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9 *Attorneys for Plaintiff,*

Haptix Solutions LLC

**UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION**

12 HAPTIX SOLUTIONS LLC, a California
limited liability company,

13 Plaintiff,

14 v.

15 MICROSOFT CORPORATION, a
Washington corporation,

16 Defendant.

Case No. 8:24-cv-00428-JWH-JDE
Hon. John W. Holcomb

**FIRST AMENDED COMPLAINT
FOR PATENT INFRINGEMENT**

DEMAND FOR JURY TRIAL

Complaint Filed: February 29, 2024
Trial Date: None

1 For its Complaint against Microsoft Corporation (“Microsoft” or “Defendant”),
2 Plaintiff Haptix Solutions LLC (“Haptix” or “Plaintiff”) hereby alleges as follows:

3 **I. NATURE OF THE ACTION**

4 1. This is an action for patent infringement of United States Patent No.
5 US8,253,686 (“the ’686 Patent” or “the Asserted Patent”), arising under the Patent Laws
6 of the United States, 35 U.S.C. §1, *et seq.*, seeking damages and other relief under 35
7 U.S.C. § 281, *et seq.*

8 **II. THE PARTIES**

9 2. Plaintiff Haptix is a limited liability company organized and existing under
10 the laws of California with a principal place of business located at 26522 La Alameda
11 Avenue, Suite 360, Mission Viejo, California 92691.

12 3. Defendant Microsoft is a corporation organized under the laws of
13 Washington with multiple locations worldwide, including offices located in this District
14 at 3 Park Plaza #1600, Irvine, CA 92614 and at 75 Enterprise # 100, Aliso Viejo, CA
15 92656. Microsoft makes, uses, offers for sale, sells, and/or imports into the United States
16 the Accused Products described below.

17 4. Microsoft sells and offers to sell products and services throughout the United
18 States, including in this District, and introduces products and services into the stream of
19 commerce, which include the Accused Products described below. Microsoft performs
20 these acts knowing that the Accused Products will be sold in this District and elsewhere
21 in the United States, resulting in infringement of Plaintiff’s Asserted Patent identified
22 below.

23 5. Microsoft conducts significant, persistent and regular amounts of business in
24 this District through product sales by its distributors, direct customers, and resellers, and
25 Microsoft derives substantial revenue from such business.

26 **III. JURISDICTION AND VENUE**

27 9. This is an action for patent infringement arising under the Patent Laws of the
28 United States, Title 35 of the United States Code.

1 10. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and
2 1338(a).

3 11. This Court has personal jurisdiction over Microsoft because they have
4 purposefully availed themselves of the privileges and benefits of the laws of the State of
5 California. Further, Microsoft is subject to this Court’s general and specific personal
6 jurisdiction because Microsoft has sufficient minimum contacts within the State of
7 California, pursuant to due process and/or the California Long Arm Statute, because
8 Microsoft purposefully availed themselves of the privileges of conducting business in the
9 State of California, and because Plaintiff’s causes of action arise directly from
10 Microsoft’s business contacts and other activities in the State of California, including
11 Microsoft’s regularly doing or soliciting business and deriving substantial revenue from
12 providing products and services to individuals in this District, including the Accused
13 Products described below, which is accused of infringing Plaintiff’s Asserted Patent. The
14 exercise of jurisdiction over Microsoft would thus not offend traditional notions of fair
15 play and substantial justice.

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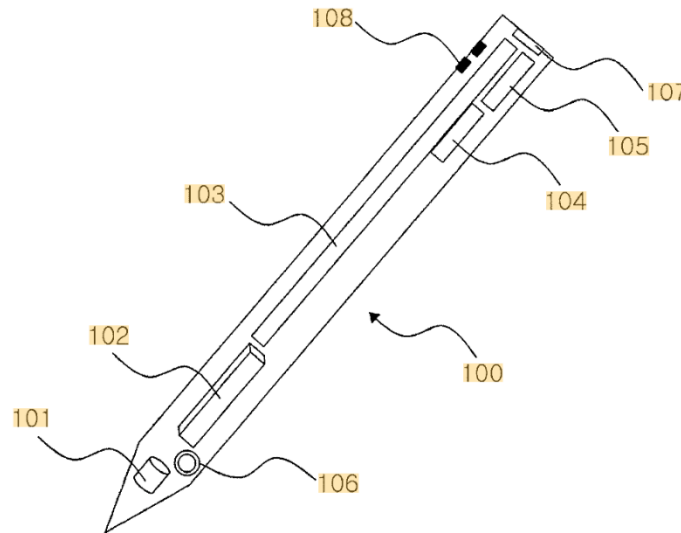
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1 **IV. BACKGROUND**

2 **A. The Haptic Pen of the '686 Patent.**

3 12. The '686 Patent describes and claims various innovative aspects of an
4 electronic stylus for use on touch-screen equipped electronic devices, such as laptop and
5 tablet computers. A true and correct copy of the '686 Patent is attached hereto as **Exhibit**

6 **A.** Below is a representative figure from the '686 Patent:



16 **FIG. 2**

17 *See <https://patents.google.com/patent/US8253686B2>*

18 13. The '686 Patent was duly and legally issued to the Electronics and
19 Telecommunications Research Institute ("ETRI") by the United States Patent and
20 Trademark Office on August 28, 2012, and is entitled "Pointing Apparatus Capable of
21 Providing Haptic Feedback, and Haptic Interaction System and Method Using the Same."
22 The '686 Patent is based on a patent application filed on November 21, 2008, and claims
23 priority to earlier Korean Patent Applications, KR10-2007-0120838 filed on November
24 26, 2007, KR10-2008-0015283 filed on February 20, 2008, and KR10-2008-0070009
25 filed on July 18, 2008. Plaintiff Haptix is the exclusive licensee of the '686 Patent.

26 14. The '686 Patent was invented by ETRI inventors Ki Uk Kyung, Jun Young
27 Lee, Jun Seok Park, Chang Seok Bae, Dong Won Han, and Jin Tae Kim. ETRI is the
28 national leader in Korea in the research and development of information technologies.

1 Since its inception in 1976, ETRI has developed new technologies in DRAM computer
 2 memory, CDMA and 4G LTE cellular phone communications, large-scale computer
 3 storage, LCD / touchscreen display technology, and computers and devices with haptics
 4 functionality, which is the technology at issue in this case.

