UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS AMERICA, INC.
Petitioner

v.

KANNUU PTY LTD.
Patent Owner

Case IPR2026-00071
Patent No. 11,573,939

DECLARATION OF VIJAY MADISETTI, PH.D. IN SUPPORT OF SAMSUNG'S REQUEST FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 11,573,939 UNDER 35 U.S.C § 312 AND 37 C.F.R. § 42.104

Samsung Ex. 1003

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EXHIBIT LIST

No.	Short Name	Exhibit
1001	'939 Patent	U.S. Patent No. 11,573,939
1002	'939 File History	File History of U.S. Patent No. 11,573,939
1003	Madisetti Decl.	Declaration of Vijay Madisetti, Ph.D.
1004	Madisetti CV	Curriculum Vitae of Vijay Madisetti, Ph.D.
1005	*Perlman*	U.S. Pat. Pub. No. 2002/0113825 A1
1006	*Dostie*	U.S. Pat. Pub. No. 2004/0021691
1007	*Pu*	U.S. Patent No. 7,152,213
1008	*Josenhans*	U.S. Patent Publication No. 2002/0078013
1009	*Badarneh*	Int'l Patent Pub. No. WO2002/091160
1010	*Schroeder*	U.S. Patent No. 5,797,098
1011	*Strubbe*	U.S. Patent No. 5,223,924
1012	*Montgomery*	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, *Kannuu Pty Ltd. v. Samsung Elecs. Am., Inc.*, No. 22-1526 (Fed. Cir. Oct. 11, 2013)

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	'252 Patent	U.S. Patent No. 11,200,252
1023		Samsung Document Production SAMSUNG_K_00035577-00035704 (filed under seal)
1024		[*intentionally omitted*]
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)

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)
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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)

1. My name is Vijay Madisetti, Ph. D. I have been retained on behalf of Samsung Electronics America, Inc. ("Samsung") to provide this Declaration in support of Samsung's Petition for *inter partes* review of ("Petition") of U.S. Patent No. 11,573,939 ("the '939 Patent"), entitled "Process and Apparatus for Selecting an Item from a Database" (the "Challenged Patent," whose claim 1 is referred to as the "Challenged Claim"). The '939 patent is assigned to Kannuu Pty Ltd. ("Patent Owner" or "Kannuu") and is the latest patent Kannuu has asserted against Samsung.

2. I am being compensated for my time at the rate of $700 per hour. My compensation is not based on the resolution of this matter. My findings are based on my education, experience, and background in the fields discussed below.

3. In preparing this declaration, I have reviewed and am familiar with all the prior art references referenced herein including at least the following:

> ***Perlman*** is U.S. Patent Pub. No. 2002/0113825 A1 to Perlman *et al.*
>
> ***Dostie*** is U.S. Patent Pub. No. 2004/0021691 to Dostie *et al*.
>
> ***Badarneh*** is WO 2002/091160 A1
>
> ***Josenhans*** is U.S. Patent Pub. No. 2002/0078013 A1 to Josenhans
>
> ***Schroeder*** is U.S. Patent No. 5,797,098 to Schroeder *et al*.
>
> ***Krohn*** is U.S. Patent No. 6,593,913 to Krohn *et al.*

I have also considered all other materials cited and discussed herein. I have reviewed the Challenged Patents and their file histories.

4. Kannuu asserted the ’939 patent and another patent, U.S. Patent No. 11,200,252, 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. In my opinion, the scope of the claims of these now-invalid patents is substantially the same as the Challenged Claim of the ’939 patent.

5. The ’939 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, 4:53-64. The user can then select one of the available displayed item identifiers using the joystick. *Id.*, Abstract.

6. As described in more detail below, however, Patent Owner was not the first to propose the claimed selection method. In the late 1990s and early 2000s—well before the earliest possible priority date of the ’939 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 the *Perlman* and *Badarneh* prior art, which are the primary references presented in this Petition.

7. For the same technical reasons as in the prior proceedings involving the related, now invalidated, Kannuu patents—the '354, '579, '852, '393, and '264 patents—the Challenged Claim is invalid.

I. QUALIFICATIONS

8. My qualifications can be found in my Curriculum Vitae, which is submitted with this Declaration as Exhibit 1004 and includes a complete list of my publications.

9. My educational qualifications began in the early 1980s at The Indian Institute of Technology, Kharagpur, from which I graduated in 1984 with a B. Tech (Hons) in Electronics and Electrical Communications Engineering. I then moved to the U.S. and joined a doctoral program at University of California at Berkeley, from which I graduated in 1989 with a Ph. D. in electrical engineering and computer sciences.

10. I then moved to The Georgia Institute of Technology ("Georgia Tech") and have been a Professor of Cybersecurity & Privacy, and Electrical & Computer Engineering since 1989.

11. I have been a Director of three startup companies, VP Technologies, Inc., Soft Networks, Inc., and Elastic Video, Inc.

12. I am a named inventor on 38 U.S. patents.

13. I have authored or co-authored 12 books in the fields of cloud computing, block chain, and other electrical and software technologies.

14. I have also published over 100 articles in peer-reviewed journals and other academic publications, such as conference publications. I am also a first inventor on over 70 issued US patents.

15. I have mentored 25 students who have been awarded doctoral degrees.

16. I have received numerous awards in my field and am also a Fellow of the IEEE.

II. LEGAL UNDERSTANDING

A. The Person of Ordinary Skill In the Art

17. I understand that a person of ordinary skill in the relevant art (also referred to herein as "POSITA") is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity—not an automaton.

18. I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made. In deciding the level of ordinary skill, I considered the following:

- the levels of education and experience of persons working in the field;
- the types of problems encountered in the field; and
- the sophistication of the technology.

19. My opinion below explains how a POSITA would have understood the technology described in the references I have identified herein around the August 2006 timeframe. I have been advised that the earliest possible effective filing date of the '939 Patent is August 12, 2005.

20. In my opinion, a POSITA at that time would be a person with 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 2 years of work experience with input interfaces to electronic devices.

21. I am well-qualified to determine the level of ordinary skill in the art and am personally familiar with the technology of the '939 patent in the August 2005 timeframe.

22. By 2005, I had completed my graduate degree and been a Professor at Georgia Tech since 1989. The work highlighted in my CV discussing digital signal

processing included processing of input signals for electronic devices. I was also familiar with the design of input interfaces from my time in academia and at various startups I founded.

23. I was a person of at least ordinary skill in the art at this timeframe. Regardless, if I do not explicitly state that my statements below are based on this timeframe, all of my statements are to be understood as a POSITA would have understood something as of the earliest effective filing date of the Challenged Patents.

B. My Understanding of Patent Invalidity Law (Anticipation & Obviousness)

24. I am not a lawyer and will not provide any legal opinions. Though I am not a lawyer, I have been advised that certain legal standards are to be applied by technical experts in forming opinions regarding the meaning and validity of patent claims.

25. I understand that a patent claim is invalid if each and every element of the claim is disclosed by a single prior art reference. This is known as anticipation, and the claim is said to be "anticipated" by the prior art reference.

26. I understand that disclosure of a limitation of a patent claim can be "express" or "inherent." Express disclosure means the limitation is actually disclosed in the words or figures of the reference, while inherent disclosure means

that the limitation is necessarily present or the natural, inevitable result of the elements explicitly disclosed.

27. I understand that a patent claim is invalid if the claimed invention would have been obvious to a person of ordinary skill in the field at the time the application was filed. This means that even if all of the limitations or requirements of the patent claim cannot be found in a single prior art reference that would anticipate the claim, the claim can still be invalid as obvious in view of that reference or in view of multiple prior art references.

28. To obtain a patent, a claimed invention must have been, as of the invention date, nonobvious in view of the prior art in the field. I understand that an invention is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

29. I understand that to prove that prior art, or a combination of prior art, renders a patent obvious, it is necessary to: (1) identify the particular references that singly, or in combination, make the patent obvious; (2) specifically identify which elements of the patent claim appear in each of the asserted references; and (3) explain how the prior art references would have been combined to create the inventions claimed in the asserted claim. I understand that the combination of

familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. I also understand that when there are a finite number of identified, predictable solutions, a POSITA has good reason to pursue the known options within his or her technical grasp. I further understand that design incentives or market forces can motivate a POSITA to modify or combine teachings in the same field or in different fields. When considering obviousness of a combination of known elements, the operative question is thus whether the improvement is merely the predictable use of prior art elements according to their established functions.

30. I understand that certain objective indicia or "secondary considerations" can be important evidence regarding whether a patent is obvious or nonobvious. Such indicia include: (1) commercial success of products covered by the patent claims; (2) a long-felt need for the invention; (3) failed attempts by others to make the invention; (4) copying of the invention by others in the field; (5) unexpected results achieved by the invention as compared to the closest prior art; (6) praise of the invention by the infringer or others in the field; (7) the taking of licenses under the patent by others; (8) expressions of surprise by experts and those skilled in the art at the making of the invention; and (9) the patentee proceeded contrary to the accepted wisdom of the prior art.

31. For the reasons I set out below, in my opinion, the prior art references either anticipate or demonstrate a strong case of obviousness against the Challenged Claim of the '939 patent. The prior art references therefore invalidate the Challenged Claim.

32. I understand that in evaluating the invalidity of the Challenged Claim, the content of a prior art patent or printed publication should be interpreted the way a POSITA would have interpreted the prior art as of the effective filing date of the Challenged Patent (August 2006).

33. My analysis below is based upon this understanding.

C. My Understanding of Claim Construction

34. I have been instructed by counsel on the law regarding claim construction and patent claims, and understand that a patent may include two types of claims—independent claims and dependent claims. An independent claim stands alone and includes only the features it recites. A dependent claim depends from an independent claim or another dependent claim. I understand that a dependent claim includes all the features that it recites in addition to all of the features recited in the claim(s) from which it depends.

35. I reserve my right to amend or alter my analysis and opinions in view of the Patent Owner's proposed claim constructions, if any.

III. BACKGROUND OF THE TECHNOLOGY

36. The alleged invention described in the Challenged Claim of the ’939 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 ’939 patent itself, there was a well-known problem inputting textual data into on-screen user interfaces without a full keyboard. EX1001, 1:53-2:47. Mobile phones, PDAs, television remote controls, and set-top boxes all shared this problem.

A. Predictive Keyboards

37. The use of on-screen keyboards exploded in the 1990s, thanks to the proliferation of interactive televisions and smart phones. Almost immediately thereafter, user interface designers began working on ways to simplify and expedite textual input using the on-screen keyboards. *Schroeder* (EX1010), filed in 1995, describes an improved mobile telephone user interface with both a predictive keyboard input method and automatic word completion. EX1010, 1:39-45, 4:20-6:15. *Schroeder’s* predictive method is shown in Figures 1A and 4:

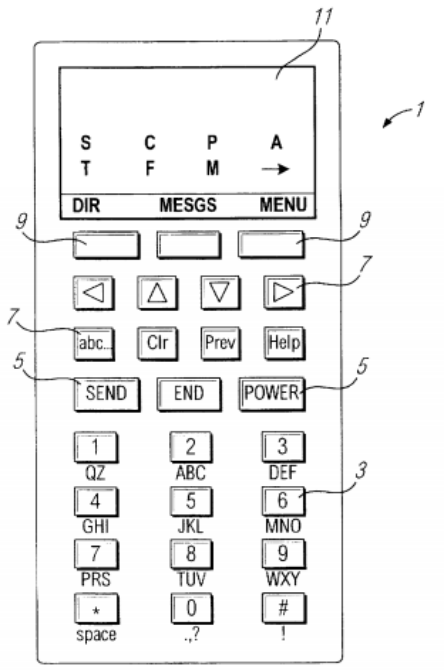


FIG. 1A

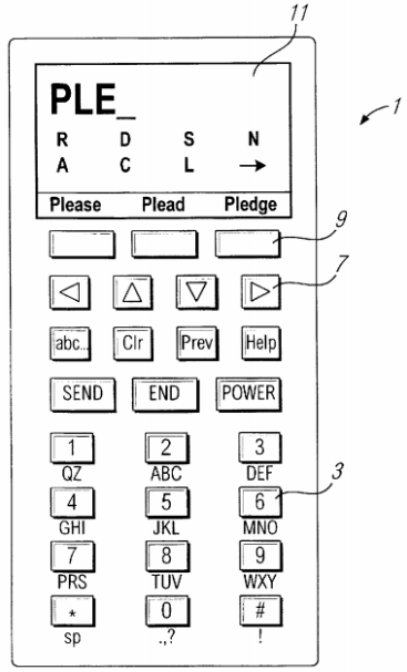


FIG. 4

38. *Pu* (EX1007) also relates to an improved user input interface that 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 shown in Figures 6C and 6B, as a user is inputting characters into the display, tables are created listing the possibilities for the next character input according to the frequency of that input.

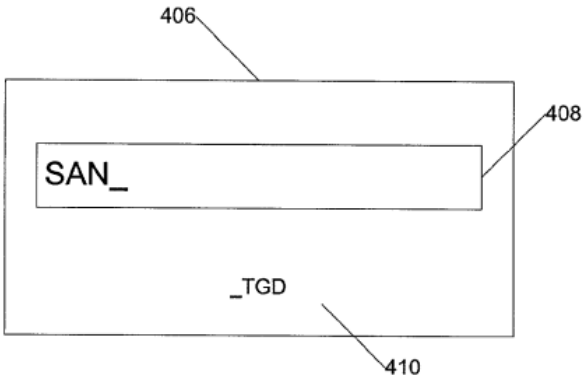


FIG. 6C

404

Letter	Frequency
SAN_	30
SANT	11
SAND	1
SANG	1

FIG. 6B

39. In one embodiment of *Pu*, a four-direction (up, down, left, and right) shuttle control system is used as the input mechanism. *Id.*, 7:59-8:4.

B. Database Indexing, Searching, and Selection

40. Databases have been used to store information, such as names, addresses, and messages for decades before the ’252 patent. Almost immediately after databases for storing vast amounts of information were developed, methods for automatically indexing and searching the information were developed. EX1012.

41. *Strubbe* (EX1011), filed in 1992, discloses “program information databases” for television programs that are automatically correlated with the preferences of the user. EX1011, 4:17-5:32. A user browses the data in the databases by specifying one or more of these indices. *Id.* A “free text” search field also allows users to perform simple database queries and display the results. *Id.*, 5:48-6:24.

42. By 1995, “[t]he implementation of such dictionary trees or lookup tables in the computer arts [was] well known.” EX1009, 7:10-25.

IV. THE ’939 PATENT

A. Overview

43. The ’939 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.*

44. In an embodiment, the 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.*, 4:56-64.

B. Prior IPRs Against Related Patents

45. The ’939 patent is a continuation of U.S. Patent No. 9,436,354, 8,996,579, and 8,676,852. It is also related to U.S. Patent No. 8,370,393, which is likewise a continuation of an earlier application in the ’939 patent’s priority chain. Each of the ’354, ’579, ’852, and ’393 patents were previously asserted by Kannuu in the co-pending district court case, and I understand that each has been invalidated.

46. I understand that the PTAB invalidated the challenged claims of the ’354 and ’393 patents in IPR2020-00737 (EX1013) and IPR2020-00738 (EX1014), respectively, and the ’852 and ’579 patents were invalidated in Reexamination Nos. 90/014,760 (EX1015, EX1016) and 90/014,761 (EX1017, EX1018), respectively. I

understand that the Federal Circuit summarily affirmed the ’354 and ’393 patent IPRs.

47. In my opinion, the claims of the ’939 patent have substantially the same scope and closely map to the claims of these earlier, invalidated patents.

48. Moreover, I note that the prior art in each of these proceedings overlaps with the art I opine on in this proceeding.

- In IPR2020-00737, the PTAB found the claims of the ’354 patent anticipated by *Perlman* and obvious over *Perlman* in view of *Dostie* and *Perlman* in view of *Pu*. EX1013 at 105.
- In IPR2020-00738, the PTAB found the claims of the ’393 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.

49. I have reviewed the decisions in all of the above proceedings. For the same reasons as in those cases, the claims of the ’939 patent are invalid as shown below.

50. Finally, I understand that Kannuu previously asserted U.S. Patent No. 9,697,264. EX1022. The '264 patent was invalidated in Reexamination No. 90/014,759 (EX1020, EX1021). The claims of the '264 patent were found to be invalid based on combinations of *Perlman* in view of *Dostie*, *Josenhans*, *Krohn*, and *Badarneh*; *Badarneh* in view of *Josenhans*; and *Schroeder* in view of *Josenhans*. EX1020.

C. Prosecution History

51. The '939 patent was filed on August 13, 2019. The '939 patent claims the benefit of AU2005904378, filed August 12, 2005. EX1001; EX1002, 675.

52. I provide a detailed summary of the prosecution history below. I note that of the claims that were submitted, only then-claim 55 was eventually allowed. That claim was allowed in the examiner's first office action and then later amended in the notice of allowance by the examiner. The remaining claims were subject to several rejections and amendments, but eventually canceled. Of note, the applicant attempted to add language that required the remaining claims (but not claim 55) to have only four directional options on the remote—a position Kannuu took in the previous IPRs with respect to the related '354 and '393 patents, but which the Board rejected. That language did not make it to the allowed claim 55.

53. On May 21, 2020, the applicant filed a preliminary amendment, cancelling all pending claims (1-35) and adding claims 36-55. EX1002, 597-605.

Claims 36, 48, and 55 were the independent claims. As I mentioned, only claim 55 was eventually allowed. Claims 36 and 48 had similar scope to claim 55, except then-claim 55 required a "directional input device with an up, down, left, right ***functionality***" and further required two different parts of item identifiers that correspond to "mutually exclusive" sets of items. *Id.* Of relevance to my below discussion, Claim 36 recited "an input device" and claim 48 recited "a remote control comprising an up, down, left, right directional controller." *Id.*

54. On November 25, 2020, the Examiner issued a non-final Office Action rejecting claims 36-55 for obviousness-type double patenting. *Id.*, 482-508. The Examiner also rejected all but claim 55 as either anticipated by *Perlman* or rendered obvious by a combination of *Perlman* and *Dostie*, *Perlman* and *Kraft*, or *Perlman, Dostie,* and *Kraft*. *Id.*, 508-523. In other words, the examiner noted that claim 55 would be in a state of allowance if the double-patenting issue was resolved.

