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UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

X1 DISCOVERY, INC., Plaintiff, v. MICROSOFT CORPORATION, Defendant.	Civil Action No. 8:23-cv-02415-GW-JDE **JURY TRIAL DEMANDED**

FIRST AMENDED COMPLAINT

Plaintiff X1 Discovery, Inc. ("X1"), brings this First Amended Complaint against Defendant Microsoft Corporation ("Microsoft") for patent infringement.

NATURE OF THE ACTION

1. This a case to stop the theft of X1's patented technology by Microsoft,

MICROSOFT EXHIBIT 1081
Microsoft v. X1 Discovery
IPR2025-00253

alleging a civil action for patent infringement under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq*, including 35 U.S.C. § 271, 281, 283, 284, and 285.

2. In the early 2000s, software engineers at X1 recognized that the need to find and access digitally stored information and applications quickly and efficiently was growing, and that conventional search software was inadequate. They worked tirelessly to develop technology that would shift the search paradigm and allow users to find and act upon information as fast as possible. With hard work and ingenuity, they developed novel and reactive search methods and systems that displayed search results as fast as a user could type, updating results in real time, and in fewer steps.

3. X1 was built upon these inventions—a small company named after the Bell X-1, the first airplane to exceed the speed of sound. Like its namesake, X1 sought to develop products and technology that could deliver search results faster than ever before. X1 invested significant time and resources developing its groundbreaking and award-winning flagship product, X1 Search™, which is based on the technology protected by X1's valid and enforceable U.S. Patent Nos. 7,370,035 ("the '035 Patent," attached as Exhibit 1), 9,633,139 ("the '139 Patent," attached as Exhibit 2), 10,552,490 ("the '490 Patent," attached as Exhibit 3), and 8,498,977 ("the '977 Patent," attached as Exhibit 4) (collectively, the "Asserted Patents"). The inventions of the Asserted Patents are central to X1's product offerings.

4. Microsoft directly infringes, either literally or under the doctrine of equivalents, and indirectly infringes one or more claims of the Asserted Patents.

THE PARTIES

5. Plaintiff X1 Discovery, Inc. is a corporation organized and existing under the laws of the State of Delaware with a principal place of business at 251 South Lake Avenue, Suite 800, Pasadena, California 91101.

6. On information and belief, Defendant Microsoft Corporation is a

Washington corporation with a principal place of business located at 1 Microsoft Way, Redmond, Washington 98052-8300. On information and belief, Microsoft causes and controls the sale, offer for sale, and distribution of its products in the State of California and in this District.

JURISDICTION AND VENUE

7. This is a civil action for patent infringement under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq*, including 35 U.S.C. § 271, 281, 283, 284, and 285.

8. This Court has original subject matter jurisdiction over X1's claims for patent infringement pursuant to 28 U.S.C. §§ 1331 and 1338(a) and 35 U.S.C. §§ 271 *et seq*.

9. This Court has personal jurisdiction over Defendant because Defendant regularly transacts business in this District by, among other things, offering Defendant's products and services to customers, business affiliates and partners located in this District. In addition, Defendant has committed acts of direct infringement of one or more claims of the Asserted Patents in this District.

10. Venue is proper in this judicial district for X1's claims for patent infringement pursuant to 28 U.S.C. §§ 1391(b), 1391(c) and/or 1400(b) because Defendant is subject to personal jurisdiction in this District, transacts business and is registered to transact business within this District and offers for sale in this District products that infringe, or induce or contribute to the infringement of, one or more claims of the Asserted Patents. On information and belief, Defendant has regular and established places of business in this District in at least the following locations: 3 Park Plaza, Suite 1600, Irvine, CA 92614; 3333 Bristol Street, Suite 1249, Costa Mesa, CA 92626; and 13031 West Jefferson Blvd., Suite 200, Los Angeles, CA 90094.

FACTUAL BACKGROUND

11. X1 is the sole owner by assignment of all right, title, and interest in all

four Asserted Patents, which generally relate to computing devices utilizing novel indexed search systems and components thereof. *See* Exhibits 1-4.

12. Conventional search application programs are slow and cumbersome to use. If a search engine returns unsatisfactory results, then the user needs to edit the search terms, initiate another search, and review the new results. Conventional search technologies had limited ways to quickly and efficiently search for documents or files based on their characteristics such as date or file location. Searches may also take an excessive amount of time to complete.

13. X1's software engineers recognized the limitations of conventional searching and developed novel methods and systems for search indexing—creating incremental or reactive searching of a variety of search targets, including files, emails, email attachments, Web pages, and specific databases that were significant technological improvements over the prior art. In recognition of these groundbreaking inventions, the United States Patent and Trademark Office subsequently granted the Asserted Patents protecting this novel technology.

14. In 2003, X1 Technologies, LLC[1] ("X1 Technologies") was founded. The company spent significant time and resources developing its flagship product: X1 Search™. X1 Search™ is an award-winning, next generation productivity application, which simplifies the way users search and act upon desktop files, items in cloud repositories such as OneDrive, emails, attachments, SharePoint and more. X1 Search™'s single, unified interface and fast-as-you-type search with hit highlighting and full-fidelity preview of results provides immediate visibility into the critical information users need.

15. In 2011, X1 Technologies was reorganized and became X1 Discovery, Inc. ("X1"). X1 currently has two product offerings: X1 Search™ and X1 Enterprise Collect™. X1 Search™ is an embedded feature of each of these products and X1's business is built around these product offerings.

[1] In 2004 X1 Technologies, LLC was converted to a corporation, X1 Technologies, Inc.

