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IN THE UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

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| BLACKBERRY LIMITED, a Canadian corporation,<br><br>Plaintiff,<br><br>v.<br><br>FACEBOOK, INC., a Delaware corporation, WHATSAPP INC., a Delaware corporation, and INSTAGRAM, INC., a Delaware corporation<br><br>Defendants. | CASE NO. 2:18-cv-01844<br><br>**COMPLAINT FOR PATENT INFRINGEMENT**<br><br>**JURY TRIAL DEMANDED** |

# COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff BlackBerry Limited ("BlackBerry" or "Plaintiff") hereby asserts the following claims for patent infringement against Defendants Facebook, Inc., WhatsApp Inc., and Instagram, Inc. (collectively, "Defendants"), and alleges as follows:

## SUMMARY

1. ***BlackBerry Pioneers Mobile Messaging*** - BlackBerry has been a leading innovator in the field of mobile communications for the past 30 years, having invested substantial sums into research and development of communications technologies. BlackBerry's innovations led to the commercialization of some of the earliest models of smartphones in the United States, enabling its users to, among other things, send and receive e-mails securely and surf the internet anytime and anywhere. These same innovations prompted the rise of the smartphone as a necessary everyday accessory for businesspersons and ordinary consumers alike.

2. One example of BlackBerry's innovations is the BlackBerry Messenger technology, which revolutionized instant messaging by providing users with secure, user-friendly, point-to-point instant messaging on their mobile devices. In many respects, through BlackBerry Messenger and other research and development, BlackBerry helped pioneer modern mobile messaging—secure, instant and user friendly on a mobile device. The appeal and success of BlackBerry Messenger led consumers to consider instant messaging functionality as an integral aspect of mobile communications, resulting today in billions of people worldwide engaging in instant messaging over their mobile device.

3. As an innovator, BlackBerry took many steps to safeguard this valuable intellectual property. It received numerous patents protecting the cutting-edge features of its mobile phones, BlackBerry Messenger, and other communications applications that make such products secure, easy-to-use, and ultimately engaging to the end-user, thereby driving user growth and retention.

4. ***Facebook and its Companies Later Develop Competing Applications that Improperly Use BlackBerry's Mobile Messaging Intellectual Property*** - Defendants, on the other hand, are relative latecomers to the mobile messaging world. Defendants created mobile messaging applications that co-opt BlackBerry's innovations, using a number of the innovative security, user interface, and functionality enhancing features that made BlackBerry's products such a critical and commercial success in the first place. These include the features covered by the Patents-in-Suit.

5. The Patents-in-Suit cover, for example:

(a) ***Security Improvements***—improved cryptographic techniques that establish and maintain security over user messages and provide the requisite trust necessary for user adoption of a messaging platform for their communication needs;

(b) ***User Interface Improvements For Mobile Devices***—including (i) improvements in message notification techniques that streamline and optimize reception of new message notifications that prevent users from being inundated with numerous messaging notifications, (ii) display of timestamps in a messaging user interface that provides users with appropriate temporal context for their communications without overtaking the user's screen with unnecessary information, and (iii) tagging friends and family in social media photographs;

(c) ***Combining Mobile Gaming And Mobile Messaging***—allowing users to more easily interact while playing electronic games; and

(d) ***Battery Efficient Status Updates for Mobile Devices***—improved techniques for transmitting status updates based on whether a second device is viewing the status updates, to reduce power consumption and improve battery life in mobile devices.

These features, all invented by BlackBerry, are "table stakes" for modern mobile messaging and social networking.

6. Thus, Defendants have used BlackBerry's own intellectual property to compete with it in the mobile messaging space. These applications are ever expanding, including Facebook Messenger, Facebook Messenger Lite, Facebook Pages Manager, Facebook.com and Facebook Workplace Chat, the WhatsApp Messenger application made by WhatsApp Inc., and the Instagram application made by Instagram, Inc. The importance of mobile messaging is emphasized by the reported $19 billion dollars Facebook spent to acquire WhatsApp.

7. ***Defendants' Use of BlackBerry's Mobile Messaging Innovations Harms BlackBerry and Provides Undeserved Windfall to Facebook and its Companies***—Defendants' use of BlackBerry's invention and infringement of the Patents-in-Suit, has succeeded in diverting consumers away from BlackBerry's products and services and toward those of Defendants. This has resulted in a substantial and undeserved windfall for Defendants as these users drive Defendants' revenue. Defendants' gain comes at BlackBerry's expense, depriving BlackBerry of revenue to which it is entitled as a result of its inventions. Through this suit, BlackBerry seeks redress for the harm caused by Defendants' unlawful use of BlackBerry's intellectual property.

## INTRODUCTION TO BLACKBERRY

8. For more than 30 years, BlackBerry has been a leading innovator in the mobile communications industry. BlackBerry's cutting-edge wireless communication products and services have transformed the way people around the world connect, converse, and share digital information.

9. BlackBerry was founded in 1984 in Waterloo, Ontario by two engineering students, Mike Lazaridis and Douglas Fregin. In its early years, the company—then named Research In Motion ("RIM")—focused its inventive energies on wireless data transmission.

10. From its modest beginnings more than 30 years ago, BlackBerry has gone on to offer a portfolio of award-winning products, services, and embedded technologies to tens of millions of individual consumers and organizations around the world, including governments, and educational institutions. By transforming the way people communicate, BlackBerry laid a foundation for today's multibillion-dollar modern smartphone industry. BlackBerry's innovations in mobile communications continue to this day through BlackBerry's award-winning software platform and devices, which enable and manage security, mobility, and communications between and among hardware, programs, mobile applications, and the Internet of Things (IoT).

11. In the course of developing its ground-breaking mobile communications systems, BlackBerry (and the BlackBerry family of companies) has invented a broad array of new technologies that cover everything from enhanced security and cryptographic techniques, to mobile device user interfaces, instant messaging functionality, communication servers, and many other areas. To take just one example, security posed a critical challenge for BlackBerry to address when bringing its mobile devices to market. Commercial acceptance of such mobile devices required providing mechanisms to ensure safe and secure communications so that users and businesses could be confident that their confidential and private information stayed that way in spite of ever increasing threats. Due to its innovative technologies, BlackBerry has been universally recognized as the gold standard when it comes to safe and secure data communications over mobile devices.

12. Throughout its history, BlackBerry has demonstrated a commitment to innovation, including through its investments in research and development, which have totaled more than $5.5 billion over the past decade. BlackBerry has protected the technical innovations resulting from these investments, including through seeking patent protection, and as detailed below, BlackBerry owns rights to an array of patented technologies in the United States.

13. BlackBerry owns United States Patent Nos. 7,372,961, 8,279,173, 8,209,634, 8,301,713, 8,429,236, 8,677,250, and 9,349,120 (collectively, the "Patents-in-Suit"). Defendants infringe the BlackBerry Patents-in-Suit by using, without authorization, BlackBerry's proprietary technologies in a number of their commercial products and services, including, *inter alia*, the Facebook Messenger, WhatsApp Messenger, and Instagram applications, which are marketed, offered and distributed to users of mobile and other devices throughout the United States, including in this District.

14. By this action, BlackBerry seeks to put an end to Defendants' unauthorized use of BlackBerry's patented technologies and to obtain compensation for the harm BlackBerry has suffered.

## NATURE OF THE ACTION

15. This is a civil action for patent infringement under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

16. Defendants have infringed and continue to infringe, and have induced and continue to induce infringement of, one or more claims of BlackBerry's Patents-in-Suit at least by making, using, selling, and/or offering to sell their Facebook.com website, Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, Facebook Pages Manager, WhatsApp Messenger, and Instagram applications for mobile and other devices in the United States, including in this District.

17. BlackBerry is the legal owner by assignment of the Patents-in-Suit, which were duly and legally issued by the United States Patent and Trademark Office ("USPTO"). BlackBerry seeks injunctive relief and monetary damages.

## THE PARTIES

18. Plaintiff BlackBerry Limited is a Canadian company with its principal place of business at 2200 University Avenue East, Waterloo, Ontario, Canada N2K 0A7. BlackBerry Limited is the owner of intellectual property rights at issue in this

action.

19. On information and belief, Defendant Facebook, Inc. ("Facebook") is a Delaware corporation with a principal place of business at 1 Hacker Way, Menlo Park, CA 94025. On information and belief, Facebook maintains offices in Los Angeles, California, operates and owns the website located at www.facebook.com, and markets, offers, and distributes applications such as the Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, and Facebook Pages Manager applications throughout the United States, including in this District.

20. On information and belief, Defendant WhatsApp Inc. ("WhatsApp") is a Delaware corporation and wholly owned subsidiary of Facebook with a principal place of business at 1601 Willow Road, Menlo Park, CA 94025. On information and belief, WhatsApp operates and owns the website located at www.whatsapp.com, and markets, offers, and distributes applications such as the WhatsApp Messenger application throughout the United States, including in this District.

21. On information and belief, Defendant Instagram, Inc. ("Instagram") is a Delaware corporation and wholly owned subsidiary of Facebook with a principal place of business at 1601 Willow Road, Menlo Park, CA 94025. On information and belief, Instagram operates and owns the website located at www.instagram.com, and markets, offers, and distributes applications such as the Instagram application throughout the United States, including in this District.

22. Upon information and belief, each of the Defendants directly and/or indirectly develops, designs, manufactures, distributes, markets, offers to sell and/or sells infringing products and services in the United States, including in the Central District of California, and otherwise purposefully directs infringing activities to this District in connection with the Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, Facebook Pages Manager, WhatsApp Messenger, and Instagram applications.

23. Upon information and belief and as further explained below,

Defendants have been and are acting in concert, and are otherwise liable jointly, severally or otherwise for a right to relief related to or arising out of the same transaction, occurrence or series of transactions or occurrences related to the making, using, selling, offering for sale or otherwise distributing the Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, and Facebook Pages Manager, WhatsApp Messenger, and Instagram applications in this District. In addition, this action involves questions of law and fact that are common to all Defendants.

24. For example, on information and belief, between 2017 and the filing of this Complaint, Facebook migrated the Instagram and WhatsApp messaging services from third party servers onto Facebook's own data centers.[1] Accordingly, Facebook is acting in concert with WhatsApp and Instagram in connection with the provision of their messaging services.

## JURISDICTION AND VENUE

25. This is a civil action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 1 *et seq*.

26. This Court has subject matter jurisdiction over the matters asserted herein under 28 U.S.C. §§ 1331 and 1338(a) and 35 U.S.C. §§ 271 *et seq*.

27. This Court has personal jurisdiction over Facebook, in part because Facebook does continuous and systematic business in this District, including by providing infringing products and services to the residents of the Central District of California that Facebook knew would be used within this District, and by soliciting business from the residents of the Central District of California. For example, Facebook is subject to personal jurisdiction in this Court because, *inter alia*, and

[1] *See, e.g.*, https://www.cnbc.com/2017/06/07/facebook-planning-to-move-whatsapp-off-ibms-public-cloud.html; http://www.datacenterknowledge.com/archives/2017/06/12/report-facebook-to-move-whatsapp-from-ibm-cloud-to-own-data-centers.

upon information and belief, Facebook has a regular and established place of business at its offices in the Central District of California, including the 35,000 sqft Facebook LA Campus in Playa Vista,[2] and elsewhere in the State of California, and directly and through agents regularly does, solicits and transacts business in the Central District of California and elsewhere in the State of California, including through its website at www.facebook.com and its Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, and Facebook Pages Manager applications marketed, offered, and distributed to and utilized by users of computing and mobile devices in this District and throughout the State of California.

28. In particular, Facebook has committed and continues to commit acts of infringement in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, sold, and/or imported infringing products in the State of California, including in this District, and engaged in infringing conduct within and directed at or from this District. For example, Facebook has purposefully and voluntarily placed the Facebook website and Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, and Facebook Pages Manager applications into the stream of commerce with the expectation that its infringing products will be used in this District. The infringing Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, and Facebook Pages Manager applications have been and continue to be distributed to and used in this District. Facebook's acts cause injury to BlackBerry, including within this District.

29. This Court has personal jurisdiction over WhatsApp, in part because WhatsApp does continuous and systematic business in this District, including by

[2] *See* http://www.latimes.com/business/technology/la-fi-tn-facebook-office-20160514-snap-story.html; *see also* https://www.facebook.com/careers/locations/losangeles/.

providing infringing products and services to the residents of the Central District of California that WhatsApp knew would be used within this District, and by soliciting business from the residents of the Central District of California. For example, WhatsApp is subject to personal jurisdiction in this Court because, *inter alia*, and upon information and belief, WhatsApp has a regular and established place of business in the State of California, including on information and belief through the employment of individuals within this judicial district, and directly and through agents regularly does, solicits and transacts business in the Central District of California and elsewhere in the State of California, including through its website at www.whatsapp.com and its WhatsApp Messenger application marketed, offered, and distributed to and utilized by users of mobile devices in this District and throughout the State of California.

30. In particular, WhatsApp has committed and continues to commit acts of infringement in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, sold, and/or imported infringing products in the State of California, including in this District, and engaged in infringing conduct within and directed at or from this District. For example, WhatsApp has purposefully and voluntarily placed the WhatsApp Messenger application into the stream of commerce with the expectation that its infringing product will be used in this District. The infringing WhatsApp Messenger application has been and continues to be distributed to and used in this District. WhatsApp's acts cause injury to BlackBerry, including within this District.

31. This Court has personal jurisdiction over Instagram, in part because Instagram does continuous and systematic business in this District, including by providing infringing products and services to the residents of the Central District of California that Instagram knew would be used within this District, and by soliciting business from the residents of the Central District of California. For example, Instagram is subject to personal jurisdiction in this Court because, *inter alia*, and

upon information and belief, Instagram has a regular and established place of business in the State of California, including on information and belief through the employment of individuals within this judicial district, and directly and through agents regularly does, solicits and transacts business in the Central District of California and elsewhere in the State of California, including through its website at www.instagram.com and its Instagram application marketed, offered, and distributed to and utilized by users of mobile devices in this District and throughout the State of California.

32. In particular, Instagram has committed and continues to commit acts of infringement in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, sold, and/or imported infringing products in the State of California, including in this District, and engaged in infringing conduct within and directed at or from this District. For example, Instagram has purposefully and voluntarily placed the Instagram application into the stream of commerce with the expectation that its infringing product will be used in this District. The infringing Instagram application has been and continues to be distributed to and used in this District. Instagram's acts cause injury to BlackBerry, including within this District.

33. Venue is proper in this District under the provisions of 28 U.S.C. §§ 1391 and 1400(b) at least because a substantial part of the events or omissions giving rise to the claims occurred in this judicial district, and because Defendants have committed acts of infringement in this District and have a regular and established place of business in this District.

34. In particular, on information and belief, Facebook has a regular and established place of business at its 35,000 square foot Facebook Los Angeles

Campus, located in Playa Vista, CA.[3] On further information and belief, WhatsApp and Instagram employ engineers and/or other personnel within this district, including personnel at Facebook facilities in this district.[4]

35. On information and belief, WhatsApp and Instagram are wholly owned subsidiaries of Facebook. On information and belief, Facebook does not separately report revenue from Instagram or WhatsApp in its filings to the Securities Exchange Commission, but rather reports combined revenue from its various products including Facebook, WhatsApp, and Instagram. Market analysis indicates that Facebook, WhatsApp, and Instagram and their respective products are viewed in the market as an integrated package with each of the products benefiting from substantial network effects.[5]

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[3] *See* http://www.latimes.com/business/technology/la-fi-tn-facebook-office-20160514-snap-story.html; *see also* https://www.facebook.com/careers/locations/losangeles/.

[4] www.LinkedIn.com identifies at least 17 people in this District that are dually employed by both Facebook and one of WhatsApp or Instagram.

[5] *See* https://www.marketwatch.com/story/the-youtube-and-instagram-secret-that-google-and-facebook-dont-want-you-to-know-2018-01-26 ("For some analysts, the question of breaking out revenue for Instagram is moot, however, because the company essentially sells ads for Facebook and Instagram as a single package. . . ."); http://markets.businessinsider.com/news/stocks/facebook-stock-price-analyst-interview-2017-8-1002276065 ("More and more people are spending more of their daily waking hours on Facebook. We estimate that across Facebook's different properties - Facebook.com, WhatsApp, Messenger, and Instagram - users spend on average close to an hour every day. That metric was a lot lower two or three years ago. By having people spend more time on the sites or apps, they're obviously consuming more content, more pages, and giving Facebook the ability to monetize against that content and pages."); http://corporate1.morningstar.com/Documents/UK/Products/Equity-Research-Services/FB_US_20160728/ ("Now that Facebook has emerged as the clear-cut social media leader, we believe that the company's offerings, consisting mainly of Facebook, Instagram, Messenger, and WhatsApp, have further strengthened network

(Continued . . .)

36. On further information and belief, Facebook not only "owns," but also "operates" both Instagram and WhatsApp, such operation including the cooperative development, improvement, and/or support of their respective services.[6] For example, on information and belief, Facebook "shares information about" Facebook's users with Instagram and WhatsApp "to facilitate, support and integrate [Instagram's and WhatsApp's] activities and improve our services."[7] Likewise, Instagram has been "collaborating with Facebook's team" to "build a better Instagram for you," including "shar[ing] insights and information with each other [to] build better experiences for our users."[8] Similarly, "[a]s part of the Facebook family of companies, WhatsApp receives information from, and shares information with, this family of companies [including Facebook]. We may use the information we receive from them, and they may use the information we share with them, to help operate, provide, improve, understand, customize, support, and market our Services and their offerings."[9] On further information and belief, Facebook, WhatsApp, and Instagram have endeavored to integrate their products with each other from a technical standpoint including, but not limited to: Instagram allowing users to double-post Instagram stories directly to Facebook from the Instagram app;[10] Facebook offering a unified messages inbox that lets businesses see and reply

(. . . continued)
effects for the firm, where all of these platforms become more valuable to its users as people both join the networks and use these services.").

[6] *See* https://www.facebook.com/help/111814505650678.

[7] *See* https://www.facebook.com/help/111814505650678.

[8] *See* https://help.instagram.com/155833707900388.

