

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
Petitioner

v.

KANNUU PTY LTD.
Patent Owner

Case IPR2026-00072
Patent No. 11,200,252

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,200,252
UNDER 35 U.S.C § 312 AND 37 C.F.R. § 42.104**

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EXHIBIT LIST

No.	Short Name	Exhibit
1001	'252 Patent	U.S. Patent No. 11,200,252
1002	'252 File History	File History of U.S. Patent No. 11,200,252
1003	Madisetti Decl.	Declaration of Vijay Madisetti, Ph.D.
1004	Madisetti CV	Curriculum Vitae of Vijay Madisetti, Ph.D.
1005	<i>Perlman</i>	U.S. Pat. Pub. No. 2002/0113825 A1
1006	<i>Dostie</i>	U.S. Pat. Pub. No. 2004/0021691
1007	<i>Pu</i>	U.S. Patent No. 7,152,213
1008	<i>Lee</i>	U.S. Patent No. 6,144,378
1009	<i>Badarneh</i>	Int'l Patent Pub. No. WO2002/091160
1010	<i>Schroeder</i>	U.S. Patent No. 5,797,098
1011	<i>Strubbe</i>	U.S. Patent No. 5,223,924
1012	<i>Montgomery</i>	U.S. Patent No. 3,309,677
1013	'354 FWD	Final Written Decision, IPR2020-00737, Paper 105 (PTAB Sept. 21, 2021) (filed under seal)
1014	'393 FWD	Final Written Decision, IPR2020-00738, Paper 100 (PTAB Sept. 21, 2021) (filed under seal)
1015	'852 Final Rejection	Final Rejection, Reexamination No. 90/014,760 (July 28, 2022)
1016	'852 PTAB Decision	Decision on Appeal, Reexamination No. 90/014,760 (PTAB Sept. 19, 2023)
1017	'579 Final Rejection	Final Rejection, Reexamination No. 90/014,761 (July 28, 2022)
1018	'579 PTAB Decision	Decision on Appeal, Reexamination No. 90/014,761 (PTAB Sept. 19, 2023)
1019	'354/'393 IPR Appeal	Judgment, <i>Kannuu Pty Ltd. v. Samsung Elecs. Am., Inc.</i> , No. 22-1526 (Fed. Cir. Oct. 11, 2013)

PUBLIC VERSION

U.S. Patent No. 11,200,252
Petition for *Inter Partes* Review

No.	Short Name	Exhibit
1020	'264 Final Rejection	Final Rejection, Reexamination No. 90/014,759 (Sept. 2, 2022)
1021	'264 PTAB Decision	Decision on Appeal, Reexamination No. 90/014,759 (PTAB Sept. 19, 2023)
1022	'939 Patent	U.S. Patent No. 11,573,939
1023		Samsung Document Production SAMSUNG_K_00035577-00035704 (filed under seal)
1024	'939 File History	File History of U.S. Patent No. 11,573,939
1025		Samsung Document Production SAMSUNG_K_00035597 -603 -619 (Original) (filed under seal)
1026		30(b)(6) Deposition Transcript from IPR2020-00737 and IPR2020-00738 (filed under seal)
1027		Samsung's Supplemental Interrogatory Response to Kannuu's Interrogatory in IPR2020-00737 and IPR2020-00738 (filed under seal)
1028		[intentionally omitted]
1029		[intentionally omitted]
1030		[intentionally omitted]
1031		[intentionally omitted]
1032		[intentionally omitted]
1033		KAN-PTAB00001830, Kannuu--Revenue 2010-2018.pdf (filed under seal)
1034		KAN-PTAB00001655 (filed under seal)
1035		KAN-PTAB00001505 (filed under seal)
1036		KAN-PTAB00000236 (filed under seal)
1037		KAN-PTAB00000025 (filed under seal)

PUBLIC VERSION

U.S. Patent No. 11,200,252
Petition for *Inter Partes* Review

No.	Short Name	Exhibit
1038		KAN-PTAB00000910 (filed under seal)
1039		KAN-PTAB00000919 (filed under seal)
1040		KAN-PTAB00000099 (filed under seal)
1041		KAN-PTAB00000118 (filed under seal)
1042		KAN-PTAB00000168 (filed under seal)
1043		KAN-PTAB00000973 (filed under seal)
1044		KAN-PTAB00001095 (filed under seal)
1045		KAN-PTAB00001237 (filed under seal)
1046		KAN-PTAB00000386 (filed under seal)
1047		KAN-PTAB00000989 (filed under seal)
1048		KAN-PTAB00001278 (filed under seal)
1049		KAN-PTAB00001327 (filed under seal)
1050		KAN-PTAB00001323 (filed under seal)
1051		KAN-PTAB00001803 (filed under seal)
1052		KAN-PTAB00001515 (filed under seal)
1053		KAN-PTAB00001796 (filed under seal)
1054		KAN-PTAB00001056 (filed under seal)
1055		KAN-PTAB00001618 (filed under seal)
1056		KAN-PTAB00001661 (filed under seal)
1057		[intentionally omitted]
1058		SAMSUNG-KANNUU-IPRS-00002 (filed under seal)
1059		SAMSUNG-KANNUU-IPRS-00002(Translation) (filed under seal)

CLAIM LISTING

Claim 1	
1a	A system for selecting items associated with corresponding item identifiers from a plurality of items, the system comprising:
1b	a television display
1c	a remote control device comprising a 4-way directional controller; and
1d	a computer processor configured to:
1e	generate, on the television display, a first display of an on-screen keyboard including one or more parts of an item identifier for selection;
1f	enable the selection of the one or more parts by utilizing the 4-way directional controller;
1g	in response to the selection of the one or more parts of item identifiers, generate a display of a further one or more parts of item identifiers for selection, wherein the further one or more parts of item identifiers are arranged on the display relative to one another and corresponding to an up, down, left and right position;
1h	enable selection of the further one or more parts of item identifiers in order to add to the selected one or more parts to build a larger part or whole of a particular item identifier; and
1i	select one of the further one or more parts of item identifiers in response to an activation of a corresponding up, down, left, or right key to navigate to the one of the further one or more parts of item identifiers and activation of a central key on the 4-way directional controller to select the one of the further one or more parts of item identifiers;
1j	wherein the selected one or more parts of item identifiers and the further one or more parts of item identifiers are shorter than a complete word; and
1k	wherein navigation to the further one or more parts of item identifiers is enabled by a key press corresponding to the relative arrangement of the further one or more parts of item identifiers on the display.
Claim 2	
2	The system of claim 1, wherein the processor is located within the television.

Claim 3	
3	The system of claim 1, wherein the processor is further configured to enable navigation and selection of the one or more parts of item identifiers and the further one or more parts of item identifiers by way of the 4-way directional controller.
Claim 4	
4	The system of claim 1, wherein the further one of more parts is selected for display based at least in part on a ranking scheme, and the highest ranked of the further one or more parts of item identifiers is positioned in one of the up, down, left and right positions.
Claim 5	
5	The system of claim 4, wherein the highest ranked of the further one or more parts of item identifiers being positioned in one of the up, down, left and right positions is specifically positioned in a circular menu over the on-screen keyboard on the television display indicating the item identifiers to be selected by movements of the user in the directions left, right, up, and down using the 4-way directional controller.
Claim 6	
6	The system of claim 2, wherein the item identifiers are pre-processed in order to generate a hierarchical tree, which is stored in a computer accessible memory.
Claim 7	
7	The system of claim 4, wherein the items are stored in a database and indexed based on the item identifiers and capable of being queried.
Claim 8	
8	The system of claim 4, wherein the number of key presses of the remote control keypad to select an item is fewer than the number of key presses required to select an item according to a system that requires an end user to enter one, two, three, or four characters of the item identifier and then scroll through a list of potential items to select the item by additional key presses.
Claim 9	
9	The system of claim 1, wherein the computer processor is further configured to: iterate the selection until the particular item identifier is completed, and enable selection of the particular item identifier to select the item.

Claim 10	
10	The system of claim 1, wherein the computer processor configured to generate the initial display further includes selecting the one or more parts of item identifiers to be displayed based on at least one predetermined criterion.
Claim 11	
11	The system of claim 10, wherein the at least one predetermined criterion is selected from the following: a frequency of selection of items associated with the pluralities of portions of the item identifiers, a recency of selection of the items associated with the pluralities of portions of the item identifiers, a likelihood of selection of the items associated with the pluralities of portions of the item identifiers, or a ranking of the pluralities of portions of the item identifiers in relation to a hierarchical classification of the pluralities of portions of the item identifiers.
Claim 12	
12	The system of claim 1, wherein the computer processor configured to generate the initial display further includes displaying a plurality of parts of item identifiers.
Claim 13	
13	The system of claim 1, wherein the computer processor is further configured to enable selection of the item corresponding to the item identifier.

INTRODUCTION

Samsung Electronics America, Inc. (“Samsung” or “Petitioner”) respectfully requests *inter partes* review (“IPR”) of Claims 1-13 (“Challenged Claims”) of U.S. Patent No. 11,200,252 (“the ’252 patent”).

Kannuu asserted the ’252 patent and another patent, U.S. Patent No. 11,573,939, following its failed first-round, in which it asserted 5 patents related to the ’939 and ’252 patents. Samsung challenged, and invalidated, all 5 of these patents in IPRs and *ex parte* reexaminations. The scope of the claims of these now-invalid patents is substantially the same as the Challenged Claims of the ’252 patent.

The ’252 patent, like each of these patents, describes various techniques for more quickly selecting items from a database, such as names from an electronic telephone address book. EX1001, Abstract. “Items” in the database are indexed by “item identifiers.” *Id.*, Abstract. The four most likely item identifiers are presented on a display screen corresponding to the left, right, up, and down positions of a joystick, sometimes referred to as a 4-way direction-pad or d-pad. *Id.*, Abstract, 19:29-62. The user can then select one of the available displayed item identifiers using the joystick. *Id.*, Abstract.

As described in more detail below, however, Patent Owner did not invent the claimed selection method. In the late 1990s and early 2000s—well before the earliest possible priority date of the ’252 patent—significant efforts were being undertaken

to make textual input more efficient using input devices with reduced set keyboards, such as mobile telephones and television remote controls. Numerous enhanced user interfaces with “dynamic” displays (that re-positioned letters, groups of letters, or words based on the likelihood of being inputted next) were developed to input textual data more efficiently and without the use of a standard keyboard. These include *Perlman* and *Badarneh*, which are the primary references presented in this Petition.

I. TECHNOLOGY BACKGROUND

The alleged invention described in the Challenged Claims of the ’252 patent relates to techniques for more quickly selecting an item from a database, such as a name from an electronic telephone address book. The techniques aim to limit the number of keystrokes needed to traverse the database to the desired item. As acknowledged in the background of the ’252 patent itself, there was a well-known problem inputting textual data into on-screen user interfaces without a full keyboard. EX1001, 1:42-2:27.

A. Predictive Keyboards

The use of on-screen keyboards exploded in the 1990s, and user interface designers began working on ways to simplify and expedite textual input using the on-screen keyboards. EX1003, ¶¶36-37. *Schroeder* (EX1010), filed in 1995,

describes a predictive keyboard input method and automatic word completion.

EX1010, 1:39-45, 4:20-6:15.

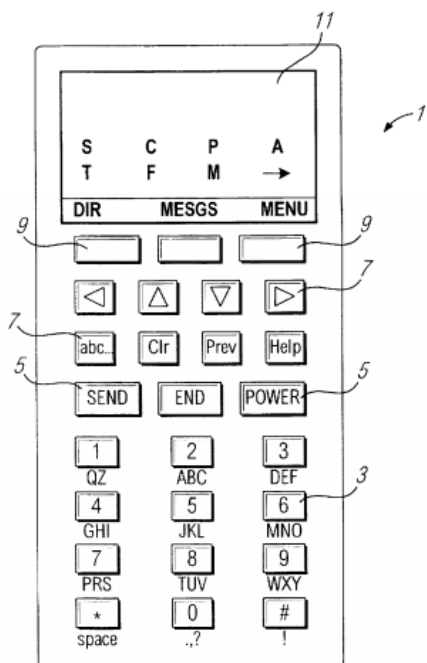


FIG. 1A

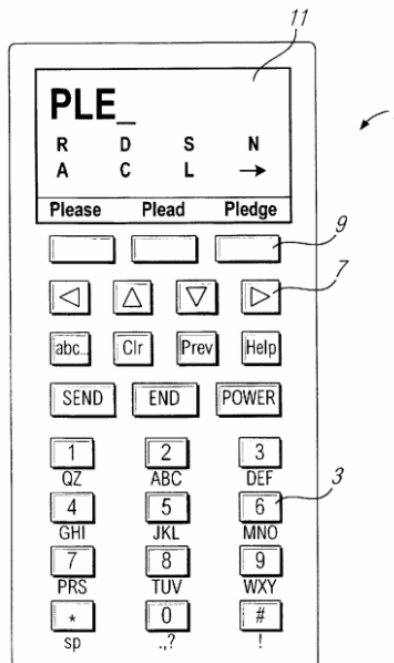


FIG. 4

Pu (EX1007) uses “dynamic key assignment” and “a predefined list that is presented to a user in an arrangement that statistically reduces the number of keystrokes required for data entry.” EX1007, Title, Abstract. As a user inputs characters, tables are created listing the possible next characters according to the frequency of that input. EX1003, ¶¶38-39.

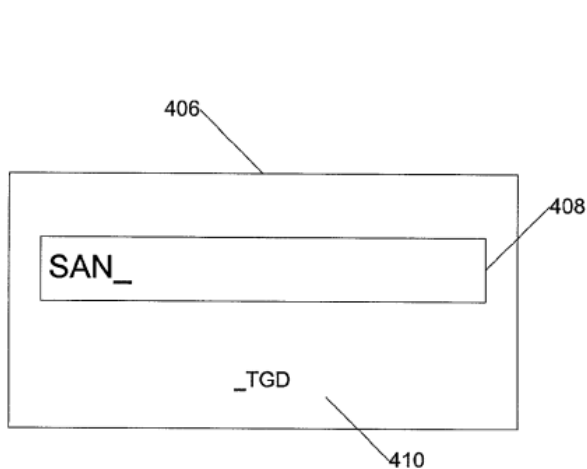


FIG. 6C

Letter	Frequency
SAN_	30
SANT	11
SAND	1
SANG	1

FIG. 6B

B. Database Indexing, Searching, and Selection

Databases have been used to store and index information for decades before the '252 patent. EX1003, ¶¶40-42; EX1012, EX1011.

II. THE '252 PATENT

A. Overview (EX1003, ¶¶43-44)

The '252 patent relates to a method and apparatus for selecting database items from a database. EX1001, Abstract. Database items are indexed by item identifiers, such as text. *Id.* A user may select one or more parts of an identifier from a display, where the one or more parts may be selected by adding to the previously selected one or more parts to build a larger part or whole of an item identifier. *Id.*

In an embodiment, a user opens the address book application and is presented with “4 strings in a circular menu indicating the strings are selected by movements of the joystick in the directions left, right, up and down.” *Id.*, 46:34-36.

B. Prior IPRs Against Related Patents (EX1003, ¶¶45-49)

The '252 patent is a continuation of a series of patent applications, including now-invalidated U.S. Patent No. 9,697,264. Kannuu asserted the '264 patent in the co-pending district court case.

Kannuu also asserted four other patents, each of which was also invalidated. The PTAB invalidated the '354 and '393 patents in IPR2020-00737 (EX1013) and IPR2020-00738 (EX1014) and the '852 and '579 patents were invalidated in Reexamination Nos. 90/014,760 (EX1015, EX1016) and 90/014,761 (EX1017, EX1018). The Federal Circuit summarily affirmed the '354 and '393 patent IPRs.

The claims of the '252 patent have substantially the same scope and closely map to the claims of these earlier, invalidated patents.

Moreover, the invalidating prior art in these proceedings overlaps with the art presented herein.

- In IPR2020-00737, the PTAB found the claims of that patent anticipated by *Perlman* and obvious over *Perlman* in view of *Dostie* and *Perlman* in view of *Pu*.
- In IPR2020-00738, the PTAB found the claims of that patent anticipated by *Perlman*, anticipated by *Pu*, and obvious over combinations of *Perlman* in view of *Dostie*, *Pu* in view of *Dostie*, and *Pu* in view of *Perlman*. EX1014 at 90.

- In the '852 patent *ex parte* reexamination, the Examiner rejected—and the PTAB affirmed—the claims over combinations of *Badarneh* in view of *Josenhans* and *Schroeder* in view of *Josenhans*. EX1015.
- In the '579 patent *ex parte* reexamination, the Examiner rejected the claims over the same combinations. EX1017.

C. Prosecution History (EX003, ¶¶50-56)

The '252 patent was filed on July 13, 2020. The applicant requested and was granted Track One prioritized examination. EX1002, 484.

On August 19, 2020, the Examiner issued a non-final Office Action allowing application claims 27-39 and rejecting claims 40-49 as being obvious. *Id.*, 464-473. In response to the office action, the applicant canceled claims 40-49. *Id.*, 430-35.

On December 11, 2020, the Examiner issued a notice of allowability, stating that the prior art does not disclose the limitation “select one of the further one or more parts of item identifiers in response to an activation of a corresponding up, down, left, or right key to navigate to the one of the further one or more parts of item identifiers and activation of a central key on the 4-way directional controller to select the one of the further one or more parts of item identifiers” and the limitation “wherein navigation to the further one or more parts of item identifiers is enabled by a key press corresponding to the relative arrangement of the further one or more parts of item identifiers on the display.” *Id.*, 384-86.

It should be noted, however, that the rejected claim 40 recited the limitation “enable selection of one of the second plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller of the remote control to navigate to the one of the second plurality of portions of the item identifiers with a single activation of the up, down, left, or right key prior to selection with the selection key,” which the examiner had found disclosed by Lee. *Id.*, 466-67. In other words, both claims 27 and 40 recited using the four directions to navigate to an additional character and then activating that character using the central selection key, which the examiner found disclosed in Lee. It would appear the Examiner believed, however, that the prior art did not disclose the requirement that such a navigation be “enabled by a key press corresponding to the relative arrangement” of the characters on the display. *Id.*, 466-67. As discussed below, the PTAB and CRU have both found near-identical limitations to be met by the prior art.

Thereafter, the applicant submitted several additional IDS’s, each time followed by the Examiner merely restating verbatim his earlier reasons for allowance. *Id.*, 202-04, 153-54, 15-17.

D. *Level of Ordinary Skill in the Art*

The ’252 patent claims priority to U.S. Provisional Application No. 60/878,083 filed Jan. 3, 2007. A person of ordinary skill in the art (“POSITA”) at

that time would have had at least an undergraduate degree in electrical engineering, computer science, or physics (or a related field, such as computer engineering, human-computer interaction, or industrial design) and 3 years of work experience with input interfaces to electronic devices. EX1003 ¶¶18-23. Petitioner's expert was at least a POSITA at the time of the alleged invention. *Id.*

III. CONSTRUCTION OF THE CHALLENGED CLAIMS

With respect to the limitations “a remote control device comprising a 4-way directional controller” and “enable the selection of the one or more parts by utilizing the 4-way directional controller,” Petitioner expects that Kannuu will argue this these limitations require “***no more than four*** directional selection options of the input direction controller to select an item identifier.”