16. Defendant makes, uses, imports, sells, and/or offers for sale products that infringe at least one claim of each of the Asserted Patents, including at least its Surface Laptop Go 4, Surface Laptop Go 3, Surface Laptop Go 2, Surface Laptop 7, Surface Laptop 6, Surface Laptop 5, Surface Laptop Studio, Surface Laptop Studio 2, Surface Pro 11, Surface Pro 10, Surface Pro 9, Surface Pro 8, Surface Pro 7+, Surface Pro 7, Surface Pro X, Surface Go 4, Surface Go 3, and Surface Go 2. (collectively, the "Accused Computer Products"). By making, using, selling, and/or offering for sale each of the Accused Computer Products, Defendant infringes, either directly or indirectly, each of the Asserted Patents.

17. In addition, Defendant makes, uses, imports, sells, and/or offers for sale various products that include infringing software including Microsoft Windows 10 or 11 (with at least Windows Search and File Explorer Search), Microsoft 365 (with at least Microsoft 365 Search), and SharePoint (with at least SharePoint Search). By making, using, selling, and/or offering for sale at least Windows Search, File Explorer Search, Microsoft 365 Search, and SharePoint Search (collectively, the "Accused Software Products"), Defendant infringes, either directly or indirectly, at least one claim of each of the Asserted Patents.

THE ASSERTED PATENTS

The '035 Patent

18. X1 is the owner by assignment of all right, title and interest, including the right to sue for damages, in and to the '035 Patent.

19. The '035 Patent is entitled "Methods and Systems for Search Indexing" and names William Gross and Steven Lee Colwell as inventors. The '035 Patent issued on May 6, 2008, based on U.S. Application No. 10/654,588, filed on September 3, 2003. The '035 Patent expired on October 1, 2023. A copy of the '035 Patent is attached to the First Amended Complaint as Exhibit 1.

20. The '035 Patent is valid and enforceable under United States Patent Laws.

21. The ’035 Patent relates to improvements in computer search technology and data processing, and more particularly to methods and systems for locating data.[2] Prior to the claimed invention, conventional searching using existing search engines was slow and cumbersome, for example, requiring a user to type in search terms, click on the search button, and review the results. ’035 Patent at 1:32-35. If the user was not satisfied with the search results, as would often be the case where too many results were returned or items that were not of interest were found, then the user would be required to edit the search terms, click search, and again review the results. *Id.* at 1:35-39. In addition, many conventional search technologies had a limited number of ways to search for documents or files based on their characteristics such as date or file location. The prior art did not allow a user to quickly and efficiently search specific types of targets such as email, web pages, or other type of files.. *Id.* at 1:39-42. Such conventional searching also required the user to develop deliberate and tedious search stings and strategies. *Id.* at 1:62-65.

22. To address these problems with conventional searching, the ’035 Patent discloses novel methods and systems for incremental or reactive searching of a variety of search targets, including files, emails, email attachments, Web pages, and specific databases, effectively improving and increasing the speed of searching, organizing, and accessing files in a data storage system of a computer system. *See e.g.*, ’035 Patent at 2:9-13. Unlike conventional searching, because a search is performed incrementally, the search results are provided or narrowed substantially immediately after each character in a search string is entered by the user. *Id.* at 2:13-16. This provides the user with immediate feedback as the search string is entered, so the user can quickly decide whether the search string needs to be modified, improving search accuracy and allowing for quicker access to the file or

[2] X1 provides the following general description of the ’035 Patent. This description is not intended to limit, define, or otherwise affect the construction and/or application of the ’035 Patent.

application the user needs. *Id.* at 2:16-21.

23. Specifically, the ’035 Patent teaches in certain embodiments a novel method of performing a search using a first search string and a second string in the search field, wherein the first and second strings are separated by a string separator character in the first search field, and incrementally locating a first group of documents that has at least the first word in the first string and receiving a second string in the first search field, wherein in response to the second string, incrementally locating a second group of documents that has at least a second word that begins with the second string. The ’035 Patent also teaches in certain embodiments a method of performing a search where in response to receiving the first and second strings the identified documents are displayed. The ’035 Patent also teaches in certain embodiments that the displayed documents are automatically highlighted for occurrences of the words used in the search strings. The ’035 Patent also teaches a search apparatus comprising instructions configured to execute the claimed search methods.

24. The methods and systems disclosed in the ’035 Patent were neither well-known nor conventional to skilled artisans as of the priority date. The prior art does not teach or suggest the claimed reactive and incremental searching methods. For example, the ’035 Patent teaches a method of performing a search in which the system first receives a first partial search string in a first search field, and a second partial search string in the first search field, wherein the first and second partial search strings are separated by a string separator character in the first search field. When the first string is detected, an incremental search is initiated, which can search a plurality of types of documents (including word processing documents and emails) that has at least a first word that begins with the first string. The search results are then updated with each successive character, including in response to a second string. In response to receiving the second string, an incremental search is initiated for a second group of documents that has at least a second word that begins

with the second string and one or more documents that are included in each of the first and second groups of documents can include those that include the term from the first search string and the second search string. The resulting documents are then displayed for the user. Prior art methods for searching were much slower and did not allow for incremental updating of search results. The prior art methods also did not disclose having multiple search strings in a single search field with a string separator, and using the specific claimed method of efficiently locating documents that have both search strings. Thus, the claimed invention specifically improves computer technology at least with regard to the accuracy and efficiency with which searches can be conducted and generally improves user interfaces by providing users with quicker and easier access to desired files or applications using a first and second search string in a single search field. The claimed invention is thus directed to specific steps to accomplish a technological improvement, and not an abstract idea.

