and settings. EX1003, ¶157.

At the time of Bennett, it was well-known in the art that interactive display systems often included a memory for storing user operation history to enhance user experience, to enable quick access to frequently used functions, and to personalize settings. EX1003, ¶158. Given that Bennett discloses a display apparatus with a memory and interactive capabilities, it would have been obvious to a POSITA to utilize the memory for storing user operation history. EX1003, ¶158.

The motivation to store user operation history stems from the need to improve system responsiveness and user convenience, which are common objectives in the field of multimedia systems. EX1003, ¶159.

By applying their knowledge of industry standards and best practices, a POSITA would have concluded that Bennett’s system, with its disclosed memory and interactive features, would benefit from and likely incorporate user operation history storage functionality. EX1003, ¶160.

Thus, the apparatus claimed in claim 25 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶161. Accordingly, the Board should cancel claim 25 based on 35 U.S.C. § 103.

16. Dependent Claim 26: “The display apparatus according to claim 25, wherein the user operation history comprises a set of user selections.”

While Bennett does not explicitly state that the memory stores a user operation history comprising a set of user selections, a POSITA would have readily understood that interactive multimedia systems typically stored user selections to enhance user experience. EX1003, ¶163.

Bennett discloses that “[t]he selection by the user may...identify two... media elements...using a media guide...” EX1004, ¶0026; EX1003, ¶164. This indicates that the system processes multiple user selections. A POSITA would have recognized that processing multiple user selections in such a system requires utilizing memory to store and manage these selections. EX1003, ¶164. This understanding follows the common practices in the field of interactive multimedia systems. EX1003, ¶164.

Bennett further discloses that processing of user selections for settings handled by the system controller. EX1004, ¶0029; EX1003, ¶165. A POSITA would have inferred from this that the system likely stores these selections in memory for future reference, as this is a standard approach in the field to maintain system state and user preferences across sessions. EX1003, ¶165.

In the alternative, at the time of Bennett, it was well-known in the art that interactive systems often store user operation histories, including sets of user

selections, to improve functionality and user experience. EX1003, ¶166. Features such as “recently watched” lists, personalized recommendations, and quick access to frequently used settings rely on storing user selections in memory. EX1003, ¶166. Given that Bennett discloses a display apparatus with a memory and interactive capabilities processing user selections, it would have been obvious to a POSITA to store these selections as part of a user operation history. EX1003, ¶166. The motivation to store user selections would have stemmed from the need to enhance usability and provide personalized experiences, common objectives in multimedia systems. EX1003, ¶166.

Thus, the apparatus claimed in claim 26 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶167. Accordingly, the Board should cancel claim 26 based on 35 U.S.C. § 103.

17. Dependent Claim 27: “The display apparatus according to claim 1, wherein the video processor is capable of having the second video content displayed in full screen display mode and, alternatively, in a partial area of the screen.”

Bennett teaches the “*fitting functionalities*” of the first and second multimedia elements can be processed by the system. EX1004, ¶0048, EX1003, ¶169. This indicates that the system can adjust video content to fit the display area. EX1003, ¶169. Also, the first and second media element “*may be processed for (e.g., specifically adapted for)*” the television screen or the phone screen. EX1004, ¶0028; EX1003, ¶169. The processing can be employed in the phone, in the

television, etc. and includes “*various fitting functionalities.*” *Id.*; EX1003, ¶169. “*If the selected media element is received in a format that is not supported by the screen of the phone, then transcoding is applied to the received media element.*” EX1004, ¶0063. A POSITA would have understood that these features included the capability to display content in full-screen mode or within a partial area of the screen. EX1003, ¶169. Additionally, the system allows for user control over “*the setting for either the screen or the speaker or both of the entertainment system,*” suggesting the capability to adjust how the content is presented on the screen. EX1004, ¶0050; EX1003, ¶169.

Alternatively, at the time of Bennett, it was common for video processors in entertainment systems to include functionalities that allow for displaying video content in full-screen or partial-screen modes (e.g., Picture-in-Picture, split-screen). EX1003, ¶170. Given that Bennett discloses a video processor with “*fitting functionalities,*” EX1004, ¶0048. it would have been understood by a POSITA that such functionalities include adjusting the size and position of video content on the display, enabling both full-screen and partial-screen display modes. EX1003, ¶170.

Thus, the apparatus claimed in claim 27 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶171. Accordingly, the Board should cancel claim 27 based on 35 U.S.C. § 103.

18. Dependent Claim 28: “The display apparatus according to claim 1, wherein the display apparatus is further configured to communicate with the external mobile terminal over a wireless LAN.”