55. On May 24, 2021, the applicant filed a response submitting a terminal disclaimer, amending claim 43 to overcome § 112 issues (but no amendment to any other claims), and arguing that claims 36-54 were patentable over the cited art. *Id.*, 454-465. Kannuu argued that "[i]ndependent claims 36 and 48 require ***no more than four*** options on the input device itself that can be used to select the portions of item identifiers." *Id.*, 464. I note that Kannuu did not make this argument for claim 55. The applicant then argued that "*Perlman* only discloses a user interface with ***more***

than four different options when there are more than four potential characters for selection." *Id.*

56. Shortly thereafter, on June 2, 2021, the applicant submitted an IDS containing the complete pre-hearing docket for IPR2020-00737 and IPR2020-00738, including the prior art cited therein. *Id.*, 401.

57. On June 24, 2021, the Examiner issued a final Office Action allowing claim 55 and rejecting claims 36-54 in view of the prior art. *Id.*, 322-341. With respect to claim 55, the Examiner merely stated that it was "allowable over the prior art." *Id.*, 340. With respect to the other claims, the examiner disagreed with the applicant, stating that "there is no explicit requirement in each claim that there must only be four options (*emphasis added*), each option being associated with a respective up, down, left, or right position of the input device. In fact, the claimed language merely requires the possible arrangement of each option on a possible directional position." EX1002, 325.

58. On December 20, 2021, the applicant filed an amendment and response. *Id.*, 308-317. The amendment revised claim 36 to require "an input device comprising a four way directional controller with an up, down, left, and right key" and claim 48 to require "a remote control comprising a four way up, down, left, right directional controller." *Id.*, 309, 312. The applicant then remarked that the

amendments "clarify 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." EX1002, 316.

59. At the same time, the applicant submitted an IDS containing the '354 FWD and '393 FWD in IPR2020-00737 and IPR2020-00738, along with the reexamination requests and decisions granting reexamination in reexamination Nos. 90/014,759, 90/014,760, and 90/014,761. *Id.*, 150.

60. On March 15, 2022, the Examiner issued another non-final Office Action, rejecting the applicant's arguments by adding the *Krohn* reference and arguing that it discloses an input device with only four direction buttons. *Id.*, 126-144.

61. On September 14, 2022, the Applicant filed an amendment, cancelling all claims except 55. *Id.* at 114-117. On September 22, 2022, the Examiner held an Interview to discuss antecedent basis issues and to clarify the claim language (*id.*, 19). Specifically, the Examiner's amendments (1) replaced the term "directional input device" with "remote control keypad," (2) added that the remote control have "select functionality," (3) clarified that the selection is made "by the remote control keypad," and (4) clarified that the parts of item identifiers are "associated with a selected set of items." *Id.*, 13-15.

62. The Examiner then issued a Notice of Allowance as to claim 55 (*id.*, 8). In the Notice of Allowance, the Examiner explained that the art discloses the following:

- Perlman et al. *(Pub. No. US 2002/0113825)* teaches selecting a first group of characters to be mapped to a group of remote control buttons based on how probable it is that individual characters within the first group correspond to a first character of a word representing information sought by a user in a database; and mapping the first group of characters to the group of remote control buttons. *Id.*, 15.
- Krohn et al. *(Pat. No. US 6,593,913)* teaches selecting a character with a user input device comprising a plurality of buttons. A first plurality of characters is displayed on a display device in a pattern corresponding to a pattern of a plurality of buttons of a user input device, and a character from the first plurality of characters is selected in response to actuation of one of the plurality of buttons to sequentially enter a series of characters and using a character selection method to enter characters of a predetermined word. *Id.*, 15.
- Dostie et al. *(Pub. No. US 2004/0021691)* teaches enabling a user to rapidly enter and search for data, such as text, using a data entry system by entering one or more characters on a digital keyboard with a pointing device. As the user enters a character sequence, a mechanism for character prediction visually informs the user of which set of characters on the digital keyboard are most likely to have the character that the user wishes to next enter as part of the text The data entry system retrieves completion candidates from the

dictionary by determining which completion candidates in the dictionary are more likely to be the ones that the user is attempting to type. *Id.*, 15-16.

- Josenhans *(Pub. No. US 2002/0078013)* teaches allowing simultaneous access to two or more databases, a search term is entered; on the basis of the entered search term, the search term itself from each of the databases are stored in a search table, and the search term, if stored in the search table, or that term from the successors stored in the search table which comes closest after the entered search term is displayed. *Id.*, 16.
- Schroeder et al. *(Pat. No. US 5,797,098)* teaches a predictive keyboard input method for speeding up input on a telephone with a space limited keyboard and a global search method for searching text strings in all of the different memory sections of a cellular telephone having an address book, a hierarchical menu structure, and stored data messages. *Id.*, 16.

63. In its reasons for allowance, the Examiner simply stated that none of the prior art "explicitly teach, suggest or render obvious the claimed invention as recited in independent claim 55." EX1002, 16-17. The Examiner did not further elaborate. I note that the Examiner did not discuss *Badarneh*, and I disagree with the Examiner that *Perlman* fails to disclose or render obvious all of the limitations of the Challenged Claim, as I explain below.

64. The '939 patent issued on February 7, 2023. EX1001.

V. CLAIM CONSTRUCTION

65. In my opinion, all terms should be given their ordinary meaning as understood by a POSITA and no term needs to be expressly construction.

66. I, however, note a few things with respect to the limitations "a remote control keypad with an up, down, left, right, select functionality" and "enable selection, by the remote control keypad, of one of the two parts of the item identifiers associated with a selected set of items." The '393 patent, which was challenged in IPR2020-00378, recited similar limitations of "up, down, left, right, select functionality of an input directional controller of the device" and "first plurality of 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." In IPR2020-00378, Kannuu argued that these limitations should be narrowly construed to require "no more than four directional selection options on the input direction controller to select an item identifier." EX1014, 20-21. However, the Board rejected Kannuu's argument, citing to the claim language and the specification. *Id.*

67. If Kannuu raises a similar construction in this proceeding, in my opinion, that construction should be rejected for the same reasons the Board gave in IPR2020-00738. Specifically, nothing about the claim language or the specification requires that the remote only have at most four directional options. I note that the '393 patent and '939 patent derive from a common specification, so there is no new material from the specification to support Kannuu's argument.

68. I also note that the prosecution of the '939 patent further supports rejecting Kannuu's construction. As I discussed above, the applicant had tried to

argue that then-pending claims 36 and 48 required "no more than four options on the input device." EX1002, 464. However, the Examiner rejected that argument, and the applicant responded by amending claims 36 and 48 to recite a "four way directional controller." *Id.*, 309, 312. Neither applicant's remark nor the amendment were directed to claim 55, which was eventually allowed and became the Challenged Claim. Claims 36 and 48 were cancelled. Thus, the prosecution history supports that the unaltered limitation in the Challenged Claim does not require only four options.

69. It is also my opinion that the applicant's remarks and amendment are not a clear and unmistakable disclaimer of scope. The applicant's remarks with respect to claims 36 and 48 were rejected by the examiner, and in my opinion, the applicant assented to the examiner's interpretation of the claims by amending claims 36 and 48 to require a "four way directional controller." *Id.*, 309, 312. Since neither the remark nor the amendment were directed to claim 55, they could not constitute a clear and unmistakable disclaimer of the scope of Claim 55. And I note that the applicant's remark that claims 36 and 48 required "no more than four options" makes no sense for Claim 55, which requires five options: up, down, left, right, and select functionality. Still, I note that the *Bardarneh* reference only has four directional options, which I discuss below in Grounds 4 and 5.

VI. GROUNDS OF CHALLENGE

70. I understand that Petitioner requests *inter partes* review and cancelation of the challenged claim on the following grounds:

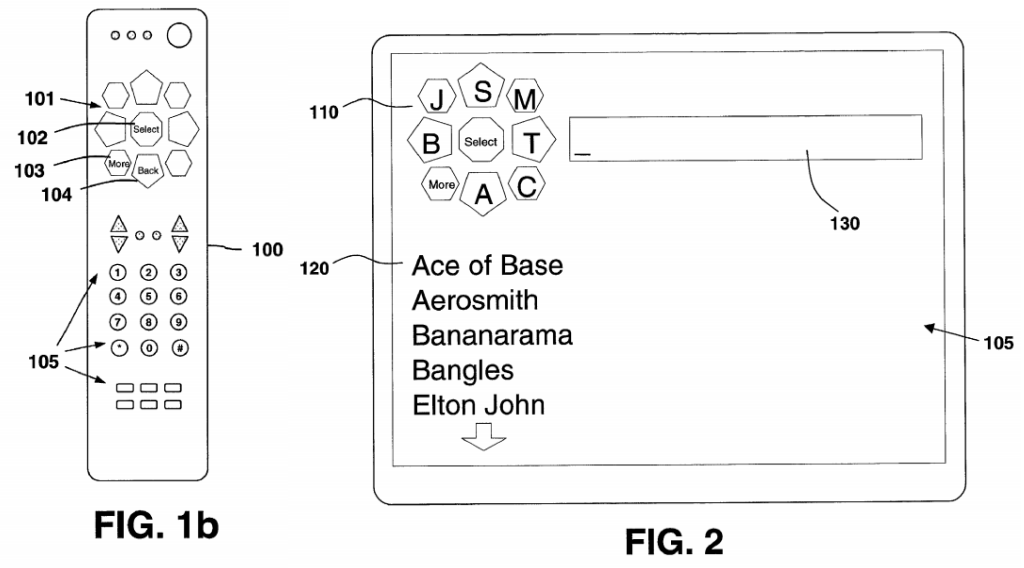
Grounds	Claim	Statute	Prior Art
1	1	§102 or §103	*Perlman*
2	1	§103	*Perlman and Dostie*
3	1	§103	*Perlman, Dostie, and Josenhans*
4	1	§102 or §103	*Badarneh*
5	1	§103	*Badarneh and Josenhans*

71. These grounds are not duplicative of each other. Grounds 1-3 rely on *Perlman* as a primary reference. Grounds 4-5 rely on *Badarneh* as a primary reference. Petitioner challenges claim 1 of the '939 patent and requests that this claim be found unpatentable in view of the cited references:

VII. GROUND 1: CLAIM 1 IS ANTICIPATED OR RENDERED OBVIOUS BY PERLMAN

A. *Perlman*

72. *Perlman* (EX1005) describes a user input interface for a television remote control having functional buttons arranged in a "star" pattern. EX1005, ¶0014. 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. Claim 1

73. *Perlman* anticipates and/or renders obvious the Challenged Claim. As I discuss below, *Perlman* discloses and renders obvious each element of the Challenged Claim. As to elements *1f* and *1m*, a POSITA would have looked to *Dostie* and *Josenhans* for separate databases and tree-structured databases, should the Board construe those elements as requiring such constructs.

1. *1a: A system for selecting items, the system comprising*

74. In my opinion, *Perlman* discloses the preamble, to the extent it is limiting. EX1005, ¶85. *Perlman* describes a ***system for selecting items*** and presents numerous "Embodiments of 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, ¶[0014]. In my opinion, 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***). *See id*., ¶[0017]. *Perlman* discloses databases of ***items*** (EX1005, ¶[0004], ¶[0017], Figs. 2, 7, 8) and a display that display "character-mapped buttons 110" for selection (*i.e.*, ***part of an item identifier***) for a "database list 120" (*i.e.*, a list of ***item identifiers***) (*Id.*, ¶[0017], Fig. 2).

75. I note that 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. In my opinion, this preamble in the claim 1 of the '354 patent is of at least the same scope as this limitation and therefore should be found disclosed for the same reasons.

2. 1b: an output display of a television;

76. In my opinion, *Perlman* discloses this limitation. One of *Perlman's* goals was to allow user interaction with the ***system for selecting items*** "without looking away from the television/computer screen," which is the ***output display of a television***. EX1005, ¶[0014], Fig. 2.

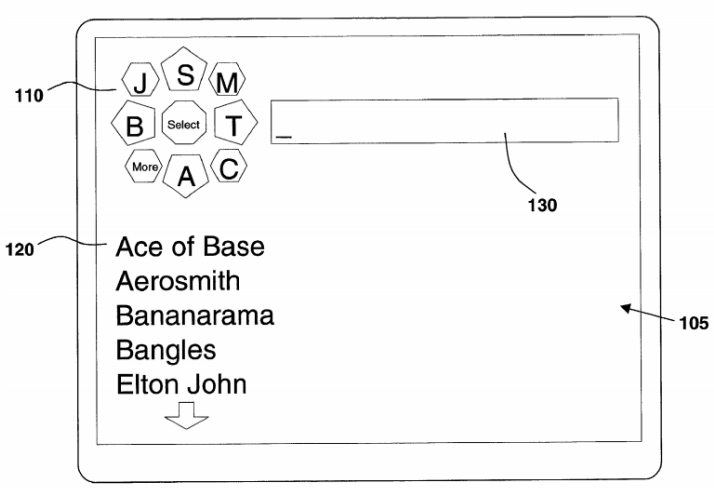


FIG. 2

Id., Fig. 2.

77. I note that in the ’393 patent IPR FWD, the PTAB found that *Perlman* disclosed “wherein the computing device is a television.” EX1014, 70. In my opinion, that limitation of the ’354 patent is of at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

3. 1c: a remote control keypad with an up, down, left, right, select functionality; and

78. In my opinion, *Perlman* discloses this limitation. As shown in *Perlman* Figs. 1a and 1b, *Perlman* discloses a ***remote control keypad*** with functional buttons in a star pattern, which enable ***up, down, left, right, select functionality***. EX1005, ¶[0014] (“directional and functional buttons 101”, “a ‘select’ button 108 for making various types of data selections”), Figs. 1b and 2. Figures 1a and 1b, which I have annotated and reproduced below, support my opinion. In my opinion, a POSITA

would understand that the "directional and functional buttons 101" have directional functionality, since the buttons both indicate a cardinal direction for selection of letters, and because a POSITA would understand the buttons could be used for moving a cursor to, for example, select an item from the list.

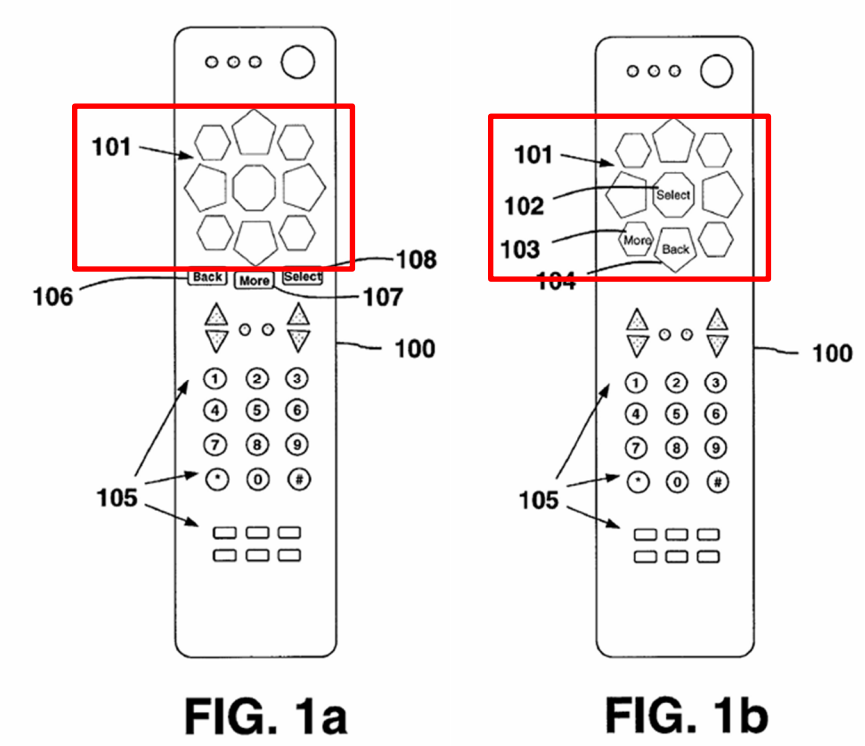


FIG. 1a FIG. 1b

79. 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. In my opinion, that limitation of the '354

patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

4. *1d: a computer processor contained within the television configured to:*

80. In my opinion, *Perlman* discloses this limitation. As shown in *Perlman* Fig. 2, above, *Perlman* discloses an example in which 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.

81. *Perlman* explains the television may utilize "a general-purpose or special-purpose processor to perform the steps," i.e., a ***computer processor***. EX1005, ¶37.

5. *1e: associate the items with corresponding item identifiers;*

82. In my opinion, *Perlman* discloses or renders obvious this limitation. A user may begin to select a desired ***item*** using the character-mapped buttons (at least the up, down, left, right, and select functionality) of the star configuration of the remote control device, inputting a ***part of an item identifier***, which then brings up larger parts of ***item identifiers*** that begin with the input character, associated with the desired item. EX1005, ¶¶[0014-0017], Fig. 2. In particular, within the database, "multimedia programs/files" (*i.e.* ***items***) are associated with "titles" (*i.e.* ***item identifiers***), which populate the database list with the items associated with the titles the user enters. *Id.* ("[O]nly those multimedia programs/files ***with titles*** which begin

with the selected characters will be displayed in the list 120."). In fact, *Perlman* states that "characters correspond[] to that program," proving the correspondence between items and their titles (*i.e.* ***item identifiers***). EX1005, ¶[0019].

83. It is also my opinion that in view of these disclosures, a POSITA would found it obvious to associate multimedia files with their titles in the database. Again, *Perlman* teaches that its invention is directed to "selection of media" and "multimedia selections." EX1005, ¶¶[0002], [0019]. In my opinion, a POSITA would be motivated to give effect to such teachings, and would do so by associating multimedia files with their corresponding titles in order to allow a user to select the desired multimedia file following entry of characters corresponding to the title. The user would both desire and expect such behavior, as the very purpose of searching for multimedia content is to playback such content. In my opinion, a POSITA would have had a reasonable expectation of success as implementing such functionality would involve including rows in the database that map media titles with media files, which any ordinary artisan would be capable of doing.

6. *1f: generate a first display on the output display, 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 in a database;*

84. In my opinion, *Perlman* discloses this limitation. In Figures 2-8, *Perlman* describes 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]. *Perlman* also discloses other configurations. *Id.* at ¶[0016].