25. As described above, the ’035 Patent’s claims are inventive and describe a substantial improvement in the art of computer searching. Namely, the claims describe methods for performing searches in a manner that is more than just the performance of well-understood, routine, or conventional activities that were previously known in the field. The conventional searching methods predating the ’035 Patent did not involve incrementally updating search results in real time as each successive character is entered. The ordered combination of receiving a first string in a search field and incrementally locating a first set of documents, followed by receiving a second string in the same search field and incrementally locating a second set of documents and identifying documents included in each of the first and second groups of documents, wherein the search field corresponds with a single field of the documents and the incremental searching is performed only on content of the single field of the documents was novel. Additionally, the claimed methods allow users to incrementally search over at least two strings in a single search field

and displays results containing both strings, a marked improvement over the older searching techniques and search interfaces. These searching techniques and strategies and this combined interface were not routinely used or conventional before the '035 Patent was filed and therefore constitute an improvement in computer searching.

The '139 Patent

26. X1 is the owner by assignment of all right, title and interest, including the right to sue for damages, in and to the '139 Patent.

27. The '139 Patent is entitled "Methods and Systems for Search Indexing" and names William Gross and Steven Lee Colwell as inventors. The '139 Patent issued on April 25, 2017, based on U.S. Application No. 14/507,519, filed on October 6, 2014. The '139 Patent expired on October 1, 2023. A copy of the '139 Patent is attached to the First Amended Complaint as Exhibit 2.

28. The '139 Patent is valid and enforceable under United States Patent Laws.

29. The '139 Patent relates to improvements in computer search technology and data processing, and more particularly to methods and systems for locating data.[3] Prior to the claimed invention, conventional searching using existing search engines was slow and cumbersome, for example, requiring a user to type in search terms, click on the search button, and review the results. '139 Patent at 1:38-41. If the user was not satisfied with the search results, as would often be the case where too many results were returned or items that were not of interest were found, then the user would be required to edit the search terms click search, and again review the results. *Id.* at 1:41-45. In addition, many conventional search technologies had a limited number of ways to search for documents or files based on their characteristics such as date or file location. The prior art did not allow a

[3] X1 provides the following general description of the '139 Patent. This description is not intended to limit, define, or otherwise affect the construction and/or application of the '139 Patent.

user to quickly and efficiently search specific types of targets such as email, web pages, or other type of files. *Id.* at 1:45-48. Such conventional searching also required the user to develop deliberate and tedious search stings and strategies. *Id.* at 2:1-4.

30. To address these problems with conventional searching, the '139 Patent discloses novel methods and systems for incremental or reactive searching of a variety of search targets, including files, emails, email attachments, Web pages, and specific databases, effectively improving and increasing the speed of searching, organizing, and accessing files in a data storage system of a computer system. *See e.g.*, '139 Patent at 2:15-19. Unlike conventional searching, because a search is performed incrementally, the search results are provided or narrowed substantially and immediately after each character in a search string is entered by the user. *Id.* at 2:19-22. This provides the user with immediate feedback as the search string is entered, so the user can quickly decide whether the search string needs to be modified, improving search accuracy and allowing for quicker access to the file or application the user needs. *Id.* at 2:22-27.

31. Specifically, the '139 Patent teaches in certain embodiments a method of performing a search using a first partial search string and a second partial search string in the search field, wherein the first and second partial strings are separated by a string separator character in the first search field, and incrementally searching for a first group of documents that has at least one string that corresponds to the first partial string and receiving a second partial string in the first search field, wherein in response to the second partial string, incrementally searches for a second group of documents each including at least one string that corresponds to the second partial search string. The '139 Patent further teaches updating the search results as each successive character of the first partial search string and the second partial search string is received respectively in the first search field by identifying one or more documents included in both the first group of documents and the

second group of documents, wherein the first partial search string and the second partial search string are non-adjacent in at least one of the identified documents. The '139 Patent further teaches in certain embodiments a method of performing a search where in response to receiving the first and second partial strings the identified documents are displayed. The '139 Patent also teaches a computing system executing software to execute the claimed search methods.

32. The methods and systems disclosed in the '139 Patent were neither well-known nor conventional to skilled artisans as of the priority date. The prior art does not teach or suggest the claimed reactive and incremental searching methods. For example, the '139 Patent teaches a method of performing a search in which the system first receives a first partial search string in a first search field, and a second partial search string in the first search field, wherein the first and second partial search strings are separated by a string separator character in the first search field. When the first partial string is detected, an incremental search is initiated, which can search a plurality of types of documents (including word processing documents and/or emails) that has at least a first word that begins with the first partial string. The search results are then updated with each successive character, including in response to a second partial string. In response to receiving the second partial string, an incremental search is initiated for a second group of documents that has at least a second word that begins with the second partial string. The documents that are included in each of the first and second groups of documents can include those that include the term from the first partial search string and the second partial search string and/or documents wherein the first partial search string and the second partial search string are non-adjacent in at least one of the identified documents. The resulting documents are then displayed for the user. Prior art methods for searching were much slower and did not allow for incremental updating of search results or the identification of documents wherein the first and second partial strings are non-adjacent in the document. Thus, the claimed invention specifically

improves computer technology at least with regard to the accuracy and efficiency with which searches can be conducted and generally improves user interfaces by providing users with quicker and easier access to desired files or applications using a first and second search string and the ability to identify more relevant documents based on the presence of the first and second partial search strings even when non-adjacent within the document or file. The claimed invention is thus directed to specific steps to accomplish a technological improvement, and not an abstract idea.

