IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION

R2 Solutions LLC, Plaintiff, v. American Airlines, Inc., Defendant.	Civil Action No. 4:22-cv-00353 Jury Trial Demanded

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff R2 Solutions LLC files this Complaint against American Airlines, Inc. for infringement of U.S. Patent Nos. 8,190,610 ("the '610 patent"), 8,341,157 ("the '157 patent"), 7,698,329 ("the '329 patent"), and 8,209,317 ("the '317 patent"). The '610 patent, '157 patent, '329 patent, and '317 patent are referred to collectively as the "patents-in-suit."

THE PARTIES

1. Plaintiff R2 Solutions LLC ("R2") is a Texas limited liability company located in Frisco, Texas.

2. Defendant American Airlines, Inc. ("AA") is a Delaware corporation with headquarters at 1 Skyview Drive, Fort Worth, TX 76155 and other regular and established places of business in this State, including 700 Skyway Blvd., Tyler, TX 75704 ("Tyler Pounds Regional Airport"), N. Hwy. 69, Nederland, TX 77627 ("Jack Brooks Regional Airport"), and 2400 Aviation Drive, DFW Airport, TX 75261 ("DFW Airport"). AA may be served with process through its registered agent, Corporation Service Company d/b/a CSC-Lawyers Incorporating Service Company, at 211 E. 7th St., Ste. 620, Austin, TX 78701.

JURISDICTION AND VENUE

3. This action arises under the patent laws of the United States, 35 U.S.C. § 101, *et seq.* This Court's jurisdiction over this action is proper under the above statutes, including 35 U.S.C. § 271, *et seq*., 28 U.S.C. § 1331 (federal question jurisdiction), and 28 U.S.C. § 1338 (jurisdiction over patent actions).

4. This Court has personal jurisdiction over AA in accordance with due process and/or the Texas Long Arm Statute because, among other things, AA's corporate headquarters is in this State, and AA does business in this State. For example, AA operates flights to and/or from Dallas/Fort Worth, Austin, Houston, San Antonio, El Paso, McAllen, Lubbock, Midland, Amarillo, Corpus Christi, Killeen, Abilene, Waco, Brownsville, Tyler, College Station, and Laredo.[1]

5. Further, this Court has personal jurisdiction over AA because it has engaged, and continues to engage, in continuous, systematic, and substantial activities within this State, including the substantial marketing and sale of products and services within this State and this District. Indeed, this Court has personal jurisdiction over AA because it has committed acts giving rise to R2's claims for patent infringement within and directed to this District, has derived substantial revenue from its goods and services provided to individuals in this State and this District, and maintains regular and established places of business in this District, including at least its operations centers, terminals, ticket counters, and other places of business used to

[1] https://www.aa.com/en-us/flights-to-texas.

facilitate flights to and from the Tyler Pounds Regional Airport in Tyler, TX and the Jack Brooks Regional Airport in Beaumont/Port Arthur, TX.[2]

6. Relative to patent infringement, AA has committed and continues to commit acts in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, and/or sold infringing products and services in this State, including in this District, and otherwise has engaged in infringing conduct within and directed at, or from, this District. Such infringing products and services include: (1) computer-implemented functionality (including functionality associated with web and mobile applications), computer-readable storage media, and attendant servers, databases, and other devices and equipment to proliferate AA's services via its web platform and mobile application; such computer-implemented functionality, computer-readable storage media, and attendant equipment performing and/or embodying the functionalities and features discussed and particularly described and claimed in the '157 patent, '329 patent, and '317 patent and the Exhibits accompanying this Complaint, including, without limitation, the search functionalities incorporated into the AA web platform and AA mobile application (including, without limitation, the AA flight locator and/or travel booking services, e.g., found at AA.com, aavacations.com, and/or the AA mobile application) (the "Accused AA Search Systems"); and (2) the AA data analytics systems that perform and/or embody the functionalities and features discussed and particularly described and claimed in the '610 patent and the related Exhibit accompanying this Complaint, including, but not limited to, the data analytics systems built on Apache Hadoop, Hive, Spark, Teradata Vantage, and/or other functionality (the

[2] *Supra* n.1; *see also* Flights to Tyler with American Airlines, https://www.aa.com/en-us/flights-to-tyler; Tyler, TX Airport Information, https://www.aa.com/i18n/travelInformation/destinationInformation/tyr-airport.jsp; Flights to Port Arthur with American Airlines, https://www.aa.com/en-us/flights-to-port-arthur.

"Accused AA Data Analytics Systems"). All such infringing systems are hereinafter referred to collectively as the "AA Systems." Such AA Systems have been and continue to be offered for sale, distributed to, sold, and used in this District, and the infringing conduct has caused, and continues to cause, injury to R2, including injury suffered within this District. These are purposeful acts and transactions in this State and this District such that AA reasonably should know and expect that it could be haled into this Court.

7. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because AA has regular and established places of business in the District, including the operations centers, terminals, ticket counters, and other facilities at the Tyler Pounds Regional Airport and the Jack Brooks Regional Airport. Venue is further proper in this District because AA has directly infringed and/or induced the infringement of others, including its customers, in this District. AA conducts business in this District, including marketing and providing the AA Systems to customers located in this District. Moreover, AA's activities, the actions of the AA Systems, and/or the actions of AA customers using the AA Systems in this District constitute substantial infringements of the patents-in-suit.

BACKGROUND

8. The patents-in-suit were filed by Yahoo! Inc. ("Yahoo!") between 2006 and 2009. At the time, Yahoo! was a leading Internet communications, commerce, and media company. Yahoo! invested billions of dollars in research and development over this period, filing hundreds of patent applications each year to cover the innovative computing technologies emerging from its expansive research and development efforts.

9. Yahoo! began as a directory of websites that two Stanford graduate students developed as a hobby. The name "Yahoo" stands for "Yet Another Hierarchical Officious

Oracle," a nod to how the original Yahoo! database was arranged hierarchically in layers of subcategories. From this initial database, Yahoo! would develop and promulgate numerous advancements in the field of data storage and recall.

10. For example, in 1995, Yahoo! introduced Yahoo! Search. This software allowed users to search the Yahoo! directory, making it the first popular online directory search engine. This positioned Yahoo! as the launching point for most users of the World Wide Web. By 1998, Yahoo! had the largest audience of any website or online service.

11. However, the early iterations of Yahoo! Search did not operate like a modern search engine because Yahoo! Search was only a directory. Yahoo! Search first integrated a Web crawling engine in 2000. Yahoo! Search used Google's Web crawling engine from 2000–2004. During this time, Yahoo! was developing its own Web search technologies. Yahoo! deployed its own Web crawler in early 2004. The engine, known as Slurp, allowed Yahoo! to collect documents from the Web and build a searchable index. The patents-in-suit relate to innovations associated with Yahoo! Search that were developed and implemented during this period, which enabled Yahoo! to become Google's biggest competitor in the search engine space.

