

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ELECTRONICS, INC., LG ELECTRONICS U.S.A., INC.
Petitioner,

v.

MULTIMEDIA TECHNOLOGIES PTE. LTD.,
Patent Owner.

Case IPR2024-00353
Patent 9,055,254

EXHIBIT 2008

DECLARATION OF RAJEEV SURATI

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I. INTRODUCTION

1. My name is Dr. Rajeev Surati. I have been retained as an expert witness to provide my independent opinion in regards with matters at issue in the *inter partes* review of U.S. Pat. No. 9,055,254 (“the ’254 Patent”) in IPR2024-00353 proceeding. I have been retained by Multimedia Technologies Pte. Ltd. (“Multimedia”), the Patent Owner, in this proceeding. The Petitioner in this case is LG Electronics, Inc. and LG Electronics U.S.A., Inc. (“LG”).

2. Unless otherwise noted, the statements made herein are based on my personal knowledge, and if called to testify about this declaration, I could and would do so competently and truthfully.

3. A detailed record of my professional qualifications including cases in which I was an expert is being submitted herewith as Exhibit 2009 and is summarized in Section II, *infra*.

4. I am being compensated for my work in this matter at the rate of \$665/hour. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

5. I am not a legal expert and offer no opinions on the law. However, I have been informed by counsel of the various legal standards that apply, and I have applied those standards in arriving at my conclusions.

6. In this declaration, I have been asked to address certain invalidity opinions relating to the '254 Patent, specifically those provided by LG in its Petition, Paper 1 ("Petition") challenging the '254 Patent and the accompanying declaration of Dr. Andrew Lippman, Ex. 1003 ("Lippman Decl." or "Lippman declaration"), regarding the alleged invalidity of the '254 Patent. The Petitioner and Dr. Lippman argue that Claims 1-4, 6, 8-10, 12-17, 19 ("Challenged Claims") are unpatentable.

7. In this expert declaration, I provide my opinions in response to the Grounds in the Petition and the Lippman declaration, as well as the basis for my opinions. As I explain in detail later in this expert report, based on my study of the '254 Patent, the Lippman declaration, and various references cited by Petitioner and Dr. Lippman, it is my opinion that the Challenged Claims are patentable over the cited references alone or in the various combinations in the Grounds.

8. I have found multiple limitations in the Challenged Claims that are not disclosed by any one of those references or a proposed combination of references. I identify those undisclosed limitations on a claim-by-claim, reference-by-reference basis. I also identify proposed combinations of references in a Ground or proposed modifications of a reference in a Ground that fail to render claims obvious because a person of ordinary skill in the art ("POSITA") would not have an apparent reason to combine or modify the references as proposed by the Petitioner and Dr. Lippman. That said, my decision not to address a limitation in a Challenged Claim should not

be interpreted as an admission that such a limitation is found in the references in the Ground cited by Petitioner and Dr. Lippman, or that a POSITA would have an apparent reason to combine or modify references in a manner meeting the limitation.

9. I submit this declaration having reviewed the '254 Patent, the Challenged Claims, the '254 Patent file history, and various references cited by Petitioner in its Petition and/or in the Lippman declaration. The material I have considered includes but is not limited to the items set forth below:

PETITIONER MATERIALS CONSIDERED	
Paper 1	Petition
Paper 11	Institution Decision dtd 6/11/2024
Ex. 1002	Prosecution History of the '254 Patent
Ex. 1003	Declaration of Dr. Lippman
Ex. 1005	U.S. Pat. Pub. No. 2012/0054794 (Kim)
Ex. 1006	WD-Manual
Ex. 1008	KR Pub. No. 2010/0134423 (Bae)
Ex. 1009	U.S. Pat. Pub. 2010/0079681 (Coburn)

10. I have also considered materials from the following list of Patent Owner's list of exhibits:

PATENT OWNER MATERIAL CONSIDERED	
Ex. 2007	Challenged Claims (annotated per Petition)
Ex. 2010	Deposition Transcript of Dr. Andrew Lippman in IPR2024-00353 9/6/2024.
Ex. 2011	U.S. Pub. No. 2007-0139556A1 (Liebhold to Thomson)
Ex. 2012	U.S. Pat. No. 8,533,760 (Lakin to Arris)
Ex. 2013	U.S. Pat. Pub. 2007-0280298A1 (Hearn to Lucent)
Ex. 2014	Reserved
Ex. 2015	U.S. Pat. No. 9,497,502 (Boyce to Thomson)
Ex. 2016	Assignment of Kim Reference to LG Electronics
Ex. 2017	Assignment of USPN 8,931,003 (Kim) to LG Electronics
Ex. 2018	U.S. Pat. No. 8,549,567 (Russ to Scientific-Atlanta)
Ex. 2019	U.S. Pat. No. 6,927,806 (Chan to Scientific-Atlanta)
Ex. 2020	Markman Order dtd 6/30/2024 in <i>Multimedia Tech. Ptd., Ltd. v. LG Electronics Inc.</i> , Case No. 2:22-CV-0494-JRG-RSP (E.D. Tex.)

11. I have also considered other materials, such as web sites and text materials in doing background research on the issues presented in this IPR.

12. My opinions as set forth in this expert declaration are based on these sources of information, together with my education, training, and experience, including my work in the field of the '254 Patent.

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

13. My complete qualifications and professional experience are described in my Curriculum Vitae, a copy of which is submitted as Ex. 2009. The following is a brief summary of my relevant qualifications and professional experience.

14. I have provided my full background in the curriculum vitae included here as Exhibit 2009. My CV details my experience in electrical engineering and computer science and also includes a list of publications I have authored or co-authored.

15. I attended the Massachusetts Institute of Technology (MIT) from 1988 to 1999, during which, I earned a Bachelor of Science (1992), Master of Science (1995) and a Doctor of Philosophy (1999) in Electrical Engineering and Computer Science. My Ph.D. thesis was entitled "Scalable Self-Calibrating Technology for Large Scale Displays."

16. Between 1989-1999 I was employed as a researcher/programmer at the MIT Artificial Intelligence Lab. At the lab I worked for Thomas F. Knight Jr. Ph.D., one of the noted inventors of the first bit mapped displays for computers as well as

many other notable accomplishments. The lab is also noted for its excellence in machine vision.

17. In 1996 I began working on a Ph.D. thesis related to the display of multimedia across large displays. My Ph.D. thesis system was a special kind of display allowing one to create ultra-high resolution displays composed of multiple projectors tiled with a slight overlap so that a camera-based feedback system could create an inverse map to drive the system such that a person would only see a continuous seamless display with no bezel or overlap. The camera-based system required imaging and decoding of 2d fiducials, and thus I became an expert at machine vision for the purpose of decoding and encoding 2d fiducials such as bar codes – the optical systems involved, the systems programming, etc. Today, this technology is better known as automatic calibration for projection mapping or structured light. My experience, along with a patent I developed and licensed based on my Ph.D. thesis, was used to create a new startup company named Scalable Display Technologies that works with a variety of Pro AV display companies' products.

18. I am a named inventor on U.S. Pat. No. 6,456,339, "Super-resolution Display," which reflects my Ph.D. work.

19. In 2004, I founded Scalable Display Technologies (SDT), and I have been the President and Chairman of the company since the founding. Among its

operations, SDT operates in the Audio Video domain and has licensed software and firmware to various companies including Hitachi and NEC. I also wrote a network-synchronized media playback system involving encoding and decoding of video and audio content as well as real time recording and video capture, a product known as “ScalablePlayer.” This product was written on top of the DirectShow system from Microsoft. In conjunction with this, for some show demonstration systems, I wrote a desktop application in C# that allowed one to preview and select different inputs and outputs. As part of this system, I worked on several home theater systems that involved integrating and enabling the kind of functionality that the patents in this case address. These were computer systems and hardware systems that managed the input and display of content on 110 inch plus often curved screens. Things being interfaced and displayed on the system included a multitude of input options from TV tuners, cablebox, DVD and Xbox 360.

20. Additionally, at SDT I have worked with most of the major video wall control manufacturers on customizing their systems to work with large display walls using overlapping projectors. These include Jupiter Systems, RGB Spectrum Matrox, and Datapath. In addition, I helped architect and specify some special video wall GPU functions for both AMD and NVIDIA.

21. I have received additional patents, including: U.S. Pat. No. 8,817,111, “System and method of calibrating a display system free of variation in system input

resolution”; U.S. Pat. No. 8,994,757, “System and method for providing improved display quality by display adjustment and image processing using optical feedback”; U.S. Pat. No. 9,215,455, “System and method of calibrating a display system free of variation in system input resolution”; U.S. Pat. No. 9,369,683, “System and method for calibrating a display system using manual and semi-manual techniques”; and U.S. Pat. No. 9,497,447, “System and method for color and intensity calibrating of a display system for practical usage.”

22. In 2000, I started a company known as “photo.net” which was a large online photography community where I worked with many consumer electronics manufacturers in the digital camera business. There, I implemented a photo sharing system involving the delivery of multimedia content. Additionally, I worked on e-commerce capabilities that involved some product configuration options. In running photo.net I became intimately familiar with implementing file systems for use with multimedia and super high performance image encoding/decoding systems as well as real time delivery of high bandwidth content.

23. In 1996, I founded Flash Communications, which was focused on technology related to U.S. Pat. No. 5,943,478 and associated technology that I had developed related to pop-up two-way messaging over the Internet. I am one of the named co-inventors of U.S. Pat. No. 5,943,478, which is entitled “System for Popup

Messaging over the Internet,” which describes a two-way messaging system like AOL Instant Messenger and MIT’s Zephyr service built at Internet scale.

24. In 1998, Flash Communications was sold to Microsoft Corporation, and Flash Communications’ messaging technology was incorporated into Microsoft’s Messenger service and Microsoft Exchange 2000 Instant Messaging Server.

25. While working at Microsoft between 1999 and 2000, I implemented an XML-based protocol that formed a basis for the Extensible Messaging and Presence Protocol (XMPP), which is now an IETF standard for the Exchange Instant Messaging Server. I participated internally with the program management team on helping specify this protocol for the IETF standardization process.

26. Also while at Microsoft, I invented and was named as an inventor on other patents related to instant messaging, including: U.S. Pat. No. 6,415,318, “Inter-enterprise messaging system using bridgehead servers”; U.S. Pat. No. 6,604,133, “Inter-enterprise messaging system using bridgehead servers”; and U.S. Pat. No. 6,260,148, “Methods and systems for message forwarding and property notifications using electronic subscriptions.”

27. Between 2000 and 2004, I worked as a consultant and investor at Nexaweb Corporation, where I helped implement several two-way messaging features over HTTP.

28. I am on the advisory boards of several technology companies, including UnifySquare, which is a unified communications/real time collaboration consultancy; Paneve, which develops general purpose ASICs coupled with compiler technology; Nexaweb, which develops real time web application frameworks using HTTPS; Antix Labs, which develops compiler technology for universal gaming platform; and Permabit, which develops content addressable storage.

29. For my contributions as an inventor and entrepreneur, I have received several awards, including the Global Indus Technovator Award 2009 and Laureate of 2009 Computer World Honors Program.

III. RELEVANT LEGAL STANDARDS

A. Burden of Proof

30. I understand that Petitioner LG Electronics (“LG”) has the burden of proving unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). Preponderance of the evidence “means the greater weight of evidence, evidence which is more convincing than the evidence which is offered in opposition to it.” *Hale v. Dep’t of Transp.*, 772 F.2d 882, 885 (Fed. Cir. 1985).

B. Obviousness (35 U.S.C. § 103)

31. I also understand that a patent may be rendered “obvious” based on an alleged prior art reference or a combination of such references in view of what a person of ordinary skill in the art would understand based on his or her knowledge

and the references. I understand that a patent cannot be properly granted for subject matter that would have been obvious to a person of ordinary skill in the art at the time of the alleged invention, and that a patent claim directed to such obvious subject matter is invalid under 35 U.S.C. § 103. It is also my understanding that in assessing the obviousness of claimed subject matter one should evaluate obviousness over the prior art from the perspective of one of ordinary skill in the art at the time the invention was made (and not from the perspective of either a layman or a genius in that art).

32. I have been informed that the following factors must be evaluated to determine whether the Petitioner has met its burden of proof that a claimed invention is obvious:

1. The scope and content of the prior art relied upon by Petitioner;
2. The difference or differences, if any, between each claim of the patent and the prior art;
3. The level of ordinary skill in the art at the time the invention of the patent was made; and
4. Any objective indicia of non-obviousness, such as: (1) commercial success of an embodiment; (2) a long-felt need; (3) skepticism; (4) failure by others to find the solution provided by the claimed invention; (5) copying by others of the subject matter of the claim invention; (6) unexpected results

of the claimed invention; (7) acceptance of others and industry praise; and
(8) licensing of the patents.

33. I have been informed that to prevail on obviousness the Petitioner must establish that (1) the prior art teaches or suggests each of the limitations of the claim; (2) there exists an apparent reason to combine and/or modify the prior art as proposed; and (3) a person of ordinary skill would have a reasonable expectation of success that the proposed combination and/or modification of the prior art would operate for its intended purpose.

34. I have been informed that a claim is not proved obvious merely by demonstrating that each of the elements was independently known in the prior art. I have been informed that many, if not all, inventions rely on building blocks already known, and claimed inventions almost of necessity will likely be combinations of what is already known.

35. I have been informed that it is important in the obviousness inquiry to identify whether a POSITA at the time of the invention would have motivation to combine or modify the prior art references in the manner proposed by the Petitioner so as to arrive at the claimed invention. Put another way, a finding of obviousness should be supported by an apparent reason to combine or modify the prior art references as proposed by the Petitioner.

36. I have been informed that it is important in the obviousness inquiry that it is understood how the references are combined, including how the combination of references is supposed to work. An explanation of the operation of the combined references is often a prerequisite to determining whether a POSITA would have been motivated or had a reason to make the proposed combination/modification and would have had a reasonable expectation of success.

37. In assessing obviousness, I understand that the ordinary creativity and common sense of the person of ordinary skill in the art is relevant. I also understand that it is normally impermissible for common sense, common knowledge or background knowledge to be applied to fill gaps in prior art that fails to teach or suggest a limitation of the claim. I also understand that the obviousness inquiry should guard against hindsight bias or hindsight reconstruction where after-the-fact reasoning is applied to combine prior art elements using the claim as a template, without establishing that, as of the date of the invention, there exists a motivation to combine or apparent reason to combine or modify the prior art as proposed.

38. In assessing obviousness, I have been instructed that, in order to qualify as proper prior art for an obviousness analysis, a reference must qualify as analogous art. I have been informed that a reference qualifies as analogous art with respect to the claims if it is either: (1) from the same field or endeavor as the patent; or (2) the reference is reasonably pertinent to the particular problem addressed by the

invention. I have also been informed that for a reference to be reasonably pertinent, it must logically have commended itself during the ordinary course of development to an inventor's attention in considering the problem.

39. In assessing obviousness, I have also been instructed that, as noted above, secondary considerations can often be probative evidence of non-obviousness and can serve to avoid hindsight bias. I have been instructed that secondary considerations can be sufficient to overcome a prima facie case of obviousness.

IV. LEVEL OF ORDINARY SKILL IN THE ART AND PRIORITY DATE

40. My opinions in this declaration are based on the understandings of a person of ordinary skill in the art, which I understand is sometimes referred to as an "ordinary artisan" or by the acronym "POSITA" (Person of Ordinary Skill in the Art), as of the time of the invention. For purposes of this Declaration, I have been instructed to use August 17, 2012, as the time of invention (priority date), which I understand is the date that the Petitioner is using. See Ex. 1003 [Lippman Decl.], ¶ 19; Pet., 10.

41. I understand that the person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. By "relevant," I mean relevant to the Challenged Claims of the '254 Patent.

42. I understand that, in assessing the level of skill of a person of ordinary skill in the art, one should consider the type of problems encountered in the art, the

prior solutions to those problems found in the prior art, the rapidity with which innovations are made, the sophistication of the technology, the level of education of active workers in the field, and my own experience working with those of skill in the art at the time of the invention.

43. In this case, Dr. Lippman has asserted in his declaration that a person of ordinary skill in the art as of the time of the '254 Patent “would have had a bachelor’s degree in Electrical Engineering, Software Engineering, or Computer Engineering, or equivalent training, and approximately two years of experience working in the field of television systems and networking, human-computer interaction, or related technologies.” Ex. 1003 [Lippman Decl.], ¶ 19.

44. I believe that Dr. Lippman’s definition of the POSITA is reasonable and I have applied it in my analysis. I was at the time of invention, and am currently, one of more than ordinary skill in the art through my education, research, and work experience. As of the date of the invention, I was very familiar with the types of problems encountered in the field. Indeed, I am very familiar with people having this level of skill in the area of user interfaces in the field of television systems and networking and human-computer interaction.

V. THE '254 PATENT

45. The Petition challenges Claims 1-4, 6, 8-10, 12-17, and 19 of the '254 Patent as obvious based on two grounds:

- Ground 1 challenging Claims 1-4, 8-10, and 13-17 (relying on Kim, WD-Manual, and Bae), and
- Ground 2 challenging Claims 6, 12, and 19 (relying on Kim, WD-Manual, Bae, and Coburn)

See Pet., 13.

A. Overview of the '254 Patent

1. The Need for an Improved User Interface

46. The '254 Patent is related to methods and systems for displaying content on a television. In the art, the trend of consolidation and convergence led to so-called Smart TVs, Intelligent TVs, and other enhanced TVs (hereinafter, “Smart TV” or “enhanced television”) providing multiple functions and access to multiple different sources of content including Internet content and broadcast television content:

The consolidation trend is now affecting the design and functionality of devices generally used in the home. ... The television in home audio/video systems remains a cornerstone device because the display function cannot be integrated into other devices. As such, consolidating home devices leads to integrating features and functionality into the television. The emergence of the Smart Television (Smart TV) is evidence of the trend to consolidate functionality into the television.

A Smart TV is generally conceived as a device that integrates access to the Internet and Web 2.0 features into television sets. The SmartTV

represents the trend of technological convergence between computers and television sets. The Smart TV generally focuses on online interactive media, Internet TV, on-demand streaming media ...

'254 Patent, 1:39-54.

47. Regarding Smart TVs, Intelligent TVs, and other enhanced TVs, the '254 Patent explains that there was a need for a user interface that would provide for improved navigation to content and features:

Unfortunately, most Smart TVs have yet to provide seamless and intuitive user interfaces for navigating and/or executing the various features of the SmartTV. As such, there are still issues with the consolidation of features and the presentation of these features in Smart TVs.

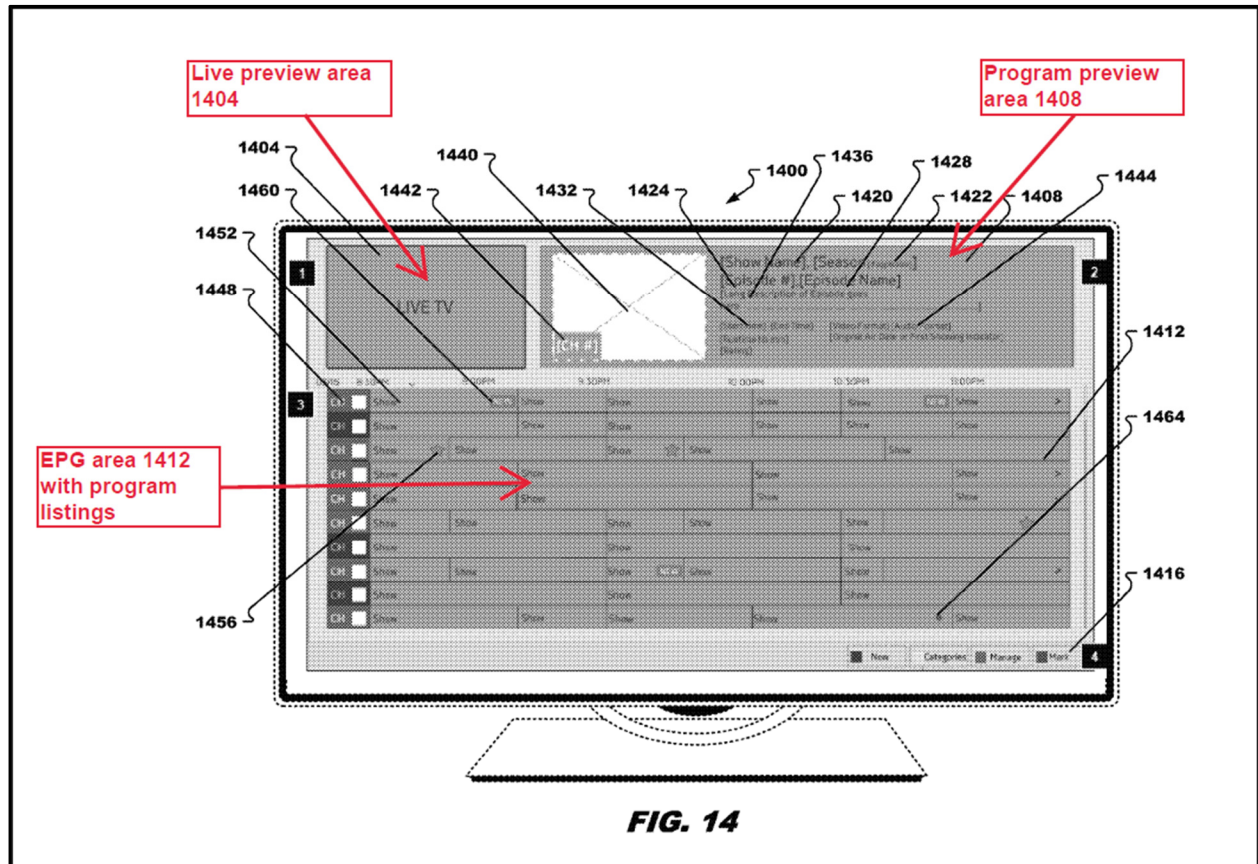
There is a need for an Intelligent TV with intuitive user interfaces and with seamless user interaction capability.

'254 Patent, 1:56-66.

2. Electronic Program Guides, On Screen Channel Changer

48. The '254 Patent generally describes various types of electronic program guide ("EPG") displays that allow the user to view program listings sorted in various manners. The program listings can be selected to learn more information about the selected program listing. The program listings in the program guide can be sorted based on channel and time (see, e.g., Figure 14), categories (see, e.g., Figure 16), favorite channels (see, e.g., Figure 17), favorite shows (see., e.g., Figure 17), reminders (see, e.g., Figure 17), and so forth. '254 Patent, Figs. 14, 16-17.

49. Figure 14 of the '254 Patent provides an exemplary EPG where the EPG listings are organized by channel and time. The display includes a live preview area 1040 for a currently-tuned program, a program preview area 1408 for a selected program listing, and the EPG program listings area 1412:



'254 Patent, Fig. 14 (annotated), 29:31-30:21. See '254 Patent, 28:17-44, 29:6-22, 30:41-45, 30:46-67, 31:1-57. Figs. 15-17.

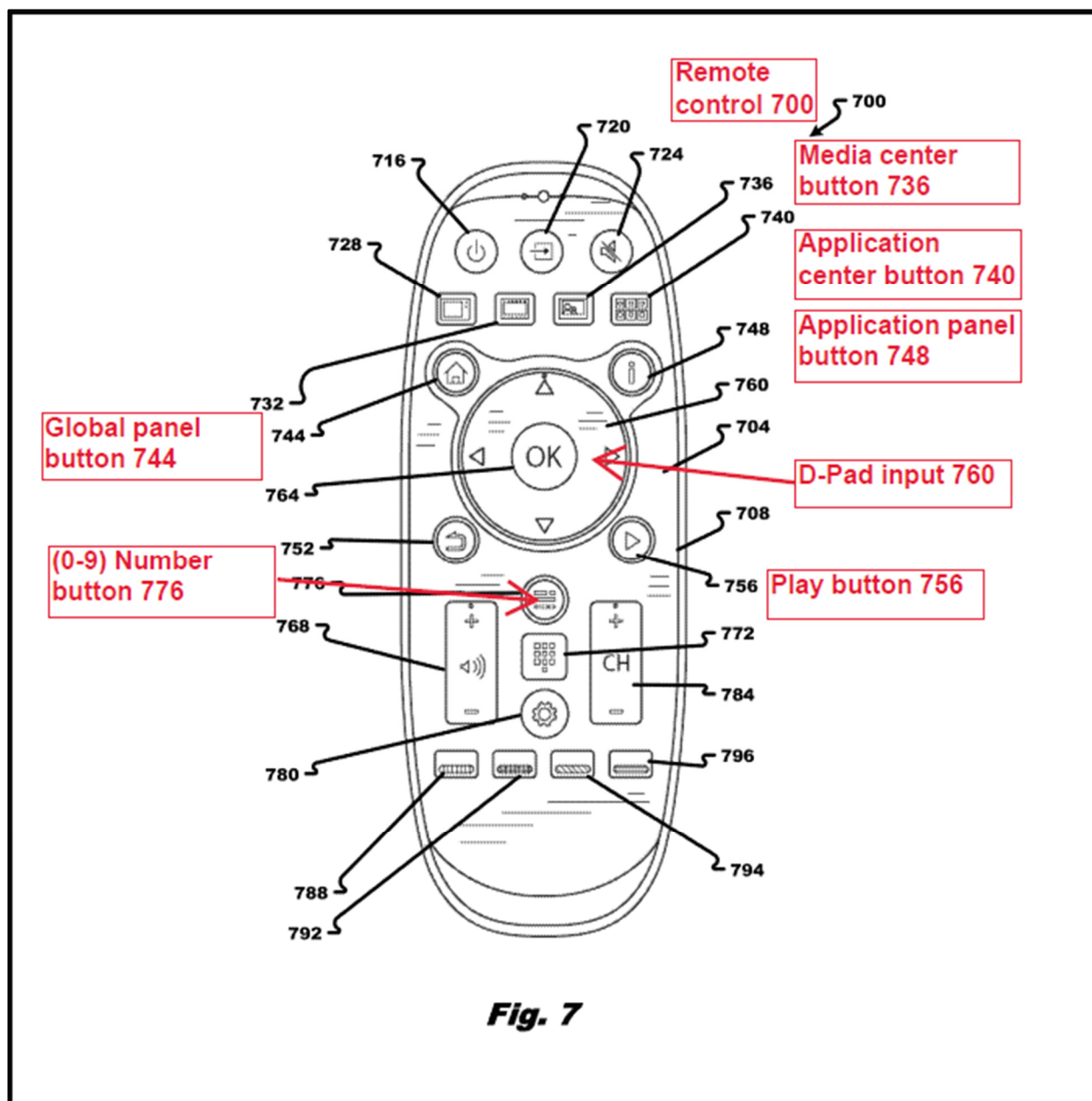
50. The '254 Patent also describes an “on screen channel changer” (“OSCC”), discussed in greater detail below. In one embodiment, the on screen channel changer includes a number input bar (with digits 0-9) and a mini-EPG. The user uses the remote control to select digits for the desired channel by moving the

cursor or pointer to focus on the numbers 0-9 on the number input bar. The mini-EPG can display program listings for channels/programs corresponding to the input so far. The OSCC enables the user to select and change a channel without entering the channel number using digit keys on the remote control. Indeed, the remote control can be simplified so that it does not have digit keys for 0-9. See '254 Patent, 2:5-3:24, 36:12-64, 39:41-43, 52-54, 61-64, Figs. 20, 26-27.