[9] *See* https://www.whatsapp.com/legal/; https://blog.whatsapp.com/10000627/Looking-ahead-for-WhatsApp.

[10] *See* https://techcrunch.com/2017/10/04/instaface/.

to their Facebook, Messenger, and Instagram interactions in one place;[11] Facebook, Messenger, and Instagram providing cross-application notifications;[12] and Facebook providing features allowing users to click a button on a business's Facebook page to open a WhatsApp chat with that business.[13]

## FACTS COMMON TO ALL CLAIMS

### BlackBerry's Innovation and Industry Recognition

37. BlackBerry is a global leader in the mobile communications industry. Through its significant investment in research and development over the past 30 years, BlackBerry has developed innovative, cutting-edge technologies that have changed the face of telecommunications. In particular, BlackBerry has developed key innovations in the way mobile devices and communications software interact with and receive input from users. BlackBerry's innovations in messaging and UI development improved the speed and accuracy with which users could perform various tasks on their mobile devices.

38. In the late 1990s, BlackBerry began to release a series of game-changing handheld mobile devices that enabled users to send and receive email and messages on the go, without needing to be tethered to a modem or a desktop computer. The innovative nature of the 1998 RIM 950 Wireless Handheld, for example, was instantly recognized, garnering both an Editor's Choice Award from CNET and Andrew Seybold's Outlook Award. In particular, the press praised the RIM 950's keyboard for its advanced ergonomic features, including an easy-to-type-on keyboard layout despite the device's miniature size.

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[11] *See* https://www.engadget.com/2016/11/15/facebook-and-instagram-unified-business-inbox/.

[12] *See* https://www.cnet.com/news/facebook-messenger-instagram-cross-notifications/; https://techcrunch.com/2017/05/18/instafacemess/.

[13] *See* https://techcrunch.com/2017/12/13/click-to-whatsapp-messaging-buttons-are-now-rolling-out-in-facebook-ads/.

39. In 2002, BlackBerry released the BlackBerry 6710 and 6720 – the first BlackBerry devices capable of both sending emails and making phone calls, and some of the earliest smartphones released in the United States. The next year, BlackBerry introduced smartphone models that added built-in audio hardware and color screens. Since those early smartphones, BlackBerry has continued to offer handheld wireless products incorporating its proprietary technologies in security, communications, mobile device user interfaces, and other areas.

40. In 2005, BlackBerry introduced the innovative BlackBerry Messenger (or "BBM") application, which revolutionized the concept of instant messaging. BBM provided the first form of point-to-point communications that was instant, cross-carrier, and mobile. The developers of BBM further incorporated a well-designed graphical user interface and other innovative features not utilized by messaging platforms at that time. For example, BBM has been credited as the first messaging platform to enable status updates showing when messages were Delivered and Read by users, which created a pioneering sense of real-time presence that is now standard in many instant messaging applications. Additionally, BBM's unique platform has allowed users to communicate even when traditional forms of cell communication were incapacitated, such as during the Chilean earthquake in 2010.[14]

41. Over the years, BlackBerry continued to develop and improve successive versions of BBM by introducing features such as GPS positioning, connected applications, voice chat, private chat, and many other features. As a result, BBM has been widely downloaded and is popular among users of all platforms, including Android and iOS. Indeed, more than 5 million people

[14] *See, e.g.*, https://www.cio.com/article/2420175/blackberry-phone/blackberry-messenger--bbm--keeps-chilean-quake-affected-connected.html; http://www.nytimes.com/2001/09/20/technology/the-right-connections-the-simple-blackberry-allowed-contact-when-phones-failed.html.

downloaded BBM within 8 hours of the release of its Android and iOS versions in October 2013. By March 4, 2015, the Android version of BBM had reached 100 million Google Play installs. BBM also enjoys strong user loyalty, with studies finding that 82% of BBM's Android users continue using the application 90 days after installation. Only Facebook and WhatsApp—which unlawfully utilize many of BBM's patented features—have similar user retention figures.

42. Each successive iteration of BlackBerry's wireless devices and technologies have received significant unsolicited coverage in the media. For example, GSMA—the largest and most well-known association of mobile operators—recognized BlackBerry and its communication technologies as "chang[ing] the face of corporate communication." Thomson Reuters named BlackBerry one of the World's Top 100 Most Innovative Organizations, based largely on the number of "important patents" owned by BlackBerry. In 2015, Forrester Research crowned BlackBerry as a "leader in mobile management" based on BlackBerry's focus in security software and mobile solutions.

43. BlackBerry's handheld devices and communications technologies have garnered widespread industry acclaim for both their unique design and their performance. For example, BlackBerry mobile devices have garnered dozens of industry awards, including the GSMA Chairman's Award, InfoWorld Magazine's Product of the Year Award, PC World's World Class Award, the Network Industry Award for Best New Mobile Communications Product, the BusinessWeek Best Product of the Year Award, Digit Magazine's "World's Best Mobile OS" Award, Security Products "Govies" Government Security Award, and PC Magazine's Best Products of the Year Award. BBM in particular has been recognized for its innovations in mobile messaging, being awarded "Superstar" distinction from the 2014 Mobile Star Awards in the Mobile Messaging or Email category, the Indonesia Golden Ring Award for Best Mobile Social Media, and the ICA 2014 Award for Best Mobile Chat App.

44. BlackBerry's more recent innovations have garnered similar industry acclaim. For example, in 2015 BlackBerry's Passport was awarded the prestigious Red Dot "Best of the Best" award for innovative product design (from thousands of total entries); BlackBerry and BBM were recognized with the Mobile Marketing Association's "Smartie" Award for 2015 Publisher/Media Company of the Year in Mobile; and BlackBerry's PRIV was awarded the Red Dot "Design Award" for best product design in 2016.

**BlackBerry's Patents**

45. U.S. Patent No. 7,372,961 ("'961 Patent") is entitled "Method of public key generation," and was issued on May 13, 2008. A true and correct copy of the '961 Patent is attached as Exhibit A.

46. The '961 Patent was filed on Dec. 26, 2001 as U.S. Patent Application No. 10/025,924 and claims priority to Canadian Patent Appl. No. 2,329,590 filed Dec. 27, 2000.

47. BlackBerry Limited is the owner of all rights, title, and interest in and to the '961 Patent, with the full and exclusive right to bring suit to enforce the '961 Patent, including the right to recover for past infringement.

48. The '961 Patent is valid and enforceable under United States Patent Laws.

49. U.S. Patent No. 8,209,634 ("'634 Patent") is entitled "Previewing a new event on a small screen device," and was issued on Jun. 26, 2012. A true and correct copy of the '634 Patent is attached as Exhibit B.

50. The '634 Patent was filed on Feb. 24, 2004 as U.S. Patent Application No. 10/784,781 and claims the benefit of U.S. Provisional Patent Application No. 60/525,958 filed Dec. 1, 2003.

51. BlackBerry Limited is the owner of all rights, title, and interest in and to the '634 Patent, with the full and exclusive right to bring suit to enforce the '634 Patent, including the right to recover for past infringement.

52. The ’634 Patent is valid and enforceable under United States Patent Laws.

53. U.S. Patent No. 8,279,173 (“’173 Patent”) is entitled “User interface for selecting a photo tag,” and was issued on Oct. 2, 2012. A true and correct copy of the ’173 Patent is attached as Exhibit C.

54. The ’173 Patent was filed on Oct. 4, 2011 as U.S. Patent Application No. 13/252,807 and is a continuation of U.S. Patent Application No. 11/746,285 filed May 9, 2007, which issued as U.S. Patent No. 8,031,170.

55. BlackBerry Limited is the owner of all rights, title, and interest in and to the ’173 Patent, with the full and exclusive right to bring suit to enforce the ’173 Patent, including the right to recover for past infringement.

56. The ’173 Patent is valid and enforceable under United States Patent Laws.

57. U.S. Patent No. 8,301,713 (“’713 Patent”) is entitled “Handheld electronic device and associated method providing time data in a messaging environment,” and was issued on Oct. 30, 2012. A true and correct copy of the ’713 Patent is attached as Exhibit D.

58. The ’713 Patent was filed on May 19, 2011 as U.S. Patent Application No. 13/111,675 and is a continuation of U.S. Patent Application No. 10/944,925 filed Sept. 20, 2004, which issued as U.S. Patent No. 7,970,849, and claims the benefit of U.S. Provisional Patent Application No. 60/504,379 filed Sept. 19, 2003.

59. BlackBerry Limited is the owner of all rights, title, and interest in and to the ’713 Patent, with the full and exclusive right to bring suit to enforce the ’713 Patent, including the right to recover for past infringement.

60. The ’713 Patent is valid and enforceable under United States Patent Laws.

61. U.S. Patent No. 8,429,236 (“’236 Patent”) is entitled “Transmission of status updates responsive to status of recipient application,” and was issued on Apr.

23, 2013. A true and correct copy of the '236 Patent is attached as Exhibit E.

62. The '236 Patent was filed on Dec. 23, 2009 as U.S. Patent Application No. 12/645,873 and claims the benefit of U.S. Provisional Patent Application No. 61/167,772 filed Apr. 8, 2009.

63. BlackBerry Limited is the owner of all rights, title, and interest in and to the '236 Patent, with the full and exclusive right to bring suit to enforce the '236 Patent, including the right to recover for past infringement.

64. The '236 Patent is valid and enforceable under United States Patent Laws.

65. U.S. Patent No. 8,677,250 ("'250 Patent") is entitled "System and method for switching between an instant messaging conversation and a game in progress," and was issued on Mar. 18, 2014. A true and correct copy of the '250 Patent is attached as Exhibit F.

66. The '250 Patent was filed on Dec. 7, 2010 as U.S. Patent Application No. 12/962,405 and is a continuation of U.S. Patent Application No. 11/537,047 filed Sept. 29, 2006, which issued as U.S. Patent No. 7,861,175.

67. BlackBerry Limited is the owner of all rights, title, and interest in and to the '250 Patent, with the full and exclusive right to bring suit to enforce the '250 Patent, including the right to recover for past infringement.

68. The '250 Patent is valid and enforceable under United States Patent Laws.

69. U.S. Patent No. 9,349,120 ("'120 Patent") is entitled "System and method for silencing notifications for a message thread," and was issued on May 24, 2016. A true and correct copy of the '120 Patent is attached as Exhibit G.

70. The '120 Patent was filed on Feb. 26, 2010 as U.S. Patent Application No. 12/713,577 and claims priority to U.S. Provisional Appl. No. 61/167,542 filed Apr. 8, 2009.

71. BlackBerry Limited is the owner of all rights, title, and interest in and

to the '120 Patent, with the full and exclusive right to bring suit to enforce the '120 Patent, including the right to recover for past infringement.

72. The '120 Patent is valid and enforceable under United States Patent Laws.

**Defendants' Use of BlackBerry's Patented Technologies**

73. On information and belief, Facebook released the Facebook Messenger application on August 9, 2011, more than six years after BlackBerry's release of BlackBerry Messenger ("BBM").[15] On information and belief, Facebook subsequently released the Pages Manager application in 2012, and the Messenger Lite and Workplace Chat applications in 2017.[16] Additionally, WhatsApp and Instagram released the first versions of their applications in 2009 and 2010, respectively—nearly four and five years after BBM was released, respectively.[17]

74. By the time Defendants had released even the first (and simplest) versions of their respective messaging applications, BlackBerry had already invented most of the technologically innovative messaging application functionalities at issue in this action. Indeed, most of these innovations were already being utilized by users of BlackBerry's smartphones, which represented more than half of the U.S. market in 2009 and came with BBM installed.[18] Industry

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[15] *See, e.g.*, https://www.cnet.com/news/facebook-chat-begins-to-roll-out/; https://techcrunch.com/2011/08/09/facebook-launches-standalone-mobile-messenger-app-and-it%E2%80%99s-beluga/.

[16] *See, e.g.*, https://techcrunch.com/2017/10/02/facebook-lite-us-uk-canada-ireland/ (Facebook Messenger Lite released on or around October 2017); https://www.engadget.com/2017/10/26/facebook-opens-its-workplace-chat-desktop-app-to-everyone/ (same for Facebook Workplace Chat); https://www.cnet.com/how-to/getting-started-with-facebook-pages-manager-for-ios/ (Facebook Pages Manager released on or around May 2012);

[17] *See, e.g.*, http://www.wired.co.uk/article/whatsapp-exclusive; https://techcrunch.com/2010/10/06/instagram-launch/.

[18] *See* http://money.cnn.com/2009/06/17/technology/rim_blackberry_preview/.

commentators at the time noted the success of BBM, including with consumer audiences such as "[t]eens, for instance, [who] love BlackBerry Messenger, RIM's proprietary instant messaging feature." *See* http://archive.fortune.com/2009/08/12/technology/blackberry_research_in_motion.fortune/index.htm. The consumer demand and appreciation for BlackBerry's innovative messaging application functionalities was further evidenced in 2013, when BlackBerry released the first versions of BBM for Apple's iOS and Google's Android mobile device platforms and recorded over 5 million downloads of BBM within the first 8 hours of being made available. *See* https://9to5mac.com/2013/10/21/blackberry-announces-5-million-downloads-of-bbm-for-ios-and-android-only-8-hours-after-release/. In just two years, BBM had been installed in over 100 million Android devices alone. *See* http://blogs.blackberry.com/2015/03/bbm-hits-100m-google-play-installs/.

75. Seizing on the success of BBM and demand for consumer messaging platforms featuring BlackBerry's innovative features and functionalities, Defendants have developed and released their respective infringing messaging applications that incorporate and unlawfully utilize BlackBerry's patented technologies, including, without limitation, Facebook and Facebook Messenger for Android and iOS devices, WhatsApp Messenger for Android and iOS devices, and Instagram for Android and iOS devices, as well as the Facebook website (www.facebook.com).

76. On information and belief, Defendants market, offer, and distribute the infringing Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, and Facebook Pages Manager, WhatsApp Messenger, and Instagram applications in and within the United States, including through distribution platforms such as the Apple iTunes App Store and the Google Android Play Store, as well as their own websites, www.facebook.com, www.messenger.com, www.whatsapp.com, and www.instagram.com.

77. On information and belief, the accused applications and websites are an

important part of Facebook's offerings in the United States and are the primary or only product or service offered by WhatsApp and Instagram, which were acquired by Facebook for approximately $19 billion and $1 billion, respectively.[19]

78. On information and belief, Defendants encourage users of mobile and computing devices such as mobile phones and desktop and laptop computers in the United States to download and use the infringing applications and websites, and such users do so download and use the infringing applications and websites in the manner Defendants intend such applications and websites to be used.

79. On information and belief, Defendants have also designed, developed, tested, and used the infringing applications in and within the United States.

**COUNT I: INFRINGEMENT OF U.S. PATENT NO. 7,372,961**

80. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

**The '961 Patent**

81. The '961 Patent discloses, among other things, "key generation technique[s for public key cryptosystems] in which any bias is eliminated during the selection of the key." '961 Patent at 3:1-3.

82. As the '961 Patent explains, public key cryptosystems are used to protect and provide security for data communication systems. Specifically, "[s]uch systems use a private key k and a corresponding public key $\alpha^k$ where α is a generator of the group. Thus one party may encrypt a message m with the intended recipients public key and the recipient may apply his private key to decrypt it." *Id.* at 1:12-16.

83. More particularly, such public key cryptosystems can "be used to sign messages to authenticate the author and/or the contents. In this case the sender will sign a message using his private key and a recipient can verify the message by

[19] *See, e.g.*, https://newsroom.fb.com/news/2014/02/facebook-to-acquire-whatsapp/; https://newsroom.fb.com/news/2012/04/facebook-to-acquire-instagram/.

applying the public key of the sender. If the received message and the recovered message correspond then the authenticity is verified." *Id.* at 1:26-32.

84. As the '961 Patent notes, "the security of such systems … depend[s] on the private key remaining secret." *Id.* at 1:37-38. Thus, one prevalent set of protocols to provide for the secrecy of the private key "use[s] a pair of private keys and corresponding public keys, referred to as long term and short term or ephemeral key pairs respectively. The ephemeral private key is generated at the start of each session between a pair of correspondents, usually by a random number generator. The corresponding, ephemeral public key is generated and the resultant key pair used in one of the possible operations described above. The long-term public key is utilized to authenticate the correspondent through an appropriate protocol. Once the session is terminated, the ephemeral key is securely discarded and a new ephemeral key generated for a new session." *Id.* at 1:37-50.

85. However, the '961 Patent also explains the potential weakness in such public key based cryptosystems, even those which use both ephemeral keys to help maintain the secrecy of the long term private key: "if an ephemeral key k and the associated message m and signature (r,s) is obtained it may be used to yield the long term private key d and thereafter each of the ephemeral keys k can be obtained." *Id.* at 2:24-27.

86. While the commonly used methods for generating and verifying digital signatures (Digital Signature Algorithm, or "DSA" and Elliptic Curve DSA, or "ECDSA"), did not "inherently disclose any information about the public key k," the '961 Patent noted that the implementation "may be done in such a way as to inadvertently introduce a bias in to the selection of k. This small bias may be exploited to extract a value of the private key d and thereafter render the security of the system vulnerable" and potentially insecure. *Id.* at 2:27-29, 33-37.

87. In particular, as the '961 Patent notes, the prevailing government standard at the time governing the generation and verification of digital signatures,

the FIPS 186-2 Standard (promulgated by the National Institute of Standards and Technology ("NIST")), suffered from this very problem, *i.e.*, using the algorithm specified in the FIPS 186-2 standard resulted in "more values [lying in the] first interval than the second and therefore there is a potential bias in the selection of k." *Id.* at 2:36-55. This bias could be used by hackers to obtain the private key and therefore render the cryptographic system ineffective. Thus, the inventors of the '961 Patent developed "a key generation technique in which any bias is eliminated during the selection of the key," resulting in a more secure key generation technique. *Id.* at 3:1-3.