In IPR2020-00737 and IPR2020-00738, Kannuu argued that the limitation “parts of item identifiers being positioned in one of the ***up, down, left and right positions***” (from the '354 patent) and “portions of item identifiers is displayed in a position corresponding to an up, down, left, right, select functionality of an input directional controller of the device” (from the '393 patent) should be construed to mean the “***no more than*** four directional selection options on the input direction controller to select an item identifier.” EX1013, 24, EX1014, 20-21. However, citing the claim language and the specification, the Board rejected this construction. EX1013, 23-33; EX1014, 25-29.

To the extent Kannuu raises a similar argument here, the Board should reject it. EX1003, ¶¶58-59. Given the similarities between the '252 patent and the '393 and '354 patents, the Board would need to provide a “detailed explanation” if it were to stray from its previous construction. September 16, 2025 Stewart Memorandum.

The plain meaning of “4-way directional controller” and a “selection” utilizing said controller is not limited to **only** four directions or having **only** four directional options. EX1003, ¶59. While the specification discloses an interface with “four options (one for the menu locations for up, down, left and right),” it notes that “[o]ther interface variations may require other numbers of options from one upwards.” EX1001, 20:19-28. The specification also describes a “5-way joystick” where “only **3 of the directions** are used to present options,” indicating a “4-way directional controller” does not necessarily have only 4 directional options. EX1001, 19:38-42. And while the previous IPRs construed terms reciting “up, down, left, right positions” or “functionality” whereas the '252 patent recites “four-way,” the '252 patent equates the two. EX1001, 23:41-45 (“[T]he four options correspond to joy stick movements in the directions up, right, down and left”).

Nor can Kannuu argue that it made a “clear and unmistakable disclaimer.” *Thorner v. Sony Computer Entertainment America LLC*, 669 F.3d 1362, 1366-67 (Fed. Cir. 2012). The applicant made no remarks during prosecution. EX1003, ¶60.

During the prosecution of the unrelated '939 patent, the applicant argued that then-pending (but ultimately cancelled) claims should be construed as “requir[ing] no more than four options on the input device itself that can be used to select the portions of item identifiers.” EX1024, 454-64. The examiner rejected this argument, and in response, the applicant amended the claims to recite “a remote control comprising a **four way** up, down, left, right directional controller.” EX1024, 309, 312. The applicant argued that such an amendment “clarif[ies] that the claims require no more than four options on the input device itself that can be used to select the portions of item identifiers.” EX1024, 316. This remark was made on December 20, 2021, after the '252 patent had already been issued a notice of allowability. However, these amended claims were later cancelled. EX1024, 114-17.

This remark about an unrelated patent regarding cancelled claims does not constitute a disclaimer. EX1003, ¶¶61-62. First, the statement itself is not even clear and unmistakably a disclaimer for the '939 patent, as it was directed to eventually-cancelled claims. By the applicant’s own words, the amendment did not change the scope of the claims, but instead “clarif[ied]” that scope. EX1024, 316. Second, remarks made during prosecution of a patent should not apply to an unrelated patent, even if they disclose similar subject matter. *Abbott Laboratories v. DEY, LP*, 287 F.3d 1097, 1105-06 (Fed. Cir. 2002) (“[W]e do not see a basis for concluding that statements made about the characteristics of the surfactant claimed by the '301 patent

should be attributed to the improved surfactant claimed by the '839 patent, simply because the applications had a common assignee, one common inventor, and similar subject matter.”). Moreover, there is no indication that the applicant’s remarks made during the prosecution of the ’939 patent were clearly and unmistakably intended to apply to other patents, including unrelated patents. This is especially because the applicant canceled those claims, which could be viewed as withdrawing whatever disclaimer the applicant had made. Thus, the plain language of the claims in view of the specification do not require only four options, and there is no clear and unmistakable disclaimer.

But to the extent the Board disagrees, *Badarneh* and *Lee* would both disclose this limitation if construed in such a manner. EX1003, ¶63.

Petitioner submits that no other claim terms require construction for the resolution of this Petition. EX1003, ¶57.

IV. GROUNDS OF CHALLENGE (37 C.F.R. § 42.204(B)(2))

Petitioner requests *inter partes* review and cancelation of the challenged claim on the following grounds:

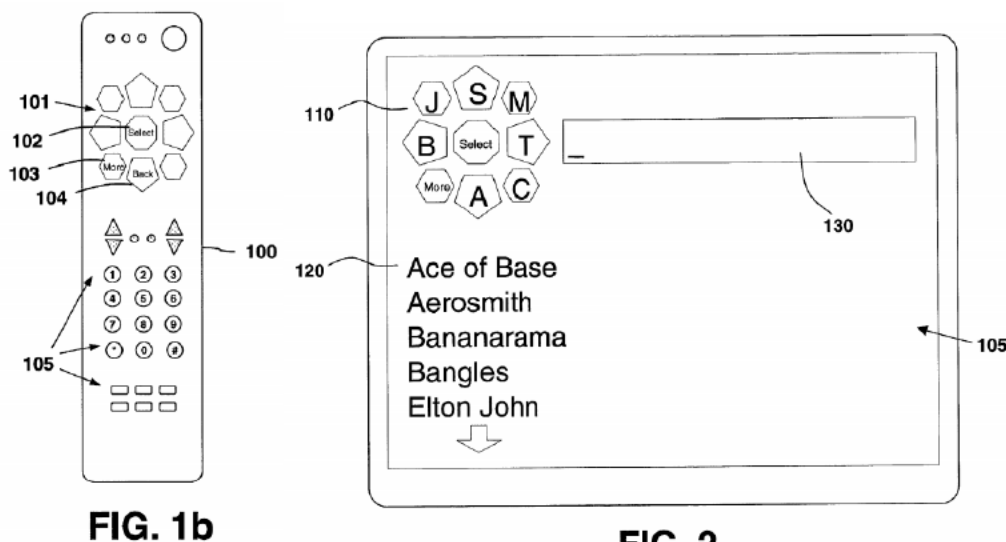
Grounds	Claims	Statute	Prior Art
1	1-13	§103	<i>Perlman and Lee</i>
2	6, 11	§103	<i>Perlman, Lee and Dostie</i>
3	1-5, 7-13	§103	<i>Badarneh and Lee</i>

Grounds	Claims	Statute	Prior Art
4	6, 11	§103	<i>Badarneh, Lee and Dostie</i>

V. GROUND 1: *PERLMAN* AND *LEE* RENDER OBVIOUS CHALLENGED CLAIMS 1-13

A. *Perlman*

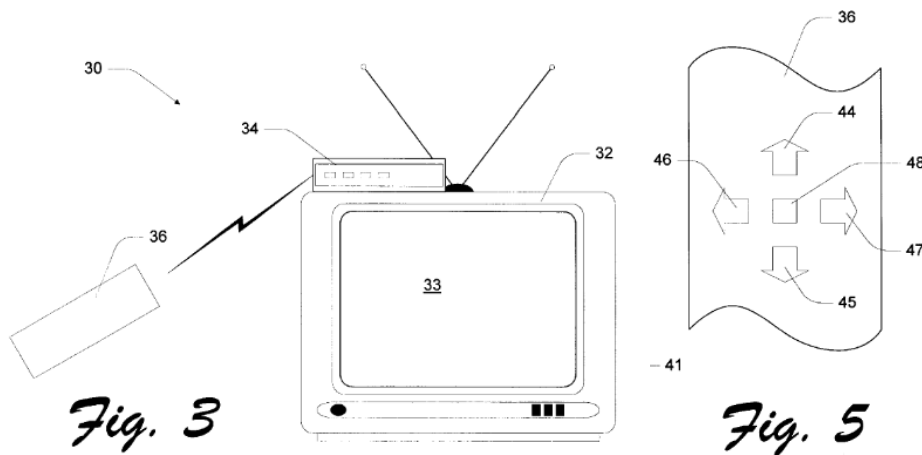
Perlman (EX1005) describes a user input interface for a television remote control having functional buttons arranged in a “star” pattern. EX1005, ¶[0014]; EX1003, ¶65. Function buttons 101 on remote control 100 of Figure 1B are mapped to characters in buttons 110 displayed on television/computer display 105 in Figure 2.



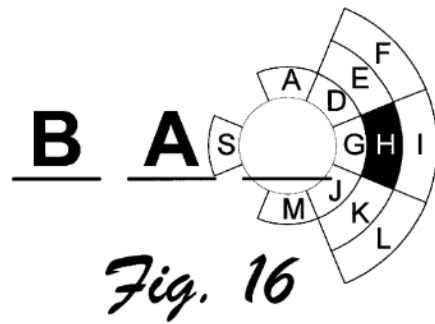
The mapped characters correspond to “the most common first letters of words in the database list 120.” *Id.*, ¶[0017].

B. Lee

Lee (EX1008) describes a “symbol entry system” for entering characters on a television display using a “handheld remote command unit.” EX1008, Abstract, 2:36-37. The remote control has up, down, left, right keys and an “action” key in the center, as depicted in Figure 5. *Id.*, 3:12-14.



As shown in Figures 7 through 17, the user interface displayed on the television allows a user to use the up/down/left/right keys to navigate a circular menu to a desired character, and selecting that character using the “action” key. *Id.*, 4:11-5:34; EX1003, ¶¶66-67.



C. Motivation to Combine *Perlman* and *Lee*

It would have been obvious to incorporate *Lee*'s method of navigating sub-menus with *Perlman*, in particular, *Lee*'s teaching of using up/down/left/right directional buttons to navigate to a desired letter and a select button to select that letter. EX1003, ¶¶68-71. Petitioner proposes at least two ways of combining the references: (1) using *Perlman*'s interface to, in view of *Lee*, allow a user to navigate to a letter and select it with an action button, or (2) replace *Perlman*'s interface for entering characters with *Lee*'s.

With respect to the first proposed combination, *Perlman*'s interface presents characters in a star-based menu where a user presses a character-mapped button to select the corresponding character. EX1005, ¶[0014]. In view of *Lee*, a POSITA would be motivated to allow the user to use the directional buttons to navigate to the desired character and a central action button to select the character. EX1003, ¶69.

By doing this, the user can confirm that the selected character is the desired character. Otherwise, some users who are prone to input mistakes may accidentally press the wrong character-mapped button, causing the system to perform an unnecessary update of the database list.

With respect to the second proposed combination, a POSITA would have found it obvious to use *Perlman*'s system with *Lee*'s interface, which would improve the user interface in various aspects for various users. EX1003, ¶71. In particular, *Perlman* teaches that if the number of available characters exceeds the available buttons, and “if the desired letter does not appear among the mapped letters, the user may press the ‘more’ button 103 to retrieve a new group of the next most common letters.” EX1005, ¶[0023]. *Lee* does not require the use of a “more” button, as each letter is accessible via cascading menus as the user uses the navigation buttons. A POSITA would be motivated to use such a mechanism by *Lee*'s express disclosure that it “allow[s] a user to learn the positions of different symbols and to thus shorten the effort required to enter any particular character.” EX1008, 1:63-65. *Lee*'s mechanism also provides easier access to any character, especially if the user inadvertently misses a letter. For example, in *Perlman*, suppose the letter “B” appears in the first set of displayed characters. If the user overlooks the letter and presses the “more” button, they may have to press the “more” button several more times to cycle back to the first set of characters. Indeed, *Perlman* recognizes that this

method may involve a lot of key presses to navigate all characters. *Id.*, ¶[0028]. By contrast, with *Lee*'s mechanism, the user can easily navigate to the letter "B" or any other letter.

In at least that respect, a POSITA would be motivated to provide *Lee*'s interface for users that prefer it. As Dr. Madisetti explains, the combination would not require removing *Perlman*'s interface, as either interface could be toggled via a setting depending on the user's preference. EX1003, ¶71. Thus, including *Lee*'s interface is strictly beneficial as this allows for more user interface options.

A POSITA would have had a reasonable expectation of success. EX1003, ¶¶72. *Perlman* already provides a remote control with four directional inputs and a center button that could act as *Lee*'s action/select button, such as disclosed in Figures 1a or 1b. *Lee* also explains that the order of layout of characters in its interface can be assigned in any matter, and indeed, some possibilities "may be preferable in some situations" (EX1008, 3:63-67)—this fits well with *Perlman*'s disclosure of prioritizing characters based on their commonality. EX1009, 17:29-31. Thus, the combination would simply require programming the displayed interface as disclosed in *Lee*, which would merely require conventional user interface programming using conventional techniques and was well-within the skill of an ordinary artisan. EX1003, ¶154.

D. Claim 1

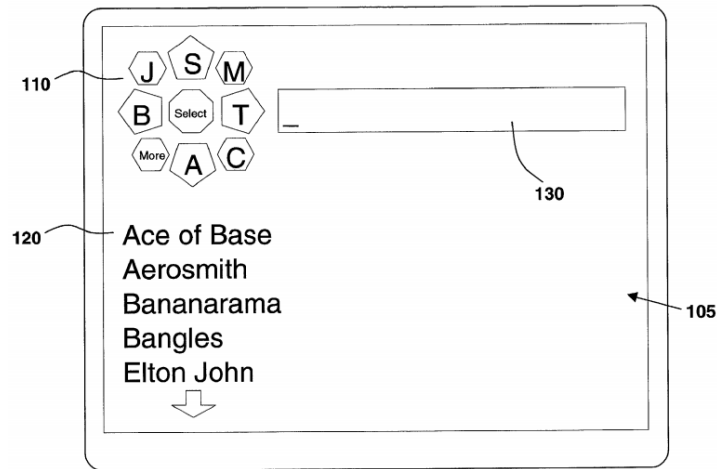
1. ***1a: A system for selecting items associated with corresponding item identifiers from a plurality of items, the system comprising:***

Perlman is directed to an “apparatus and method for ***selecting data***,” including an embodiment that “allows [a] user to rapidly enter alphanumeric characters (or other types of symbols) without looking away from the television/computer screen.” EX1005, Title, ¶[0014]. A piece of desired content is an ***item***, its title is an ***item identifier***, and a letter or number (alphanumeric character/symbol) is a ***part of item identifier***, which is used to select the desired content from a database of multimedia content (***plurality of items***). *Id.*, ¶[0017]. *Perlman* discloses databases of ***items*** (EX1005, ¶[0004], ¶[0017], Figs. 2, 7, 8) and displaying for selection “character-mapped buttons 110” (*i.e.*, ***part of an item identifier***) for a “database list 120” (*i.e.*, ***an item identifier***) (*Id.*, ¶[0017], Fig. 2). EX1003, ¶74.

In the ’354 patent IPR FWD, the PTAB found that *Perlman* disclosed “[a] method of selecting database items from a database, the database items being indexed by a list of item identifiers.” EX1013, 36. This preamble in the claim 1 of the ’354 patent is substantially identical to limitation *1a* in the ’252 patent and is of at least the same scope. EX1003, ¶75.

2. 1b: a television display

Perlman teaches user interaction “without looking away from the television/computer screen,” which is the **output display of a television.**” EX1005, ¶[0014], Fig. 2; EX1003, ¶76.

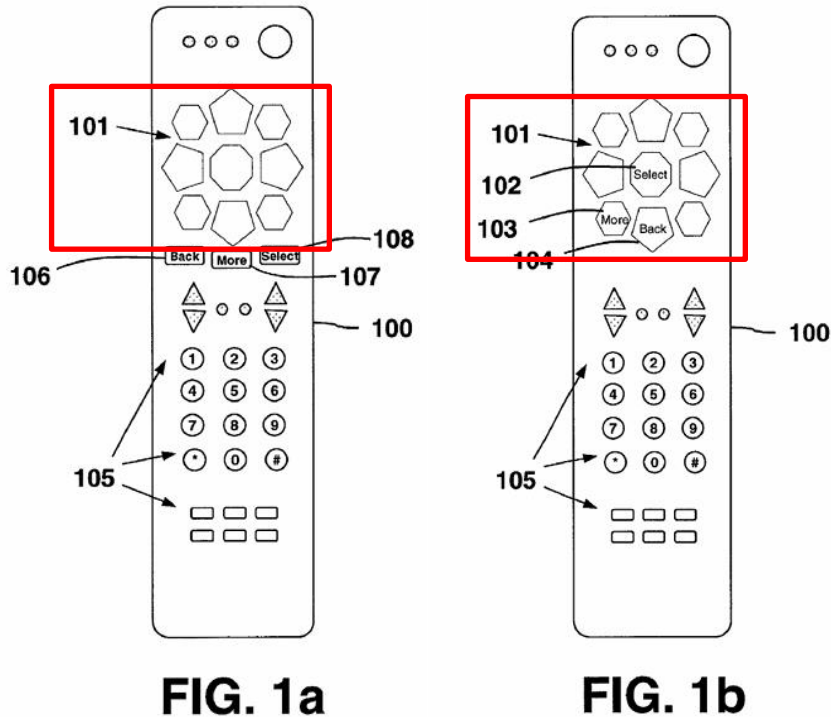
**FIG. 2**

In the '393 patent IPR FWD, the PTAB found that *Perlman* disclosed “wherein the computing device is a television.” EX1014, 70. This limitation of claim 11 the '393 patent is substantially identical to limitation *1b* in the '252 patent and is of at least the same scope. EX1003, ¶77.

3. 1c: a remote control device comprising a 4-way directional controller; and

Perlman Figures 1a and 1b depict a **remote control device** with buttons in a star pattern that has a **4-way directional** pattern, the same four directions described in embodiments of the '252 patent. EX1005, ¶[0014] (“directional and functional

buttons 101”, “a ‘select’ button 108 for making various types of data selections”),
EX1003, ¶78.



To the extent Kannuu argues this claim requires at most four directional buttons, *Perlman* discloses that the remote control is “not limited to any particular number of buttons or any particular button arrangement.” EX1005, ¶[0016]; EX1003, ¶79. Thus, a POSITA would understand that *Perlman* describes remote controllers with at most four directional buttons, and would likewise consider it an obvious design choice. Moreover, a POSITA would be motivated to only use four directional buttons, as that would provide a simpler interface and would be less prone to erroneous inputs from the user. EX1003, ¶¶80. Given the ubiquity of remote controls with only four directional buttons, a user would be accustomed to such

remote controls, enhancing the user experience. And a POSITA would have a reasonable expectation of success, as it would simply require providing a remote control with only four directional buttons and showing only four directional options in the user interface.

In addition, *Lee* discloses a remote control with only four directional buttons and a central select button. EX1008, Fig. 5; 3:12-14 (“They include an up key 44, a down key 45, a left key 46, a right key 47, and an ‘action’ or ‘enter’ key 48.”). As discussed above, a POSITA would have been motivated to combine *Perlman* and *Lee* to use *Lee*’s character-input methods. For the same reasons, as well as the reasons described above about the benefits of only providing four directional buttons, a POSITA would be motivated to use *Lee*’s remote control, which is well-suited for *Lee*’s methods which disclose only the use of four directions for navigation. EX1003, ¶81.