5 15. ETRI employs over 2,000 research/technical staff, of whom 90% hold a
 6 post-graduate degree and 50% have earned a doctoral degree in their technological field.
 7 Over the last five years, ETRI has applied for a total of about 17,000 patents, has
 8 contributed to over 8,000 proposals that have been adopted by international and domestic
 9 standard organizations, and has published over 1,200 articles in peer-reviewed
 10 technology publications.

11 16. Among other innovations, the '686 Patent describes and claims a unique
 12 system for an electronic stylus that provides haptic feedback to a user interacting with a
 13 computer / tablet touch screen. The stylus uses a wireless communication system to
 14 receive control signals and to provide haptic feedback to the stylus user.

15 17. Examples of one embodiment of the innovative haptic stylus of the '686
 16 Patent can be seen in the '686 Patent figure reproduced below:

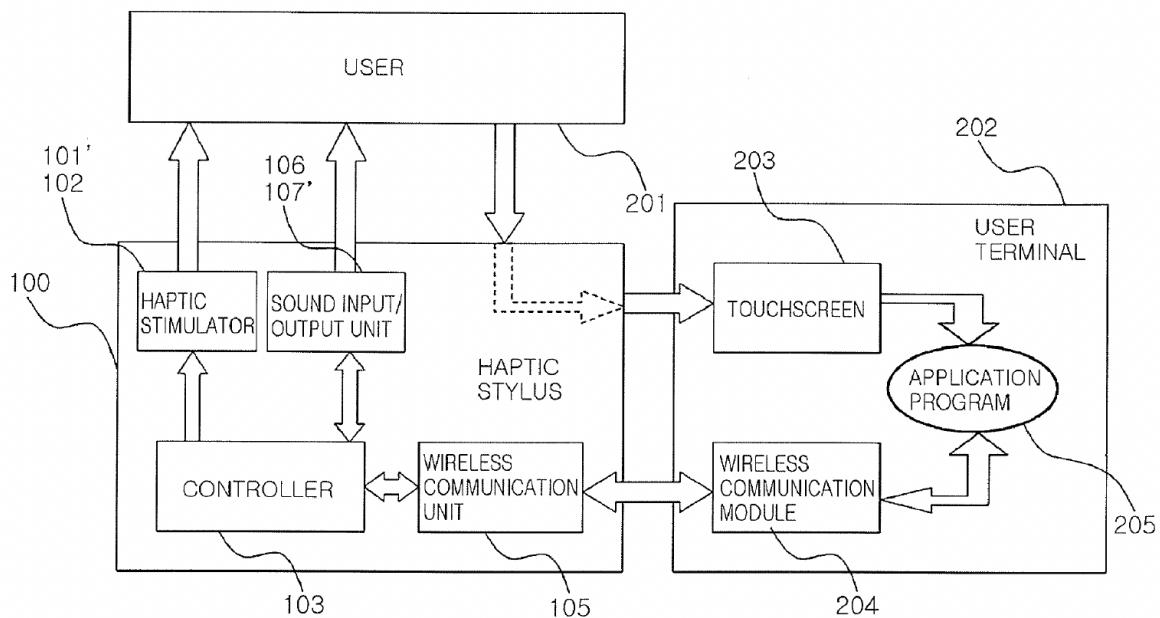


FIG. 1

In order to generate a realistic feeling of making a stroke on the surface of the touch screen 203 while drawing or writing on the touch screen 203 by means of the haptic stylus 100, the vibration intensity of the rotary vibrator 101 is increased as the rubbing speed is increased.

Ex. A, 7:24-55.

20. The figure below further illustrates the haptic features described and claimed in the '686 Patent:

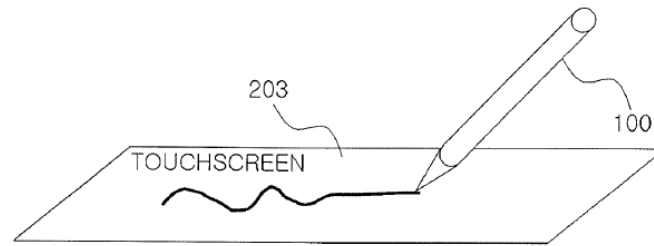


FIG. 5A

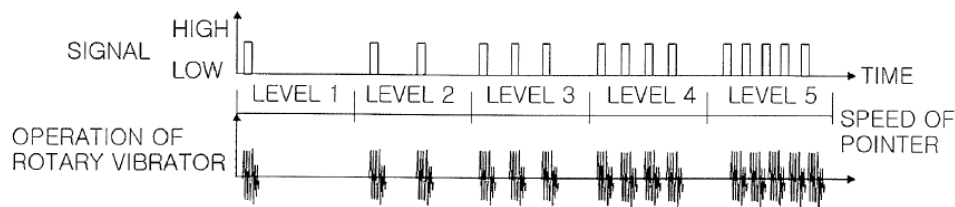


FIG. 5B

21. Another embodiment of the innovative haptic pen disclosed and claimed in the '686 Patent is described below:

FIG. 7 is a conceptual diagram illustrating a principle of changing the intensity of the vibration by means of the linear vibrator 102 while the haptic stylus 100 according to an embodiment of the present invention is used to draw or write on the touch screen 203.

As a method of feeding back a realistic feeling of making a stroke on the surface of the touch screen 203 while drawing or writing on the touch screen 203 by means of the haptic stylus 100, a method of increasing the

1 stimulus cycle of the rotary vibrator 101 with an increase in the rubbing speed
2 has been illustrated in FIGS. 5A and 5B. This principle may be implemented
3 not only by the rotary vibrator 101, but also by the linear vibrator 102.

4 As illustrated in FIG. 7, . . . the cycle of an input signal of the linear
5 vibrator 102 increases as the speed of the pointer increases. For example, if
6 the speed of the pointer is at a level 1, the vibration may be generated once
7 per a second; and if the speed of the pointer is at a level 5, the vibration may
8 be generated five times per a second.

9 At this point, at the time when the signal changes from HIGH to LOW,
10 the mass 402 in the linear vibrator 102 collides with the top side and the
11 bottom side alternately by one time, a feeling of rubbing a granular surface is
12 reproduced for the user 201 holding the haptic stylus 100.

13 In particular, the linear vibrator 102 is apparent in terms of the start and
14 end of the signal, so that the user 201 feels as if a granular pattern of a surface
15 is rubbed at a higher speed as the surface is rubbed at a higher speed.

16 As described in FIG. 7, the speed of the pointer moving with the
17 movement of the haptic stylus 100 may be determined to be within a
18 predetermined level, or may be determined to be in a continuous functional
19 relationship with the cycle of a stimulus.