3. Remote Control Device with Media Center button, Application Center button, Application Panel button, and Global Panel button

51. Figure 7 of the '254 Patent depicts an exemplary remote control 700, including a media center button 736, an application center button 740, an application panel button 748, and a global panel button 744. There is also a (0-9) number button 776 for invoking the on screen channel changer that is the focus of the claims of the '254 Patent. The '254 Patent explains that in this embodiment “the remote control does not have number keys but rather a 0-9 (number) button 776, which, if selected, reveals an on screen channel changer 2000 shown in FIG. 20.” '254 Patent, 32:51-54, Fig. 20.

52. Figure 7 of the '254 Patent is depicted below:



'254 Patent, Fig. 7 (annotated).

53. The '254 Patent describes the various buttons and functions on the exemplary remote control:

A hand-held remote control can be provided to enable user interaction with the Intelligent TV 100. An exemplary hand-held remote control

is shown in FIGS. 7-9. The remote control 700 can include ... an input source button 720 (to select input source such as Live TV, video on demand, **media center, application center**, high definition multimedia interface or HDMI, component or COMP, audio/Video or A/V, digital or analog television or DTV/ATV, and video graphics array (VGA)), a (volume) mute button 724, a Live TV button 728 (to activate or select the Live TV silo), a video on demand (VOD) button 732 (to activate or select the video on demand silo), **a media center button 736 (to activate or select the media center application or silo, which access various types of media such as music, TV programming, videos, and the like), an application center button 740 (to activate or select the application center application or silo), a global panel button 744, an application panel button 748** ... a play button 756 (to play or pause media), a D-pad 760 (which includes north, east, west, and south directional arrows to navigate among displayed images and/or move between levels of an applications or objects hierarchy such as application view navigation, panel navigation, and collection navigation), an OK (or select) button 764 (to select a highlighted displayed image (such as displayed speed control, rewind, forward, play, and pause objects and/or objects on menu bar or in a menu box) and/or navigate down a hierarchy of any displayed image or object(s)) ... **a 0-9 (number) button 776 (to display a number pad on the TV screen),**

'254 Patent, 22:57-23:27 (emph. added), Fig. 7.

54. The '254 Patent describes the media center button 736 as follows:

The media center button 736, when selected, can provide information regarding music, videos, photographs, collections or groupings of music, videos, and/or photographs, and internal and external computational devices (such as personal computers, laptops, tablet computers, wireless phones, removable computer readable media, and the like), which can be grouped in a selected manner (such as favorites, most recently viewed, most watched or viewed, and most recently added). The information can includes previews (which can include selected portions of the media content, duration, file size, date created, date last watched, times watched or viewed, and audio and/or video format information).

'254 Patent, 24:5-17, Fig. 7.

55. The application center button 740 is described as follows:

The application center button 740, when selected, may provide information regarding pre-installed and downloaded applications.

Unlike downloaded applications, pre-installed applications cannot be removed by the user or manually updated. Exemplary pre-installed applications include web browser, settings control, and content search algorithms. By way of illustration, the application center button 740 can provide a scrollable graphical grid of icons (each icon being associated with an application) currently available in the application center.

'254 Patent, 24:17-26 (emph. added), Fig. 7.

56. The '254 Patent defines “pre-installed applications”, in contrast to “downloaded applications,” as being stored applications that “cannot be removed by the user or manually updated.” '254 Patent, 24:18-21.

57. The '254 Patent describes the application panel button 748 as follows, according to an embodiment of the invention:

The application panel button 748, when selected, can display an application window or panel. One application panel may be an information panel regarding a selected (pre-installed or previously downloaded) application icon. The information panel can one or more of identify the selected application, provide a description of the functionality (including application developer and/or vendor, version, release, and/or last update date and a category or type of application based on the application's functionality) and user ratings and/or degree of other user downloading of the application (e.g., a star rating assigned based on one or more of the foregoing inputs), provide the option to launch, remove, update, and add to favorites the identified application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the identified application. The latter listing can, in turn, provide a description of the functionality (including application developer and/or vendor, version, release, and/or last update date and a category or type of application based on the application's functionality) and user ratings and/or degree of other user downloading of the application (e.g., a star rating assigned based on one or more of the foregoing inputs).

'254 Patent, 24:56-25:10, Fig. 7.

58. The '254 Patent describes the global panel button 744 as follows, according to an embodiment of the invention:

The global panel button 744, when selected, can provide the user, via one or more panels or windows, with access to one or more of, but not limited to, silos, notifications, a web browser, system settings, and/or information associated therewith. For example, the global panel button 744 can enable the user to determine what external devices are currently connected to and/or disconnected from the Intelligent TV 100, determine what inputs (e.g., HDMI ports) are currently available for connecting to external devices, determine a connection and/or operational status of a selected external device and/or network (e.g., WiFi connected, Ethernet connected, and offline), assign a custom (or user selected) name to each input source, determine what content is currently being offered on Live TV, on demand, the media center, and/or the application center, access vendor messages and notifications to the user (e.g., system and/or application updates are available), activate the Internet browser, and/or access shortcuts on a displayed shortcut bar to more frequently used and desired applications.

'254 Patent, 24:27-45, Fig. 7.

59. The '254 Patent describes the various manners in which the remote control can be used to change channels:

There are **many modes to change channels or programming**. With reference to FIGS. 7-10, the remote control includes channel-up and

channel-down button 784 to select a next higher or lower channel, respectively, for viewing. The D-Pad 760 can scroll through EPG program or channel listings as described above, and **the OK button 764 can select a program or channel for viewing**. When not in the EPG display mode, the D-Pad 760 can be used to cycle through favorite channels that have been set on the system along with favorite programs that are currently airing. Opposing sets of arrows, either the up and down arrows or the left and right arrows, when pressed cycle through the favorite channels and programs. The back button 752 can change the currently viewed channel to the last-viewed channel. Repeatedly pressing the back button 752 will toggle between the currently viewed and previously viewed channels. When scrolling in any of these modes, once the largest or smallest numbered channel is reached, the next press takes the user to the smallest or largest numbered channel, respectively.

'254 Patent, 32:32-50.

4. Information Panel

60. The '254 Patent describes the application panel button 748 being used to invoke an information panel according to an embodiment of the invention:

The application panel button 748, when selected, can display an application window or panel. One application panel may be an **information panel** regarding a selected (**pre-installed or previously downloaded**) **application icon**. The information panel can one or more of identify the **selected application**, provide a description of the functionality (including application developer and/or vendor, version, release, and/or last update date and a category or type of **[the]**

application based on the application's functionality) and user ratings and/or degree of other user downloading of **the application** (e.g., a star rating assigned based on one or more of the foregoing inputs), provide the option to launch, remove, update, and add to favorites **the identified application**, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to **the identified application**. The latter listing can, in turn, provide a description of the functionality (including application developer and/or vendor, version, release, and/or last update date and a category or type of application based on the application's functionality) and user ratings and/or degree of other user downloading of the application (e.g., a star rating assigned based on one or more of the foregoing inputs).

'254 Patent, 24:56-25:10 (emph. added), Fig. 7.

B. On Screen Channel Changer with Number Input Bar

61. The '254 Patent also describes an "on screen channel changer" ("OSCC"). In one embodiment, the on screen channel changer includes a number input bar (with digits 0-9) and a mini-EPG. The user uses the remote control to select digits for the desired channel by moving the cursor or pointer to focus on the numbers 0-9 on the number input bar. The mini-EPG can display program listings for channels/programs corresponding to the digits input at a given point. For example, if the user makes 2 in-focus by selecting it on the number input bar, then the mini-EPG may display program listings for available channels 2XX (e.g., 22, 21,

20, 2). After the user makes 9 in-focus, the mini-EPG may display program listings for available channels 29X (e.g., 292, 291, 290, 29). If the user inputs the final channel number for a three-digit system, such as by making 4 in-focus, the mini-EPG may display the remaining program listing, which is for channel 294. '254 Patent, 36:12-64, Figs. 26-27.

62. The user makes the channel number selections on the number input bar using non-numeric keys on the remote control device. Preferably, the user has a directional pointer, cursor, or the like to highlight a digit (0-9) on the number input bar to make it in-focus. '254 Patent, 36:39 (D-Pad), Fig. 7 (D-Pad 760 with left/right and up/down options). Preferably, the number input bar dynamically updates itself so that it only displays digits for available programs based on the numbers the user has entered at that point. '254 Patent, 36:39-41. If the user selects a program listing on the mini-EPG, the system will tune to that channel/program (change channels) and the on screen channel changer will disappear. '254 Patent, 39:41-43, 52-54, 61-64.

63. The Summary section of the '254 Patent describes an embodiment of the screen channel changer display:

A method is provided that can include the steps: receiving, wirelessly by an infrared and/or radio frequency module of a television and from a remote control, a request to change a programming channel;

displaying, by a microprocessor executable application framework and on a television screen, an on screen channel changer, the on screen channel changer comprising electronic program guide ("EPG") information and a number input bar comprising digits;
receiving, by the application framework and from the remote control, a channel selection based on digits using the on screen channel changer;
and changing, by the application framework, to the selected channel. ...

an infrared and/or radio frequency module configured to receive wirelessly requests from a remote control of a user, the requests comprising a selected channel or program from a displayed listing; and a microprocessor executable application framework configured to receive a request to change a programming channel, display, on the television screen, an on screen channel changer, the on screen channel changer comprising electronic program guide ("EPG") information and a number input bar comprising digits, receive, from the remote control, a channel selection based on digits using the on screen channel changer, and change to the selected channel. ...

receive, from a remote control of a user, a request to change a programming channel; display, on a television screen, an on screen channel changer, the on screen channel changer comprising electronic program guide ("EPG") information and a number input bar comprising digits; receive, from the remote control, a channel selection based on digits using the on screen channel changer; and change to the selected channel.

'254 Patent, 2:5-47.

64. The Summary section also provides that “[t]he digits can range from 0 to 9” and “the remote control can select the digits using non-numeric keys.” ’254 Patent, 2:48-50. For example, “[e]ach of the digits can be selected using one or more arrow keys and a select button.” ’254 Patent, 2:56-57.

65. “The on screen channel changer can include a thumbnail preview containing EPG information corresponding to an in focus channel and/or program and a graphical image.” ’254 Patent, 2:60-62. “The EPG information in the thumbnail preview can include, for the in focus channel and/or program, airtime, program name, program channel, and program description.” ’254 Patent, 2:63-65. The ’254 Patent discloses that a program listing in the EPG can be selected to be in focus so that information about the selected program listing can be presented. The ’254 Patent also discloses that “[t]he graphical image in the thumbnail preview can be one of a captured frame of a program associated with the in focus program, a picture associated with the in focus program, and a photograph associated with the in focus program.” ’254 Patent, 2:66-3:2.

66. The ’254 Patent discloses some of the benefits and advantages of the on screen channel changer:

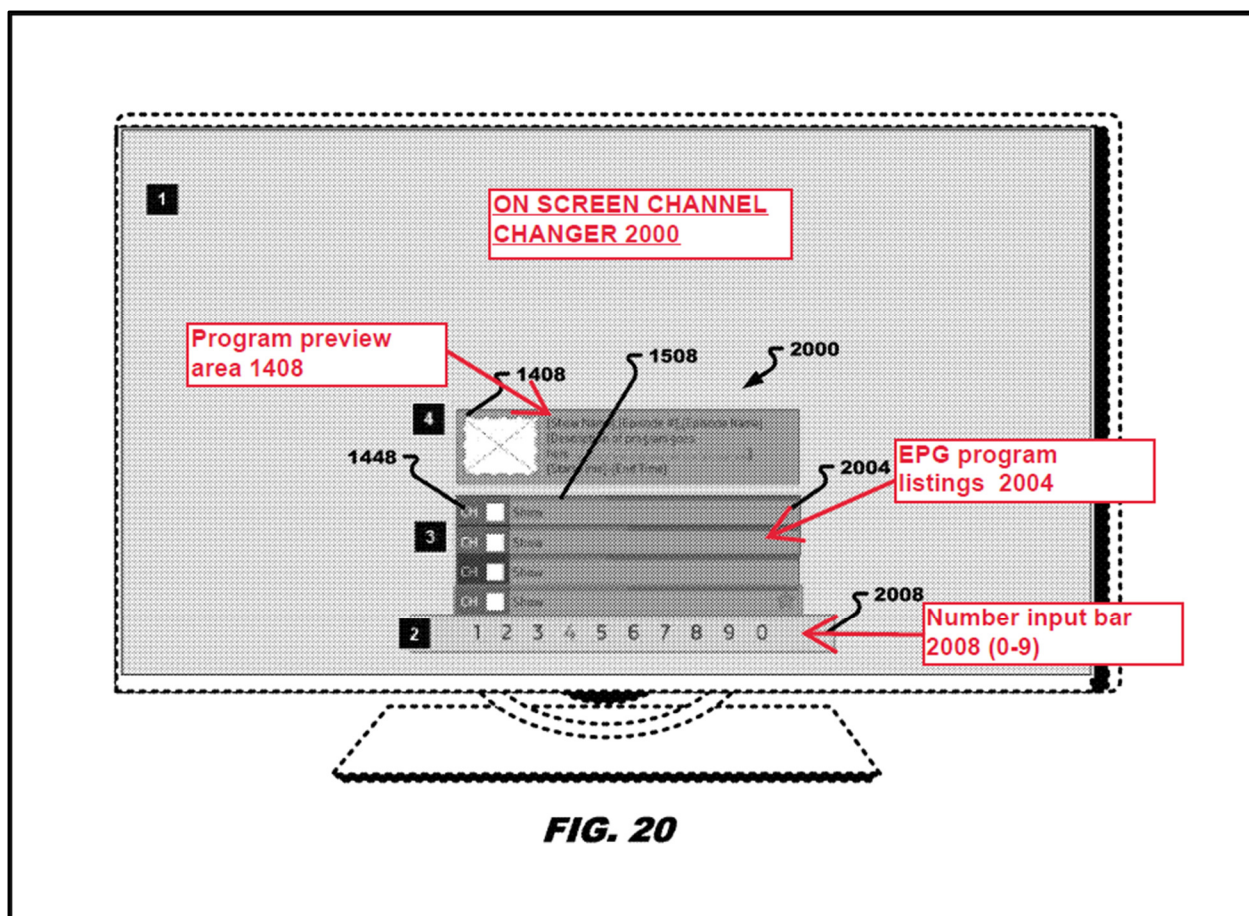
The present disclosure can provide a number of advantages depending on the particular aspect, embodiment, and/or configuration. The on screen channel changer can not only increase user convenience but also provide a quick interface to select channels. The absence of a

number pad on the remote control can provide a simple, convenient, and compact hand-held device for controlling television operations. The display of the graphical image provided by or derived from metadata associated with the programming can provide meaningful information without needing to wait for the channel change to be activated fully. This can improve the channel changing experience as all channels can show a full screen channel preview while tuning takes place. This can enable the user to flip quickly through channels to see what is on without needing to wait for the tuner to catch up. The header bar can provide further useful information during channel changing.

'254 Patent, 3:9-24.

67. Figure 20 of the '254 Patent depicts an exemplary on screen channel changer that includes number input bar 2008, a mini-EPG 2004, and a program preview area 1408. The user can move the cursor (or pointer, etc.) to select digits 0-9 from the on-screen number input bar 2008. As each digit is selected, the EPG 2004 updates to display program listings corresponding to the digits the user has entered so far. A program listing in the EPG can be made in-focus so that further information is presented in the program preview area 1408. If the user selects an in-focus program listing (e.g., by entering OK or the play button), the on screen channel changer display is removed and the program is played for the viewer. '254 Patent, 32:51-33:21, Fig. 20. In other words, the channel is changed.

68. Figure 20 is depicted below:



'254 Patent, Fig. 20 (annotated).

69. The '254 Patent discloses that if the user makes a selection of an already in-focus program listing, such as by entering the OK button or play button, the on screen channel changer will be removed and the program will be played for the user:

In any of the variations of FIG. 17, the OK button 764 or play button 756 on the remote control selects an in-focus program or channel listing for live viewing. When a channel or program is selected, the application layer 416 automatically exits the EPG display and commences viewing the selected programming.

'254 Patent, 31:58-63.

70. The '254 Patent describes the on screen channel changer of Figure 20:

With reference to FIGS. 7-10, the remote control does not have number keys but rather a 0-9 (number) button 776, which, if selected, reveals an on screen channel changer 2000 shown in FIG. 20. The on screen channel changer 2000 includes a program preview area 1408 (reflecting the currently in-focus channel), a vertically scrollable (EPG) channel listing 2004 (each listing including the channel indicator 1448, show name and progress bar), and a number input bar 2008. In the number input bar 2008, only numbers that will currently produce a selectable channel are enabled. Disabled numbers cannot receive focus and are bypassed during navigation of the number input bar. As each number is selected, the numbers enabled and disabled will vary to reflect the selectable channels available from the root numbers selected. The back button 752 acts as a backspace and, when selected, deletes the last number selected. The removal of the number keys or buttons from the remote control reduces the complexity of the remote control and thereby improves the remote controls overall usability and simplicity while the on screen channel changer 2000 provides the user with the ability to change channels using only the D-Pad 760. One opposing set of arrows (e.g., the up and down arrows) scrolls up and down through the program listing 2004 while the other opposing set of arrows (e.g., the left and right moves to the left and right, respectively, through the number input bar 2008.

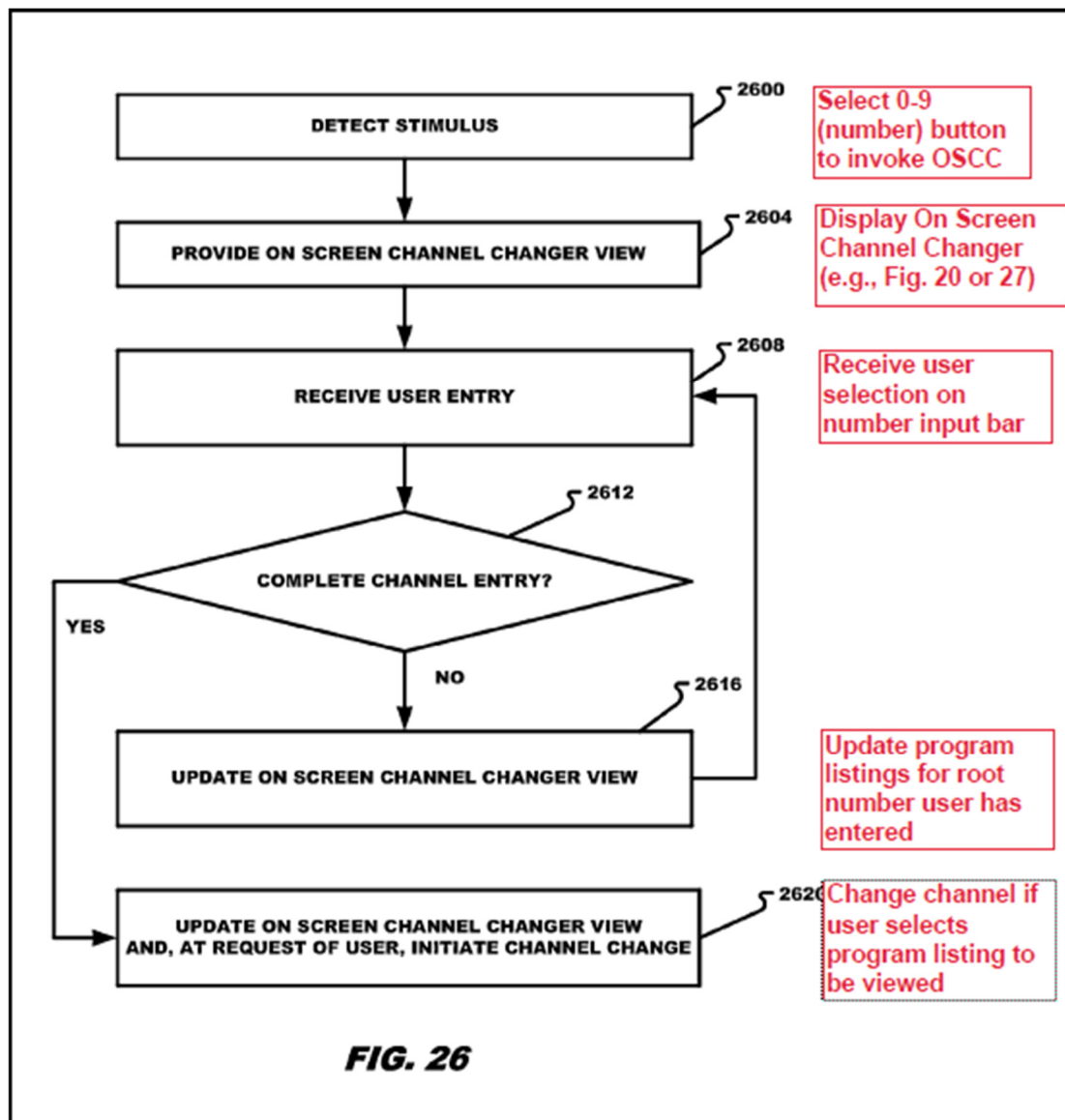
'254 Patent, 32:51-33:8, Fig. 20.

71. The '254 Patent explains that the EPG in the on screen channel changer can have different configurations:

The on screen channel changer 2000 can have different EPG channel listing configurations. In one configuration, a mini EPG is presented having a single channel listing of the last channel that was manually entered by the user (that may not be the currently viewed channel). In another configuration shown in FIG. 20, as numbers are selected a dynamic EPG channel listing is presented. The channels in the dynamic EPG listing correspond to the channels that are currently selectable from the root entered numbers. For example, if the user has entered “11” and only numbers “2”, “4”, and “6” in the number input bar are enabled, the channels in the dynamic EPG channel listing would include channel listings for channels 112, 114, and 116.

’254 Patent, 33:9-21 (emph. added), Fig. 20.

72. Figure 26 of the ’254 Patent illustrates a method for using an on screen channel changer with a number input bar to select digits of a channel number using non-numeric inputs from the remote control, such as by moving a cursor or pointer. As each digit is entered, the EPG program listings are updated based on the root number the user has entered. Figure 26, including annotations reflecting exemplary operations at each block, is depicted below:



'254 Patent, Fig. 26 (annotated).

73. The '254 Patent describes operations associated with an exemplary on screen channel changer (e.g., Figure 20 or Figure 27):

A further user interface operation of the application framework (typically the panel manager 536 and/or panel controller 552) is shown in FIG. 26. The operation will be discussed with reference to FIGS. 20 and 27.

In step 2600, the application framework 412 detects a stimulus, such as selection of the 0-9 (number) button 776, a new channel or program that causes the intelligent TV 100 tuner to locate a new programming signal. In step 2604, the application framework 412, in response, displays, in the viewing area 1920, an on screen channel changer 2000. With reference to FIG. 27, the on screen channel changer 2000 will have the appearance of the on screen channel changer 2700.

When the on screen channel changer is brought into focus, it will contain a mini EPG with a single entry of the last channel that was manually entered (that is not the current channel). The in-focus indicator will be in a default center position on the number input bar 2008 (which is in the “5” position as shown). Only numbers in the number input bar 2008 that will produce a selectable channel are enabled while the other numbers are disabled.

In step 2608, the application framework 412 receives a number selection via the on screen channel changer. In decision diamond 2612, the application framework 412 determines whether the user has entered a complete channel entry. If not, the application framework 412, in step 2612, updates the on screen channel changer 2700 to reflect the selected number. Referring to FIG. 27, the user used the D-Pad to select the number “2”. The on screen channel changer 2704 is updated to show, in the mini EPG, the next three channels that begin with the number 2. Selecting any of these EPG listings will automatically change the channel and dismiss the on screen channel changer 2704.