33. As described above, the '139 Patent's claims are inventive and describe a substantial improvement in the art of computer searching. Namely, the claims describe methods for performing searches in a manner that is more than just the performance of well-understood, routine, or conventional activities that were previously known in the field. The conventional searching methods predating the '139 Patent did not involve incrementally updating search results in real time as each successive character is entered. The ordered combination of receiving a first partial search string in a first search field and incrementally searching for a first one or more documents, each including at least one string that corresponds to the first partial search string, followed by receiving a second partial search string in the first search field and searching for a second one or more documents, each including at least one string that corresponds to the second partial search string and identifying documents included in both groups of documents wherein the first search field corresponds with a single field of the documents and the incremental searching is performed only on the content of the single field of the documents was novel at the time of the '139 Patent's invention. Additionally, the claimed methods allow users to incrementally search over at least two partial strings in a single search field and displays results containing both strings, including results wherein the first and second partial search strings are non-adjacent in the same document, a marked improvement over the older searching techniques and searching interfaces. These searching techniques and strategies and this combined interface were not routinely

used or conventional before the ’139 Patent was filed and therefore constitute an improvement in computer searching.

The ’490 Patent

34. X1 is the owner by assignment of all right, title and interest, including the right to sue for damages, in and to the ’490 Patent.

35. The ’490 Patent is entitled “Methods and Systems for Search Indexing” and names William Gross and Steven Lee Colwell as inventors. The ’490 Patent issued on February 4, 2020, based on U.S. Application No. 15/495,507, filed on April 24, 2017. The ’490 Patent expired on November 8, 2024. A copy of the ’490 Patent is attached to the First Amended Complaint as Exhibit 3.

36. The ’490 Patent is valid and enforceable under United States Patent Laws.

37. The ’490 Patent relates to improvements in computer search technology and data processing, and more particularly to systems for storing an index data structure comprising associations between each of a plurality of character strings to associated files of a plurality of files in which the character strings are included.[4] Prior to the claimed invention, conventional searching using existing search engines was slow and cumbersome, for example, requiring a user to type in search terms, click on the search button, and review the results. ’490 Patent at 1:43-46. If the user was not satisfied with the search results, as would often be the case where too many results were returned or items that were not of interest were found, then the user would be required to edit the search terms click search, and again review the results. *Id.* at 1:46-50. In addition, many conventional search technologies had a limited number of ways to search for documents or files based on their characteristics such as date or file location. The prior art did not allow a user to quickly and efficiently search specific types of targets such as email, web

[4] X1 provides the following general description of the ’490 Patent. This description is not intended to limit, define, or otherwise affect the construction and/or application of the ’490 Patent.

pages, or other type of files. *Id.* at 1:50-53. Such conventional searching also required the user to develop deliberate and tedious search stings and strategies. *Id.* at 2:6-9.

38. To address these problems with conventional searching, the '490 Patent discloses novel systems for incremental or reactive searching of a variety of search targets, including files, emails, email attachments, Web pages, and specific databases, effectively improving and increasing the speed of searching, organizing, and accessing files in a data storage system of a computer system. *See e.g.*, '490 Patent at 2:20-24. Unlike conventional searching, because a search is performed incrementally, the search results are provided or narrowed substantially and immediately after each character in a search string is entered by the user. *Id.* at 2:24-27. This provides the user with immediate feedback as the search string is entered, so the user can quickly decide whether the search string needs to be modified, improving search accuracy and allowing for quicker access to the file or application the user needs. *Id.* at 2:27-32. Additionally, the '490 Patent discloses using an index data structure comprising associations between files and character strings to further improve searching speed and file accessibility. *Id.* at 5:29-36.

39. Specifically, the '490 Patent teaches in certain embodiments a computing system with one or more hardware computer processors, a display device viewable by the user, and a computer readable storage medium storing an index data structure. The index includes a data structure that associates character search strings (including a first and second search string) with files, documents, and the like. *Id.* at 5:6-12. For example Web pages previously viewed in the search application's view pane or area, and optionally, stored Web pages previously viewed using other user browsers, or otherwise stored locally can be indexed. *Id.* at 12-15. Separate indexes can be used for the email, files, cached Web pages, databases and the like, or a single index can be used for the foregoing. *Id.* at 15-18. The '490 Patent also teaches in certain embodiments searching the index data

structure for a first one or more of the plurality of files each including at least one string that corresponds to the first search string and searching the index data structure for a second one or more of the plurality of files each including at least one string that corresponds to the second search string. The ’490 Patent also teaches updating a set of matching files of the plurality of files as each successive character of the first partial search string and the second partial search string is received respectively in the first search field by identifying any of the plurality of files included in both the first one or more of the plurality of files and the second one or more of the plurality of files, wherein the first partial search string and the second partial search string are non-adjacent in at least one of the matching files.

40. The systems disclosed in the ’490 Patent were neither well-known nor conventional to skilled artisans as of the priority date. The prior art does not teach or suggest the claimed reactive and incremental searching systems. For example, the ’490 Patent teaches a system with a searchable index data structure that includes files that associate character search strings (including a first and second search string) with files, documents, and the like. The ’490 Patent also teaches in certain embodiments searching the index data structure for a first one or more of the plurality of files each including at least one string that corresponds to the first search string and searching the index data structure for a second one or more of the plurality of files each including at least one string that corresponds to the second search string. The ’490 Patent also teaches updating a set of matching files of the plurality of files as each successive character of the first partial search string and the second partial search string is received respectively in the first search field by identifying any of the plurality of files included in both the first one or more of the plurality of files and the second one or more of the plurality of files, wherein the first partial search string and the second partial search string are non-adjacent in at least one of the matching files. Thus, the claimed invention specifically improves computer technology at least with regard to the accuracy and efficiency with which

searches can be conducted and generally improves user interfaces by allowing users to search indexed data for first and second search strings and the ability to identify more relevant documents in the indexed data structure based on the presence of the first and second search strings even when non-adjacent within a document or file. The claimed invention is thus directed to specific steps to accomplish a technological improvement, and not an abstract idea.