Bennett discloses that the phone is communicatively coupled to the television and media sources over “*wireless links*,” which include a variety of communication types such as “*IEEE 802.11*,” which is and was commonly known as Wi-Fi or **wireless LAN**. EX1004, ¶0030; EX1003, ¶173. This disclosure shows that wireless LAN technologies were already utilized for communication between devices in media display environments at the time of Bennett. EX1003, ¶173. Bennett further teaches that the communication links between the set-top box, television, and phone are wireless, use technologies like “*IEEE 802.11*,” which is the standard protocol for wireless LAN communications. EX1004, ¶¶0033, 0052.

Thus, the apparatus claimed in claim 28 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶174. Accordingly, the Board should cancel claim 28 based on 35 U.S.C. § 103.

19. Dependent Claim 29: “The display apparatus according to claim 1, wherein the display apparatus further comprises a DLNA communications device.”

The Digital Living Network Alliance (DLNA) is a standard that enables devices to share media over a local network. EX1003, ¶176. This claim incorporates DLNA functionality for transmitting and receiving media content between devices within a home network. EX1003, ¶176.

Bennett discloses a system capable of sharing media content across devices, including communication over a network, which is functionally equivalent to DLNA communications. EX1003, ¶177. Bennett describes the interaction of the phone with a television system and media sources over wireless communication protocols, such as Wi-Fi or Bluetooth, to control the delivery and display of media content across multiple devices in a multimedia network. EX1004, ¶¶0030-0032, 0050; EX1003, ¶177. The disclosed communication methods in Bennett perform the same essential function as DLNA: enabling devices to communicate and share multimedia content across a local network. EX1003, ¶177. The apparatus described in Bennett thus embodies the same type of networked communication capabilities as DLNA. EX1003, ¶177.

Thus, the apparatus claimed in claim 29 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶178. Accordingly, the Board should cancel claim 29 based on 35 U.S.C. § 103.

20.Dependent Claim 30: “The display apparatus according to claim 1, wherein the display apparatus further includes a memory storing an internet browser.”

Bennett discloses a display apparatus (entertainment system) which includes a memory component as part of its system architecture. EX1004, ¶0044. Bennett further discloses that the entertainment system is capable of accessing and processing multimedia content from various sources, including “*Internet servers.*”

EX1004, ¶¶0045, 0046; EX1003, ¶180. This capability to access content from “*Internet servers*,” would have been understood by a POSITA to necessitate software capable of handling Internet protocols and content formats. EX1003, ¶180.

The entertainment system in Bennett has functionalities of “*transcoding*,” “*encoding*,” “*decoding*,” and “*fitting*.” EX1004, ¶0048. A POSITA would have recognized that the ability to process and display multimedia elements from Internet servers suggests that the entertainment system included software applications—such as an internet browser—stored in its memory to retrieve, interpret, and display web-based content. EX1003, ¶181.

In the alternative, at the time of Bennett, it was well-known that devices accessing Internet content required an internet browser or equivalent software stored in memory. EX1003, ¶182. Given that Bennett discloses a display apparatus with memory and the capability to access Internet servers, it would have been obvious to a POSITA to include an internet browser stored in the memory of the display apparatus. EX1003, ¶182. The motivation to include an internet browser arises from the necessity to retrieve, interpret, and display web-based multimedia content on the display apparatus, a common feature in multimedia systems of that time. EX1003, ¶182. Although Bennett does not explicitly mention that the display apparatus includes a memory storing an internet browser, the system’s ability to

access online media sources through internet servers implies that such functionality is present or required. EX1003, ¶182. Given the widespread use of internet browsers in multimedia systems accessing online content at the time, it would have been obvious to include an internet browser stored in the display apparatus's memory. EX1003, ¶182.

Thus, the apparatus claimed in claim 30 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶183. Accordingly, the Board should cancel claim 30 based on 35 U.S.C. § 103.

C. GROUND 2: Bennett in View of Nashida and a POSITA's Knowledge

1. Summary of Ground 2

Bennett combined with Nashida and the knowledge of a POSITA renders obvious every limitation of all Challenged Claims, including the limitations in independent Claim 1 and additional limitations in dependent claims 2-5, 23, and 30.