20 Ex. A, 8:12-50.

21 **B. Microsoft’s “Surface Slim Pen 2” Haptic Pen / Surface Laptop**

22 22. Microsoft makes and sells electronic styluses and haptic interaction systems
23 and other technology products in the United States. As shown in the attached claim chart
24 (**Exhibit B**), at least Microsoft’s “Surface Slim Pen 2” infringes at least Claim 1 of the
25 ’686 Patent, as well as any other electronic stylus made, used, sold, offered for sale,
26 and/or imported by Microsoft having substantially the same construction and haptic
27 features as Microsoft’s “Surface Slim Pen 2.” (collectively, “Accused Surface Pen”).
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23. In addition, Microsoft combines and sells the Accused Surface Pen with Microsoft’s “Surface Pro” tablet, “Surface Laptop,” and “Surface Laptop Studio” (collectively, “Surface Laptop”), which are configured to support the tactile signals functionality of the Accused Surface Pen. **Exhibit B** is an example that illustrates how one combination of the Accused Surface Pen and the Surface Laptop infringes at least Claim 23 of the ’686 Patent. This infringement includes the combination of the Accused Surface Pen with any Surface Laptop that supports tactile signals, including for example any other Surface model that supports Microsoft’s “tactile signals” listed under “Surface Slim Pen 2>Tactile Signals>Yes” of “Identify your Surface Pen and features” at <https://support.microsoft.com/en-us/surface/identify-your-surface-pen-and-features-c82a0208-2e35-b347-dae0-d7f4922edc77>. The combination of the Accused Surface Pen and the Surface Laptop is hereinafter referred to as the “Accused Surface Pen / Surface Laptop.” Together, the “Accused Surface Pen” and “Accused Surface Pen / Surface Laptop” are hereinafter referred to collectively as “the Accused Products.”

24. Microsoft’s Accused Products directly implement the patented features of the electronic stylus and/or the haptic interaction system described and claimed in the ’686 Patent. For example, the figures below compare Microsoft’s Accused Products (left photo) against the electronic stylus described and claimed in the ’686 Patent (right photo).

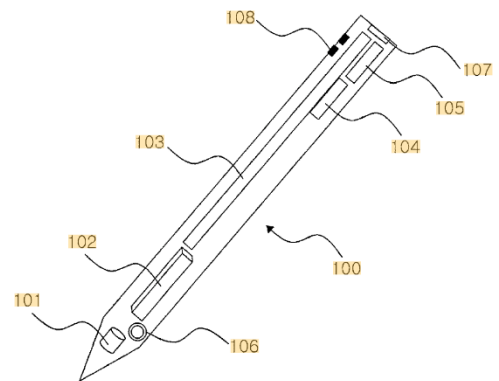


FIG. 2

See <https://www.microsoft.com/en-us/d/surface-slim-pen-2/8tb9xw8rwc14>

1 25. In addition to the structural similarity between the Accused Products and the
2 patented electronic stylus described and claimed in the '686 Patent, the Accused Products
3 also include precisely the same haptic features of the patented electronic stylus. For
4 example, Microsoft describes and markets the accused "Surface Slim Pen 2" as an
5 improvement to Microsoft's standard "Surface Pen" tablet pen. The primary difference
6 between these two products is that the that Microsoft's standard "Surface Pen" lacks the
7 infringing haptic features found in the Accused Products.

8 26. In marketing the Accused Products, Microsoft has repeatedly touted the
9 benefits of the patented haptic features described and claimed in the '686 Patent:

10 • "Take notes naturally—the haptic motor in Surface Slim Pen 2 brings the
11 feeling of writing and drawing on paper to your PC's screen."

12 <https://www.microsoft.com/en-us/d/surface-slim-pen-2>.

13 • "Experience natural and inclusive note-taking, sketching, and navigating
14 with the same feeling you get with pen on paper when paired with Surface Pro 8 or
15 Surface Laptop the built-in haptic motor." *Id.*

16 • "The Surface Slim Pen 2 is an upgraded stylus that delivers an interactive
17 experience that feels like writing with pen and paper, thanks to its improved design and
18 sensitivity." [https://www.microsoft.com/en-us/surface/do-more-with-surface/digital-](https://www.microsoft.com/en-us/surface/do-more-with-surface/digital-journaling)
19 [journaling](https://www.microsoft.com/en-us/surface/do-more-with-surface/digital-journaling).

20 • "Upgraded for the next generation of Surface devices, the Slim Pen 2 brings
21 the feeling of writing and drawing on paper to your touchscreen. Thanks to a sharper pen
22 tip, haptic motor, and sleek, ultra-slim design, it mimics the feeling of a natural pen."

23 [https://www.microsoft.com/en-us/surface/do-more-with-surface/surface-slim-pen-2-](https://www.microsoft.com/en-us/surface/do-more-with-surface/surface-slim-pen-2-everything-you-need-to-know)
24 [everything-you-need-to-know](https://www.microsoft.com/en-us/surface/do-more-with-surface/surface-slim-pen-2-everything-you-need-to-know).

25 • "Writing with a pen on paper can ignite your creative spark. The tactile
26 sensation of the pen gliding across the paper engages your senses in a unique way,
27 fostering creativity and free-flowing thoughts. With Surface devices, you can experience
28 this magic digitally. This is where the Surface Slim Pen 2 comes in. Whether you're

1 sketching, jotting down ideas, or brainstorming, the intuitive Slim Pen 2 and its built-in
2 haptic motor are designed to mimic the precision and responsiveness of putting pen to
3 paper—which can make your creative process feel more intuitive and natural.”

4 [https://www.microsoft.com/en-us/surface/do-more-with-surface/pen-and-paper-in-a-](https://www.microsoft.com/en-us/surface/do-more-with-surface/pen-and-paper-in-a-digital-age)
5 [digital-age.](https://www.microsoft.com/en-us/surface/do-more-with-surface/pen-and-paper-in-a-digital-age)

6 27. Users similarly tout the benefits provided by the haptic features incorporated
7 in Microsoft’s Accused Products:

8 • “Microsoft’s new Surface Pro 8 has a gorgeous 120Hz display and updated
9 internals, but it’s really the new Surface Slim Pen 2 that has caught my attention.

10 Microsoft has added haptics features to its stylus for the first time, thanks to a new
11 custom chip inside. It has transformed inking on the Surface Pro 8.”