41. As described above, the ’490 Patent’s claims are inventive and describe a substantial improvement in the art of computer searching. Namely, the claims describe systems for performing searches in a manner that is more than just the performance of well-understood, routine, or conventional activities that were previously known in the field. The conventional searching methods predating the ’490 Patent did not involve incrementally updating search results in real time as each successive character is entered. The ordered combination of receiving first and second partial strings in a first search field and separately incrementally searching for and identifying files in an indexed data structure that include the first partial string, followed by incrementally searching for and identifying files in indexed data structure that include the second partial string and identifying files included in both groups of files wherein the first search field corresponds with a single field of the files and the incremental searching is performed only on the content of the single field of the files was novel at the time of the ’490 Patent’s invention. Additionally, the claimed systems allow users to incrementally search over at least two strings, using a single search field, within an indexed data structure and displays results from with that index data structure containing both strings, including results wherein the first and second search strings are non-adjacent in the same document, a marked improvement over the older searching techniques and search interfaces. These searching techniques and strategies and this combined interface were not routinely used or conventional before the ’490 Patent was filed, and therefore constitute an improvement in computer searching.

The ’977 Patent

42. X1 is the owner by assignment of all right, title and interest, including the right to sue for damages, in and to the ’977 Patent.

43. The ’977 Patent is entitled “Methods and Systems for Search Indexing” and names William Gross and Steven Lee Colwell as inventors. The ’977 Patent issued on July 30, 2013, based on U.S. Application No. 11/932,865, filed on October 31, 2007. The ’977 Patent expires on May 21, 2026. A copy of the ’977 Patent is attached to the First Amended Complaint as Exhibit 4.

44. The ’977 Patent is valid and enforceable under United States Patent Laws.

45. The ’977 Patent relates to improvements in computer search technology and data processing, and more particularly to methods and systems for locating data.[5] Prior to the claimed invention, conventional searching using existing search engines was slow and cumbersome, for example, requiring a user to type in search terms, click on the search button, and review the results. ’977 Patent at 1:35-36. If the user was not satisfied with the search results, as would often be the case where too many results were returned or items that were not of interest were found, then the user would be required to edit the search terms click search, and again review the results. *Id.* at 1:38-42. In addition, many conventional search technologies had a limited number of ways to search for documents or files based on their characteristics such as date or file location. The prior art did not allow a user to quickly and efficiently search specific types of targets such as email, web pages, or other type of files. *Id.* at 1:42-45. Such conventional searching also required the user to develop deliberate and tedious search stings and strategies. *Id.* at 1:65-2:1.

46. To address these problems with conventional searching, the ’977

[5] X1 provides the following general description of the ’977 Patent. This description is not intended to limit, define, or otherwise affect the construction and/or application of the ’977 Patent.

Patent discloses novel methods and systems for incremental or reactive searching of a variety of search targets, including files, emails, email attachments, Web pages, and specific databases, effectively improving and increasing the speed of searching, organizing, and accessing files in a data storage system of a computer system. *See e.g.*, '977 Patent at 2:13-17. Unlike conventional searching, because a search is performed incrementally, the search results are provided or narrowed substantially and immediately after each character in a search string is entered by the user. *Id.* at 2:17-20. This provides the user with immediate feedback as the search string is entered, so the user can quickly decide whether the search string needs to be modified, improving search accuracy and allowing for quicker access to the file or application the user needs. *Id.* at 2:20-24.

47. Specifically, the '977 Patent teaches in certain embodiments a method of performing a search using first and second search strings, and incrementally locating a document that has at least a first word that begins with the first string and a second word that begins with the second string. *Id*. at 2:33-39. The '977 Patent also teaches in certain embodiments a method of performing a search where one of the search strings comprises a command and executing that command. *Id*. at 2:55-61. Critically, the invention of the '977 Patent is the integration of index-based search, incremental search, and text based command processing into a single system providing users with the ability to quickly and efficiently locate documents and information, or execute commands on their computers by simply entering a single string of text.

48. The systems disclosed in the '977 Patent were neither well-known nor conventional to skilled artisans as of the priority date. The prior art does not teach or suggest unifying a search field and a command prompt which allows for the same user-inputted text to be used in two different ways – to instruct a computer and to search for content. For example, the '977 Patent teaches a system with a searchable index data structure that includes files that associate character search

strings (including a first and second search string) with files, documents, and the like. The ’977 Patent also teaches in certain embodiments searching the index data structure for a first one or more of the plurality of files each including at least one string that corresponds to the first search string and searching the index data structure for a second one or more of the plurality of files each including at least one string that corresponds to the second search string. Additionally, the ’977 Patent teaches determining whether the first string is a command before initiating a search, allowing a user to use the second string as an argument for the identified command. The ’977 Patent also teaches updating a set of matching files of the plurality of files as each successive character of the first partial search string and the second partial search string is received respectively in the first search field by identifying any of the plurality of files included in both the first one or more of the plurality of files and the second one or more of the plurality of files, wherein the first partial search string and the second partial search string are non-adjacent in at least one of the matching files. Thus, the claimed invention specifically improves computer technology at least with regard to the accuracy and efficiency with which searches can be conducted and generally improves user interfaces by allowing the same text to be used both as a command and a way of searching for indexed data using the first and second search strings. The incremental searching capability also provides the ability to identify more relevant documents in the indexed data structure based on the presence of the first and second search strings even when non-adjacent within a document or file. The claimed invention is thus directed to specific steps to accomplish a technological improvement, and not an abstract idea.