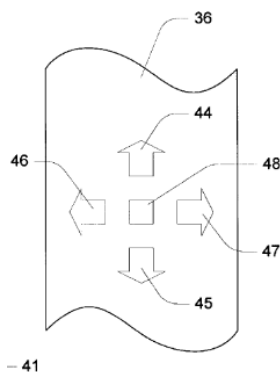


Fig. 5

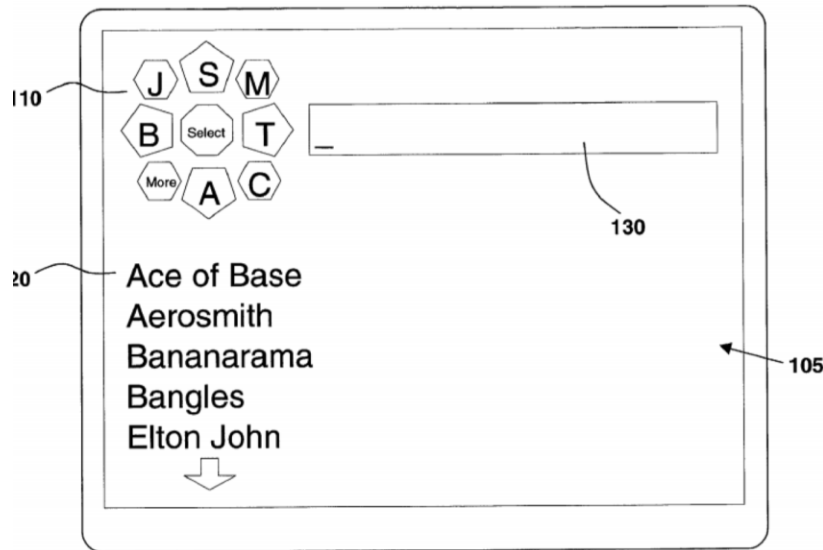
In the '354 patent IPR FWD, the PTAB also found that *Perlman* disclosed “an apparatus and method for entering characters and selecting data using a remote control device.” EX1013, 34. The PTAB found that *Perlman* disclosed a limitation requiring “wherein the further one of more parts of item identifiers being arranged on the display relative to one another and corresponding to at least an up, down, left or right position.” *Id.*, 38-42. This limitation of claim 1 the '354 patent is similar in scope to this limitation. EX1003, ¶82.

4. 1d: a computer processor configured to:

Perlman's exemplary Figure 2 shows that the function buttons on the **remote control keypad** are “mapped to the characters in buttons 110 displayed on **television/computer display**.” EX1005, ¶[0014], Figs. 1b and 2. *Perlman* further discloses that the user interface is displayed by the television using “a general-purpose or special-purpose processor to perform the steps,” *i.e.*, a **computer processor**. EX1003, ¶¶83-84; EX1005, ¶37.

5. 1e: generate, on the television display, a first display of an on-screen keyboard including one or more parts of an item identifier for selection;

Perlman depicts a GUI with character-mapped buttons 110 in a “star” configuration corresponding to the same “star” configuration on a remote control input device to a television/computer. EX1005, ¶[0014]; Figs. 2-8. Other configurations are also expressly disclosed. *Id.*, ¶[0016]; EX1003, ¶85.

**FIG. 2**

The “character-mapped buttons 110” each have a character, *i.e.* ***one or more parts of an item identifier for selection***. These characters correspond “most common first letters of words in the database list 120,” which corresponds to “available multimedia content” accessible by the television/computer. EX1005, ¶[0017]. This star configuration displayed on the screen is an ***on-screen keyboard*** because it is an interface for entering characters. The plain meaning of “on-screen keyboard” does not require displaying a full-size keyboard, only some characters for entry. EX1003, ¶86. For example, Figure 24 of the ’252 patent depicts an on-screen keyboard that is not a full-size keyboard.

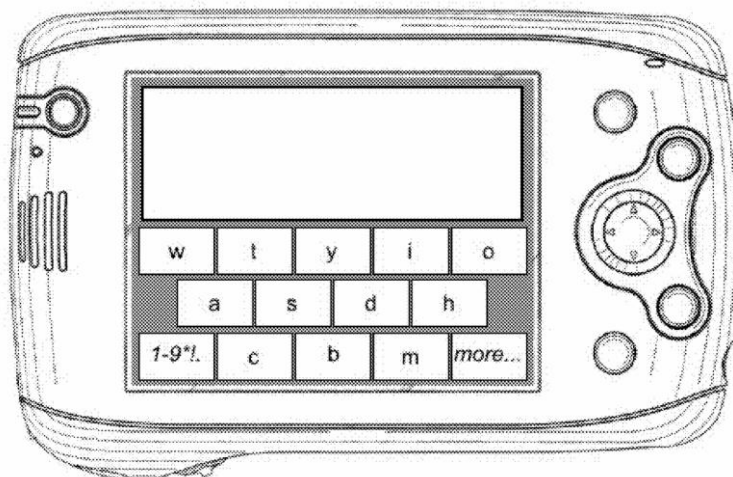
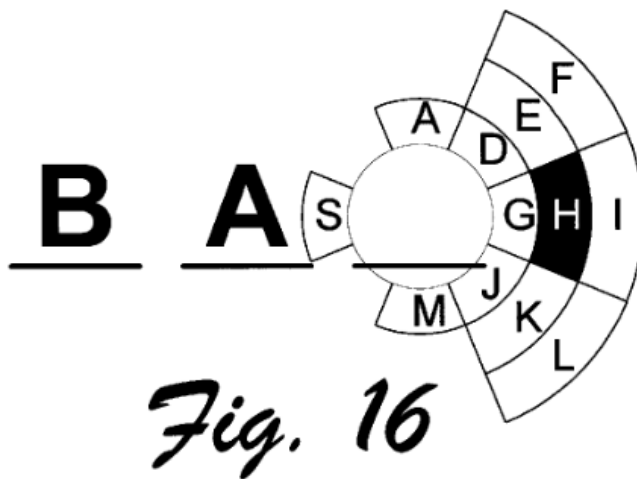


FIG. 24

Lee also discloses this limitation, and it would be obvious to combine *Perlman* and *Lee*. EX1003, ¶87. *Lee* discloses an interface with a circular menu over an on-screen keyboard. For example, in Figure 16, the character “G” is positioned in a circular menu over an **on-screen keyboard**, i.e. the remaining characters of the cascading menu, since they allow entry of characters via an on-screen interface. EX1008, 4:11-5:35.



In the '393 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “displaying, by at least one computer processor, in a first area of a display of a device, a first plurality of portions of item identifiers, wherein the item identifiers correspond to the plurality of items in a database.” EX1014, 38-40. This limitation of claim 1 the '393 patent is similar in scope to this limitation. EX1003, ¶88.

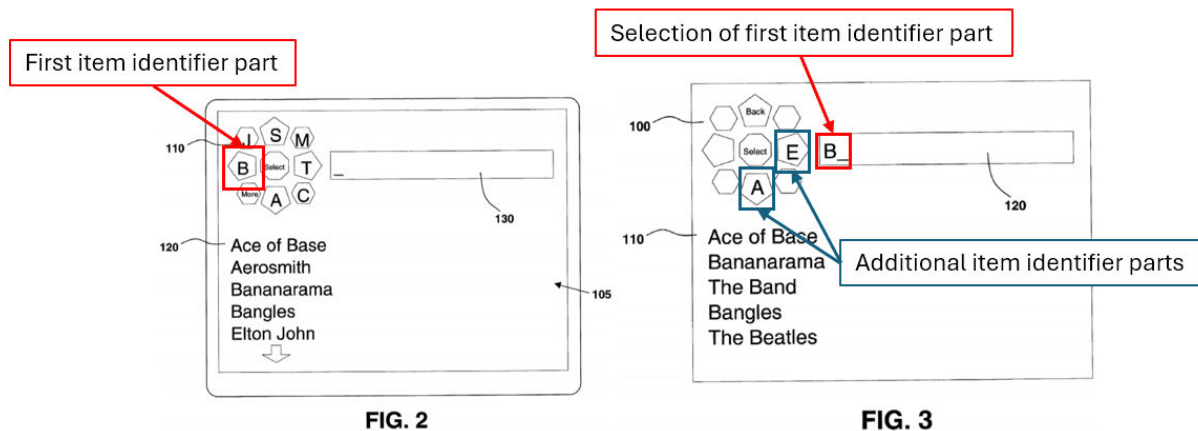
6. 1f: enable the selection of the one or more parts by utilizing the 4-way directional controller;

Perlman teaches that a user ***selects*** a character (*i.e. part of an item identifier*) from the GUI using the character-mapped buttons of the ***4-way directional*** remote control. EX1005, ¶[0017]. Thus, the user has ***selected one of the two parts of an item identifier***. EX1003, ¶89.

In the '393 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “enabling, by the at least one computer processor, selection of one of the first plurality of portions of the item identifiers by using the up, down, left, right, select functionality of the directional controller on the input device.” EX1014, 38-40. This limitation of claim 1 the '393 patent is similar in scope to this limitation. EX1003, ¶90.

7. **1g: in response to the selection of the one or more parts of item identifiers, generate a display of a further one or more parts of item identifiers for selection, wherein the further one or more parts of item identifiers are arranged on the display relative to one another and corresponding to an up, down, left and right position;**

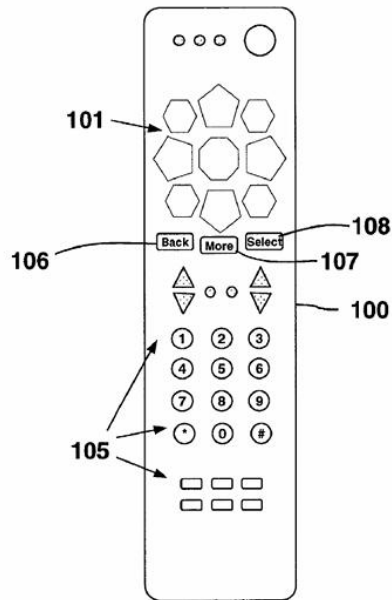
Perlman discloses that after the user selects an initial character (i.e. **one of the two parts of the item identifiers**), a different set of item identifiers is displayed on character-mapped buttons 110, as shown in Figures 2 and 3 of *Perlman*. EX1005, ¶[0017]; EX1003, ¶91. These new characters are arranged **relative to one another and correspond to an up, down, left, and right position**. *Id.*



Once the user selects “B” (i.e. **first part of an item identifier**) database list 110 is updated to reflect database items whose full **item identifier** begins with “B.” *Id.*, ¶[0025]. Figure 3 then shows “A” and “E” as options on the same character-mapped buttons 100, which are **further one or more parts of item identifiers** in the **down and right positions**. EX1003, ¶92.

Perlman also discloses that the ***up and left positions*** can also be mapped to characters for selection. *Perlman* discloses that a new set of characters “correspond to the most common second letters of words in the database list 120 which begin with the first-selected character.” EX1005, ¶[0017]. A POSITA would understand that as more items are included in the database, it will be necessary to display as many letters as necessary to allow for entering parts of those names. EX1003, ¶93. For example, if the database also included “Blink-182” and “Bon Jovi,” it would be necessary to include the letters “L” and “O” in the second-letter selections depicted in Figure 3. *Id.* As shown in Figures 2-5, *Perlman* discloses that those additional characters would be placed in the up and left positions, as those are prioritized positions.

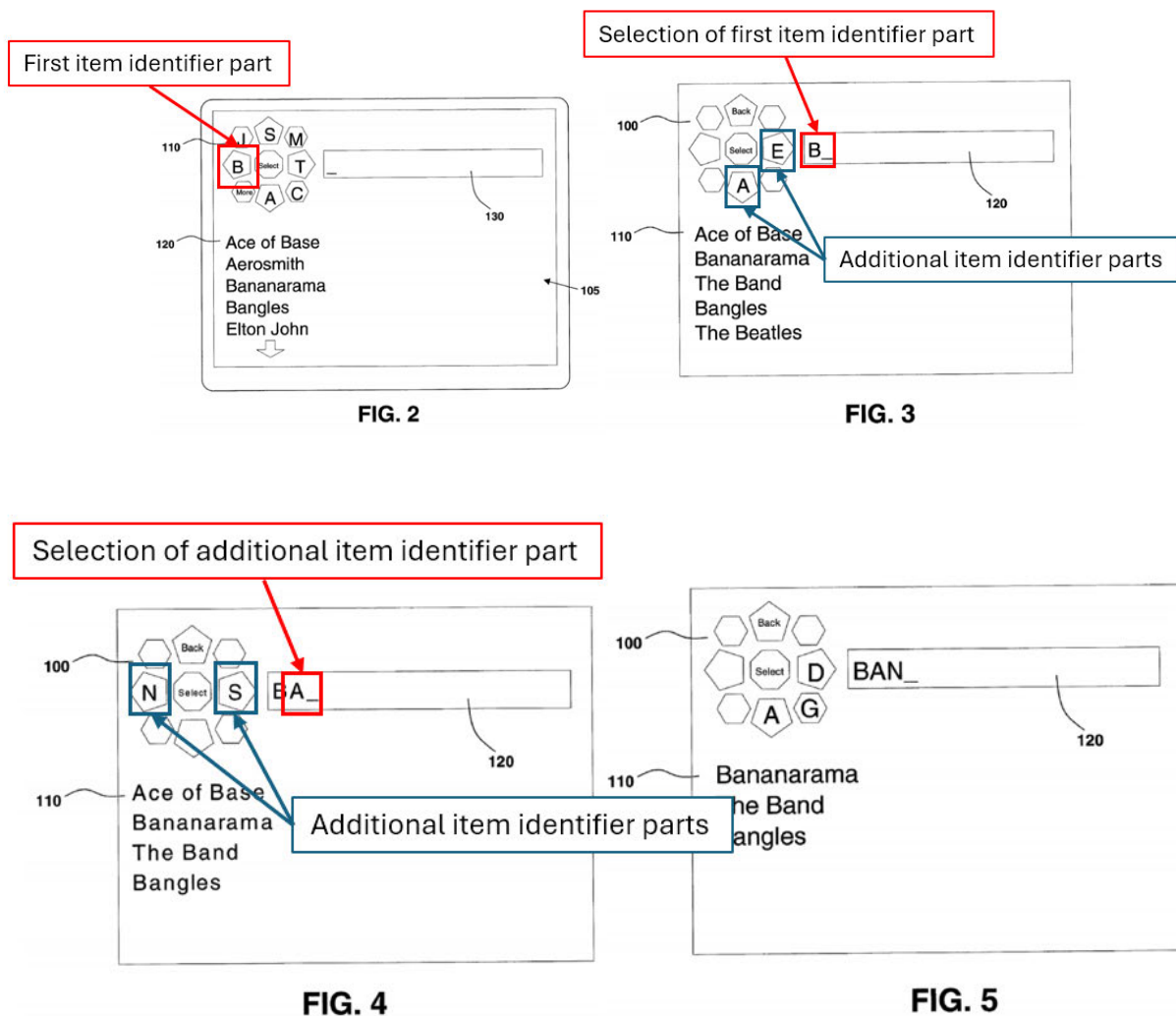
Although Figures 3-5 depict the up position as having the “Back” button, a POSITA would understand that the “Back” button would be placed in the bottom-left position (as in Figure 2 where the “More” button is placed in the bottom-left) in order to assign characters to the more-oft used up, down, left, right positions. Alternatively, *Perlman* discloses an embodiment where the remote control has a dedicated “Back” button (Figure 1a), and there, the “‘back’ function will not be mapped to the set of character-mapped buttons 101, 110 (i.e., because this embodiment uses dedicated buttons for these functions).” EX1005, ¶[0018]; EX1003, ¶94.

**FIG. 1a**

In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “in response to the selection of the one or more parts of item identifiers, generating a display of a further one or more parts of item identifiers for selection, the further one of more parts being selected for display based at least in part on a ranking scheme wherein the further one of more parts of item identifiers being arranged on the display relative to one another and corresponding to at least an up, down, left or right position.” EX1013, 39-42. This limitation of claim 1 the '354 patent is of identical scope to this limitation in the '252 patent. EX1003, ¶95.

8. **1h: enable selection of the further one or more parts of item identifiers in order to add to the selected one or more parts to build a larger part or whole of a particular item identifier; and**

Perlman discloses that after the user selects “B,” a new set of **parts of item identifiers** is automatically mapped to the character-mapped buttons to be selected. EX1005, ¶¶[0017], [0025]; EX1003, ¶96.



Perlman depicts in Figures 2 through 5 a progressive process involving user interaction with the **remote control keypad**. EX1003, ¶97. As the user selects additional characters (*i.e. selects further parts of the item identifiers*), the displayed item identifiers corresponding to database **items** changes, progressing from the first choice of “B,” to “BA” and “BE” (the user chose “BA”), then to “BAN” and “BAS” (the user chose “BAN”), and finally “BANA,” “BAND,” and “BANG.” Thus, this example involves at least four layers of **further parts of item identifiers** which are combined to build larger parts of **item identifiers**. *Id.*, ¶¶[0025]-[0026].

In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “enabling selection, by the user, of the further one or more parts of item identifiers in order to add to the selected one or more parts to build a larger part or whole of a particular item identifier.” EX1013, 50-52. This limitation of claim 1 the '354 patent is substantially identical to limitation 1*h* in the '252 patent. EX1003, ¶98.

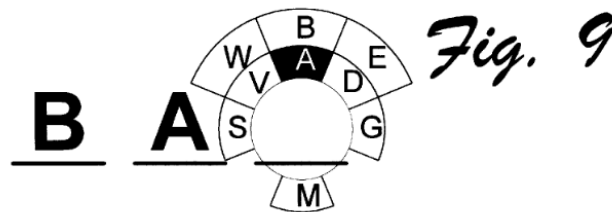
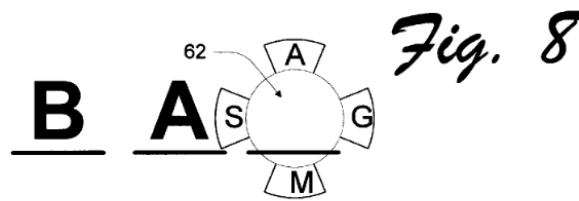
9. ***1i: select one of the further one or more parts of item identifiers in response to an activation of a corresponding up, down, left, or right key to navigate to the one of the further one or more parts of item identifiers and activation of a central key on the 4-way directional controller to select the one of the further one or more parts of item identifiers;***

Perlman in view of *Lee* renders obvious this limitation. As discussed above, Petitioner proposes two possible combinations. In the first proposed combination, *Perlman* is modified in view of *Lee* to allow selecting a character by using a

directional button and a central action key, which meets this limitation. EX1003, ¶99.