12 [https://www.theverge.com/22710381/microsoft-surface-slim-pen-2-hands-on.](https://www.theverge.com/22710381/microsoft-surface-slim-pen-2-hands-on)

13 • “The Microsoft Surface Slim Pen 2 is a neatly designed and unique stylus
14 that enables you to get more from your Surface device. ... The best feature is the use of
15 haptic feedback to replicate the sensation of drawing on paper and more”

16 [https://www.creativebloq.com/reviews/microsoft-surface-slim-pen-2.](https://www.creativebloq.com/reviews/microsoft-surface-slim-pen-2)

17 • “The new haptic motor is undoubtedly the Slim Pen 2's most exciting feature
18 ...” [https://www.tomsguide.com/news/microsoft-surface-slim-pen-2-unveiled-with-new-](https://www.tomsguide.com/news/microsoft-surface-slim-pen-2-unveiled-with-new-features-to-rival-apple-pencil)
19 [features-to-rival-apple-pencil.](https://www.tomsguide.com/news/microsoft-surface-slim-pen-2-unveiled-with-new-features-to-rival-apple-pencil)

20 • “Personally, I find the haptic feedback to be pretty incredible. You don’t
21 notice that the vibrations are coming from a motor within the pen – it really feels like
22 there is resistance when moving the pen across the screen, exactly as you would get with
23 paper, with feedback increasing in intensity as you press harder on the pen.”

24 [https://www.lapseoftheshutter.com/surface-slim-pen-vs-surface-pen/.](https://www.lapseoftheshutter.com/surface-slim-pen-vs-surface-pen/)

1 **COUNT I**

2 **INFRINGEMENT OF THE '686 PATENT**

3 28. Plaintiff hereby restates the allegations contained in the preceding
4 paragraphs above as if fully set forth herein.

5 29. Plaintiff Haptix is the exclusive licensee of the '686 Patent and owns the
6 right to assert all causes of action arising under the '686 Patent, the right to pursue all
7 remedies for infringement of the '686 Patent, and the right to recover any and all
8 available damages for infringement of the '686 Patent, including the right to sue for and
9 recover past damages.

10 30. Microsoft has infringed and continues to infringe the '686 Patent under 35
11 U.S.C. § 271, literally or under the doctrine of equivalents, by making, using, selling,
12 and/or offering for sale in the United States, and/or importing into the United States
13 without authorization, at least the Accused Products described above. For example, as
14 shown in the attached claim chart (**Exhibit B**), the Accused Products infringe at least
15 Claims 1 and 23 of '686 Patent.

16 31. Plaintiff Haptix alleges that – in addition to Microsoft directly infringing the
17 '686 Patent claims, Microsoft indirectly infringes those claims. Microsoft's acts of
18 indirect infringement include inducement of infringement and contributory infringement
19 under 35 U.S.C. §§ 271(b) and (c).

20 32. Microsoft contributorily infringes the asserted patents by using, offering to
21 sell, and selling within the United States and/or importing into the United States the
22 Accused Products, including components of patented machines, manufactures,
23 combinations, materials and/or apparatus for use in practicing the patented systems,
24 processes or methods of the '686 Patent claims, which constitute a material part of the
25 inventions, knowing the same to be especially made or especially adapted for use in an
26 infringement of the '686 Patents, and not a staple article or commodity of commerce
27 suitable for substantial non-infringing use.

1 33. By way of example, such indirect infringement includes selling the Accused
2 Products to customers and users and/or offering those customers and users access to the
3 Accused Products and explicitly instructing those customers – through online materials,
4 promotional materials, written instructions, user’s guides, etc. – how to combine the
5 components of the Accused Products in a manner that infringes the ’686 Patent. This
6 includes Microsoft’s provision of web-based, phone-based, email-based and/or literature-
7 based promotion, support, and assistance (*e.g.*, manuals, product guides, user forums,
8 troubleshooting tips, and other forms of support and assistance) for utilizing the Accused
9 Products. As one example that is described above, in marketing the Accused Products,
10 Microsoft has repeatedly touted the benefits of the combining Microsoft’s “Surface Slim
11 Pen 2” with Microsoft’s “Surface Pro” tablet, “Surface Laptop,” or “Surface Laptop
12 Studio” computing devices in a manner than copies the features and capabilities in a
13 manner intended to infringe one or more claims of the ’686 Patent.

14 34. Microsoft also indirectly infringes the ’686 Patent by, for example, directing,
15 inducing and encouraging others to directly infringe the ’686 Patent, which includes
16 entities that manufacture, import, use, sell, and/or offer to sell the Accused Products on
17 behalf of Microsoft. For example, Microsoft contracts with third-party manufacturers
18 pursuant to which Microsoft provides the specifications for the Accused Products or
19 components thereof and explicitly directs the third-party manufacturers to manufacture
20 the Accused Products in a manner that copies the features and capabilities described and
21 claimed in the ’686 Patent and thus infringes one or more claims of the ’686 Patent.

22 35. Moreover, as explained further below, Microsoft’s acts of direct and/or
23 indirect infringement of the ’686 Patent occurred with Microsoft’s full knowledge of the
24 ’686 Patent, and also with Microsoft’s full knowledge that the Accused Products – when
25 manufactured and used as directed by Microsoft - directly infringe one or more claims of
26 the ’686 Patent. In short, Microsoft has been well and fully aware that the making, using,
27 selling, offering for sale, and/or importing of the Accused Products – whether by
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1 Microsoft or on its behalf by others – constitutes direct infringement of one of more
2 claims of the '686 Patent.

3 36. For example, prior to the filing of Plaintiff's original Complaint in this
4 action, Plaintiff provided on or about February 29, 2024 written notice to Microsoft
5 regarding Microsoft's infringement of the '686 Patent. Microsoft thus received advance
6 notice of the '686 Patent and the fact that the Accused Surface Pen and the Accused
7 Surface Pen / Surface Laptop copied the patented aspects described and claimed in the
8 '686 Patent. But despite this explicit notice, Microsoft has continued to make, use, sell,
9 offer for sale, and/or import into the United States the Accused Products.

10 37. Importantly, Plaintiff's February 29, 2024 notice letter was far from the first
11 time Microsoft has been informed regarding the '686 Patent. Rather, Microsoft has been
12 well aware of the '686 Patent since at least 2010. This includes Microsoft not only
13 having direct knowledge of the '686 Patent, but also the applicability of the '686 Patent
14 claims to the Accused Products.