49. As described above, the ’977 Patent’s claims are inventive and describe a substantial improvement in the art of computer searching. Namely, the claims describe systems for performing searches in a manner that is more than just the performance of well-understood, routine, or conventional activities that were previously known in the field. The conventional searching methods predating the

’977 Patent did not involve incrementally updating search results in real time as each successive character is entered. Further, the ordered combination of a single string of characters in a single search box for both searching documents and executing applications was novel at the time of the ’977 Patent’s invention. Additionally, the claimed systems allow users to incrementally search over at least two strings within an indexed data structure and displays results from that index data structure containing both strings, including results wherein the first and second search strings are non-adjacent in the same document, a marked improvement over the older searching techniques. These searching techniques and strategies were not routinely used or conventional before the ’977 Patent was filed.

COUNT I – INFRINGEMENT OF U.S. PATENT NO. 7,370,035

50. X1 incorporates by reference the allegations contained in paragraphs 1 through 49 of this First Amended Complaint, as if fully set forth herein.

51. On information and belief, Microsoft has directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 10 of the ’035 Patent by making, using, selling, offering for sale, and importing in the United States certain laptop computers, including without limitation its Surface Laptop Go 4, Surface Laptop Go 3, Surface Laptop Go 2, Surface Laptop 7, Surface Laptop 6, Surface Laptop 5, Surface Laptop Studio, Surface Laptop Studio 2, Surface Pro 11, Surface Pro 10, Surface Pro 9, Surface Pro 8, Surface Pro 7+, Surface Pro 7, Surface Pro X, Surface Go 4, Surface Go 3, and Surface Go 2. Each Accused Computer Product comes installed with Microsoft Windows 10 or 11, which runs infringing searching software, at least Windows Search and File Explorer Search.

52. Defendant also separately makes, uses, imports, sells, and/or offers for sale Microsoft 365, which can be installed on users’ computers to run Microsoft 365 Search. Defendant also separately makes, uses, imports, sells, and/or offers for sale SharePoint, which can be accessed on users’ computers to run SharePoint

Search. By making, using, selling, and/or offering for sale at least Windows Search, File Explorer Search, Microsoft 365 Search, and SharePoint Search, Microsoft has directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 10 of the ’035 Patent.

53. Support for the allegations of direct and/or indirect infringement may be found in the claim charts that apply claim 10 of the ’035 Patent to exemplary Accused Computer Products and Accused Software Products, attached hereto as Exhibits 5-8 (with cited Exhibits 9-13). These allegations of infringement are preliminary and are therefore subject to supplementation and change.

54. On information and belief, Microsoft has had knowledge and notice of the ’035 Patent since at least the filing of its U.S. Patent Application No. 12/328,410, filed on December 4, 2008, which cites to the ’035 Patent. Microsoft has also had knowledge and notice of the ’035 Patent since at least the filing of the original Complaint in this Action on December 19, 2023.

55. Microsoft has committed these acts of infringement without license or authorization from X1.

56. Microsoft is liable for indirect infringement, *i.e.*, both induced and contributory infringement, based on the direct infringement that is the result of activities performed by customers, distributors, end-users, vendors including customer-support and/or manufacturers who use all elements or perform all steps of one or more claims of the ’035 Patent. For example, end users of the Microsoft Accused Computer Products and/or Accused Software Products, either literally or under the doctrine of equivalents, infringe one or more claims of the ’035 Patent (*e.g.*, claim 10 and one or more of its dependents).

57. Microsoft actively, knowingly, and intentionally induces, and continues to actively, knowingly, and intentionally induce, infringement of the ’035 Patent under 35 U.S.C. § 271(b) by their customers and end users. For example, Microsoft actively induces its customers, the end-users of the Accused Computer

Products and Accused Software Products, to directly infringe the ’035 Patent by instructing, directing, and encouraging these end-users to perform the methods of the Asserted Patents using the Accused Products, such that Microsoft is engaged in unlawful inducement of infringement. On information and belief, Microsoft instructs, directs, and encourages its customers to infringe by providing at least installation/technical manuals, troubleshooting guides, and/or product tutorials. *See* Exhibits 11 and 12.

58. Microsoft is also liable for contributory infringement under 35 U.S.C. § 271(c) for contributing to and continuing to contribute to the infringement of the ’035 Patent by, among other things, providing customers with one or more computing devices utilizing indexed search systems and components thereof that contribute to the infringement of one or more claims of the ’035 Patent, including the claims directed to methods of performing a search.

59. On information and belief, Microsoft is engaged in induced and contributory infringement with respect to its importation activities and with respect to its sale after importation.

60. Microsoft’s acts of infringement have caused, and continue to cause, damage to X1, and X1 is entitled to recover damages sustained as a result of Microsoft’s wrongful acts.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 9,633,139

61. X1 incorporates by reference the allegations contained in paragraphs 1 through 60 of this First Amended Complaint, as if fully set forth herein.

62. On information and belief, Microsoft has directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 23 of the ’139 Patent by making, using, selling, offering for sale, and importing in the United States certain laptop computers, including without limitation its Surface Laptop Go 4, Surface Laptop Go 3, Surface Laptop Go 2, Surface Laptop 7, Surface Laptop 6, Surface Laptop 5, Surface Laptop Studio,

Surface Laptop Studio 2, Surface Pro 11, Surface Pro 10, Surface Pro 9, Surface Pro 8, Surface Pro 7+, Surface Pro 7, Surface Pro X, Surface Go 4, Surface Go 3, and Surface Go 2. Each Accused Computer Product comes installed with Microsoft Windows 10 or 11, which runs infringing searching software, at least Windows Search and File Explorer Search.