2. Bennett, Nashida, and '020 Patent are Analogous Art

A prior art reference is deemed analogous to the challenged patent if one of two tests is satisfied: (i) the reference is within the same "field of endeavor" as the challenged patent, and (ii) even if the reference is not within the same field of endeavor, the reference is still reasonably pertinent to the particular problem with which the inventor is involved. *Donner Tech., LLC v. Bro Stage Gear, LLC*, 979

F.3d 1353, 1359 (Fed. Cir. 2020). Here, Bennett satisfies both tests. *See Supra Section XI.A.2*. Nashida also satisfies both tests.

i. Bennett, Nashida, and the ‘020 Patent are Within the Same Field of Endeavor

Both Bennett and the ‘020 Patent pertain to systems that allow for the display of video content from various sources (broadcast and internet) and enable control via external devices. *See Supra Section XI.A.2*; EX1003, ¶¶185-186.

Nashida is directed to a remote-control system comprising a remote controller and an image display apparatus. EX1005. The remote controller includes a display unit, an operation unit, and a communicator for communication with the television. *Id.* The system allows the remote controller to display information, receive user inputs, and transmit operational information to the television to control the display of content. *Id.* The remote controller can also receive display information from the television and display it on its own screen. *Id.* Therefore, Nashida is directed to the same field of endeavor as Bennett and the ‘020 Patent. EX1003, ¶187.

ii. Bennett and Nashida are Directed to the Same Problem as the ‘020 Patent

Bennett and Nashida are directed to the same problem as the ‘020 Patent, namely problems related to enhancing user experience by enabling

seamless control and interaction between external devices and television systems. EX1001. A POSITA would consider Bennett and Nashida to be directed to the same problem as the '020 Patent. EX1003.

3. A POSITA Would Have Been Motivated to Combine Bennett, Nashida and a POSITA's Knowledge

A POSITA would have been motivated to combine Bennett and Nashida. EX1003. Such motivation is evident from both Bennett and Nashida, as well as many other exemplary prior art references.

A POSITA would have been motivated to try alternatives to Bennett. *Id.* Dr. Wolfe testifies that he is personally aware of such motivations prior to the '020 Patent priority date, as explained below. *Id.*

First, it would have been obvious to a POSITA to make the proposed combination for the same reasons discussed for Ground 1. For example, a POSITA's knowledge would have provided motivation to combine Nashida with Bennett. EX1003, ¶189. It was well-known for televisions to have a digital broadcast receiver (Element [A]) to receive the digital broadcast signal from the internet and an infra-red (IR) receiver (Element [G]) for receiving commands from a remote controller. EX1003, ¶189. Also, it was well-known for external remote controllers to send identifiers (Element [I.3]), such as URLs, to the radio receiver (Element [F]) of televisions for the acquisition of video contents from the internet (Element [I.4]). EX1003, ¶189.

Second, a POSITA would have recognized this combination as a use of a known technique (*i.e.*, Nashida’s digital broadcast receiver, IR receiver, radio receiver, identifiers, display state information, position information) to improve a similar device (*i.e.*, providing Bennett’s display system with necessary capabilities for its media display and media swap function) in the same way (*i.e.*, complementing Bennett’s system, and related functionality, to include Nashida’s features such as position information). EX1003, ¶190.

A POSITA also would have had a reasonable expectation of success. EX1003, ¶191. Both Nashida and Bennett use well-known, conventional architectural elements, such as CPUs/processing circuitry, memories, wireless communication devices, and displays—all performing their intended functions. EX1003, ¶191. In addition, both Nashida and Bennett use well-known forms of wireless communication (*e.g.*, infrared) to communicate between devices. EX1003, ¶191.

D. Bennett as Modified by Nashida and a POSITA’s Knowledge Teach All Elements of Challenged Claims Under Ground 2

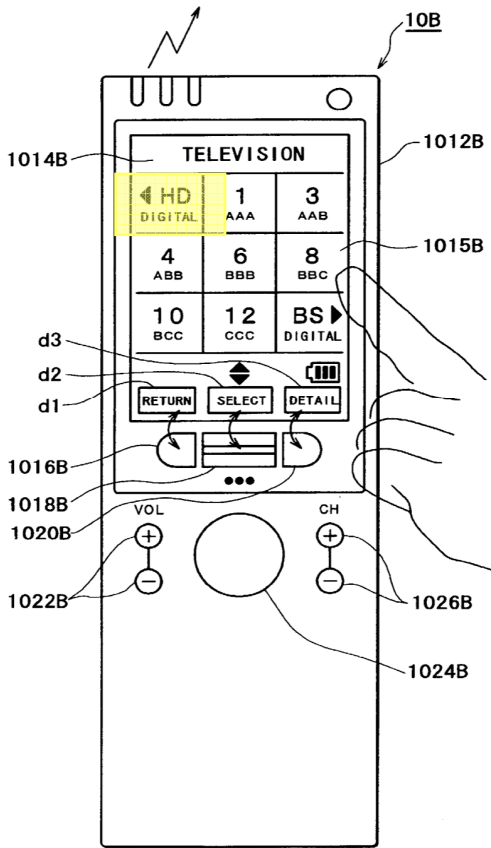
1. Independent Claim 1

i. Element [A]: “a digital broadcast receiver configured to receive a digital broadcast signal”