15 38. For example, the '686 Patent and/or its published application number
16 2009/0135164) (collectively referred to below as "the '686 Patent" or "Kyung") was
17 repeatedly cited by the USPTO against multiple patent applications filed by Microsoft.
18 Further, pursuant to Microsoft's duty to disclose all known information material to the
19 patentability of Microsoft's pending patent applications, Microsoft itself cited the '686
20 Patent in IDS's submitted during prosecution of four different Microsoft's patent
21 applications. In two of those IDS filings, Microsoft also disclosed technical papers
22 written by the inventors of the Kyung patent.

23 39. This citation of the '686 Patent was far from unique. The '686 Patent (or its
24 published application number 2009/0135164) was indeed a well-known patent in the
25 relevant field that was cited in at least *110* patent applications, including being cited
26 against 9 Microsoft patent applications, 49 Apple patent applications, and 52 other patent
27 applications owned by different companies.

1 40. The '686 Patent was also cited by the international searching authority
2 against a Microsoft's international patent application, and was also cited by the European
3 Patent Office against a Microsoft European patent application.

4 41. The citation of the '686 Patent against Microsoft patent applications has
5 been going on for over a decade, with the '686 Patent being cited in Microsoft
6 applications that were filed as early as 2010 and most recently in 2022. And the '686
7 Patent was cited not only during the prosecution of multiple Microsoft patent
8 applications, but in fact was a key prior art reference that was extensively discussed by
9 both Microsoft and the Patent Office.

10 42. Several examples of Microsoft's extensive knowledge of the '686 Patent are
11 discussed below.

12 **a. Microsoft Patent No. 8,416,066 issued from Patent App. No.**
13 **12/770,392 filed on April 29, 2010.**

14 43. During prosecution of Microsoft's '066 Patent, all Office Actions (including
15 those citing prior art) were sent by the USPTO directly to Microsoft's in-house patent
16 counsel.

17 44. In a Non-Final Office Action issued on September 13, 2012, the Examiner
18 cited the '686 Patent (referred to as "Kyung" by the Examiner and Microsoft's attorney)
19 as a prior art reference in an obviousness rejection against Microsoft's '066 Patent.
20 Importantly, the Microsoft '066 Patent describes and claims – among other things – a
21 computer stylus that includes haptic feedback in the form of vibrations of the computer
22 stylus. The Examiner relied on the '686 Patent to reject the claim element "wherein the
23 vibrations are provided by the stylus and not the writing surface" that was recited in
24 dependent claim 4. The Examiner reasoned that:

25 "Kyung et al suggests that the haptic feedback stylus 100 having a haptic
26 stimulation 101, 102 to stimulate a user 201 when drawing/writing on the
27 surface of the touch screen 203. The haptic feedback function is given to a
28 haptic stylus, thereby making it possible to provide the haptic feedback

1 function without modifying a touch screen. Therefore, it is possible to solve
2 the problem of intervening in a touch screen manufacturing process in order
3 to directly install a haptic feedback device in the touch screen (see Figs. 1, 2,
4 5 and 9A, col. 1, lines 58-67, col. 2, lines 1-6, col. 5, lines 56-67, col. 6, lines
5 1-48 and col. 14, lines 53-58). Therefore, it would have been obvious to one
6 skill in the art at the time the invention was made to substitute the haptic
7 feedback stylus of Kyung et al for the stylus of Park et al for quicker receiving
8 of the stimulus/vibration by a user without observing or touching the vibration
9 screen as well as without modifying the touch screen.”

10 45. In its response filed on October 15, 2012, Microsoft, mindful of the
11 applicability of Kyung not only to dependent claim 4, but also to independent claim 10,
12 amended independent claim 10 of the Patent App. No. 12/770,392 in an effort to
13 overcome the examiner’s citation of the ’686 Patent:

14 “10. (currently amended): A method implemented by one or more
15 modules at least partially in hardware, the method comprising:
16 detecting an input that involves pressure caused through pressing a stylus
17 against a surface of a computing device;
18 determining a behavior that corresponds to the detected pressure, **the**
19 **behavior including functionality that varies according to the detected**
20 **pressure of the input**; and
21 **responsive to the determining**, simulating the behavior through vibration of
22 the stylus or the surface of the computing device.” (emphasis in original).

23 46. To overcome the citation of the ’686 Patent, Microsoft argued that the ’686
24 Patent did not fully disclose Microsoft’s claimed invention:

25 “Kyung discloses that ‘a stylus includes a pressure sensor at its tip,’ (Kyung,
26 Col. 1, lines 45-46). However, Kyung is silent with regard to ‘determining a
27 behavior that corresponds to the detected pressure, **the behavior including**
28

1 **functionality that varies according to the detected pressure of the input,**

2 and, therefore, does not remedy the deficiencies of Park noted above.

3 “Accordingly, it is respectfully submitted that the combination of Park and
4 Kyung does not disclose all of the features of claim 10. Withdrawal of the
5 rejection is respectfully requested.” (emphasis added).

6 47. Microsoft thus acknowledged that independent claim 10 of the Patent App.
7 No. 12/770,392 was fully disclosed by the ’686 Patent, absent the amended claim element
8 **“the behavior including functionality that varies according to the detected pressure
9 of the input.”**

10 48. Plainly, Microsoft knew about the breadth of the disclosure of the ’686
11 Patent and had ample reason to investigate whether the Accused Products that are the
12 subject of this Complaint infringed the ’686 Patent. On information and belief, Microsoft
13 in fact undertook that investigation and determined – as it must – that the Accused
14 Products in fact so infringed. Despite this, Microsoft nonetheless proceeded with its
15 introduction of the Accused Products knowing they infringed the ’686 Patent claims.

16 **b. Microsoft Patent No. 9,886,088, issued from Patent App. No.**
17 **13/569,818, filed on August 8, 2012.**

18 49. During prosecution of Microsoft’s ’088 Patent application, all Office
19 Actions (including those citing prior art) were sent by the USPTO directly to Microsoft’s
20 in-house patent counsel.

21 50. Shortly after filing the ’088 Patent application, Microsoft filed an IDS on
22 August 28, 2012, disclosing to the USPTO the published patent application underlying
23 the ’686 Patent. The ’686 Patent application was one of only three patent documents
24 disclosed by Microsoft as information material to patentability of Microsoft’s patent
25 application.

26 51. In that same IDS, Microsoft disclosed a technical paper written by the ’686
27 Patent inventors:

- 1 • KYUNG, et al., "wUbi-Pen: Windows Graphical User Interface Interacting
2 with Haptic Feedback Stylus", In Proceedings of the ACM SIGGRAPH,
3 August 11, 2008, pp. 1-4, 4 pages.