88. The '961 Patent further describes the type of cryptographic systems that are used to generate such keys in a manner which eliminates bias during the selection of the key. As explained therein, a pair of correspondents are exchanging messages for which the parties wish to maintain security. The correspondents "may be computer terminals, point-of-sale devices, automated teller machines, constrained devices such as PDA's, cellphones, pagers or any other device enabled [f]or communication over a link 16." *Id.* at 3:28-32. The correspondents are "connected by a communication link 16," which "may be a dedicated link, a multipurpose link such as a telephone connection or a wireless link depending on the particular applications." *Id.* at 3:24-28.

89. In some embodiments, to perform the key generation techniques disclosed in the '961 Patent, "[e]ach of the correspondents 12, 14 includes a secure cryptographic function 20 including a secure memory 22, an arithmetic processor 24 for performing finite field operations, a random number generator 26 and a cryptographic hash function 28 for performing a secure cryptographic hash.… [E]ach of these functions is controlled by a processor executing instructions to provide functionality and inter-operability as is well known in the art." *Id.* at 3:33-44. Further, the "secure memory 22 includes a register 30 for storing a long-term private key, d, and a register 32 for storing an ephemeral private key k." *Id.* at 3:45-

47.

90. The '961 Patent discloses several variations of the anti-bias key generation methods claimed therein. In a first such method, the "cryptographic function is performed over a group of order q, where q is a prime represented as a bit string of predetermined length L." *Id.* at 3:67 - 4:2. In order to generate the ephemeral key, k, the system first "obtain[s] a seed value (SV) from the random number generator 26." *Id.* at 3:64-66. Next the system applies a hash function 28 to the seed value to generate an output of L bits. *See id.* at 4:6-10.

91. To confirm that the hashed seed value is acceptable to use in generating the ephemeral key (*e.g.*, will not result in a potential bias), the hashed seed value "is tested against the value of q and a decision made based on the relative values. If H(seed)<q then it is accepted for use as k. If not, the value is rejected and a new value is generated, which is again hashed by the function 28 and tested. This loop continues until a satisfactory value is obtained." *Id.* at 4:11-17.

92. The '961 Patent further discloses alternative embodiments which use different mechanisms for generating the seed value, which (i) also compare the seed value to the order q to determine if the seed value is satisfactory, or (ii) "use a low Hamming weight integer obtained by combining the output of the random number generator 26" (as disclosed in Canadian Patent No. 2,217,925). *See id.* at 4:18-5:25.

93. In view of the historical context and development of key generation methodologies for long term and ephemeral keys in the context of cryptographic systems, discussed below, a person of ordinary skill in the art would have understood that the inventions of the '961 Patent provide unconventional solutions to solve the problems they address.

**The Inventions Claimed in the '961 Patent Were Not Well-Understood, Routine, or Conventional**

94. Using a comparison of a seed value generated using a random number generator whose output has been subject to a hashing function, or a low weight

hamming function, to determine if a seed value would not result in a bias in connection with the selection of an ephemeral key was not common or conventional at the time of invention of the '961 Patent.

95. As explained in the '961 Patent, public key cryptosystems were used to protect and maintain as secret data that parties wanted to share over electronic communication systems. Indeed, the importance of developing and standardizing the use of "advanced, dynamic, robust, and effective information security solutions … for the protection of critical information infrastructures" was recognized by the federal government through the Federal Information Security Management Act of 2002 (44 U.S.C. § 3541 et seq., "FISMA").

96. In seeking to promote the protection of such, FISMA provided for "a comprehensive framework for ensuring the effectiveness of information security controls over information resources that support Federal operations and assets, … development and maintenance of minimum controls required to protect Federal information and information systems; [and] a mechanism for improved oversight of Federal agency information security programs." 44 U.S.C. § 3541.

97. Pursuant to FISMA, the federal government, in conjunction with the National Institute of Standards and Technology (NIST), the NSA, and leading cryptographic experts, developed a number of standards, referred to as Federal Information Processing Standards (FIPS) standards, in order to establish requirements for various purposes such as ensuring computer security and interoperability. Specifically, "NIST develops FIPS when there are compelling federal government requirements such as for security and interoperability and there are no acceptable industry standards or solutions."[20]

98. In particular, the FIPS 186-2 standard was directed to digital signature

[20] NIST FIPS General Information, *available at* https://www.nist.gov/information-technology-laboratory/fips-general-information (last visited January 17, 2018).

generation and verification:

> the Digital Signature Algorithm (DSA) is a Federal Information Processing Standard for digital signatures. It was proposed by the National Institute of Standards and Technology (NIST) in August 1991 for use in their Digital Signature Standard (DSS) and adopted as FIPS 186 in 1993. … This standard specifies a suite of algorithms which can be used to generate a digital signature. Digital signatures are used to detect unauthorized modifications to data and to authenticate the identity of the signatory. In addition, the recipient of signed data can use a digital signature in proving to a third party that the signature was in fact generated by the signatory. This is known as nonrepudiation since the signatory cannot, at a later time, repudiate the signature.[21]

99. Thus the FIPS 186-2 standard was the *de facto* method of implementing DSA in cryptographic systems used to communicate with the federal government, and was intended to provide sufficient security for confidential information exchanged with the government.

100. However, at the time of the '961 Patent inventions, cryptographer Daniel Bleichenbacher discovered a problem with this standard: the mechanisms specified in FIPS 186-2 to generate keys "introduce[d] sufficient bias in to the selection of k that an examination of $2^{22}$ signatures could yield the private key d in 264 steps using $2^{40}$ memory units," *i.e.*, such that third parties could potentially discover the public key. '961 Patent at 2:56-59.

101. This issue was further brought to the attention of the IEEE P1363 Working Group, which was the key industry standard group for promulgating standard specifications for public-key cryptography. The Working Group "considered the attack to be significant enough to warrant including a security note on DL signatures indicating that it is desirable to eliminate any bias in the key

[21] FIPS PUB 186-2, Digital Signature Standard (DSS) (Jan. 27, 2000) at Foreword, Abstract.

generation method for one-time keys in order to prevent attacks such as the one proposed by Bleichenbacher."[22]

102. Thus, as of the time of the '961 Patent inventions, the prevailing government standard for DSA suffered from a noted security risk. The inventors of the '961 Patent provided innovative solutions to this problem by eliminating bias in the selection of the ephemeral key through the various methods described above.

103. As noted above, the '961 Patent is drawn to solving a specific, technical problem arising in the context of key generation in cryptographic communication between data communication systems. Consistent with the problem addressed being rooted in such computer-based data communication systems, the '961 Patent's solutions naturally are also rooted in that same technology that cannot be performed with pen and paper or in the human mind.

104. Given the state of the art at the time of the invention of the '961 Patent, including the deficiencies in prevailing cryptography standards of the time, the inventive concepts of the '961 Patent cannot be considered to be conventional, well-understood, or routine. The '961 Patent discloses, among other things, an unconventional solution to an issue arising in the context of cryptographic communication between data communication systems (such as computer terminals, point of sale devices, automated teller machines, PDAs, cellphones, and pagers), and offered a technological solution to that issue resulting in computing devices with improved security, including by introducing novel elements directed to improving the function and working of computing devices such as, *inter alia*, the claimed "if said output H(SV) is rejected, repeating said method [of generating a seed value SV from a random number generator; performing a hash function H( ) on said seed

[22] November 2000 Meeting Minutes, IEEE 1363 Working Group, *available at* http://grouper.ieee.org/groups/1363/WorkingGroup/minutes/Nov00.txt (last visited January 17, 2018).

value SV to provide an output H(SV); determining whether said output H(SV) is less than said order q prior to reducing mod q; accepting said output H(SV) for use as said key k if the value of said output H(SV) is less than said order q; rejecting said output H(SV) as said key if said value is not less than said order q]" (claims 15 and 23).

105. The '961 Patent claims cannot be performed in the human mind or by using pen and paper. As noted above, the '961 Patent expressly states that it is drawn to address a specific, technical problem arising in the context of cryptographic communication between data communication systems. *See id.* at 2:56-3:3.

106. Consistent with the problem addressed being rooted in cryptographic communication between data communication systems, the '961 Patent's solutions naturally are also rooted in that same technology that cannot be performed with pen and paper or in the human mind.

107. This technical context is reflected in the '961 Patent's claims. For example, various claims of the '961 Patent require a random number generator to generate a seed value, as well as a cryptographic unit and an arithmetic processor.

108. A person having ordinary skill in the art at the time of the inventions of the '961 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the '961 Patent and the problem it was specifically designed to address. Doing so would also run counter to the inventors' detailed description of the inventions and the language of the claims and be a practical impossibility.

**'961 Patent Allegations**

109. Defendant Facebook has infringed and is infringing, either literally or under the doctrine of equivalents, the '961 Patent in violation of 35 U.S.C. § 271 et seq., directly and/or indirectly, by making, using, offering for sale/lease, selling or

leasing in the United States, and/or importing into the United States without authority or license, products that support (i) "private key generation" for generating and sharing a public key (and including, but not limited to, encrypting messages sent to Facebook servers using Transport Layer Security) that includes or supports OpenSSL and the OpenSSL elliptic curve cryptography ("EC") library, including the Facebook Messenger application, and related Facebook backend servers and systems (hereinafter "the '961 Accused Products") that infringe at least claims 15 and 23 of the '961 Patent.

110. As shown below, the Facebook Messenger application uses a public key derived from the private key when ECDHE key agreement is performed as part of initiating a secure connection with a Facebook server.

111. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 15 of the '961 Patent in connection with the '961 Accused Products. This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information about the '961 Accused Products that it obtains during discovery.

*1(a) A computer readable medium comprising computer executable instructions for generating a key k for use in a cryptographic function performed over a group of order q, said instructions including instructions for:* - Facebook makes and uses the '961 Accused Products. Regardless of whether the preamble of claim 15 adds any substantive limitation to the claim, the claim language is met by the '961 Accused Products, which, on information and belief after reasonable investigation, comprise a computer readable medium comprising computer executable instructions for generating a key k for use in a cryptographic function performed over a group of order q, as further described below for the remaining claim limitations.

*1(b) generating a seed value SV from a random number generator:*

OpenSSL: crypto/rand/md_rand.c

```
/* random number r:  0 <= r < range */
static int bn_rand_range(int pseudo, BIGNUM *r, const BIGNUM *range)
{
    int (*bn_rand) (BIGNUM *, int, int, int) =
        pseudo ? BN_pseudo_rand : BN_rand;
    int n;
    int count = 100;

    if (range->neg || BN_is_zero(range)) {
        BNerr(BN_F_BN_RAND_RANGE, BN_R_INVALID_RANGE);
        return 0;
    }

    n = BN_num_bits(range);     /* n > 0 */

    /* BN_is_bit_set(range, n - 1) always holds */

    if (n == 1)
        BN_zero(r);
    else if (!BN_is_bit_set(range, n - 2) && !BN_is_bit_set(range, n - 3)) {
        /*
         * range = 100..._2, so 3*range (= 11..._2) is exactly one bit longer
         * than range
         */
        do {
            if (!bn_rand(r, n + 1, -1, 0))
                return 0;
            /*
             * If r < 3*range, use r := r MOD range (which is either r, r -
             * range, or r - 2*range). Otherwise, iterate once more. Since
             * 3*range = 11..._2, each iteration succeeds with probability >=
             * .75.
             */
            if (BN_cmp(r, range) >= 0) {
                if (!BN_sub(r, r, range))
                    return 0;
                if (BN_cmp(r, range) >= 0)
                    if (!BN_sub(r, r, range))
                        return 0;
            }

            if (!--count) {
                BNerr(BN_F_BN_RAND_RANGE, BN_R_TOO_MANY_ITERATIONS);
                return 0;
            }

        }
        while (BN_cmp(r, range) >= 0);
```

*1(c) performing a hash function H( ) on said seed value SV to provide an output H(SV);*

OpenSSL: crypto/rand/md_rand.c

```
int ssleay_rand_bytes(unsigned char *buf, int num, int pseudo, int lock)
{
```

```
    /*
     * (Based on the rand(3) manpage:)
     *
     * For each group of 10 bytes (or less), we do the following:
     *
     * Input into the hash function the local 'md' (which is initialized from
     * the global 'md' before any bytes are generated), the bytes that are to
     * be overwritten by the random bytes, and bytes from the 'state'
     * (incrementing looping index). From this digest output (which is kept
     * in 'md'), the top (up to) 10 bytes are returned to the caller and the
     * bottom 10 bytes are xored into the 'state'.
     *
     * Finally, after we have finished 'num' random bytes for the
     * caller, 'count' (which is incremented) and the local and global 'md'
     * are fed into the hash function and the results are kept in the
     * global 'md'.
     */

    while (num > 0) {
        /* num_ceil -= MD_DIGEST_LENGTH/2 */
        j = (num >= MD_DIGEST_LENGTH / 2) ? MD_DIGEST_LENGTH / 2 : num;
        num -= j;
        if (!MD_Init(&m))
            goto err;
#ifndef GETPID_IS_MEANINGLESS
        if (curr_pid) {         /* just in the first iteration to save time */
            if (!MD_Update(&m, (unsigned char *)&curr_pid, sizeof curr_pid))
                goto err;
            curr_pid = 0;
        }
#endif
        if (!MD_Update(&m, local_md, MD_DIGEST_LENGTH) ||
            !MD_Update(&m, (unsigned char *)&(md_c[0]), sizeof(md_c)))
            goto err;

#ifndef PURIFY                  /* purify complains */
        /*
         * The following line uses the supplied buffer as a small source of
         * entropy: since this buffer is often uninitialised it may cause
         * programs such as purify or valgrind to complain. So for those
         * builds it is not used: the removal of such a small source of
         * entropy has negligible impact on security.
         */
        if (!MD_Update(&m, buf, j))
            goto err;
#endif
```

```
        k = (st_idx + MD_DIGEST_LENGTH / 2) - st_num;
        if (k > 0) {
            if (!MD_Update(&m, &(state[st_idx]), MD_DIGEST_LENGTH / 2 - k) ||
                !MD_Update(&m, &(state[0]), k))
                goto err;
        } else {
            if (!MD_Update(&m, &(state[st_idx]), MD_DIGEST_LENGTH / 2))
                goto err;
        }
        if (!MD_Final(&m, local_md))
            goto err;

        for (i = 0; i < MD_DIGEST_LENGTH / 2; i++) {
            /* may compete with other threads */
            state[st_idx++] ^= local_md[i];
            if (st_idx >= st_num)
                st_idx = 0;
            if (i < j)
                *(buf++) = local_md[i + MD_DIGEST_LENGTH / 2];
        }
    }
```

*1(d) determining whether said output H(SV) is less than said order q prior to reducing mod q; accepting said output H(SV) for use as said key k if the value of said output H(SV) is less than said order q; rejecting said output H(SV) as said key if said value is not less than said order q; if said output H(SV) is rejected, repeating said method;*

OpenSSL: crypto/bn/bn_rand.c

```
/* random number r:  0 <= r < range */
static int bn_rand_range(int pseudo, BIGNUM *r, const BIGNUM *range)
{
    int (*bn_rand) (BIGNUM *, int, int, int) =
        pseudo ? BN_pseudo_rand : BN_rand;
    int n;
    int count = 100;

    if (range->neg || BN_is_zero(range)) {
        BNerr(BN_F_BN_RAND_RANGE, BN_R_INVALID_RANGE);
        return 0;
    }

    n = BN_num_bits(range);     /* n > 0 */

    /* BN_is_bit_set(range, n - 1) always holds */

    if (n == 1)
        BN_zero(r);
    else if (!BN_is_bit_set(range, n - 2) && !BN_is_bit_set(range, n - 3)) {
        /*
         * range = 100..._2, so 3*range (= 11..._2) is exactly one bit longer
         * than range
         */
        do {
            if (!bn_rand(r, n + 1, -1, 0))
                return 0;
            /*
             * If r < 3*range, use r := r MOD range (which is either r, r -
             * range, or r - 2*range). Otherwise, iterate once more. Since
             * 3*range = 11..._2, each iteration succeeds with probability >=
             * .75.
             */
            if (BN_cmp(r, range) >= 0) {
                if (!BN_sub(r, r, range))
                    return 0;
                if (BN_cmp(r, range) >= 0)
                    if (!BN_sub(r, r, range))
                        return 0;
            }

            if (!--count) {
                BNerr(BN_F_BN_RAND_RANGE, BN_R_TOO_MANY_ITERATIONS);
                return 0;
            }

        }
        while (BN_cmp(r, range) >= 0);
```

*1(e) and if said output H(SV) is accepted, providing said key k for use in performing said cryptographic function, wherein said key k is equal to said output H(SV).*

OpenSSL: crypto/ec/ec_key.c

```
int EC_KEY_generate_key(EC_KEY *eckey)
{
```

```
    do
        if (!BN_rand_range(priv_key, order))
            goto err;
    while (BN_is_zero(priv_key)) ;

    if (eckey->pub_key == NULL) {
        pub_key = EC_POINT_new(eckey->group);
        if (pub_key == NULL)
            goto err;
    } else
        pub_key = eckey->pub_key;

    if (!EC_POINT_mul(eckey->group, pub_key, priv_key, NULL, NULL, ctx))
        goto err;

    eckey->priv_key = priv_key;
    eckey->pub_key = pub_key;

    ok = 1;
```

112. Additionally, Defendant Facebook has been, and currently is, an active inducer of infringement of the '961 Patent under 35 U.S.C. § 271(b) and contributory infringer of the '961 Patent under 35 U.S.C. § 271(c).

113. Facebook knew of the '961 Patent, or should have known of the '961 Patent but was willfully blind to its existence. Upon information and belief, Facebook has had actual knowledge of the '961 Patent since at least as early as the filing and/or service of this Complaint. Additionally, Facebook was made aware of the '961 Patent through a notice letter sent from BlackBerry to WhatsApp on April 15, 2016, on which Facebook's General Counsel, Colin Stretch, Esq., was cc'ed. Ex. H. On June 21, WhatsApp's General Counsel sent a response email noting that BlackBerry's assertions had been considered, and further identifying a number of Facebook patents purportedly of interest to BlackBerry. Ex. I. On information and belief, in making these responses, which included specific reference to patents purportedly owned by Facebook, WhatsApp had communicated BlackBerry's assertions to Facebook for Facebook's consideration and analysis. WhatsApp's General Counsel further provided a draft NDA for BlackBerry's review, noting a willingness to meet with BlackBerry's representatives "in-person to discuss after entering into an appropriate NDA." *Id.* On July 27, 2016, counsel for WhatsApp

provided further revisions to the proposed NDA; the draft NDA included both Facebook and WhatsApp as parties thereto, evidencing Facebook's involvement in and intent to participate in discussions pertaining to the patents identified by BlackBerry. Facebook was thus provided abundant and actual notice of the '961 Patent (and other patents identified in BlackBerry's letter), prior to the filing of this Complaint.