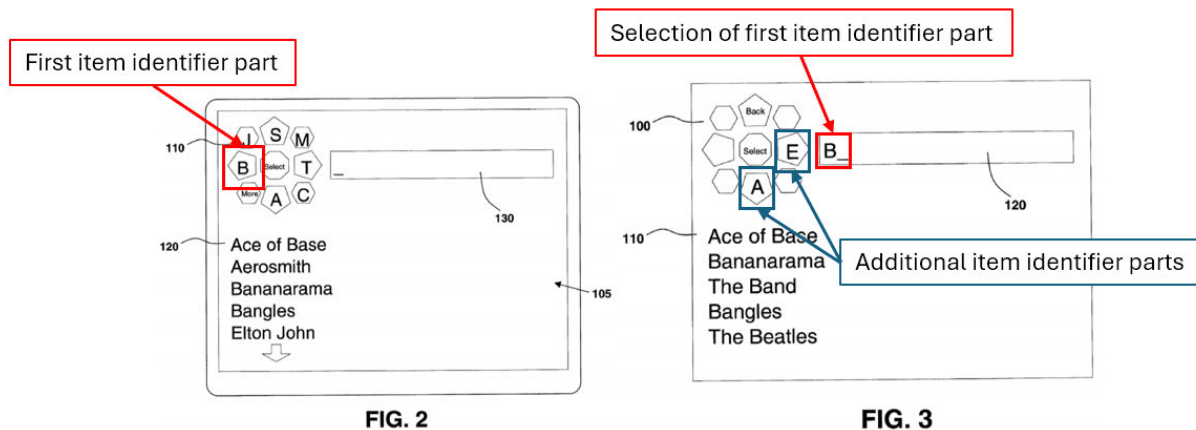
In the second proposed combination, *Lee*'s interface is used. EX1003, ¶100. *Lee* describes a “symbol entry system” for entering characters on a television display using a “handheld remote command unit.” EX1008, Abstract, 2:36-37, 4:11-5:35. The remote has directional keys and an “action” key in the center. *Id.*, 3:12-14.

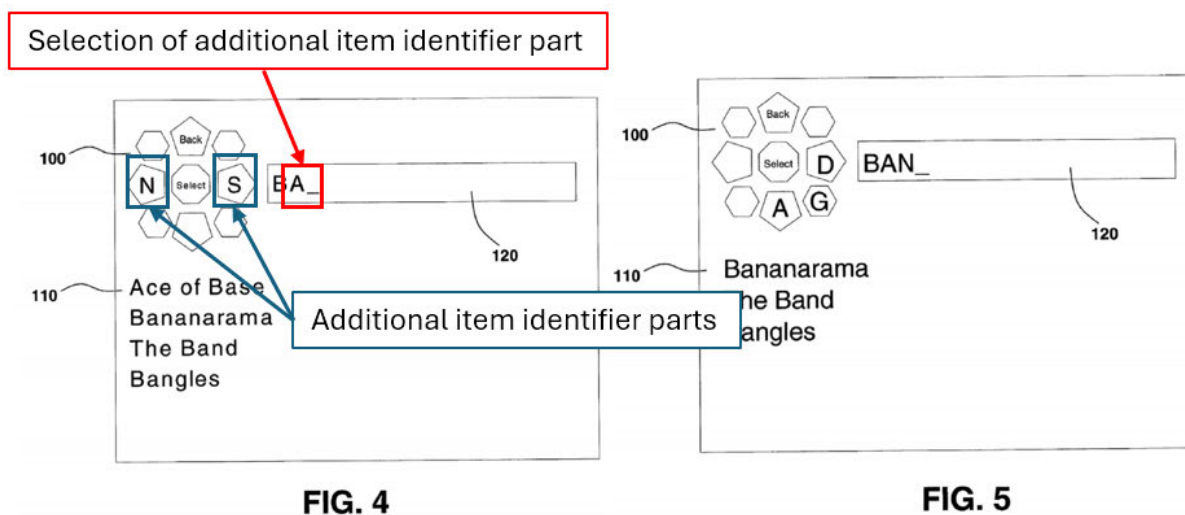
Lee teaches this limitation using that remote. EX1003, ¶101. Beginning at Figure 7, the letters “B” and “A” (*i.e. parts of item identifiers*) are already entered, and the user can select another letter (*i.e. further parts of item identifiers*). The immediate options in Figure 8 are “S”, “A”, “G”, and “M” (EX1008, Fig. 8), although in the combination, those letters could also make use of *Perlman*'s disclosure of prioritizing letters of more frequently viewed titles. EX1005, ¶[0019]. *Lee* discloses that the user can navigate to any of these four letters by using the four directional keys, *i.e. activation of a corresponding up, down, left, or right key to navigate to the one of the further one or more parts of item identifiers*. EX1008, 4:21-29 (for example, “[p]ressing up key 44 positions a focus on the ‘A’ symbol”). Figure 9 “shows the result of pressing up key 44.” *Id.*, 4:30. *Lee* further teaches that any letter that is focused can be selected by pressing the central “action” key. EX1008, 5:29-30 (“Pressing action key 48 at any time enters the currently focused symbol in the symbol entry region 62.”).



10. *1j: wherein the selected one or more parts of item identifiers and the further one or more parts of item identifiers are shorter than a complete word; and*

As discussed above, *Perlman* teaches that the user's selection of **parts of item identifiers** ("B" to "BA" to "BAN") **are shorter than a complete item identifier** ("Bananarama" or "Beatles"), *i.e.* 1, 2, or 3 characters compared to 7 or 10 characters. EX1005, ¶¶[0004], [0017]; EX1003, ¶102.

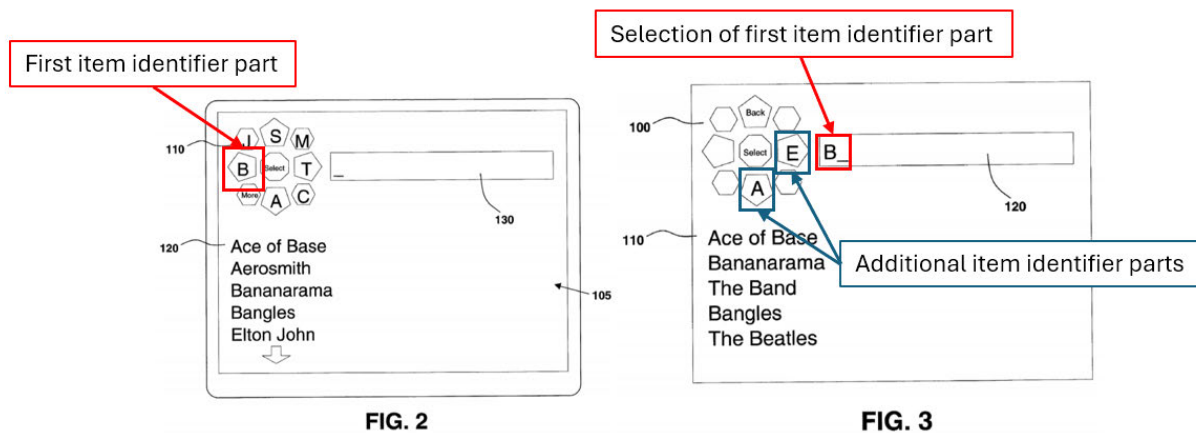




In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “wherein the selected one or more parts of item identifiers and the further one or more parts of item identifiers are shorter than a complete word.” EX1013, 50-52. This limitation of claim 1 the '354 patent is of substantially identical scope to this limitation in the '252 patent. EX1003, ¶103.

11. **1k: wherein navigation to the further one or more parts of item identifiers is enabled by a key press corresponding to the relative arrangement of the further one or more parts of item identifiers on the display.**

As discussed for element 1g, *Perlman* teaches that **further parts of item identifiers** can be and are arranged in up, down, left, and right positions. *Perlman* also teaches that each of these characters can be selected by **a key press corresponding to the relative arrangement** of the character. Fig. 3 (showing “E” in the right position, which can be accessed with the right key), EX1005, ¶[0014]; EX1003, ¶¶104-05.



Moreover, in the *Perlman-Lee* combination, as discussed above for limitation 1i, *Lee* teaches that the user can navigate to a letter by using the up/down/left/right buttons, *e.g.*, “[p]ressing up key 44 positions a focus on the ‘A’ symbol” in Figure 8. EX1008, 4:21-29. Thus, this discloses ***navigation to letter enabled by a key press corresponding to the relative arrangement of the letters on the display***. EX1003, ¶106.

In the ’354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “wherein selection of the further one or more parts of item identifiers is enabled by a key press corresponding to the relative arrangement of the further one or more parts of item identifiers on the display.” EX1013, 50-52. This limitation of claim 1 the ’354 patent is of identical scope to this limitation. EX1003, ¶107.

- E. **Claim 2: *The system of claim 1, wherein the processor is located within the television.***

See limitation 1d. EX1003, ¶108.

- F. **Claim 3: “The system of claim 1, wherein the processor is further configured to enable navigation and selection of the one or more parts of item identifiers and the further one or more parts of item identifiers by way of the 4-way directional controller.”**

As discussed above for limitation 1i, the *Perlman-Lee* combination involves a user using a 4-way directional controller (whether the remote described in *Perlman* or that described in *Lee*) to navigate and select a character using *Lee*’s interface, *i.e.* ***further one or more parts of item identifiers***. *Lee* describes that this mechanism is used for selecting all characters and thus it would also apply to the initial ***one or more parts of item identifiers***. EX1008, 4:11-5:35; EX1003, ¶109.

- G. **Claim 4: “The system of claim 1, wherein the further one of more parts is selected for display based at least in part on a ranking scheme, and the highest ranked of the further one or more parts of item identifiers is positioned in one of the up, down, left and right positions.”**

Perlman teaches that the displayed characters “correspond to the most common ... letters of words in the database list.” EX1005, ¶[0017]. This includes the display of the second group of letters, *i.e.* ***further one or more parts***. The commonality of letters is ***a ranking scheme*** where more common letters are ***higher ranked***. Thus, as disclosed in *Perlman*, the most common letters are ***positioned in one of the up, down, left and right positions***, and the remaining letters are not initially displayed. In the combination with *Lee*, the remaining letters can be

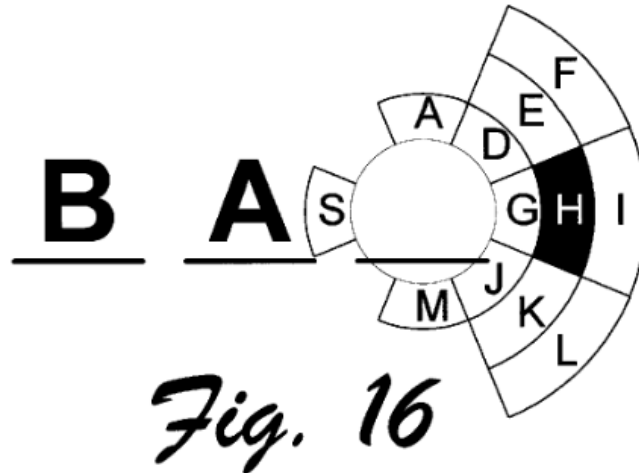
accessed by navigating through the rings. EX1008, 4:11-5:35. *Lee* even teaches that certain layouts of the rings “may be preferable in some situations,” and a POSITA would understand that *Perlman*’s commonality-ranked characters is one such situation. EX1003, ¶110.

In the ’354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “the highest ranked of the further one or more parts of item identifiers” is “positioned in one of the up, down, left and right positions.” EX1013, 42-50. This limitation of claim 1 the ’354 patent is of identical scope to claim 4 in the ’252 patent. EX1003, ¶111.

H. Claim 5: “The system of claim 4, wherein the highest ranked of the further one or more parts of item identifiers being positioned in one of the up, down, left and right positions is specifically positioned in a circular menu over the on-screen keyboard on the television display indicating the item identifiers to be selected by movements of the user in the directions left, right, up, and down using the 4-way directional controller.”

As discussed above, the second proposed combination involves displaying characters ranked by commonality using *Lee*’s interface, where characters are positioned in a ***circular menu over the on-screen keyboard on the television display***. EX1003, ¶112. For example, in Figure 16, the character “G” is positioned in a circular menu over the remaining letters in the circular menus, which is an ***on-screen keyboard*** because it allows entry of characters via an on-screen interface. EX1008, 4:11-5:35. As shown in that figure, the placement of the character “G”

indicates that it can be selected using one of the directions of the directional controller, specifically the left button.



- I. **Claim 6:** “The system of claim 2, wherein the item identifiers are pre-processed in order to generate a hierarchical tree, which is stored in a computer accessible memory.”

Perlman teaches that “[o]ne embodiment of the invention includes a built in dictionary which is **extended** each time a user enters a full word. New words entered by the user are then **linked to the word or sequence of words which precede it**. **Prioritization** in the word list in this embodiment may be decided based on the number of words that are known to precede the dictionary entry, and/or **based on the frequency of the dictionary entry**. One embodiment of the system will **be ‘pre-trained’** with a number of common word Sequences.” EX1003, ¶113; EX1005, ¶[0035].

The types of database processes *Perlman* describes, such as **linking** words (**item identifiers**) in the database based on user entry of a new word, contextually,

such as based on preceding or surrounding words (other ***item identifiers***), based on ***pre-training*** with common word sequences, or further ***extending*** the database based on new entries, reflect a dynamic database structure that, at the time of the *Perlman* patent application would have been implemented using a hierarchical tree structure. EX1003, ¶114. *Schroeder* discussed above, acknowledges that by 1995, when *Schroeder* was filed, “[t]he implementation of such dictionary trees or lookup tables in the computer arts [was] well known.” EX1009, 7:10-25. As such, when *Perlman* explicitly refers to databases that are “pre-trained” with common word sequences, a POSITA would understand it involves nodes in a hierarchical tree database schema, which *Schroeder* and *Dostie*, discussed below, recognize as being well-known well before the ‘252 patent was filed.

J. Claim 7: “The system of claim 4, wherein the items are stored in a database and indexed based on the item identifiers and capable of being queried.”

The alphanumeric characters/symbols described in *Perlman* are ***parts of item identifiers***, which are used to ***index database items***. The alphanumeric characters/symbols are the “most common first letters of words in the database list 120,” which corresponds to available multimedia content (***items***). EX1005, ¶[0017]. As Dr. Madisetti explains, due to *Perlman*’s disclosure of retrieving a list of items from the database, such ***items*** are ***capable of being queried*** and have an ***index based on the item identifiers*** that were used to populate the list. EX1003, ¶50.

In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed “selecting database items from a database, the database items being indexed by a list of item identifiers.” EX1013, 38-39. This limitation of claim 1 the '354 patent is similar in scope to this limitation. EX1003, ¶51.

K. Claim 8: “The system of claim 4, wherein the number of key presses of the remote control keypad to select an item is fewer than the number of key presses required to select an item according to a system that requires an end user to enter one, two, three, or four characters of the item identifier and then scroll through a list of potential items to select the item by additional key presses.”

Claim 8 requires that the claimed system uses less key presses than prior art systems described in the '252 patent. EX1003, ¶¶117-18. The language of this claim is similar to the '252 patent's description of prior art that “requires entering several of the initial letters of the search term resulting in a smaller subset of the list and then scrolling through the subset to manually point out the desired items.” EX1001, 1:55-58. Several of these allegedly “onerous” methods are described. For example, the 0-9 keypad found on older mobile phones, which requires “repeatedly pressing the 12 number keys” to enter a character. *Id.*, 1:59-65. Another example involves input using “limited ... directional input mechanisms such as a joystick or selection wheel plus,” where the user has to “select[] each character by navigating around an onscreen list of characters,” such as an on-screen full qwerty keyboard. *Id.*, 2:54-58.

This limitation is met in two ways. *First, Perlman* in view of *Lee* render obvious this limitation because (under both proposed combinations), the most common characters are displayed and selected using at most two key presses (a directional input and an action key), as discussed in limitation 1i. EX1003, ¶119. Once several characters are entered, an item can be selected by pressing a dedicated “select” button and scrolling within the list. EX1005, ¶¶[0014], [0022]. This process requires ***fewer key presses*** than the prior art methods where entry of a character often requires more than two key presses, such as a joystick navigating a full on-screen qwerty keyboard. EX1003, ¶119.

Alternatively, the above-described mechanism requires ***fewer key presses***. A user could enter the entire or almost the entire name of the desired title, which results in only a handful (or even just one) title displayed in the database. This would involve fewer key presses than only entering four characters and scrolling through dozens of items, as claimed. EX1003, ¶120.

- L. Claim 9: “The system of claim 1, wherein the computer processor is further configured to: iterate the selection until the particular item identifier is completed, and enable selection of the particular item identifier to select the item.”**

As discussed above for elements 1f and 1g, *Perlman* discloses an ***iterative or progressive*** selection process in which the user enters ***parts of item identifiers*** until he/she identifies and ***selects*** the desired ***item identifier*** for the ***selected item***. EX1003, ¶121.

In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “iterating the selection steps until the particular item identifier is completed, and enabling selection, by the user, of the particular item identifier to select the database item.” EX1013, 52-54. This limitation of the '354 patent is of identical scope to claim 9 in the '252 patent. EX1003, ¶122.

M. Claim 10: “The system of claim 1, wherein the computer processor configured to generate the initial display further includes selecting the one or more parts of item identifiers to be displayed based on at least one predetermined criterion.”

As discussed above for elements *1e* and *1g* and claim 4, *Perlman* discloses an initial display that allows a user to ***select one or more parts of item identifiers*** that can be based on the “most common first letters of words in the database list 120,” which is a ***predetermined criterion*** based on ranking. EX1005, ¶[0017]. Also, frequency of ***selection of items associated with item identifiers*** is within the scope of claim 11, below, which depends from claim 10, confirming that the ***predetermined criterion*** is broad enough to include any of the options in the group in claim 11. EX1003, ¶123.

In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “wherein the step of generating the initial display includes selecting the one or more parts of item identifiers to be displayed based on at least one predetermined criterion..” EX1013, 54-55. This limitation of the '354 patent is identical in scope to claim 10 in the '252 patent. EX1003, ¶124.

- N. **Claim 11: “The system of claim 10, wherein the at least one predetermined criterion is selected from the following: a frequency of selection of items associated with the pluralities of portions of the item identifiers, a recency of selection of the items associated with the pluralities of portions of the item identifiers, a likelihood of selection of the items associated with the pluralities of portions of the item identifiers, or a ranking of the pluralities of portions of the item identifiers in relation to a hierarchical classification of the pluralities of portions of the item identifiers.”**

As discussed above for claim 10, *Perlman* discloses a predetermined criterion.

Perlman discloses an initial display that allows a user to ***select one or more parts of item identifiers*** that can be based on the “most common first letters of words in the database list 120.” EX1005, ¶[0017]. This is a ***predetermined criterion*** based on ranking, and more specifically based on the likelihood of selection of the ***items*** associated with the ***pluralities of portions of the item identifiers***, where the first letters are ***portions of item identifiers***, the “most common first letters” constitute ***“pluralities of portions of item identifiers”*** (*i.e.*, more ***items*** start with T than with W), and the ***item identifiers*** lead the user to ***items associated with such item identifiers***.” *Id.* A POSITA would be able to employ data as to the “most common words (***items***),” as *Perlman* teaches, to practice any of the predetermined criteria in Claim 11. EX1003, ¶125.

In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “wherein the at least one predetermined criterion is a frequency of selection of database items associated within the one or more parts of item

identifier.” EX1013, 55-56. This limitation of the ’354 patent is identical in scope to one of the multiple options taught in claim 11 in the ’252 patent. EX1003, ¶126.

O. Claim 12: “The system of claim 1, wherein the computer processor configured to generate the initial display further includes displaying a plurality of parts of item identifiers.”

In Figure 2, parts of item identifiers “B,” “J,” “S,” “M,” “T,” “C,” and “A” are shown, which constitute a plurality of parts of item identifiers. EX1003, ¶127.