Nashida discloses “*the external input/ output controller 2012*” configured to “*receive an image signal and an audio signal of a television broadcast.*” EX1005,

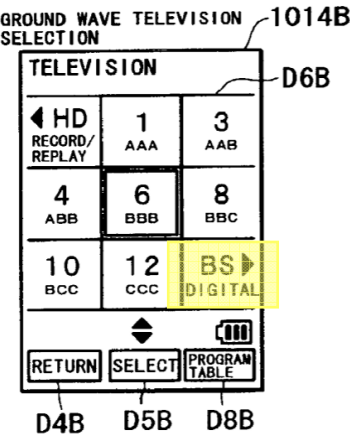
¶0071. Nashida further discloses the image and audio signals include “*digital*” broadcast signals. EX1005, FIG.12, FIG.14C. EX1003, ¶193.

FIG. 12



EX1005, FIG.12

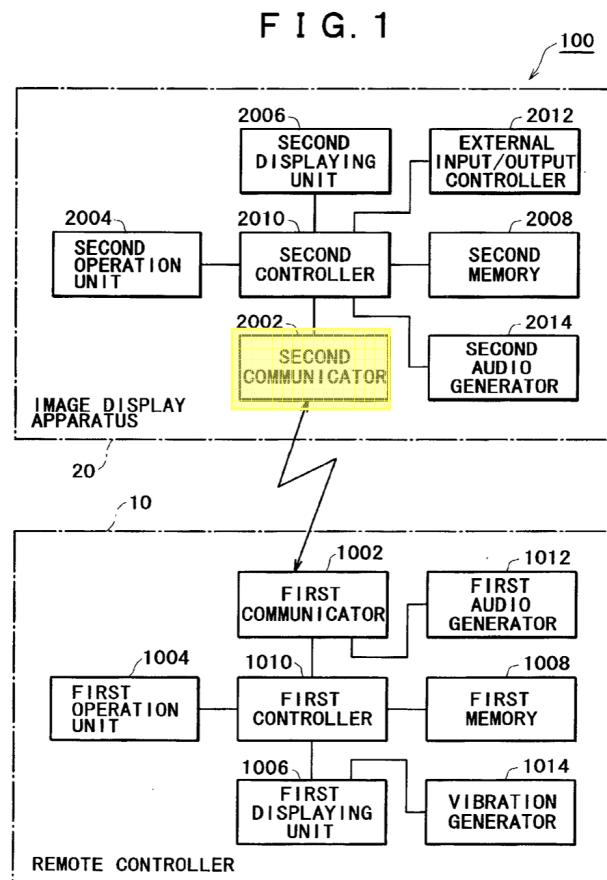
FIG. 14C



EX1005, FIG.14C.

ii. Element [F]: “a radio receiver for receiving data from an external mobile terminal”

Nashida discloses a “*second communicator*” in the image display apparatus for wireless communication with the “*first communicator*” of the external mobile terminal. EX1005, ¶0065, FIG.1. Therefore, combining Bennett and Nashida, it would have been obvious to include a radio receiver in the television to receive data from an external mobile terminal. EX1003, ¶194.



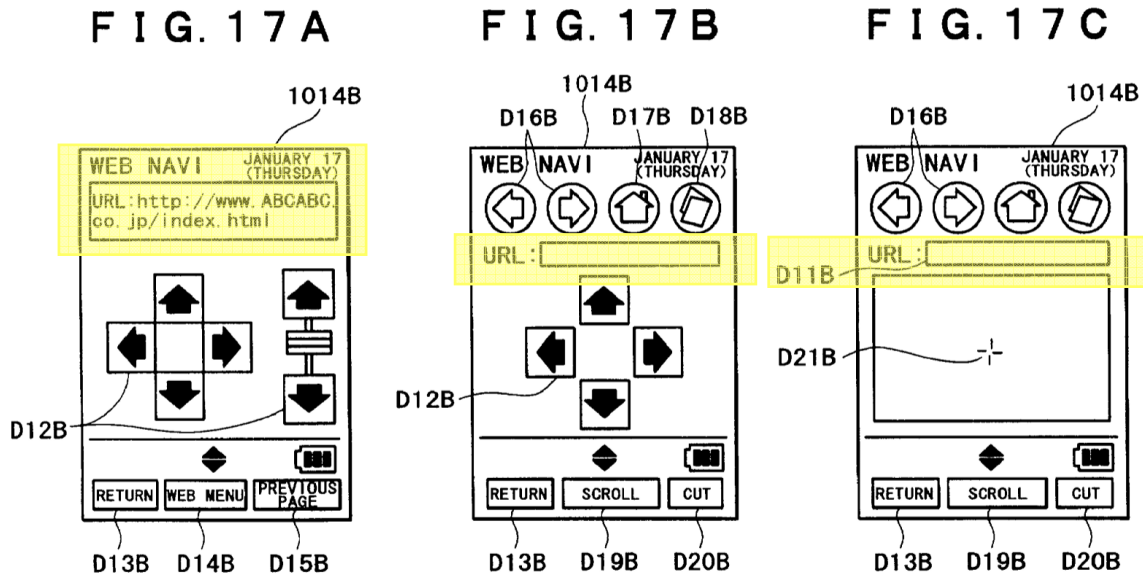
EX1005, FIG.1.