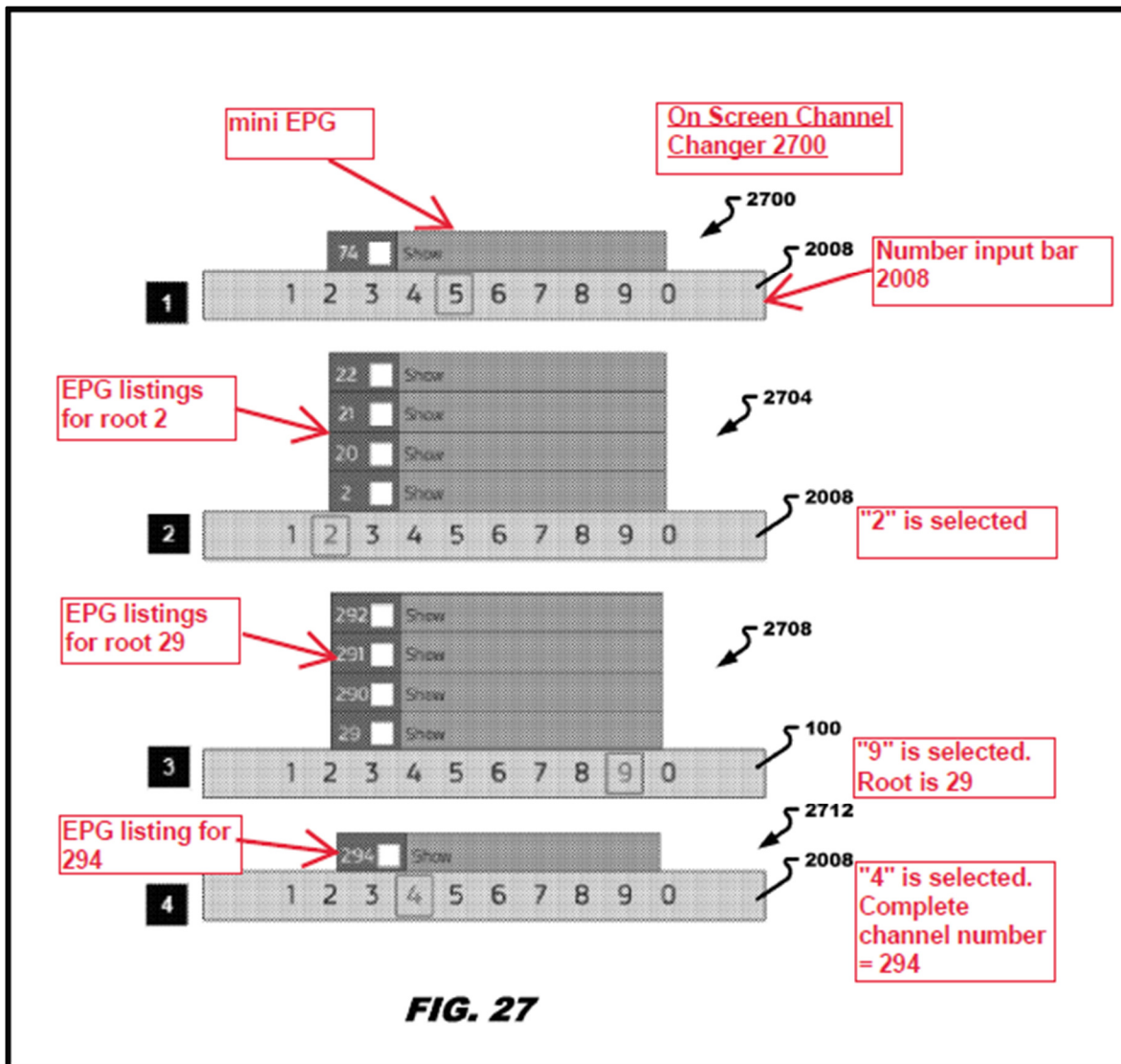
In the example of FIG. 27, the user has selected only the first number of the channel. The user next uses the D-Pad to select the number “9”.

Because a complete channel entry has not been entered, the application framework 412 proceeds to step 2612 and updates the on screen channel changer 2704 to reflect the selected number. Referring to FIG. 27, the user used the D-Pad to select the number “9”. The on screen channel changer 2708 is updated to show, in the mini EPG, the next three channels that begin with the numbers “29”. Selecting any of these EPG listings will automatically change the channel and dismiss the on screen channel changer 2708.

The user, in step 2608, next selects the number “4” using the D-Pad. In decision diamond 2612, the application framework 412 determines that a complete channel has been entered (which is 294 in the example) and, in step 2620, updates the on screen channel changer 2712 by showing, in the mini EPG, and putting in focus only a single listing corresponding to the entered channel. If the user selects the listing, the application framework 412 will automatically change the channel and dismiss the on screen channel changer 2712.

’254 Patent, 36:12-64, Fig. 26. See Figs. 20, 27.

74. Figure 27 depicts exemplary operations using the on screen channel changer for a user seeking channel 294:



'254 Patent, Fig. 27 (annotated).

C. The Claimed Invention

75. According to independent Claim 1, the invention provides [1.0] a method comprising, [1.1] receiving a request to change a programming channel, [1.2] displaying an on screen channel changer comprising EPG information and a number input bar comprising digits, wherein the digits range from 0 to 9, [1.3] receiving a channel selection based on digits by a user using the remote control and

the number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control, [1.4] changing to the selected channel, [1.5] wherein the remote control comprises, [1.5.1] a media center button that, when selected, provides displaying information regarding one or more of groupings of videos, groupings of photographs, and internal and external computational devices, [1.5.2] an application center button that, when selected, provides displayed information regarding pre-installed and downloaded software applications, [1.5.2.1] wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms, [1.5.3] an application panel that, when selected, displays an application panel comprising an information panel regarding a selected (pre-installed or previously downloaded) application icon; and [1.5.4] a global panel that, when selected, provides the user, via one or more panels or windows with access to one or more silos, notifications, a web browser system settings, and information associated therewith. '254 Patent, Cl. 1.¹

¹ Patent Owner has numbered the limitations consistent with the numbering provided in the Petition. A copy of the Challenged Claims is provided in the Claims Appendix of Section XII. Ex. 2007 also includes the annotated Challenged Claims.

VI. CLAIM CONSTRUCTION

76. I understand that claims of the patent-at-issue in this IPR are generally interpreted according to their ordinary and customary meaning in the art taking into consideration the so-called “intrinsic evidence” of the patent consisting of (1) the claim language; (2) the specification; and (3) the prosecution history.

77. I understand that claim terms may be explicitly defined in the patent specification, or they may be implicitly defined through consistent usage in the specification. I also understand that the scope of claim terms may be limited by statements in the specification or prosecution history where the applicant clearly disavows or disclaims subject matter, acts as his/her own lexicographer or otherwise indicates the meaning of claim terms through statements made by the applicant.

78. I understand that for purposes of the institution stage the Board found there was no need to provide express constructions of any claim terms. Instn. Dec., Paper 11, 14.

79. I have applied the ordinary and customary meaning of the claim terms as understood in the context of the '254 Patent. For the claim term “pre-installed ... applications”, I have treated its meaning as defined in the '254 Patent as meaning pre-installed applications that “cannot be removed by the user or manually updated.” '254 Patent, 24:18-21. The '254 Patent distinguishes between such “pre-installed applications” and “downloaded applications.” *Id.* This construction is consistent

with the determination in the related litigation that the term refers to “pre-installed software applications (that cannot be removed by the user or manually updated).” Ex. 2020 (Markman Order dtd 6/30/2024), 43.

VII. SUMMARY OF THE PRINCIPAL APPLIED REFERENCES

A. Kim (Ex. 1005)

80. Kim, entitled “Image Display Apparatus System and Method for Operating the Same,” generally discloses an image display apparatus (e.g., television) having a user interface in the form of a “home screen” having a series of graphical “card objects” (windows) representing different “source[s] or type[s]” of content. Kim, [0193], [0194] (“card object may be a window having a predetermined configuration”). The home screen may be displayed as a default user interface or upon the user selecting a home key or providing a “go-to-home” input on the remote control device. Kim, [0192], [0094].

Home Screen and Card Objects

81. As illustrated in Figure 19, the home screen 1300 includes the:

- (1) Broadcast card object 1310 for broadcast content including a broadcast image display area 1315 depicting broadcast content that is currently-tuned and an information object 1321 about the currently-tuned broadcast content;
- (2) Netcast card object 1320 with thumbnails for various internet sources of content (“content providers” or “CPs”);

(3) App Store card object 1330 including text and thumbnails for a list of software applications available for downloading;

(4) Channel Browser card object 1340 with thumbnails representing different broadcast channels;

(5) TV Guide card object 1350 with descriptive text for a program list of available programs;

(6) Reservations/recording card object 1360 with text and thumbnails for a program list of programs recorded or to be recorded;

(7) My Media card object 1370 with text and thumbnails for available multimedia files such as videos, photographs, and the like;

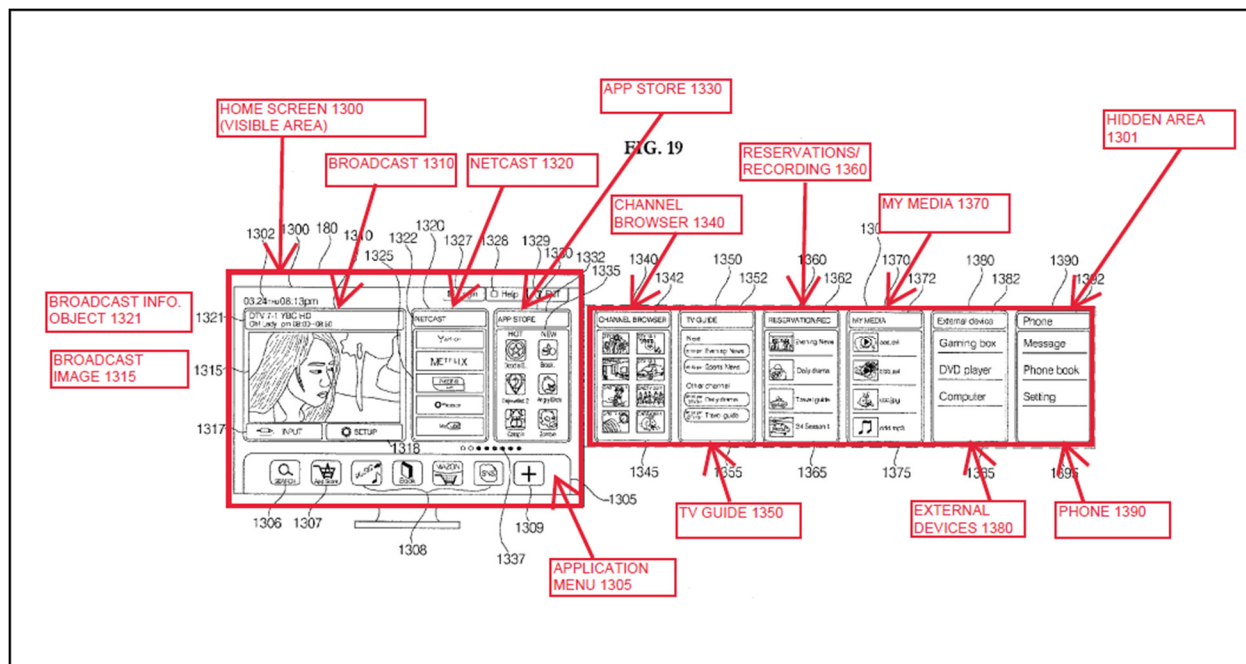
(8) External Device card object 1380 with text identifying external devices connected to the television; and a

(9) Phone card object 1390 with text identifying information associated with a phone device such as a mobile phone, and

(10) The Application menu 1305 that includes mandatory applications, such as Appstore 1307 (which takes the user to AppStore 1330 to view available software applications for download), and optional applications 1308, such as Music, Book, Mazon, and SNS.

'040 Patent, [0193]-[0216].

82. Figure 19 below depicts the home screen of Kim:



Kim, Fig. 19 (annotated).

83. Kim discloses a plurality of card objects in the home screen, including:

The card objects may include at least one card object representing a thumbnail list of broadcast channels, a card object representing a broadcast program guide, a card object representing a program reservation list or a program recording list, or a card object representing a media list of a device connected to the image display apparatus 100. The card objects may further include at least one of a card object representing a list of connected external devices or a card object representing a call-associated list. The home screen may further include an application menu with at least one application that can be executed.

Kim, [0094].

84. Kim describes that card objects and other objects and icons on the home screen may be selected, meaning that the focus is changed to “focus-on” the selected

object or icon. Kim, [0247]. The user selection of an on-focus card object on the home screen results in the card object being displayed full-screen. Kim, [0098] (“Moreover, if one of the card objects displayed on the display 180 is selected, the controller 170 may display the selected card object as a full screen image to cover the entirety of the display 180.”).

85. Kim describes the various card objects as follows:

Referring again to FIG. 19, the card object 1310 may be named BROADCAST and may display a broadcast image. The card object 1320 may be named NETCAST and may provide a list of CPs, e.g., a list of CPs available through NetCast. The card object 1330, which may be named APP STORE, may provide a list of applications.

The hidden card objects, as shown in FIG. 19, may include a CHANNEL BROWSER card object 1340 which may provide a thumbnail list of broadcast channels, a TV GUIDE card object 1350 which may provide a program list, a RESERVATION/REC card object 1360 which may provide a reserved or recorded program list, a MY MEDIA card object 1370 which may provide a list of multimedia files which are available on the image display apparatus 100 or on a device connected to the image display apparatus 100, an EXTERNAL DEVICE card object 1380 which may provide a list of external devices which may be connected to the image display apparatus 100, and a PHONE card object 1390 which may provide a list of call-related items. Kim, [0195]-[0196].

86. Kim describes more specifically that the “BROADCAST card object 1310 may display a broadcast image 1315 received through the tuner 110 or the network interface 130, an information object 1321 that displays information about the broadcast image 1315.” Kim, [0197]. The broadcast image 1315 is fixed insofar “broadcast image 1315 may be viewed while the other displayed card objects ... may be scrolled.” Kim, [0197]. The information object 1321 presents information about the currently-viewed program on broadcast image 1315, such as a channel number, program name, and airtime. Kim, [0199].

87. Kim describes more specifically that “[t]he [Netcast] card object 1320 may contain a card object name 1322 (NETCAST) and a CP list 1325 that displays a list of CPs ... [such as] Yakoo, Metflix, ... and Mytube.” Kim, [0201]. As with the other card objects, Kim discloses that user selection of the Netcast object 1320 will result in it being displayed in full-screen mode. Kim, [0201] (“Upon selection of the card object name 1322, the card object 1320 may be displayed as a full screen image on the display 180.”).

88. Kim describes more specifically that “[t]he [App Store] card object 1330 may include a card object name 1332 [] and an application list 1335 ... [that] may display a plurality of icons representing applications available on a server, for example, for download or purchase.” Kim, [0202]. “Upon selection of an application

icon from the application list 1335, information related to the selected application may be displayed on the display 180.” Kim, [0202].

89. Kim describes more specifically that the “[Channel Browser] card object 1340 may represent a list of broadcast channels [and] may include a card object name 1342 (CHANNEL BROWSER) and a thumbnail list of broadcast channels 1345.” Kim, [0205]. “The thumbnail images [1345] may include still images or moving pictures.” Kim, [0205]. “Upon selection of a thumbnail image from the thumbnail list 1345, a broadcast program from the selected channel may be displayed on the display 180.” Kim, [0206].

90. Kim describes more specifically that the “[TV Guide] card object 1350 ... may contain a card object name 1352 (TV GUIDE) and a program list 1355 ... [that] list[s] broadcast programs for the currently displayed channel or broadcast programs for one or more different channels.” Kim, [0207]. “If a program is selected from the program list 1355, a broadcast image of the selected program (e.g., currently being broadcast) or broadcasting information related to the selected program (e.g., future broadcasts) may be displayed on the display 180.” Kim, [0207].

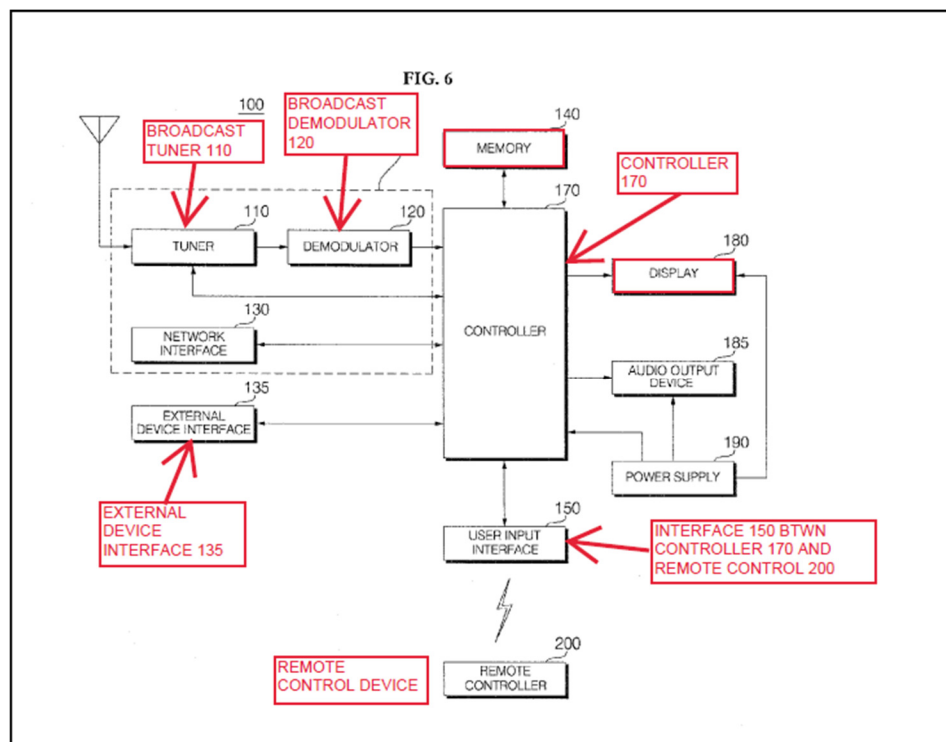
91. Kim discloses that the home screen of Figure 19 may have an application menu 1305 that includes “mandatory application menu items 1306, 1307, and 1309 (Search, App Store, and +) and optional application menu items 1308 (e.g., Music, Book, MAZON, and SNS).” Kim, [0214]. The App Store application menu

item 1307 can provide direct access to the App Store card object 1330 to view available downloadable applications. Kim, [0214]-[0216].

92. Figures 21-23 of Kim disclose how visible card objects and hidden card objects in the home screen can be scrolled or moved. Kim, [0223]-[0230], Figs. 21-23.

System Diagram of Image Display Apparatus

93. Figure 6 of Kim is a block diagram of the image display apparatus 100 (e.g., television), which includes blocks for a broadcast tuner 110, demodulator 120, network interface 130, memory 140, controller 170, display 180, and a user input interface 150 that acts as an interface between the controller 170 and remote control 200:



Kim, Fig. 6 (annotated), [0065]-[0095].

94. The user interface 150 receives signals sent from remote control 200 and transmits signals to the controller 170. The user interface 150 may receive various signals from the remote control including “a channel selection signal,” a “channel switch command,” and a “channel selection command,” Kim, [0059] [0086], [0127], [0174].

95. Kim describes that the remote controller 200 may provide a “channel selection signal” or “channel switch command” to the user input interface 150 for changing channels. Kim, [0086], [0087], [0174]. The controller responds to the user input interface by tuning to the requested content:

[0088] The controller 170 may demultiplex the stream signal TS received from the tuner 110, the demodulator 120, or the external device interface 135 into a number of signals and process the demultiplexed signals into audio and video data. The video signal processed by the controller 170 may be displayed as an image on the display 180.

Kim, [0088].

96. Therefore, Kim describes in detail how the remote control device issues a channel change command that is processed by the controller to tune to the selected channel.

Other User Interface Displays

97. Separate from the home screen of Figure 19, Kim discloses other user interfaces on the TV display such as a full-screen “application list,” presented after the user selects the AppStore 1330 of Figure 19, depicting applications available for download and/or locally available applications. Kim, [0184]-[0185], Fig. 16.

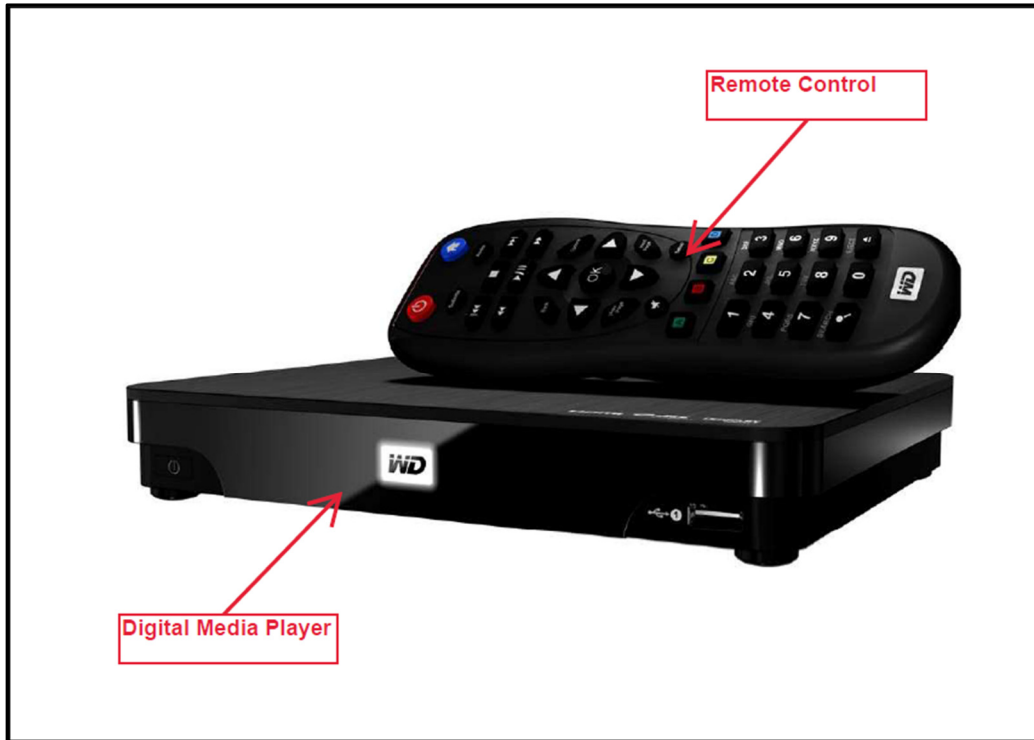
98. Figures 25-32 of Kim disclose how a user can access the App Store card object 1330 using, for example, a “go-to-app store input,” which results in the display of a full-screen App Store screen 1330. Kim, [0234]-[0235], Figs. 25-32. The App Store screen includes tabbed menus with categories for sorting applications that are available for purchase and download. Kim, [0236]-[0247], Fig. 25.

99. Figures 33-36 illustrate full-screen Application menu 2100 when Application menu 1305 is selected from the home screen of Figure 19. Kim, [0256]-[265].

100. Figures 38-41 illustrate full-screen user interfaces for a Search Window that is displayed upon the user selecting the search option, such as by selecting search option 1306 in Figure 19. Kim, [0266], Figs. 38-41, Fig. 19. The user inputs a search keyword or phrase (e.g., “Shutter Island”) and the Search window displays a series of programs as the search results. Kim, [0266]-[0269], Fig. 38. The search results can be sorted using category tabs.

B. WD-Manual (Ex. 1006)²

101. The WD-Manual describes a WD TV Live Hub Media Center, which has (1) a digital media player (set-to-box) for playing content stored on its hard drive or received over the Internet, and (2) a multi-function remote control:



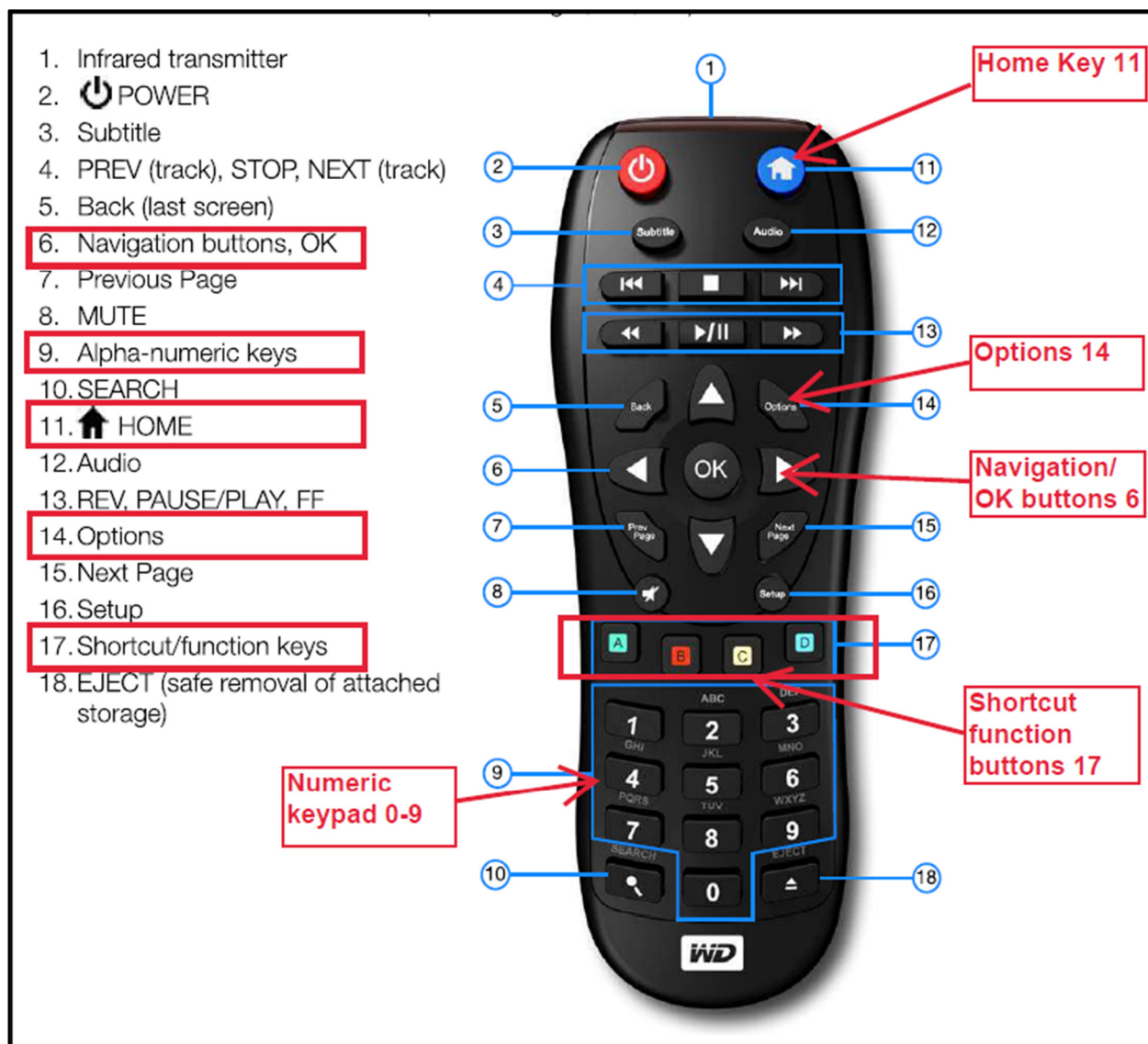
Ex. 1006 (WD-Manual), cover page (annotated).