4 **c. Microsoft Patent No. 9,792,038, issued from Patent App. No.**
5 **13/588,457, filed on August 17, 2012.**

6 52. With the filing of the '457 Patent application, Microsoft disclosed in an IDS
7 filed on August 17, 2012 two technical papers written by the '686 Patent inventors:

- 8 • KYUNG, et al., "wUbi-Pen: Windows Graphical User Interface Interacting
9 with Haptic Feedback Stylus," In Proceedings of the ACM SIGGRAPH,
10 August 11, 2008, pp. 1-4, 4 pages.
- 11 • KYUNG, et al., "Design and Applications of a Pen-Like Haptic Interface
12 with Texture and Vibrotactile Display," In Proceedings of the Frontiers in
13 the Convergence of Bioscience and Information Technologies, October 11,
14 2007, pp. 543-548, 6 pages.

15 53. In a Final Office Action dated September 2, 2014, the Examiner cited the
16 '686 Patent application (referred to as "Kyung") against claim 4 from Microsoft's
17 pending application:

18 "Kyung (Fig. 19) discloses determining if a received input is associated with
19 a point of interest in a graphical user interface where the element is one to
20 avoid (feedback is provided to the user about elements such as 1902 to avoid
21 [0158]).

22 At the time of invention, it would have been obvious for a person of
23 ordinary skill in the art to have informed the user of an element to avoid as
24 taught by Kyung in the user input system of Poupyrev as modified by
25 Simmons, Lund, and Keely. The suggestion/motivation would have been to
26 facilitate warnings and prevent operating errors [0158]."

1 54. In its response to this Final Action, Microsoft simply re-presented rejected
2 claim 4, without making any amendment to that claim or explanation why the Examiner’s
3 asserted prior art (including Kyung) did not invalidate claim 4:

4 4. (Previously Presented) The method of claim 3, wherein determining if the
5 received input is associated with a point of interest comprises determining
6 whether a characteristic associated with an element displayed on a graphical
7 user interface, an application functionality, or a functionality control includes
8 an element to avoid.

9 55. The Examiner thereafter in his Non-Final OA, dated December 24, 2014,
10 again rejected dependent claim 4 over various cited references, including Kyung:

11 “Kyung (Fig. 19) discloses determining if a received input is associated with
12 a point of interest in a graphical user interface where the element is one to
13 avoid (feedback is provided to the user about elements such as 1902 to avoid
14 [0158]).

15 At the time of invention, it would have been obvious for a person of
16 ordinary skill in the art to have informed the user of an element to avoid as
17 taught by Kyung in the user input system of Poupyrev as modified by
18 Simmons, Lund, and Keely. The suggestion/motivation would have been to
19 facilitate warnings and prevent operating errors [0158].”

20 56. In its March 24, 2015 response to the Examiner’s non-Final rejection of
21 claim 4 over Kyung, Microsoft canceled claim 4.

22 **d. Microsoft patent application number 13/717,281 filed on**
23 **December 17, 2012 and published as published application**
24 **number 2014/0168176 on June 19, 2014. Notice of abandonment**
25 **issued on June 18, 2015.**

26 57. During prosecution of Microsoft’s ’281 Patent application, all Office
27 Actions (including those citing prior art) were sent by the USPTO directly to Microsoft’s
28 in-house patent counsel.

1 58. In an IDS submitted by Microsoft on February 12, 2013, Microsoft’s in-
2 house counsel again disclosed the ’686 Patent application to the USPTO as information
3 material to patentability of the ’281 Patent application. This IDS was filed by
4 Microsoft’s in-house patent attorney, Lisa Tom, whose bio states: “Lisa has a decade of
5 in-house experience, most recently as IP Counsel at Microsoft. This experience included
6 managing patent portfolios of various technologies, leading invention harvesting
7 sessions, strategic IP counseling, and patent portfolio review and analysis in connection
8 with licensing and litigation.” <https://allemanhall.com/person/lisa-tom/> (last visited on
9 May 10, 2024).

10 59. In a Non-Final Office Action dated July 8, 2014, the Examiner cited the ’686
11 Patent application (referred to as “Kyung”) against claim 13 of the Microsoft application:
12 “Kyung discloses: incorporating a speaker (FIG 2, 106 - speaker) into the
13 multi-purpose stylus (FIG 2, 100 - haptic stylus);
14 locating the speaker (FIG 2, 106) at one end of the multi-purpose stylus (FIG
15 2, 100) and the microphone (FIG 2, 107 - microphone) at an opposite end (FIG
16 2, shows this feature) of the multi-purpose stylus (FIG 2, 100); and
17 using the multi-purpose stylus (FIG 2, 100) as a telephone (to make voice
18 calls) such that user talks into the microphone (FIG 2, 107) and listens with
19 the user's ear near the speaker (Paragraph [0075]).

20 Therefore it would have been obvious to a person having ordinary skills
21 in the art at the time of the invention to have used the teachings of
22 incorporating a speaker into the multi-purpose stylus locating the speaker at
23 one end of the multi-purpose stylus and the microphone at an opposite end of
24 the multi-purpose stylus and using the multi-purpose stylus as a telephone
25 such that user talks into the microphone and listens with the user's ear near the
26 speaker in Denniston's invention as taught by Kyung's invention.

1 The motivation for doing this would have been increase the
2 performance and usability of user interfaces of various devices (Kyung's
3 invention Abstract).”

4 60. Microsoft in-house patent counsel (Lisa Tom) filed on October 8, 2014 a
5 response to this Non-Final Office Action, which amended independent claim 1 (from
6 which claim 13 depended) and included the following arguments over the '686 Patent
7 application:

8 “The Office Action states that Kyung discloses locating the speaker at one end
9 of the multi-purpose stylus and the microphone at the opposite end of the
10 multi-purpose stylus, and using the multi-purpose stylus as a telephone such
11 that the user talks into the microphone and listens with the user's ear near the
12 speaker. Whether or not Kyung discloses these features, Kyung does not
13 disclose an accelerometer located in the multi-purpose stylus to detect and
14 interpret gestures made in the air without contacting the surface of the
15 computing device, as recited in claim 1. Therefore, amended claim 1 is
16 allowable over Dennison and Van Schaack and Kyung. Claim 13 depends
17 from claim 1 and therefore include all the limitations of the independent claim
18 in additional to reciting additional features of its own. Thus, claim 13 is
19 allowable over Dennison and Van Schaack and Kyung for at least the same
20 reasons as independent claim 1.”