THE PATENTS-IN-SUIT

12. The '610 patent is entitled, "MapReduce for Distributed Database Processing." The '610 patent lawfully issued on May 29, 2012 and stems from U.S. Patent Application No. 11/539,090, which was filed on October 5, 2006. A copy of the '610 patent is attached hereto as Ex. 1.

13. The '157 patent is entitled, "System and Method for Intent-Driven Search Result Presentation." The '157 patent lawfully issued on December 25, 2012 and stems from U.S.

Patent Application No. 12/533,299, which was filed on July 31, 2009. A copy of the '157 patent is attached hereto as Ex. 2.

14. The '329 patent is entitled, "Method for Improving Quality of Search Results by Avoiding Indexing Sections of Pages." The '329 patent lawfully issued on April 13, 2010 and stems from U.S. Patent Application No. 11/652,356, which was filed on January 10, 2007. A copy of the '329 patent is attached hereto as Ex. 3.

15. The '317 patent is entitled, "Method and Apparatus for Reconstructing a Search Query." The '317 patent lawfully issued on June 26, 2012 and stems from U.S. Patent Application No. 13/270,933, which was filed on October 11, 2011. The '317 patent is a continuation of U.S. Patent Application No. 12/765,676, filed on April 22, 2010, which is a continuation of U.S. Patent Application No. 11/502,202 filed on August 10, 2006. A copy of the '317 patent is attached hereto as Ex. 4.

16. R2 is the owner of the patents-in-suit with all substantial rights, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

17. The claims of the patents-in-suit are directed to patent eligible subject matter under 35 U.S.C. § 101. They are not directed to abstract ideas, and the technologies covered by the claims consist of ordered combinations of features and functions that, at the time of invention, were not, alone or in combination, well-understood, routine, or conventional.

18. Indeed, the specifications of the patents-in-suit disclose shortcomings in the prior art and then explain, in detail, the technical way the claimed inventions resolve or overcome those shortcomings. The '610 patent explains, for instance, that "conventional MapReduce implementations do not have facility to efficiently process data from heterogeneous sources" and that "it is impractical to perform joins over two relational tables that have different schemas."

'610 patent at 3:9-20. To solve these problems, the '610 patent provides a clear technological improvement to existing MapReduce systems by describing and implementing a novel MapReduce architecture where mapping and reduce functions can be applied to data from heterogeneous data sources (i.e., data sources having different schema) to accomplish the merger of heterogeneous data based on a key in common between or among the heterogeneous data. For example, the '610 patent explains how implementation of, e.g., "data groups" realizes these improvements:

> In general, partitioning the data sets into data groups enables a mechanism to associate (group) identifiers with data sets, map functions and iterators (useable within reduce functions to access intermediate data) and, also, to produce output data sets with (group) identifiers. It is noted that the output group identifiers may differ from the input/intermediate group identifiers.

'610 patent at 3:58-64.

19. The technological advantages of a "data group"-centric system is shown to "enhance[] the utility of the MapReduce programming methodology." '610 patent at 1:32-33. As the specification explains:

> [T]he MapReduce concept may be utilized to carry out map processing independently on two or more related datasets (e.g., related by being characterized by a common key) even when the related data sets are heterogeneous with respect to each other, such as data tables organized according to different schema. The intermediate results of the map processing (key/value pairs) for a particular key can be processed together in a single reduce function by applying a different iterator to intermediate values for each group. In this way, operations on the two or more related datasets may be carried out more efficiently or in a way not even possible with the conventional MapReduce architecture.

Id. at 8:47-58.

20. Such a solution is embodied, for example, in Claim 1 of the '610 patent:

> A method of processing data of a data set over a distributed system, wherein the data set comprises a ***plurality of data groups***, the method comprising:
>
> partitioning the data of each one of the data groups into a plurality of data partitions that each have a plurality of key-value pairs and ***providing each data partition to a selected one of a plurality of mapping functions*** that are each user-configurable to independently output a plurality of lists of values for each of a set of keys found in such map function's corresponding data partition to form corresponding ***intermediate data for that data group and identifiable to that data group***, wherein ***the data of a first data group has a different schema than the data of a second data group*** and ***the data of the first data group is mapped differently than the data of the second data group*** so that different lists of values are output for the corresponding different intermediate data, ***wherein the different schema and corresponding different intermediate data have a key in common***; and
>
> reducing the intermediate data for the data groups to at least one output data group, including ***processing the intermediate data for each data group in a manner that is defined to correspond to that data group***, so as to result in a ***merging of the corresponding different intermediate data based on the key in common***,
>
> wherein the mapping and reducing operations are performed by a distributed system.

(emphasis added).

21. The concept of "data groups" as found in Claim 1 of the '610 patent in the context of MapReduce attains a novel and technological improvement in computer capabilities. For example, employing "data groups" allows a diverse data set to be fed to a collection of mapping functions within the same MapReduce architecture to ultimately be reduced and/or merged in spite of the diversity, and this is facilitated by a character of each "data group" (i.e., the "mechanism for identifying data from that group") of the diverse data set following the data through the mapping. Per Claim 1, the improved MapReduce architecture in the reducing phase

is able to selectively employ specialized processing based on the "data group" from which the data being reduced originated, and this specialized processing enables the MapReduce architecture in the reducing phase to accomplish the merger of intermediate data hailing from different data groups.

22. The inventions described and claimed in the '610 patent improve the speed, efficiency, effectiveness, and functionality of computer systems. Moreover, the inventions provide an improvement in computer functionality rather than improvement in performance of an economic task or other tasks for which a computer is used merely as a tool. The '610 patent itself states that the claimed inventions "enhance[] the utility of the MapReduce programming methodology." '610 patent at Abstract, 1:31-33, 1:66 - 2:2. The '610 patent specification goes on to explain that "[t]he intermediate results of the map processing (key/value pairs) for a particular key can be processed together in a single reduce function by applying a different iterator to intermediate values for each group." *Id.* at Abstract, 1:37-39, 2:4-8. And the specification discusses the use of multiple processors to perform processing functions in parallel. *See id.* As a result, computer functionality is improved. *Id.* at 1:42-44.

23. Additionally, the claimed inventions provide for more dynamic, customizable, and efficient processing of large sets of data. S*ee, e.g.*, '610 patent at 2:58-61, 4:18-22. The inventions provide optimization of such processing, which increases efficiency and reduces processor execution time. For example, the specification describes a combiner function that "helps reduce the network traffic and speed up the total execution time." '610 patent at 3:1-8. The specification also discusses the use of configurable settings to reduce processing overhead. *See, e.g.*, *id.* at 4:60-62, 5:33-39.