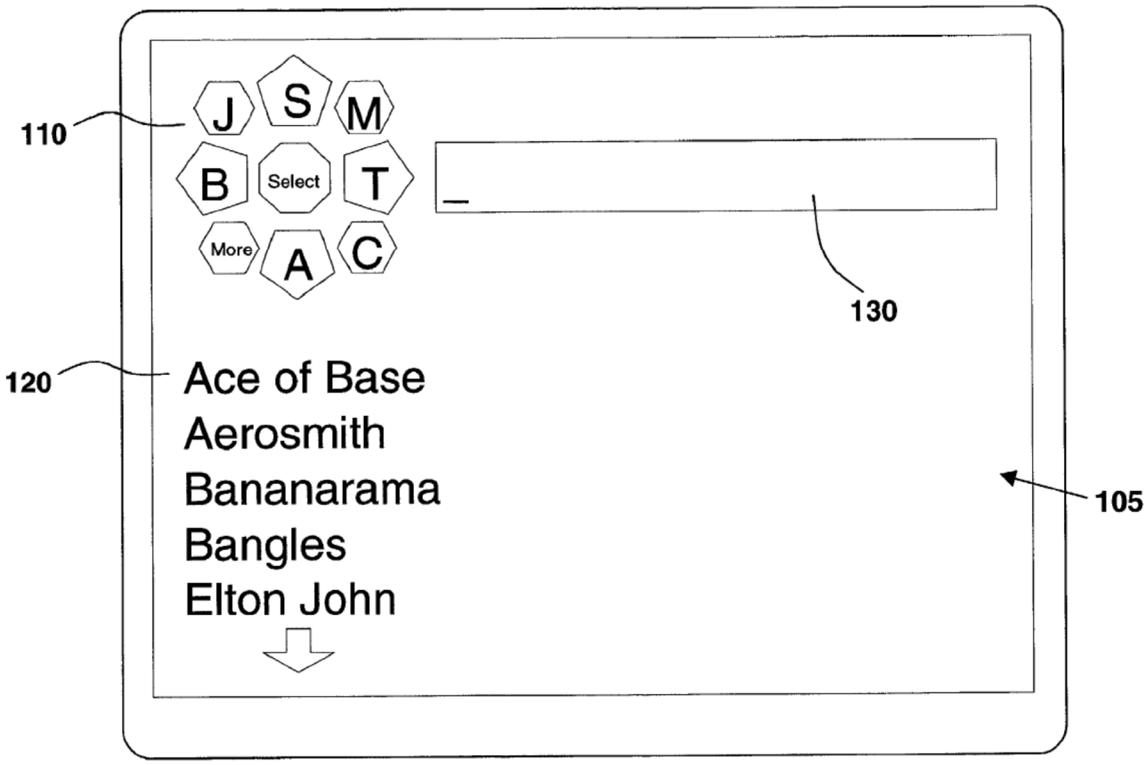


FIG. 2

Id., Fig. 2.

85. The "star" configuration includes within "character-mapped buttons 110" a ***part of an item identifier for at least a first set of items and a part of an item identifier for at least a second set of items in a database***. For example, the characters shown in Figure 2 correspond to the "most common first letters of words in the

database list 120," which corresponds to "available multimedia content" accessible by the television/computer. EX1005, ¶[0017].

86. First, each ***part of an item identifier*** (*i.e.*, the "character-mapped buttons 110") would correspond to a set of ***item identifiers*** (*i.e.*, the "database list 120"), *e.g.* the letter "A" corresponds to a ***first set of item identifiers*** beginning with the letter "A" ("Ace of Base" and "Aerosmith") and the letter "B" corresponds to a ***second set of item identifiers*** beginning with the letter "B" ("Bananarama" and "Bangles"). In this way, each displayed ***part of an item identifier is for a different set of items in the database***.

87. Second, although the embodiment shown in Figure 2 shows multimedia content, *Perlman* notes that the invention is "not limited to any particular type of database" and in fact describes multiple different types of content databases, such as those for television "program content" (EX1005, ¶[0004]), "multimedia programs/files" (*id.*, ¶[0017]), and "MP3 music" titles (*id.*, Figs. 7-8). Each of these different types of content databases includes a different set of items comprising the entries in that particular database, enabling the display of ***parts of item identifiers*** from first, second, or more ***sets of items in database***.

88. It is also my opinion that a POSITA would find it obvious to combine these embodiments. A POSITA would have considered it obvious to allow the search and display of different types of content, including television content,

multimedia programs/files, and MP3 music as disclosed in *Perlman*. A POSITA would be motivated to do so as it would provide additional, desirable functionality, including the ability to search a wider variety of content. Being able to search across multiple categories of media would allow a user to only need to use a single interface to have access to a wider variety of content, which a POSITA would have known was beneficial. In my opinion, a POSITA would have had a reasonable expectation of success in doing this, as it would involve following *Perlman's* disclosures for searching different types of media databases, but done for a single search string. Each database would be sent the search string as already taught in *Perlman* and use its pre-existing mechanism for performing searches. This would have been well-within the skill of an ordinary artisan.

7. *1g: enable selection, by the remote control keypad, of one of the two parts of the item identifiers associated with a selected set of items;*

89. In my opinion, *Perlman* discloses this limitation. A user may select a ***part of an item identifier*** (a letter) from the GUI using the character-mapped buttons of the ***remote control keypad***. EX1005, ¶[0017]. Through this iterative process, the user has ***selected one of the two parts of an item identifier***.

90. I note that 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. In my opinion, these limitations have similar scope and therefore should be found disclosed for the same reasons.

8. ***1h: generate, in response to the selection of the one of the two parts of item identifiers, a further display on the output display, the further display comprises an additional part of an item identifier corresponding to a subset of the selected set of items and another additional part of an item identifier corresponding to another subset of the selected set of items;***

91. In my opinion, *Perlman* discloses this limitation. The user's previously selected letter "B" (*i.e.* ***one of the two parts of the item identifiers***) is displayed in text box 130, while a different set of item identifiers (letters "E" and "A") are displayed on character-mapped buttons 110, as shown in Figures 2 and 3 of *Perlman*. EX1005, ¶[0017].

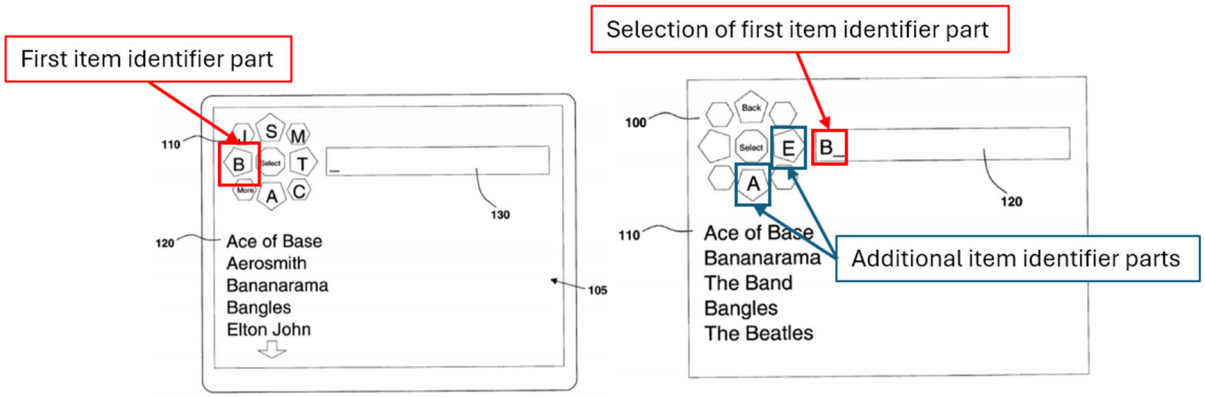


FIG. 2 FIG. 3

Id., Figs. 2 & 3.

92. Once the user selects "B," a ***first part of an item identifier***, database list 110 is updated to reflect database items whose full ***item identifier*** begins with "B." *Id.*, ¶[0025]. As for the two different ***subsets of a selected set of*** items, Figure 3 shows "A" and "E" as options on the same character-mapped buttons 100, which are ***second parts of item identifiers*** offered to the user. The item identifiers correspond to ***one subset of items*** that have an item identifier beginning with "BA," such as "Bananarama" and "Bangles," and to a ***second subset of items*** that have an item identifier beginning with "BE," such as "Beatles." "BA" and "BE" are ***parts of item identifiers*** drawn from the database, and the display is updated with ***items*** starting with "BA," one ***subset of the selected set of items*** and the ***items*** starting with "BE," ***another subset of the selected set of items***. *Id.*.

93. I note that 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. In my opinion, that limitation of the '354 patent is of at least the same scope as this

limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

9. *1i: enable selection, by the remote control keypad, of one of the two additional parts of the item identifiers;*

94. In my opinion, *Perlman* discloses this limitation. After the user selects “B,” a new set of ***parts of item identifiers*** is automatically mapped to the character-mapped buttons on the ***remote control keypad***. EX1005, ¶¶[0017], [0025].

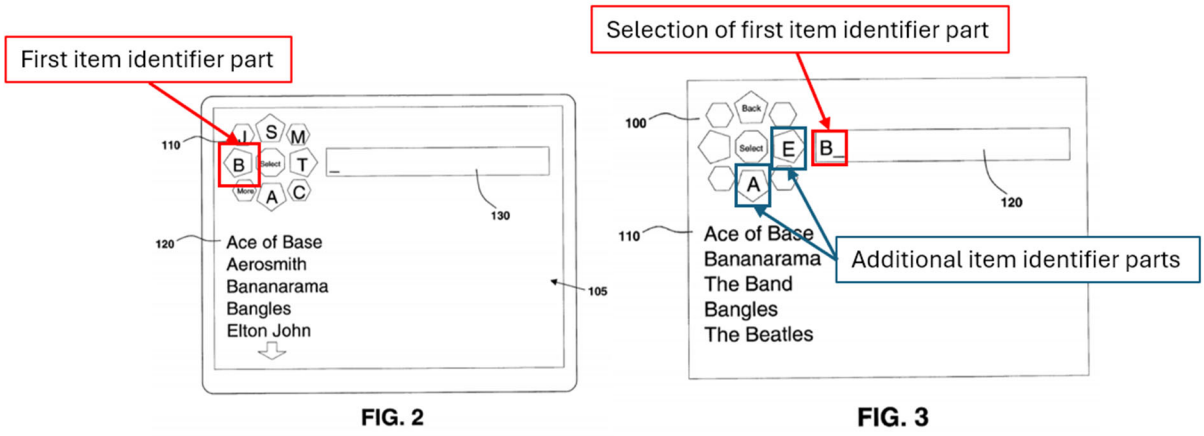


FIG. 2 FIG. 3

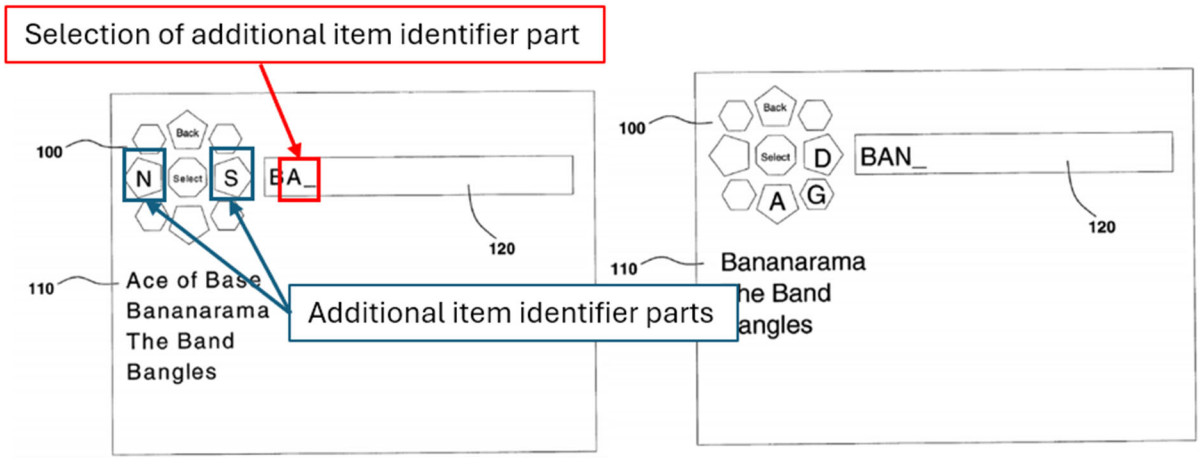


FIG. 4 FIG. 5

Id., Figs. 2-5.

95. As shown in Figures 2-5, which I have annotated above, *Perlman* discloses this progressive process and the user interaction with the ***remote control keypad***, as the displayed item identifiers corresponding to database ***items*** change as the user ***selects additional parts of the item identifiers,*** 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." This discloses at least four layers of ***additional parts of item identifiers***. *Id.*, ¶¶[0025]-[0026].

96. I note that 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. In my opinion, that limitation of the '354 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

10. *1j: combine 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; and*

97. In my opinion, *Perlman* discloses this limitation. As shown in Figures 2-5 which I have annotated below, the ***selected one of the two parts of the item***

identifiers (*e.g.,* choosing "B" from "B," "J," "S," "M," "T," "A," and "C") is ***combined with the selected one of the two additional parts of the item identifiers*** (*e.g.,* choosing "A" instead of "E" in Figure 3) ***to create a larger part of the item identifiers*** (*e.g.*, "BA" and then "BAN"). EX1005, ¶¶[0017], [0025]-[0026] and Figs. 2-5.

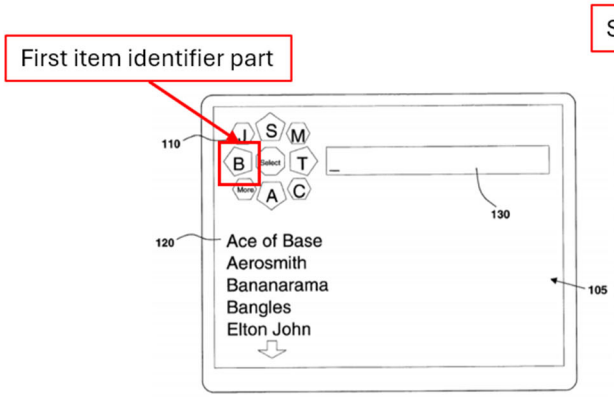


FIG. 2

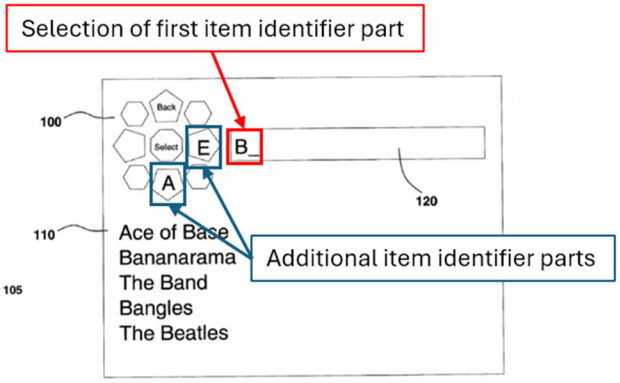


FIG. 3

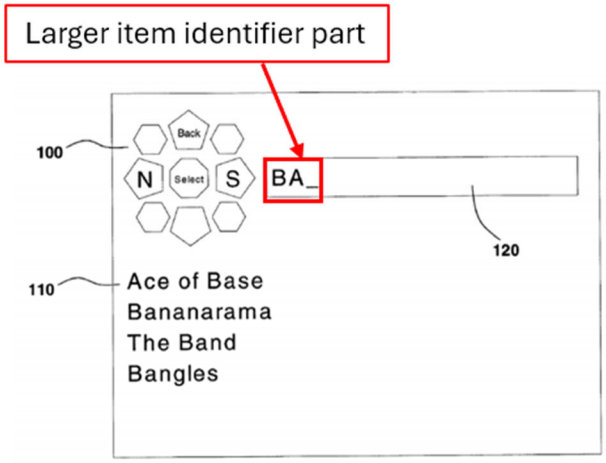


FIG. 4

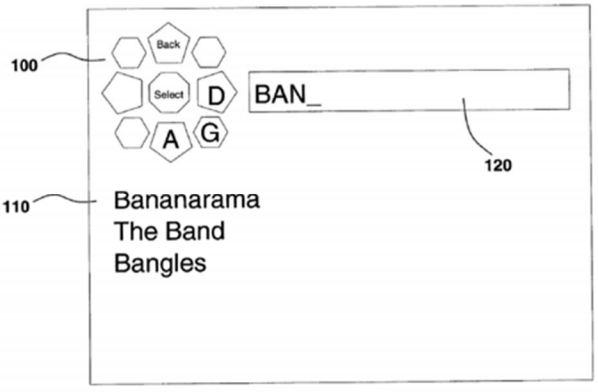


FIG. 5

EX1005, Figs. 2-5.

98. 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. In my opinion, that limitation of the ’354 patent is of at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

11. *1k: display the larger part of the item identifiers on the output display, wherein*

99. In my opinion, *Perlman* discloses this limitation. As shown in Figures 2-5, which I have annotated below, text box 130 (Figure 2) displays a ***larger part of the item identifier*** (e.g. “BA”), since it is larger than “B” or “A”, the ***parts of the item identifier***. EX1005, ¶[0017] and Figs. 2-5.