21 61. The Examiner did not find these arguments persuasive and in a Final Office
22 Action issued on December 9, 2014, the Examiner again cited Kyung against claim 13.
23 Microsoft did not file a response to this Final Office Action and on June 18, 2015 the
24 '281 Patent application went abandoned.

25 62. The direct involvement of Microsoft’s in-house patent attorney – who is
26 experienced in “strategic IP counseling” and “licensing and litigation” – further confirms
27 that Microsoft has long known about the breadth of the disclosure of the '686 Patent and
28 had ample reason to investigate whether the Accused Products that are the subject of this

1 Complaint infringed the '686 Patent. On information and belief, Microsoft in fact
2 undertook that investigation and determined – as it must – that the Accused Products in
3 fact so infringed. Despite this, Microsoft nonetheless proceeded with its introduction of
4 the Accused Products knowing they infringed the '686 Patent claims..

5 **e. Microsoft Patent No. 11,681,381, issued from Patent App. No.**
6 **17/227,092, filed on April 9, 2021.**

7 63. During prosecution of Microsoft's '092 Patent application, all Office
8 Actions (including those citing prior art) were sent by the USPTO directly to Microsoft's
9 in-house patent counsel.

10 64. In a Notice of Allowance dated February 15, 2023, the USPTO again
11 identified the '686 Patent application, which was one of only two prior art references
12 cited by the USTPTO. The Notice of Allowance was sent directly to Microsoft in-house
13 counsel.

14 **f. Microsoft Patent No. 11,775,071, issued from Patent App. No.**
15 **17/689,114, filed on March 8, 2022.**

16 65. During prosecution of Microsoft's '114 Patent application, all Office
17 Actions (including those citing prior art) were sent by the USPTO directly to Microsoft's
18 in-house patent counsel.

19 66. In a Non-Final Office Action dated November 15, 2022, the Examiner again
20 cited the '686 Patent application (Kyung) in rejecting claim 7 of the '114 Patent
21 application:

22 “Park discloses: 7. The method of claim 1.

23 However, Park does not expressly disclose: wherein the amplitude of
24 the haptic feedback waveform is further selected as a function of at least one
25 of speed of the handheld computing accessory, acceleration of the handheld
26 computing accessory, and direction of movement for the handheld computing
27 accessory.
28

1 Kyung discloses: wherein the amplitude of the haptic feedback
2 waveform is further selected as a function of at least one of speed of the
3 handheld computing accessory, acceleration of the handheld computing
4 accessory, and direction of movement for the hand held computing accessory
5 [Kyung: (Column 2, Lines 48-51): (“The controller may increase the input
6 cycle of the control signal in proportion to the moving speed of a pointer. The
7 controller may increase the vibration intensity of the rotary vibrator in
8 proportion to the moving speed of a pointe [*sic*]”).

9 It would have been obvious to one having ordinary skill in the art before
10 the effective filing date of the claimed invention to have included the concept
11 above of Kyung in the invention of Park to yield the predictable result of
12 making the user roughly aware of the speed of the handheld computing
13 accessory.”

14 67. On January 13, 2023 Microsoft responded to this Non-Final Office Action,
15 amending claim 1 as shown below to distinguish claims 1 and 7 over the Examiner’s
16 rejection based in part on the ’686 Patent application:

17 1. (Currently amended) A method comprising:

18 collecting **3D motion** sensor data at a handheld computing accessory;
19 analyzing the collected **3D motion** sensor data to infer a grip characteristic
20 indicating an aspect of a user grip on the handheld computing accessory;
21 selecting an amplitude for a haptic feedback waveform based at least in part
22 on the inferred grip characteristic; and

23 generating, at the handheld computing accessory, haptic feedback
24 according to the selected amplitude.

25 68. Microsoft’s attorney pointed to these amendments to claim 1 to argue that
26 the claim patentably defined over the Examiner’s cited art, including the ’686 Patent
27 application (Kyung):

1 “Secondary references Kyung and Tsukahara also do not disclose or suggest
2 the collection or use of ‘3D motion sensor data.’ Park, Kyung, and Tsukahara
3 in combination also do not disclose all elements of amended claim 1.”

4 **g. Microsoft Patent No. 10,824,249, issued from Patent App. No.**
5 **16/377,096, filed on April 5, 2019.**

6 69. The Examiner issued a Non-Final Office Action dated March 2, 2020, which
7 was again sent directly to Microsoft’s in-house patent department. In that Non-Final
8 Office Action, the Examiner again cited the ‘686 Patent application (Kyung) in rejecting
9 claim 18 of Microsoft’s ’096 Patent application:

10 “As to claim 18, the combination of Clements and Sato discloses the method
11 of claim 15.

12 The combination does not disclose operating the vibration generator at
13 repeating time windows, and operating the detector during the repeating time
14 windows.

15 However, Kyung does disclose operating the vibration generator at
16 repeating time windows, and operating the detector during the repeating time
17 windows (Kyung at Figs. 2-8).

18 The combination of Clements and Sato discloses a base stylus device
19 upon which the claimed invention is an improvement. Kyung discloses a
20 comparable stylus device which has been improved in the same way as the
21 claimed invention. Hence, it would have been obvious to a person having
22 ordinary skill in the art at the time of invention to add the teachings of Kyung
23 to that of the combination of Clements and Sato for the predictable result of
24 providing a haptic stylus to reduce control ambiguity generated when using a
25 touch screen, and thus increasing the usability (Kyung at ¶[0172]).”

26 70. Microsoft responded to this Non-Final Office action on June 2, 2020,
27 amending claim 15 (from which claim 18 depended) to overcome the Examiner’s
28 rejection of claims 15 and 18:

1 15. (Currently Amendment) A method of operation of a stylus comprising:
2 operating a vibration generator to vibrate a tip of the stylus along a
3 longitudinal axis of the stylus during a time window in which contact of the
4 stylus tip to a surface external to the stylus is not detected;
5 operating a detector to detect ~~the vibration causing the stylus tip to contact~~
6 contacting the [[a]] surface external to the stylus during the time window as a
7 result of the vibrating.

8 71. Microsoft's attorney pointed to these amendments in arguing the
9 patentability of claims 15 and 18:

10 **"Rejection of Claim 18 Under 35 U.S.C. § 103(a)**

11 The rejection of Claim 18 under 35 U.S.C. § 103(a) as being
12 unpatentable over Clements in view of Sato, and further in view of U.S. Patent
13 Application Publication No. 2009/0135164 (Kyung) is respectfully traversed.