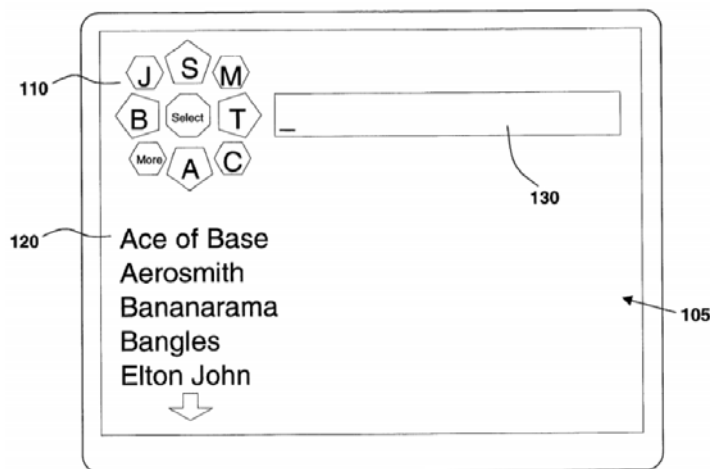
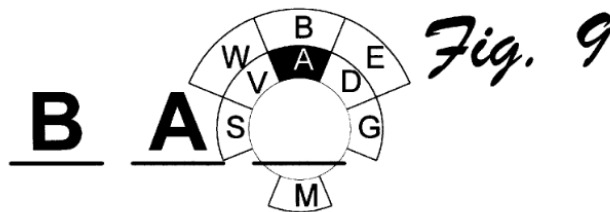
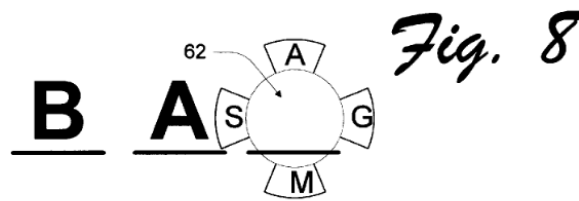


FIG. 2

In the second proposed combination, *Lee*’s interface displays a ***plurality of parts of item identifiers***, such as the letters “S”, “A”, “G”, and “M” shown in Figure 8. EX1008, 4:21-29; EX1003, ¶128.



In the '354 patent IPR FWD, the PTAB found that *Perlman* disclosed a limitation requiring “generating the initial display of the one or more parts of item identifiers includes displaying a plurality of parts of item identifiers.” EX1013, 56. This limitation of the '354 patent is identical in scope to claim 12 in the '252 patent. EX1003, ¶129.

P. Claim 13: “The system of claim 1, wherein the computer processor is further configured to enable selection of the item corresponding to the item identifier.”

In *Perlman*, an *item* can be selected from a list of *item identifiers* by pressing a dedicated “select” button, scrolling up/down the list, and selecting the item within the list. EX1005, ¶¶[0014], [0022]. In the combination of *Perlman* and *Lee*, the remote has a dedicated “select” button (as disclosed in Figure 1a of *Perlman*) that is different from the central “Action” button described in *Lee*. EX1003, ¶130.

**VI. GROUND 2: *PERLMAN, LEE* AND *DOSTIE* RENDER OBVIOUS
CLAIMS 6 AND 11****A. *Dostie***

Dostie (EX1006) describes a personal computing device that supports the “rapid search for data, such as text” by having the user input one or more characters and then using the inputted character sequence to search a dictionary for a set of completion candidates that begin with the typed sequence. EX1006, Abstract; ¶73; EX1003, ¶¶131-133. *Dostie* discloses that full sequences of characters are presented based on the current location in the tree. *Id.*

Figure 14 returns candidates ordered based on their “preference values.” *Id.*, ¶¶85, 209-215.

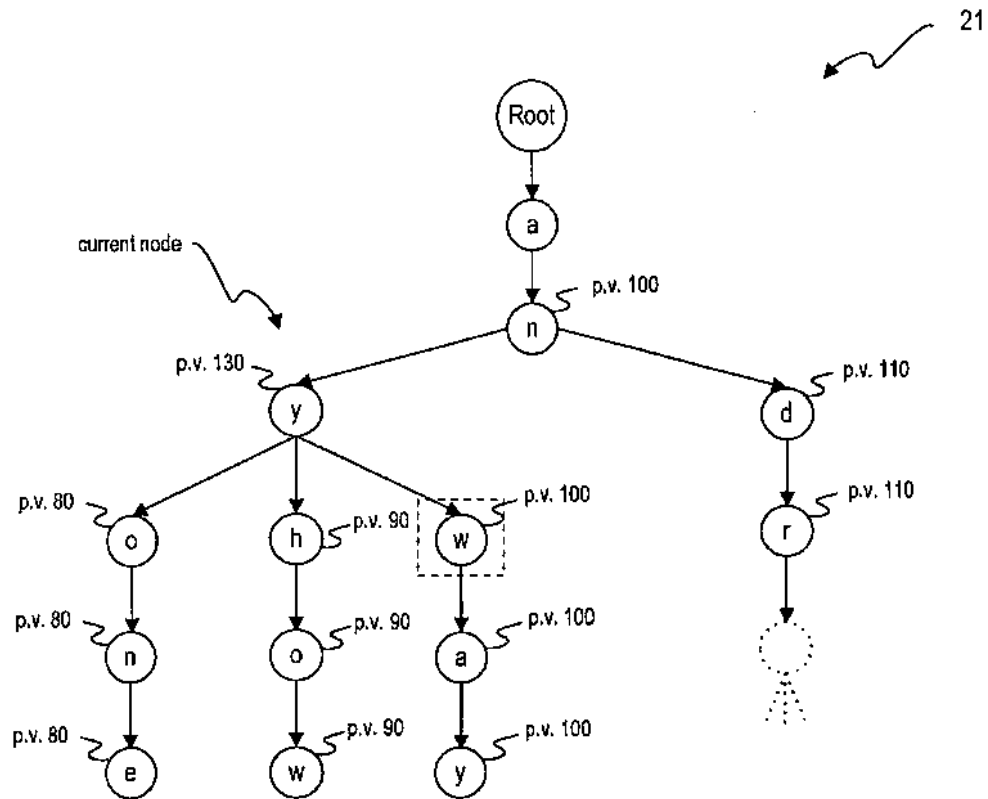


FIG. 14

Figure 3 from *Dostie* shows one method of presenting these completion candidates (either whole words or partial words).

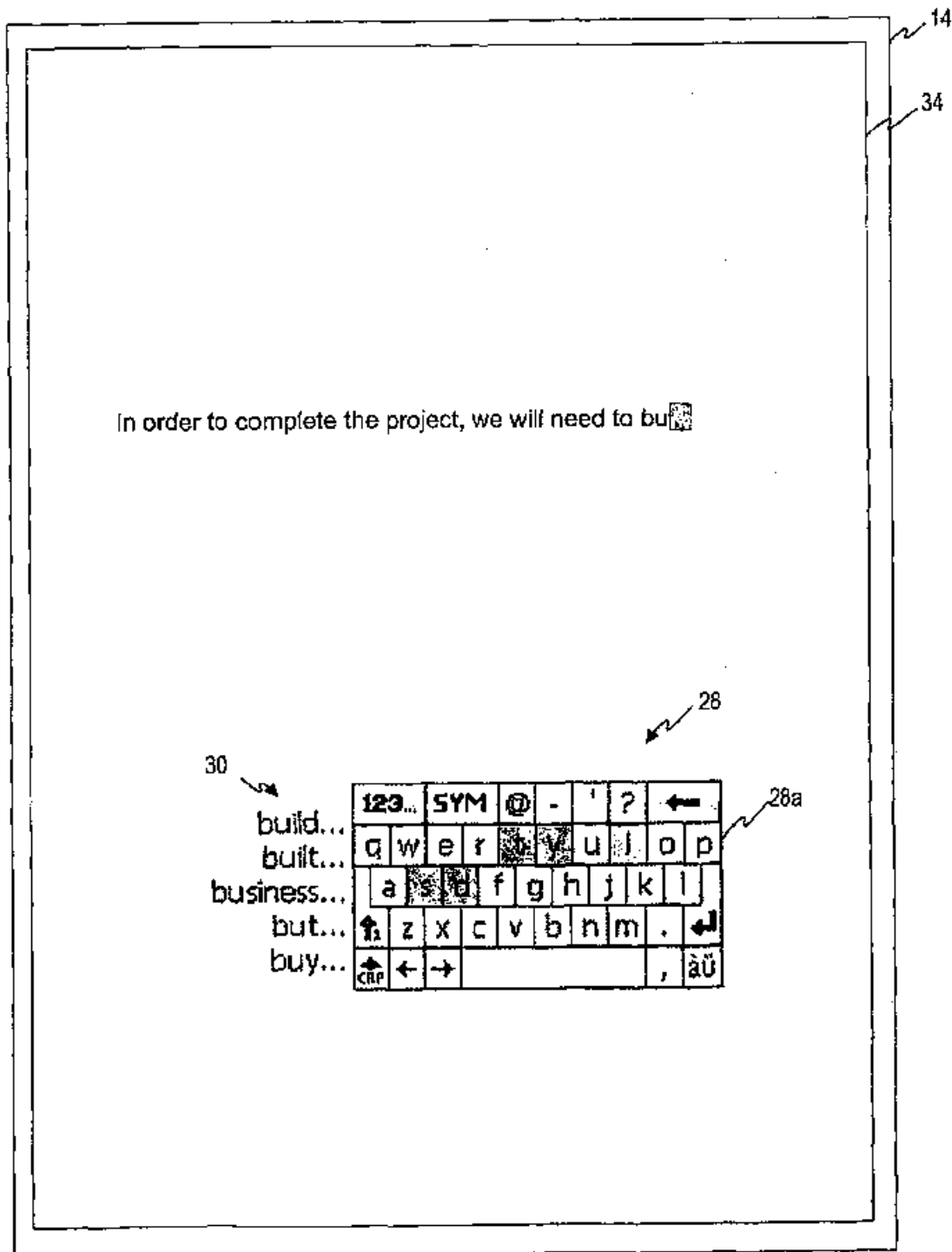


FIG. 3

B. Motivation to Combine *Perlman*, *Lee* and *Dostie*

It would have been obvious to incorporate *Dostie*'s dictionary trees and rankings based on tree hierarchy classifications into *Perlman* for a variety of reasons. The inclusion of *Lee*, which only modifies *Perlman*'s interface, does not alter this analysis. EX1003, ¶137. First, it was well known at the time of *Perlman* to conduct database searches using hierarchical trees like the ones described in *Dostie*. EX1003, ¶134. *Dostie* also provides express motivation to incorporate its candidate trees to “rapidly predict potential completion candidates” and “provide[] a mechanism for supporting enhanced data entry techniques such as character prediction,” which describes *Perlman*'s systems. EX1005, ¶[0097]; EX1003, ¶134.

Indeed, as Dr. Madisetti explains, “hierarchical search trees are the most efficient way to identify matching prefixes because they promote efficient traversal forward and backward through a series of search candidates stored in nodes of the tree.” EX1003, ¶135. Thus, databases frequently used search trees and other hierarchical classifications to search, rank, and select entries. *Id.*

At the time of *Perlman*, database searching was routinely performed using a hierarchical search tree. *Id.* Due to these well-known benefits and a POSITA's knowledge of predictive keypad systems used to query databases, a POSITA would have had a reasonable expectation of success in achieving the desired result of efficiently calling up and displaying content of interest to a user. As such, the trees

Dostie teaches would have been “a trivial and routine addition” to *Perlman* that would have yielded the predictable results of permitting simple and efficient searching based on a known prefix of database entries. EX1003, ¶136. *Perlman* already discloses “forward and backward/reverse searching capabilities” (EX1006, ¶[0027]) which would include hierarchical search trees, which were the standard database searching technique at the time.

C. Claims 6 and 11

With respect to **dependent claims 6** (requiring a “hierarchical tree”) and **11** (requiring a “hierarchical classification”), to the extent there is any argument these limitations are not disclosed by *Perlman*, they are rendered obvious by *Dostie*’s hierarchical search trees in combination with *Perlman*.

Dostie’s implementation organizes its database in a “tree structure” which can take the form of a binary tree or “B-tree.” EX1006, ¶88. Because “[c]haracters making up a completion candidate are stored in separate nodes within the tree structure” and “each node pointing to a child node containing the next character in the completion candidate,” *Dostie*’s tree structure further satisfies a ***hierarchical tree*** (claim 6) and a ***hierarchical classification of the item identifiers*** (claim 11) EX1003, ¶¶138-39.

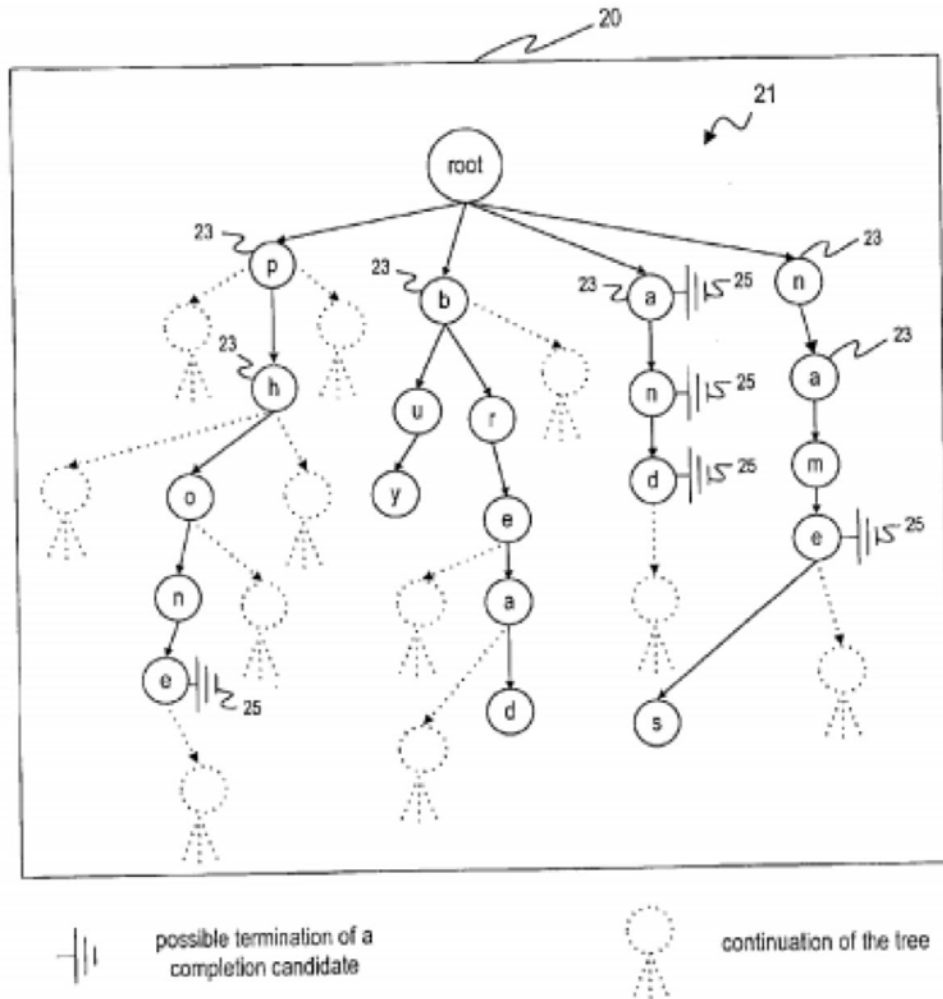


FIG. 4

Figure 4 shows *sets of item identifiers that are mutually exclusive of one another* and subsets of one another. For example, under candidate tree 21, different branches are mutually exclusive sets. EX1003, ¶120. And the items below a certain node in the same or different branch are the mutually exclusive subsets. *Id.* The “child list” or “child nodes pointer” for each node in the tree are also mutually

exclusive subsets, as they represent “a list of nodes which directly follow the current node, i.e. a list of nodes which are the immediate children of the current node.” *Id.*; EX1006, ¶¶[0090]-[0096]. As discussed above, a POSITA would have been motivated to incorporate *Dostie*’s tree structure into *Perlman*. EX1003, ¶¶140-41. The “enhanced data entry techniques” and “character prediction” are the same techniques described by *Perlman*, so a POSITA would have found it natural to incorporate *Dostie*’s candidate tree into the character selection system of *Perlman*. *Id.*

In the ’354 patent IPR FWD, the PTAB found that *Dostie* disclosed a limitation requiring “a tree hierarchy classification.” EX1013, 64-68. This limitation of claim 5 the ’354 patent is substantially identical to claims 6 and 11 in the ’252 patent, requiring a hierarchical database structure. The PTAB also found a POSITA would have combined *Perlman* and *Dostie*. *Id.*, 68-81.

VII. GROUND 4: BADARNEH AND LEE RENDER OBVIOUS CHALLENGED CLAIMS 1-5 AND 7-13

A. *Badarneh* (EX1003, ¶¶142-48)

Badarneh (EX1009) discloses a system for input of data elements (such as letters) in an electronic device, where entering characters suggests the next character or characters in a word. *Id.*, 1:9-11. The predictive functions are agnostic to the type of interface or hardware device being used. *Id.*, 1:13-16. The important criterion is

what the user sees in terms of inputs made and predictive outputs given in response.

Id., 1:27-30. Figure 9 shows the iterative process for entering characters.

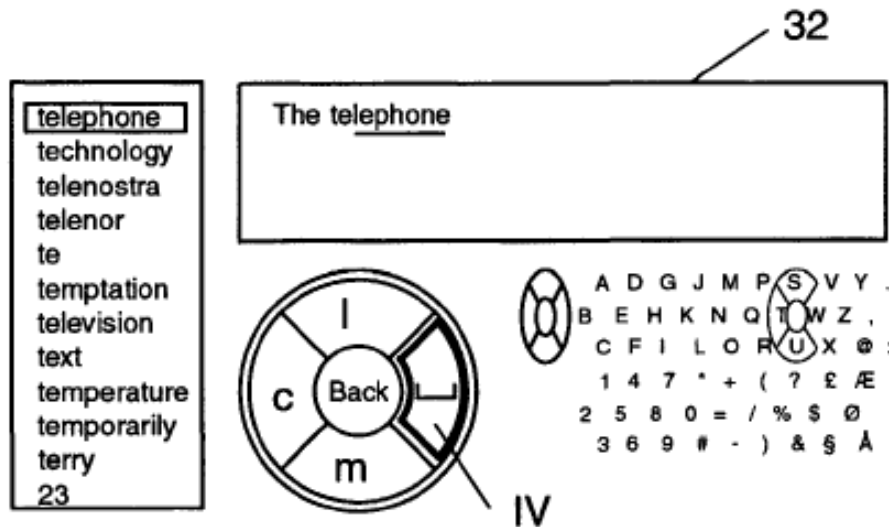


Fig. 9h

This GUI provides suggested inputs corresponding to “likely words and/or letters according to priority of use” (*id.*, 15:15-20), which corresponds to, for example, “a database which contains options and data that should be available” (*id.*, 24:15-19).