114. Facebook has provided the '961 Accused Products to its customers and, on information and belief, instructions to use the '961 Accused Products in an infringing manner while being on notice of or willfully blind to the '961 Patent and Facebook's infringement. Therefore, on information and belief, Facebook knew or should have known of the '961 Patent and of its own infringing acts, or deliberately took steps to avoid learning of those facts.

115. Facebook knowingly and intentionally encourages and aids at least its end-user customers to directly infringe the '961 Patent.

116. Upon information and belief, Facebook provides the '961 Accused Products to customers through various third-party application stores (*e.g.*, the Apple iTunes App Store) and instructions to end-user customers so that such customers will use the '961 Accused Products in an infringing manner.

117. Facebook's end-user customers directly infringe at least claims 15 and 23 of the '961 Patent by using the '961 Accused Products in their intended manner to infringe. Facebook induces such infringement by providing the '961 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '961 Patent. Upon information and belief, Facebook specifically intends that its actions will result in infringement of at least claims 15 and 23 of the '961 Patent, or subjectively believe that their actions will result in infringement of the '961 Patent but took deliberate actions to avoid learning of those facts, as set forth above.

118. Additionally, Facebook contributorily infringes at least claims 15 and

23 of the '961 Patent by providing the '961 Accused Products and/or software components thereof, that embody a material part of the claimed inventions of the '961 Patent, that are known by Facebook to be specially made or adapted for use in an infringing manner, and are not staple articles with substantial non-infringing uses. The '961 Accused Products are specially designed to infringe at least claims 15 and 23 of the '961 Patent, and their accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

119. Facebook's infringement of the '961 Patent was and continues to be willful and deliberate, entitling BlackBerry to enhanced damages and attorneys' fees.

120. Additional allegations regarding Facebook's knowledge of the '961 Patent and willful infringement will likely have evidentiary support after a reasonable opportunity for discovery.

121. Facebook's infringement of the '961 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

122. BlackBerry has been damaged by Facebook's infringement of the '961 Patent and will continue to be damaged unless Facebook is enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

123. BlackBerry is entitled to recover from Facebook all damages that BlackBerry has sustained as a result of Facebook's infringement of the '961 Patent, including without limitation lost profits and not less than a reasonable royalty.

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## COUNT II: INFRINGEMENT OF U.S. PATENT NO. 8,209,634

124. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

### The '634 Patent

125. The '634 Patent discloses, among other things, a "[m]ethod and apparatus for previewing new events in a computing device having a plurality of applications for managing respective events" whereby "[i]n response to a new event of a one of the applications, the application's icon is visually modified to notify of the new event." '634 Patent, Abstract.

126. The '634 Patent explains that "[r]epresenting multiple services and functions to a user on a single wireless mobile device presents a number of challenges to the designer of a user interface, particularly a graphical user interface (GUI), for controlling the device. Wireless devices are usually small relative to less portable computing devices such as laptops and desktop computers. Inherently then, a visual display such as an LCD or other screen component of the wireless mobile device has a small display area." *Id.* at 1:32-40. The patent further explains a drawback created by the small display area of mobile devices in combination with a user's desire to operate multiple simultaneous applications on a mobile device: "When a user is notified of a new event such as a new IM message, the user is required to check each of their IM service applications separately, via their respective activation icons, to determine which IM service is responsible for the new event. Checking each service is inconvenient. Moreover, there is a demand to have information made available to a user quicker than previously available in order to optimize the control of the wireless device." *Id.* at 1:60-67. Similarly, a user of a mobile device would face the same limitations in attempting to access multiple simultaneous conversations on the mobile device in order to determine whether there is one or many conversations responsible for the new event.

127. Fig. 7 of the '634 Patent shows an exemplary mobile device user

interface according to the patent including "a dialog box 602 for an IM application 306 having two unread messages indicated at visual modification 400." *Id.* at 8:56-58. The patent discloses that a count may represent the number of correspondents from which one or more messages have been received but remain unread. *Id.* at 8:8-13.

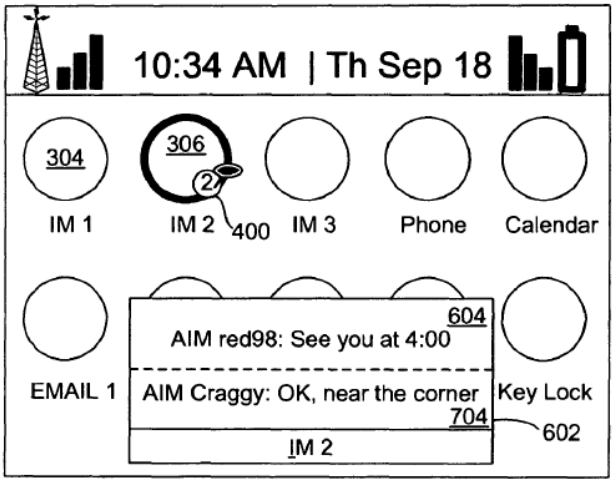



FIG. 7

128. The '634 Patent thus describes, *inter alia*, "[a] method of providing notifications of unread messages on a wireless communication device, comprising: displaying at least one icon relating to electronic messaging on a graphical user interface of the wireless communication device; receiving a plurality of electronic messages on the wireless communication device, the plurality of electronic messages including messages from a plurality of different messaging correspondents; and in response to receiving at least one of the plurality of electronic messages, visually modifying at least one displayed icon relating to electronic messaging to include a numeric character representing a count of the plurality of different messaging correspondents for which one or more of the electronic messages have been received and remain unread." *Id.* at claim 1.

**The Inventions Claimed in the '634 Patent Were Not Well-Understood, Routine, or Conventional**

129. A wireless communication device displaying at least one icon relating

to electronic messaging on a graphical user interface, receiving a plurality of electronic messages from a plurality of different messaging correspondents, and visually modifying at least one icon to include a numeric character representing the count of the plurality of correspondents for which one or more messages remain unread was not common or conventional at the time of the '634 Patent.

130. The inventors of the '634 Patent recognized the need in wireless mobile devices "to have information made available to a user quicker than previously available in order to optimize the control of the wireless device," particularly with respect to notifications on mobile devices of new events such as new IM messages. '634 Patent at 1:60-67. The inventors further identified the benefit of solving this described problem by providing a wireless communication device with a graphical user interface wherein an icon is visually modified in response to a new event and the visual modification may comprise maintaining a count of new events. *Id*. at 2:9-28. Moreover, the '634 Patent displays a count of the number of conversations in which a new message has been received, so that the user is able to quickly determine whether the level of new messaging activity is coming from multiple conversations or a single, busy conversation.

131. Given the state of the art at the time of the invention of the '634 Patent, the inventive concepts of the '634 Patent were not conventional, well-understood, or routine. The '634 Patent discloses, among other things, an unconventional and technological solution to an issue arising specifically in the context of wireless communication devices and electronic messaging received within those devices. The solution implemented by the '634 Patent provides a specific and substantial improvement over prior messaging notification systems, resulting in an improved user interface for electronic devices and communications applications on those devices, including by introducing novel elements directed to improving the function and working of communications devices such as, *inter alia*, the claimed "visually modifying at least one displayed icon relating to electronic messaging to include a

numeric character representing a count of the plurality of different messaging correspondents for which one or more of the electronic messages have been received and remain unread" (claims 1, 7, and 13), "displaying on the graphical user interface an identifier of the correspondent from whom at least one of the plurality of messages was received" (claim 5), and "displaying on the graphical user interface at least one preview of content associated with at least one of the received electronic messages" (claim 6), "[executable / machine-readable] instructions which, when executed, cause the wireless communication device to visually modify the graphical user interface to include an identifier of the correspondent from whom at least one of the plurality of messages was received" (claims 11 and 17), "[executable / machine-readable] instructions which, when executed, cause the wireless communication device to visually modify the graphical user interface to include at least one preview of content associated with at least one of the received electronic messages" (claim 12 and 18).

132. Consistent with the problem addressed being rooted in electronic messaging between wireless communications devices, the '634 Patent's solutions naturally are also rooted in the same technology that cannot be performed with pen and paper or in the human mind.

133. This technical context is reflected in the '634 Patent's claims. For example, various claims of the '634 Patent require an electronic messaging application, plurality of electronic messages, and a wireless communication device.

134. A person having ordinary skill in the art at the time of the inventions of the '634 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the '634 Patent and the problem it was specifically designed to address, which arose in the context of needing an improved user interface for small screen computing devices. Doing so would also run counter to the inventors' detailed description of the inventions and the language of the

claims and be a practical impossibility.

**'634 Patent Allegations**

135. Defendants have infringed and are infringing, either literally or under the doctrine of equivalents, the '634 Patent in violation of 35 U.S.C. § 271 *et seq*., directly and/or indirectly, by making, using, selling, offering for sale, and/or importing into the United States without authority or license, the Facebook, Facebook Messenger, Facebook Workplace Chat, Facebook Pages Manager, WhatsApp, and Instagram applications (hereinafter "the '634 Accused Products") that infringe at least claims 1, 5-7, 11-13, 17, and 18 of the '634 Patent. The '634 Accused Products are non-limiting examples that were identified based on publicly available information, and BlackBerry reserves the right to identify additional infringing activities, products and services, including, for example, on the basis of information obtained during discovery.

136. On information and belief after reasonable investigation, the '634 Accused Products contain user interface functionality designed and used to display and modify icons relating to electronic messages on a wireless communication device in a manner that infringes the '634 Patent.

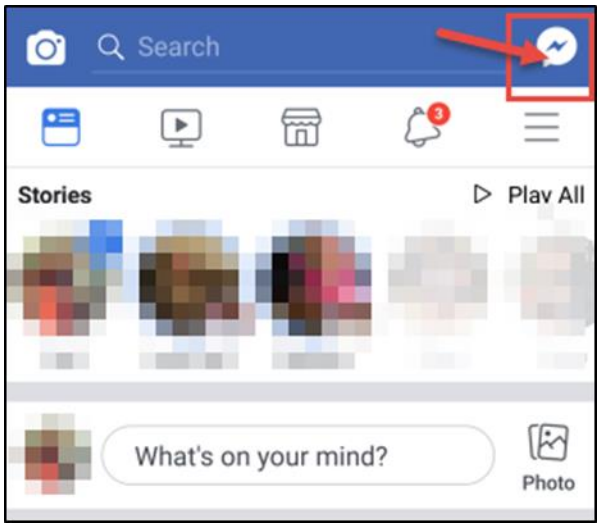
137. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 1 of the '634 Patent in connection with the Facebook, Facebook Messenger, Facebook Pages Manager, WhatsApp, and Instagram applications. On information and belief, the Facebook Workplace Chat application implements the same or substantially similar infringing functionality as the Facebook Messenger app.

138. This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information about the '634 Accused Products that it obtains during discovery.

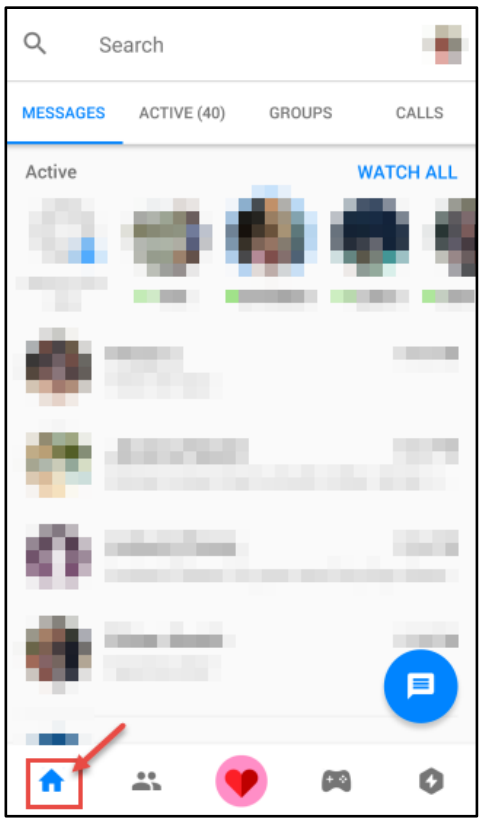
*1(a) A method of providing notifications of unread messages on a wireless*

*communication device, comprising:* - Defendants make and use Facebook, Facebook Messenger, Facebook Workplace Chat, Facebook Pages Manager, WhatsApp, and Instagram software applications. Regardless of whether the preamble of claim 1 adds any substantive limitation to the claim, the claim language is met by the '634 Accused Products, as the '634 Accused Products include a method of providing notifications of unread messages on a wireless communications device as further described below for the remaining claim limitations.

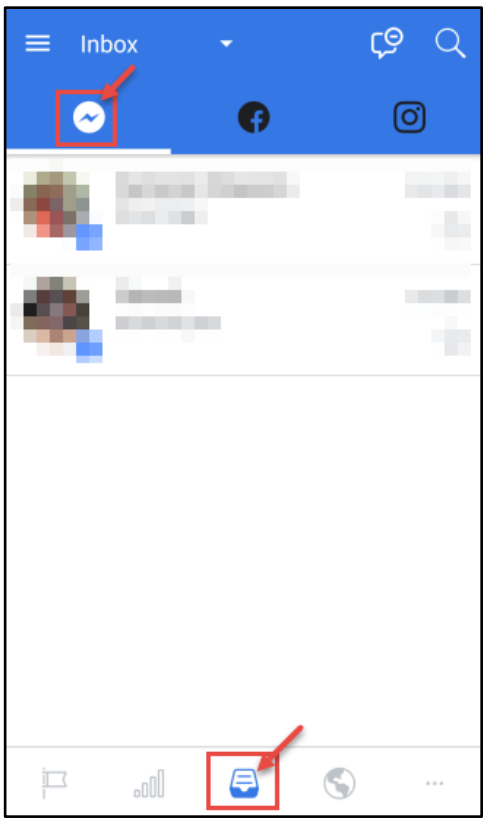
*1(b) displaying at least one icon relating to electronic messaging on a graphical user interface of the wireless communication device;*