iii. Element [G]: “an infra-red (IR) receiver for receiving commands from a remote controller”

Nashida explicitly discloses that the image display apparatus includes an “infrared-ray receiving/emitting device” for “communication between the image display apparatus and the remote controller.” EX1005, ¶¶0051, 0063, 0065. Using an infrared remote control and receiver would have been obvious in view of the teachings, suggestions, and motivations in Bennett that would have led a POSITA to modify or combine Nashida. EX1003, ¶195. Therefore, combining Bennett and Nashida, it would have been obvious to include a IR receiver in the television to receive commands from a remote controller. EX1003, ¶195.

iv. Element [I.3]: “receive an identifier for identifying a second video content from the external mobile terminal”

Nashida discloses the use of identifiers, such as URLs, for retrieving internet content. In Nashida, the “controller 1010 transmits a command of requesting a transmission of a URL” for retrieving and displaying web content on a display apparatus. EX1005, ¶¶0120, 0124, 0126, 0200-0203. Such use of URL is also disclosed in FIGS. 17A-17C below. Incorporating a URL or similar identifier into Bennett’s “control signal” would have been an obvious combination of prior art elements (*e.g.*, using URL) according to known methods (*e.g.*, via a web browser), yielding the predictable result of efficiently retrieving specific content from an “Internet source.” EX1003, ¶196.



EX1005, FIGS. 17A-17C; EX1003, ¶196.

v. Element [I.4]: “acquire the second video content via the internet using said identifier”

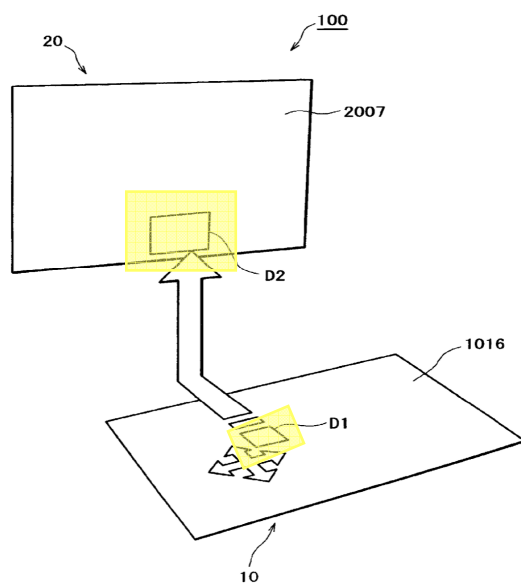
Nashida discloses the use of identifiers, such as URLs, for retrieving internet content. In Nashida, the “*controller 1010 transmits a command of requesting a transmission of a URL (Uniform Resource Locator) information*” for retrieving and displaying internet content on a display apparatus. EX1005, ¶¶0120, 0124, 0126, 0200-0203, FIGS. 17A-17C. Combining these teachings, it would have been obvious that the display apparatus acquires second video content from the internet after receiving the identifier, e.g. URL. EX1003, ¶197.

Thus, the apparatus claimed in claim 1 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶197. Accordingly, the Board should cancel claim 1 based on 35 U.S.C. § 103.

2. Dependent Claim 2: “The display apparatus according to claim 1, wherein the second video content comprises video content displayed on the external mobile terminal.”