63. Defendant also separately makes, uses, imports, sells, and/or offers for sale Microsoft 365, which can be installed on users' computers to run Microsoft 365 Search. Defendant also separately makes, uses, imports, sells, and/or offers for sale SharePoint, which can be accessed on users' computers to run SharePoint Search. By making, using, selling, and/or offering for sale at least Windows Search, File Explorer Search, Microsoft 365 Search, and SharePoint Search, Microsoft has directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 23 of the '139 Patent.

64. Support for the allegations of direct and/or indirect infringement may be found in the claim charts that apply claim 23 of the '139 Patent to exemplary Accused Computer Products and Accused Software Products, attached hereto as Exhibits 14-17 (with cited Exhibits 9-13). These allegations of infringement are preliminary and are therefore subject to supplementation and change.

65. On information and belief, Microsoft has had knowledge and notice of the '139 Patent since at least the filing of its U.S. Patent Application No. 12/328,410, filed on December 4, 2008. Microsoft has also had knowledge and notice of the '139 Patent since at least the filing of the original Complaint in this Action on December 19, 2023.

66. Microsoft has committed these acts of infringement without license or authorization from X1.

67. Microsoft is liable for indirect infringement, *i.e.*, both induced and contributory infringement, based on the direct infringement that is the result of activities performed by customers, distributors, end-users, vendors including

customer-support and/or manufacturers who use all elements or perform all steps of one or more claims of the ’139 Patent. For example, end users of the Microsoft Accused Computer Products and/or Accused Software Products, either literally or under the doctrine of equivalents, infringe one or more claims of the ’139 Patent (*e.g.*, claim 23 and one or more of its dependents).

68. Microsoft actively, knowingly, and intentionally induces, and continues to actively, knowingly, and intentionally induce, infringement of the ’139 Patent under 35 U.S.C. § 271(b) by their customers and end users. For example, Microsoft actively induces its customers, the end-users of the Accused Computer Products and Accused Software Products, to directly infringe the ’139 Patent by instructing, directing, and encouraging these end-users to perform the methods of the Asserted Patents using the Accused Products, such that Microsoft is engaged in unlawful inducement of infringement. On information and belief, Microsoft instructs, directs, and encourages its customers to infringe by providing at least installation/technical manuals, troubleshooting guides, and/or product tutorials. *See* Exhibits 11 and 12.

69. Microsoft is also liable for contributory infringement under 35 U.S.C. § 271(c) for contributing to and continuing to contribute to the infringement of the ’139 Patent by, among other things, providing customers with one or more computing devices utilizing indexed search systems and components thereof that contribute to the infringement of one or more claims of the ’139 Patent, including the claims directed to methods of performing a search.

70. On information and belief, Microsoft is engaged in induced and contributory infringement with respect to its importation activities and with respect to its sale after importation.

71. Microsoft’s acts of infringement have caused, and continue to cause, damage to X1, and X1 is entitled to recover damages sustained as a result of Microsoft’s wrongful acts.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 10,552,490

72. X1 incorporates by reference the allegations contained in paragraphs 1 through 71 of this First Amended Complaint, as if fully set forth herein.

73. On information and belief, Microsoft has directly (either literally or under the doctrine of equivalents) infringed at least independent claim 1 of the '490 Patent by making, using, selling, offering for sale, and importing in the United States certain laptop computers, including without limitation its Surface Laptop Go 4, Surface Laptop Go 3, Surface Laptop Go 2, Surface Laptop 7, Surface Laptop 6, Surface Laptop 5, Surface Laptop Studio, Surface Laptop Studio 2, Surface Pro 11, Surface Pro 10, Surface Pro 9, Surface Pro 8, Surface Pro 7+, Surface Pro 7, Surface Pro X, Surface Go 4, Surface Go 3, and Surface Go 2. Each Accused Computer Product comes installed with Microsoft Windows 10 or 11, which runs infringing searching software, at least Windows Search and File Explorer Search.

74. Defendant also separately makes, uses, imports, sells, and/or offers for sale Microsoft 365, which can be installed on users' computers to run Microsoft 365 Search. Defendant also separately makes, uses, imports, sells, and/or offers for sale SharePoint, which can be accessed on users' computers to run SharePoint Search. By making, using, selling, and/or offering for sale at least Windows Search, File Explorer Search, Microsoft 365 Search and SharePoint Search, Microsoft has directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 1 of the '490 Patent.

75. Support for the allegations of infringement may be found in the claim charts that apply claim 1 of the '490 Patent to exemplary Accused Computer Products and Accused Software Products, attached hereto as Exhibits 18-21 (with cited Exhibits 9-13 and 22-25). These allegations of infringement are preliminary and are therefore subject to supplementation and change.

76. On information and belief, Microsoft has had knowledge and notice of the '490 Patent since at least the filing of its U.S. Patent Application No.

12/328,410, filed on December 4, 2008. Microsoft has also had knowledge and notice of the ’490 Patent since at least the filing of the original Complaint in this Action on December 19, 2023.

77. Microsoft has committed these acts of infringement without license or authorization from X1.

78. Microsoft’s acts of infringement have caused, and continue to cause, damage to X1, and X1 is entitled to recover damages sustained as a result of Microsoft’s wrongful acts.