B. Motivation to Combine *Badarneh* and *Lee*

It would have been obvious to incorporate *Lee*’s method of navigating sub-menus with *Badarneh*, in particular, *Lee*’s teaching of using up/down/left/right directional buttons to navigate to a desired letter and a select button to select that letter. EX1003, ¶¶149. Petitioner proposes at least two ways of combining the

references: (1) using *Badarneh*'s interface to, in view of *Lee*, allow a user to navigate to a letter and select it with an action button, or (2) replace *Badarneh*'s interface for entering characters with *Lee*'s.

With respect to the first proposed combination, *Perlman*'s interface presents characters in a star-based menu where a user presses a character-mapped button to select the corresponding character. EX1009, 14:30-15:2. These characters may have been algorithmically chosen by the system for display. *Id.*, 17:20-19:19. In view of *Lee*, a POSITA would be motivated to allow the user to use the directional buttons to navigate to the desired character and a central action button to select the character. EX1003, ¶150. By doing this, the user can confirm that the selected character is the desired character. Otherwise, some users who are prone to input mistakes may accidentally press the wrong character-mapped button, causing the system to perform an unnecessary update of the database list.

With respect to the second proposed combination, a POSITA would have found it obvious to use *Badarneh*'s system with *Lee*'s interface, which would improve the user interface in various aspects for various users. EX1003, ¶151. In particular, *Badarneh* displays characters in a circular pattern over an on-screen full qwerty keyboard. The first character is selected by rotating a switch to move the circular marker and pressing a directional key to select one of the letters within the marker, such as pressing left to select "T" in Figure 9d. EX1009, 17:20-19:19.

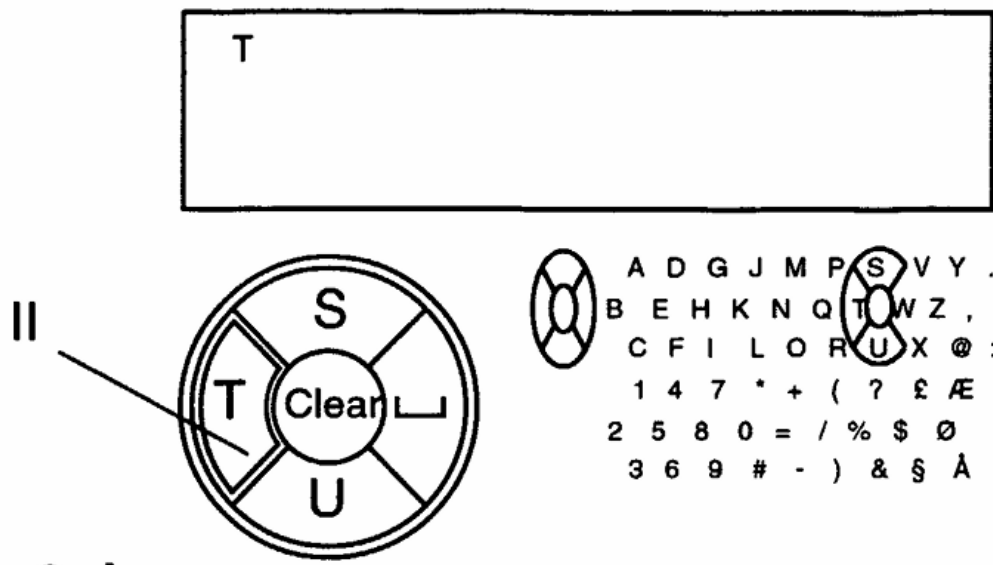


Fig. 9d

32

Badarneh explains that subsequent letters can be selected as the system populates the circular menu with characters that the system believes the user desires, such as the letters “H,” “O,” or “E”, since those commonly follow the letter “T.” *Id.* However, a POSITA would recognize that such a mechanism can require many inputs, especially if the system does not correctly guess the next letter. In those situations, the user may need to rotate the dial to move the circular menu for many letters. EX1003, ¶152.

Lee does not require entering numerous inputs to navigate a marker over a full-size on-screen keyboard. A POSITA would be motivated to use such a mechanism by *Lee*’s express disclosure that it “allow[s] a user to learn the positions of different symbols and to thus shorten the effort required to enter any particular character.” EX1008, 1:63-65. *Lee* also explains that its interface “is much more

compact” than an on-screen qwerty keyboard such as used in *Badarneh*. *Id.* Another disadvantage with on-screen keyboards that *Lee* mentions is that “the distance between characters is large, and very large cursor movements are therefore required to enter strings of text.” *Id.*, 1:50-56. Thus, *Lee* provides express motivation to use its interface over that of *Badarneh*. EX1003, ¶153.

In at least that respect, a POSITA would be motivated to provide *Lee*’s interface for users that prefer it. As Dr. Madisetti explains, the combination would not require removing *Badarneh*’s interface, as either interface could be toggled via a setting depending on the user’s preference. EX1003, ¶153. Thus, including *Lee*’s interface is strictly beneficial as this allows for more user interface options.

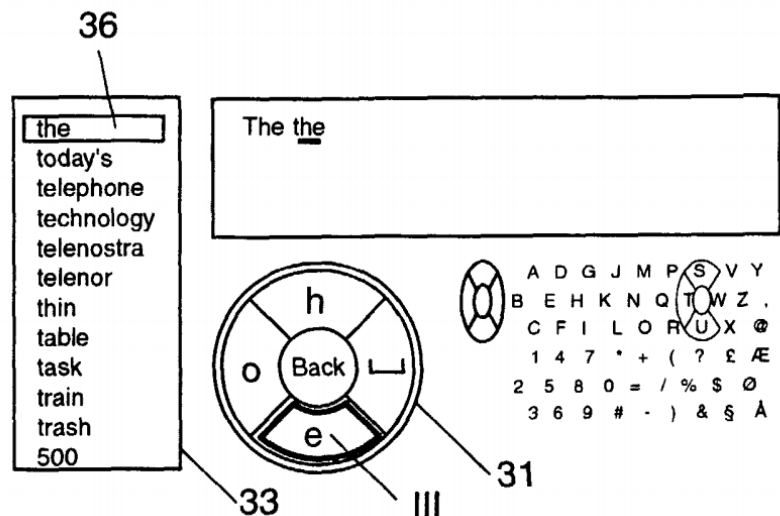
A POSITA would have had a reasonable expectation of success. EX1003, ¶¶154. *Badarneh* and *Lee* are readily combinable, since *Badarneh* is directed to inputting characters into a display using a remote control unit. A POSITA could instead use a remote control such as that provided in *Lee*. *Lee* also explains that the order of layout of characters in its interface can be assigned in any matter, and indeed, some possibilities “may be preferable in some situations” (EX1008, 3:63-67)—this fits well with *Perlman*’s disclosure of prioritizing characters based on their commonality. EX1005, ¶[0017]. Thus, the combination would simply require programming the displayed interface as disclosed in *Lee*, which would merely

require conventional user interface programming using conventional techniques and was well-within the skill of an ordinary artisan.

C. Claim 1

1. 1a

Badarneh describes a system for selecting “letters, signs, numbers and/or symbols in connection with an electronic apparatus or device which has or is connected to a display, wherein the system is so configured that on input of at least one first data element in a data phrase it offers suggestions of the data phrase,” *i.e.* **items**. EX1009, [0002]. *Badarneh* depicts entering letters to select a word (36) (**item identifier** for an **item**) from the list (33) (**plurality of identifiers** for a **plurality of items**). EX1003, ¶156.



The circular menu 31 contains alphanumeric characters/symbols, which are ***parts of item identifiers*** corresponding to a ***plurality of items***. EX1003, ¶156.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “computer-implemented method of selecting an item from a plurality of items, the method comprising: generating, by at least one computer processor, a first display.” EX1017, 3-4. This limitation of the '579 patent is of identical scope to limitation *1a* in the '252 patent. EX1003, ¶157.

2. ***1b***

Badarneh discloses ***a television display***, as the invention was “based on the ***screen*** showing or reflecting the possible functions of the switch and showing or giving feedback in response to the choices made and the functions operated.” EX1009, 1:27-30. *Badarneh* further discloses that “***all screen-assisted and screen-based devices*** can be used according to the system described herein,” which would include a television with a remote control device. *Id.*; EX1003, ¶158. *Badarneh* also discloses that its system can be “adaptable to larger display screens ... used ... for other apparatus[es],” such as “remote control units,” which a POSITA would understand includes a television. EX1009, 4:6-11.

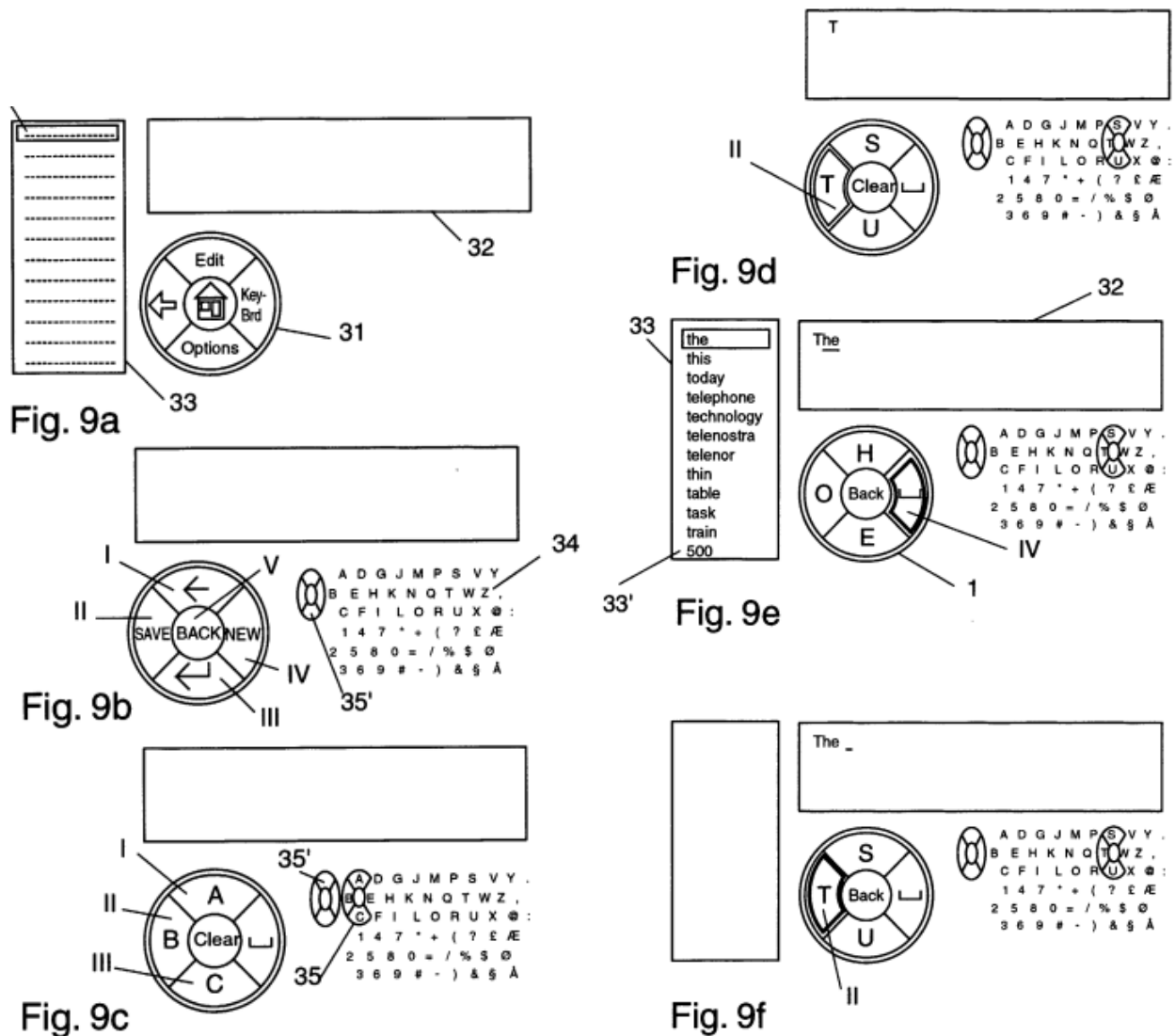
A POSITA would also consider it obvious in view of these disclosures that *Badarneh*'s system could be used on a television, which were well-known displays having remote controls. EX1005, ¶[0014]; EX1003, ¶159. Moreover, *Lee* teaches “a

color television,” which could be combined with *Badarneh* for the same reasons.

EX1008, 2:36-37; EX1003, ¶160.

3. 1c

Badarneh discloses a “a rotatable, multifunctional switch 31' which has five pressure points indicated by I, II, III, IV and V,” i.e. **remote control keypad comprising a 4-way directional controller**. EX1009, 16:23-30; EX1003, ¶161. The keypad, which only has four directional options, is depicted in the below figures:



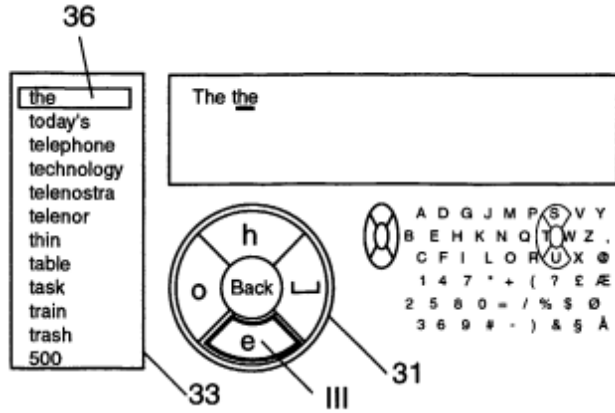


Fig. 9g

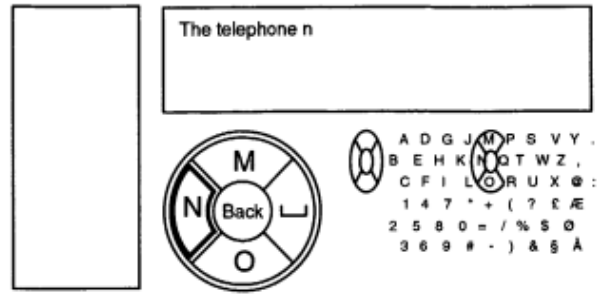


Fig. 9j

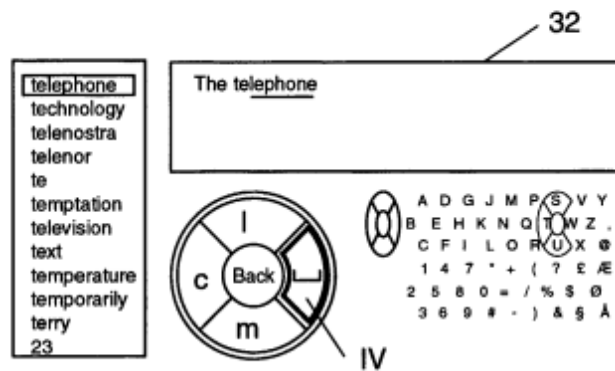


Fig. 9h

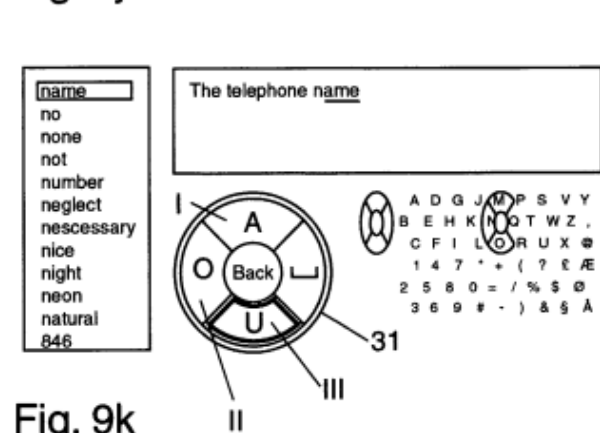


Fig. 9k

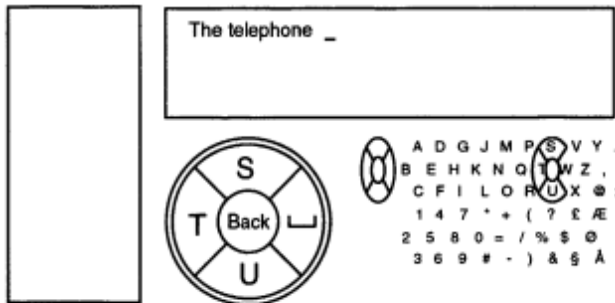


Fig. 9i

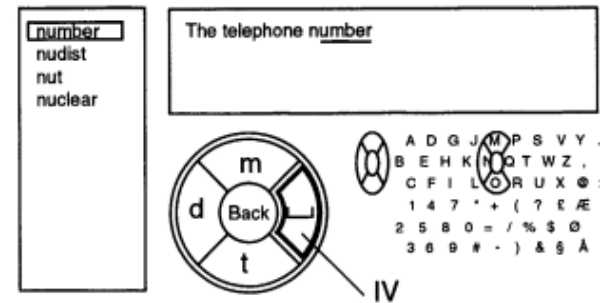


Fig. 9l

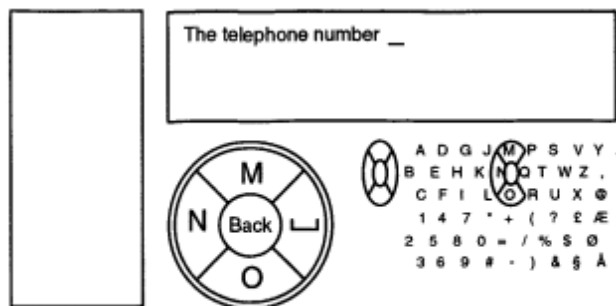


Fig. 9m

As shown these figures, *Badarneh's* positions I, II, III, and IV respectively correspond to up, left, down, and right buttons. EX1009, Figs. 8, 9a-9m, 3:30-33, 16:23-18:36; EX1003, ¶162. Other keypads in *Badarneh* are disclosed. EX1009, 22:15-23:6, 4:1-2, Figs. 12a and 12b; EX1003, ¶163.

A POSITA would also consider it obvious to use *Lee's* remote control, which only has four directional buttons) with the combined *Badarneh-Lee* system. EX1008, Fig. 5; 3:12-14 (“They include an up key 44, a down key 45, a left key 46, a right key 47, and an ‘action’ or ‘enter’ key 48.”). A POSITA, being motivated to use *Lee's* interface as discussed above, would further find *Lee's* remote appropriate for such usage, given the benefits of using a conventional four-button remote discussed above. EX1003, ¶164.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a “GUI with character mapped buttons (I-IV) corresponding to up, down, left and right configuration can be controlled by a multifunction key.” EX1017, 4; EX1003, ¶165.

4. 1d

Badarneh discloses that its system is an apparatus that “requires a memory and processing power,” and that the apparatus “has ... a display.” EX1009, 12:26-29, Abstract; *see also* 16:14-21 (“[T]he system can be construed with a microprocessor 14.”); EX1003, ¶166.

In the ’579 patent reexamination, the CRU found that *Badarneh* disclosed a “computer processor.” EX1017, 5; EX1003, ¶167.