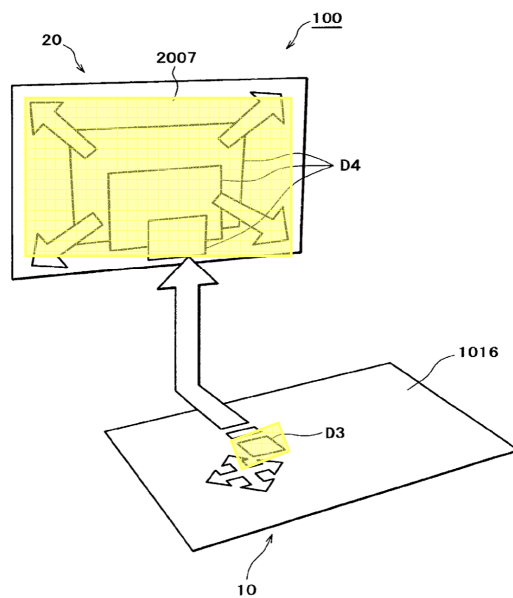
Nashida discloses that the “*display information*” (e.g. “*displayed channel*,” “*second video content*”) on the “*remote controller*” (“*external mobile terminal*”) is “*moved*” to the image display apparatus upon receiving user’s operations. EX1005, ¶¶0088-0091, 0096, 0114, FIGS. 4(A1)-4(A5), 4(B1)-4(B5), 6, 8; EX1003, ¶198. In FIG 6 and 8 below, Nashida discloses that the video content D1/D3 displayed on the external remote controller is “*moved*” to the display apparatus as D2/D4.

FIG. 6



EX1005, FIG 6.

FIG. 8



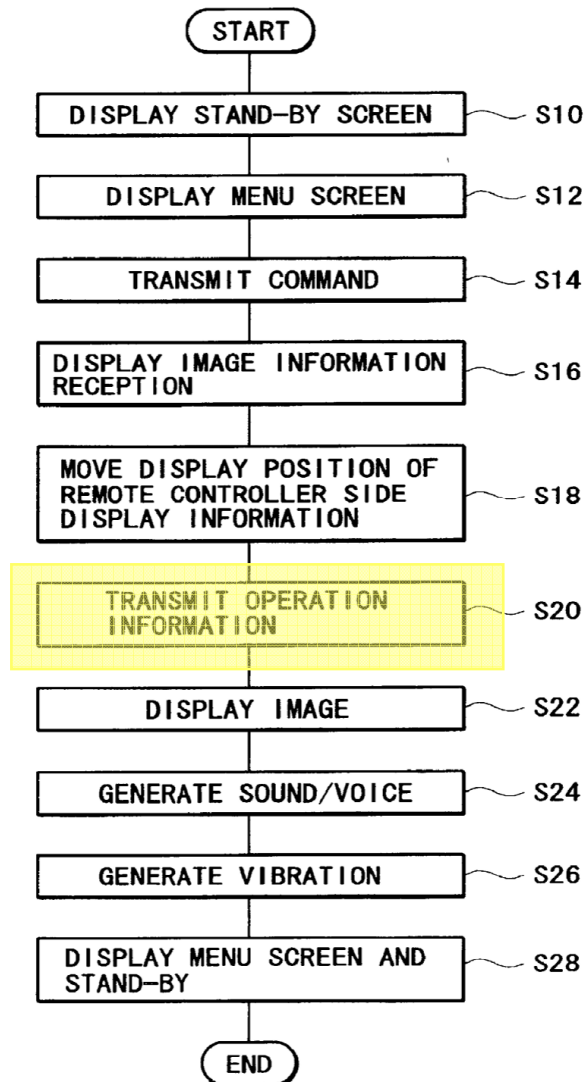
EX1005, FIG 8.

Thus, the apparatus claimed in claim 2 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶198. Accordingly, the Board should cancel claim 2 based on 35 U.S.C. § 103.

3. Dependent Claim 3: “The display apparatus according to claim 2, wherein the display apparatus is further configured to receive display state information for the second video content.”

Nashida discloses that upon the “*movement operation*” of “*display information D1*,” the remoter controller transmits the “*display information D1*” and the “*associated*” “*operational information*” to the display apparatus. EX1005, ¶0089. The “*operational information*” requests “*the display of the last displayed channel*” (on the remote controller) on the display apparatus. *Id.* Nashida further discloses that upon receiving the “*operational information*,” “*display surface*” (“*display apparatus*”) displays “*an image of the last displayed channel*” or “*the image information corresponding to the remote controller side display information*.” EX1005, ¶¶0091, 0107. FIG.5. “[A]n image of the **last displayed channel**” and “*the image information **corresponding to** the remote controller side display information*” contains the state of the video image displayed on the “*remote controller*,” e.g. what channel is last displayed and the corresponding image, and therefore include “*display state information*” for the video content. EX1003, ¶199.