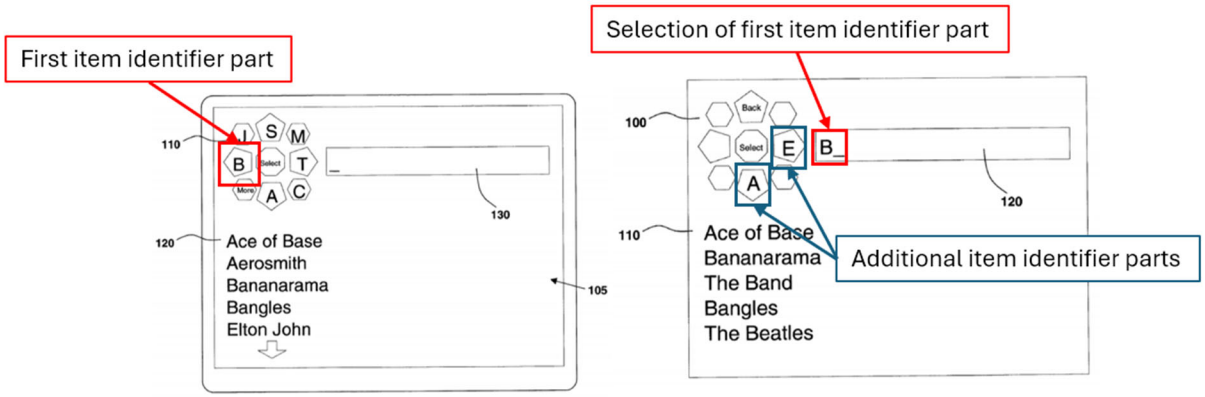


FIG. 2 FIG. 3

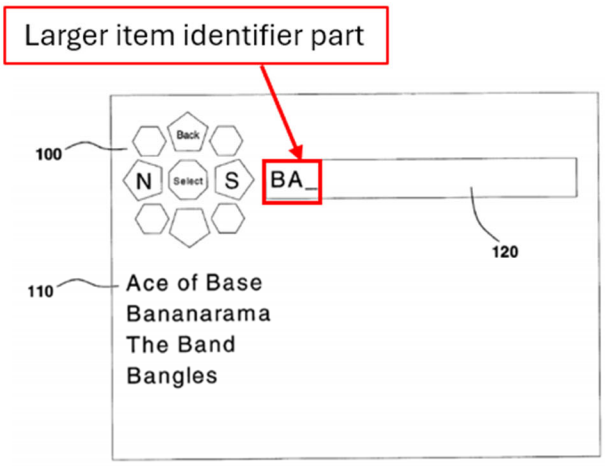


FIG. 4

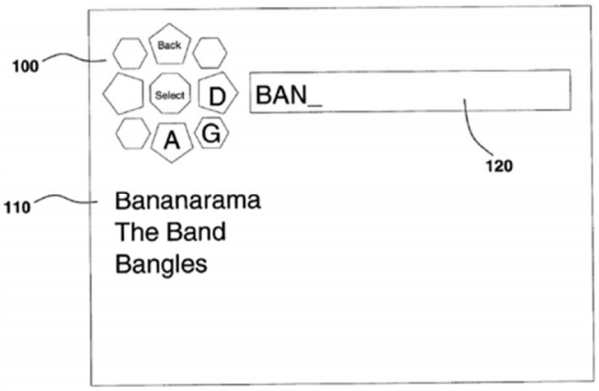


FIG. 5

100. I note that 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. In my opinion, that limitation of the '354 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

12. *1l: the additional parts of the item identifiers are shorter than a complete item identifier,*

101. In my opinion, *Perlman* discloses this limitation. As I discussed above, the progression in Figures 2-5 as the user ***selects parts of item identifiers*** ("B" to "BA" to "BAN") involves ***additional parts of item identifiers*** that ***are shorter than a complete item identifier*** ("Bananarama" or "Beatles"). EX1005, ¶¶[0004], [0017].

A built-in dictionary comprising English letters or characters may also be used. *Id.*, ¶¶[0035]-[0036].

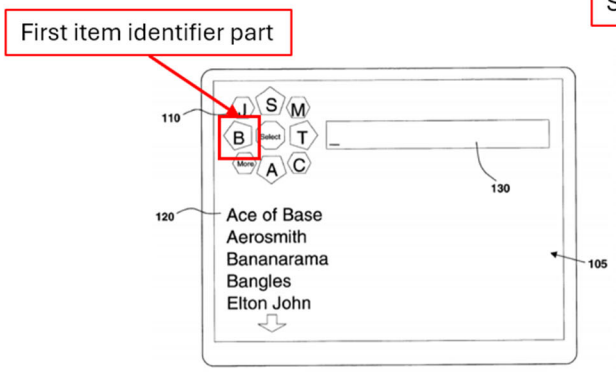


FIG. 2

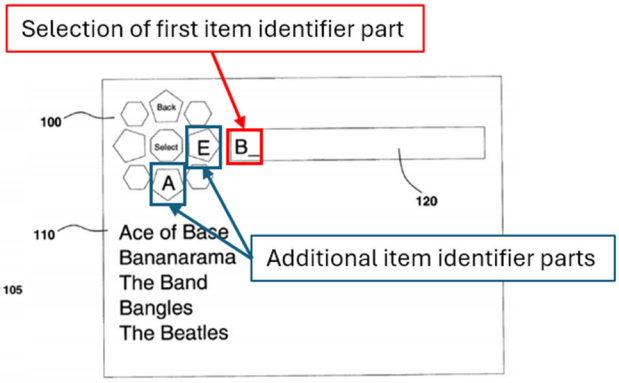


FIG. 3

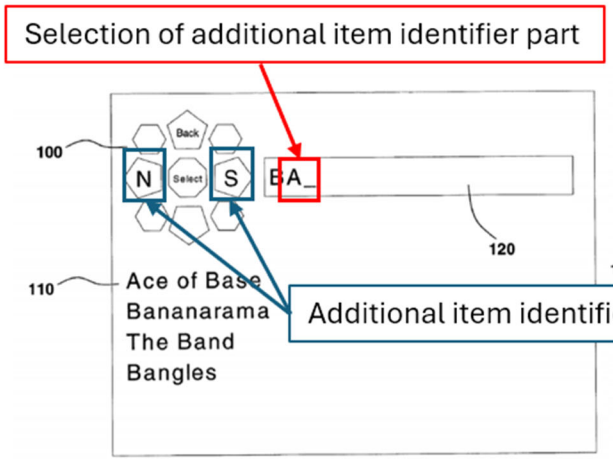


FIG. 4

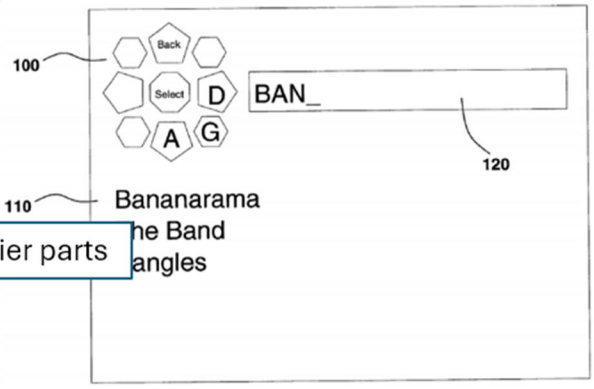


FIG. 5

102. I note that 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. In my opinion, that limitation of the '354 patent is

of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

13. *1m: the first set of items and the second set of items are mutually exclusive of one another, and*

103. In my opinion, *Perlman* discloses this limitation. As I discussed above, the progression in Figures 2-5 as the user ***selects parts of item identifiers*** ("B" to "BA" to "BAN") involves user choices ***between mutually exclusive sets of items*** (the set starting with "B" versus that starting with "A"; the set starting with "BA" versus that starting with "BE"; the set starting with BAN versus those starting with "BAD" or "BAG").

104. Further, as I discussed above for limitation *1f*, *Perlman* discloses different types of databases containing information about different types of media content, *e.g.* television content, multimedia programs, and MP3 music, which are also different ***sets of items***. EX1005, ¶¶[0004], [0017], Figs. 7-8. Such content is also ***mutually exclusive of each other***, since television content would be audio-visual and therefore not MP3 music.

14. *1n: the up, down, left, right, select functionality of the remote control keypad enables the selections of parts of item identifiers specifically positioned in a circular menu on the output display.*

105. In my opinion, *Perlman* discloses this limitation.

106. For the limitation, ***"up, down, left, right, select functionality of the remote control keypad enables the selections of parts of item identifiers,"*** as I discussed above in the context of Figures 1b and 2, *Perlman* discloses the use of the ***up, down, left, right, select functionality of the remote control*** keypad, in Figure 1b, and the GUI reflects the selections the user makes and displays ***parts of item identifiers specifically positioned in a circular menu on the output display*** in Figure 2. . EX1005, ¶[0014] ("directional and functional buttons"). Specifically, the directional buttons of the remote device have directional functionality since they indicate the cardinal direction of the displayed star pattern for selection of characters. For example, the "left" button on the remote has a "left" functionality because it will select the character in the "left" direction ("B" in Fig. 2) when pressed.

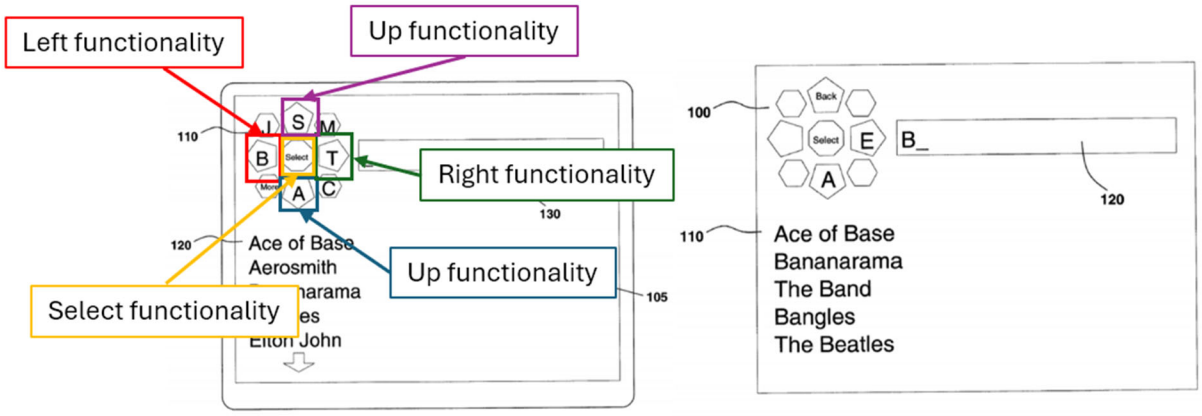


FIG. 2 FIG. 3

EX1005, Figs. 2 & 3.

107. If this limitation is construed to require the use of buttons with directional functionality to move a cursor to select individual characters, in my

opinion, a POSITA would have found it obvious to combine *Perlman*'s disclosure of "directional … buttons" with the selection of characters. EX1005, ¶[0014]. *Perlman* describes that the prior art allowed "scrolling through the alphabet (e.g., via scroll up/down buttons)" to select characters. EX1005, ¶[0004]. Although that description is described as prior art, in my opinion, a POSITA would have found it obvious that in some situations, it may be desirable to allow the selection of characters via directional buttons instead of direct input of characters, especially when combined with *Perlman*'s teachings of prioritizing letters "based on incidence within the database." EX1005, ¶[0020].

108. For example, *Perlman* describes that the available characters for selection may outnumber the buttons on the remote device, thereby requiring a "more" button to "map[] a new set of characters to" the buttons in order to "locate a letter which is not currently displayed." EX1005, ¶[0014]. In such a situation, it is my opinion that a POSITA would have recognized that displaying all of the letters (including in a ring pattern) and allowing selection of letters using the remote's directional buttons would be a natural mechanism for letter selection for the user compared to pressing the "more" button multiple times. In my opinion, a POSITA would have had a reasonable expectation of success since implementation of such functionality would simply involve displaying the available letters with a selection

cursor and allowing the directional buttons to control the placement of the cursor, which would have been simple and well-within the skill of an ordinary artisan.

109. With respect to the limitation ***"circular menu on the output display,"*** it is my opinion that *Perlman*'s "star pattern" is a ***circular*** menu. EX1005, ¶[0014]. I note that the '939 patent has a broad understanding of a "circular menu," as it teaches that a circular menu can simply have options in the cardinal directions, and be selected using the up, down, left, or right keypad buttons or joystick directions, not requiring a true circle in the geometric sense. That is shown in the '939 patent's Figure 5 when describing a circular menu. EX1001, 4:56-64.

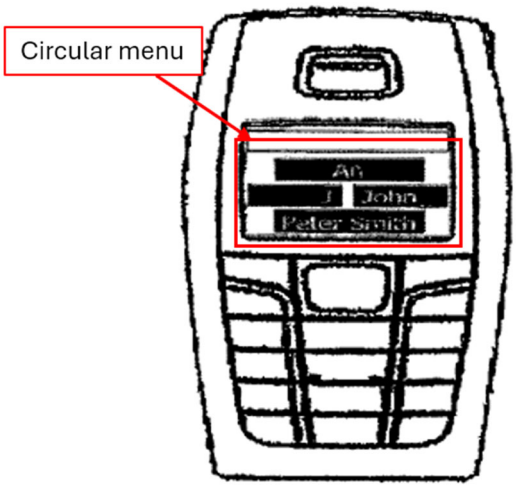


FIGURE 5

110. Specifically, with respect to Figure 5, the '939 patent teaches that "the user 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 (FIG. 5)…."

EX1001, 4:56-64. Thus, the ’939 patent teaches that a “circular menu” need not be in the shape of a circle.

111. 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. The PTAB also found that *Perlman* disclosed a limitation requiring “item identifiers being arranged on the display relative to one another and corresponding to at least an up, down, left or right position.” *Id.*, 39-42. In my opinion, that limitation of the ’354 patent is of at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

VIII. GROUND 2: CLAIM 1 IS OBVIOUS IN LIGHT OF *PERLMAN* AND *DOSTIE*

A. *Dostie*

112. *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. *Dostie* at Abstract; ¶73. *Dostie* discloses that full sequences of characters are presented based on the current location in the tree. *Id*.

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

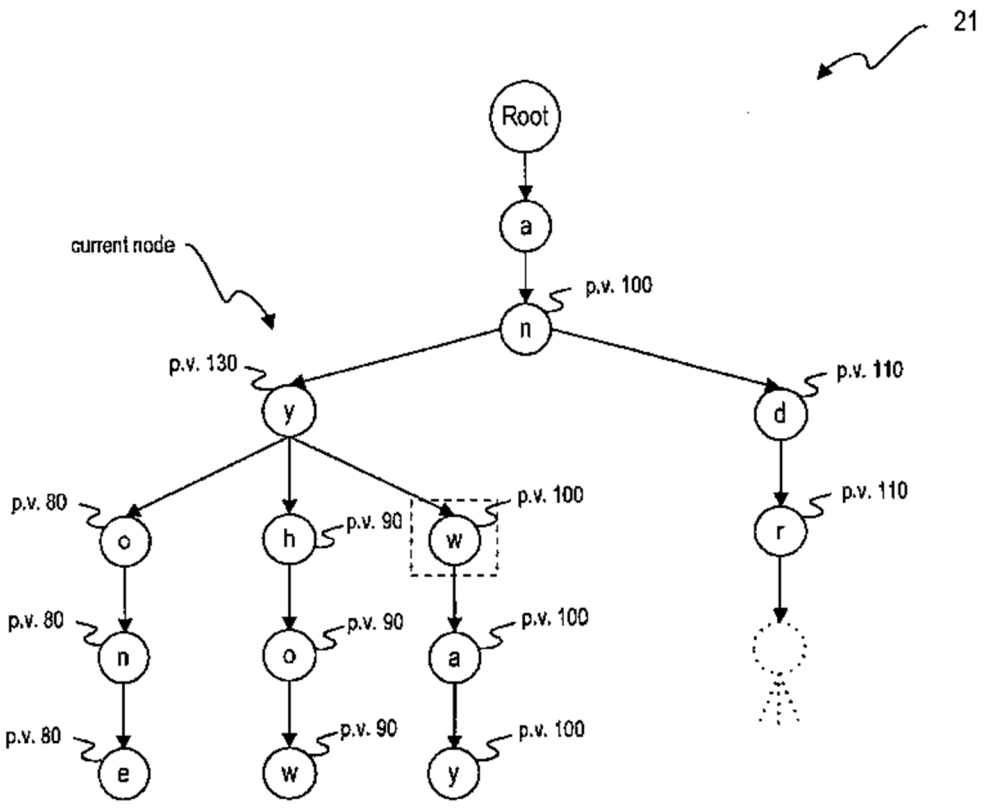


FIG. 14

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

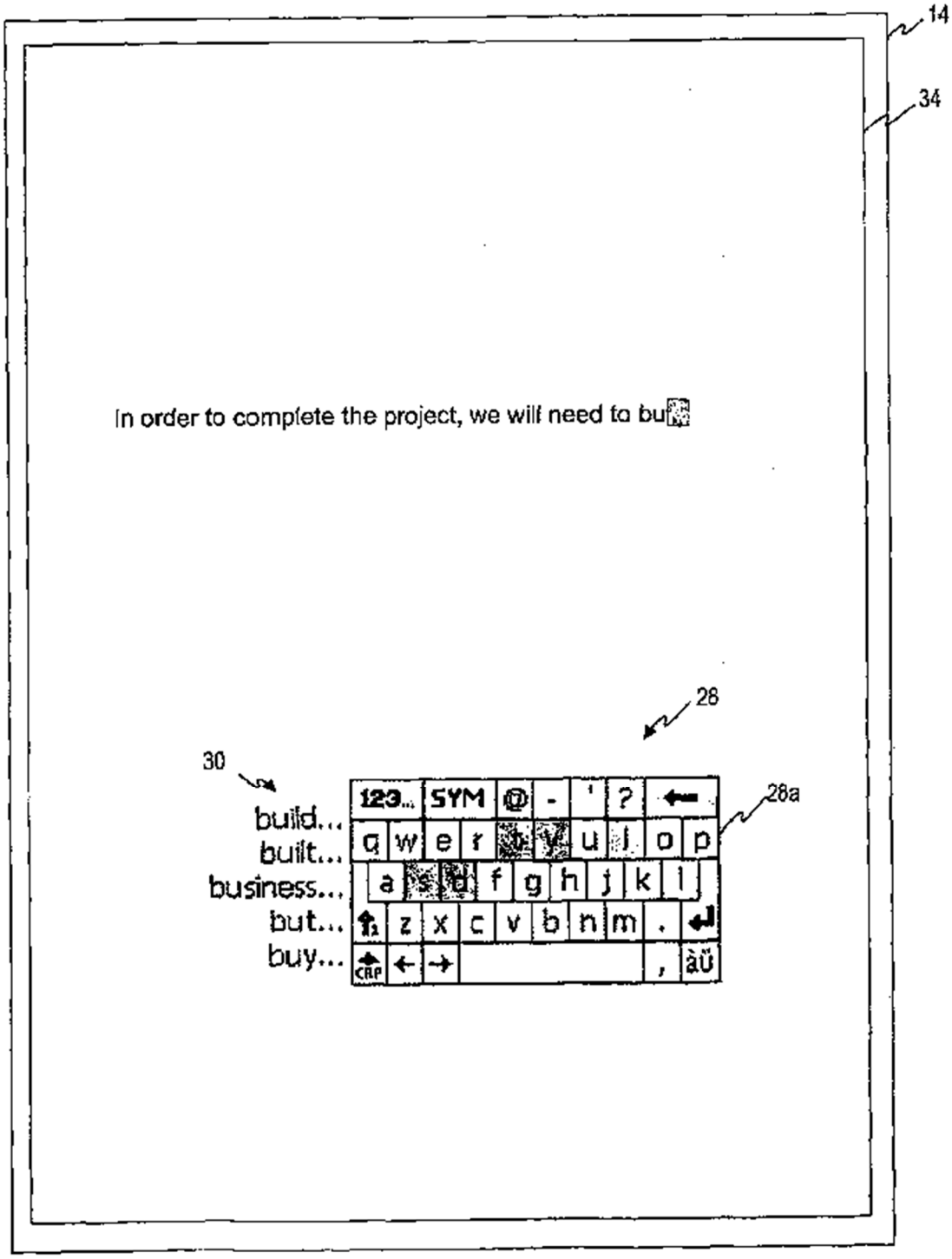

14
34
In order to complete the project, we will need to bu
28
30
build...
built...
business...
but...
buy...
123...
SYM
28a

FIG. 3

Id.