5. 1e

Badarneh describes a GUI with an ***on-screen keyboard*** that includes a circular menu with characters (*i.e. one or more parts of an identifier*) corresponding to an up, down, left, and right key. EX1009, 14:30-15:2; EX1003, ¶168-69. This is shown in Figures 5b through 5e below:

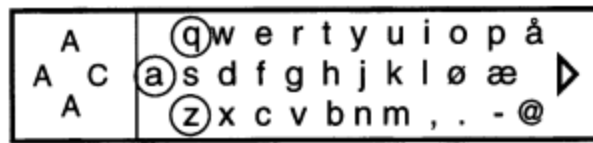


Fig. 5b

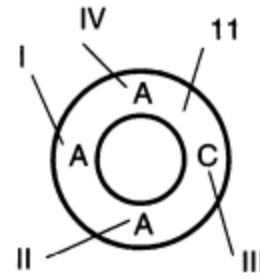


Fig. 5c



Fig. 5d

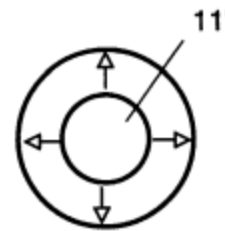


Fig. 5e

Figures 9-12 also depict a similar interface with an *on-screen keyboard*:

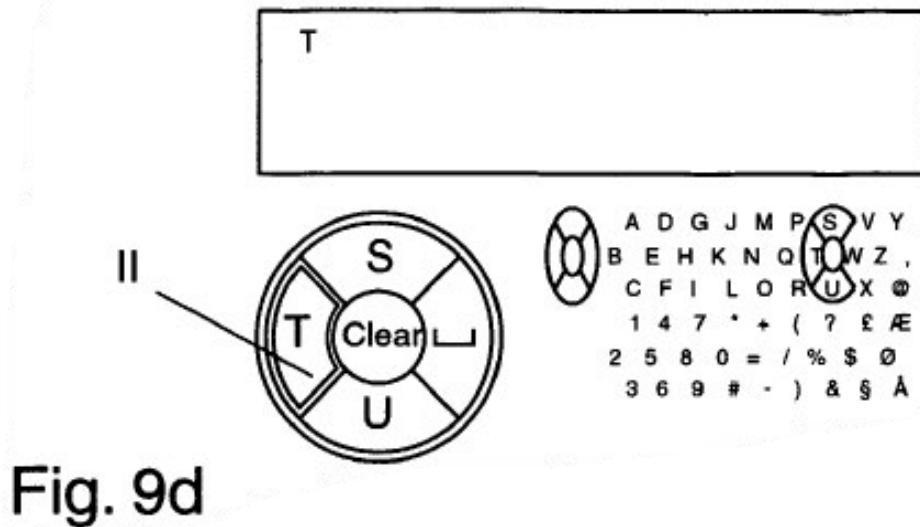
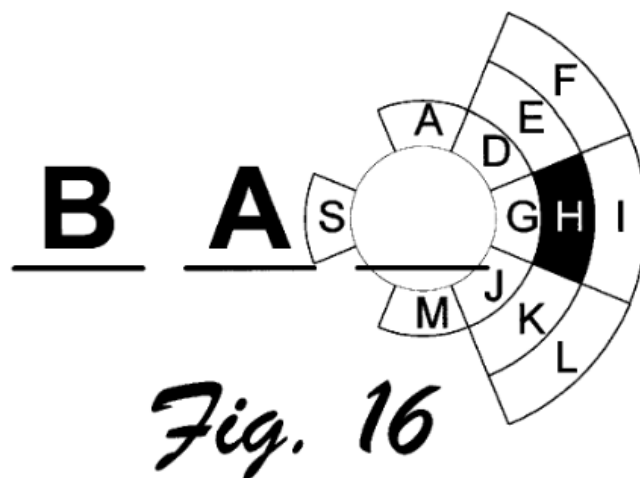


Fig. 9d

The *Perlman-Lee* combination also renders obvious this limitation. EX1003, ¶170. *Lee* discloses an interface with a circular menu over an on-screen keyboard. In Figure 16, the character “G” is positioned in a circular menu over the remaining

letters in the circular menus, which is an **on-screen keyboard** because it allows entry of characters via an on-screen interface. EX1008, 4:11-5:35.



In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “the first display comprises: a part of an item identifier corresponding to a first set of items and a part of an item identifier corresponding to a second set of items.” EX1017, 4-5. This limitation of the '579 patent is of substantially identical scope to limitation 1e in the '252 patent, with the exception of the requirement for a “television display” which, as discussed above in connection with limitation 1b, is disclosed by *Badarneh*. EX1003, ¶171.

6. 1f

Badarneh discloses a user selecting a letter from the GUI using the character mapped to the up, down, left, and right functions of the remote, *i.e.* **4-way directional controller**. EX1009, 16:23-31; EX1003, ¶172.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “the first display comprises: a part of an item identifier corresponding to a first set of items and a part of an item identifier corresponding to a second set of items.” EX1017, 4-5. This limitation of the '579 patent is of identical scope to limitation *1f* in the '252 patent. EX1003, ¶173.

7. *1g*

Badarneh discloses a ***further display of parts of item identifiers*** based on the user's input, as shown in Figure 9 of *Badarneh*. EX1009, 17:28-31; EX1003, ¶174. As shown in the below figures, after a user selects the letter “T” (*i.e. part of item identifier*) the interface displays “H”, “O”, “E” (***further parts of item identifiers***), which are arranged relative to each other in up/down/left/right positions.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “generating, by the at least one computer processor, in response to the selection of the one of the two parts, a further display; wherein the further display comprises: an additional part of an item identifier.” EX1017, 5. Further, the CRU found that *Badarneh* disclosed a “GUI with character mapped buttons (I-IV) corresponding to up, down, left and right configuration can be controlled by a multifunction key.” EX1017, 4. Taken together, these findings are substantially identical in scope to limitation *1g* in the '252 patent. EX1003, ¶176.

8. 1h

After a user *selects* a letter (*i.e.*, the letter T), a new set of *parts of item identifiers* is automatically mapped to the up down left right configuration GUI 1 and displayed for another user selection of *further parts of item identifiers*. EX1007, 17:29-34; EX1003, ¶177.

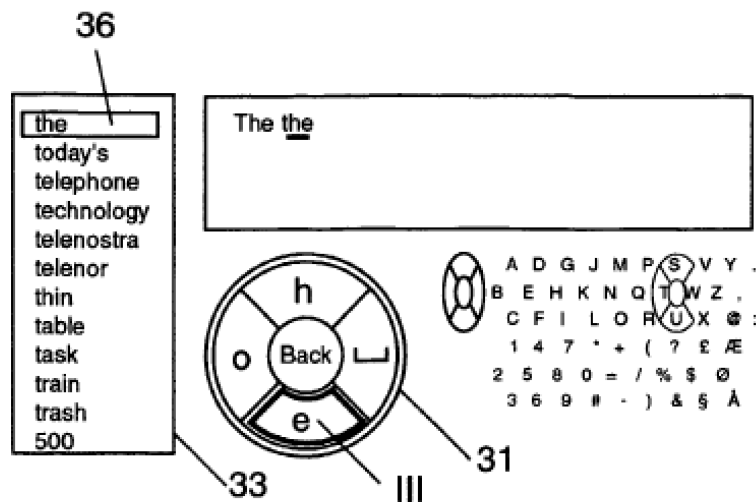


Fig. 9g

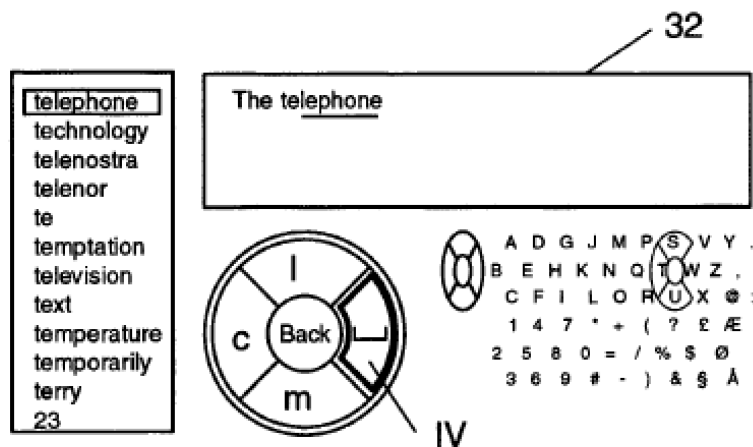


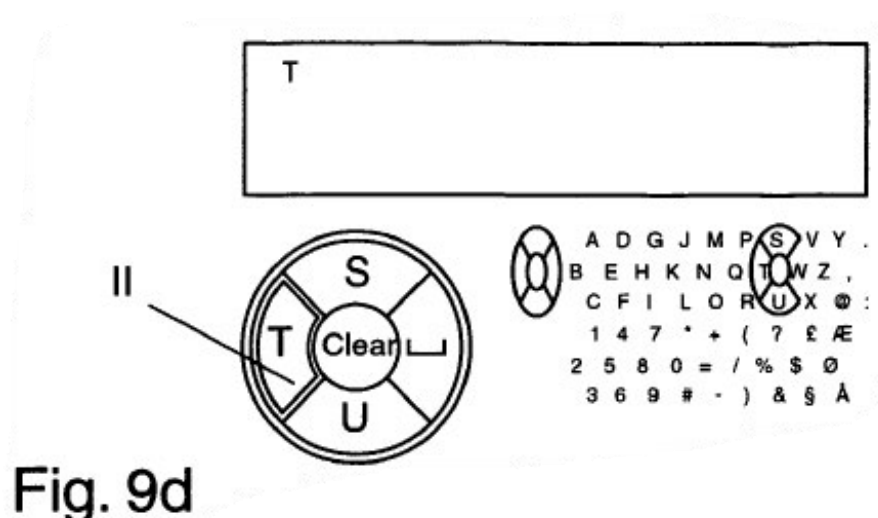
Fig. 9h

As the user selects additional characters (*i.e. selects further parts of the item identifiers*), the textbox shows that the *parts* are *added together to build a larger part of the item identifier*. EX1003, ¶177.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “the selected one of the two parts of the item identifiers with the selected one of the two additional parts of the item identifiers to create a larger part of the item identifiers.” EX1017, 6. This limitation of the '579 patent is identical in scope to limitation *1h* in the '252 patent. EX1003, ¶178.

9. 1i

Badarneh in view of *Lee* renders obvious this limitation. As discussed above, Petitioner proposes two possible combinations. In the first proposed combination, *Badarneh* is modified in view of *Lee* to allow selecting a character by using a directional button and a central action key, which meets this limitation. EX1003, ¶179.



In the second proposed combination, *Lee*'s interface is used, and as discussed above in Ground 1, *Lee* discloses this limitation. EX1003, ¶180.

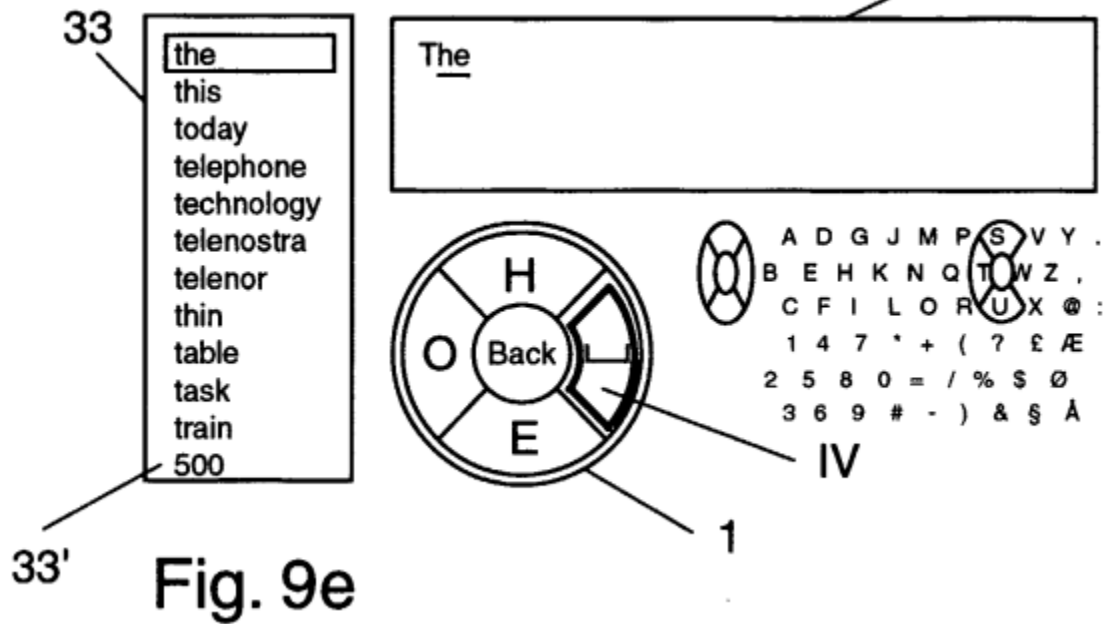
10. 1j

Badarneh discloses that the additional letters (such as the second or third letters to be selected), *i.e.* **further parts of item identifiers**, are **shorter** than complete item identifiers, as shown above in Figures 9a-m. EX1007, 9:20-24, 17:20-24. Specifically, a single letter is shorter than a single word. EX1003, ¶181.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring "wherein the additional parts of the item identifiers are shorter than complete item identifiers." EX1017, 7. This limitation of the '579 patent is of identical scope to limitation 1j in the '252 patent. EX1003, ¶182.

11. 1k

As discussed for element 1g, *Badarneh* teaches that **further parts of item identifiers** can be and are arranged in up, down, left, and right positions. In the first proposed combination with *Lee*, a POSITA would be motivated to modify *Badarneh* to allow selection of a character by using a directional button (*i.e.* **a key press corresponding to the relative arrangement**) to navigate to the character before selection, such as the down button to navigate to "E" in Figure 9e. EX1003, ¶¶183-84.



In the second proposed combination, *Lee*'s interface is used, which discloses this limitation. EX1003, ¶185. As *Lee* explains, the user can navigate to a letter by using the up/down/left/right buttons, *e.g.*, “[p]ressing up key 44 positions a focus on the ‘A’ symbol” in Figure 8. EX1008, 4:21-29. Thus, this discloses ***navigation to letter enabled by a key press corresponding to the relative arrangement of the letters on the display.***

D. Claim 2

Badarneh discloses that its system is an apparatus that “requires a memory and processing power,” and that the apparatus “has ... a display.” EX1009, 12:26-29, Abstract; *see also* 16:14-21 (“[T]he system can be construed with a microprocessor 14.”). This apparatus is separate from the remote control unit. *Id.*, 16:23-31. Thus, a POSITA would understand that in embodiments using a television

with a remote control device (e.g. a “remote control unit”), the processor would be within the television. EX1003, ¶186.

E. Claim 3

As discussed above for limitation 1i, the *Badarneh* -*Lee* combination involves a user using a 4-way directional controller (whether the remote described in *Badarneh* or that described in *Lee*) to navigate and select a character using *Lee*’s interface, i.e. ***further one or more parts of item identifiers***. *Lee* describes that this mechanism is used for selecting all characters and thus it would also apply to the initial ***one or more parts of item identifiers***. EX1008, 4:11-5:35; EX1003, ¶187.

F. Claim 4

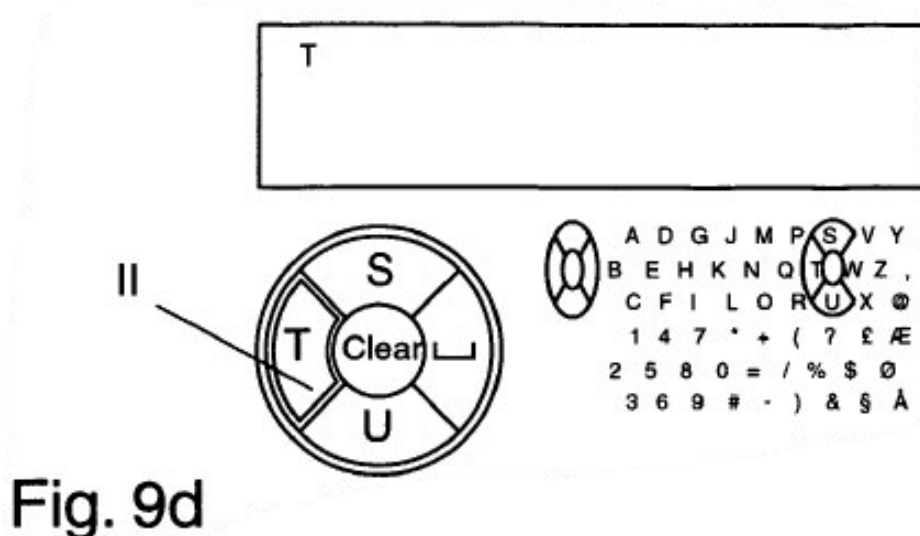
Badarneh teaches that once an initial character is selected, additional characters are displayed based on “the available list of words in the order made according to ***how often these words have been used statistically***.” EX1009, 17:29-31. This includes the display of the second group of letters, i.e. ***further one or more parts***. The commonality of words is ***a ranking scheme*** where more letters in more common words are ***higher ranked***. Thus, as disclosed in *Badarneh*, the most common letters are ***positioned in one of the up, down, left and right positions***, and the remaining letters are not initially displayed. In the second proposed combination with *Lee*, the remaining letters can be accessed by navigating through the rings. EX1008, 4:11-5:35. *Lee* even teaches that certain layouts of the rings “may be

preferable in some situations,” and a POSITA would understand that *Badarneh*’s commonality-ranked characters is one such situation. EX1003, ¶188.

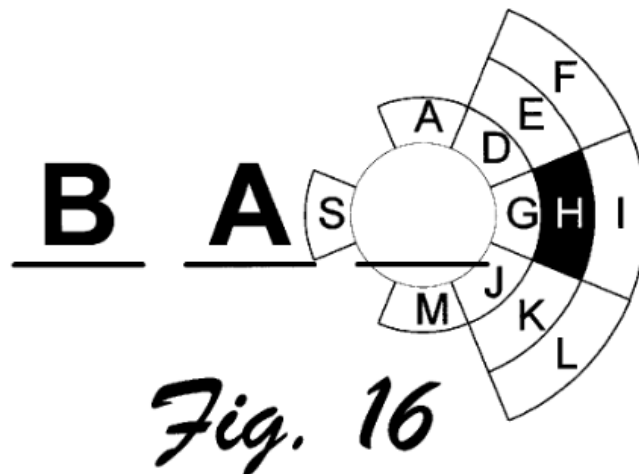
G. Claim 5

As discussed above, the proposed combinations either use *Badarneh*’s interface or *Lee*’s interface. Moreover, as discussed above, *Badarneh* discloses ranking characters by commonality.

Both *Badarneh* and *Lee* disclose this limitation. *Badarneh* discloses that its interface has an **on-screen keyboard**, with characters displayed in a **circular menu** over that placed in up/down/left/right positions to indicate the directional button to use to navigate to that character. EX1009, 14:30-15:2. This is shown in Figure 9d for example, where the letter “T” is placed on the left to indicate that the left button will navigate it to that character. EX1003, ¶189-90.