102. The WD Media Center has a hard drive that can store and categorize a user's home movies, photos, and music. It can access content from Internet sources such as Netflix and Blockbuster On Demand. "The WD TV Live Hub media center finds and categorizes [all your media] on the built-in drive and any connected USB

²² The citations to the WD-Manual are to the natural (original) page numbers.

devices and displays it in one easy-to-view menu system.” WD-Manual, 5, 7. The advanced navigation options include thumbnail, list, and preview modes. WD-Manual, 6. The user can “[c]hoose from a variety of viewing options”, such as selecting “thumbnail view, list view, and [a] preview of your movies in the movie menu.” WD-Manual, 7.

103. The remote control of the WD-Media Center includes the following buttons or keys:



WD-Manual, 11 (annotated).

104. The WD-Manual does not teach or suggest that the remote control has an “*application center button that, when selected, display[s] information regarding pre-installed and downloaded software applications.*”

105. The WD-Manual does not teach or suggest that the remote control has an “***application panel button*** that, when selected, displays ... an application panel ... compris[ing] an information panel regarding a ***selected (pre-installed or previously downloaded) application icon.***”

106. The shortcut keys A-D have the following default functions: (1) sort and filter, (2) select content source, (3) change view menu, and (4) dashboard menu. The shortcut function keys are “only valid when inside the Videos, Music, or Photos menus.”

A, B, C, D	User assignable shortcut/function keys. See “Remote Settings” on page 139. Default settings are as follows (only valid when inside the Videos, Music, or Photos menus): Pressing  activates the  sort and filter menu. Pressing  activates the  select content source menu. Pressing  activates the  change view menu. Pressing  activates the  dashboard menu.
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WD-Manual, 26 (excerpted).

107. The shortcut function keys A-D can be reprogrammed to different functions, such as “display mode, filter menu, Music, Video, Service, Setup.” WD-Manual, 138. The WD-Manual describes that shortcut function keys A-D can be reprogrammed by first calling up Remote Settings while the Operations menu screen is displayed:

Operation

Use the menus in the Operation screen to set preferences for the media center.

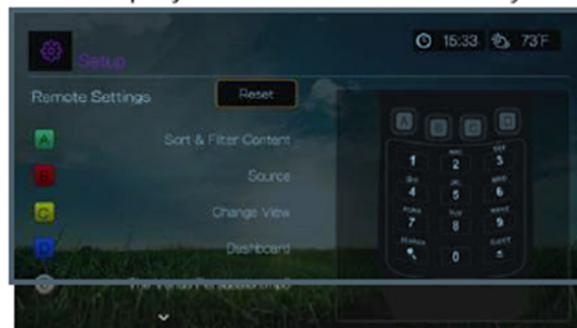


WD-Manual, 138.

108. When Remote Settings is selected, the screen displays the current settings for shortcut function keys, which is A = Sort & Filter Content, B = Source, C = Change View, and D = Dashboard, as depicted below:

Remote Settings

Select a function for the **A**, **B**, **C**, and **D** function buttons on the remote controller. The remote settings menu displays the functions currently assigned to each button.



WD-Manual, 138.

109. The user can select function key A to reprogram the current setting of Sort & Filter Content to select another function for key A, as depicted below:



WD-Manual, 138. The user can select functions such as display mode, filter menu, Music, Video, Services, and Setup. Note that Music, Video, and Services are screen menu modes in addition to the Home screen display. WD-Manual, 142.

110. From the WD system's Home screen, the user can select submenu displays such as a Video menu screen, a Music menu screen, and a Services menu screen. WD-Manual, 28-30 (Home screen display), 36-37 (Videos menu screen to display stored videos), 48-49 (Music menu screen to display stored music files), 55-56 (Photos menu screen to display stored photos), 62-63 (Files menu screen to play content files), 67-68 (Setup menu screen for network settings), 70 (media playback by selecting OK on a file presented in a Video menu, Music menu, or Photos menu), 76-77 (Services menu screen for Internet services), 86-87 (Search menu screen for

Flickr), 91 (select OK to get full-screen view of photo in a Flickr photostream layout).

111. The operation of the WD Media Center's remote control is described below:

Button	Function
HOME	Displays the main menu and the various options for playback of files and device setup.
POWER	Suspends the device into sleep mode and turns off video output. Press and hold the power button for five seconds to completely shut down the media center.
Navigation buttons	Navigate through Home options , menu screens , media libraries, on-screen keyboards, and toolbars.
OK	- Displays the media directories and Settings screens. - Turns information bar ON or OFF. Begins playback of the selected media file. Enables the currently selected setting in a Settings option screen.
STOP	Discontinues playback.
Back	Goes back to the previous screen.
REV (reverse)	Scans backward during audio/video playback. Supports the following speeds: 2x, 4x, 8x, 16x.
PREV	- Press once to jump to the start of the audio/video file. - Press twice to jump to the previous audio/video/image file. - Press to page up. - During Video REV mode, press to skip back 10 minutes.
SEARCH	Locates a media file in the current folder. This function is only available when the Media Library setting is enabled. Does not search subfolder.
Options	During playback , displays additional playback options . From an online media content screen , press to display more service options.
PAUSE/PLAY	Toggles between pause and playback.
FF (fast forward)	Scans forward through the audio/video playback. Supports the following speeds: 2x, 4x, 8x, 16x.
NEXT	- Skips to the next audio, video, or image file. - Press to page down. - During Video FF mode, press to skip forward 10 minutes.

Button	Function
EJECT	Switches to safe mode so you can safely remove a USB device.
MUTE	Turns off the volume output
Subtitle	Switches a video's subtitles (if applicable)
Audio	Switches a video's audio stream (if applicable)
Setup	Brings up the Setup menu
Alpha-numeric keys	- Pressing the any of these keys once inputs the corresponding number. - Pressing keys 2-9 multiple times inputs the corresponding alpha characters. - While listening to a song or music playlist, press and hold any of the 0-9 buttons to create a preset.
A, B, C, D	User assignable shortcut/function keys. See "Remote Settings" on page 139. Default settings are as follows (only valid when inside the Videos, Music, or Photos menus): Pressing  activates the  sort and filter menu. Pressing  activates the  select content source menu. Pressing  activates the  change view menu. Pressing  activates the  dashboard menu.

WD-Manual, 25-26 (annotated, highlighted).

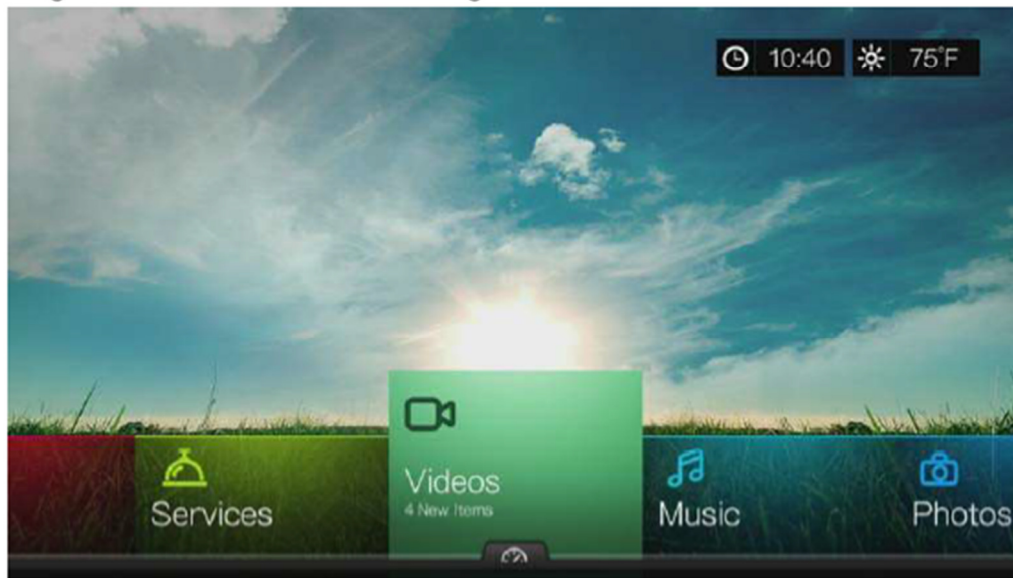
112. The Options button provides different playback options during playback. When the user is on an online media content screen (e.g., Services menu screen), the Options button can be pressed to display more service options relating to Internet content.

113. When the user selects the home button, the Home screen is presented. The user can browse the media library and configure the media center's settings.

WD-Manual, 28. The Home screen is depicted below:

Using the Media Center Menu

The Home screen displays when turn on your media center or press **HOME** on the remote control. The menu options in this screen let you browse your media library and configure the media center's settings.



WD-Manual, 28.

114. The Home screen options are Videos, Music, Photos, Files, Setup, and Services. WD-Manual, 28. Selection of any of these options leads to a new submenu screen (e.g., a Videos menu screen, Music menu screen, Photos menu screen, Services menu screen), as discussed previously.

115. Upon the user pressing OK while in the Videos menu screen, Music menu screen, or Photos menu screen, the files can be presented in a dashboard view, and can be sorted based on categories like favorites, last 30 days (files added in last 30 days), and queue (add file to queue). WD-Manual, 29-30. While in the dashboard view, the user can navigate to select options including add to queue, rate, re-order,

favorite, and delete. WD-Manual, 30. For example, page 32 indicates that video files can be sorted by date and can be organized in folders. Likewise, photo files can be sorted by date and can be organized in folders. W-D Manual, 32. Notably, the dashboard view does not disclose or suggest an application panel with information about a selected software application, let alone an icon for a selected software application.

C. Bae (Ex. 1008)

116. Bae, entitled “Video display device and channel searching method thereof,” is generally directed to a user interface for the user to make a channel selection using on-screen graphic objects. Bae describes the invention as follows:

The present invention is characterized by configuration by a tuner unit that receives broadcast signals for each channel from the outside; an OSD processing unit that generates at least one channel number selection window through which a channel number for a broadcast signal received through the tuner unit can be selected, and a channel number display window displaying the selected channel number; a display unit that displays a channel number input window generated by the OSD processing unit, and a channel number display window that displays the channel input through the channel number input window; a user interface unit that sequentially receives input from the channel of the highest unit according to the displayed channel number input screen; and a control unit that controls to activate and display a selectable next-priority channel number comprising the channel

number input through the user interface unit, and to perform channel switching to the selected channel.

Bae, Abstract.

117. Figure 1 is a block diagram of an image display device, including a user input unit 130, a tuner unit 100, a broadcast processing unit 110 (e.g., may be a decoder), and a broadcast output unit 120 that outputs video and audio. There is an OSD processing unit 150 that generates on-screen displays. There is a control unit 160 that controls the various components. There is also a storage unit 140 for storing information. Bae describes the system of Figure 1 as follows:

[0011] Referring to FIG. 1, the image display device according to an embodiment of the present invention comprises a tuner unit 100 that receives broadcast signals input from the outside and selects a channel selected by a user request, a broadcast signal processing unit 110 that performs signal processing on video signals among broadcast signals selected through the tuner unit 100, a broadcast output unit 120 that outputs the broadcast signal processed through the broadcast signal processor 110 as video or audio, and a user input unit 130 for receiving a request command from the user.

[0014] The tuner unit 100 selects a broadcast channel in a specific frequency band according to a tuning control signal from the control unit 160, which will be described later, and receives a broadcast signal corresponding to the broadcast channel. Here, the tuner unit 100 may be implemented as an antenna, a cable connector, a receiving device such as a set-top box, a tuner, a demodulator decoder, and the like.

[0016] At this time, the broadcast processing unit 110 may comprise a video decoder that decodes the video signal and a scaler that converts the decoded video signal to fit the vertical frequency, resolution, and screen ratio that meet the specifications of the display unit. Additionally, it may include an audio processing unit that processes audio to meet output standards.

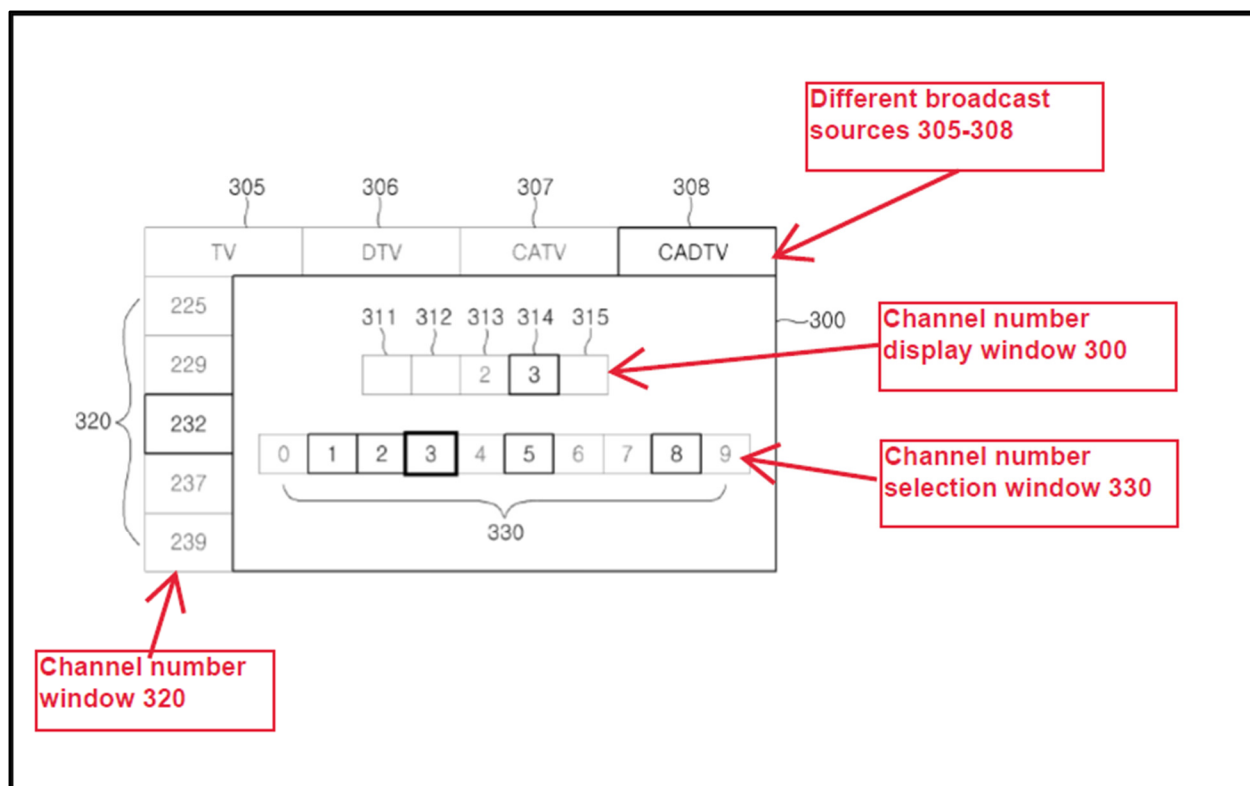
Bae, [0011], [0014], [0016].

118. Bae describes the user input 130 as follows:

[0017] The user input unit 130 is a means for receiving request commands from the user, and receives channel search commands, channel change commands, volume up/down commands, etc. input from the user and transmits them to the control unit 160. In particular, the user input unit 130 according to an embodiment of the present invention performs a function of sequentially receiving the channel to be input from the user, starting from the upper number.

Bae, [0017].

119. Bae depicts a user interface for a user to input a channel number, including a channel number selection window 330 and the channel number display window as depicted in Figure 3:



Bae, Figure 3 (annotated).

120. Bae describes that the control unit 160 determines whether the user is operating in the channel search menu:

[0020] Hereinafter, a channel search operation in the video display device according to an embodiment of the present invention will be described based on the configuration of the video display device described above.

[0021] FIG. 2 is a flowchart of a channel search operation according to an embodiment of the present invention, and FIG. 3 is an example screen displayed during channel search according to an embodiment of the present invention.

[0022] The control unit 160 controls the video display device to operate in a broadcast output mode that controls the video or audio input

through the tuner unit 100 to be output (Step 205). While performing the output mode, it is confirmed whether the channel search menu is entered through the user input unit 130 (Step 210). When the control unit 160 determines that the channel search menu is selected, it displays a screen for searching and selecting a channel, as shown in the example screen 300 of FIG. 3 as a screen for channel search (Step 215).

Bae, [0020]-[0022].

121. Bae describes the screen 300 with the channel search menu comprising the channel number selection window 300, channel number display window 300, the vertical channel number window 320, and the horizontal list of broadcast sources 305-308:

[0023] The channel search screen 300 is displayed divided into categories from which channels for each of TV 305, DTV 306, CATV 307, and CADTV 308 [channel source categories] can be selected depending on the broadcast reception status. In addition, the numbers 0 to 9 are displayed in the channel number selection window 330 for channel search in each category; for each number, only selectable numbers are activated and displayed so that the user can input the corresponding number using the left and right keys or number keys.

[0024] Additionally, it comprises a channel number display window 310 that displays the number for each digit of the channel selected in the channel number selection window 330. The channel number display window is able to display a window with as many digits as the channel number that can be selected by the user, and performs the function of displaying the corresponding channel according to the selection of the

channel number to fit each digit (311, 312, 313, 314, 315). The channel search screen may comprise a channel number window 320 that sequentially displays channel numbers previously stored in the memory unit according to each digit of the selected channel displayed in the channel number display window [310].

Bae, [0023]-[0024].

122. Bae proceeds to describe the operation of the channel number selection window:

[0025] As described above, when the channel search menu is selected, a screen including a plurality of windows for channel search is displayed, and the highest digit to be selected is selected through the channel number selection window 330 (Step 220). In an embodiment of the present invention, the number of selectable channel numbers is 5 digits, and the channel number selected by the user is “232.”

[0026] When the control unit 160 selects “2” as the first number, which is a number in hundreds, through the user input unit 130, “2” is displayed in the position corresponding to the hundreds digit in the channel number display window 310. In the channel selection window, a second number that can be selected in tens among channels comprising the first number “2” is activated and displayed (Step 225). Afterwards, similar to the operation of inputting the first number from the user, a second number is selected (Step 230), and the selected number is displayed behind the hundredth unit number in the channel number display window. At this time, the channel number selection window activates and displays the third number that can be selected on a daily basis among channels including the first and second numbers

(Step 235). The last one unit number is input, and when the confirmation key is pressed or a predetermined time has elapsed (Step 240), the switch to the corresponding channel is performed (Step 245). [0027] As described above, the channel searching method according to an embodiment of the present invention sequentially receives selectable channels from a plurality of channels starting from the highest digit number; each time, selectable channel numbers comprising the number entered are activated and displayed [in the channel number selection window 330], allowing the user to easily search for a desired channel among numerous channels.

Bae, [0025]-[0027].

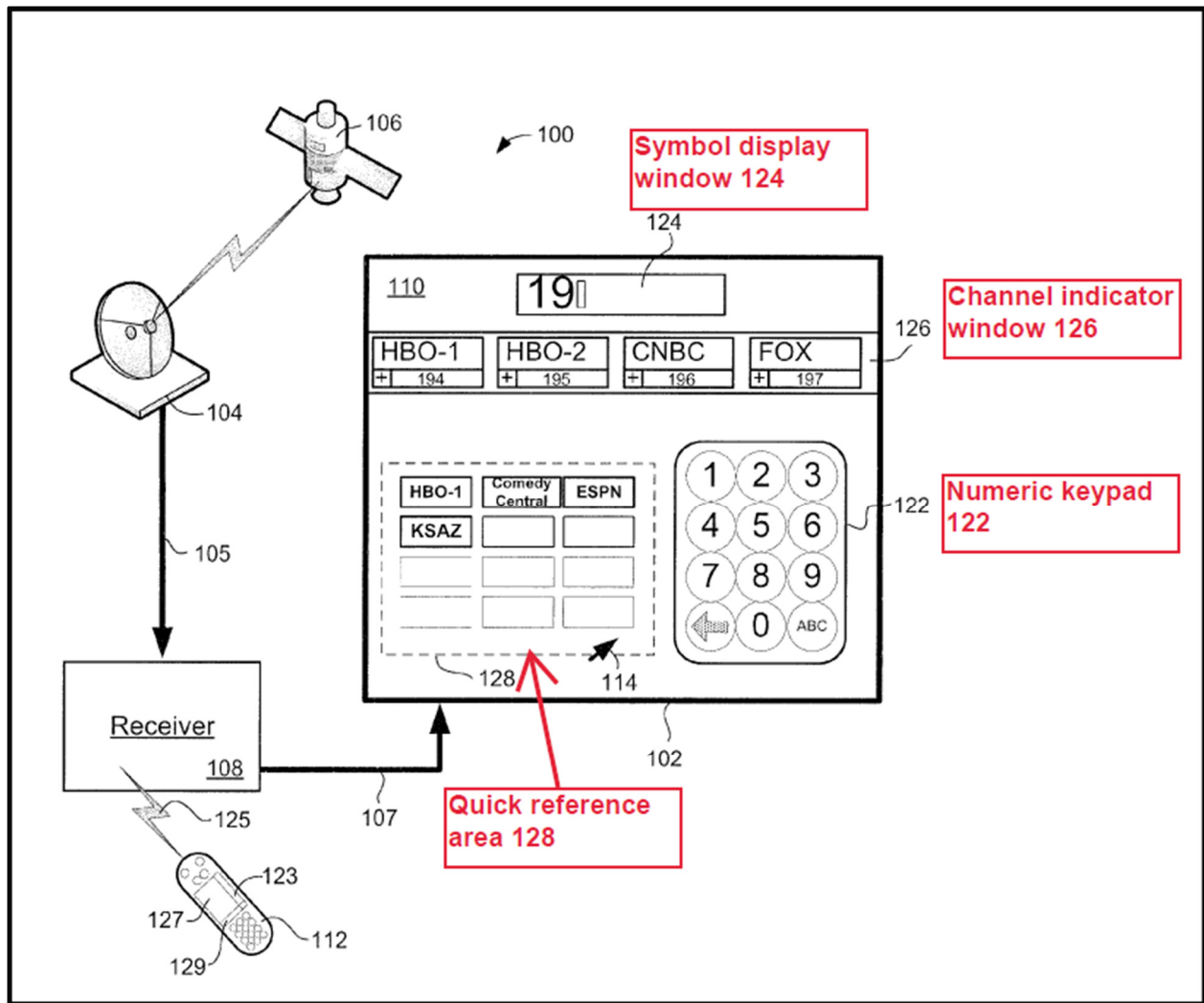
D. Coburn (Ex. 1009)

123. Coburn, entitled “Systems and Methods for Graphical Control of Symbol-Based Features in a Television Receiver,” is generally directed to on-screen displays (OSDs) for use with a set-top box receiving content from a satellite content delivery system. Coburn discloses:

Generally speaking, the viewer is able to provide numeric, alphanumeric or other symbol based inputs to a television receiver using two-dimensional or other user interface features. A keypad representing the various symbols is graphically presented on the display, and the viewer is able to interact with the keypad imagery using a cursor or other interface feature that can be moved in response to two-dimensional inputs applied at a touchpad, motion sensor or other sensor device associated with the remote control. In embodiments wherein the remote control includes a touchpad or similar control device but does not

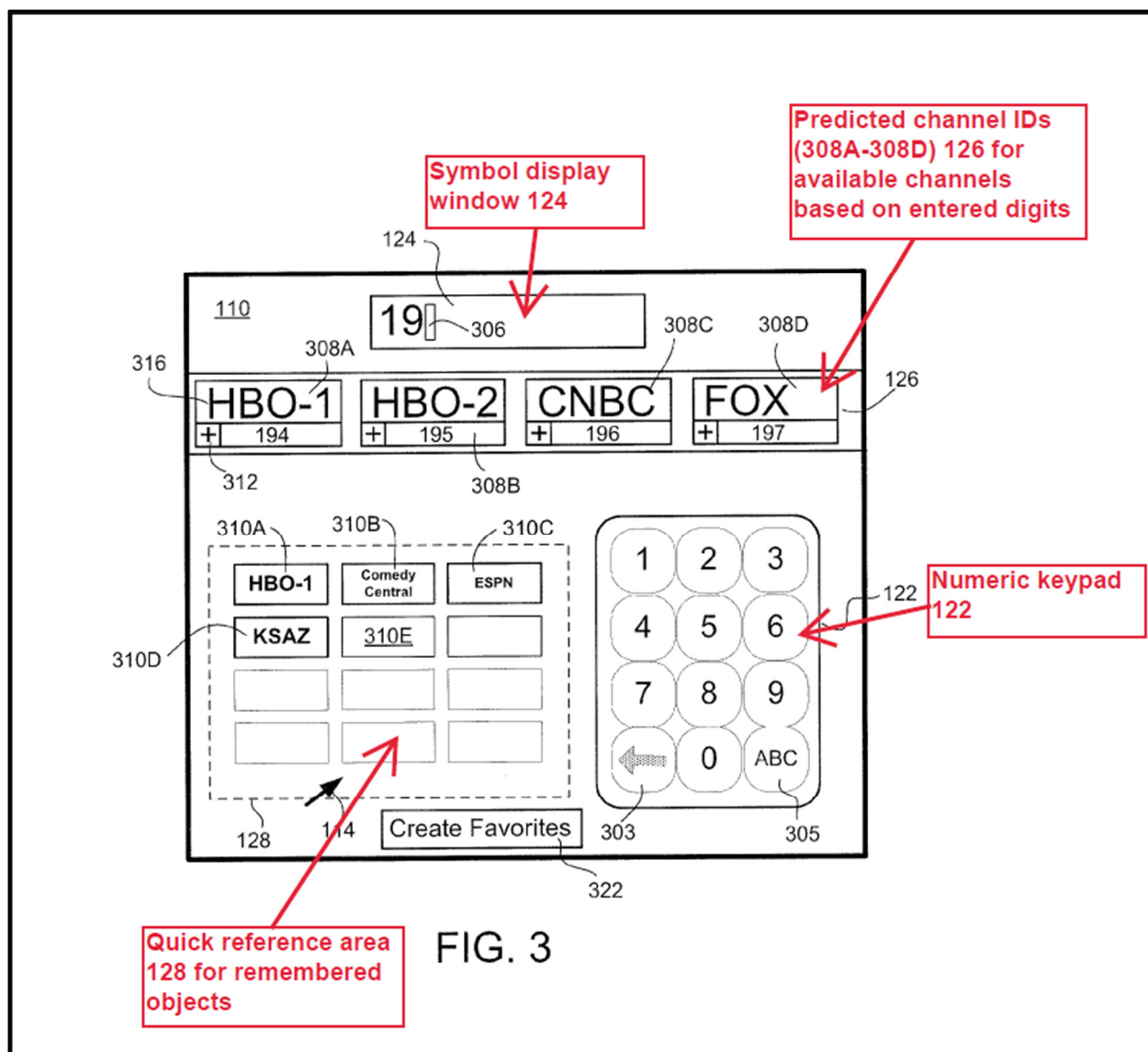
include a numeric keypad, for example, a viewer may nevertheless be able to provide numeric (or alphanumeric) inputs to the receiver by directing a cursor presented as part of the on-screen imagery. The cursor may be able to select numbers, letters and/or other features in order to tune channels or perform other tasks as desired. Other conveniences such as quick reference features may be provided as well. [0017] Although the various techniques and systems described herein may be used with any sort of remote control or command equipment, various embodiments may be particularly well suited for use with a remote control that includes a touchpad, directional pad, joystick, trackball, set of directional buttons, motion sensor and/or other feature capable of providing two-dimensional inputs to the receiver. While the discussion herein focuses primarily on entering channel numbers, equivalent concepts could be readily applied to other numeric or alphanumeric features provided by the television receiver. Onscreen keypads may be fashioned to show any number of letters, numbers and/or other symbols (including foreign language symbols), thereby allowing the various principles and concepts presented herein to be applied in a wide variety of settings, applications and embodiments. Coburn, [0016]-[0017] (emph. added).