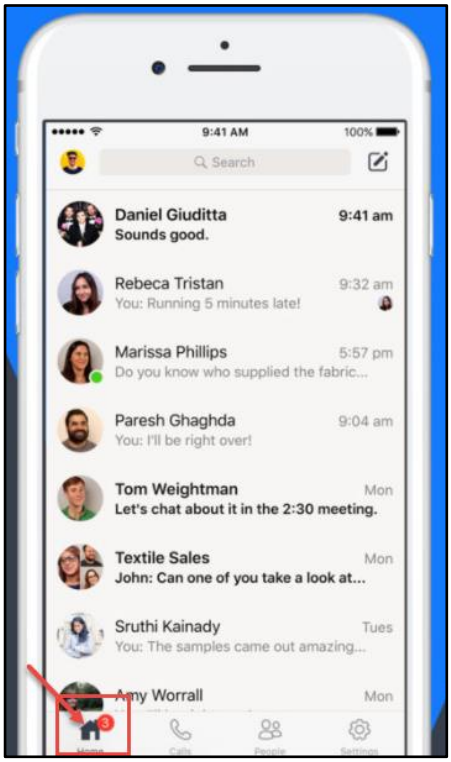

Facebook App



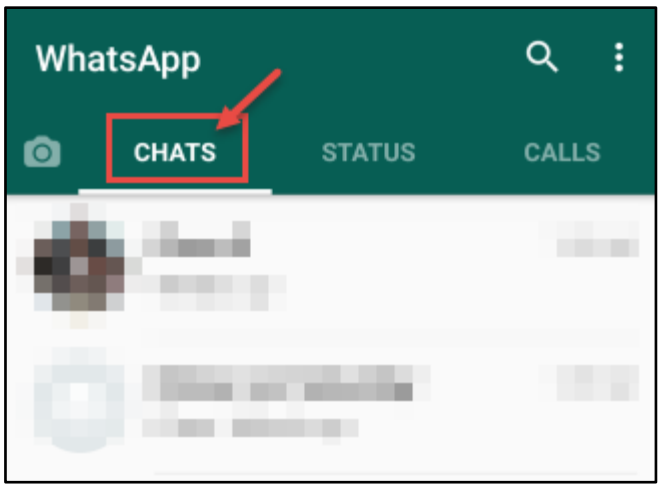

Facebook Messenger



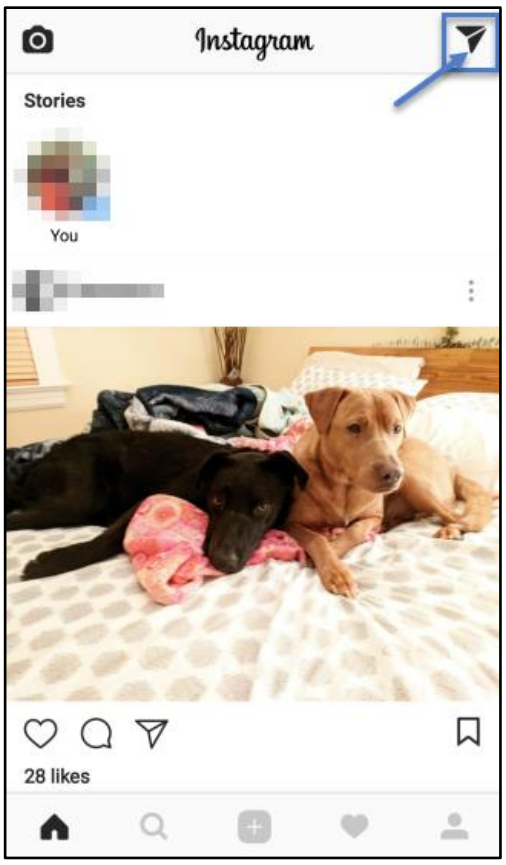

Facebook Pages Manager




Facebook Workplace Chat

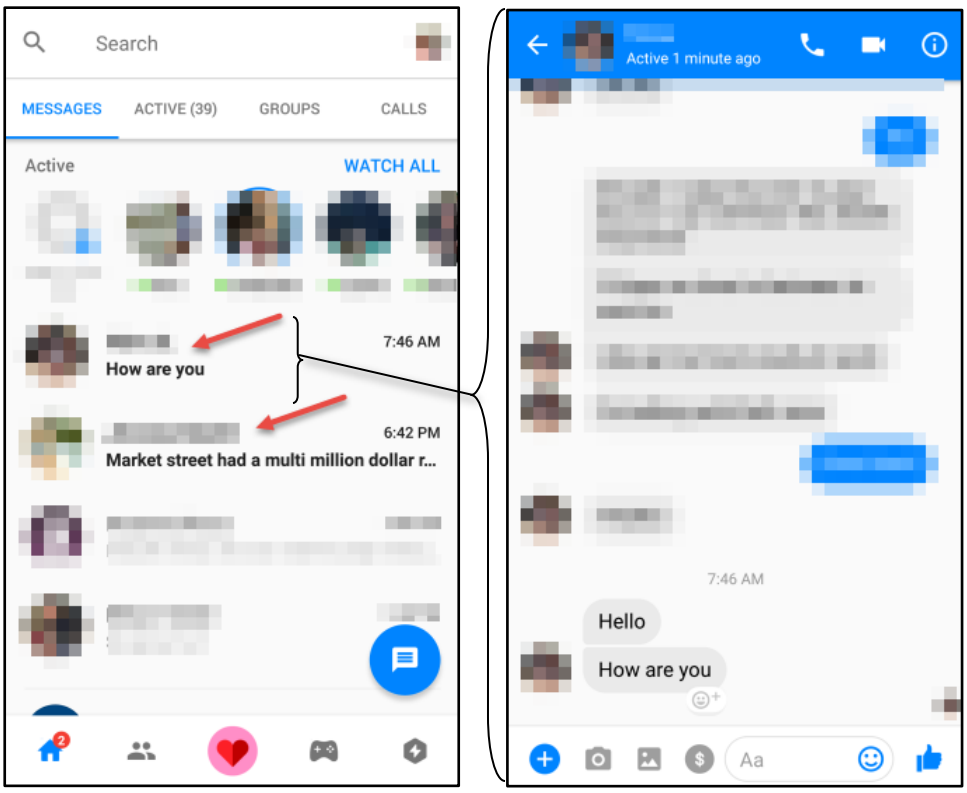



WhatsApp Messenger

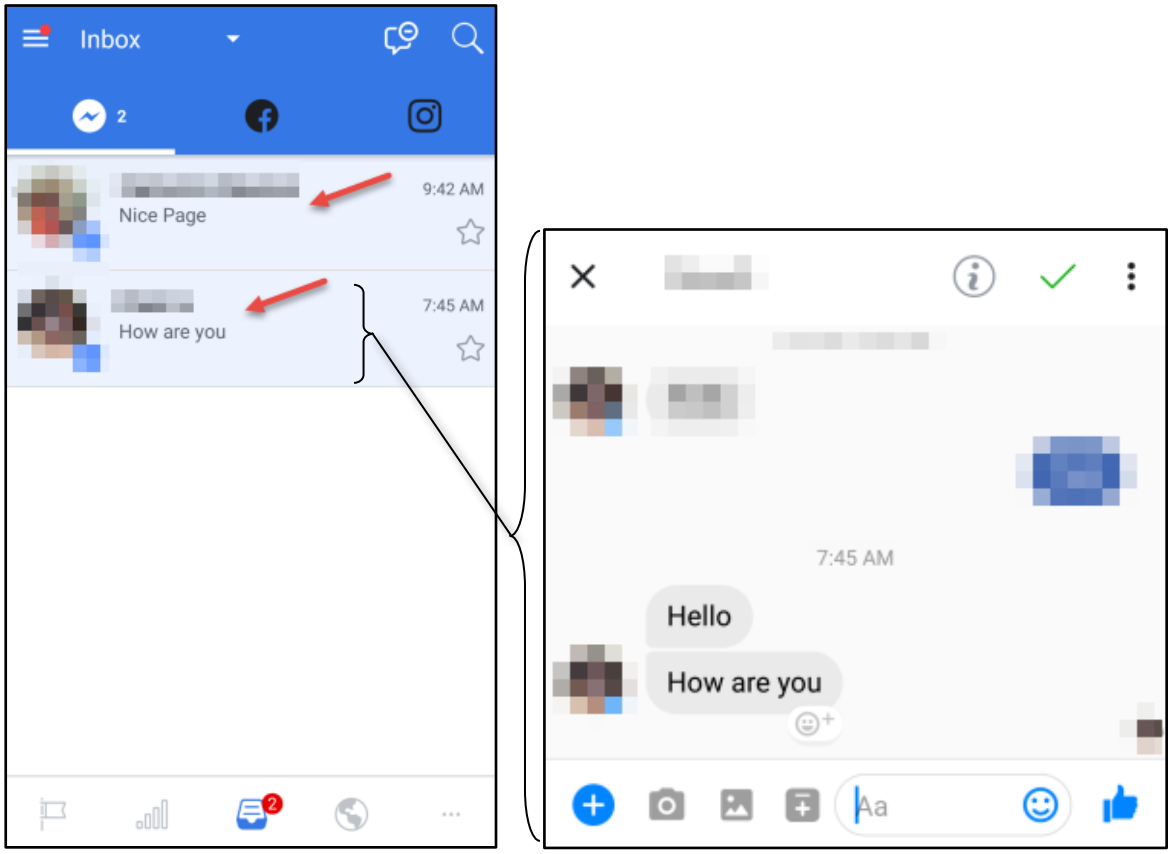



Instagram

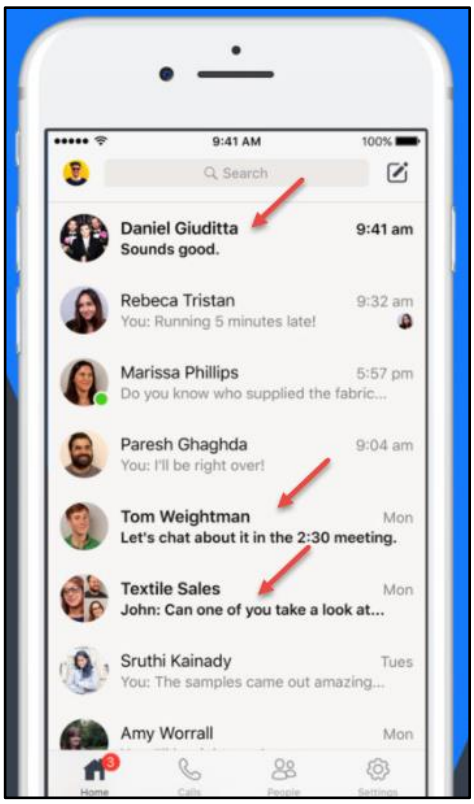
*1(c) receiving a plurality of electronic messages on the wireless communication device, the plurality of electronic messages including messages from a plurality of different messaging correspondents; and*



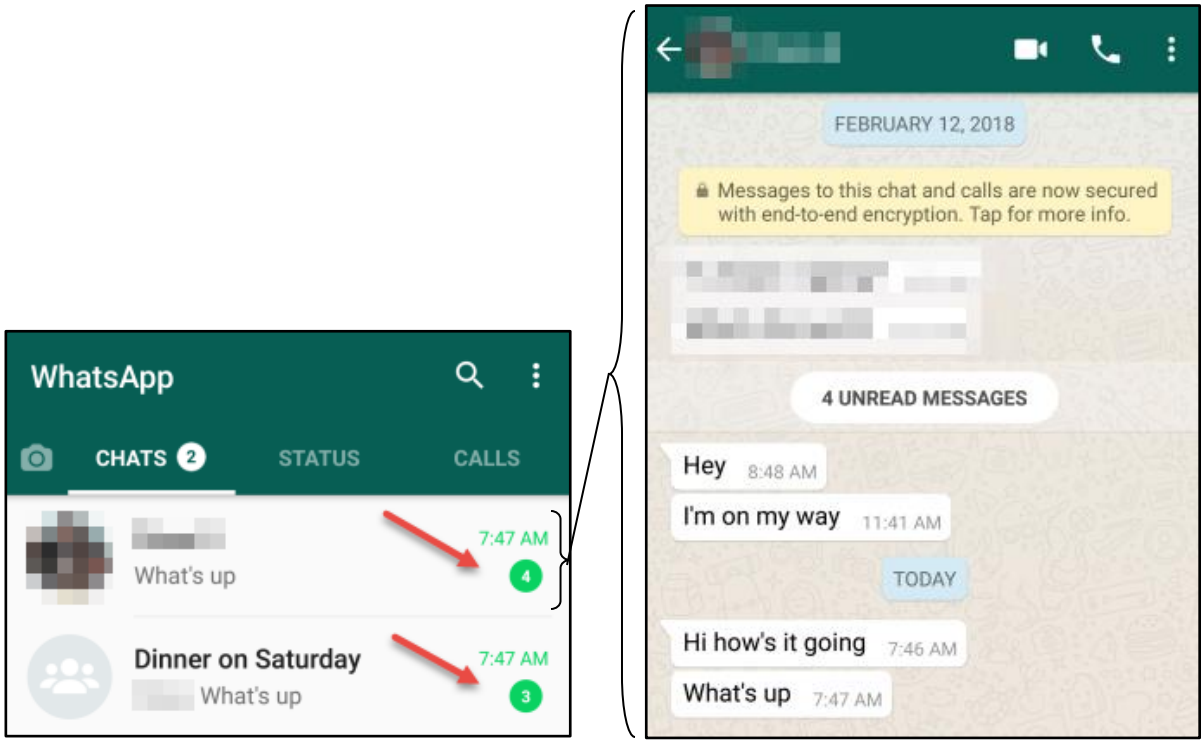

Facebook Messenger



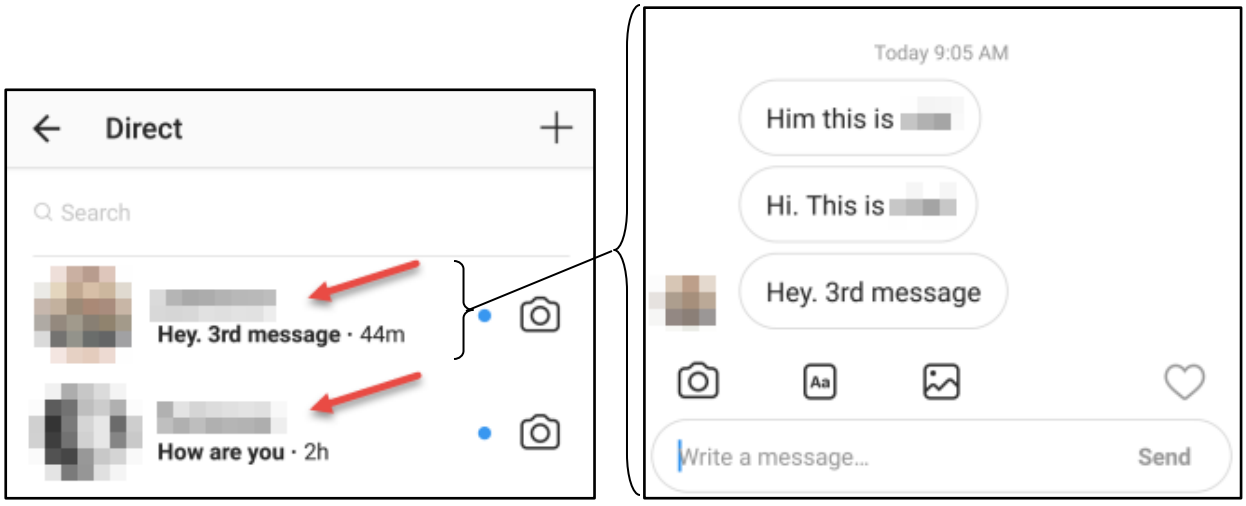

Facebook Pages Manager




Facebook Workplace Chat

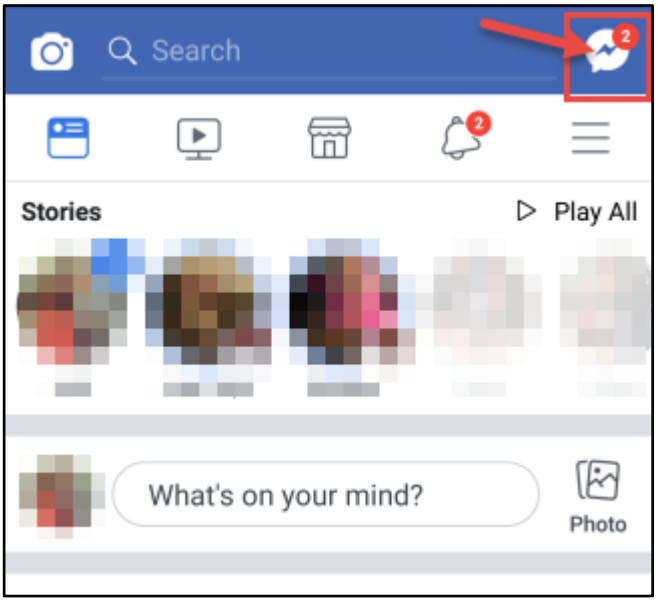



WhatsApp Messenger

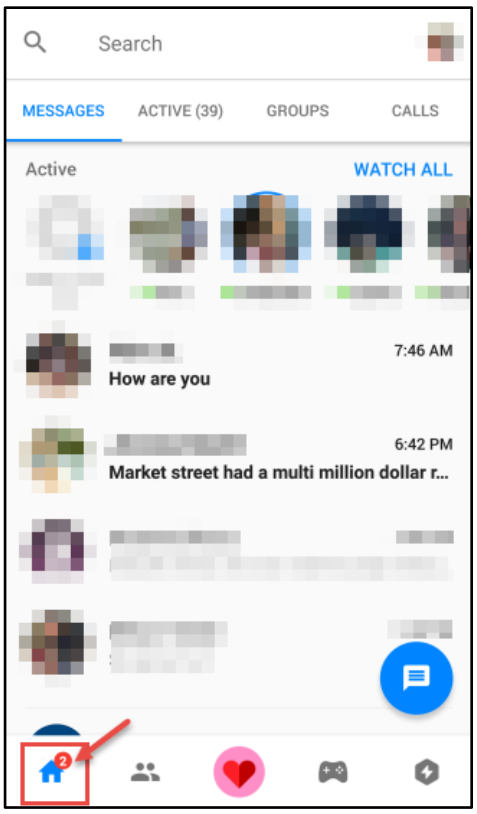



Instagram

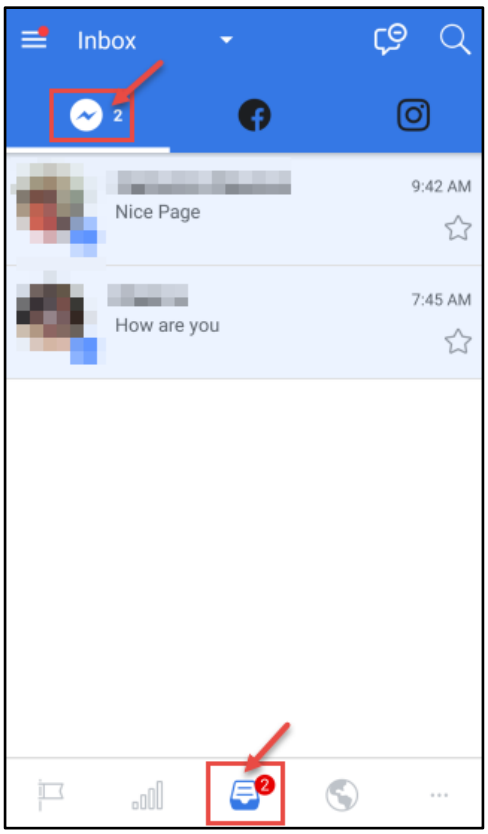
*1(d) in response to receiving at least one of the plurality of electronic messages, visually modifying at least one displayed icon relating to electronic messaging to include a numeric character representing a count of the plurality of different messaging correspondents for which one or more of the electronic messages have been received and remain unread.*



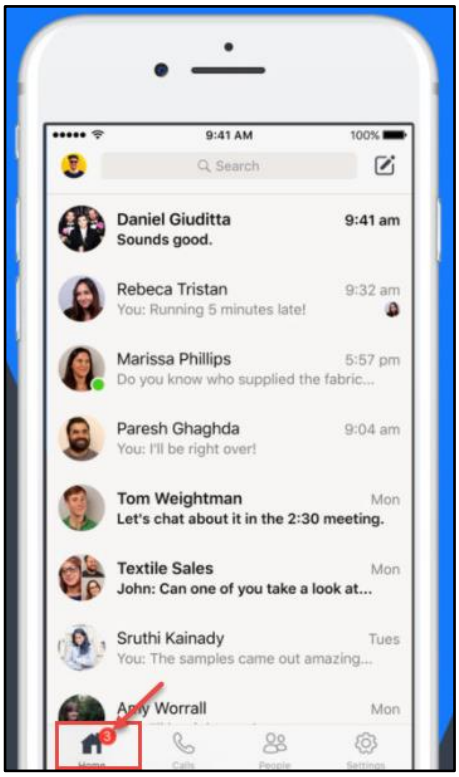

Facebook App



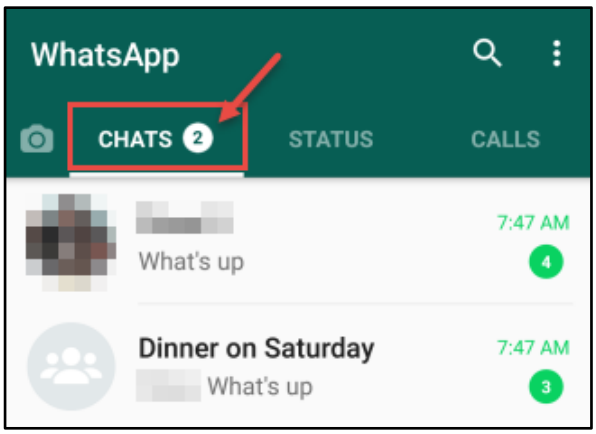

Facebook Messenger



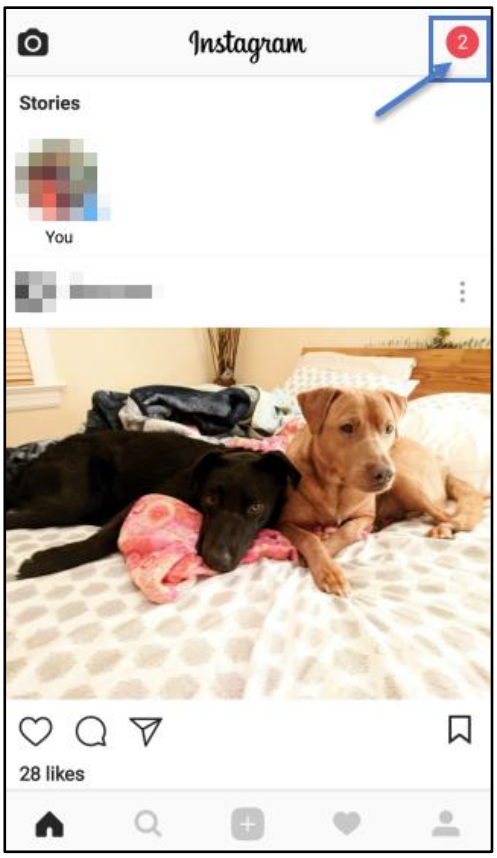

Facebook Pages Manager




Facebook Workplace Chat




WhatsApp Messenger




Instagram

139. Additionally, Defendants have been, and currently are, active inducers of infringement of the '634 Patent under 35 U.S.C. § 271(b) and contributory infringers of the '634 Patent under 35 U.S.C. § 271(c).