24. Relative to the '157 patent, the specification explains that if, as in the case of traditional search engines, the "engine simply regards a web query as, for example, a 'bag of words', the search engine will search for web pages and other data objects (e.g., images, audio files, text files) that contain, or are otherwise associated with, the individual words within the query." '157 patent at 4:1-5. However, simply treating a user query as a "bag of words" may yield results that do not align with the purpose of the user's search. Additionally, it can be onerous to scrutinize generated results for a desired returned object, as the objects can be unremarkable as to each other. *Id*. at 4:10-15. Thus, the specification teaches:

> Search results could be significantly enhanced if the likely intent of the query is known. For example, search results may be ranked such that results that are more relevant to the user's intent appear at or near the top of the search results. Perhaps more significantly, however, the user's intent can be used to customize the display and behavior of a search result to be narrowly targeted to a user's intent. An illustrative list of such customizations could include a customized title or abstract for the result or specialized parameters of a displayed clickable URL to provide the landing page with information regarding the user's intent or triggered by the user's intent.

Id. at 4:16-26.

25. This "intents"-driven search engine process offers significant technical features that constitute enhancements over then-existing search engine technology. For example, the '157 patent discusses how pre-programmed "intents" can be mapped to from query keywords, and how "intents" determination can be fine-tuned via particular parameters:

> The query is then classified into one or more likely intents, which can include an unclassified intent when no defined intents match the query 2300. An intent is a mapping from many combinations of keywords to a relatively small set of common goals that users pursue in a search query or session of multiple queries. Often, the intent of the query is not explicitly stated in the keywords. While the

> space of possible queries, is very large, the set of intents is much smaller. Examples of intents relating to product queries can be, for example: official-site, research, purchase, dealer, support, or reviews. Examples of intents relating to local/map queries: directions, reviews, phone, hours-of-operation. In one embodiment, query intent may be determined by linguistic analysis of query keywords. In one embodiment, previous queries in the user session, user profile information such as preferences, the set of all queries from all users or any subset of all users (e.g. a subset of users having specific demographics or usage patterns), and click data from previous sessions for the current user as well as the set of all users or any subset of all users are used to determine query intent.

'157 patent at 9:42-61.

26. The "intents"-driven search engine process of the '157 patent ensures that query keywords, via the "intents," can even ultimately impact how particular data objects are constructed within a result. This provides an added benefit of enabling keywords to be utilized for more than just relevancy analysis. Also, while other search engines existing at the time could tailor search results by ranking the results and displaying each result with a title and brief abstract taken from the document, the '157 patent explains how "results could be significantly enhanced if the likely intent of the query is known." '157 patent at 4:16-17. Rather than return all documents having a matching keyword—i.e., by using traditional indexing methods—a narrower set of results can be returned if the search results are "ranked such that results that are more relevant to the user's intent appear at or near the top of the search results." *Id.* at 4:17-19.

27. Indeed, the claims of the '157 patent provide just such a solution to the problem of generating robust yet usable search results in response to a user query. For example, Claim 1 of the '157 patent discloses a method comprising:

> receiving, over a network, a query from a user, the query comprising at least one query token;

analyzing the query, using at least one computing device, to ***identify at least one query keyword***;

determining, at least the one computing device, ***a plurality of intents from the at least one keyword, each of the plurality of intents indicates a type of information regarding the query keyword that is likely to be desired by a user submitting the query***;

classifying the query, using the at least one computing device, ***into at least one of the plurality of intents***;

identifying, using the at least one computing device, a plurality of data objects available over the network that match the at least one query keyword;

assigning, using the at least one computing device, ***at least one of the plurality of intents to at least some of the plurality of data objects***;

ranking, using the at least one computing device, the plurality of data objects;

building a result, using the at least one computing device, using the ranked plurality of data objects, the result comprises a plurality of display entries, ***at least one display entry customized to a respective assigned intent is constructed for each of the ranked plurality of data objects***; and

transmitting the result, over the network, to the user.

(emphasis added).

28. These technical features highlight that Claim 1 itself outlines a novel process executed by a specialized programming architecture that constitutes a significant improvement in computer functionality. Each of the technical features emphasized above operates cooperatively to enhance the technological process of search engine application, and these advances define a novel improvement in computer capabilities.

29. Thus, the inventions claimed in the ’157 patent improve the speed, efficiency, effectiveness, and functionality of computer systems rather than improve upon some other task for which a computer is used in its ordinary capacity. For example, the ’157 patent focuses on circumventing the “bag of words” approach in result generation, and ultimately achieves better,

more-usable computer-generated results as compared to technologies that existed in 2009. As another example, the '157 patent can rank documents based on intent rather than using "a traditional {query,document} score," increasing the probability that a relevant result will be in the final result set presented to the user. '157 patent at 12:7-22. This reduces the number of queries that must be processed in order to return relevant results to the user. As a result, the processor is free to allocate more resources to other tasks.

30. With respect to the '329 patent, the specification explains that nefarious parties can trick traditional search engines "into recalling documents and inflating their ranking" using techniques known as "search engine spamming." '329 patent at 2:6-8. For example, spamming may be used to "trick search engine ranking algorithms into recalling and highly ranking documents that contain . . . sponsored links to a web merchant." *Id.* at 2:8-11. The result is that search results for many queries include irrelevant content that the querier did not desire. *Id.* at 2:14-17. The specification gives a specific example of an online shopper:

> A typical example of search engine spam is when a user tries to search for the terms "digital camera reviews" and expects to find pages which review various models of digital cameras, detailing performance specifications, sample images and reviewer pros and cons list. Having this expectation when the user clicks on a link for one of the results, the user is instead led to a page that contains nothing but a plethora of keywords and links to other stores where he can buy the camera.

Id. at 2:18-27. Thus, the specification recognizes that "there is need for mechanisms that prevent hiding of search engine spam but yet allow webmasters to designate page content that should not be indexed." *Id.* at 2:34-37.

31. The specification describes a novel approach to achieve this goal.

> As a crawler examines an individual document, one of the attributes that can be considered is section structure. In examining the various sections, the crawler

> identifies sections to ignore, that is, to not index in search engine indexes and or otherwise use for recalling the document. Such sections are referred to herein as "no-recall sections." Those portions that are indexed for recalling are referred to as recall sections. In an embodiment, a crawler ignores no-recall sections demarcated by, for example, a tag. In another embodiment a no-recall section may be identified by analyzing section content rather than examining only delimiters. The terms inside no-recall sections do not contribute to the document term frequency counts and are not used for recalling the documents in response to search engine queries. However the no-recall sections are included as input to forms of analysis of the document that affect, for example, the document's ranking. Links inside the no-recall sections as well as the rest of the document may be followed in order to discover new content. The document may be analyzed for the amount of advertisements or other features in its entirety. Therefore, terms inside the no-recall sections can affect document ranking.