124. Figure 1 of Coburn is depicted below:



Coburn, Fig. 1 (annotated). Coburn, [0019]-[0028].

125. Coburn presents another user interface for selecting channels in Figure 3:



Coburn, Fig. 3.

126. Coburn describes the functionality of the display 110 of Figure 3:

[0041] FIG.3 shows an exemplary presentation of imagery 110 that includes a keypad 122, a symbol display window 124, a channel indicator window 126, and a quick reference area 128 as appropriate. In the embodiment shown, a viewer is able to move cursor 114 with respect to the various interface features to enter symbolic information using keypad 122, to choose an identifier 308A-B to select a channel,

program or other object, and/or to select a “quick reference” feature 301A-E for rapid retrieval of favorite or frequently-used identifiers. The various features shown in FIG. 3 may be implemented using any sort of symbology, programming and/or the like ...

[0042] Keypad 122 is any sort of interface feature capable of support[ing] viewer inputs of symbol-based data. In various embodiments, keypad 122 is virtual representation of a numeric, alphanumeric, alphabetical or other keyboard

[0043] Keypad 122 includes any number of key images that each correspond to one or more symbols. In the exemplary embodiment shown in FIG. 3, keypad 122 includes twelve key images corresponding to ten numeric digits (0-9), with two additional key images 303, 305 provided for additional features as desired. Key 305, for example, could be selected to switch to an alphabetical keyboard of any sort. ... Key 303 similarly provides any other desired feature. In various embodiments, key 303 may be used to provide a backspace, delete or other feature; other embodiments may use key 303 in a completely different manner, or may omit key 303 entirely.

[0044] The viewer provides symbol-based inputs in any manner. In various embodiments, the viewer guides cursor 114 over one or more key images associated with keypad 122 using the touchpad, motion sensor or other two-dimensional feature 124 associated with remote control 112. When the cursor 114 is positioned as desired, the viewer may be able to select the symbol associated with the key image by depressing a “select” or “enter” key, as appropriate. The “select” key may be a button or trigger on remote 112, for example, or may be any other interface feature as desired.

[0045] In various embodiments, symbols are presented in display window 124 as the viewer selects symbols in keypad 122. In the exemplary embodiment illustrated in FIG. 3, for example, the viewer has selected digits “1” and “9”, and these are shown in window 124. Some embodiments may provide a text cursor 306 that indicates a position in window 124 where symbol data will be entered. ...

[0046] Information entered on keypad 122 and/or displayed in window 124 may be processed in any manner. In various embodiments, the information may be used to select a channel or program for decoding and presentation, for searching a disk, network or the like for content, and/or for any other purpose. In various embodiments, data entered into window 124 can be processed in a predictive manner. In the embodiment shown in FIG. 3, for example, numeric inputs from keypad 122 are used to select a channel to be tuned and presented by receiver 104. As the viewer enters the first few digits of the channel number, imagery 110 may be updated as appropriate to present channels (or other objects) that correspond to the initially-entered data. As the user enters an initial “1”, for example, the content of identifier window 126 may be updated to show identifiers 308A-D that begin with 1 (e.g., “1”, “10”, “100” or the like). In an implementation that uses three-digit channel numbers (100-999), for example, an initial “1” could be result in window 126 showing identifiers 308A-D including channel 100 (corresponding to the beginning of the number range), channel 150 (corresponding to the approximate middle of the channel range), or any other channel as desired. As the viewer enters additional symbols from keypad 122, the additional data may be used to further refine the identifiers 308A-D

presented in window 26. After the viewer entered both numerals “1” and “9”, for example, window 126 may be updated to show channel identifiers 308A-D associated with channels in the 190-199 range (e.g., channels 194-197, as shown in the example of FIG. 3).

Predictive behaviors may be modified in any manner, or omitted in some embodiments.

[0047] Identifier window 126 shows any number of identifiers 308A-D for objects that are referenced based upon symbol-based data entered by the viewer. As the viewer selects numeric or other symbolic data from keypad 122, for example, the identifiers 308A-D may be presented and/or updated as desired. Each identifier 308A-D represents any sort of object sought by the viewer; examples of such objects include programs, channels, networks, contents of programs, and/or the like. In the embodiment illustrated in FIG. 3, identifiers 308A-D represent particular channels that can be tuned by receiver 104 for presentation on display 102.

[0048] To that end, in various embodiments viewers may be able to immediately select an action associated with any identifier 308A-D by simply selecting that identifier. The viewer may select any identifier 308A-D in any manner. In various embodiments, selection may occur by placing cursor 114 over the identifier 308A-D on imagery 110, and then selecting the identifier 308A-D as appropriate. In the exemplary embodiment shown in FIG. 3, selection of an identifier 308A-D may result in receiver 104 tuning the channel associated with the selected identifier for presentation on display 102. Other actions could include setting a PVR to record a selected program, selecting a program for placeshifting, and/or taking any other action as desired.

[0049] In further embodiments, each identifier 308A-D includes a remember feature 312 that allows the receiver 104 to remember the channel or other object identified by the identifier 308A-D for subsequent retrieval. In the exemplary embodiment shown in FIG.3, remember feature 312 is shown as a plus sign (“+”) on a portion of the identifier 308A-D, although other embodiments may use any sort of symbology or imagery for the remember feature 312, and may present the feature 312 at any location on imagery 110.

[0050] Subsequent retrieval of remembered objects may be provided in any manner. FIG.3 shows a quick reference area 128 that includes space for any number of quick reference features 310A-E associated with remembered channel objects 308A-E. As a user clicks on a remember feature 312 on any channel identifier 308 in window 126, for example, a quick reference feature 310A-E is associated with the relevant television channel and placed in area 128. The viewer is then able to quickly tune to the remembered channel by simply clicking on the featured 310A-E associated with the channel in area 128. Again, the features are not limited to quick access to television channels; other remembered features may include programs, networks, files and/or any other objects as desired.

Coburn, [0041]-[0050], Fig. 3.

**VIII. THE WD-MANUAL IS DISQUALIFIED AS A PRIOR ART
“PRINTED PUBLICATION” UNDER 35 U.S.C. § 311(B) (ALL
GROUNDS 1-2)**

127. I understand that the WD-Manual (Ex. 1006) is not a proper reference for an IPR because it does not meet the legal standards for a “printed publication.” As this is a purely legal matter, I do not offer an opinion on that issue.

IX. CLAIMS 1-4, 8-10, AND 13-17 ARE PATENTABLE OVER THE COMBINATION OF KIM, WD-MANUAL, AND BAE (GROUND 1)

A. Independent Claims 1, 8, and 14 are Patentable Over the Kim, WD-Manu, and Bae

128. The combination of references fails to teach or suggest at least the following limitations of Claim 1:

- Limitation 1.2: *“displaying, by a microprocessor executable application framework and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9,”*
- Limitation 1.5.2: *“an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications” and*
- Limitation 1.5.3: *“an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon.”*

129. Independent Claims 8 and 14 have limitations similar to Claim 1 and are patentable for at least the same reasons.

B. The Kim/WD-Manual/Bae Combination Fails to Teach or Suggest Limitation 1.2 for “Displaying ... an On Screen Channel Changer Comprising Electronic Program Guide (EPG) Information and a Number Input Bar”

130. Limitation 1.2 recites “*displaying ... an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9.*” ’254 Patent, Cl. 1.

1. Disclosure in the ’254 Patent

131. The ’254 Patent discloses multiple embodiments of a user interface having a on screen channel changer including EPG information and a number input bar having digits. For example, Figure 14 depicts an on screen channel changer including EPG program listings 2004 and a number input bar 2008 with digits 0-9:

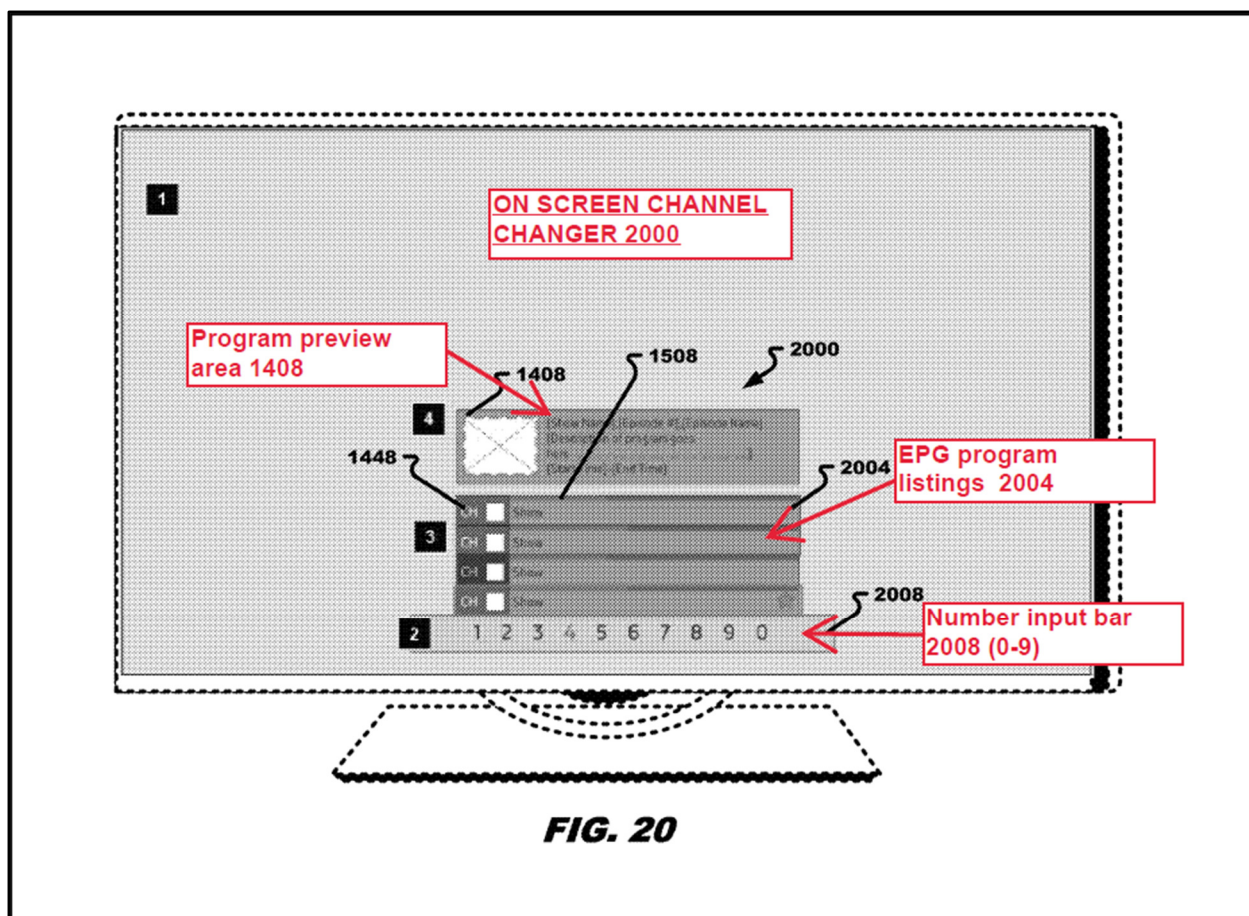


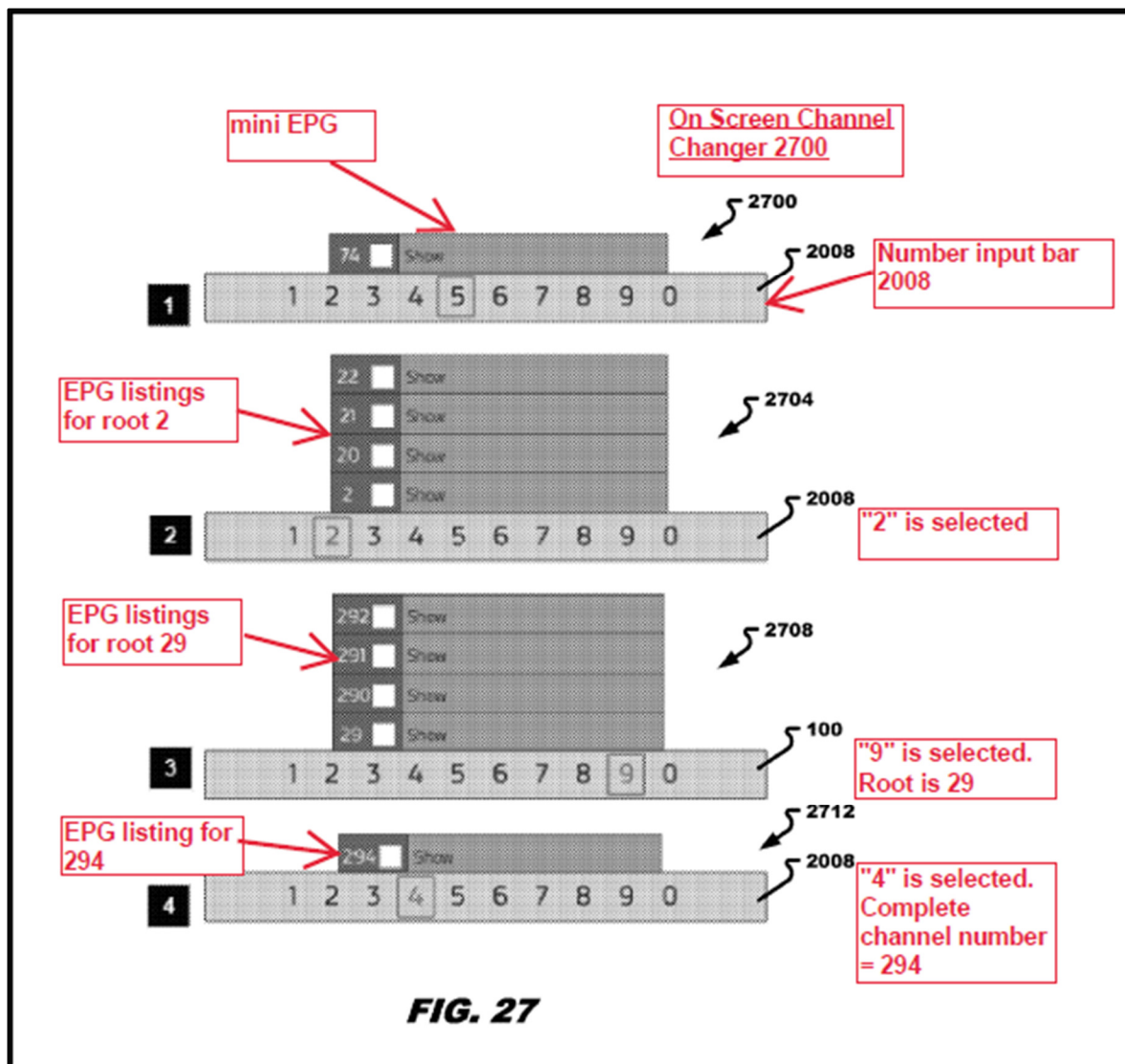
FIG. 20

'254 Patent, Fig. 20 (annotated).

132. The user can use non-numeric keys on a remote control to select digits 0-9 on the number input bar. As each digit is selected by the user, the EPG 2004 updates to display program listings corresponding to the digits the user has entered so far. For example, after the user enters a highest-order digit (e.g., 2) the EPG will present program listings for channels corresponding to the root number 2XX. When the user enters a next-highest order digit number 9 (e.g., so the root value is 29X), the EPG will present program listings for channels corresponding to the root number 29X. At any time, the user can use the remote control to select an in-focus program

listing on the EPG (e.g., enter OK or play button) to cause the channel to be changed and the program to be displayed. '254 Patent, 32:51-33:21, 36:12-64, Figs. 20, 26, 27.

133. The '254 Patent depicts another embodiment of an on screen channel changer including EPG information and a number input bar in Figure 27:



'254 Patent, Fig. 27 (annotated).

134. The mini-EPG can display program listings for channels/programs corresponding to the digits input at a given point. As illustrated in Figure 27 above, if the user selects 2 on the number input bar, then the mini-EPG may display program listings for available channels 2XX (e.g., 22, 21, 20, 2). After the user selects 9, the mini-EPG displays program listings for available channels 29X (e.g., 292, 291, 290, 29). If the user inputs a final channel number 4, the mini-EPG may display the remaining program listing, which is for channel 294. '254 Patent, 36:12-64, Figs. 26-27.

135. The '254 Patent explains the operation of the exemplary on screen channel changer of Figures 20 and 27:

In step 2600, the application framework 412 detects a stimulus, such as selection of the 0-9 (number) button 776, a new channel or program that causes the intelligent TV 100 tuner to locate a new programming signal. In step 2604, the application framework 412, in response, displays, in the viewing area 1920, an on screen channel changer 2000. With reference to FIG. 27, the on screen channel changer 2000 will have the appearance of the on screen channel changer 2700. When the on screen channel changer is brought into focus, it will contain a mini EPG with a single entry of the last channel that was manually entered (that is not the current channel). The in-focus indicator will be in a default center position on the number input bar 2008 (which is in the "5" position as shown). Only numbers in the number input bar 2008

that will produce a selectable channel are enabled while the other numbers are disabled.

In step 2608, the application framework 412 receives a number selection via the on screen channel changer. In decision diamond 2612, the application framework 412 determines whether the user has entered a complete channel entry. If not, the application framework 412, in step 2612, updates the on screen channel changer 2700 to reflect the selected number. Referring to FIG. 27, the user used the D-Pad to select the number “2”. The on screen channel changer 2704 is updated to show, in the mini EPG, the next three channels that begin with the number 2. Selecting any of these EPG listings will automatically change the channel and dismiss the on screen channel changer 2704.

In the example of FIG. 27, the user has selected only the first number of the channel. The user next uses the D-Pad to select the number “9”. Because a complete channel entry has not been entered, the application framework 412 proceeds to step 2612 and updates the on screen channel changer 2704 to reflect the selected number. Referring to FIG. 27, the user used the D-Pad to select the number “9”. The on screen channel changer 2708 is updated to show, in the mini EPG, the next three channels that begin with the numbers “29”. Selecting any of these EPG listings will automatically change the channel and dismiss the on screen channel changer 2708.

The user, in step 2608, next selects the number “4” using the D-Pad. In decision diamond 2612, the application framework 412 determines that a complete channel has been entered (which is 294 in the example) and, in step 2620, updates the on screen channel changer 2712 by showing, in the mini EPG, and putting in focus only a single listing corresponding

to the entered channel. If the user selects the listing, the application framework 412 will automatically change the channel and dismiss the on screen channel changer 2712.

'254 Patent, 36:16-64 (emph. added), Fig. 27. See Fig. 20.

2. The Combination of Kim and Bae Fails to Meet Limitation 1.2 for “Displaying ... On a Television Screen, an On Screen Channel Changer Comprising Electronic Program Guide (EPG) Information and a Number Input Bar.”

136. The Petition relies on the combination of Kim with Bae to meet limitation 1.2 for “*displaying ... an on screen channel changer comprising electronic program guide (EPG) information and a number input bar.*” See Pet., 29-39; Ex. 1003 (Lippman Decl.), ¶¶ 99-104, 116-124.

“On Screen Channel Changer”

137. Regarding the claimed “*on screen channel changer*,” the Petitioner and its expert rely solely on the Kim reference. They assert that it is met by Kim via the:

- (1) Channel Browser card object 1340 (see Kim, Figs. 19, 22), and/or the
- (2) TV Guide card object 1350 (see Kim, Figs. 19, 22).³

³ The Petitioner later references Figure 38 of Kim. Pet., 23. However, Figure 38 of Kim is a Search Window, not part of the home screen of Figures 19 and 22 that includes the Channel Browser and TV Guide card objects that are the basis for

Pet., 29-31; Lippman Decl., ¶¶ 101-104.⁴ The Petitioner’s expert confirmed this in deposition. Ex. 2010 (Dep. Trans. Lippman), 135:24-136:11.

138. The Petitioner alleges that “Kim teaches an on screen channel changer ... that allows a user to search for and switch to a desired program or channel via a remote control, such as ‘a CHANNEL BROWSER card object 1340 which may provide a thumbnail list of broadcast channels [and] a TV GUIDE card object 1350 which may provide a program list.’” Lippman Decl., ¶ 78; Pet., 22. The Petitioner’s expert states: “Thus, Kim’s card object area that displays **either or both of a**

the Petitioner’s theory. See Kim, [0266]-[0267] (“display a search window” allowing entry of a “keyword”). The Petitioner’s expert agreed. Ex. 2010 (Dep. Trans. Lippman), 141:15-19.

⁴ The Petition and the Lippman declaration reference generic passages in Kim regarding the creation of on-screen displays (OSDs), but those passages do not refer in any way to an “*on screen channel changer*.” The Petitioner and its expert do not assert those passages teach or suggest that claimed “*on screen channel changer*.” See Pet. 29-30; Lippman Decl., ¶¶ 99-100 (citing Kim at [0060], [0090, [0133], [0137], [0193], Figs. 5-6. A POSITA would understand that generic references to an on-screen display or a card object generator do not teach or suggest the claimed “*on screen channel changer*.”

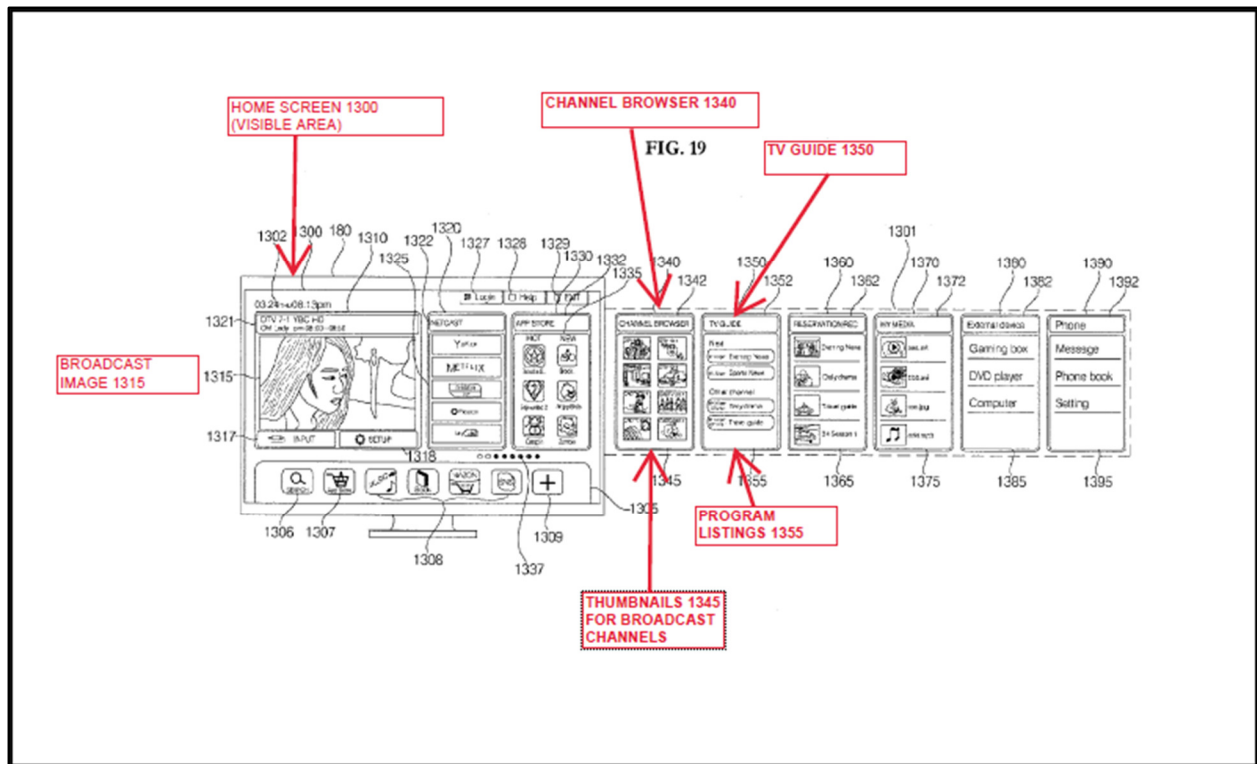
CHANNEL BROWSER card object and TV GUIDE card object teaches an on screen channel changer.” Lippman Decl., ¶ 104 (emph added); Pet., 31 (*verbatim*).

139. The test applied by the Petitioner and its expert for an “*on screen channel changer*” is whether “it allows a user to search for and switch to a desired program or channel via a remote control.” Lippman Decl., ¶ 78; Pet., 22. See Ex. 1012 (Dep. Tr. Lippman), 87:22-88:1, 91:6-9, 92:1-6, 92:13-14, 95:23-96:2, 96:23-97:5, 98:7-23.