140. Defendants knew of the '634 Patent, or should have known of the '634 Patent but were willfully blind to its existence. Upon information and belief, Defendants have had actual knowledge of the '634 Patent since at least as early as the filing and/or service of this Complaint. Additionally, Facebook and WhatsApp were made aware of the '634 Patent and at least WhatsApp's infringement through a notice letter sent from BlackBerry to WhatsApp on March 25, 2016, on which Facebook's General Counsel, Colin Stretch, Esq., was cc'ed. Ex. J. On June 21, WhatsApp's General Counsel sent a response email noting that BlackBerry's assertions had been considered, and further identifying a number of Facebook patents purportedly of interest to BlackBerry. Ex. I. On information and belief, in

making these responses, which included specific reference to patents purportedly owned by Facebook, WhatsApp had communicated BlackBerry's assertions to Facebook for Facebook's consideration and analysis. WhatsApp's General Counsel further provided a draft NDA for BlackBerry's review, noting a willingness to meet with BlackBerry's representatives "in-person to discuss after entering into an appropriate NDA." *Id*. On July 27, 2016, counsel for WhatsApp provided further revisions to the proposed NDA; the draft NDA included both Facebook and WhatsApp as parties thereto, evidencing Facebook's involvement in and intent to participate in discussions pertaining to the patents identified by BlackBerry. Facebook and WhatsApp were thus provided abundant and actual knowledge of the '634 Patent (and other patents identified in BlackBerry's letter) and at least WhatsApp's infringement thereof prior to the filing of this Complaint.

141. Defendants have provided the '634 Accused Products to their customers and, on information and belief, instructions to use the '634 Accused Products in an infringing manner while being on notice of or willfully blind to the '634 Patent and the Defendants' infringement. Therefore, on information and belief, Defendants knew or should have known of the '634 Patent and of their own infringing acts, or deliberately took steps to avoid learning of those facts.

142. Defendants knowingly and intentionally encourage and aid at least their end-user customers to directly infringe the '634 Patent.

143. Upon information and belief, Defendants provide the '634 Accused Products to customers through various third-party application stores (*e.g.*, the Apple App Store) and instructions to end-user customers so that such customers will use the '634 Accused Products in an infringing manner. For example, Defendants provide instructions to end-user customers on how to set up, configure, and use various features of the '634 Accused Products, including how to send and receive

messages via the '634 Accused Products.[23]

144. Defendants' end-user customers directly infringe at least claims 1, 5-7, 11-13, 17, and 18 of the '634 Patent by using the '634 Accused Products in their intended manner. Defendants induce such infringement by providing the '634 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '634 Patent. Upon information and belief, Defendants specifically intend that their actions will result in infringement of at least claims 1, 5-7, 11-13, 17, and 18 of the '634 Patent, or subjectively believe that their actions will result in infringement of the '634 Patent but took deliberate actions to avoid learning of those facts.

145. Additionally, Defendants contributorily infringe at least claims 1, 5-7, 11-13, 17, and 18 of the '634 Patent by providing the '634 Accused Products and/or software components thereof, that embody a material part of the claimed inventions of the '634 Patent, that are known by Defendants to be specially made or adapted for use in an infringing manner, and are not staple articles with substantial non-infringing uses. The '634 Accused Products are specially designed to infringe at least claims 1, 5-7, 11-13, 17, and 18 of the '634 Patent, and their accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

146. Additional allegations regarding Defendants' knowledge of the '634

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[23] *See* https://www.facebook.com/help/messenger-app/345021679200618/?helpref=hc_fnav&bc[0]=691363354276356&bc[1]=1322973511088245&bc[2]=1835098660060900; https://www.facebook.com/help/messenger-app/1696927533954272/?helpref=hc_fnav&bc[0]=691363354276356&bc[1]=1322973511088245; https://www.whatsapp.com/download/; https://faq.whatsapp.com/.

Patent and willful infringement will likely have further evidentiary support after a reasonable opportunity for discovery.

147. Defendants' infringement of the '634 Patent was and continues to be willful and deliberate, entitling BlackBerry to enhanced damages and attorneys' fees.

148. Defendants' infringement of the '634 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

149. BlackBerry has been damaged by Defendants' infringement of the '634 Patent and will continue to be damaged unless Defendants are enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

150. BlackBerry is entitled to recover from Defendants all damages that BlackBerry has sustained as a result of Defendants' infringement of the '634 Patent, including without limitation lost profits and not less than a reasonable royalty.

## COUNT III: INFRINGEMENT OF U.S. PATENT NO. 8,279,173

151. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

### The '173 Patent

152. The '173 Patent discloses, among other things, "a user interface for selecting a photo tag" and includes "a method of selecting a photo tag for a tagged photo, comprising: providing a tag entry field for entering a photo tag; in dependence upon a string entered by a user, displaying in a matching tag list any tags from one or more selected tag sources matching the entered string. The method may further comprise displaying a tag type for each tag appearing in the matching tag list." '173 Patent, Abstract.

153. The '173 Patent explains that while identifying people or objects in

photographs is popular in various online contexts, "[s]electing a 'tag' to associate with an identified point in a photograph can be a complicated task if there are many potential tags to choose from. In addition, [in] wireless mobile communication device[s] where there are constraints on the size of the display and the flexibility of the input method, some of these common techniques used on desktops and laptops with full sized screens do not work as well." *Id.* at 1:23-29.

154. Fig. 3A of the '173 patent shows "an illustrative user interface screen 300A in which photo tagging module 148A may be configured for tagging a photograph in accordance with an embodiment. As shown, a photo 301 of a subject 302 is displayed within the boundaries of the user interface. With this user interface, a tag list 304 may include various tags associated [with] subject 302 or other subjects or objects within the photo 301." *Id.* at 4:10-18.

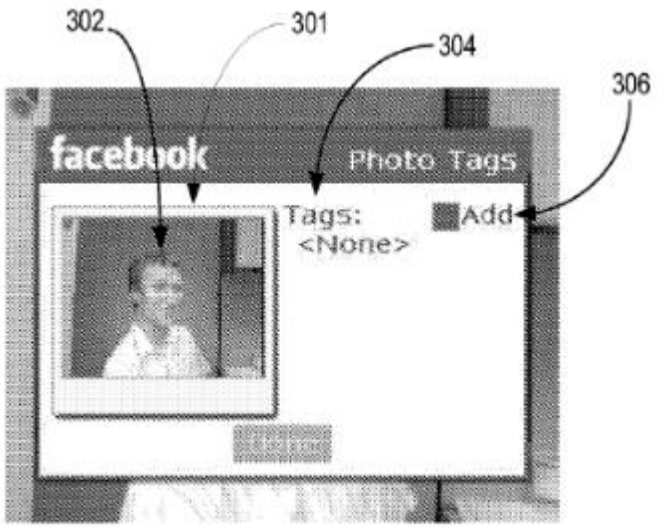



FIG. 3A

155. Figs. 4A and 4B of the '173 patent show an exemplary tag list including tag type indicators for the various tag sources included in the list. "As shown in FIG. 4A, the user is initially presented with a tag entry field 406 indicating that he should start typing a tag. Upon completion of typing, the user may click 'OK' 408 to select the tag. In an embodiment, as the user begins to type, photo tag

selection module 148B may be configured to search one or more selected 'tag sources' for tags that match the currently entered text." *Id*. at 5:35-42.

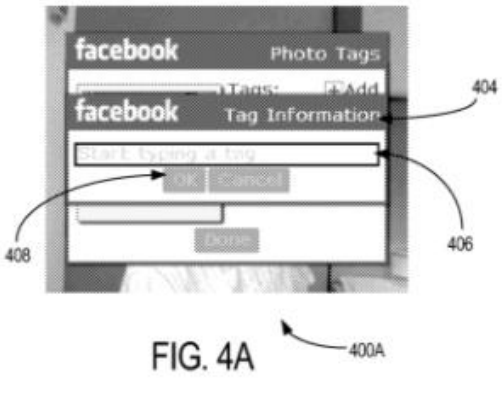



FIG. 4A

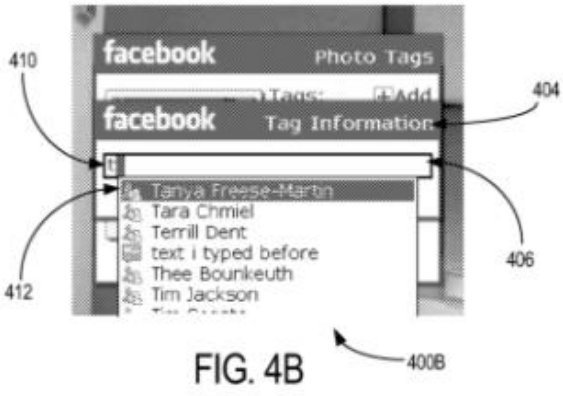



FIG. 4B

156. The '173 Patent thus describes, *inter alia*, "[a] method of selecting a photo tag for a tagged photo, comprising: displaying a tag list including tags from one or more tag sources matching a search string; displaying a tag type indicator for each tag appearing in the tag list, said tag type being indicative of a tag source associated with the tag." *Id*. at claim 1.

**The Inventions Claimed in the '173 Patent Were Not Well-Understood, Routine, or Conventional**

157. A system or method for selecting a photo tag for a tagged photo including displaying a tag list including tags from sources matching a search string and displaying a tag type indicator for each tag appearing in a tag list was not common or conventional at the time of the '173 Patent.

158. At the time of filing the '173 Patent, the inventors recognized that "[s]electing a 'tag' to associate with an identified point in a photograph can be a complicated task if there are many potential tags to choose from." '173 Patent at 1:23-25. The inventors further recognized that this problem is exacerbated in mobile devices, for example, "where there are constraints on the size of the display and the flexibility of the input method." *Id*. at 1:25-29.

159. The inventors of the '173 Patent recognized the benefit of solving this described problem by providing systems and methods for selecting a photo tag

wherein a tag list is displayed in response to a search string and a tag type indicator is displayed for each tag appearing in the tag list. Accordingly, users can avoid the confusion of accidentally tagging someone in a photo who shares the same name as the user's friend, but who may be a stranger, a public figure, or the like. Conventional photo tagging systems at the time did not provide the '173 Patent's unconventional feature of providing a tag type indicator for each of the tags displayed in response to a user search. Indeed, the '173 Patent refers specifically to Facebook's photo tagging mechanism at that time to illustrate the deficiencies and inefficiencies in the existing technology that were improved upon by the inventions of the '173 Patent.

160. Given the state of the art at the time of the invention of the '173 Patent, the inventive concepts of the '173 Patent were not conventional, well-understood, or routine. The '173 Patent discloses, among other things, an unconventional technological solution to an issue arising specifically in the context of tagging photographs via a graphical user interface. The solution implemented by the '173 Patent provides a specific and substantial improvement over prior photo tagging systems, resulting in an improved user interface for electronic devices, including by introducing novel elements directed to improving the function and working of electronic devices such as, *inter alia*, the claimed "tag list including tags from one or more tag sources matching a search string" (claims 1, 7, and 13), "tag type indicator for each tag . . . indicative of a tag source associated with the tag" (same), and "tag entry field for entering [the search string / a photo tag]" (claims 2, 8, 14).

161. Consistent with the problem addressed being rooted in electronic user interfaces for photo tagging on computing systems, the '173 Patent's solutions naturally are also rooted in the same technology that cannot be performed with pen and paper or in the human mind.

162. This technical context is reflected in the '173 Patent's claims. For example, various claims of the '173 Patent require search strings, tag type

indicators, a tag list including tags from one or more tag sources, and a tag entry field.

163. A person having ordinary skill in the art at the time of the inventions of the '173 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the '173 Patent and the problem it was specifically designed to address. Doing so would also run counter to the inventors' detailed description of the inventions and the language of the claims and be a practical impossibility.

**'173 Patent Allegations**

164. Facebook and Instagram have infringed and are infringing, either literally or under the doctrine of equivalents, the '173 Patent in violation of 35 U.S.C. § 271 *et seq*., directly and/or indirectly, by making, using, selling, offering for sale, and/or importing into the United States without authority or license, the www.facebook.com website and Instagram application, respectively, (hereinafter "the '173 Accused Products") that infringe at least claims 1, 2, 7, 8, 13 and 14 of the '173 Patent. The '173 Accused Products are non-limiting examples that were identified based on publicly available information, and BlackBerry reserves the right to identify additional infringing activities, products and services, including, for example, on the basis of information obtained during discovery.

165. On information and belief after reasonable investigation, the '173 Accused Products contain photo tagging functionality designed and used to provide a tag list including tag type indicators in a manner that infringes the '173 Patent.

166. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 1 of the '173 Patent in connection with www.facebook.com and the Instagram application. This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information

about the ’173 Accused Products that it obtains during discovery.

*1(a) A method of selecting a photo tag for a tagged photo, comprising:* - Facebook makes and uses the social media website, www.facebook.com, and Instagram makes and uses the Instagram application. Regardless of whether the preamble of claim 1 adds any substantive limitation to the claim, the claim language is met by the ’173 Accused Products, as the ’173 Accused Products includes a method of operating an electronic device as further described below for the remaining claim limitations.

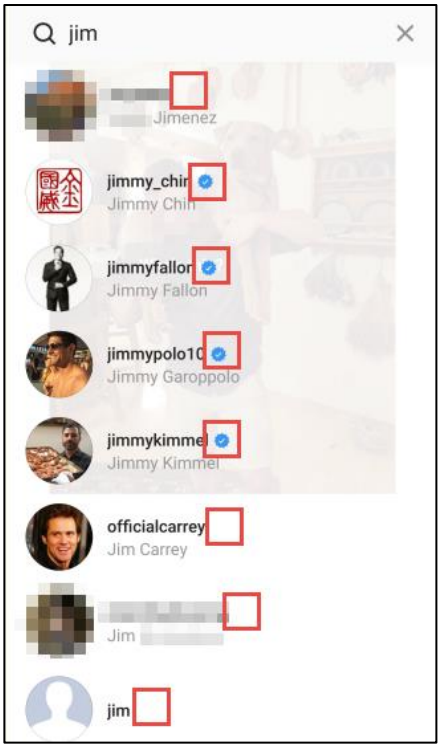
*1(b) displaying a tag list including tags from one or more tag sources matching a search string;*


Facebook website


Instagram

*1(c) displaying a tag type indicator for each tag appearing in the tag list, said tag type being indicative of a tag source associated with the tag.*


Facebook website




Instagram

167. Additionally, Facebook and Instagram have been, and currently are, active inducers of infringement of the '173 Patent under 35 U.S.C. § 271(b) and contributory infringers of the '173 Patent under 35 U.S.C. § 271(c).

168. Facebook and Instagram knew of the '173 Patent, or should have known of the '173 Patent but were willfully blind to its existence. Upon information and belief, Facebook and Instagram have had actual knowledge of the '173 Patent since at least as early as the filing and/or service of this Complaint. Facebook and Instagram have provided the '173 Accused Products to their customers and, on information and belief, instructions to use the '173 Accused Products in an infringing manner while being on notice of or willfully blind to the '173 Patent and Facebook's and Instagram's infringement. Therefore, on information and belief, Facebook and Instagram knew or should have known of the '173 Patent and of their own infringing acts, or deliberately took steps to avoid learning of those facts. Additionally, on information and belief, Facebook knew or should have known of the '173 Patent at least as early as March 7, 2014 when the

USPTO cited the '173 Patent to Facebook during prosecution of Facebook's U.S. Patent Application No. 13/117,888; or March 21, 2014 when the USPTO again cited the '173 Patent to Facebook during prosecution of Facebook's U.S. Patent Application No. 13/117,617; or April 24, 2014 when the USPTO for a third time cited the '173 Patent to Facebook during prosecution of Facebook's U.S. Patent Application No. 13/092,443.

169. Facebook and Instagram knowingly and intentionally encourage and aid at least their end-user customers to directly infringe the '173 Patent.