F I G. 5



EX1005, FIG.5.

Thus, the apparatus claimed in claim 3 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶199. Accordingly, the Board should cancel claim 3 based on 35 U.S.C. § 103.

4. Dependent Claim 4: “The display apparatus according to claim 3, wherein the display state information comprises position information.”

Further complementing Bennett, Nashida explicitly discusses the control of the position of video content on a large display, managed by a remote controller EX1005, ¶¶0095-0096. Nashida teaches that “*the display position*” of the “*remote controller side display information D1*” (“*second video content*”) associated with the “*operational information*” is “*moved towards the image display apparatus.*” EX1005, ¶0095. Nashida teaches that this result in “*the visual effect as if the remote controller side display information D 1 is physically moved towards the image display apparatus 20 from the display surface 1016 of the remote controller 10*” EX1005, ¶0096. EX1003, ¶200.

Nashida’s teachings about the position control, creating a visual effect suggesting movement of video content towards the display, directly correlate to “*position information*” being part of display state information. EX1003, ¶201. This reference not only supports the concept of position control but emphasizes its practical implementation and benefits, thereby underscoring its obvious nature to a POSITA. EX1003, ¶201.

The interrelation of Bennett and Nashida’s teachings makes it apparent that integrating position information as part of display state information was a predictable and logical step for a POSITA. EX1003, ¶202. The ability to control

and modify the display characteristics, including position based on user interaction, as taught by Nashida, would have been an obvious enhancement to Bennett's media swapping feature. EX1003, ¶202.

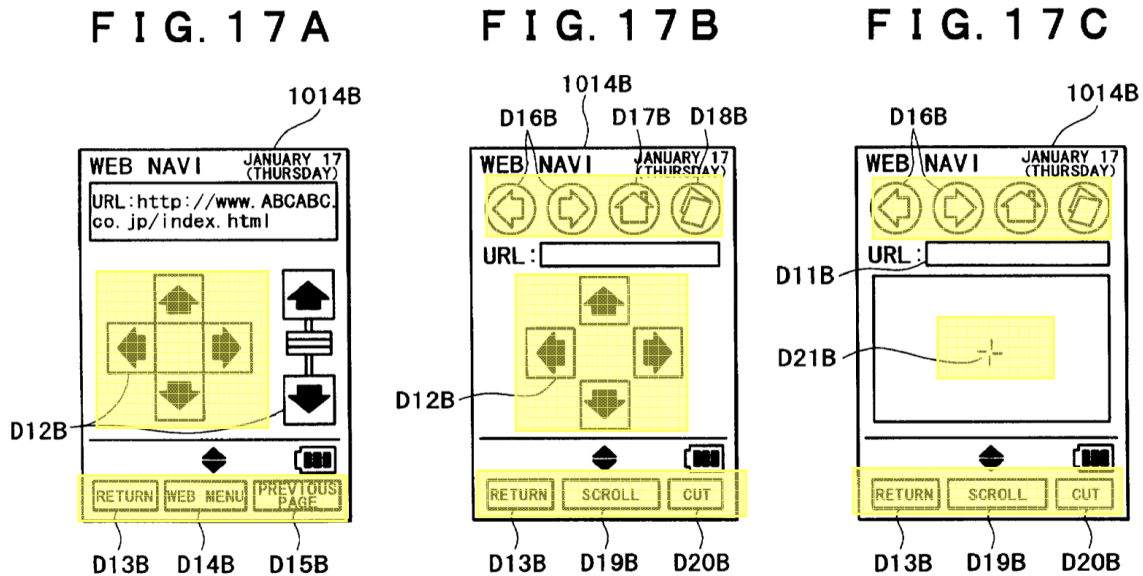
The combination of Bennett and Nashida reveals a clear motivation to incorporate position control into the display apparatus for media swapping, aiming to enhance user interaction and system responsiveness. EX1003, ¶203. This integration results in a predictable outcome of improving the operational efficacy of the system, rendering the feature claimed in Claim 4 not only obvious but a mere application of known techniques to improve similar technologies. EX1003, ¶203.

Thus, the apparatus claimed in claim 4 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶203. Accordingly, the Board should cancel claim 4 based on 35 U.S.C. § 103.

5. Dependent Claim 5: “The display apparatus according to claim 2, wherein said operation instructions include move and select operations.”