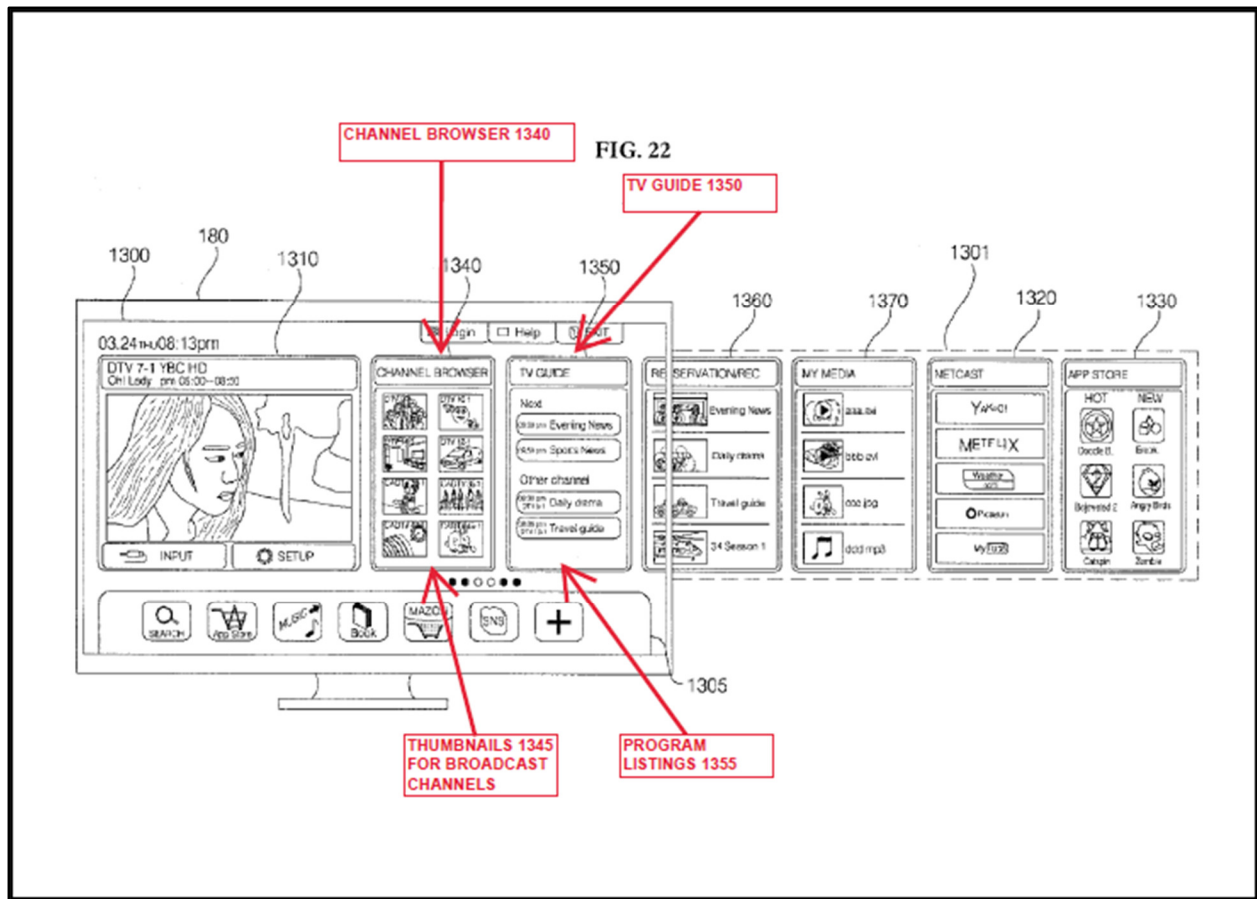
(a) **Kim’s Channel Browser Card Object is Allegedly the Claimed “On Screen Channel Changer”**

140. In the Lippman declaration, under the heading “*displaying...an on screen channel changer*” (at 52), the Petitioner’s expert identifies the Channel Browser card object 1340 as allegedly meeting the “*on screen channel changer*” element of limitation 1.2. Lippman Decl., ¶¶ 101-102 (citing Kim, [0094], [0104]-[0105], [0205]-[0206]; Pet., 22-23, 30-31.

141. Kim depicts a home screen 1300 user interface in Figure 19 that has a series of card objects that can be selected. The Channel Browser in Figures 19 and 22 is a card object having thumbnail images representing broadcast channels that can be selected by the user to change to an associated broadcast channel:



Kim, Fig. 19 (annotated).



Kim, Fig. 22 (annotated).

142. The Kim reference explains that the Channel Browser card object provides access to broadcast channels via the thumbnail images. A remote control device allows a user to select a thumbnail image to cause the image display apparatus to tune to and display the associated broadcast channel. Kim describes more specifically that the “[Channel Browser] card object 1340 may represent a list of broadcast channels [and] may include ... a thumbnail list of broadcast channels 1345.” Kim, [0205], [0196] (“thumbnail list of broadcast channels”). “The thumbnail list 1345 may include information related to the channels as well as the

thumbnail images for the channels such that the broadcast programs of the channels may be readily identified.” Kim, [0205]. “Therefore, the user can readily identify the content of broadcast programs received through a plurality of channels.” Kim, [0105].

143. An expanded view of the Channel Browser card object 1340 is presented below:



Fig. 22 (excerpted Channel Browser 1340).

144. It is undisputed that in Kim a remote control can be used to select a thumbnail in the Channel Browser to cause a channel change. “Upon selection of a thumbnail image from the thumbnail list 1345, a broadcast program from the selected channel may be displayed on the display 180.” Kim, [0206].

145. The Petitioner and its expert assert that the Channel Browser card object of Kim is the claimed “*on screen channel changer*” because it is a user interface that allows the changing of channels by using a remote control to select a thumbnail to

change broadcast channels. The Patent Owner does not dispute that Kim's Channel Browser card object is a user interface enabling the changing of broadcast channels by a user wielding a remote control.

(b) Kim's TV Guide Card Object is Allegedly the Claimed "On Screen Channel Changer"

146. In the Lippman declaration, under the heading "*displaying...an on screen channel changer*" (at par. 52), the Petitioner's expert identifies the TV Guide card object 1350 as also allegedly meeting the "*on screen channel changer*" element of limitation 1.2. Lippman Decl., ¶¶ 103-104 (citing [0196], [0207]; Pet., 22-23, 30-31.

147. The TV Guide card object in Figures 19 and 22 (see above) is a card object having program listings representing different broadcast programs. A user can select a program listing in the TV Guide card object to cause the channel to be changed to display the selected program.

148. Kim describes more specifically that the "[TV Guide] card object 1350 ... may contain a card object name 1352 (TV GUIDE) and a program list 1355 ... [that] list[s] broadcast programs for the currently displayed channel or broadcast programs for one or more different channels." Kim, [0207]. "If a program is selected from the program list 1355, a broadcast image of the selected program (e.g., currently being broadcast) or broadcasting information related to the selected program (e.g., future broadcasts) may be displayed on the display 180." Kim, [0207].

149. An expanded view of the TV Guide card object 1350 is presented below:



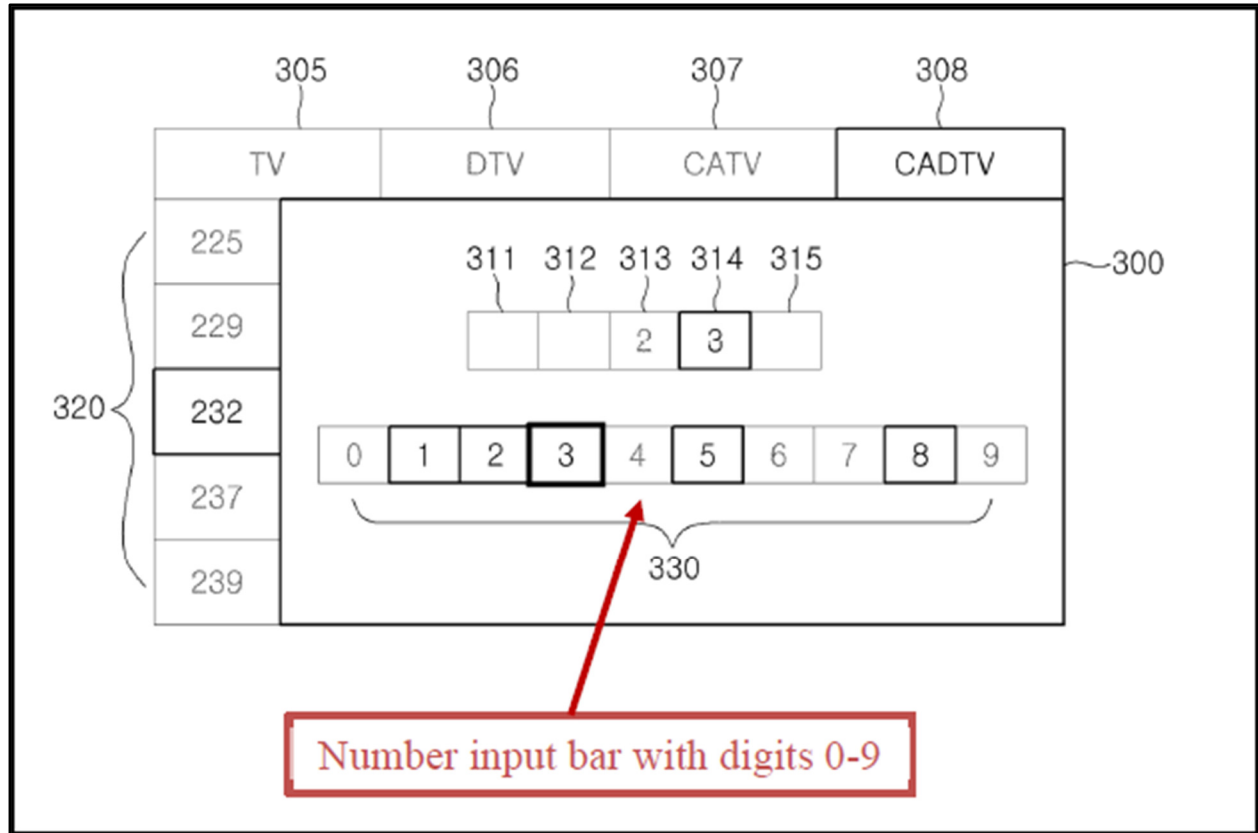
Kim, Fig. 22 (TV Guide card object 1350 excerpted).

150. It is not disputed that a remote control can be used to select a program listing in the TV Guide card object to cause a channel change. “If a program is selected from the program list 1355 [in the TV Guide card object], a broadcast image of the selected program (e.g., currently being broadcast) ... may be displayed on the display 180.” Kim, [0207].

151. The Petitioner and its expert assert that the TV Guide card object of Kim is the claimed “*on screen channel changer*” because it is a user interface that “allows a user to search for and switch to a desired program or channel via a remote control” by selecting a program listing to change broadcast channels. Lippman Decl., ¶ 78; Pet., 22. The Patent Owner does not dispute that Kim’s TV Guide card object is a user interface enabling the changing of broadcast channels by a user wielding a remote control.

(c) **Combining Bae's Channel Number Selection Window as the Claimed "Number Input Bar" with Kim Does Not Meet Limitation 1.2**

152. The Petitioner relies solely on Bae (Ex. 1008) for the claimed “*number input bar*” that is part of the claimed “*on screen channel changer*.” Pet., 37-39; Lippman Decl., ¶¶ 121-124. Specifically, the Petitioner alleges that the claimed “*number input bar*” is met by the “channel number selection window” 330 in Bae, as depicted in the Petitioner’s annotated version of Bae:



Pet., 38 (Petitioner’s annotated version of Fig. 3 of Kim).

153. The Petitioner proposes somehow combining the channel number display window of Bae with the alleged on screen channel changer of Kim: “Adding

Bae's number input bar to Kim's on screen channel changer." Pet. 38. But the Petitioner proposes that Bae be combined with Kim in the abstract. The Petitioner fails to explain the operative combination resulting from the application of Bae's teaching of a channel number display window to the on screen channel changer of Kim. Pet., 38.

154. Rather than explaining the resulting combination of Bae applied to Kim so that a POSITA can determine whether it meets limitation 1.2, the Petitioner just repeats its theories for a motivation to combine:

Kim teaches a **known method** for displaying an on screen channel changer that allows a user to select a channel thumbnail/program listing and/or enter a search keyword. Adding Bae's number input bar to Kim's on screen channel changer would have **predictably resulted** in an on screen channel changer that additionally includes a number input bar allowing the user to directly enter a specific channel number.

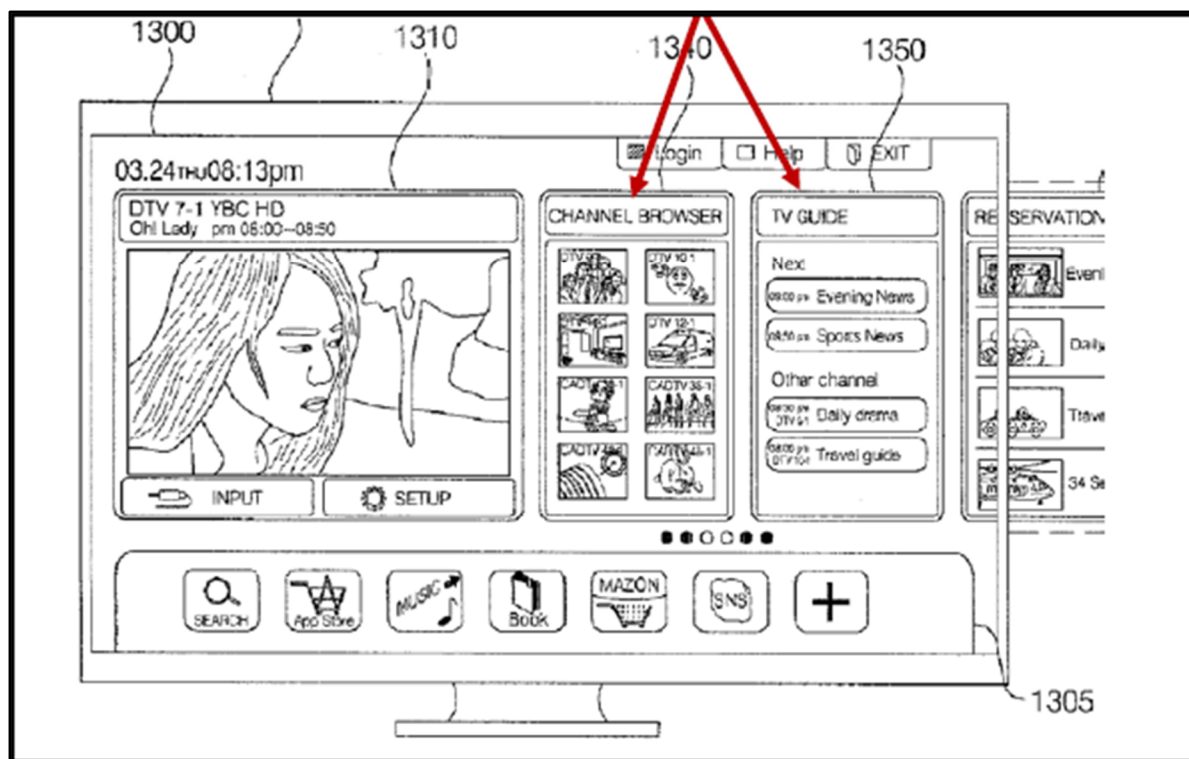
Pet., 38 (emph. added). See Lippman Decl., ¶¶ 123-124.

155. However, my understanding is showing that the proposed combination of art meets the claim limitation in the obviousness case is a separate requirement from showing there is a reason to combine.

156. Likewise, the Petitioner's assertion that "Kim's teaching of displaying an on screen channel changer ... where the on screen channel changer includes EPG information for browsing channels/programs and searching for programs, in combination with Bae's technique of displaying a number input bar that displays

digits 0-9 within an on screen channel changer renders obvious this limitation” is a conclusory statement. Pet., 38-39, Lippman Decl., ¶ 124. The Petitioner does not explain the proposed combination and how that combination meets the claim limitation. The combination of Bae with Kim does not meet limitation 1.2 of Claim 1 of the ’254 Patent.

157. As discussed immediately above, the Petitioner and its expert never explain the proposed Bae/Kim combination and how it works to meet limitation 1.2. The Petitioner’s expert makes the confusing statement that “[a]dding the number input bar of Bae into the known method of Kim’s on screen channel changer would have resulted in an on screen channel changer with both a search field and a number input bar.” Lippman Decl., ¶ 124 (emph. added). However, as discussed above, the “*on screen channel changer*” in Kim is alleged to correspond to the (1) Channel Browser card object 1340 and/or the (2) TV Guide card object 1350. Neither of these card objects includes a search field as illustrated below from Petition:

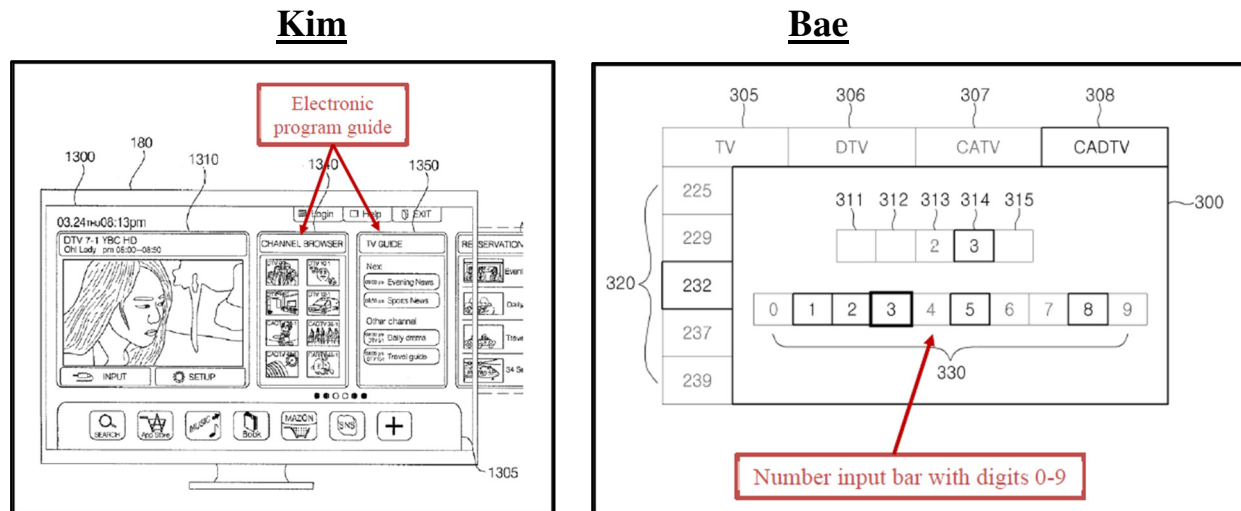


Pet., 23 (Petitioner’s annotated Fig. 22 of Kim). Thus, the Petitioner’s expert’s characterization of the proposed combination as providing an “on screen channel changer with ... a search bar” contradicts the Petitioner’s obviousness theories.

158. It is my understanding that the Petitioner’s obviousness case must provide a “reasoned analysis” explaining **how the references are combined** and **how that combination works** to prove that it meets the claim limitation. *See Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed. Cir. 2012) (must be an “explanation as to how ... the references would be combined to produce the claimed invention.”).

159. The Petitioner relies on a **first user interface** from Figure 22 of Kim allegedly having the “on screen channel changer” that is the Channel Browser card

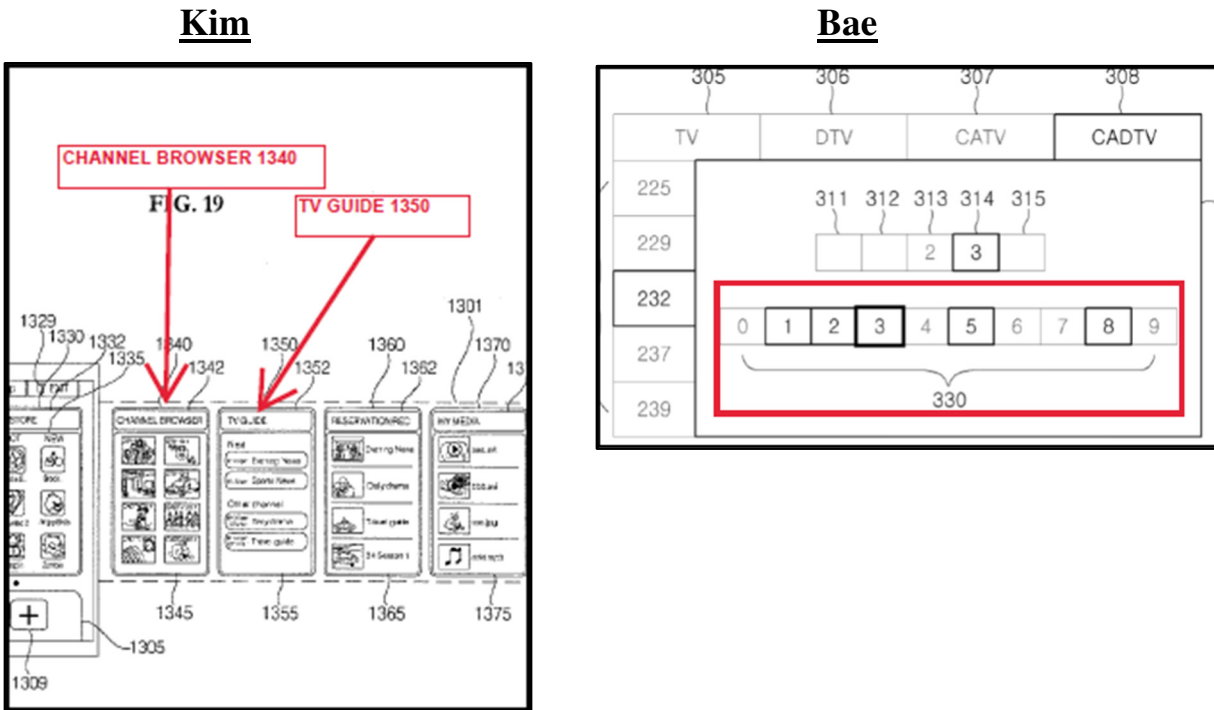
object and/or the TV Guide card object. Pet., 23; Lippman Decl., ¶ 78. The Petitioner then relies on a **second user interface** from Figure 3 of Bae as allegedly having a “*number input bar*” that is the channel number window. Pet., 37-39; Lippman Decl., ¶¶ 121-122. The relied-upon user interfaces are presented below:



See Pet., 23, 38 (Petitioner’s annotation of Kim, Fig. 19 and Bae, Fig. 3).

160. For limitation 1.2, the Petitioner never addresses how the cited features from Bae (channel number selection window) would be implemented in Kim according to the mappings to the Channel Browser and TV Guide card objects. The Petitioner provides no explanation of the combination other than the conclusory and vague assertion that Kim would be modified to include a channel number selection window from Bae. Pet., 38-39; Lippman Decl., ¶¶ 123-124. Limitation 1.2 is not met because the Petitioner and its expert have failed to explain how the references are combined and how the combination works.

161. Moreover, the channel number selection window of Bae cannot be combined with the Channel Browser card object or TV Guide card object (allegedly the “on screen channel changer”) of Kim, as proposed:



Kim, Fig. 21 (excerpted, annotated); Bae, Fig. 3 (excerpted, annotated).

162. The channel selection window, as taught by Bae, cannot be integrated with either the Channel Browser or the TV Guide card objects of Kim. As described previously, the Channel Browser functions to present thumbnails of broadcast channels that can be selected to change channels. The TV Guide functions to present program listings that can be selected to change channels. Neither card object of Kim could be modified to accommodate the channel selection window of Bae. Indeed,

applying the channel selection window of Bae with either card object of Kim would result in an inoperative card object that would be contrary to the principle of Kim.

163. This is not an issue of attacking the references based on an improper bodily incorporation theory because it is the Petitioner who identifies the combination as being the channel number selection window of Bae (alleged “*channel number bar*”) added to the Channel Browser and TV Guide card objects of Kim (alleged “*on screen channel changers*”). See Pet., 38; Lippman Decl., ¶ 123. So this is not an argument based on improper bodily incorporation of the references.

164. In sum, for the reasons explained above, the combination of Kim and Bae (along with the WD-Manual) fails to satisfy limitation 1.2 of Claim 1 of the ’254 Patent.

(d) **In Deposition, the Petitioner’s Expert Could Not Explain How Bae and Kim Are Combined and How the Combination Works**

165. As discussed above, the Petitioner’s expert’s declaration does not explain how the Kim and Bae references are combined and how the combination works. See Lippman Decl., ¶¶ 75-83, 99-124. In deposition, the Petitioner’s expert confirmed that he had no opinion as to how the teachings from the reference were to be combined and how that combination would work to meet limitation 1.2. Despite being asked repeatedly, the expert declined to explain the configuration and workings of the combination:

Q: “Kim’s channel browser 1340, that’s part of a user interface, right?”

A: “Yes.”

Q: “And Bae’s on-screen channel changer, that’s part of a user interface as well, right?”

A: “Yes.”

Q: “So what we’re talking about is modifying the user interface in Kim somehow based on the user interface from Bae. Is that fair to say?”

A: “We’re talking about a user interface that combines Bae’s channel technique with Kim’s television.”

Q: “With Kim’s user interface, in this case being the channel browser 1340, right?”

A: “Let me be more specific. We’re talking about a user interface that combines the teachings of Kim’s interface with the teaching of Bae’s interface. We’re not necessarily talking about altering specifically that interface.”

Q: “Sure. But you are applying the teaching from Bae’s on-screen channel changer to Kim’s channel browser 1340, right?”

A: “I believe the answer to your question is my paragraph 82, applying Bae’s known technique to Kim’s known system.”

Ex. 2010 (Dep. Trans. Lippman), 130:21-131:25. In the above passage, the Petitioner’s expert does not explain how Kim and Bae are combined.

166. Elsewhere, the expert did not provide a clear answer on how Kim and Bae are combined:

Q: “Okay, so let’s start -- as you suggested, let’s continue to proceed from channel browser 1340, okay?”

A: “Yes.”

Q: “What would channel browser 1340 look like after the teaching of Bae is applied to it?”

A: “I wouldn’t claim that you would modify 1340. I claim that you would use the teachings of Kim’s system and Bae’s channel changer.”