14 Claim 18 depends from independent Claim 15. When the recitations of
15 independent Claim 15 are considered in combination with the recitations of
16 Claim 18, Applicant submits that Claim 18 is also patentable over the cited
17 art.

18 For at least the foregoing reasons, Applicant respectfully requests the
19 rejection of Claim 18 under 35 U.S.C. § 103(a) be withdrawn."

20 **h. Microsoft Patent No. 11,782,528, issued from Patent App. No.**
21 **17/806,441, filed on June 10, 2022.**

22 72. During prosecution of Microsoft's '528 Patent application, all Office
23 Actions (including those citing prior art) were sent by the USPTO directly to Microsoft's
24 in-house patent counsel.

25 73. Microsoft filed an IDS on April 10, 2023 that disclosed the '686 Patent
26 application as information material to patentability of the '528 Patent application claims.

1 **i. Microsoft’s International Application Publication No. WO 2011-**
2 **139755 A3**

3 74. The International Search Report for Microsoft’s International Application
4 Publication No. WO 2011-139755 A3 cited the ‘686 Patent application.

5 **j. Microsoft’s published European application number EP 2 564 291**
6 **B1**

7 75. Microsoft’s published European application number EP 2 564 291 B1 cited
8 the ‘686 Patent application under the “references cited” field of Microsoft’s published
9 application.

10 76. Given this extensive knowledge, Microsoft was plainly aware of both the
11 ‘686 Patent and the applicability of the claims of the ‘686 Patent to the Accused Products.
12 As set forth above, Microsoft was indeed actively seeking to patent the very same
13 features described and claimed in the ‘686 Patent and was repeatedly made aware of both
14 the ‘686 Patent and also the breadth and scope of the description and claims of the ‘686
15 Patent. As another example of this, Microsoft’s Pat. No. 10,671,186 explicitly highlights
16 the deficiencies of devices that lack the haptic features that are described and claimed in
17 the ‘686 Patent:

18 “When a person writes on paper with a pen or pencil, the fibrous nature of the
19 paper provides a rough, non-uniform surface with some friction. In contrast,
20 when a person uses a stylus to write on the display screen of a tablet computer,
21 a laptop computer, electronic game, or the signature capture screen of a credit
22 card point of sale device, the surface of the display screen, typically glass, is
23 smooth and almost completely uniform. Typically, the tip of the stylus is also
24 smooth, implying a small and uniform coefficient of friction, and producing a
25 writing experience with very little tactile feedback. Many persons find this
26 lack of tactile feedback impairs the controllability of the stylus, resulting in a
27 writing, signature, or drawing that is distorted with respect to the same
28 writing, signature, or drawing done on paper.”

1 77. Microsoft thereafter explains the advantages and usefulness of devices that
2 include the haptic features described and claimed in the '686 Patent:

3 “[The] autonomous haptic stylus self-determines its velocity across a display
4 screen and vibrates to provide tactile feedback to the person. The stylus can
5 provide velocity-dependent vibrations, or can provide vibrations when the
6 stylus is moving and not provide vibrations when the stylus is not moving.”

7 78. It appears certain that Microsoft's sought to patent the purported inventions
8 disclosed and claimed in the U.S. Pat. No. 10,671,186 to cover the infringing features
9 found in the Accused Products. For example, similarly to the claims of the '686 Patent,
10 claim 1 of Microsoft's '186 patent recites that the device “determine a velocity of the
11 stylus based on the one or more of the plurality of sensor signals responsive to the
12 changes in the physical surface texture of the display screen; and provide the control
13 signal to the actuator based upon the velocity.”

14 79. The disclosure of the '186 patent likewise parrots '686 Patent in describing
15 the patented features described and claimed in the '686 Patent:

16 “As the stylus 100 is drawn across the display screen 150 the sensor 110 (a
17 pressure or force sensor in this example) will output a series of pulses 420. As
18 the width of the bumps 415 is known, and the distance between the bumps
19 415 is known, the duration of a pulse 420 and/or the time between pulses 420
20 can be used to determine the velocity of the stylus 100 across the display
21 screen 150. For example, if the size of a bump 415 is M microns (or some
22 other desired unit of measure of length), and the width of a pulse 420 is W
23 microseconds (or some other desired unit of measure of time), then the speed
24 at which the stylus 100 is moving over the bump 415 is M/W. This
25 information can be used by the processor 115 to simply turn the actuator 135
26 on or off, or can be used by the processor 115 to vary the tactile feedback, for
27 example, as a function of velocity.” '186 Pat., Col. 11, lines 12-26.

28

1 80. In short, Microsoft (a) has long been interested in the technological features
2 described and claimed in the '686 Patent, (b) has long understood the importance of these
3 features and even attempted itself to patent those features, and (c) given Microsoft's
4 extensive and repeated awareness of the '686 Patent, has long been well aware that its
5 Accused Products infringe that patent.

6 81. In view of the facts alleged above, Microsoft's infringement has and
7 continues to be willful, subjecting it to treble damages in accordance with 35 U.S.C. §
8 284 as well as an award to Plaintiff of its attorneys' fees in accordance with 35 U.S.C. §
9 285.

10 **PRAYER FOR RELIEF**

11 WHEREFORE, Plaintiff prays for judgment as follows:

12 a. Declaring that Microsoft has infringed the '686 Patent and that such
13 infringement was willful.

14 b. Awarding damages arising out of Microsoft's infringement of the '686
15 Patent to Plaintiff, together with prejudgment and post-judgment interest, in an amount
16 according to proof.

17 c. As a consequence of Microsoft's willful infringement, trebling the foregoing
18 damages award in accordance with 35 U.S.C. § 284.

19 d. Awarding attorneys' fees to Plaintiff pursuant to 35 U.S.C. § 285 or as
20 otherwise permitted by law.

21 e. Awarding such other costs and further relief as the Court may deem just and
22 proper.

23 Dated: May 17, 2024

ONE LLP

24 By: /s/ Nathaniel L. Dilger
25 Nathaniel L. Dilger
26 Peter R. Afrasiabi
Joseph K. Liu

*Attorneys for Plaintiff,
Haptix Solutions LLC*

DEMAND FOR JURY TRIAL

Plaintiff hereby demands trial by jury of all issues so triable under the law.

Dated: May 17, 2024

ONE LLP

By: /s/ Nathaniel L. Dilger

Nathaniel L. Dilger

Peter R. Afrasiabi

Joseph K. Liu

Attorneys for Plaintiff,

Haptix Solutions LLC

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