Id. at 3:7-27. This approach solves the problem described in the specification by simultaneously enabling ranking that is not dictated by relevance scores and preventing nefarious parties from hiding search engine spam, e.g., because pages with "copious amounts of advertisements, or low quality links, will be readily identified and ranked accordingly." *Id.* at 3:28-31.

32. Claim 1 of the '329 patent embodies this solution:

> A method, comprising:
>
> ranking a plurality of documents recalled by a search engine for a query;
>
> wherein the plurality of documents contain certain documents, ***each document of said certain documents containing at least one section that is not used by said search engine for recall*** and one or more sections that are used by said search engine for recall;
>
> ***wherein ranking*** a plurality of documents includes ranking said plurality of documents ***based, at least in part, on the at least one section of said certain documents not used by said search engine to recall documents***; and;
>
> wherein the method is performed by one or more computing devices.

(emphasis added).

33. Claim 1 communicates two overarching technological improvements: 1) an improved data structure that is capable of facilitating both search engine recall and improved ranking via the attributes of recall and no-recall sections; and 2) an improved ranking process rooted in a specialized computing device and/or software capable of delineating between and selectively employing recall and no-recall sections found in a plurality of the aforementioned improved data structures. These two technological advancements, working in tandem, realize a discrete process and/or system that greatly improves upon search engine technology that existed in 2007.

34. The claimed method of search engine architecture improves navigation of the World Wide Web by increasing the relevance of search results and thwarting nefarious Web users seeking to game Web query rankings. S*ee, e.g.*, '329 patent at 1:67 - 2:17. By improving the functionality of navigating the Web, the claimed invention is necessarily rooted in the improvement of computer functionality, as opposed to, e.g., enhancing the economy of a task usually performed by hand. For example, by not ignoring no-recall sections when ranking the documents, the claimed invention prevents a document from being "designed so that content that increases recall and/or ranking potential is placed in the recall section and content that diminishes high ranking potential is hidden in a no-recall section." '329 patent at 4:1-9. This allows "[a]ll the attributes in all of the sections of a document such as 'links', frequency of terms, coloring, font, etc." to be considered in the spam and relevancy analyses. *Id.* at 4:13-16. The result is that a search engine can "affect the recall and ranking of documents to more accurately reflect relevance of the documents to search engine queries." *Id.* at 3:1-3. This

technological solution is the precise reason that the '329 patent was allowed, as is apparent from the prosecution history.

35. Relative to the '317 patent, the specification explains that existing search engine interfaces "may be rigid and require users to submit full queries to perform searche[s]." '317 patent at Abstract. Traditional search engines were built with desktop computer users in mind. Thus, they were designed with the assumption that a user had access to a full keyboard for composing a complete, properly structured search query. However, as noted in the specification of the '317 patent, users at the time could increasingly access the internet from a variety of devices, including "cell phones, personal digital assistants, and the like." *Id.* at 1:44-47. Portability started to become "an increasingly important concern for users." *Id.* at 1:50-52. The increasing portability of these devices came with a tradeoff in input capabilities. *See id.* at 1:50-52. For example, most phones at the time the '317 patent was filed did not have a full keyboard. The simpler input mechanisms available on mobile devices presented a barrier to entering properly structured queries, thus limiting users' ability to fully explore the Internet. *See id.* at 1:52-53.

36. To solve these problems, the '317 patent discloses "a flexible and intuitive system for reconstructing a search query based on a received partial query." *Id.* at 1:16-18. This solution is embodied in Claim 1 of the '317 patent:

> A computer database system for providing search results to a user in response to user submissions over a data network, the computer database system comprising:
> a database configured to store information about events in the computer database system; and
> a query reconstruction server in data communication with the database and operative to receive a partial query submitted at a remote user client system by a user

seeking search results matching the submitted partial query and, ***in response to the received partial query, determine a full query*** based on

(i) the received partial query, and

(ii) information stored in the database about queries previously-submitted by users,

wherein the submitted partial query comprises an abbreviated or incomplete search query which is not fully representative of an entire search query desired by the user and the full query is better representative of the entire search query desired by the user.

(emphasis added).

37. The specification explains that partial queries are "shorthand ways of expressing typical search queries." *Id.* at 3:15-17. For example, "auto ins" may be a partial query for the full search query "auto insurance." *Id.* at 3:20-23. While "auto ins" may be an intentional abbreviation, it might also be a typographical error resulting from the restrictive input options of a mobile device. Because the claimed invention will nevertheless be able to take the incomplete query "auto ins" and return search results for "auto insurance," a broader array of mobile devices and input mechanisms may be used to search the Internet. *See id.* at 1:43-56.

38. In essence, each of the patents-in-suit relate to novel and non-obvious inventions in the fields of search engines, data analytics, and database structures.

DEFENDANT'S PRE-SUIT KNOWLEDGE OF ITS INFRINGEMENT

39. Prior to the filing of this Complaint, AA was notified on numerous occasions of the portfolio to which the patents-in-suit belong, and R2 has further attempted to engage AA and in licensing discussions related to the patents-in-suit for almost a year.

40. On June 1, 2021, Evan Woolley, the VP of Licensing for R2's owner, sent a letter to Priya Aiyar, AA's Senior Vice President & General Counsel, offering an opportunity to negotiate a broad license to the portfolio that includes the patents-in-suit. The letter explained

that R2's portfolio originated from Yahoo! and that it includes patents covering a variety of technologies relevant to AA.

41. On October 20, 2021, Mr. Woolley sent Ms. Aiyar another, similar letter and, again, offered an opportunity to open negotiations. The October 20 letter further explained that since the June 1 letter, R2 had licensed numerous companies through negotiated deals and had resolved multiple lawsuits.

42. Mr. Woolley followed up with emails to Ms. Aiyar on October 25, 2021, November 2, 2021, November 8, 2021, and November 15, 2021. In each instance, Mr. Woolley invited AA to discuss a license.

43. On November 23, 2021, Mr. Woolley sent Ms. Aiyar yet another letter and email. The letter and email explained that since the October 20 letter, R2 had resolved certain, highly relevant lawsuits demonstrating the value of R2's portfolio to AA as travel industry enterprise.

44. Mr. Woolley continued his attempts to engage AA in negotiations over the next several months, sending emails to Ms. Aiyar on November 29, 2021, December 6, 2021, December 14, 2021, January 7, 2022, January 12, 2022, January 19, 2022, January 24, 2022, February 1, 2022, February 9, 2022, February 16, 2022, February 24, 2022, March 2, 2022, and March 7, 2022.

45. AA ignored each and every one of these attempts to open a licensing dialogue. As a result, R2 was left with no other choice but to file this lawsuit.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 8,190,610

46. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq*.

47. R2 is the owner of the ’610 patent with all substantial rights to the ’610 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

48. The ’610 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

49. AA has directly infringed and continues to directly infringe one or more claims of the ’610 patent in this District and elsewhere in Texas and the United States.