Ex. 2010 (Dep. Trans. Lippman), 132:2-12). However, the expert’s deposition testimony is inconsistent with his declaration, which states that Kim’s Channel Browser 1340 (alleged “*on screen channel changer*”) would (somehow) be combined with or modified by the channel selection window of Bae. Lippman Decl., ¶¶ 102, 104, 117, 121-124. He states: “[I]t would have well within the skillset of a POSITA to further include the number input bar of Bae into the on screen channel changer [Channel Browser object and/or TV Guide object] of Kim with respect to Kim’s known method for displaying an on screen channel changer.” Lippman Decl., ¶ 123 (“adding the number input bar of Bae into ... Kim’s on screen channel changer”).

167. Elsewhere, the expert did not explain the combination and how it works:

Q: “In your proposed combination of Kim and Bae, what does the channel browser 1340 look like?”

A: “You would choose to display EPG information either the way Kim does or an altered way that Kim does using the teachings of Kim so that you would end up with an artful and usable user interface with Bae added to it.”

Q: “So you’re saying in your proposed combination of Kim and Bae, the channel browser object 1340 could look and operate exactly the same way as in Kim. Correct?”

A: “It’s conceivable that it could. It might not, but it is the entirety of the interface that would change.”

Q: “And as for the TV guide card object 1350, what would it look like pursuant to your proposed combination of Bae with Kim?”

A: “I don’t think that I need to propose a specific graphic design. What I propose is the admixture of those two techniques for changing channel, one of them being Kim’s, and the other -- which allows you to scroll and select and the other -- from EPG information, and the other direct selection by specifying a channel number.”

Ex. 2010 (Dep. Trans. Lippman), 152:21-154:2. The expert later repeated that he had no particular design in mind for the combined user interface, and that he was just proposing an “admixture of the two technologies.” Ex. 2010 (Dep. Tr. Lippman), 155:9-12.

168. The expert’s description of his proposed combination as being an “admixture” of technologies from Bae and Kim indicates that there is no identification of what is being combined and how the combination works. See Ex. 2010 (Dep. Tr. Lippman), 157:13-18.

169. In summary, the references fail to meet limitation 1.2.

(e) **Limitation 1.2 is Not Satisfied Because a POSITA Would Not Combine Bae with Kim**

(i) The Argument that there is a Motivation to Combine Because a POSITA Could Not Implement Kim's Remote Control is Without Merit

170. The Petitioner argues that a POSITA would be motivated to combine Bae into Kim because Kim allegedly does not provide sufficient details for a POSITA to implement Kim's remote control issuing channel switch commands to change channels. Lippman Decl., ¶¶ 79-80 ("Kim, however, does not otherwise expand on how channel switch commands or channel selection commands may be entered into its on screen channel changer via the remote control, leaving the implementation details to a POSITA. Bae discloses a known technique for receiving channel selection commands from a remote control."), Pet., 24 ("Kim, however, does not otherwise expand on how the user can enter channel switch commands through its on screen channel changer to select a desired channel via the remote control, leaving the implementation details up to a POSITA.").

171. First, I am surprised that the Petitioner and its expert are arguing that LG's own patent reference is non-enabling. See Ex. 2016 (Assignment of Kim reference to LG Electronics), 1-2. Additionally, that Kim reference led to U.S. Pat. No. 8,931,003, an issued continuation patent also assigned to LG Electronics, that would by extension also be non-enabling. See Ex. 2017 (Assignment of U.S. Pat. No. 8,931,003, Kim, to LG Electronics), 1. I do not find it credible that the Petitioner and its expert are asserting that LG's own patent reference is non-enabling.

172. Second, the Petitioner's assertion that a POSITA viewing Kim would need to refer to Bae to implement remote control issued channel switch commands is not credible at all. Indeed, a POSITA would readily be able to implement a remote control that issues channel switch commands to change channels based on Kim and the POSITA's background knowledge in the art.

173. Indeed, Kim discloses multiple mechanisms for the remote control to issue channel switch commands to cause the image display apparatus to change channels, including a "channel selection signal," "channel selection command," and a "channel switch command," issued by the remote control. Kim, [0059], [0086], [0090], [0127], [0174]. The Petitioner's expert concedes that Kim discloses the remote control issuing the such channel switch commands to change channels. Lippman Decl., ¶ 77.

174. I disagree with the Petitioner's argument that a POSITA would not know how to implement Kim's remote control that issues channel switch commands in Kim. In the relevant timeframe of 2012, a POSITA certainly would have been able to implement the remote control of Kim to issue channel switch commands. Figure 14 of Kim is a detailed block diagram of a remote control 200, including a user input circuit 235 for receiving user inputs and an RF module 225 for transmitting commands such as channel switch commands. Kim, Fig. 14, [0172]-[181]. A POSITA would have been able to implement remote control issued channel

switch commands based on at least Figure 14 of Kim. The Petitioner's expert agreed in deposition that a POSITA would have been able to implement Kim's remote control of Figure 14 that issues channel switch signals. Ex. 2010 (Dep. Trans. Lippman), 111:5-113:13.

175. Not only does Kim disclose a remote control issuing channel switch commands, but it was well known in the art that set-top-box (STB) devices like Kim included remote control devices for issuing channel switch commands to change channels. Ex. 2011 (Liebhold assigned to Thomson), [0005], [0013], [0020], [0029], Fig. 1 (remote control with channel number inputs); Ex. 2012 (Lakin assigned to Arria), 2:26-27, 5:6-17, 5:45-50, Fig. 2 (user channel control interface), Fig. 3 (request for channel change); Ex. 2013 (Hearn assigned to Lucent), [0006], [0024], Fig. 2; Ex. 2015 (Boyce assigned to Thomson), 2:59-67 (channel change requests), 3:25-30, Figs. 1, 5-6 (channel change requests); Ex. 2018 (Russ to Scientific-Atlanta), 9:21-31, 15:50-65 (channel change control signal), Fig. 2; Ex. 2019 (Chan to Scientific-Atlanta), 11:28-34, Fig. 4 (subscriber commands).

176. The Petitioner's expert admitted in deposition that in the 2012 timeframe it was well known that set-top-boxes switched channels by channel switch commands issued by remote controls. Ex. 2010 (Dep. Trans. Lippman), 116:13-16 (Q: "So those types of set-top boxes [from the 2012 timeframe] would allow for channel switching using a remote control?" A: "They would.").

177. There is another reason the Petitioner's argument that a POSITA would be unable to implement Kim's remote control is incorrect. Kim discloses that the user can use the remote control to select thumbnails in the Channel Browser card object to cause it to change channels. "Upon selection of a thumbnail image from the thumbnail list 1345 [in Channel Browser 1340], a broadcast program from the selected channel may be displayed on the display 180." Kim, [0206]. Additionally, Kim discloses that the user can use the remote control to select a program listing in the TV Guide card object to cause it to change channels. "If a program is selected from the program list 1355 [in TV Guide 1350], a broadcast image of the selected program (e.g., currently being broadcast) or broadcasting information related to the selected program (e.g., future broadcasts) may be displayed on the display 180." Kim, [0207]. Accordingly, Kim discloses that the remote control can be used to issue channel change commands to the Channel Browser and the TV Guide card objects to cause the changing of a channel.

178. In deposition, the Petitioner's expert admitted that a POSITA would understand that Kim's remote control would issue channel change commands by using its pointer 205 to select an object (thumbnail or program listing) Channel Browser and the TV Guide card objects to cause the changing of a channel. Kim, [0167]-[0171], Fig. 13. See Ex. 2010 (Dep. Trans. Lippman), 104:3-110:17. The

Petitioner's expert made the same admissions in his declaration. Lippman Decl., ¶ 78.

179. Accordingly, the Petitioner's assertion that a POSITA would be motivated to combine Bae into Kim because a POSITA would not be able to implement Kim's remote control issuing channel switch commands is contradicted by Kim, common knowledge in the art, and the Petitioner's own expert. A POSITA would not have reason to refer to Bae to implement Kim for the reasons I have explained above.

(ii) The Petitioner's Other Arguments on Motivation to Combine Bae with Kim Are Without Merit

180. The Petitioner's other arguments on whether there is an apparent reason to combine Bae with Kim are without merit. For example, the Petitioner argues that the combination would "enable[] a user to identify a specific channel number." Lippman Decl., ¶ 81; Pet., 24. However, as discussed in the section immediately above, a POSITA would understand that Kim's remote control already has the functionality to issue channel switch commands identifying a specific channel number. See e.g., Kim [0090] ["a specific channel selection command"]. Similarly, the Petitioner argues that a POSITA would have reason to make the combination because the user could "directly identify a desired channel number." Lippman Decl., ¶¶ 82, 123 Pet., 24. As explained previously, a POSITA would understand that Kim

already provides that functionality via the direct entry of channel numbers or direct selection of thumbnails/program listings identifying broadcast channels in the Channel Browser/TV Guide card objects. Thus, a POSITA would not refer to Bae because Kim already enables the identification of a specific channel number.

181. The Petitioner references “a remote control without a keypad” (Lippman Decl., ¶ 82; Pet., 24). However, Kim discloses a remote control without a keypad, so there is no need for Bae. See Kim, Fig. 13 (remote control 200 without keypad), [0167]-[0171].

182. The Petitioner argues the combination of Bae with Kim “allows the user to switch channels on Kim’s television with different types of remote controls, including those without numeric keys.” Lippman Decl., ¶ 82; Pet., 24. Once again, this alleged reason to combine is not linked to the claim language. Second, a POSITA would readily understand that Kim’s image display apparatus could be operated using a remote control without numeric keys (see Kim, Fig., 13, remote control 200) or a remote control having numeric keys. Kim is not limited to a remote control without numeric keys. See Kim, [0112]-[0113], [0122], [0150], [0172]-[0181], [0175] (“The user input device 235 may include a keypad, a plurality of buttons, a touchpad and/or a touch screen.”), Fig. 14.

183. Finally, the Petitioner argues that Bae’s channel number selection window is a “known technique” applied to Kim’s “known” image display apparatus

to provide a predictable result. Lippman Decl., ¶¶ 82-83, 123; Pet., 24-25, 38. However, it is my understanding that the mere fact that two references were “known” does not establish that a POSITA would combine their teachings.

184. To the contrary, a POSITA would not have reason to apply Bae to Kim for the reasons explained above in Section IX.B.2.(f). There is also no reasonable expectation of success because the Petitioner and its expert are incapable of explaining how the references are combined and how the combination works. There is also no reasonable expectation of success because the combination would not work. See Section IX.B.2(d)-(e). Thus, the proposed combination of Bae and Kim does not meet limitation 1.2 of Claim 1 of the ’254 Patent.

C. The Kim/WD-Manual/Bae Combination Fails to Teach or Suggest Limitation 1.5.2 for a Remote Control including “An Application Center Button that ... Display[s] Information Regarding Pre-Installed and Downloaded Software Applications”

185. Limitation 1.5.2 provides for a remote control including “*an application center button ... that display[s] information regarding pre-installed and downloaded software applications.*” ’254 Patent, Cl. 1.

186. As discussed in Section VI above, I interpret “pre-installed ... software applications” pursuant to its definition in the ’254 Patent as meaning pre-installed software applications that “cannot be removed by the user or manually updated.” ’254 Patent, 24:18-21. The ’254 Patent distinguishes between such “pre-installed applications” and “downloaded applications.” *Id.* This construction is consistent

with the determination in the related litigation that the term mean “pre-installed software applications (that cannot be removed by the user or manually updated).” Ex. 2020 (Markman Order dtd 6/30/2024), 43.

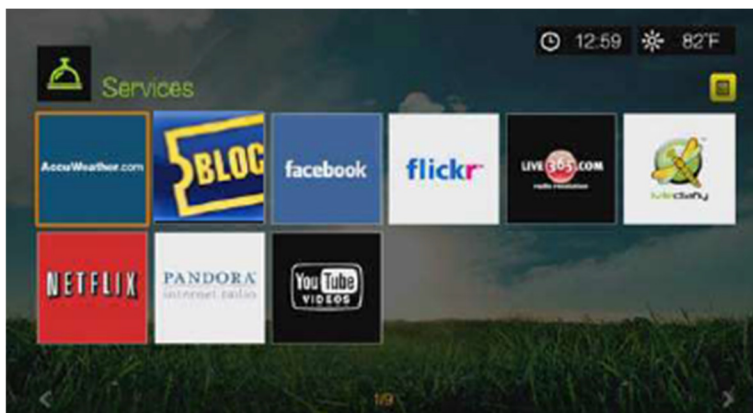
187. The Petition and its expert identify an array of embodiments in Kim and the WD-Manual as alleged candidates for limitation 1.5.2. Upon inspection, each fails to teach or suggest limitation 1.2. The Petitioner and its expert argue that limitation 1.2 is met by one of:

- (1) WD-Manual’s Services menu displaying Internet Services;
- (2) Kim’s “list of applications” related to Figure 6 and the “application menu” for Figure 34;
- (3) Kim’s “application list view menu” for Figure 16 and Kim’s “application layer 550” for Figure 12.

Lippman Decl., ¶¶ 185-196; Pet., 69-74.

1. WD-Manual Services menu of Internet Services

188. The Petitioner and its expert argue that the Services menu in the WD-Manual meets limitation 1.5.2 for “*an application center button ... that display[s] information regarding pre-installed and downloaded software applications.*” The Services menu in the WD TV system can be accessed from the Home screen, and it presents this display:



Ex. 1006 (WD-Manual), 77.⁵

189. The WD-Manual describes the above Services menu as providing a “list of Internet services.” WD-Manual, 77. Nowhere does the WD-Manual teach or suggest that the thumbnail images (Netflix, Facebook, Live365.com, etc.) are “*downloaded software applications*,” as claimed.

190. Moreover, the WD-Manual does not remote teach or suggest that the listed “Internet services” include “*pre-installed ... software applications*” and “*downloaded software applications*,” per limitation 1.5.2. The WD-Manual does not make any reference to the thumbnail images being downloaded software applications. See WD-Manual, 76-77.

⁵ Like the Petitioner, the Patent Owner references the original pagination of the WD-Manual.

191. The WD-Manual simply refers to the thumbnails on the Services menu as being “Internet services.” WD-Manual, 77.

192. The WD-Manual does not teach or suggest that the thumbnails on the Services menu correspond to “*pre-installed ... software applications*” and “*downloaded software applications*,” as required by limitation 1.5.2.

193. The Petitioner and its expert nowhere argue, let alone provide evidence, that the thumbnails are “*pre-installed ... software applications*” and “*downloaded software applications*.” For example, the purported product support page for WD TV refers to downloading **media**, not downloading software applications. Ex. 1021, 1. The sales webpage on the B&H Photo website references “the ability to access many popular websites—including Facebook, YouTube, and Flickr” without making any reference to downloading software applications or the storage of pre-installed applications. Ex. 1024, 1.

194. There is further evidence that the WD-Manual does not teach or suggest “*downloaded software applications*” as claimed. Chapter 13 of the WD-Manual for “Setup and Advanced Features” makes no reference to such software applications. WD-Manual, 127-143. If the WD system allowed for downloading of software applications to be made available on the Services menu (see WD-Manual, 76-77), for example, the set-up chapter would have addressed the subject. The index of the

WD-Manual lists Netflix, Facebook, Flickr, and Pandora, but it makes no reference to downloading for those services. WD-Manual, 160-164.

195. A POSITA would understand the reference to locating iTunes or Winamp by “search[ing] the internet with your browser” as using a web browser (e.g., Chrome or Internet Explorer) **on a separate computer** to download those applications onto the separate computer, not onto the WD set-top-box. See WD-Manual, 150. Indeed, that passage proceeds to discuss copying music files “to your computer” by opening iTunes, not copying music files to the WD media center (set-top-box). Notably, the display of “Internet services” on the Services menu (e.g., Netflix, Facebook, etc.) does not include any thumbnail icon for iTunes or Winamp. WD-Manual, 77. Accordingly, a POSITA would understand that the WD system does not download and display thumbnail images for an iTunes application or a Winamp application.

196. Furthermore, the Index of the WD-Manual makes no reference to downloading software applications. WD-Manual, 160-164. Notably, the entries in the Index for Internet services like Facebook, Flickr, Live365, Netflix, and YouTube have no reference to downloading applications. *Id.*

197. For the reasons set forth above, limitation 1.5.2 is not met by the Services menu of the WD-Manual or other referenced sections in the WD system.

2. Kim’s “list of applications” related to Figure 6 and the “application menu” for Figure 34 (First example in Kim)

198. The Petition references a “first example” based on Kim’s “list of applications” in connection with Figure 6. See Lippman Decl., ¶ 189; Pet., 71-72 (citing Kim, [0099]). Paragraph [0099] of Kim pertains to the image display apparatus of Figure 6 that includes a controller 170 and a display 180. It states that “controller 170 may control display of applications or a list of applications that are available in the image display apparatus or downloadable from an external network.” Kim, [0099]. A list of applications “available in the image display apparatus” does not teach or suggest the claimed “*displayed information regarding pre-installed and downloaded software applications.*” The passage does not teach or suggest that the applications are pre-installed and cannot be removed or manually updated, per limitation 1.5.2. The passage does not teach or suggest a single “*application center button*” that invokes the display of the “list of applications” referenced in [0099] of Kim, per limitation 1.5.2.

199. Figure 34 of Kim is a different embodiment unrelated to Figure 6 and paragraph [0099]. Figure 34 of Kim depicts a full-screen display 2100 of the application menu 1305 when it is selected from the home screen of Figure 19. See Kim, Fig. 19 (application menu 1305), Fig. 34, [0257] (“full screen ... in the application menu 1305 of FIG. 19 using the pointer.”), [0263]. Figure 34 provides a list of applications but there are no applications corresponding to the claimed

“preinstalled ... software applications” of limitation 1.5.2 that are not removable or manually updatable. See Kim, [0256]-[0265]. The Petitioner and its expert do not even assert that the “application menu” of Figure 34 displays the claimed *“preinstalled ... software applications.”* See Lippman Decl., ¶ 189; Pet., 71-72.

200. Further, the Petitioner and its expert do not argue or provide evidence that a POSITA would combine the embodiments of Figure 6 and Figure 34 of Kim. See Lippman Decl., ¶¶ 185-196; Pet., 69-74.

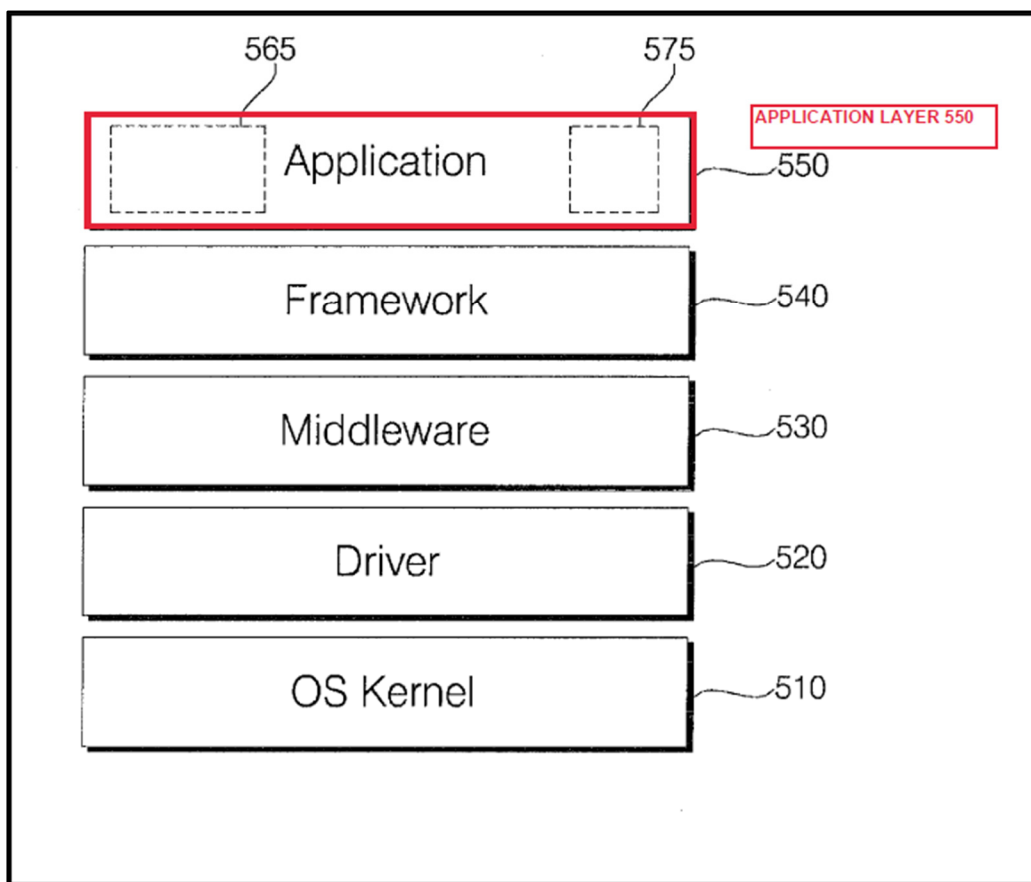
201. Kim’s “list of applications” related to Figure 6 and the “application menu” for Figure 34 do not teach or suggest limitation 1.5.2.

3. Kim’s “application list view menu” for Figure 16 and Kim’s “application layer 550” for Figure 12 (Second example in Kim)

202. The Petitioner asserts there is a “second example” in Kim based on the “application list view menu” of Figure 16 in Kim. See Lippman Decl., ¶¶ 190; Pet., 72-73. Figure 16 depicts an “application list menu” that may display “a list of applications 660 stored in the image display apparatus.” Kim, [0184], Fig. 16. “The application lists 610 or 660 may display icons representing both applications available over the network as well as application available locally.” Kim, [0185], Fig. 16. “In this embodiment, the icons or the descriptions may include additional indicia to differentiate the remote and local applications ... the description may include a network address for the corresponding application.” Kim, [0185].

203. Figure 16 and associated passages [0184]-[0187] do not remotely teach or suggest the application center button that “*display[s] information regarding pre-installed and downloaded software applications.*” These passages at best describe software applications stored on the image display apparatus. They do not describe them as being “*downloaded applications.*” They do not remotely teach or suggest they are “*pre-installed ... software applications*” that are not removable and not manually updatable per limitation 1.5.2. Notably, neither the Petitioner or its expert assert these passages teach the “*pre-installed and downloaded software applications*” of limitation 1.5.2. See Lippman Decl., ¶¶ 190; Pet., 72-73.

204. The Petitioner and its expert also reference the software applications in connection with the application layer 550 in the software architecture illustration of Figure 12 of Kim:



Kim, Fig. 12 (annotated).

205. Kim describes application layer 550 as comprising software applications that may be user-undeletable or user-deletable:

[0163] In the application layer 550, applications may be categorized into user-undeletable applications 565 that are stored in the image display apparatus and user-installable or user-deletable applications 575 that are downloaded from an external device or a network and stored in the image display apparatus.

Kim, [0163].

206. A POSITA would not understand that “user-installable or user-deletable applications” teaches or suggests “*pre-installed and downloaded software*

applications.” Also, Kim does not teach or suggest that the stored “user-installable or user-deletable applications” are “*displayed ... on a television screen*” per limitation 1.2.

207. Kim does not link the software architecture including application layer 550 of Figure 12 to the application list view menu of Figure 16. Figure 16 does not disclose that it presents a list of software applications from the application layer 550 of Figure 12. Kim does not remotely teach or suggest that the user-undeletable and user-deletable applications in application layer 550 are presented in the application list of Figure 16. See Kim, Fig. 12, [0160]-[0166]. Neither the Petitioner or its expert argue or provide evidence that a POSITA would combine the embodiment of Figure 12 with the embodiment of Figure 16 of Kim. See Lippman Decl., ¶¶ 191-194; Pet., 73-74.

208. Accordingly, Kim’s application menu of Figure 16 and the application layer of Figure 12 do not teach or suggest limitation 1.5.2.

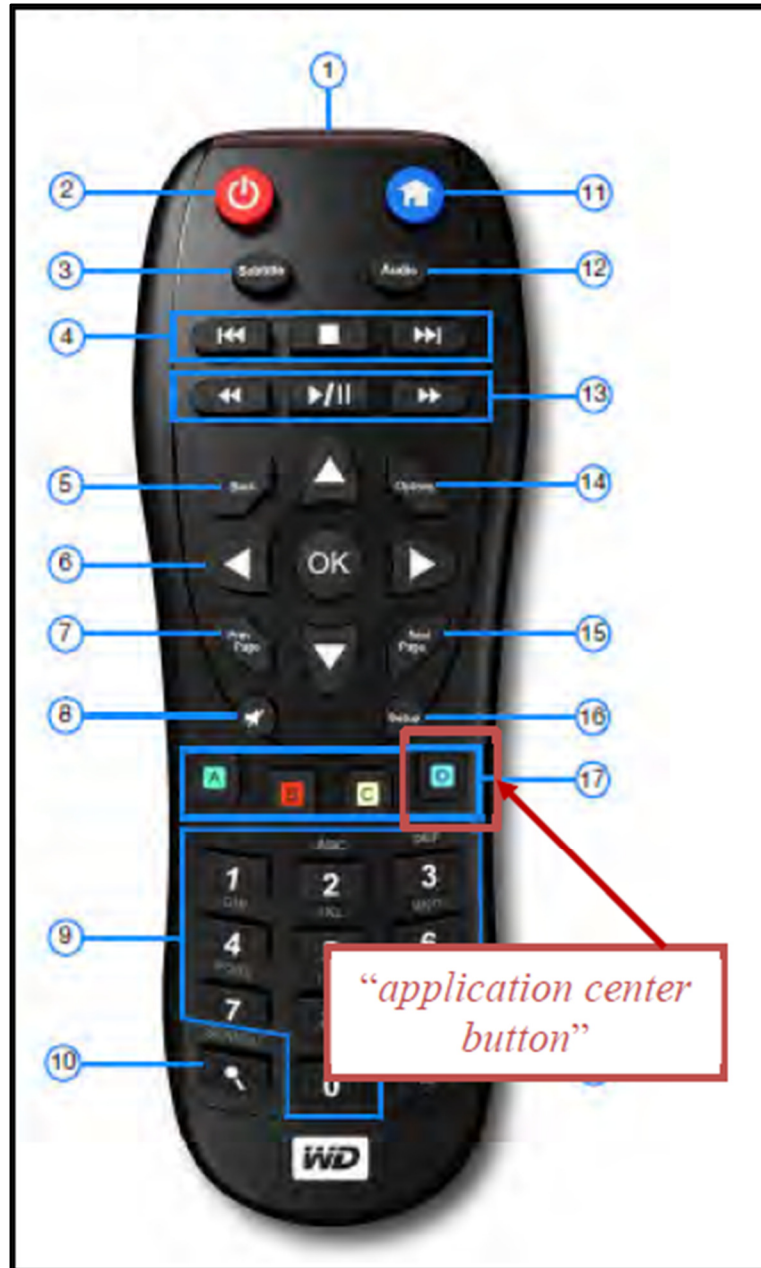
4. The Combination Fails to Teach the Claimed “Application Center Button” that Invokes the Displayed Information on Software Applications

209. The proposed combination of the WD-Manual with Kim fails to teach the claimed “*application center button*” that invokes the displayed information about software applications. The Petitioner and its expert fail to identify a button on the

remote control in the WD-Manual, Kim, or the combination that is the “*application center button*.” See Lippman Decl., ¶¶ 62-74, 185-196; Pet., 18-21, 69-74.