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

115. In my opinion, it would have been obvious to incorporate *Dostie*'s dictionary trees and rankings based on tree hierarchy classifications into *Perlman* because it was well known at the time of *Perlman* to conduct database searches using hierarchical trees like the ones described in *Dostie*. Moreover, *Dostie* provides express motivation to incorporate its candidate trees into systems like *Perlman* to "rapidly predict potential completion candidates" and "provide[] a mechanism for supporting enhanced data entry techniques such as character prediction," like the mechanisms described in *Perlman*. EX1005, ¶[0097].

116. A POSITA would have known that 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. Database search techniques routinely used search trees and other hierarchical classifications in the searching, ranking, and selection processes.

117. It was well-known this form of search was almost always performed using a hierarchical search tree, including by the time *Perlman* issued. In my opinion, because of the well-known benefits of using hierarchical search trees to search a database, and a POSITA's knowledge of predictive keypad systems used to query databases, a POSITA would reasonably expect the combination to succeed 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 extremely predictable results (*e.g.*, permitted simple and efficient searching based on a known prefix of database entries, like the searching discussed in *Perlman*). This is especially true since *Perlman* already discloses "forward and backward/reverse searching capabilities" (EX1006, ¶[0027]) which would likely have hierarchical search trees, which were the standard database searching technique at the time.

C. Claim 1

118. With respect to limitation *1m*, that limitation is rendered obvious by *Dostie's* hierarchical search trees in combination with *Perlman*, as I explain below.

1. *1m: the first set of items and the second set of items are mutually exclusive of one another, and*

119. In my opinion, *Dostie* discloses this limitation. *Dostie*'s implementation organizes its database in a "tree structure" which can take the form of a binary tree or "B-tree." EX1006, ¶[0088]. 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 discloses that a ***first set of items*** and their ***item identifiers*** and a ***second set of items*** and its ***item identifiers,*** wherein the ***two sets of items are mutually exclusive*** of one another and ***the third set of items*** and ***the fourth***

set of items are ***mutually exclusive subsets of the first set of items*** or ***the second set of items***.

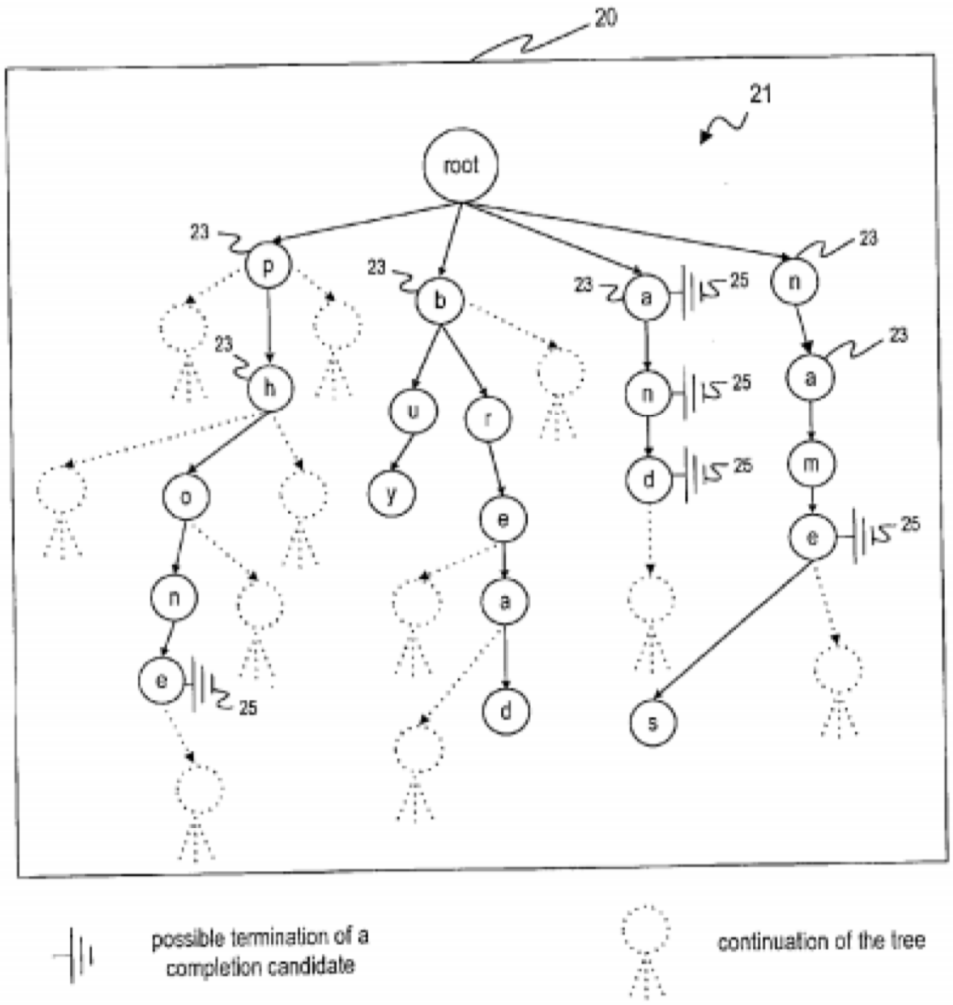


FIG. 4

120. For example, Figure 4 of *Dostie* shows various sets of ***item identifiers that are mutually exclusive of one another*** and subsets of one another. The mutually exclusive sets would constitute different branches within candidate tree 21, while

the mutually exclusive subsets would constitute all ***items*** below a certain node in the same branch or a different branch. *Id.* The ***mutually exclusive subsets*** would also be described by the "child list" or "child nodes pointer" for each node in the tree, which 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]. In my opinion, it would have been obvious to incorporate *Dostie*'s tree structure into *Perlman* for the same reasons I discussed above and 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 described by *Perlman*, so a POSITA would have found it natural to incorporate *Dostie*'s candidate tree into the character selection system of Perlman.

121. I note that in the '354 patent IPR FWD, the PTAB found that *Dostie* disclosed a limitation requiring "the at least one predetermined criterion is a ranking of the one or more parts of item identifiers in relation to a tree hierarchy classification of the one or more parts of item identifiers." EX1013, 64-68. The PTAB also found a POSITA would have combined *Perlman* and *Dostie*. *Id.*, 68-81.

IX. GROUND 3: CLAIM 1 IS OBVIOUS IN LIGHT OF PERLMAN, DOSTIE, AND JOSENHANS

A. *Josenhans*

122. *Josenhans* (EX1008) discloses a method for searching at least two databases. Specifically, it relates to searching multiple, but independent databases that store different information such as an address book or appointment diary. The search terms a user enters are used to search all of the different databases, without a user's awareness. Therefore, a user can search universally without knowing he/she is searching multiple databases, eliminating the need to conduct multiple searches.

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

123. As I explained above, it would have been obvious to incorporate *Dostie*'s hierarchical tree database schema into *Perlman*.

124. In my opinion, it would have also been obvious to incorporate *Josenhans'* multiple databases and unified search into *Perlman*. Like *Perlman*, *Josenhans* deals with a method of searching for items stored in different data sets or databases. Specifically, a POSITA would look to references such as *Josenhans* to determine the best way to incorporate and setup the databases of *Perlman*. *Josenhans* provides express motivation to provide a unified search across multiple databases (like the ones described in *Perlman*) for simplicity (*Josenhans*, ¶10), for efficiency, convenience, and reduced memory requirements (*id*., ¶11-13), and for speed and reduced data transfer requirements (*id*., ¶12, 18.), all of which were of

course well-known. Thus, a POSITA would have had motivation to add a unified search across multiple databases to any search application involving multiple data sources, like *Perlman*'s various types of multimedia context and programming.

125. The combination of *Perlman* and *Josenhans* thus modifies *Perlman*'s system, which Petitioner submits above anticipates the Challenged Claims, and expressly adds multiple databases and a unified search capability. It would have been further obvious to a POSITA to combine *Perlman*'s system with the hierarchical tree database structure and schema from *Dostie* to enhance and make more efficient the search capability of the combined system. A POSITA could predict with a high degree of certainty of success that these technologies could be used and, indeed, have been used, in combination to yield the same enhancements in efficiency and user functionality that the present combination affords.

C. Claim 1

126. As I discussed in Ground 1, *Perlman* discloses all of the Challenged claim limitations and anticipates claim 1. To the extent any limitation of claim 1 is not expressly disclosed by *Perlman*, it also would have been obvious in view of *Perlman* alone. With respect to limitation *1m*, that limitation is also rendered obvious by *Dostie's* hierarchical search trees in combination with *Perlman*, as discussed in Ground 2.

127. With respect to limitation *1f*, that limitation is rendered obvious by *Josenhans*'s explicit teaching of multiple databases in combination with *Perlman* and *Dostie*.

1. *1f: generate a first display on the output display, 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 in a database;*

128. *Perlman* discloses this limitation. *See supra* Ground 1, limitation *1f*.

129. To the extent it is required that the ***first and second sets of item identifiers*** be in separate ***databases*** (an interpretation with which I do not agree), *Josenhans* discloses two sets of identifiers in separate databases. Specifically, *Josenhans* discloses a search table "for ***each*** connected database," all of which are searched simultaneously, which "allows the user to search in various databases just as simply as when searching in a single database." EX1008 at ¶10. In my opinion, that meets this limitation.

130. *Josenhans* discloses a system in which various search terms are stored in separate databases and further discloses that the system works so that a user can simply search all of the databases at once without knowing that the system is using ***item identifiers*** from *separate databases*.

131. In my opinion, it would have been obvious to incorporate *Josenhans's* multiple database organizational structure into *Perlman* for the same reasons I discussed above, and *Josenhans* itself deals the same type of text entry techniques

and character prediction that as in *Perlman*. A POSITA would have recognized that the *Josenhans* system presents a way of organizing data into different databases without affecting the user interface for the user, and that *Dostie*'s hierarchical tree database structure and schema would have been compatible with *Josenhans*'s multiple databases.

132. In the '264 patent reexamination, the CRU found that *Josenhans* disclosed a limitation requiring "Josenhans discloses a system where various search terms are stored in separate databases, and further discloses that the system works so that a user can simply search all of the databases at once without knowing that they are actually using identifiers from separate databases." EX1020, 12. The CRU also found it would have been obvious to combine *Josenhans* with *Perlman* and *Dostie*. *Id.*, 18-19. In my opinion, to the extent this limitation is construed as requiring that limitation in the '264 patent, it should be found rendered obvious for the same reasons.

X. GROUND 4: CLAIM 1 IS ANTICIPATED OR RENDERED OBVIOUS BY BADARNEH

A. *Badarneh*

133. *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.

134. *Badarneh* discloses a "rotatable, multifunctional switch having five pressure points" as shown in Figure 5. *Id.*, 2:27-31.

Fig. 5b

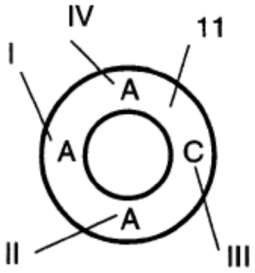


Fig. 5c

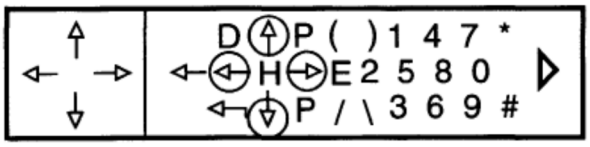


Fig. 5d

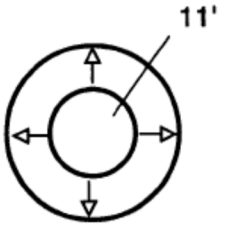


Fig. 5e

135. The rotatable switch is able to leverage the database of words and its ranking of such words based on the frequencies in which they have been used. *Id.*, 16:22-31.

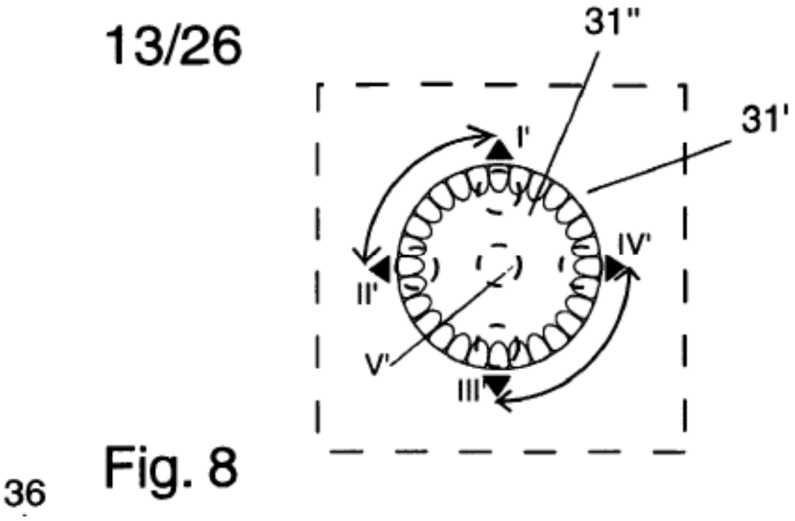


Fig. 8

136. Figure 8 shows an embodiment of a rotatable, multifunctional switch 31' which has five pressure points indicated by I', II', III', IV' and V'. These pressure points are explicitly in four directional positions (I'-IV'), plus a position V' in the center of the four-position switch.

137. In an illustrative example shown in Figure 9, the word "telephone" appears at the top of a list as the word most often appearing after "the te" is input (after 'the te' is input, the words that most often follow 'te' are displayed in the left rectangular section. Based on the frequency of words starting with "te", the characters that can follow 'te' are shown in the circular icon section ('l', 'c', 'm' are displayed as the characters of the most frequently occurring words following 'te'):

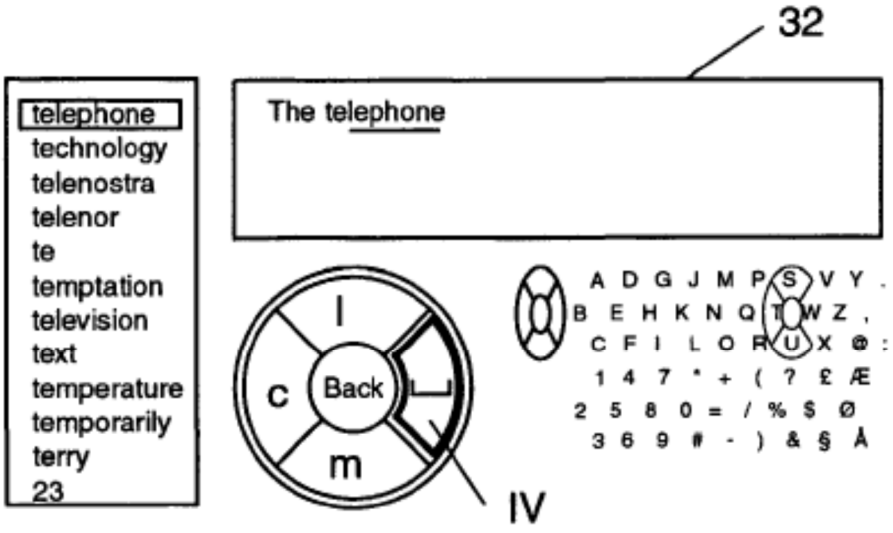


Fig. 9h

138. 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). It also provides further suggested inputs based on the user's prior inputs. *Id*. Fig. 9d and 9e.

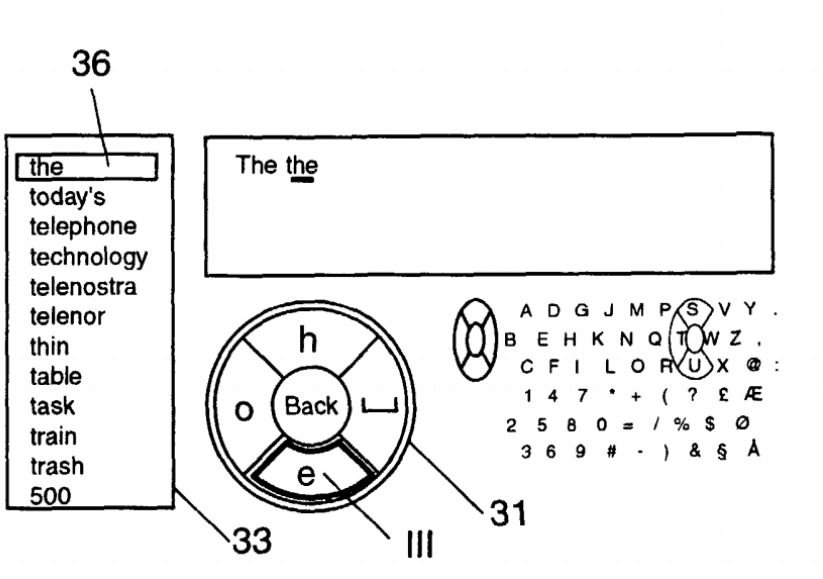
139. *Badarneh* also claims the prioritization of the data elements in its database according to predetermined criteria, including "a) the frequency of previous use of the phrases, or b) standard frequency of the occurrence of the phrases, or c) alphabetical order, or d) most probable phrases in conjunction with other used phrases, or e) style, terminology, dialect or language." *Id.*, 26:33-27:2.

B. Claim 1

140. *Badarneh* anticipates and/or renders obvious the Challenged Claim. As I discussed blow, *Badarneh* discloses each element of the Challenged Claim. As to element *1f*, a POSITA would have looked to *Josenhans* for separate databases, should the Board construe those elements as requiring such constructs.

1. *1a: A system for selecting items, the system comprising*

141. In my opinion, to the extent the preamble is considered limiting, *Badarneh* discloses this limitation. *Badarneh* describes a ***system for selecting items***, such as "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." EX1009 at [0002]. As shown in the figure below, *Badarneh* discloses entering letters to select a word (36) (***item identifier*** for an ***item***) from the list (33) (***plurality of identifiers*** for a ***plurality of items***).