50. To this end, AA has infringed and continues to infringe, either by itself or via an agent, at least claims 1–5 and 17–21 of the ’610 patent by, among other things, making, offering to sell, selling, testing and/or using the Accused AA Data Analytics Systems.

51. Attached hereto as Ex. 5, and incorporated herein by reference, is a representative claim chart detailing how AA infringes the ’610 patent.

52. AA is liable for its infringements of the ’610 patent pursuant to 35 U.S.C. § 271.

Damages

53. R2 has been damaged as a result of AA’s infringing conduct described in this Count. AA is, thus, liable to R2 in an amount that adequately compensates it for AA’s infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 8,341,157

54. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq*.

55. R2 is the owner of the '157 patent with all substantial rights to the '157 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

56. The '157 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

57. AA has directly infringed and continues to directly infringe one or more claims of the '157 patent in this District and elsewhere in Texas and the United States.

58. To this end, AA has infringed and continues to infringe, either by itself or via an agent, at least claims 1–5 and 7–10 of the '157 patent by, among other things, making, offering to sell, selling, testing and/or using the Accused AA Search Systems.

59. Attached hereto as Ex. 6, and incorporated herein by reference, is a representative claim chart detailing how AA infringes the '157 patent.

60. AA is liable for its infringements of the '157 patent pursuant to 35 U.S.C. § 271.

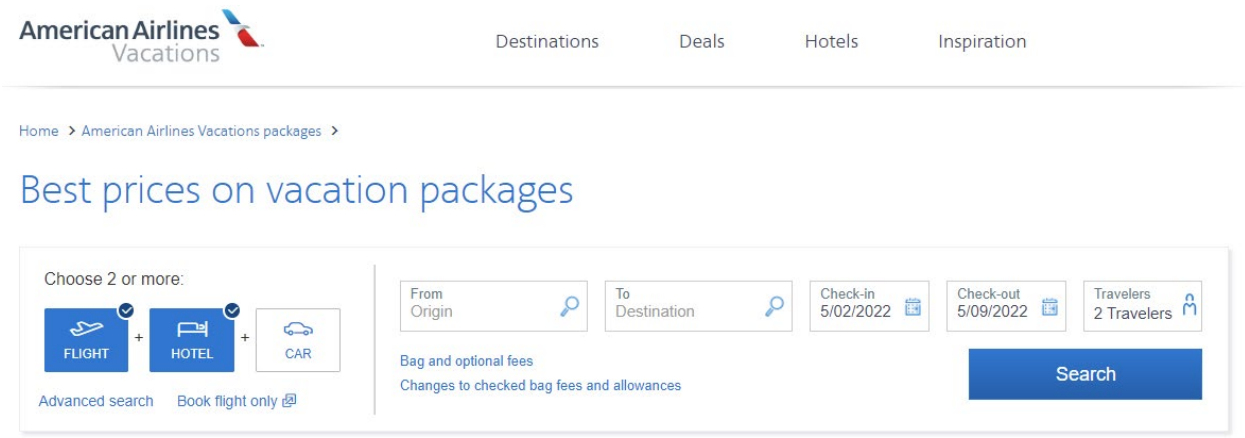
Indirect Infringement (Inducement – 35 U.S.C. § 271(b))

61. In addition and/or in the alternative to its direct infringement, AA has indirectly infringed and continues to indirectly infringe one or more claims of the '157 patent by inducing direct infringement by its customers and end users.

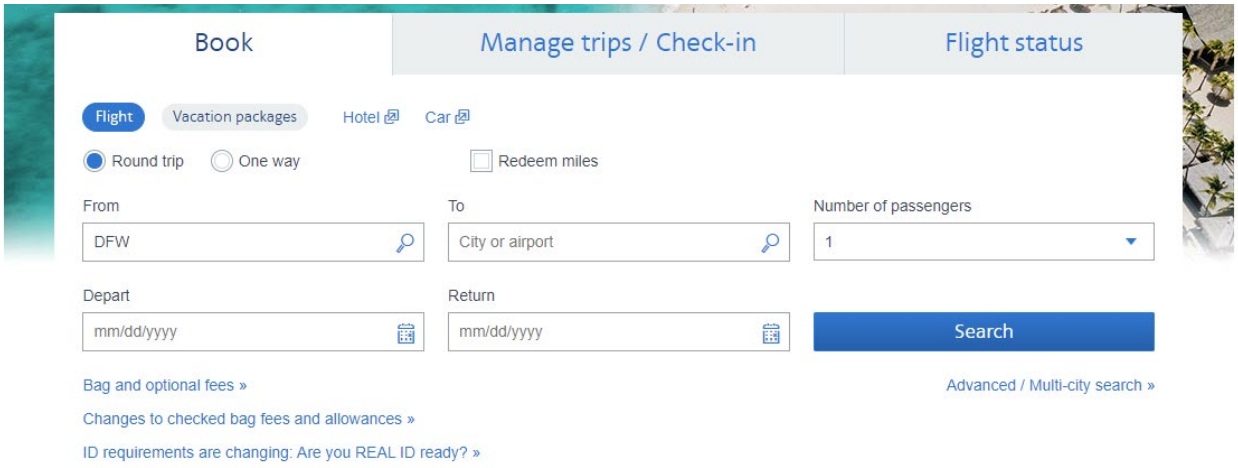
62. AA has had knowledge of the '157 patent as early as October 20, 2021, when Mr. Woolley explicitly informed AA that R2 had resolved a lawsuit against Workday, which involved the '157 patent. At a minimum, AA has had knowledge of the '157 patent since being served with this Complaint.

63. Despite having knowledge (or being willfully blind to the fact) that use of the Accused AA Search Systems infringes the '157 patent, AA has specifically intended, and continues to specifically intend, for persons (such as AA's customers and end users) to access, exercise control over, benefit from, use, and/or otherwise interact with the Accused AA Search Systems in ways that result in infringement of the '157 patent, including at least claim 2. Indeed, AA knew or should have known that its actions have induced, and continue to induce, such infringements.