170. Upon information and belief, Facebook and Instagram provide the '173 Accused Products to customers through the www.facebook.com website and various third-party application stores (*e.g.*, the Apple App Store), respectively, and instructions to end-user customers so that such customers will use the '173 Accused Products in an infringing manner. For example, Facebook and Instagram provide instructions to end-user customers on how to set up, configure, and use various features of the '173 Accused Products, including how to tag photos on www.facebook.com and through the Instagram application.[24]

171. Facebook's and Instagram's end-user customers directly infringe at least claims 1, 2, 7, 8, 13, and 14 of the '173 Patent by using the '173 Accused Products in their intended manner. Facebook and Instagram induce such infringement by providing the '173 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '173 Patent. Upon information and belief, Facebook and Instagram specifically intend that their actions will result in infringement of at least claims 1, 2, 7, 8, 13, and 14 of the '173 Patent, or subjectively believe that their actions will result in

[24] *See* https://www.facebook.com/help/227499947267037; https://www.facebook.com/help/tag-suggestions; https://help.instagram.com/174635396025538.

infringement of the '173 Patent but took deliberate actions to avoid learning of those facts.

172. Additionally, Facebook and Instagram contributorily infringe at least claims 1, 2, 7, 8, 13, and 14 of the '173 Patent by providing the '173 Accused Products and/or software components thereof, that embody a material part of the claimed inventions of the '173 Patent, that are known by Facebook and Instagram to be specially made or adapted for use in an infringing manner, and are not staple articles with substantial non-infringing uses. The '173 Accused Products are specially designed to infringe at least claims 1, 2, 7, 8, 13, and 14 of the '173 Patent, and their accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

173. Additional allegations regarding Facebook's and Instagram's knowledge of the '173 Patent and willful infringement will likely have further evidentiary support after a reasonable opportunity for discovery.

174. Facebook's and Instagram's infringement of the '173 Patent was and continues to be willful and deliberate, entitling BlackBerry to enhanced damages and attorneys' fees.

175. Facebook's and Instagram's infringement of the '173 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

176. BlackBerry has been damaged by Facebook's and Instagram's infringement of the '173 Patent and will continue to be damaged unless Facebook and Instagram are enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

177. BlackBerry is entitled to recover from Facebook and Instagram all damages that BlackBerry has sustained as a result of Facebook's infringement of the '173 Patent, including without limitation lost profits and not less than a reasonable royalty.

**COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 8,301,713**

178. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

**The '713 Patent**

179. The '713 Patent discloses, among other things, "[a]n improved handheld electronic device and an associated method are provided in which time data regarding certain aspects of a messaging conversation on a handheld electronic device are made available to a user," including "in situations where an interruption has occurred during a messaging conversation." '713 Patent, Abstract.

180. The '713 Patent explains that in instant messaging conversations, where a conversation proceeds quickly, *i.e.*, substantially without interruption, there isn't a need to provide a time stamp for each individual message. *Id.* at 1:54-58. The patent states that, therefore, "[i]n the environment of a handheld electronic device, it would be desirable to avoid unnecessary time stamps and other unnecessary output since it occupies too much valuable space on the limited display of the handheld electronic device. In some messaging circumstances, however, it may be desirable for information regarding certain timing aspects of conversation to be available to a user." *Id.* at 1:59-62.

181. Fig. 4 of the '713 Patent shows an exemplary instant messaging conversation according to the patent that includes "a plurality of incoming messages 72 and a plurality of outgoing messages 76 that are transmitted between the devices 4 and 104 at a conversational speed, *i.e.*, at a speed in which back-to-back communications between the devices 4 and 104 occur without a meaningful delay therebetween. Due to the conversational speed of the back-to-back communications,

the messages 68 do not include an indication of the times at which such messages 68 were transmitted, it being assumed as a general matter that in such circumstances the specific time at which a given message within such a conversation occurred may not be of significance to a user." *Id*. at 5:10-22. In the disclosed embodiment, a determination is made that a predetermined duration of time has transpired without a response to the most recent message in the conversation thread. *Id*. at 5:22-38. As shown in Fig. 5, in the exemplary embodiment, "another message 68 may subsequently be communicated between the devices 4 and 104. Since the message 68 corresponds with a resumption of communication between the devices 4 and 104 after a period of interruption, the message 68 is determined to be a resumption message 88, and . . . time stamp 92 is output adjacent the resumption message 88." *Id*. at 5:62-6:2.

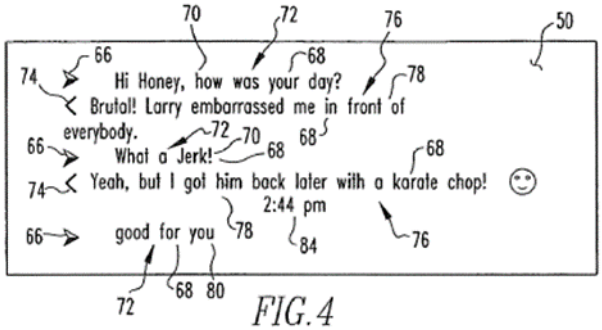



FIG. 4

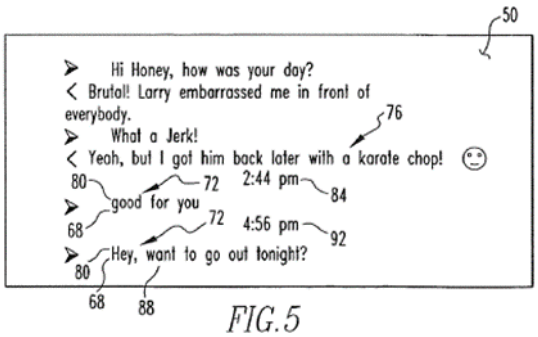



FIG. 5

182. The '713 Patent thus describes, *inter alia*, "[a] method of operating an electronic device, the method comprising: outputting an electronic conversation comprising a plurality of indications, each indication being representative of at least a portion of a corresponding messaging communication between the electronic device and a second electronic device; identifying a first messaging communication between the electronic device and the second electronic device occurring at a first time, the first messaging communication having a corresponding first indication representative of at least a portion of the first messaging communication and which is one of the plurality of indications; determining that a predetermined duration of time has elapsed since the first time without additional communication between the

electronic device and the second electronic device during that duration of time; detecting an input to the electronic device following said identifying and determining steps, said input occurring at a second time; and responsive to said detecting an input, outputting in the electronic conversation, a time stamp representative of the second time." *Id*. at claim 1.

**The Inventions Claimed in the '713 Patent Were Not Well-Understood, Routine, or Conventional**

183. An electronic device displaying a time stamp associated with an input following a determination that a predetermined duration of time has elapsed since a first messaging communication without additional communication between the device and another electronic device was not common or conventional at the time of the '713 Patent.

184. The inventors of '713 Patent recognized that, in certain instant messaging conversations where the conversation proceeds quickly, it is not necessary and can be a nuisance to include a time stamp with each message and that "it would be desirable to avoid unnecessary time stamps and other unnecessary output since it occupies too much valuable space on the limited display of the handheld electronic device." '713 Patent at 1:59-62. The inventors also recognized that in some circumstances it may be desirable for information regarding timing aspects to be available to the user, but that "the limited space available on a display of a handheld electronic device has made a solution difficult." *Id*. at 1:63-67.

185. The inventors recognized the benefit of solving this problem by providing a method of outputting a time stamp associated with a messaging conversation on an electronic device responsive to a determination that a predetermined period of time has elapsed without response after a first communication. The '713 Patent explains: "[t]he general nature of the method can be stated as including determining that a first messaging communication has occurred at a first time between the first device and the second device, outputting a

first indication that is representative of at least a portion of the first communication, determining that a predetermined period of time has elapsed since the first time substantially without further communication between the first device and the second device and, responsive to determining that a predetermined period of time has elapsed, outputting a first time stamp representative of the first time." *Id*. at 2:35-45. In this manner, the '713 Patent is able to strike a desirable balance between displaying sufficient timestamps to provide context for messages in a conversation without taking up too much of a mobile device's display screen. At the time of the '713 Patent, timestamps were typically displayed for every message in a conversation or not at all.

186. Given the state of the art at the time of the invention of the '713 Patent, the inventive concepts of the '713 Patent were not conventional, well-understood, or routine. The '713 Patent discloses, among other things, an unconventional technological solution to an issue arising specifically in the context of electronic communications between electronic devices. The solution implemented by the '713 Patent provides a specific and substantial improvement over prior electronic messaging systems in electronic devices, including by introducing novel elements directed to improving the function and working of electronic devices such as, *inter alia*, the claimed "[determining / determine] that a predetermined duration of time has elapsed since the first time without additional communication between the electronic device and the second electronic device during that duration of time; [detecting / detect] an input to the electronic device following said identifying and determining steps, said input occurring at a second time; and responsive to said detecting an input, [outputting / output] in the electronic conversation, a time stamp representative of the second time" (claims 1, 5, and 9).

187. Consistent with the problem addressed being rooted in user interfaces for electronic messaging between wireless communications devices, the '713 Patent's solutions naturally are also rooted in the same technology that cannot be

performed with pen and paper or in the human mind.

188. This technical context is reflected in the '713 Patent's claims. For example, various claims of the '713 Patent require an electronic device, an electronic conversation, a messaging communication between the electronic device and a second electronic device, and a display.

189. A person having ordinary skill in the art at the time of the inventions of the '713 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the '713 Patent and the problem it was specifically designed to address. Doing so would also run counter to the inventors' detailed description of the inventions and the language of the claims and be a practical impossibility.

**'713 Patent Allegations**

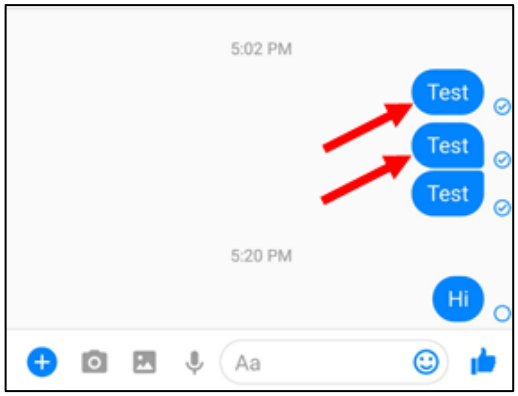
190. Defendants have infringed and are infringing, either literally or under the doctrine of equivalents, the '713 Patent in violation of 35 U.S.C. § 271 *et seq*., directly and/or indirectly, by making, using, selling, offering for sale, and/or importing into the United States without authority or license, the Facebook Messenger, Facebook Messenger Lite, Facebook Pages Manager, Facebook Workplace Chat, WhatsApp, and Instagram applications (hereinafter "the '713 Accused Products") that infringe at least claims 1, 5, and 9 of the '713 Patent. The '713 Accused Products are non-limiting examples that were identified based on publicly available information, and BlackBerry reserves the right to identify additional infringing activities, products and services, including, for example, on the basis of information obtained during discovery.

191. On information and belief after reasonable investigation, the '713 Accused Products contain message time stamping functionality designed and used to provide timing information for messages between electronic devices in a manner that infringes the '713 Patent.

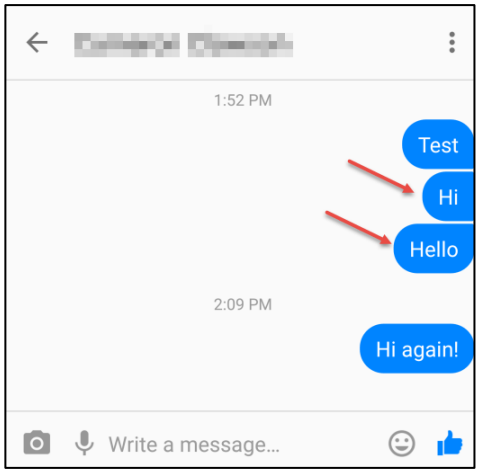
192. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 1 of the '713 Patent in connection with the Facebook Messenger, Facebook Messenger Lite, Pages Manager, Workplace Chat, WhatsApp, and Instagram applications. This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information about the '713 Accused Products that it obtains during discovery.

*1(a) A method of operating an electronic device, the method comprising:* - Defendants make and use the Facebook Messenger, Facebook Messenger Lite, Facebook Pages Manager, Facebook Workplace Chat, WhatsApp, and Instagram software applications. Regardless of whether the preamble of claim 1 adds any substantive limitation to the claim, the claim language is met by the '713 Accused Products, as the '713 Accused Products includes a method of operating an electronic device as further described below for the remaining claim limitations.

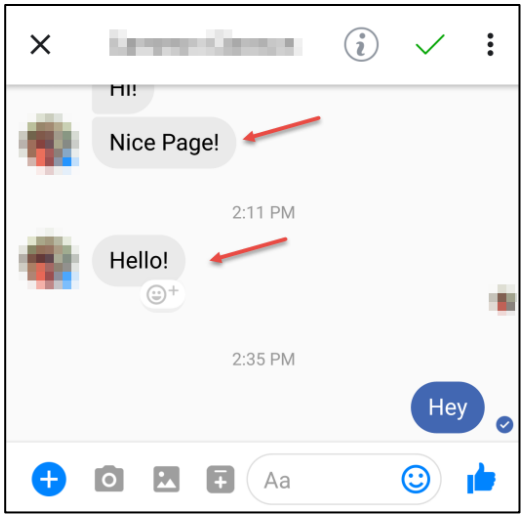
*1(b) outputting an electronic conversation comprising a plurality of indications, each indication being representative of at least a portion of a corresponding messaging communication between the electronic device and a second electronic device;*



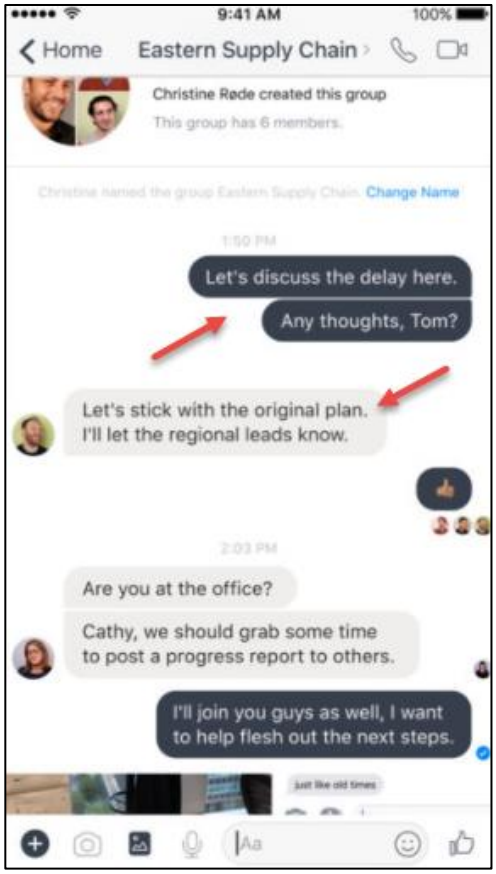

Facebook Messenger




Facebook Messenger Lite

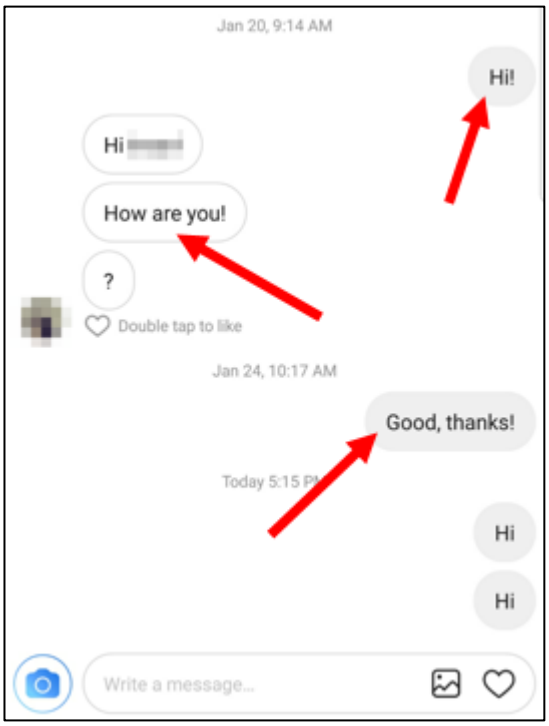



Facebook Pages Manager



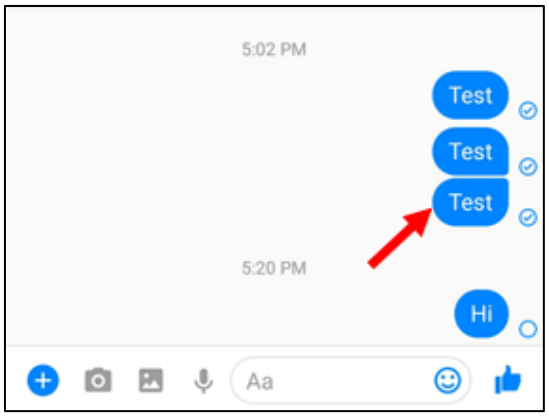

Facebook Workplace Chat


WhatsApp Messenger

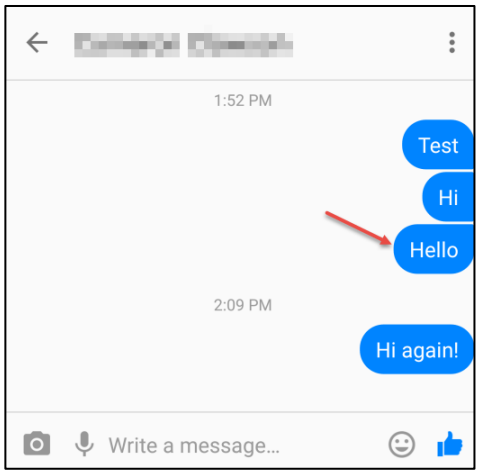



Instagram

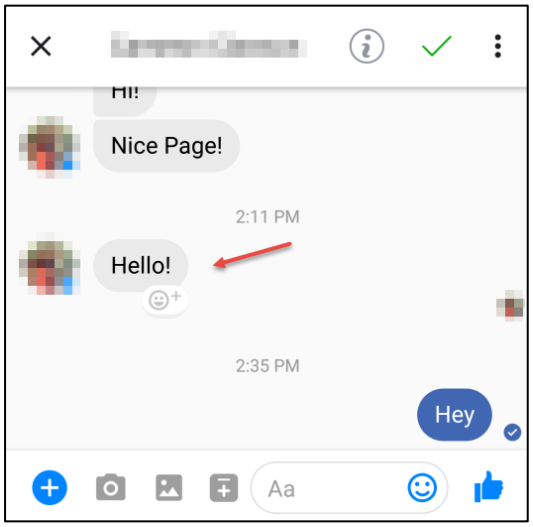
*1(c) identifying a first messaging communication between the electronic device and the second electronic device occurring at a first time, the first messaging communication having a corresponding first indication representative of at least a portion of the first messaging communication and which is one of the plurality of indications;*