Id. The alphanumeric characters/symbols on the circular menu 31 described in *Badarneh* constitute a plurality of ***parts of item identifiers*** corresponding to a ***plurality of items***, and the embodiments described therein relate to selecting alphanumeric characters/symbols from a plurality of characters/symbols.

142. I note that 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. In my opinion, that limitation of the '579 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

2. *1b: an output display of a television;*

143. In my opinion, *Badarneh* discloses this limitation. *Badarneh* discloses a "***screen***" including "***all screen-assisted and screen-based devices*** can be used

according to the system described herein." EX1009, 1:27-30. A POSITA would understand that this would include a television with a remote control device, since that would be a device that is "screen-assisted" and "screen-based." *Id.* In addition, *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.

144. In view of these disclosures, a POSITA would consider it obvious that *Badarneh's* system includes a television, as televisions were well-known displays having remote control units. *See, e.g.*, EX1005, ¶[0014].

3. *1c: a remote control keypad with an up, down, left, right, select functionality; and*

145. In my opinion, *Badarneh* discloses this limitation. *Badarneh* discloses a ***remote control keypad with up, down, left, select functionality*** and describes such a ***keypad*** as "a rotatable, multifunctional switch 31' which has five pressure points indicated by I, II, III, IV and V. Fig. 9 shows an animation 31 of the switch 31'. During the input of text numbers and/or symbols, an input field or result field will be shown together with a field which indicates appropriate words or options that are possible from a "dictionary" or "list of words" which shows 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." EX1009, 16:23-30. The below figures depicts the remote control keypad:

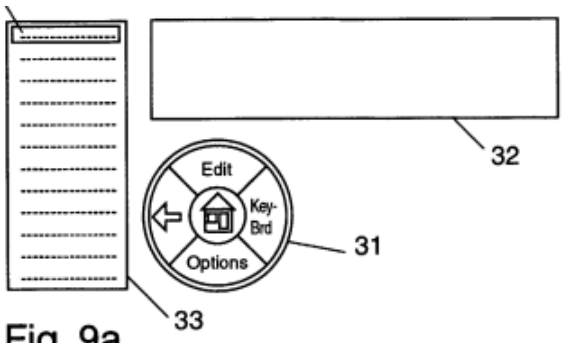


Fig. 9a

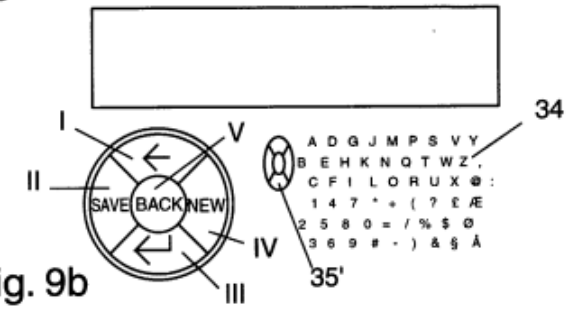


Fig. 9b

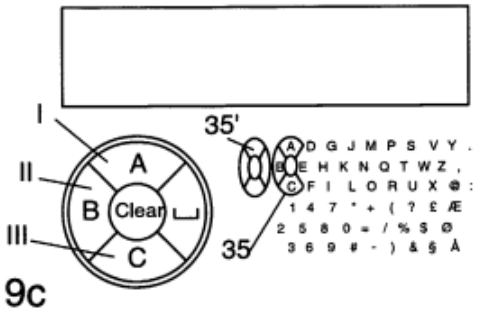


Fig. 9c

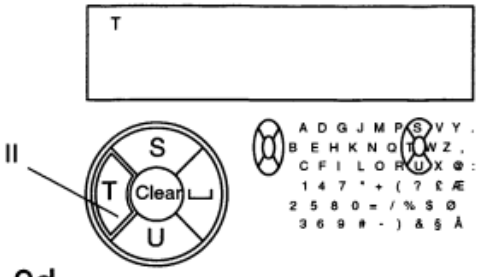


Fig. 9d

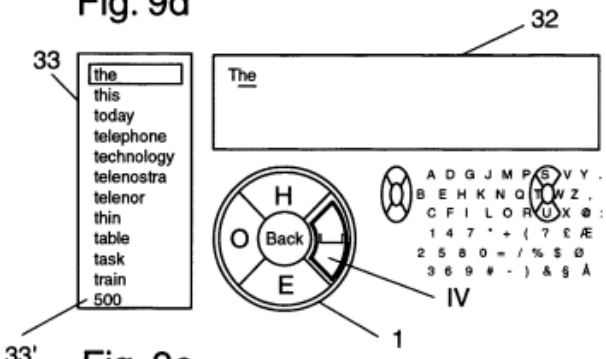


Fig. 9e

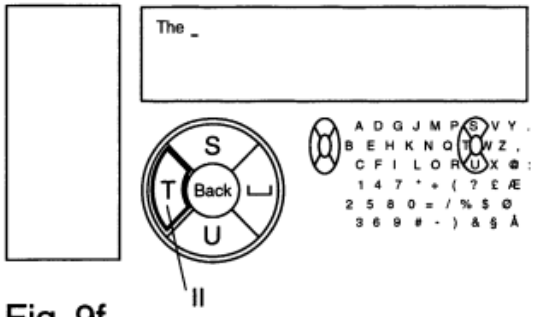


Fig. 9f

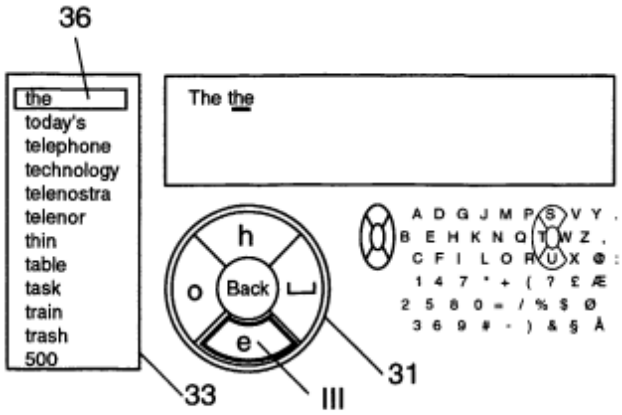


Fig. 9g

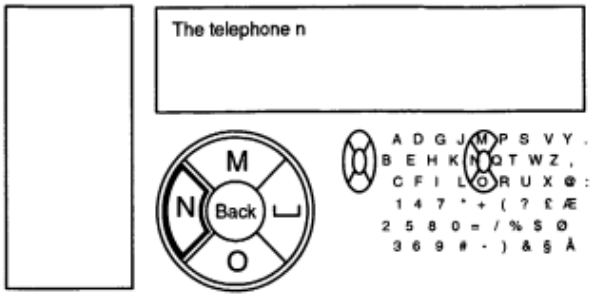


Fig. 9j

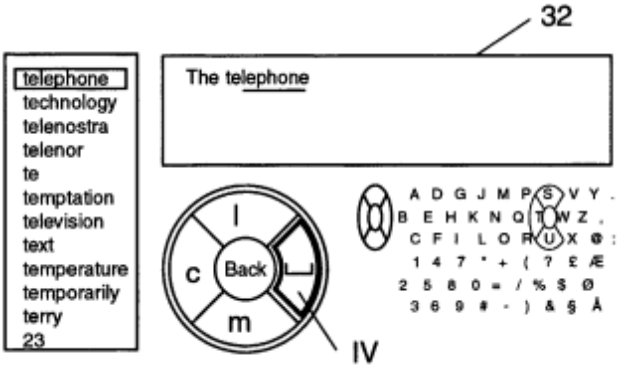


Fig. 9h

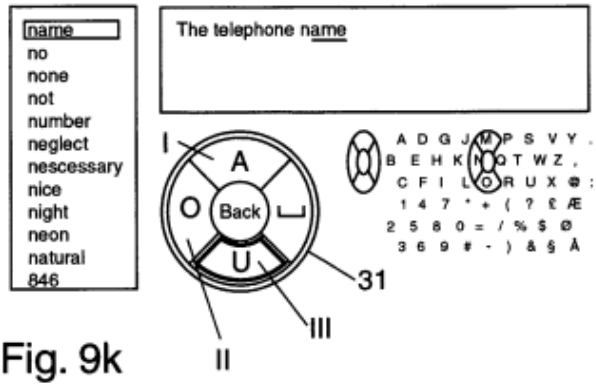


Fig. 9k

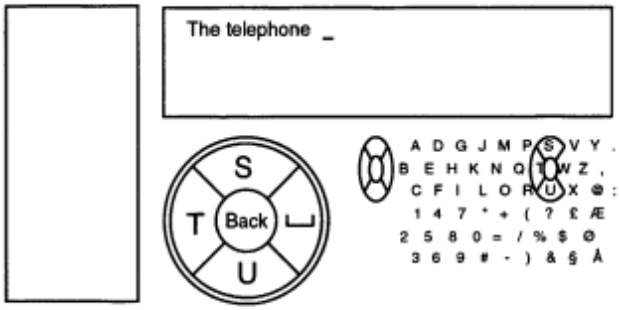


Fig. 9i

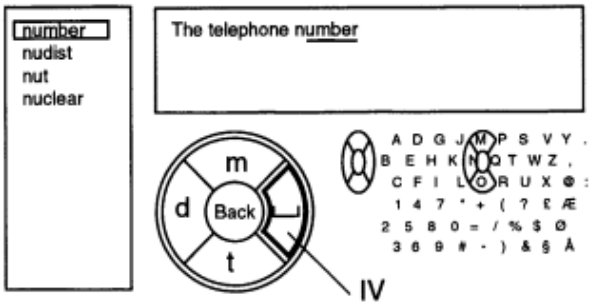


Fig. 9l

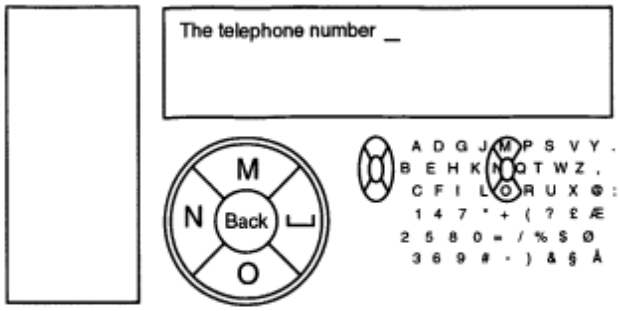
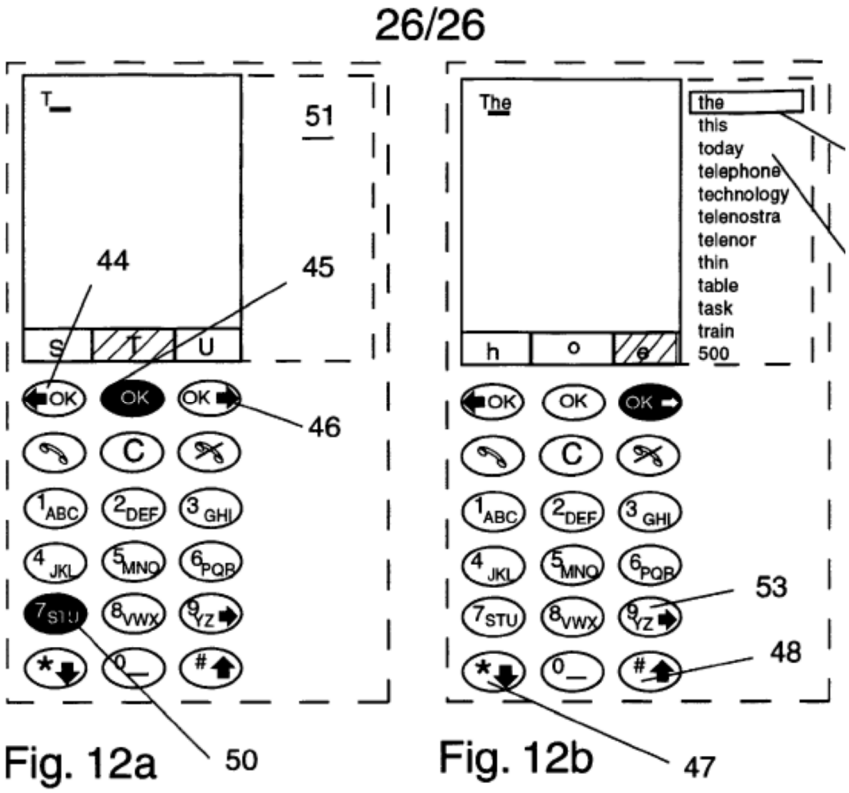


Fig. 9m

146. As shown in Figures 8 and 9a through 9m above, *Badarneh's* position I corresponds to the "up" position; position II corresponds to the "left" position; position III corresponds to the "down" position; position IV corresponds to the "right" position; and position V corresponds to a center selector, since it can select various options like "home" and "back." EX1009, Figs. 8, 9a-9m, 3:30-33, 16:23-18:36. Each of I through IV also provides selection functionality.

147. *Badarneh* discloses another ***keypad,*** "a traditional pushbutton keyboard in connection with the system shown in Figs. 9-11." EX1009, 4:1-2. Figures 12a and 12b show the ***keypad*** with arrows on certain keys in ***the up*** (the "#" key)***, down*** (the "*" key)***, left*** (the top-left "OK" key)***, and right*** (the top-right "OK" key and the "9" key) ***directions***, which are being used to select one or more parts of an item. EX1009, 22:15-23:6.



148. 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. In my opinion, that limitation of the ’579 patent is of at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

4. *1d: a computer processor contained within the television configured to:*

149. In my opinion, *Badarneh* discloses this limitation. *Badarneh* discloses ***a computer processer within the television*** and specifically notes that the invention can be implemented on any “electronic apparatus (*e.g.*, a ***mini-***

computer/PDA/mobile telephone) which is controlled by a multifunction key, in this case a rotary switch with four clicks (as shown before) and with an alternative centre click." EX1009, 14:30-32. *Baderneh* also discloses that the appartus "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 switch. *Id.*, 16:23-31. In my opinion, 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

150. I note that in the '579 patent reexamination, the CRU found that *Badarneh* disclosed a "computer processor." EX1017, 5.

5. *1e: associate the items with corresponding item identifiers;*

151. In my opinion, *Badarneh* discloses this limitation. *Badarneh* discloses a system that ***associates items*** (the item being searched) with ***item identifiers*** (the written descriptor) which are then displayed to the user: "a correctly selected data phrase is selectively or automatically converted by the system to one or more ***items*** of displayable information which are directly related to the selected data phrase" (***item identifiers***). EX1007, 28:16-20.

6. *1f: generate a first display on the output display, 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 in a database;

152. In my opinion, *Badarneh* discloses this limitation. In Figures 5b-5e (which I reproduce below), *Badarneh* describes a GUI with character-mapped buttons (I, II, III, IV) corresponding to an up, down, left, and right configuration, which can be controlled by a multifunction key. EX1009, 14:30-15:2.

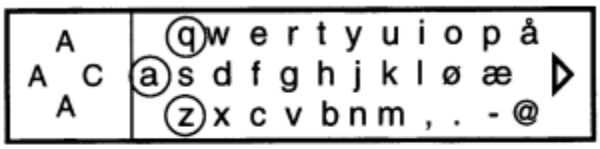


Fig. 5b

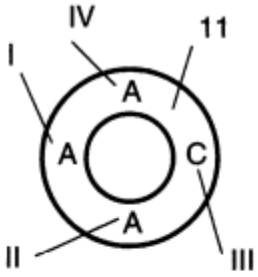


Fig. 5c

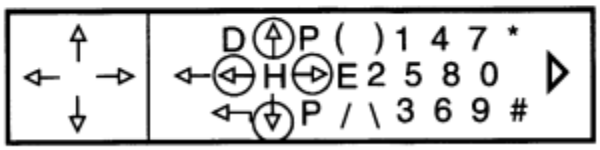


Fig. 5d

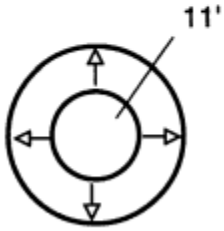


Fig. 5e

153. *Bardarneh* also discloses other configurations using the same multifunction key. *See id*., Figs. 9-12 and corresponding description. These other configurations include Figure 9, discussed above, which also has buttons in an up, down, left, right configuration.

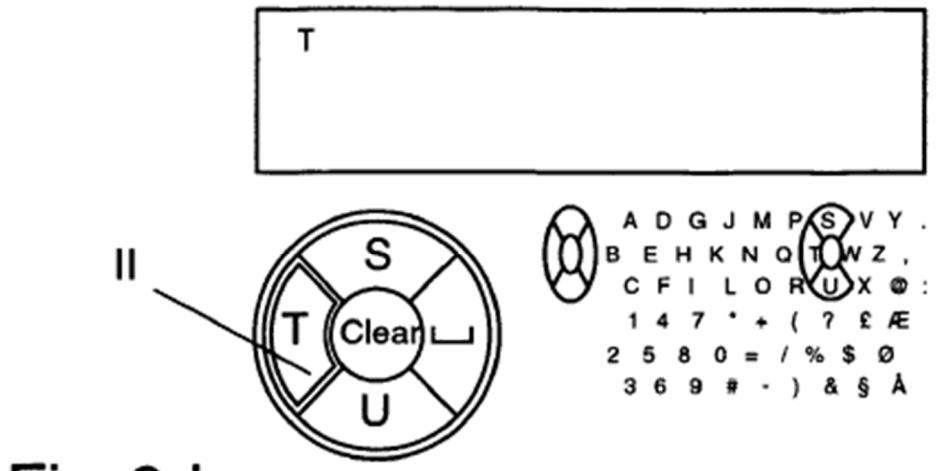


Fig. 9d

154. The up, down, left, right configuration includes within character-mapped buttons I, II, III, IV a ***part of an item identifier*** (*e.g.*, "T," "U," "S", and "space") ***for at least a first set of items*** and a ***part of an item identifier for at least a second set of items in a database***. And in each of *Badarneh's* embodiments, "on the input of text, the user will have systems for guessing likely words and/or letters according to priority of use/probability calculus." EX1009, 15:17-19. These words correspond to, for example, "a ***database*** which contains options and data that should be available." *Id.*, 24:15-19.

155. As shown in Fig. 9d, *Badarneh* discloses generating a first display (Figure 9d) on the output display, the first display comprising a ***part of an item identifier*** (the letter "T") corresponding to a first set of items (***items in the database starting with "T"***) and ***a part of an item identifier*** (***the letter "S"***) corresponding to a ***second set of items*** (***items in the database starting with "S"***) in a database.