210. As discussed above in Section IX.C.1, the Petitioner relies on the WD-Manual’s Services menu. Lippman Decl., ¶ 187.

211. The Petitioner and its expert make a general reference to the shortcut function keys A-D in the WD remote control. Lippman Decl., ¶ 188; Pet., 70-71. They assert that the shortcut function key D is the alleged “*application center button*”:



Pet., 71 (annotated page 11 of WD-Manual); Lippman Decl., ¶ 188.

212. However, shortcut function key D is preprogrammed to “active[] the dashboard menu,” not to invoke the Services menu. WD-Manual, 26. Therefore, the Services menu allegedly corresponding to the display information about software applications per limitation 1.5.2 is *not* invoked by selecting key D. The WD-Manual

describes that the shortcut function keys can be reprogrammed for other functions (WD-Manual, 138), but the Petitioner and its expert do not articulate an obviousness case based on reprogramming function key D to invoke the Services menu for purposes of the “*application center button*” of limitation 1.5.2. Lippman Decl., ¶¶ 185-196; Pet., 69-74.

213. The Petitioner’s and its expert’s arguments on reasons to combine do not address modifying the remote control in the WD-Manual to reprogram a function key to invoke the Services menu. Lippman Decl., ¶¶ 62-74; Pet., 18-21. Instead, the arguments on motivation to combine are generic and not tied to the proposed combinations of embodiments alleged to meet the claim limitation.

214. The proposed combination fails to meet the “*application center button*” on a remote control pursuant to limitation 1.5.2.

D. The Kim/WD-Manual/Bae Combination Fails to Teach or Suggest Limitation 1.5.3 for a Remote Control including “An Application Panel Button that ... Display[s] An Application Panel Compris[ing] an Information Panel Regarding a Selected (Pre-Installed or Previously Downloaded) Application Icon”

215. Limitation 1.5.3 provides for a remote control including “*an application panel button that ... display[s] an application panel compris[ing] an information panel regarding a selected (pre-installed or previously-downloaded) application icon.*” ’254 Patent, Cl. 1.

216. The plain meaning of limitation 1.5.3 is that the application panel button causes the display of an information panel for a “*selected ... application icon*,” meaning that (1) an application icon is selected, and (2) the application panel button causes the display of information about that selected application icon. ’254 Patent, 25:25-30, 28:6-9, 29:48-49, 24:56-25:10, Fig. 7.

217. The ’254 Patent describes the application panel button 748 as follows, according to an embodiment of the invention:

The application panel button 748, when selected, can display an application window or panel. One application panel may be an information panel regarding a selected (pre-installed or previously downloaded) application icon. The information panel can one or more of identify the selected application, provide a description of the functionality (including application developer and/or vendor, version, release, and/or last update date and a category or type of application based on the application’s functionality) and user ratings and/or degree of other user downloading of the application (e.g., a star rating assigned based on one or more of the foregoing inputs), provide the option to launch, remove, update, and add to favorites the identified application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the identified application.

’254 Patent, 24:56-25:4, Fig. 7.

1. As with Limitation 1.5.2, Kim and the WD-Manual Do Not Teach or Suggest Pre-Installed and Downloaded Software Applications Per Limitation 1.5.3

218. Limitation 1.5.3 recites an “*application panel button*” that when invoked leads to the display of information regarding pre-installed and downloaded software applications, similar to limitation 1.5.2. As explained in Sections IX.C.1-C.3, the WD-Manual and Kim, considered alone or together, fail to teach or suggest the display of information regarding pre-installed and downloaded software applications. For this reason, limitation 1.5.3 is not satisfied by the proposed combination of Kim and the WD-Manual as explained in Sections IX.C.1-C.3.

2. The Options Button in the WD-Manual Does Not Teach the Claimed “Application Panel Button”

219. The Petitioner and its expert provide a lengthy description of different items from the WD-Manual and Kim that allegedly might meet the “*application panel button*” for limitation 1.5.3 of Claim 1 of the ’254 Patent. See Lippman Decl., ¶¶ 213-240; Pet., 77-90.

220. The Petitioner and its expert first rely on the Options button in the WD-Manual. Lippman Decl., ¶¶ 213, *et seq.*; Pet., 77, *et seq.* For the “*information panel regarding selected (pre-installed or previously downloaded) application[s]*”, the Petitioner and its expert rely on the same Services menu displaying “Internet services” the Petitioner relied upon for limitation 1.5.2. Lippman Decl., ¶¶ 216-217; Pet., 79-80. See Section IX.C.1 above.



Lippman Decl., ¶ 217; Pet., 79-80 (annotated WD-Manual, 11, 77).

221. However, the Options button does not invoke the Services menu in the WD system. Instead, the Options button provides “playback options” and “more service options.” WD-Manual, 25. A POSITA would understand that “service options” is a generic reference to options that may be available for a given “online content media screen.” WD-Manual, 25. A POSITA would understand that “service options” does not refer to the Services menu that is the basis for the Petitioner’s obviousness theory. Indeed, the Services menu describes that it is accessed by entering the OK button, not the Options button. WD-Manual, 76 (“Navigate to the Home/Services menu bar and press OK.”). Nowhere does the WD-Manual teach or suggest that the Services menu is invoked by the Options button, as required by the Petitioner’s obviousness theory. See WD-Manual, 25, 76-77. More generally, the WD-Manual does not teach or suggest that the Options button provides information

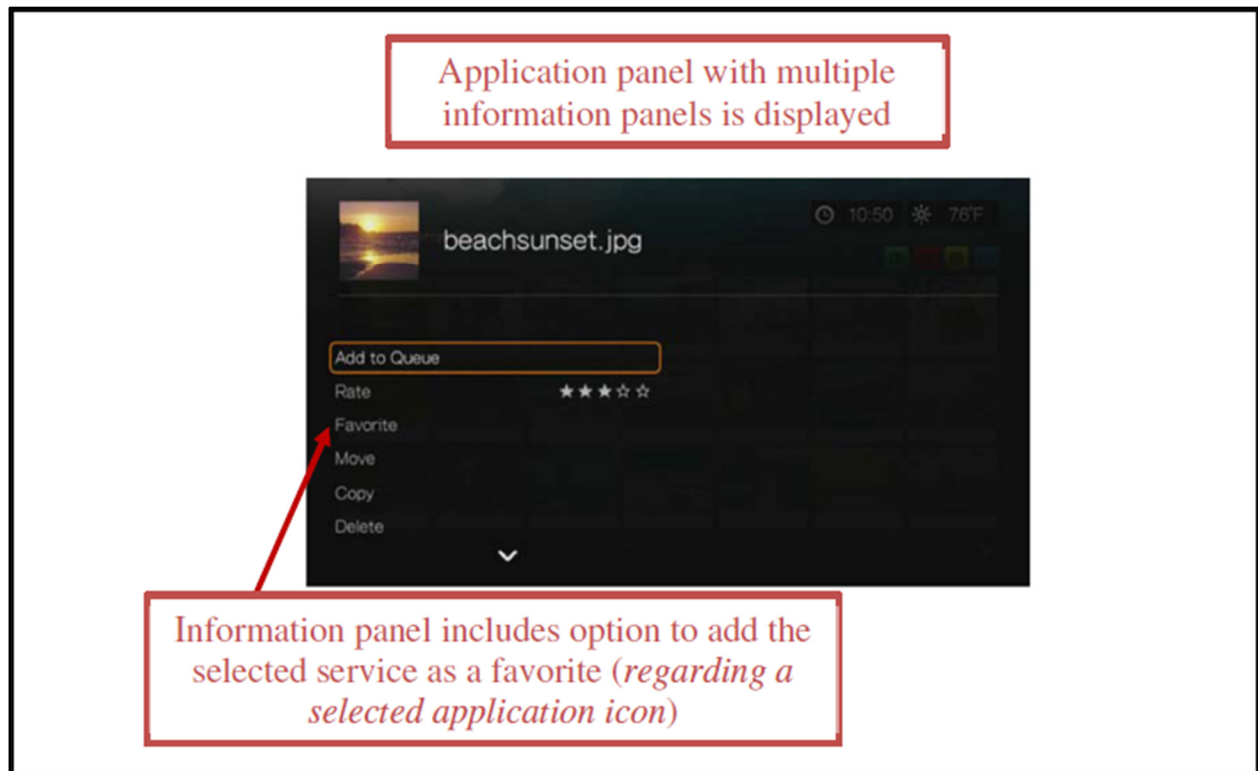
about a “*selected [software] application icon*” as claimed. The Petitioner’s argument that the Options button meets limitation 1.5.3 is not correct. Lippman Decl., ¶ 224; Pet., 82-83.

222. Once the user is at the Services menu, the user can press the left/right arrow keys “to make a selection [of an “Internet service”], then press OK.” WD-Manual, 77. Thus, the Options button is not used to access the thumbnail “Internet services” (Netflix, Facebook, Flickr, etc.) in the Services menu. Further, a POSITA would understand that selecting a thumbnail (e.g., Facebook) would take the user to the Facebook website, not display information about a downloaded software application per limitation 1.5.3, as explained in Section IX.C.1.

223. The Petitioner and its expert discuss the feature for adding an Internet service (e.g., Facebook) to the favorites list. Lippman Decl., ¶ 218; Pet., 80-81. If a service like Facebook is made a favorite, it will be shown on the Home screen. WD-Manual, 77, 28 (Home screen). This is accomplished by the user selecting a thumbnail (e.g., Facebook) on the Services menu and using the Options button to add it as a favorite. WD-Manual, 77 (“In the Services screen, press [left/right arrow keys] to select a service [Facebook] you want to favorite, then press Options.”). The Options button is used to make an Internet service such as Facebook a favorite, not to provide information about a selected software application icon per limitation 1.5.3. Even if the Facebook thumbnail was a software application (it is not), selecting

the Options button does not provide an information panel with information about the selected Facebook service per limitation 1.5.3.

224. The Petitioner and its expert proceed to improperly conflate the Photos menu screen with the Services menu screen. See WD-Manual, 55-57 (Photos menu), 76-77 (Services menu):



Lippman Decl., ¶ 219; Pet., 81.

225. A POSITA would readily understand that the above Individual Photo screen displays information about a selected photo file, beachsunset.jpg. WD-Manual, 57. The Individual Photo screen is unrelated to the Services menu displaying Internet services. When the user is “in the main photo screen, [the user can] press Options” to present the Individual Photo screen. WD-Manual, 57. In this

case, the Options button is not being used to display information about a selected software application icon, per limitation 1.5.3. Rather, it is displaying information about the jpeg photo file.

226. Thus, the WD-Manual does not teach or suggest the “*application panel button*” as claimed in limitation 1.5.3.

3. The WD-Manual Does Not Teach the Display of an Information Panel for a Selected Pre-installed or Downloaded Software Application

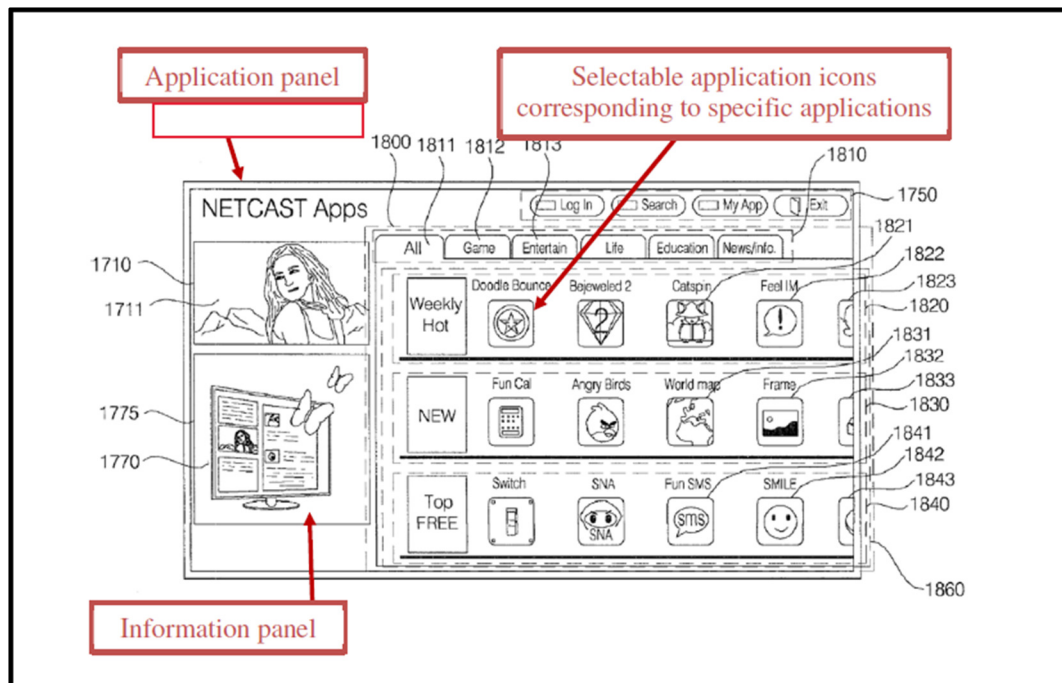
227. The Petitioner points to the discussion of iTunes and Winamp applications in the WD-Manual. As explained above in Section IX.C.1, a POSITA would understand the WD-Manual to be disclosing downloading these applications **onto the user’s computer**, not onto the WD media set-to-box that provides the Services menu that is the basis for the Petitioner’s theory.

228. Even if iTunes was displayed on the Services menu (it is not), the Services menu does not provide for the selection of an iTunes thumbnail to display information about the iTunes application, per limitation 1.5.3. See WD-Manual, 77. Instead, the WD-Manual discloses that selecting a thumbnail and entering OK causes that Internet service to be accessed, not that information about a selected software application is displayed per limitation 1.5.3. WD-Manual, 77.

4. Kim's AppStore Display Does Not Display Information on a Downloaded Software Application

229. The Petitioner and its expert present a back-up argument for limitation 1.5.3 based on the full-screen AppStore display of Figures 24-25 after the Appstore card object 1330 is selected in the user interface of Figure 19 or the user makes a “go-to-app store input.” See Kim, Figs. 19, 24-28. For example, Kim discloses that the user makes a “go-to-app store input,” which brings up the full-screen AppStore display of Figure 25. Kim, [0235]-[0236].

230. The Petitioner and its expert refer to the display of information about a selected icon in the information . Kim, [0247]. Lippman Decl., ¶ 233, Pet., 86-87:



Lippman Decl., ¶ 233, Pet., 87 (Petitioner's annotated Fig. 25 of Kim).

231. However, the AppStore 1330 of Figure 25 is not a list of downloaded or pre-installed applications stored on Kim’s image display apparatus. Rather, it is a display showing **applications stored on a website** that are available for purchase or download to the image display apparatus. Kim states that “[t]he [App Store] card object 1330 may include a card object name 1332 [] and an application list 1335 ... [that] may display a plurality of icons representing **applications available on a server ... for download or purchase.**” Kim, [0202] (emph. added). Accordingly, the passages and figures relied upon by the Petitioner and its expert do not involve the display of information regarding a “(*preinstalled or previously downloaded*) application” per limitation 1.5.3.

232. The Petitioner and its expert reference the “My App” tab in Figure 25 of Kim. Lippman Decl., ¶ 234, Pet., 88. However, Kim does not provide any description of the My App tab. The Petitioner and its expert cite no passages from Kim or provide any other evidence on the My App tab. There is nothing in Kim suggesting that My App presents a list of software applications (pre-installed or downloaded) stored on Kim’s image display apparatus. A POSITA might speculate that My App could be a list of items the user has flagged for possible purchase, similar to a shopping cart. But My App does not teach or suggest the display of information about pre-installed or downloaded software applications per limitation 1.5.3.

233. The Petitioner's and its expert's arguments regarding the application list for Figure 12 and the separate embodiment in the application list of Figure 16 do not meet the claim limitation for substantially the same reasons set forth above in Section IX.C.3. See Lippman Decl., ¶ 236, Pet., 88-89.

234. For the reasons set forth in this Section IX.D, the WD-Manual and Kim fail to teach limitation 1.5.3.

E. All Dependent Claims Are Patentable

235. All dependent claims including Claims 2-4, 9-10, 13, and 15-17 are patentable for at least the reasons set forth above for the independent claims in Section IX.A-D.

X. CLAIMS 6, 12, AND 19 ARE PATENTABLE OVER THE COMBINATION OF KIM, WD-MANUAL, BAE, AND COBURN (GROUND 2)

236. For Ground 2, the Petitioner proposes modifying the Kim, Bae, and WD-Manual combination further to include alleged teachings from Coburn. As explained in Section IX.B.2(d)-(e), the Petitioner and its expert have failed to explain how the Kim, Bae, and WD-Manual references are combined, and how the combination would work, so as to meet limitation 1.2. Regarding Coburn, the Petitioner and its expert again fail to articulate how the teaching of Coburn (updating a channel indicator window 126 as digits are entered into keypad 122 in Figure 3) would be applied to the unspecified Kim/Bae/WD-Manual combination, and how

that updated combination would work. See Lippman Decl., ¶¶ 350-383, Pet., 120-130.

237. The Petitioner's and its expert's argument proceeds from Figure 38 of Kim, which depicts a Search Window into which a user can enter a search keyword ("Shutter Island") to lead to search results including thumbnails identifying matching programs. Kim, [0265]-[0275], Figs. 36-41. This Search Window is not an on screen channel changer because nowhere does Kim disclose that it can change channels. Kim, [0265]-[0275], Figs. 36-41. This Search Window does not correspond to the Channel Browser card object 1340 and the TV Guide card object 1350 of Figure 22 that the Petitioner and its expert applied to limitation 1.2. See Section IX.B.2. Accordingly, the Petitioner's reliance on the Search Window for Claim 6 is inconsistent with the Petitioner's argument for limitation 1.2.

238. According to the Petitioner's analysis of limitation 1.2, the claimed "*electronic program guide (EPG) information*" is met by Kim's disclosure of thumbnail indicating broadcast channels in the Channel Browser object 1340 and the program listings in the TV Guide object 1350. See Section IX.B.2. The Petitioner did not rely on Bae for the claimed "*electronic program guide (EPG) information*."

239. Claim 6 thus calls for "*updat[ing] the EPG information*" as the user enters digits, meaning that the thumbnails in the Channel Browser object and/or the program listings in TV Guide object of Kim would be updated. However, the

Petitioner and its expert make no showing that the thumbnails in the Channel Browser object and/or the program listings in TV Guide object of Kim would be updated based on the combination. Instead, the Petitioner and its expert reference the updating of a channel indicator window 126 in Coburn, as reflected by HBO-1, HBO-2, CNBC, and FOX, for a user's input of root value 19. See Lippman Decl., ¶¶ 368-369 (citing Coburn, [0046]), Pet., 124-125.

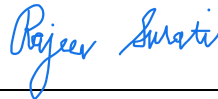
240. The Petitioner's expert's conclusion that limitation 6.1 is met is conclusory and provides no reasoning as to how the references would be combined and how that combination would work to meet limitation 6.1. Lippman Decl., ¶ 370. Indeed, the combination could not meet limitation 6.1 because the EPG information (thumbnails in the Channel Browser object or the program listings in the TV Guide object) in Kim would not be updatable because a POSITA would understand that these card objects are not filtered or searched using user-input digits.

241. Accordingly, Claim 6 and similar Claims 12 and 19 are patentable over Ground 2.

XI. CONCLUSION

242. I hereby declare that all statements made herein of my own knowledge are true and all statements made herein on information and belief were and are believed by me to be true, and that all statements herein were and are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that any such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Respectfully submitted,



Rajeev Surati

Dated: September 16, 2024

XII. CLAIMS APPENDIX

Claim 1

[1.0]. 1. A method, comprising:

[1.1] receiving, wirelessly by at least one of an infrared and radio frequency module of a television and from a remote control, a request to change a programming channel;

[1.2] displaying, by a microprocessor executable application framework and on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9;

[1.3] receiving, by the application framework and from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer, wherein the user selects the digits using non-numeric keys of the remote control; and

[1.4] changing, by the application framework, to the selected channel,

[1.5] wherein the remote control comprises:

[1.5.1] a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, and internal and external computational devices, the computational devices comprising one or more of

personal computers, laptops, tablet computers, wireless phones, and removable computer readable media;

[1.5.2] an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications,

[1.5.2.1] wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms;

[1.5.3] an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon; and

[1.5.4] a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser system settings, and information associated therewith.

Claim 2

[2.0] 2. The method of claim 1,

[2.1] wherein the EPG information corresponds to multiple programs and/or channels, wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description.

Claim 3

[3.0] 3. The method of claim 1,

[3.1] wherein each of the digits are selected using one or more arrow keys and a select button and

[3.2] wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.

Claim 4

[4.0] 4. The method of claim 1,

[4.1] wherein the remote control does not have a key corresponding to each of the digits.

Claim 6

[6.0] 6. The method of claim 1,

[6.1] wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and

[6.2] wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.

Claim 8

[8.0] 8. A television, comprising,

[8.1] a television screen;

[8.2] at least one of an infrared and radio frequency module configured to receive wirelessly requests from a remote control of a user, the requests comprising a selected channel or program from a displayed listing; and

[8.3] a microprocessor executable application framework configured to:

[8.4] receive a request to change a programming channel, display, on the television screen, an on screen channel changer, the on screen channel changer comprising electronic program guide

(“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9,

[8.5] receive, from the remote control and using the on screen channel changer, a channel selection of a user based on digits in the number input bar, wherein the user selects the digits from the number input bar using non-numeric keys on the remote control, and

[8.6] change to the selected channel,

[8.7] wherein the remote control comprises:

[8.7.1] a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, internal computational devices, and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media;

[8.7.2] an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications, wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms;

[8.7.3] an application panel button that, when selected, displays, by the television screen, an application panel, wherein the application panel comprises an information panel regarding a selected application icon; and

[8.7.4] a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith.

Claim 9

[9.0] 9. The television of claim 8,

[9.1] wherein each of the digits are selected using one or more arrow keys and a select button,

[9.2] wherein the selected is associated with a pre-installed or previously downloaded application icon,⁶ and

[9.3] wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.

Claim 10

[10.0] 10. The method of claim 8,

[10.1] wherein the remote control does not have a key corresponding to each of the digits.

Claim 12

[12.0] 12. The television of claim 8,

⁶ The June 9, 2015, Certificate of Correction inserted “wherein the” before “selected” in limitation 9.2.

[12.1] wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and

[12.2] wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.

Claim 13

[13.0] 13. The television of claim 8,

[13.1] wherein the EPG information corresponds to multiple programs and/or channels, wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description,

[13.2] wherein the remote control comprises a media center button that, when selected, provides, by the television screen, displayed information regarding groupings of music, videos, and/or photographs, and/or internal and external computational devices, the computational devices comprising one or more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media.

Claim 14

[14.0] 14. A tangible and non-transient computer readable medium, comprising microprocessor executable instructions that, when executed, are configured to perform operations comprising:

[14.1] instructions to receive, from a remote control of a user, a request to change a programming channel;

[14.2] instructions to display, on a television screen, an on screen channel changer, the displayed on screen channel changer comprising electronic program guide (“EPG”) information and a number input bar comprising digits, wherein the digits range from 0 to 9;

[14.3] instructions to receive, from the remote control, a channel selection based on digits selected by a user using the remote control and the number input bar of the on screen channel changer, wherein the user selects the digits using nonnumeric keys of the remote control; and

[14.4] instructions to change to the selected channel,

[14.5] wherein the remote control comprises:

[14.5.1] a media center button that, when selected, provides, by the television screen, displayed information regarding one or more of groupings of music, groupings of videos, groupings of photographs, internal computational devices, and external computational devices, the computational devices comprising one or

more of personal computers, laptops, tablet computers, wireless phones, and removable computer readable media;

[14.5.2] an application center button that, when selected, provides, by the television screen, displayed information regarding pre-installed and downloaded software applications;

[14.5.3] an application panel button that, when selected, displays, by the television screen, an application panel; and

[14.5.4] a global panel button that, when selected, provides the user, via one or more panels or windows displayed by the television screen, with access to one or more of silos, notifications, a web browser, system settings, and information associated therewith.

Claim 15

[15.0] 15. The computer readable medium of claim 14,

[15.1] wherein the EPG information corresponds to multiple programs and/or channels, and wherein the EPG information comprises, for each program, airtime, program name, program channel, and program description.

Claim 16

[16.0] 16. The computer readable medium of claim 14,

[16.1] wherein the downloaded software applications comprise one or more of a web browser, settings control, and content search algorithms,

[16.2] wherein the application panel comprises an information panel regarding a selected (pre-installed or previously downloaded) application icon,

[16.3] and wherein the information panel comprises one or more of identify the selected application, provide a description of the functionality of the selected application, user ratings and/or degree of other user downloading of the selected application, an option to launch, remove, update, and add to favorites the selected application, and provide a listing of selectable links of other (not yet downloaded) recommended applications that provide similar functionality to the selected application.

Claim 17

[17.0] 17. The method of claim 14,

[17.1] wherein the remote control does not have a key corresponding to each of the digits.

Claim 19

[19.0] 19. The computer readable medium of claim 14,

[19.1] wherein, as the user selects each digit, the application framework updates the EPG information to include only those programs and/or channels selectable from the selected digits and

[19.2] wherein the remote control further comprises a moveable joystick that, when manipulated by the user, causes a displayed image on the screen to be displaced a proportional amount.