64. AA instructs and encourages customers and end users to use the Accused AA Search Systems in ways that infringe the '157 patent. For example, the AA website prominently displays a search interface instructing users to "Choose 2 or more" and/or input origin, destination, etc., to induce users to search for vacation packages and/or flights:

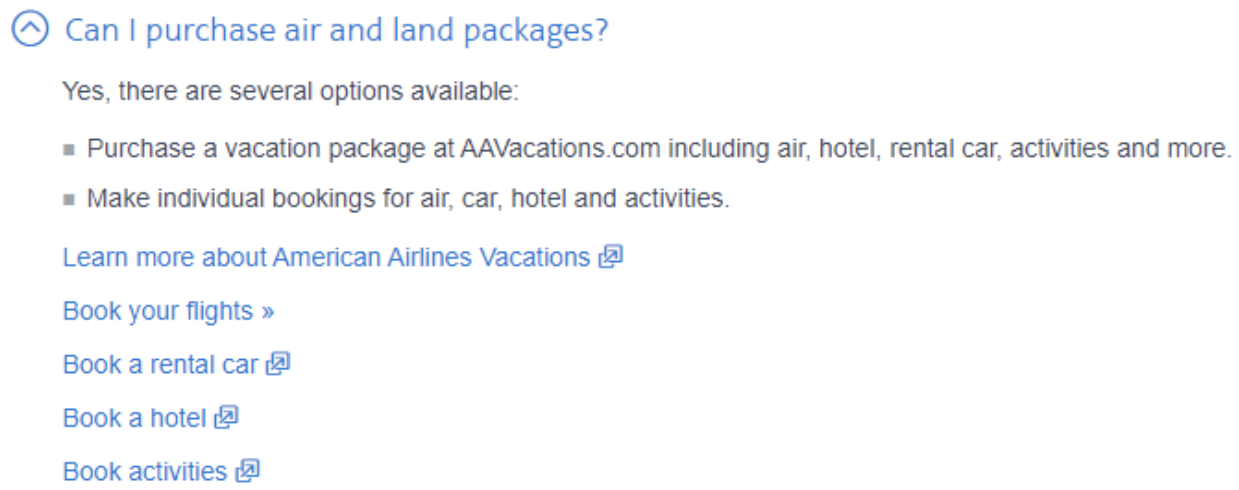


Best Prices on Vacation Packages, AMERICAN AIRLINES, https://www.aavacations.com/en/.



Home Page, AMERICAN AIRLINES, https://www.aa.com/homePage.do.

65. AA further provides users of the AA website with instructions and operation tips that include instructions and links directing users to applications on the AA website implementing search functionality in a way that infringes the '157 patent:



FAQs, AMERICAN AIRLINES, https://www.aa.com/i18n/customer-service/faqs/faqs.jsp.

Damages

66. R2 has been damaged as a result of AA's infringing conduct described in this Count. AA is, thus, liable to R2 in an amount that adequately compensates it for AA's

infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 7,698,329

67. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq*.

68. R2 is the owner of the '329 patent with all substantial rights to the '329 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

69. The '329 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

70. AA has directly infringed and continues to directly infringe one or more claims of the '329 patent in this District and elsewhere in Texas and the United States.

71. To this end, AA has infringed and continues to infringe, either by itself or via an agent, at least claims 1, 4–5, 8, and 11–12 of the '329 patent by, among other things, making, offering to sell, selling, testing and/or using the Accused AA Search Systems.

72. Attached hereto as Ex. 7, and incorporated herein by reference, is a representative claim chart detailing how AA infringes the '329 patent.

73. AA is liable for its infringements of the '329 patent pursuant to 35 U.S.C. § 271.

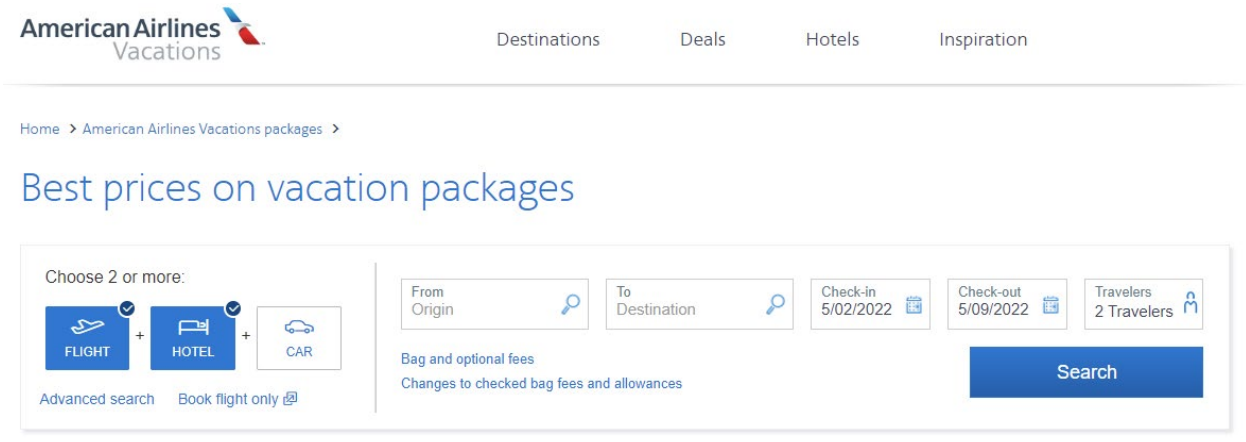
Indirect Infringement (Inducement – 35 U.S.C. § 271(b))

74. In addition and/or in the alternative to its direct infringement, AA has indirectly infringed and continues to indirectly infringe one or more claims of the '329 patent by inducing direct infringement by its customers and end users.

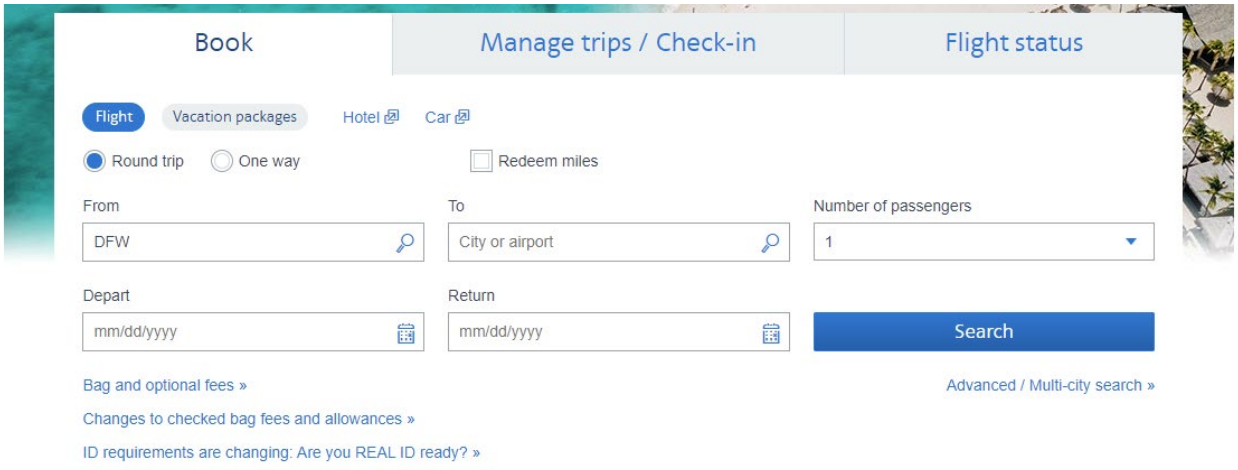
75. AA has had knowledge of the '329 patent as early as November 23, 2021, when Mr. Woolley informed AA that R2 had resolved a lawsuit against Expedia Group, Inc., which involved the '329 patent. At a minimum, AA has had knowledge of the '329 patent since being served with this Complaint.