Nashida further discloses various “move and selection” operations on the remote controllers. Nashida discloses in FIGS. 17A, 17B, 17C below the screen of the remote controller while the Internet information is in display. Nashida teaches that the “*operation instructions*” include “*a scroll button D12B to **move** a display area,*” and make selections and several other button for selections: a “*home page*

button D17B,” a “book mark button D18B,” a “return button D13B,” a “scroll button D19B,” a “page movement button D16B” and a “cursor D21B.” EX1005, ¶¶0201-0204, FIGS. 17A, 17B, 17C; EX1003, ¶204.



EX1005, FIGS. 17A, 17B, 17C.

Thus, the apparatus claimed in claim 5 of the ‘020 Patent would have been obvious to the POSITA. EX1003, ¶204. Accordingly, the Board should cancel claim 5 based on 35 U.S.C. § 103.

6. Dependent Claim 23: “The display apparatus according to claim 1, wherein the identifier comprises a URL.”

Nashida discloses the use of identifiers, such as URLs, for retrieving internet content. *See Supra* Section XI.D.1.iv for Element [I.3] of Claim 1.

Thus, the apparatus claimed in claim 23 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶205. Accordingly, the Board should cancel claim 23 based on 35 U.S.C. § 103.

7. Dependent Claim 30: “The display apparatus according to claim 1, wherein the display apparatus further includes a memory storing an internet browser.”

Nashida discloses the display apparatus displaying an internet “*browser*” “*carry out the WWW reading operation.*” EX1005, ¶¶0124, 0126; EX1003, ¶206. Nashida further discloses that the display apparatus comprises a “*second memory*” (2008 or 2008B). EX1005, ¶¶0064, 0165; EX1003, ¶206. Nashida further discloses that the “*second memory*” comprises a “*ROM region for storing programs to be carried out by the second controller*” (2010 or 2010B). EX1005, ¶¶0069, 0170; EX1003, ¶206. Therefore, it is obvious that the internet browser of the display apparatus is stored in the “*second memory.*” EX1003; EX1003, ¶206.

Given that Bennett discloses a display apparatus with memory and the capability to access Internet servers, it would have been obvious to a POSITA to include an internet browser stored in the memory of the display apparatus, as disclosed by Nashida. EX1003, ¶207. The motivation to include an internet browser arises from the necessity to retrieve, interpret, and display web-based multimedia content on the display apparatus, a common feature in multimedia systems of that time. EX1003, ¶207. Given the widespread use of internet browsers

in multimedia systems accessing online content at the time, it would have been obvious to include an internet browser stored in the display apparatus's memory. EX1003, ¶207.

Thus, the apparatus claimed in claim 30 of the '020 Patent would have been obvious to the POSITA. EX1003, ¶207. Accordingly, the Board should cancel claim 30 based on 35 U.S.C. § 103.

XII. SOTERA STIPULATION

Should the Board grant *inter partes* review of this Petition, Petitioner stipulates that it will not pursue in the parallel district court litigation the same grounds or any grounds that could have reasonably been raised before the PTAB. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18-19 (Dec. 1, 2020) (precedential as to § II.A). In view of Petitioner's *Sotera* stipulation, and in accordance with Director Vidal's Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation ("Interim Procedure"), the Board should, therefore, not exercise discretion to deny institution in view of the parallel district court proceeding. Interim Procedure at 9 (instructing that the Board will not deny institution under *Fintiv* "where a petitioner stipulates not to pursue in a parallel district court proceeding the same grounds as in the petition or any grounds that could have reasonably been raised in the petition").

XIII. CONCLUSION

Petitioner respectfully requests the Board institute *inter partes* review of the '020 Patent and cancel each challenged claim.

Dated: November 4, 2024

Respectfully submitted by:

/Douglas A. Robinson/

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CERTIFICATE OF COMPLIANCE

The undersigned hereby certifies that this petition complies with the type volume limitations of 37 C.F.R. § 42.24(a)(1)(i). Excluding the portions allowed by 37 C.F.R. § 42.24(a)(1), this petition contains 13,784 words as calculated by the “Word Count” feature of Microsoft Word 2010, the word processing program used to create this.

The undersigned further certifies this petition complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and typestyle requirements of 37 C.F.R. § 42.6(a)(2)(iii). This petition has been prepared in a proportionally spaced typeface using Microsoft Word 2010 in Times New Roman 14-point font.

Dated: November 4, 2024

/Douglas A. Robinson/

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), the undersigned certifies that on November 4, 2024, a copy of **Petitioner TCL Electronics Holdings Ltd. (f/k/a TCL Multimedia Technology Holdings, Ltd.)’s Petition for *Inter Partes* Review and Exhibits 1001-1017** were served by Priority Mail Express on the correspondence address of record indicated in the Patent Office’s public PAIR system for U.S. Patent No. 10,219,020:

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