156. Similarly, as shown in Fig. 9e, *Badarneh* discloses generating a first display (Figure 9e) on the output display, the first display comprising ***a part of an item identifier*** (the letter "E") corresponding to a first set of items (***items in the database starting with "TE"***) and ***a part of an item identifier*** (***the letter "O"***) corresponding to a ***second set of items*** (***items in the database starting with "TO"***) in a database.

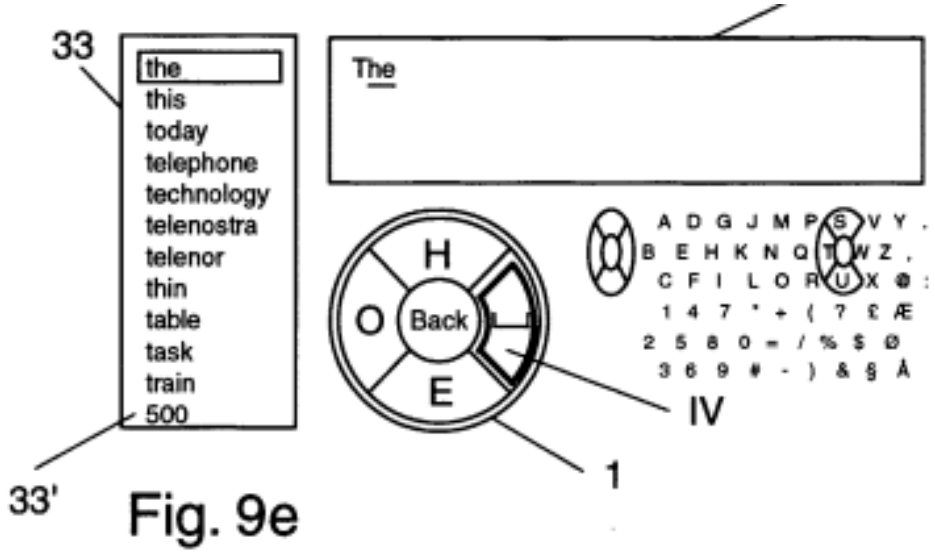


Fig. 9e

157. I note that 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. In my opinion, that limitation of the '579 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

7. *1g: enable selection, by the remote control keypad, of one of the two parts of the item identifiers associated with a selected set of items;*

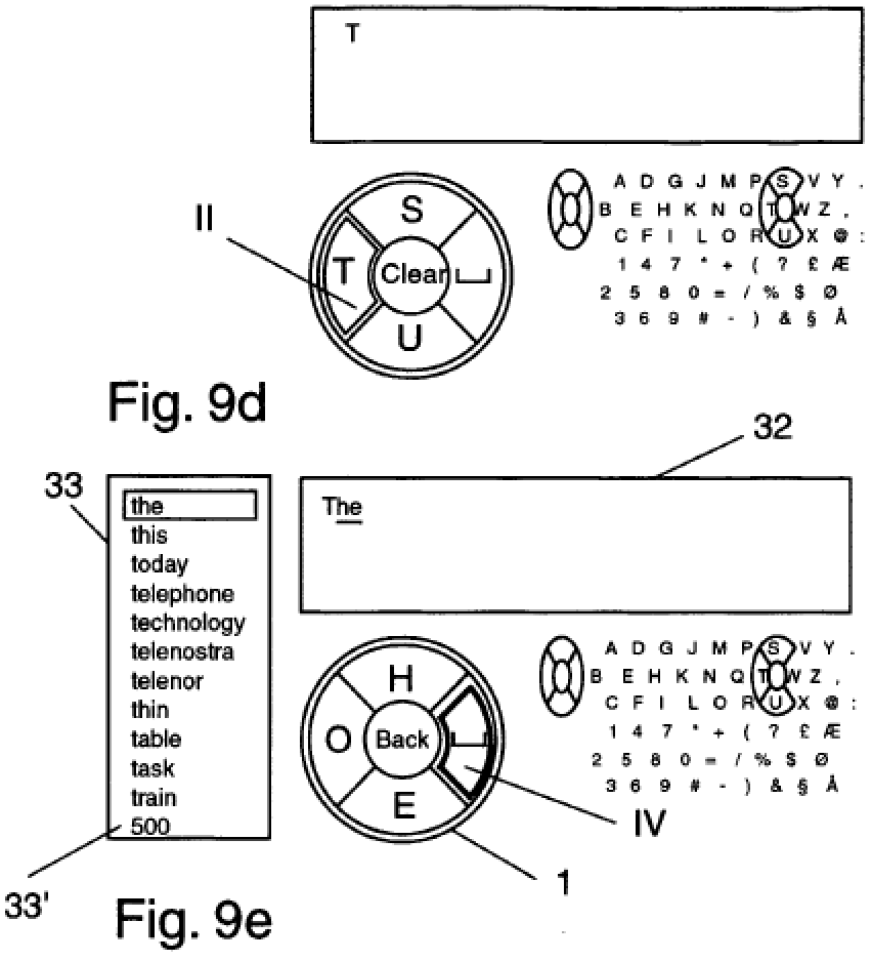
158. In my opinion, *Badarneh* discloses this limitation. As I discussed in the previous limitation, *Badarneh* ***enables selection, by the remote control keypad, of one of two parts of the item identifiers***, specifically by a allowing a user to select a letter from the GUI using the character mapped the up, down, left, and right functions. EX1009, 16:23-31.

159. I note that in the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring "enabling, by the at least one computer processor, selection of one of the two parts of the item identifiers by a user using a user interface." EX1017, 5. In my opinion, that limitation of the '579 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

8. *1h: generate, in response to the selection of the one of the two parts of item identifiers, a further display on the output display, the further display comprises an additional part of an item identifier corresponding to a subset of the selected set of items and another additional part of an item identifier corresponding to another subset of the selected set of items;*

160. In my opinion, *Badarneh* discloses this limitation. *Badarneh* discloses a ***further display comprising an additional part of an item identifier*** based on the user's input, specifically shown as ***one of the two parts of the item identifiers*** displayed in text box 32, while a ***different set of item identifiers displayed on***

character-mapped buttons 1, as shown in Figure 9 of *Badarneh*. EX1007, 17:28-31.



Id., Figs. 9d and 9e.

161. As shown above, once the part 'T' of the item identifier is selected, list of words 33' is updated to reflect database items containing a word beginning with the selected letter. Additional parts of item identifiers 'H' 'O' and 'E' are each displayed. Part 'H' corresponds to the set of entries in the database containing 'TH' as the first two letters of a word in the database item, while part 'E' corresponds to

items starting with 'TE', and part 'O' refers to ***items*** whose ***item identifiers*** begin with 'TO.'

162. I note that 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 corresponding to a subset of the selected set of items and another additional part of an item identifier corresponding to another subset of the selected items." EX1017, 5-6. In my opinion, that limitation of the '579 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

9. *1i: enable selection, by the remote control keypad, of one of the two additional parts of the item identifiers;*

163. In my opinion, *Badarneh* discloses this limitation. After a user ***selects*** a letter (*i.e.,* the letter T), a ***additional parts of item identifiers*** are automatically mapped to the up, down, left, right functionality of the remote control keypad and displayed for another user selection. EX1007, 17:29-34 ("Field 33 shows the candidate words which are picked from the available list of word in the order made according to how often these words have been used statistically. On the basis thereof, the system will choose letters which follow the previously entered letter. In this case,

HOE are chosen as the letters which will provide letter number two in the first words that are chosen from the displayed list. These letters appear in the animation 31").

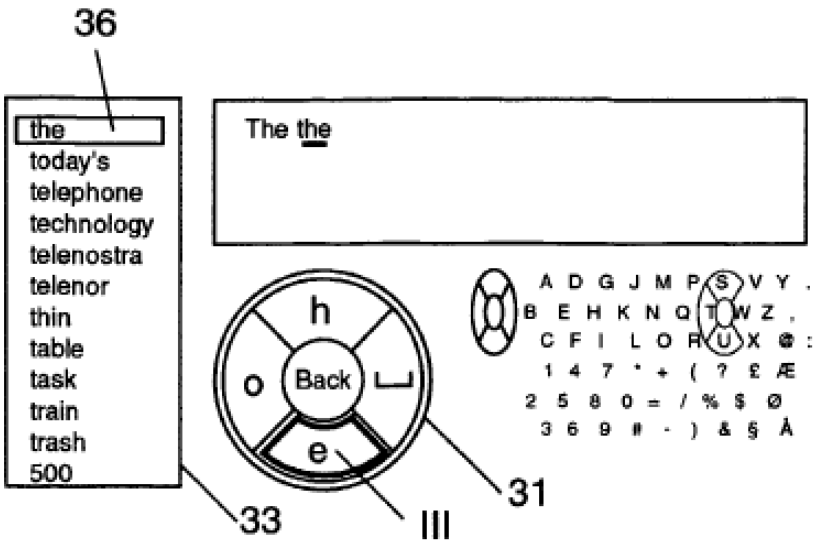


Fig. 9g

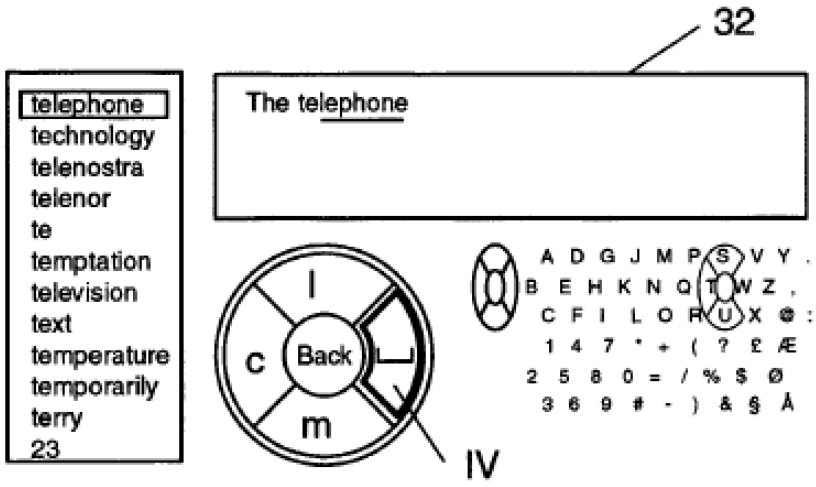


Fig. 9h

Id., Figs. 9g-h. In the above figures, the additional parts of item identifiers "H," "O," and "E" (Figure 9g) are chosen for display and selection based on the user's prior

selection of the part "T." At least portions "L," "C" and "M" (Figure 9h) are chosen for display and selection based on the user's prior selection of the parts "T" and "E."

164. I note that in the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring "enabling, by the at least one computer processor, selection of one of the two additional parts of the item identifiers by the user using the user interface." EX1017, 6. In my opinion, that limitation of the '579 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

10. *1j: combine 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; and*

165. In my opinion, *Badarneh* discloses this limitation. As shown in figures 9a-m, the ***selected parts of the item identifiers*** are ***combined*** in the text box shown at the top of Figures 9a-m to form a larger portion of the words (***item identifiers***) in the list 33'. *See* EX1009, 20-24.

166. I note that in the '579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring "combining, by the at least one computer processor, 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. In my opinion, that limitation of the '579 patent is of

at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

11. *1k: display the larger part of the item identifiers on the output display, wherein*

167. In my opinion, *Badarneh* discloses this limitation. As shown in figures 8, 9a-m, the selected portions are combined in the text box shown at the top of the figures (Figures 9a-m) to form a larger portion of the words in the list 33’. *See* EX1009, 20-24.

168. I note that in the ’579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “displaying, by the at least one computer processor, the larger part of the item identifiers.” EX1017, 6. In my opinion, that limitation of the ’579 patent is of at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

12. *1l: the additional parts of the item identifiers are shorter than a complete item identifier,*

169. In my opinion, *Badarneh* discloses this limitation. The ***parts of item identifiers*** are letters or characters, which are text symbols in the English language. EX1007, 9:20-24, 17:20-24. ***The additional parts of item identifiers*** (*i.e.*, the second letters of the words in the list of words 33’) are ***shorter*** than complete item identifiers, as shown above in Figures 9a-m, since characters are shorter than words.

170. I note that 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. In my opinion, that limitation of the '579 patent is of at least the same scope as this limitation in the '939 patent and therefore should be found disclosed for the same reasons.

13. *1m: the first set of items and the second set of items are mutually exclusive of one another, and*

171. In my opinion, *Badarneh* discloses this limitation. As I explained above, once a letter is selected, a new set of item identifiers is displayed reflecting the next letters in "the available list of word in the order made according to how often these words have been used statistically." EX1007, 17:29-31. For example, in Figure 9e, the ***items*** that start with "TH" (*e.g.*, "the," "this") are wholly different from and mutually exclusive from the ***items*** that start with "TO" (*e.g.*, "today") and the ***items*** that start with "TE" (*e.g.*, "telephone," "technology," "telenostra," "telenor"). EX1007, 17:28-37. This also applies to Figure 9d.

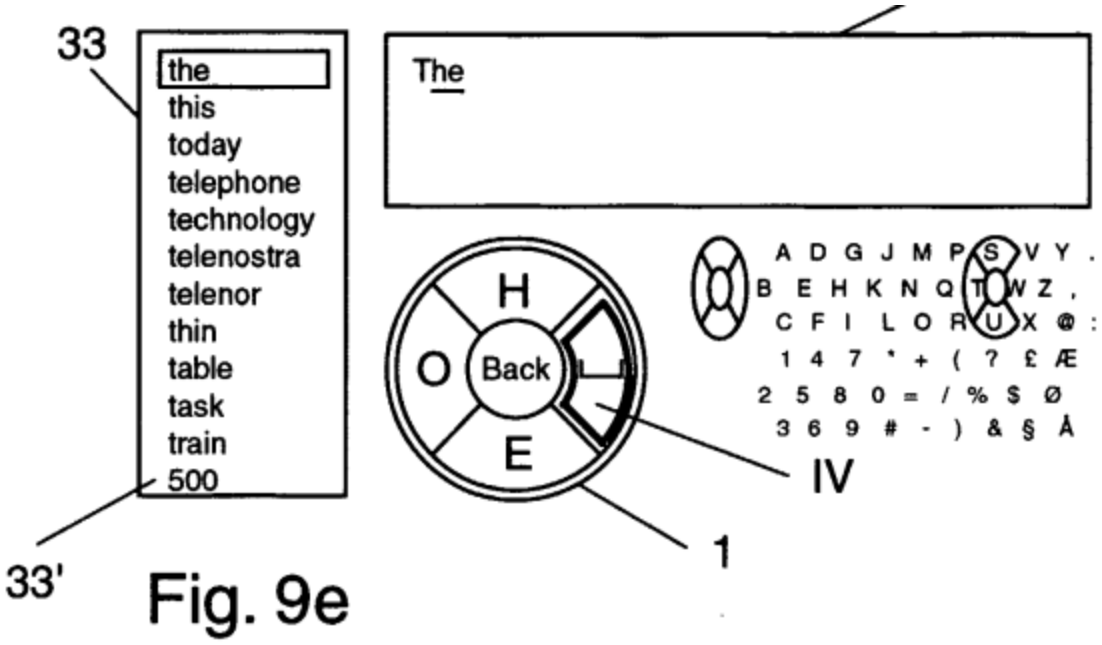


Fig. 9e

172. Then, as shown in Figure 9h, for example, as a user enters each additional letter, a different and new set of ***items*** can be chosen and displayed (*e.g.*, after entering "TE," the *Badarneh* system now displays additional entries beginning with "TE," including "temperature" and "temporarily"). EX1007, 18:3-7.

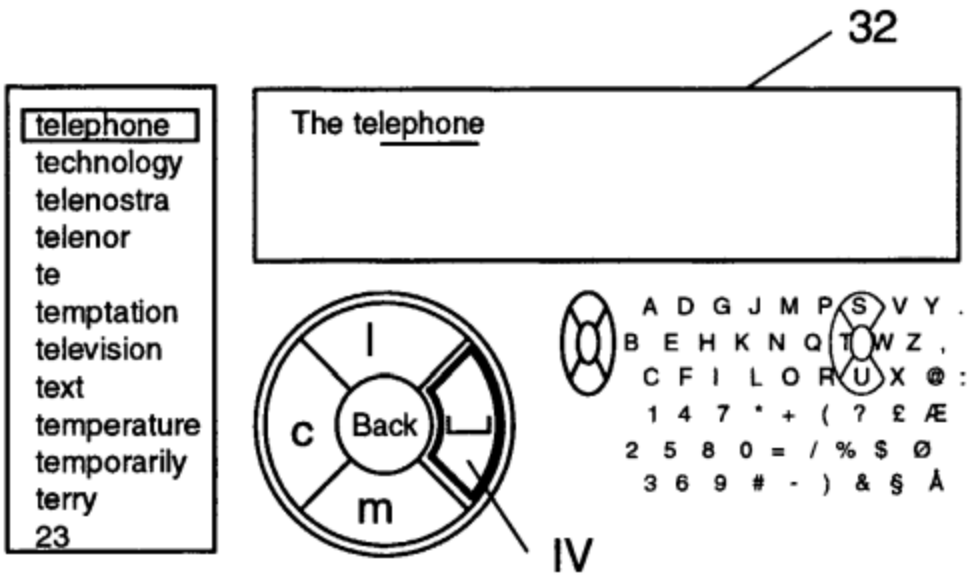


Fig. 9h

173. I note that in the ’579 patent reexamination, the CRU found that *Badarneh* disclosed a limitation requiring “the first set of items identifiers and the second set of item identifiers are mutually exclusive of one another.” EX1017, 7. In my opinion, that limitation of the ’579 patent is of at least the same scope as this limitation in the ’939 patent and therefore should be found disclosed for the same reasons.

14. *1n: the up, down, left, right, select functionality of the remote control keypad enables the selections of parts of item identifiers specifically positioned in a circular menu on the output display.*

174. In my opinion, *Badarneh* discloses this limitation.

175. For the limitation ***“up, down, left, right, select functionality of the remote control keypad enables the selections of parts of item identifiers,”*** *Baderneh*

discloses that directional buttons of the remote device have directional and select functionality since they indicate the cardinal direction of the displayed circular pattern for selection of characters, as shown in Figures 8 through 9m. For example, the "left" button on the remote has a "left" functionality because it will select the character in the "left" direction ("T" in Fig. 9d and "O"' in Fig. 9e) when pressed.