76. Despite having knowledge (or being willfully blind to the fact) that use of the Accused AA Search Systems infringes the '329 patent, AA has specifically intended, and continues to specifically intend, for persons (such as AA's customers and end users) to access, exercise control over, benefit from, use, and/or otherwise interact with the Accused AA Search Systems in ways that infringe the '329 patent, including at least claims 8, 11, and 12. Indeed, AA knew or should have known that its actions have induced, and continue to induce, such infringements.

77. AA instructs and encourages customers and end users to use the Accused AA Search Systems in a manner than infringes the '329 patent. For example, the AA website prominently displays a search interface instructing users to "Choose 2 or more" and/or input origin, destination, etc., to induce users to search for vacation packages and/or flights:

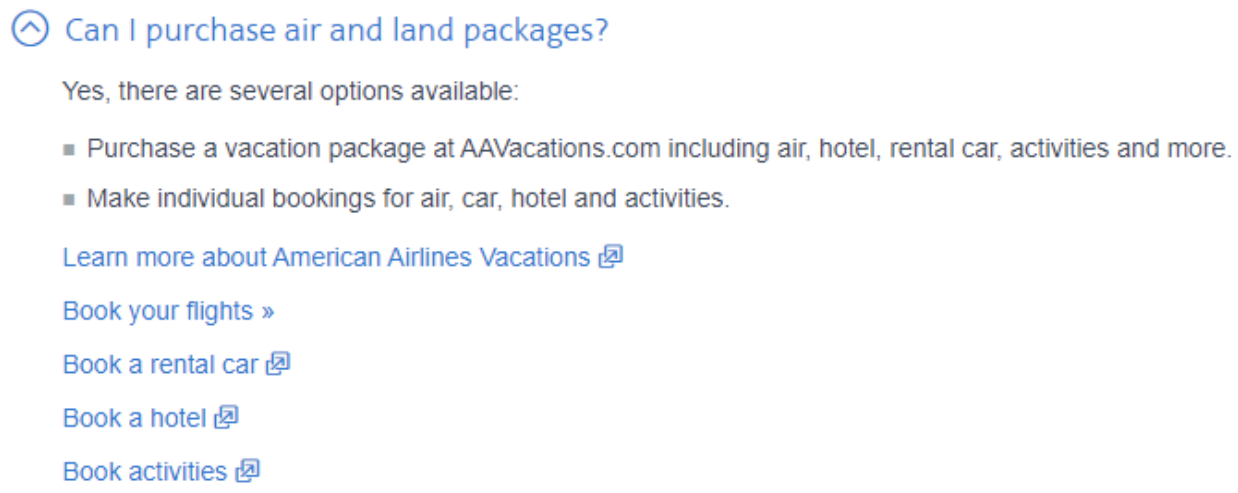


Best Prices on Vacation Packages, AMERICAN AIRLINES, https://www.aavacations.com/en/.



Home Page, AMERICAN AIRLINES, https://www.aa.com/homePage.do.

78. AA further provides users of the AA website with instructions and operation tips that include instructions and links directing users to applications on the AA website that implement search functionality in a way that results in infringement of the '329 patent:



FAQs, AMERICAN AIRLINES, https://www.aa.com/i18n/customer-service/faqs/faqs.jsp.

Damages

79. R2 has been damaged as a result of AA's infringing conduct described in this Count. AA is, thus, liable to R2 in an amount that adequately compensates it for AA's

infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 8,209,317

80. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq*.

81. R2 is the owner of the '317 patent with all substantial rights to the '317 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

82. The '317 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

83. AA has directly infringed and continues to directly infringe one or more claims of the '317 patent in this District and elsewhere in Texas and the United States.

84. To this end, AA has infringed and continues to infringe, either by itself or via an agent, at least claims 1–2, 8–10, and 12 of the '317 patent by, among other things, making, offering to sell, selling, testing and/or using the AA web platform (and related mobile applications).

85. Attached hereto as Ex. 8, and incorporated herein by reference, is a representative claim chart detailing how AA infringes the '317 patent.

86. AA is liable for its infringements of the '317 patent pursuant to 35 U.S.C. § 271.

Indirect Infringement (Inducement – 35 U.S.C. § 271(b))

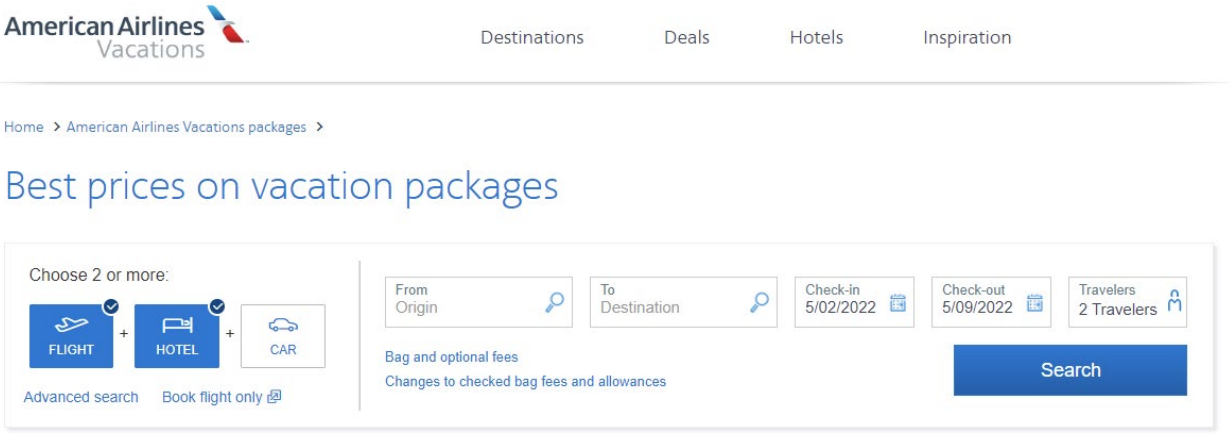
87. In addition and/or in the alternative to its direct infringement, AA has indirectly infringed and continues to indirectly infringe one or more claims of the '317 patent by inducing

direct infringement by its customers and end users.