As for *Lee*, characters are positioned in a ***circular menu over the on-screen keyboard on the television display***. For example, in Figure 16, the character “G” is positioned in a circular menu over the remaining letters in the circular menus, which is an ***on-screen keyboard*** because it allows entry of characters via an on-screen interface. EX1008, 4:11-5:35. As shown in that figure, the placement of the character “G” ***indicates that it can be selected using one of the directions of the directional controller***, specifically the left button in Figure 16. EX1003, ¶191.



H. Claim 7

The characters in *Badarneh* are ***parts of item identifiers***, which are used to ***index database items***. The characters chosen for display are “the most likely words that begin with the entered letter or letters, preferably in an order determined by how many points the word or letter combination has been given, such points being related to the frequency of use of such combinations.” EX1007, 16:24-31. *Badarneh* also discloses that the ***item identifiers*** are stored in “a ***database*** which contains options

and data that should be available.” *Id.*, 24:15-19. As Dr. Madisetti explains, due to *Badarneh*’s disclosure of retrieving a list of items from the database, such **items** are **capable of being queried** and have an **index based on the item identifiers** that were used to populate the list. EX1003, ¶192.

I. Claim 8

As discussed above in Ground 1, claim 8 requires that the claimed system uses less key presses than prior art systems described in the ’252 patent. EX1003, ¶¶193-94.

This limitation is met in two ways. *First*, *Badarneh* in view of *Lee* render obvious this limitation because (under both proposed combinations), the most common characters are displayed and selected using at most two key presses (a directional input and an action key), as discussed in limitation 1*i*. EX1003, ¶195. Once several characters are entered, an item can be selected by pressing a dedicated “dedicated “switch,” which activates a marker for selecting an item within the list. EX1007, 18:31-36. This process requires **fewer key presses** than the prior art methods where entry of a character often requires more than two key presses, such as a joystick navigating a full on-screen qwerty keyboard. EX1003, ¶195.

Alternatively, the above-described mechanism requires **fewer key presses**. A user could enter the entire or almost the entire name of the desired title, which results in only a handful (or even just one) title displayed in the database. This would

involve fewer key presses than only entering four characters and scrolling through dozens of items, as claimed. EX1003, ¶196.

J. Claim 9

As discussed above for elements *1f* and *1g*, *Badarneh* discloses an ***iterative or progressive*** selection process in which the user enters ***parts of item identifiers*** until he/she identifies and ***selects*** the desired ***item identifier*** for the ***selected item***. EX1003, ¶197.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “iterating the selections until the item identifiers are completed.” EX1017, 7. This limitation of the '579 patent is of identical scope to claim 9 in the '252 patent. EX1003, ¶198.

K. Claim 10

As discussed above for elements *1e* and *1g* and claim 4, *Badarneh* teaches processes in which statistical analysis and ranking of ***item identifiers*** drives which ***parts of item identifiers*** are to be displayed. Such statistical frequency of ***parts of item identifiers*** satisfies the required ***predetermined criterion***. EX1003, ¶199. A POSITA would also understand that such a criterion can be used for any display of characters, including the initial display. However, the claimed ***initial display*** need not necessarily be the very first character to be entered—the claim is also met by

subsequent displayed characters, as long as further characters are displayed after selection. EX1003, ¶199.

In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “wherein the step of generating the first display includes selecting the parts of the item identifiers for the first and second set of items to be displayed based on predetermined criteria.” EX1017, 8. This limitation of the '579 patent is substantially identical to claim 10 in the '252 patent. EX1003, ¶200.

L. Claim 11

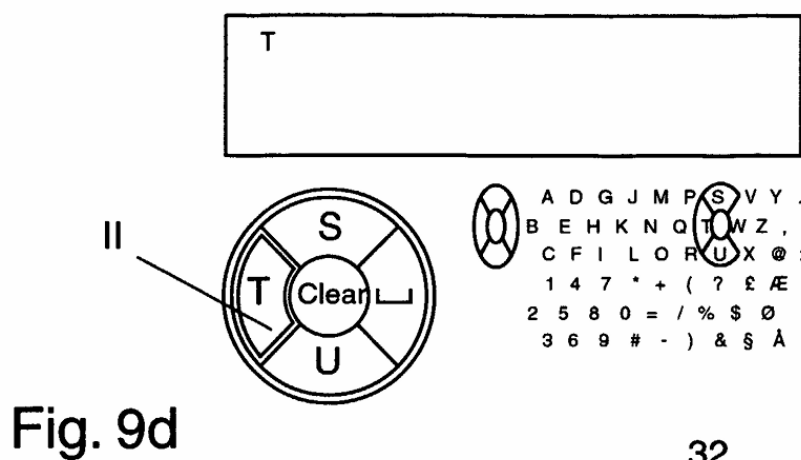
As discussed above for claim 10, *Badarneh* discloses a predetermined criterion, namely the use of statistical analysis and ranking to order the list of words (*item identifiers*) “according to ***how often these words have been used statistically.***” EX1009, 17:29-31. From the list of criteria in Claim 11, such a statistical ordering constitutes a “frequency of selection of ***items*** (words) associated with the pluralities of ***portions of the item identifiers*** (letters)” and “a likelihood of selection of the ***items*** associated with the pluralities of ***portions of the item identifiers.***” As discussed above, examples of statistical analyses of and prioritization rules for the data entries in its database include: the following predetermined criteria: “a) the frequency of previous use of the phrases, or b) standard frequency of the occurrence of the phrases, or c) alphabetical order, or d) most probable phrases in conjunction with other used phrases, or e) style, terminology, dialect or language.” *Id.*, 26:33-

27:2. As such, *Badnareh* teaches the use of customizable data organization within its database. A POSITA would be able to employ statistical analysis, as *Badarneh* teaches, to practice any of the predetermined criteria in Claim 11. EX1003, ¶201.

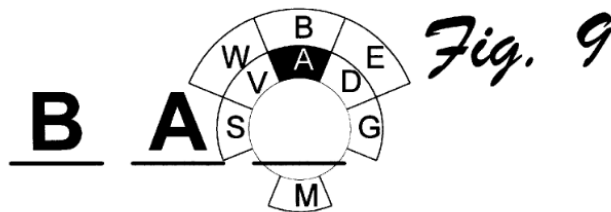
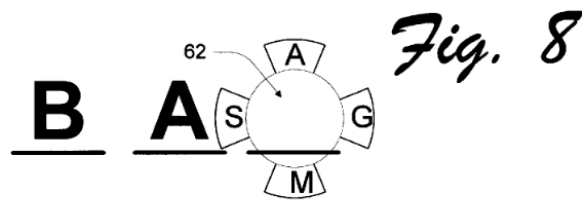
In the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “wherein one of the predetermined criteria is a frequency of selection of database items associated within the item identifier parts for the first and second set of items.” EX1017, 8. This limitation of the '579 patent is of identical scope to claim 11 in the '252 patent. EX1003, ¶202.

M. Claim 12

In Figure 9d, parts of item identifiers “S,” “T,” and “U” are shown. EX1003, ¶203.

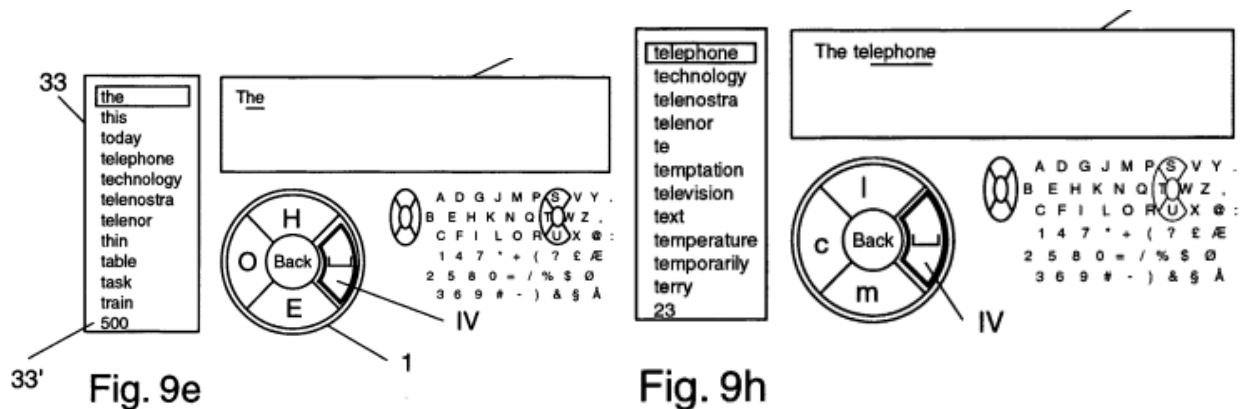


In the second proposed combination, *Lee*'s interface displays a ***plurality of parts of item identifiers***, such as the letters “S”, “A”, “G”, and “M” shown in Figure 8. EX1008, 4:21-29; EX1003, ¶203.



N. Claim 13

In *Badarneh*, an **item** can be selected from a list of **item identifiers** by toggling a dedicated “switch” to activate a marker on the word list, selecting an item within that list. EX1009, 18:31-36, 17:28-37, 18:5-10; EX1003, ¶204.



**VIII. GROUND 5: *BADARNEH, LEE* AND *DOSTIE* RENDER OBVIOUS
CLAIMS 6 AND 11****A. Motivation to Combine *Badarneh*, *Lee* and *Dostie***

It would have been obvious to incorporate *Dostie*'s dictionary trees and rankings based on tree hierarchy classifications into *Badarneh* for a variety of reasons. The inclusion of *Lee*, which only modifies *Badarneh*'s interface, does not alter this analysis. EX1003, ¶208. First, it was well known at the time of *Perlman* to conduct database searches using hierarchical trees like the ones described in *Dostie*. EX1003, ¶205. *Dostie* also provides express motivation to incorporate its candidate trees to “rapidly predict potential completion candidates” and “provide[] a mechanism for supporting enhanced data entry techniques such as character prediction,” which describes *Perlman*'s systems. EX1005, ¶[0097]; EX1003, ¶205.

Indeed, as Dr. Madisetti explains, “hierarchical search trees are the most efficient way to identify matching prefixes because they promote efficient traversal forward and backward through a series of search candidates stored in nodes of the tree.” EX1003, ¶206. Thus, databases frequently used search trees and other hierarchical classifications to search, rank, and select entries. *Id.* Moreover, as described above, *Badarneh* can already display a sorted list of database items matching the first *N* letters of the user's input and enables the use of predetermined criteria for prioritizing the database items. EX1007, 26:32-27:2.

At the time of *Badarneh*, such searching was routinely performed using a hierarchical search tree. EX1003, ¶208. Due to these well-known benefits and a POSITA's knowledge of predictive keypad systems used to query databases, a POSITA would have had a reasonable expectation of success in achieving the desired result of efficiently calling up and displaying content of interest to a user. As such, the trees *Dostie* teaches would have been a trivial and routine addition to *Badarneh* that would have yielded extremely predictable results (*e.g.*, permitted simple and efficient searching of database entries based on a known prefix, frequency of previous use, standard frequency of occurrence, relationships among and between data entries, alphabetical order, or based on style, dialect, or language), like the searching discussed in *Badarneh*.

B. Claims 6 and 11

As discussed above in Ground 2, *Dostie* discloses hierarchical trees and classifications. EX1006, ¶[0088], [0090]-[0097]. As further discussed above, a POSITA would be motivated to *Dostie*'s tree structure into *Badarneh* because *Dostie* itself recognizes that use of a candidate tree helps “to rapidly predict potential completion candidates” and “provides a mechanism for supporting enhanced data entry techniques such as character prediction.” *Id.*, ¶[0097]. The “enhanced data entry techniques” and “character prediction” are the same techniques *Badarneh* describes, so a POSITA would have found it natural to incorporate *Dostie*'s

candidate tree into the customizable database organization, structure, prioritization, and searches of *Badarneh*. EX1003, ¶210.

IX. SECONDARY CONSIDERATIONS

In IPR2020-00737 and IPR2020-00738, Kannuu requested, and Samsung produced,¹ documents that, according to Kannuu, are relevant to secondary indicia. Kannuu had those documents translated and relied on them throughout their briefing in those IPRs, arguing that they supported secondary indicia of industry praise (IPR2020-00737, Paper 36, § II.B), industry recognition (*id.*, § II.C), copying (*id.*, § II.D), unexpected results (*id.*, § II.E), and failure of others (*id.*, § II.F). EX1013, 87.

Before reaching a decision in those cases, the Board ordered, and Samsung provided, extensive discovery into alleged secondary considerations. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Kannuu also alleged that there was industry praise of Kannuu's inventions, and that the commercial success of Samsung's allegedly infringing televisions was evidence of commercial success. In connection with these requests, early in the proceedings after institution, Samsung voluntarily made a production of documents

¹ Samsung produced such discovery materials voluntarily.

relating to Kannuu’s allegations. Kannuu, indeed, cited these documents throughout its PORs in those cases. *See, e.g.*, IPR2020-00737, Paper 36 at 18-20 fns. 26-40.

On March 29, 2021, the Board granted Kannuu’s request for an interrogatory response and a 30(b)(6) corporate deposition of Samsung. IPR2020-00737, Paper 70. Samsung provided that discovery response (EX1027) and its corporate designee, Sangyoon Kim was deposed on May 4, 2021 (EX1026). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Before this interrogatory response and deposition, but after Samsung had submitted its reply, [REDACTED]

[REDACTED]

² This translation was certified. Decl. xxx.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

EX1059; EX1058. Kannuu, however, moved to strike this document because it was initially produced untranslated. The Board granted this motion as part of its FWD (EX1013, 16) and, therefore, did not consider this important evidence.

At the same time, Kannuu had produced no documents of its own relevant to any secondary considerations, and Samsung therefore sought discovery into licensing and other relevant secondary indicia of obviousness. The Board granted that discovery on April 16, 2021. IPR2020-00737, Paper 73. Kannuu thereafter produced documents, attached here as EX1033 through EX1056. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

In the FWD, [REDACTED]

[REDACTED] The Board also rejected Kannuu’s argument that there is a presumption of nexus as to Samsung’s accused TVs. *Id.*, 91.

For actual nexus, the Board addressed each alleged secondary indicia separately. For industry praise and recognition, the Board found that Kannuu “fail[ed] to sufficiently link the praise and industry recognition to any unique characteristics of the invention” of the claims. *Id.*, 92. For copying, the Board found that Kannuu “has not shown that Petitioner’s product, the Samsung Smart TV, embodies, or is similar to, the product” of the claims. *Id.*, 93. For commercial success, the Board found that Kannuu had “not shown that the commercial success of Petitioner’s products was the result of the unique characteristics of those claims rather than due to other considerations (for example, other technological features included in the Samsung Smart TV product, Petitioner’s marketing of that product, or simply by virtue of Petitioner’s brand name recognition).” *Id.*, 94. For unexpected

results, the Board found that Kannuu had failed to tie its arguments “to the specific features of the claims at issue.” *Id.*

In sum, the Board found no nexus, presumed or actual, for any secondary indicia of non-obviousness. *Id.*, 95. On that basis, the Board gave secondary indicia “little weight.” *Id.*

Thus, as the Board correctly found, there are no secondary considerations of non-obviousness. EX1003, ¶¶211-14. However, out of an abundance of caution, Samsung reproduces here all alleged evidence supporting secondary indicia produced in connection with IPR2020-00737 and IPR2020-00738.

X. MANDATORY NOTICES

A. *Grounds for Standing (37 C.F.R. § 42.104(a))*

Petitioner certifies that the '252 Patent is available for *inter partes* review and Petitioner is not barred or estopped from requesting review of the Challenged Claims on the grounds identified in this Petition.

B. *Real Party-in-Interest (37 C.F.R. § 42.8(b)(1))*

The real parties-in-interest for Petitioner are Samsung Electronics America, Inc. and Samsung Electronics Co., Ltd.

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

The following judicial or administrative matters may affect or be affected by a decision in this proceeding: *Kannuu Pty Ltd. v. Samsung Electronics Co., Ltd. et*

al., 1:19-cv-04297-ER (S.D.N.Y.). In that action, Patent Owner has asserted the '939 Patent (EX1001) and the '252 patent (EX1022).

IPR2020-00737, IPR2020-00738, and Reexamination Nos. 90/014,759, 90/014,760, and 90/014,761 involved family members of the '939 and '252 patents, previously asserted against Samsung in the above-referenced district court litigation.

D. *Lead and Backup Counsel and Service Information (37 C.F.R. § 42.8(b)(3)-(4))*

The designations of counsel and address for service³ are:

LEAD COUNSEL	BACKUP COUNSEL
James M. Glass (Reg. No. 46,729) jimglass@quinnemanuel.com QUINN EMANUEL URQUHART & SULLIVAN, LLP 295 Fifth Avenue, 9th Floor New York, NY 10016 Tel: (212) 849-7000 Fax: (212) 849-7100	John T. McKee (Reg. No. 65,926) johnmckee@quinnemanuel.com QUINN EMANUEL URQUHART & SULLIVAN, LLP 295 5th Avenue, 9th Floor New York, New York 10016 Tel: (212) 849-7000 Fax: (212) 849-7100 Nagendra Setty (Reg. No. 38,300) nicksetty@quinnemanuel.com QUINN EMANUEL URQUHART & SULLIVAN, LLP 1109 First Avenue, Suite 210 Seattle, WA 98101 Tel: (206) 905-7000

³ Petitioner consents to electronic service to QE-Samsung-Kannuu-IPRs@quinnemanuel.com and the email addresses listed in the table below.

PUBLIC VERSION

U.S. Patent No. 11,200,252
Petition for *Inter Partes* Review

	Quincy Lu (Reg. No. 76,954) quincylu@quinnemanuel.com QUINN EMANUEL URQUHART & SULLIVAN, LLP 1109 First Avenue, Suite 210 Seattle, WA 98101 Tel: (206) 905-7000
--	--

E. *Fee for Inter Partes Review*

The required fees are submitted herewith. Petitioner authorizes the Patent Office to charge Deposit Account No. 50-5708 for any additional fees required for this filing.

Respectfully submitted,

Date: October 22, 2025

/s/ John T. McKee

John T. McKee (Reg. No. 65,926)

CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the word count for the foregoing Petition for *inter partes* review (excluding the table of contents, table of authorities, mandatory notices, certificate of service or word count, and appendix of exhibits or claim listing) totals 13,915 words, which is less than the 14,000 words allowed under 37 C.F.R. § 42.24(a)(i).

Date: October 22, 2025

/s/ John T. McKee

John T. McKee (Reg. No. 65,926)

PUBLIC VERSION

U.S. Patent No. 11,200,252
Petition for *Inter Partes* Review

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e), 42.105(a), the undersigned hereby certifies a copy of this Petition and its respective exhibits was served on October 22, 2025 at the official correspondence address for the attorney of record for the '252 patent as shown in USPTO Patent Center via EXPRESS MAIL:

Jones Day
250 Vesey Street
New York, NY 10281-1047

Courtesy copies were also sent via FedEx and electronic mail to Patent Owner's counsel of record in the related district court proceeding:

Ted Sichelman <Sichelman@ProgressLLP.com>

Perry Goldberg <Goldberg@ProgressLLP.com>

Lewis Hudnell <Hudnell@ProgressLLP.com>

Date: October 22, 2025

/s/ John T. McKee

John T. McKee (Reg. No. 65,926)