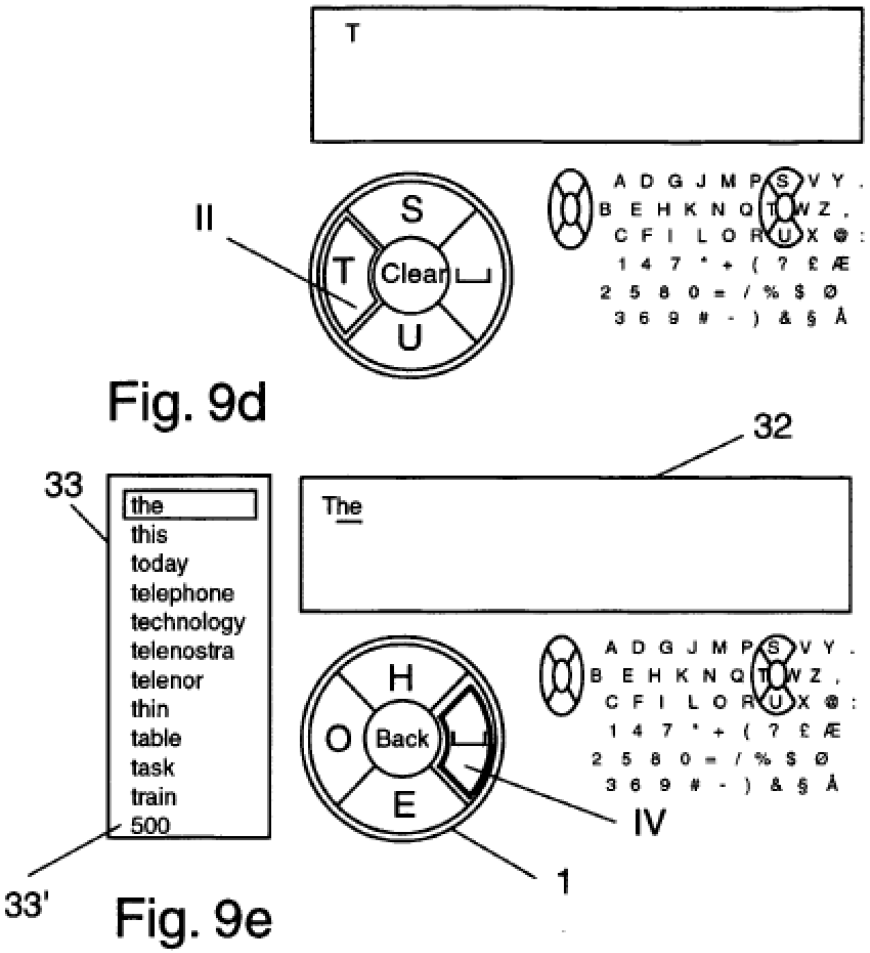


Fig. 9d

Fig. 9e

176. If this limitation is construed to require the use of buttons with directional functionality to move a cursor to select individual characters, in my opinion, a POSITA would have found it obvious to allow the use of the directional

buttons on the remote to select the characters. *Badarneh* already discloses that the circular menu in Figure 9 can be moved by using the radial switch. A POSITA would have found it obvious to allow the selection of letters using the directional buttons instead, as that may provide an alternative method of input that some users may find more intuitive and easier to use. In my opinion, a POSITA would have had a reasonable expectation of success since implementation of such functionality would simply involve displaying a selection cursor and allowing the directional buttons to control the placement of the cursor, which would have been simple and well-within the skill of an ordinary artisan.

177. For the limitation ***"circular menu on the output display,"*** as I discussed above, the '939 patent discloses a purportedly ***circular menu on the output display*** in Figure 5 that simply constitutes four buttons in the cardinal direction without forming a literal circle. EX1001, 4:56-64.

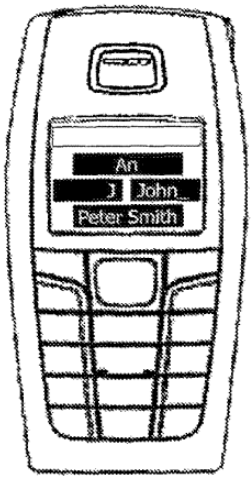


FIGURE 5

178. Thus, in the '939 patent, a "circular menu on the output display" is a display that can be selected using the up, down, left, or right keypad buttons or joystick directions, *i.e.* arranged in a circle, not requiring a true circle in the geometric sense. As shown in Figure 9d, *Badarneh* discloses the same circular menu as in Figure 5 of the '939 patent:

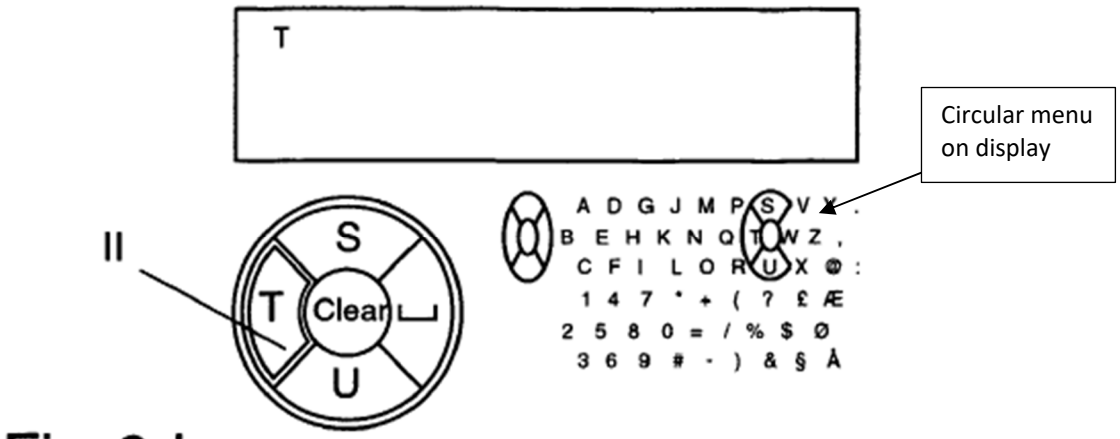


Fig. 9d

179. *Badarneh* discloses in Fig 9d, and many other figures, a user using the ***up, down, left, right, select functionality of the remote control keypad*** to ***select from the circular menu on the on the output display***. In fact, in my opinion, *Badarneh*'s menu has a more circular shape than the one depicted in the '939 patent.

180. I note that 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.

XI. GROUND 5: CLAIM 1 IS OBVIOUS IN LIGHT OF *BADARNEH* AND *JOSENHANS*

181. *Badarneh* and *Josenhans* render obvious claim 1, and a reasonable examiner would have considered the combined teachings of these references important when assessing the patentability of this claim.

182. As I discussed in greater detail above, *Badarneh* discloses the claimed "computer-implemented method of selecting an item from a plurality of items." EX1001; EX1008 at Abstract, [0002]. *Badarneh* describes "a system for input of data elements, e.g. 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." *Id*.

183. Further in figures 5c-12, *Badarneh* describes a GUI with character-mapped buttons (I, II, III, IV) corresponding to an up, down, left, and right configuration, which can be controlled by a multifunction key, such as a rotary switch. EX1009, 14:30-15:2.

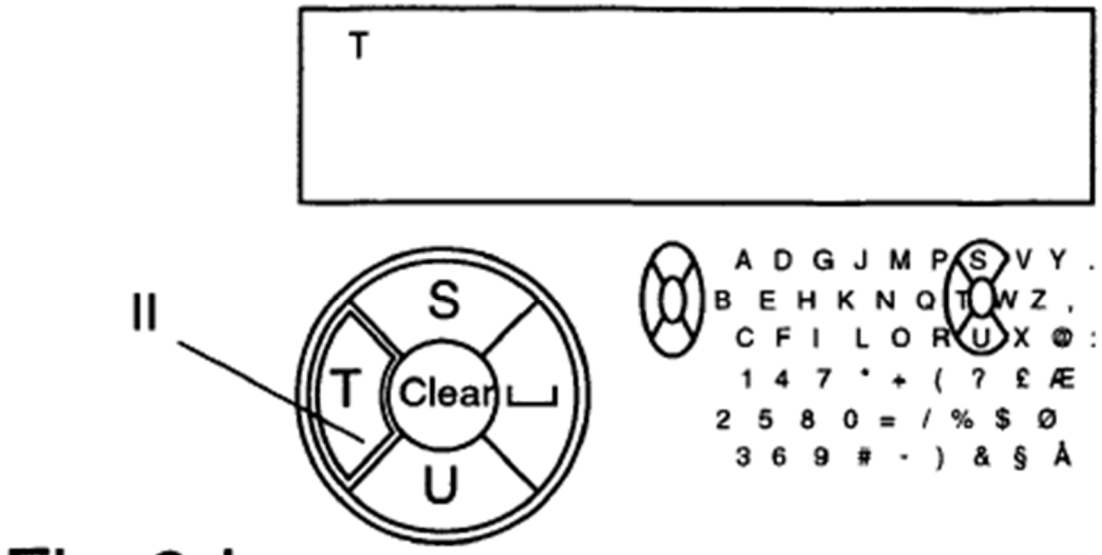


Fig. 9d

184. 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. And provides further suggested inputs based on the user's prior inputs. *See id*. Fig. 9d and 9e.

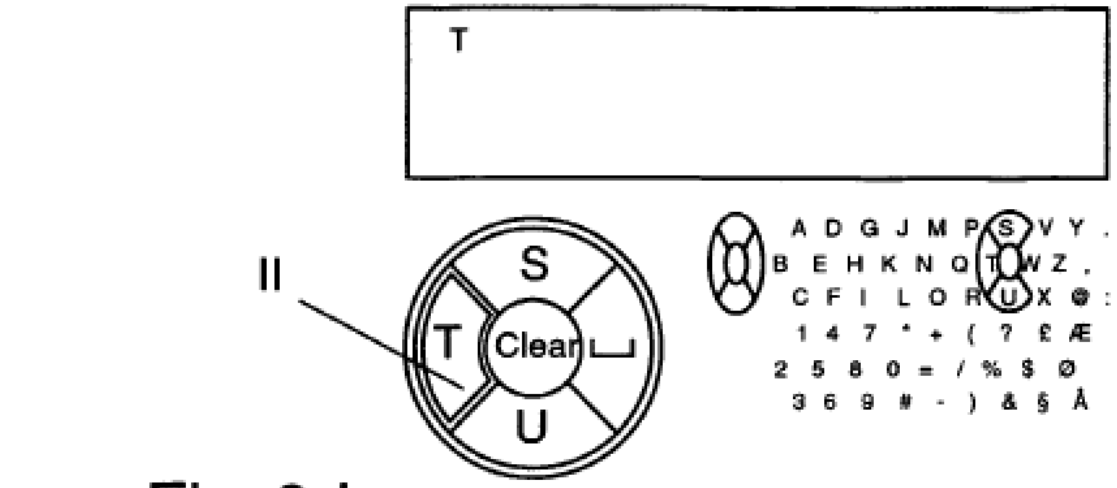


Fig. 9d

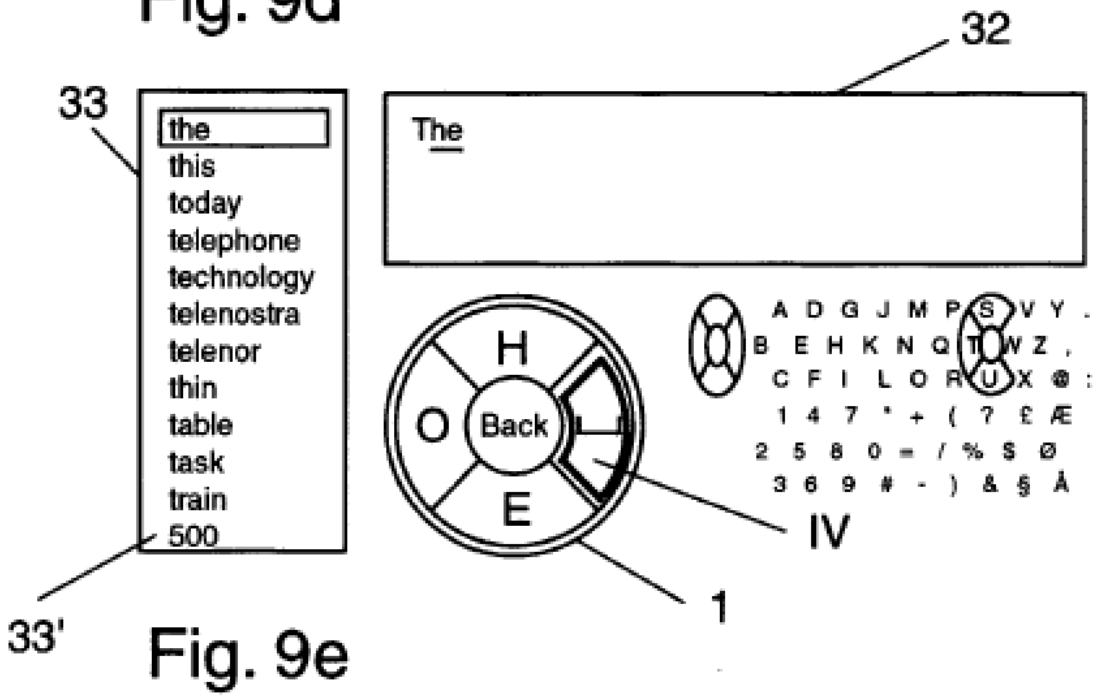


Fig. 9e

185. *Josenhans* similarly provides suggested words in multiple separate databases. "This allows the user to search in various databases just as simply as when searching in a single database." EX1008, ¶[0010]. Thus, the combination of *Badarneh* and *Josenhans* renders obvious the challenged claim.

A. Motivation to Combine *Badarneh* and *Josenhans*

186. As described above, it would have been obvious to incorporate *Josenhans's* multiple database structures into *Badarneh* because, like *Badarneh*, *Josenhans* deals with "a method of searching for data in at least two databases." Specifically, a POSITA would look to references such as *Josenhans* to determine the best way to incorporate and setup the databases of *Badarneh* without negatively affecting the user interface. A POSITA designing a system that performs searches on mobile devices such as PDAs and cell phones would have been forced into considering the use of multiple databases, as such devices store data of various types and frequently store data of the same type in multiple databases (*e.g.,* a custom language dictionary that complements a dictionary of the English language). The combined system informed by *Badarneh* and *Josenhans* would permit a more efficient and user-friendly interface that permits searching for items across multiple data sources or databases. A POSITA reading *Badarneh* would have looked to references like *Josenhans* to further "simplify…[the] input of data elements" and speed up text entry of items stored in different databases, as described in *Badarneh*. EX1006, 3:1-4.

B. Claim 1

187. As I discussed in Ground 4, *Badarneh* discloses all of the Challenged claim limitations and anticipates claim 1. To the extent any limitation of claim 1 is

not expressly disclosed by *Badarneh*, it also would have been obvious in view of *Badarneh* alone.

188. In this section, I also discuss how *Badarneh* is further enhanced using *Josenhans*'s explicit teaching of multiple databases and resulting search efficiency, particularly for claim limitation *1f*.

1. *1f: generate a first display on the output display, 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 in a database;*

189. *Badarneh* discloses this limitation. *See supra* Ground 4, limitation *1f*.

190. To the extent it is required that the ***first and second sets of item identifiers*** be in separate ***databases*** (an interpretation with which I do not agree), *Josenhans* discloses two sets of identifiers in separate databases. Specifically, *Josenhans* discloses a search table "for ***each*** connected database," all of which are searched simultaneously, which "allows the user to search in various databases just as simply as when searching in a single database." EX1008 at ¶10. In my opinion, that meets this limitation.

191. *Josenhans* discloses a system in which various search terms are stored in separate databases, and further discloses that the system works so that a user can simply search all of the databases at once without knowing that they are actually using identifiers from separate databases.

192. It would have been obvious to incorporate *Josenhans's* database organizational structure into *Badarneh* for the same reasons because *Josenhans* itself deals the same type of text entry techniques and character prediction that as in *Badarneh*. A POSITA would have recognized that the *Josenhans* system presents a way of organizing data into different databases without affecting the user interface for the user.

193. In the '579 patent reexamination, the CRU found that *Josenhans* "discloses simultaneous access to two or more databases in order to perform a search" and "discloses that two sets of identifiers may exist in separate databases." EX1017, 4. The CRU also found "[i]t would have been obvious to a skilled artisan at the time of the invention to have incorporated Josenhans' database structure into Badarneh because there is an advantage to searching multiple databases as simply as searching one database in that it is more efficient, faster, convenient, and utilizes low memory capacity and low transfer rates." *Id.*, 5.

XII. SECONDARY CONSIDERATIONS

194. I note that in IPR2020-00737 and IPR2020-00738, secondary considerations was considered and rejected by the Board. Specifically, the Board rejected Kannuu's argument that there is a presumption of nexus as to Kannuu's "proof of concept" software. EX1013, 89. The Board also rejected Kannuu's argument that there is a presumption of nexus as to Samsung's accused TVs. *Id.*, 91.

195. 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.*

196. 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.*

197. I have reviewed the Board's findings and agree with them.

XIII. CONCLUSION

198. In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the

United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

199. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on the information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed: October 20, 2025

/s/ Vijay K. Madisetti, Ph.D.
Vijay Madisetti, Ph.D.

APPENDIX A – CLAIM LISTING

Claim 1	
1a	A system for selecting items, the system comprising:
1b	an output display of a television;
1c	a remote control keypad with an up, down, left, right, select functionality; and
1d	a computer processor contained within the television configured to:
1e	associate the items with corresponding item identifiers
1f	generate a first display on the output display, 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 in a database;
1g	enable selection, by the remote control keypad, of one of the two parts of the item identifiers associated with a selected set of items;
1h	generate, in response to the selection of the one of the two parts of item identifiers, a further display on the output display, the further display comprises an additional part of an item identifier corresponding to a subset of the selected set of items and another additional part of an item identifier corresponding to another subset of the selected set of items;
1i	enable selection, by the remote control keypad, of one of the two additional parts of the item identifiers;
1j	combine 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; and
1k	display the larger part of the item identifiers on the output display, wherein
1l	the additional parts of the item identifiers are shorter than a complete item identifier,
1m	the first set of items and the second set of items are mutually exclusive of one another, and
1n	the up, down, left, right, select functionality of the remote control keypad enables the selections of parts of item identifiers specifically positioned in a circular menu on the output display.