COUNT IV – INFRINGEMENT OF U.S. PATENT NO. 8,498,977

79. X1 incorporates by reference the allegations contained in paragraphs 1 through 78 of this First Amended Complaint, as if fully set forth herein.

80. On information and belief, Microsoft has directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 1 of the ’977 Patent by making, using, selling, offering for sale, and importing in the United States certain laptop computers, including without limitation its Surface Laptop Go 4, Surface Laptop Go 3, Surface Laptop Go 2, Surface Laptop 7, Surface Laptop 6, Surface Laptop 5, Surface Laptop Studio, Surface Laptop Studio 2, Surface Pro 11, Surface Pro 10, Surface Pro 9, Surface Pro 8, Surface Pro 7+, Surface Pro 7, Surface Pro X, Surface Go 4, Surface Go 3, and Surface Go 2. Each Accused Computer Product comes installed with Microsoft Windows 10 or 11, which runs infringing searching software, at least Windows Search and File Explorer Search.

81. Defendant also separately makes, uses, imports, sells, and/or offers for sale Microsoft 365, which can be installed on users’ computers to run Microsoft 365 Search. Defendant also separately makes, uses, imports, sells, and/or offers for sale SharePoint, which can be accessed on users’ computers to run SharePoint Search. By making, using, selling, and/or offering for sale at least Windows Search, File Explorer Search, Microsoft 365 Search, and SharePoint Search, Microsoft has

directly (either literally or under the doctrine of equivalents) and indirectly infringed at least independent claim 1 of the ’977 Patent.

82. Support for the allegations of direct and/or indirect infringement may be found in the claim charts that apply claim 1 of the ’977 Patent to exemplary Accused Computer Products and Accused Software Products, attached hereto as Exhibits 26-29 (with cited Exhibits 9-13). These allegations of infringement are preliminary and are therefore subject to supplementation and change.

83. On information and belief, Microsoft has had knowledge and notice of the ’977 Patent since at least the filing of its U.S. Patent Application No. 12/328,410, filed on December 4, 2008. Microsoft has also had knowledge and notice of the ’977 Patent since at least the filing of the Complaint in ITC Investigation No. 1337-TA-1389 on December 19, 2023.

84. Microsoft has committed these acts of infringement without license or authorization from X1.

85. Microsoft is liable for indirect infringement, *i.e.*, both induced and contributory infringement, based on the direct infringement that is the result of activities performed by customers, distributors, end-users, vendors including customer-support and/or manufacturers who use all elements or perform all steps of one or more claims of the ’977 Patent. For example, end users of the Microsoft Accused Computer Products and/or Accused Software Products, either literally or under the doctrine of equivalents, infringe one or more claims of the ’977 Patent (*e.g.*, claim 1 and one or more of its dependents).

86. Microsoft actively, knowingly, and intentionally induces, and continues to actively, knowingly, and intentionally induce, infringement of the ’977 Patent under 35 U.S.C. § 271(b) by their customers and end users. For example, Microsoft actively induces its customers, the end-users of the Accused Computer Products and Accused Software Products, to directly infringe the ’977 Patent by instructing, directing, and encouraging these end-users to perform the methods of

the Asserted Patents using the Accused Products, such that Microsoft is engaged in unlawful inducement of infringement. On information and belief, Microsoft instructs, directs, and encourages its customers to infringe by providing at least installation/technical manuals, troubleshooting guides, and/or product tutorials. *See* Exhibits 11 and 12.

87. Microsoft is also liable for contributory infringement under 35 U.S.C. § 271(c) for contributing to and continuing to contribute to the infringement of the '977 Patent by, among other things, providing customers with one or more computing devices utilizing indexed search systems and components thereof that contribute to the infringement of one or more claims of the '977 Patent, including the claims directed to methods of performing a search.

88. On information and belief, Microsoft is engaged in induced and contributory infringement with respect to its importation activities and with respect to its sale after importation.

89. Microsoft's acts of infringement have caused, and continue to cause, damage to X1, and X1 is entitled to recover damages sustained as a result of Microsoft's wrongful acts.

JURY DEMAND

Plaintiff X1 respectfully demands a jury trial pursuant to Fed. R. Civ. P. 38 on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, X1 respectfully demands judgment in its favor and against Microsoft as follows:

a. A judgment that Defendant has infringed the '035 Patent;

b. A judgment that Defendant has infringed the '139 Patent;

c. A judgement that Defendant has infringed the '490 Patent;

d. A judgement that Defendant has infringed the '977 Patent;

e. A permanent injunction restraining and enjoining Defendant and its

officers, directors, agents, servants, employees, successors, assigns, parents, subsidiaries, affiliated or related companies, attorneys, and all others in active concert or participation with any of the foregoing, from directly or indirectly infringing the ’977 Patent;

f. A judgment that awards X1 all appropriate damages under 35 U.S.C. § 284 for Defendant’s past infringement, and any continuing or future infringement of the Asserted Patents, up until the date such judgment is entered, including interest, costs, and disbursements as justified under 35 U.S.C. § 284 to adequately compensate X1 for Defendant’s infringement;

g. An adjudication that Defendant’s infringement of the Asserted Patents has been willful and deliberate;

h. An adjudication that X1 be awarded treble damages and pre-judgment interest under 35 U.S.C. § 284 as a result of Defendant’s willful and deliberate infringement of the Asserted Patents;

i. An adjudication that this case is exceptional within the meaning of 35 U.S.C. § 285;

j. An adjudication that X1 be awarded costs and attorney’s fees under 35 U.S.C. § 285; and

k. An award of such other and further relief as the Court deems proper.

Dated: May 9, 2025

/s/ *Natasha E. Daughtrey*

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