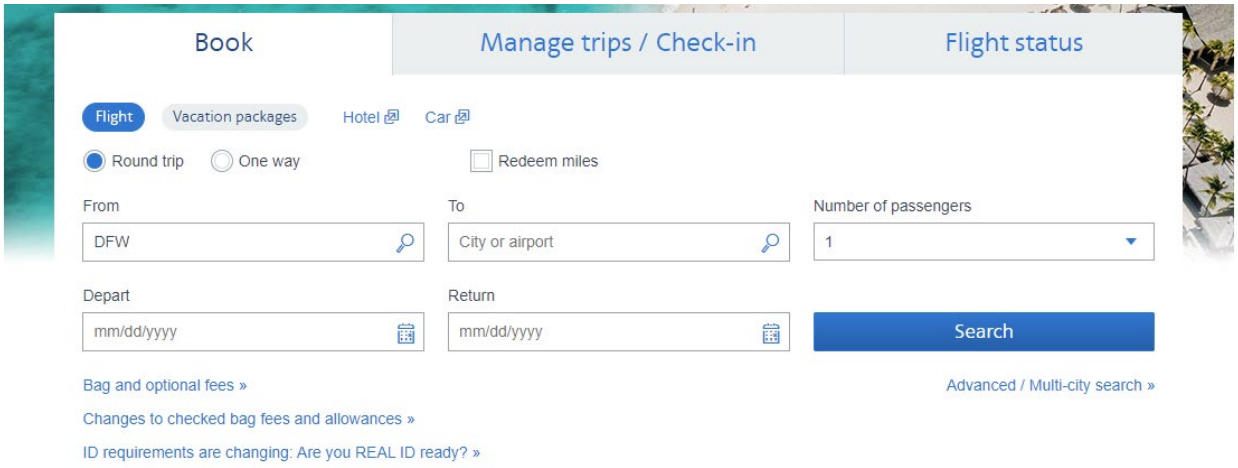
88. AA has had knowledge of the '317 patent as early as October 20, 2021, when Mr. Woolley informed AA that R2 resolved a lawsuit against Samsung, which involved the '317 patent. At a minimum, AA has had knowledge of the '317 patent since being served with this Complaint.

89. Despite having knowledge (or being willfully blind to the fact) that use of the Accused AA Search Systems infringes the '317 patent, AA has specifically intended, and continues to specifically intend, for persons (such as AA's customers and end users) to access, exercise control over, benefit from, use, and/or otherwise interact with the Accused AA Search Systems in ways that result in infringement of the '317 patent, including at least claims 1 and 2. Indeed, AA knew or should have known that its actions have induced, and continue to induce, such infringements.

90. AA instructs and encourages customers and end users to use the Accused AA Search Systems in a manner than infringes the '317 patent. For example, the AA website prominently displays a search interface instructing users to "Choose 2 or more" and/or input origin, destination, etc., to induce users to search for vacation packages and/or flights:

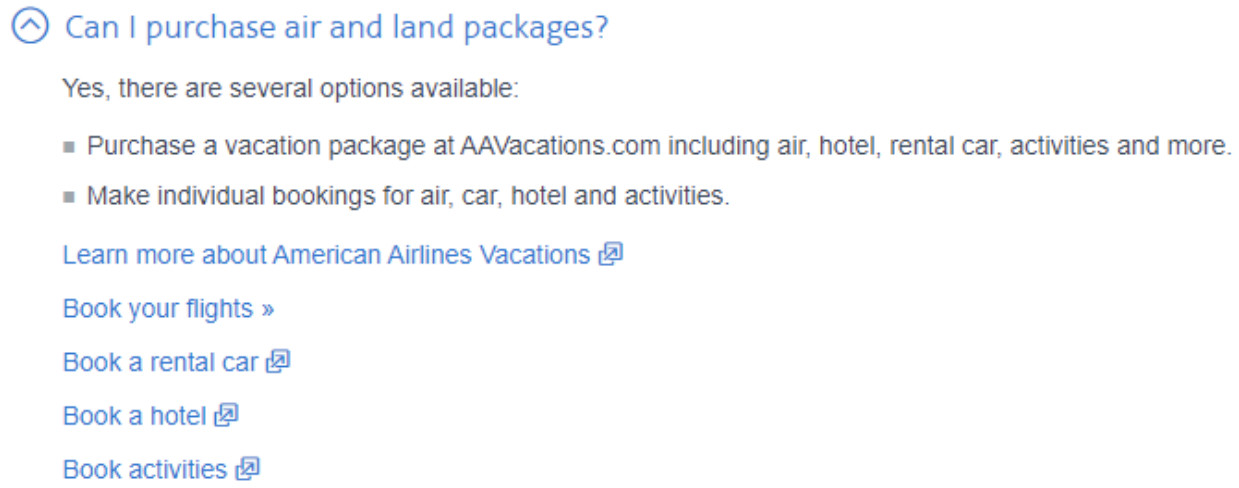


Best Prices on Vacation Packages, AMERICAN AIRLINES, https://www.aavacations.com/en/.



Home Page, AMERICAN AIRLINES, https://www.aa.com/homePage.do.

91. AA further provides users of the AA website with instructions and operation tips that include instructions and links directing users to applications on the AA website that implement search functionality in a way that results in infringement of the '317 patent:



FAQs, AMERICAN AIRLINES, https://www.aa.com/i18n/customer-service/faqs/faqs.jsp.

Damages

92. R2 has been damaged as a result of AA's infringing conduct described in this Count. AA is, thus, liable to R2 in an amount that adequately compensates it for AA's

infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

DEMAND FOR A JURY TRIAL

R2 demands a trial by jury on all issues triable of right by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

R2 respectfully requests that this Court enter judgment in its favor and grant the following relief:

(i) Judgment and Order that AA has directly and/or indirectly infringed one or more claims of each of the patents-in-suit;

(ii) Judgment and Order that AA must pay R2 past and future damages under 35 U.S.C. § 284, including supplemental damages arising from any continuing, post-verdict infringement for the time between trial and entry of the final judgment, together with an accounting, as needed, as provided under 35 U.S.C. § 284;

(iii) Judgment and Order that AA must pay R2 reasonable ongoing royalties on a go-forward basis after Final Judgment;

(iv) Judgment and Order that AA must pay R2 pre-judgment and post-judgment interest on the damages award;

(v) Judgment and Order that AA must pay R2's costs;

(vi) Judgment and Order that the Court find this case exceptional under the provisions of 35 U.S.C. § 285 and accordingly order AA to pay R2's attorneys' fees; and

(vii) Such other and further relief as the Court may deem just and proper.

Dated: April 28, 2022

Respectfully submitted,

/s/ Edward R. Nelson III
EDWARD R. NELSON III
State Bar No. 00797142
ed@nelbum.com
BRENT N. BUMGARDNER
State Bar No. 00795272
brent@nelbum.com
CHRISTOPHER G. GRANAGHAN
State Bar No. 24078585
chris@nelbum.com
JOHN P. MURPHY
State Bar No. 24056024
murphy@nelbum.com
CARDER W. BROOKS
State Bar No. 24105536
carder@nelbum.com
NELSON BUMGARDNER CONROY PC
3131 West 7th Street, Suite 300
Fort Worth, Texas 76107
817.377.9111

COUNSEL FOR PLAINTIFF
R2 SOLUTIONS LLC