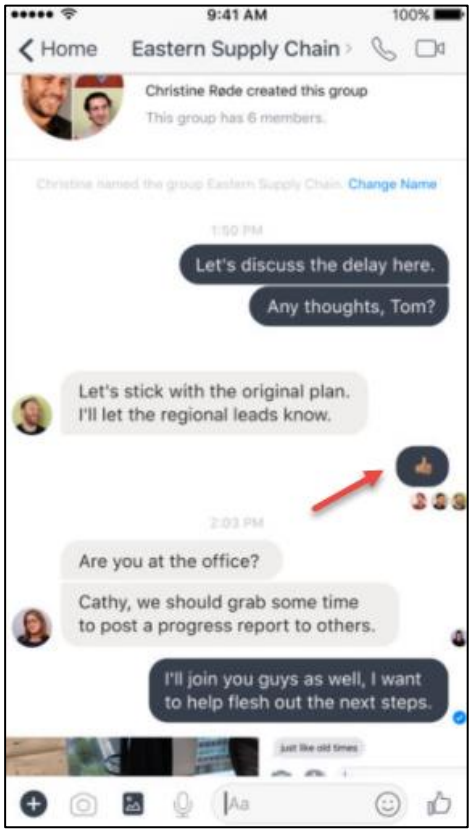

Facebook Messenger




Facebook Messenger Lite

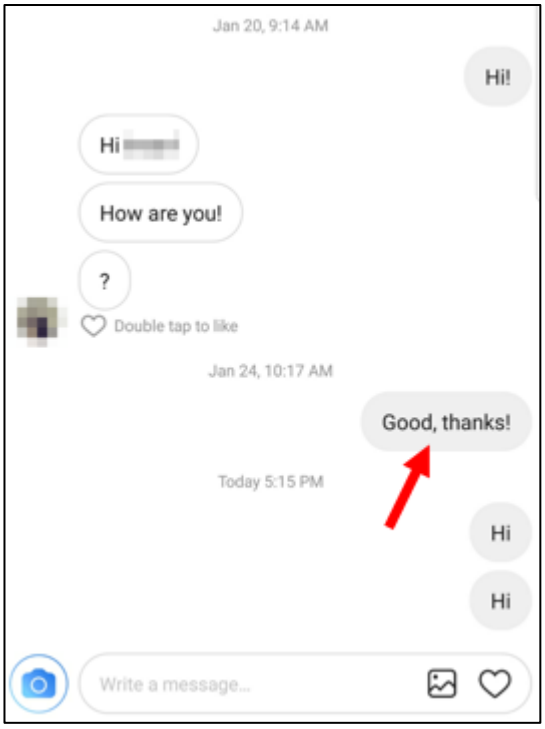



Facebook Pages Manager



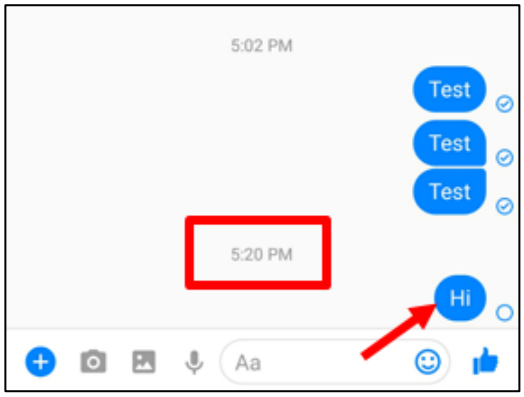

Facebook Workplace Chat


WhatsApp Messenger

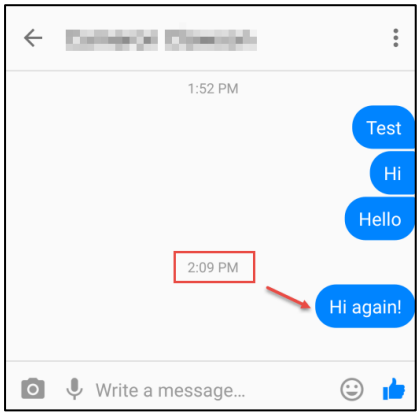



Instagram

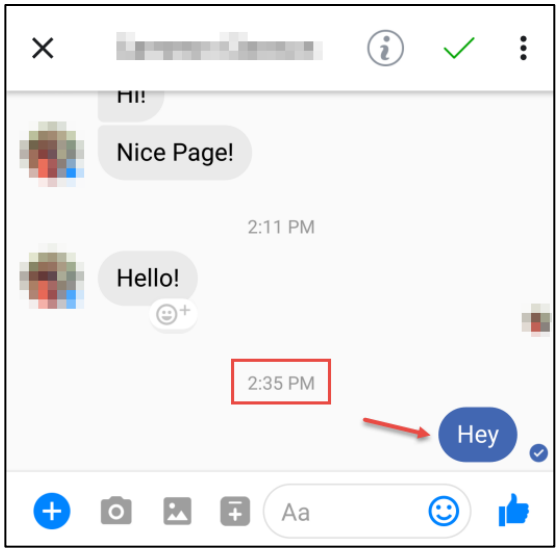
*1(d) determining that a predetermined duration of time has elapsed since the first time without additional communication between the electronic device and the second electronic device during that duration of time; 1(e) detecting an input to the electronic device following said identifying and determining steps, said input occurring at a second time; and 1(f) responsive to said detecting an input, outputting in the electronic conversation, a time stamp representative of the second time.*



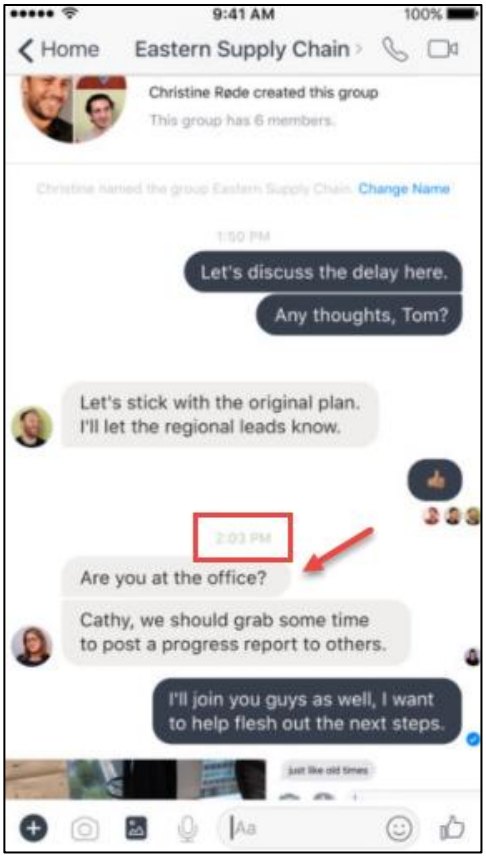

Facebook Messenger



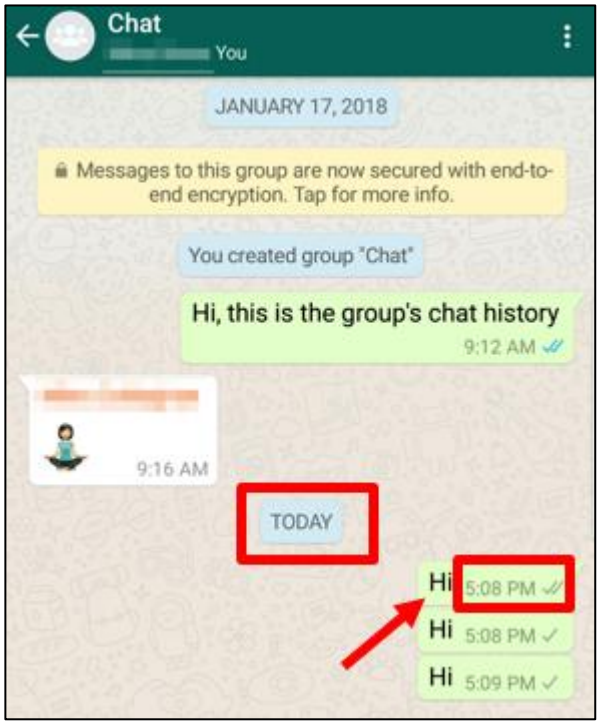

Facebook Messenger Lite



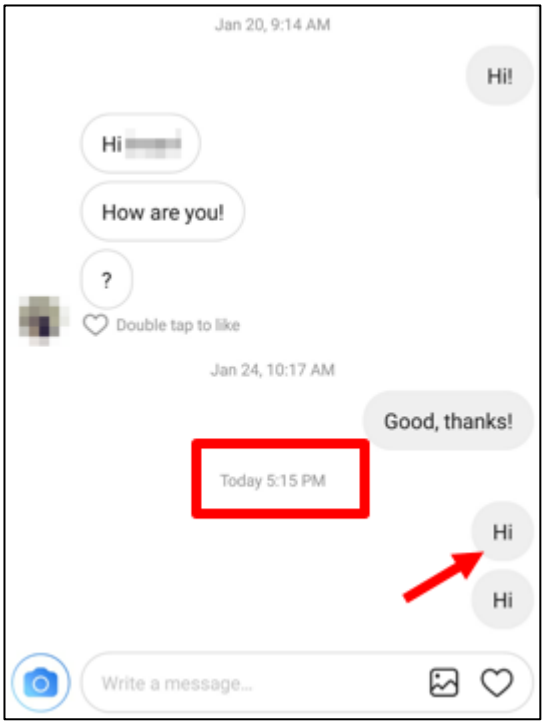

Facebook Pages Manager




Facebook Workplace Chat




WhatsApp Messenger




Instagram

193. Additionally, Defendants have been, and currently are, active inducers of infringement of the '713 Patent under 35 U.S.C. § 271(b) and contributory infringers of the '713 Patent under 35 U.S.C. § 271(c).

194. Defendants knew of the '713 Patent, or should have known of the '713 Patent but were willfully blind to its existence. Upon information and belief, Defendants have had actual knowledge of the '713 Patent since at least as early as the filing and/or service of this Complaint. Defendants have provided the '713 Accused Products to their customers and, on information and belief, instructions to use the '713 Accused Products in an infringing manner while being on notice of or willfully blind to the '713 Patent and the Defendants' infringement. Therefore, on information and belief, Defendants knew or should have known of the '713 Patent and of their own infringing acts, or deliberately took steps to avoid learning of those facts.

195. Defendants knowingly and intentionally encourage and aid at least their end-user customers to directly infringe the '713 Patent.

196. Upon information and belief, Defendants provide the '713 Accused Products to customers through various third-party application stores (*e.g.*, the Apple App Store) and instructions to end-user customers so that such customers will use the '713 Accused Products in an infringing manner. For example, Defendants provide instructions to end-user customers on how to set up, configure, and use various features of the '713 Accused Products, including how to send messages.[25]

197. Defendants' end-user customers directly infringe at least claims 1, 5, and 9 of the '713 Patent by using the '713 Accused Products in their intended

[25] *See* https://www.facebook.com/help/messenger-app/345021679200618/?helpref=hc_fnav&bc[0]=691363354276356&bc[1]=1322973511088245&bc[2]=1835098660060900; https://www.whatsapp.com/download/ https://faq.whatsapp.com/; https://help.instagram.com/684926628219030; https://help.instagram.com/155540431448273?helpref=related&ref=related.

manner. Defendants induce such infringement by providing the '713 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '713 Patent. Upon information and belief, Defendants specifically intend that their actions will result in infringement of at least claims 1, 5, and 9 of the '713 Patent, or subjectively believe that their actions will result in infringement of the '713 Patent but took deliberate actions to avoid learning of those facts.

198. Additionally, Defendants contributorily infringe at least claims 1, 5, and 9 of the '713 Patent by providing the '713 Accused Products and/or software components thereof, that embody a material part of the claimed inventions of the '713 Patent, that are known by Defendants to be specially made or adapted for use in an infringing manner, and are not staple articles with substantial non-infringing uses. The '713 Accused Products are specially designed to infringe at least claims 1, 5, and 9 of the '713 Patent, and their accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

199. Additional allegations regarding Defendants' knowledge of the '713 Patent and willful infringement will likely have further evidentiary support after a reasonable opportunity for discovery.

200. Defendants' infringement of the '713 Patent was and continues to be willful and deliberate, entitling BlackBerry to enhanced damages and attorneys' fees.

201. Defendants' infringement of the '713 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

202. BlackBerry has been damaged by Defendants' infringement of the '713

Patent and will continue to be damaged unless Defendants are enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

203. BlackBerry is entitled to recover from Defendants all damages that BlackBerry has sustained as a result of Defendants' infringement of the '713 Patent, including without limitation lost profits and not less than a reasonable royalty.

**COUNT V: INFRINGEMENT OF U.S. PATENT NO. 8,429,236**

204. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

**The '236 Patent**

205. The '236 Patent discloses, among other things, methods and devices for "[s]electing and modifying the transmission rates and sizes of status update messages transmitted by a mobile communications device to a recipient application based on use of the updates by the recipient application." '236 Patent, Abstract.

206. The '236 Patent explains that "modern mobile communications devices support a large variety of data-enabled applications, including applications that utilize data generated or collected at the mobile communications device. This may include, for example, applications that are aware of the location of the mobile communications device. Taking advantage of these capabilities, users of mobile communications devices are increasingly mobile and social." *Id.* at 1:21-28. However, "[t]ransmissions from the mobile communications device over a wireless communications system consume resources that would be desirable to conserve" as each transmission sent from such a device consumes power from the device's battery. *Id.* at 1:29-36. The '236 Patent provides a mechanism for a mobile device to efficiently transmit data generated or collected at that device to a different recipient device.

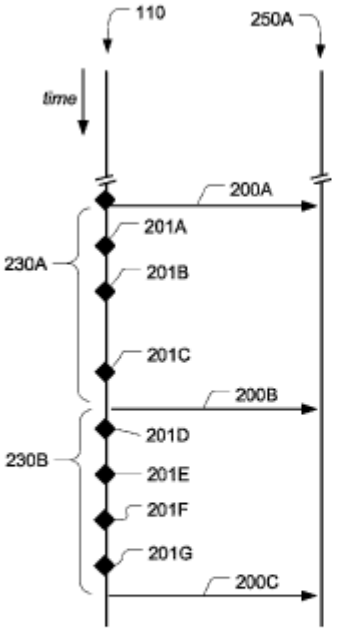
207. The '236 Patent explains further, "[m]odern mobile communications

devices may have the capability of collecting or generating information. This information may be included in a status update, where each status update has information that has been collected or generated since the previous status update. A mobile communications device may be configured to generate or collect a plurality of status updates during a period of time, and include the plurality of status updates in a status message transmitted over a wireless network to a recipient application." *Id*. at 2:46-54. One particular form of such status updates described in the '236 Patent are location updates concerning the location of the mobile device. *Id*. 5:10-24.

208. The '236 Patent provides "arrangements which enable a mobile communications device to transmit status updates efficiently over a wireless network to a recipient application. In one solution, the mobile communications device utilizes different message transmission modes based on the activity of the recipient application—*i.e.*, whether or not the recipient application is actively processing status updates. The different message transmission modes may implement different amounts of delay between status messages and number of the status updates included in each status message. In one implementation, the mobile communications device may automatically select a different message transmission mode when the mobile communications device determines that the recipient application is actively processing status updates." *Id*. at 3:7-20.

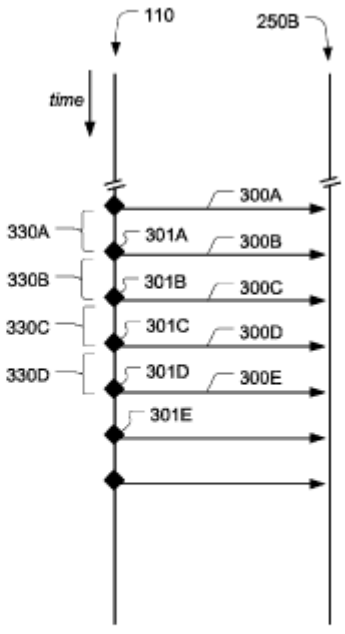
209. Figures 2 and 3 of the '236 Patent show exemplary methods by which the patent enables efficient transmission of status updates. "FIG. 2 is a sequence diagram illustrating mobile communications device 110 transmitting status updates using a conservative message transmission mode. In FIG. 2, recipient application 250 is not actively processing status updates, and therefore appears as a non-active recipient application 250A. Mobile communications device 110 is generating status updates 201, for example 201A, 201B, 201C, 201D, 201E, 201F, and 201G." *Id*. at 9:54-61. Such a conservative transmission mode is desirable when the recipient

application is not actively processing status updates because it allows the sending device to conserve resources while still allowing the recipient to generate an output in the future based on the status updates that were sent. *Id*. at 9:48-54. However, "when a recipient application 250 is actively processing status updates it may be desirable for the mobile communications device 110 to transmit status messages using the accelerated message transmission mode. FIG. 3 illustrates the mobile communications device 110 transmitting status messages, such as status messages 300A, 300B, 300C, 300D and 300E to a recipient application 250B that is actively processing the status updates to generate an output based on the status updates." *Id*. at 10:32-40. Generally, status updates are sent more frequently and/or contain more data when the sending mobile device operates using the accelerated transmission mode than when it operates in the conservative transmission mode. *Id*. at 10:60-11:13.




Conservative
Message Transmission Mode

Figure 2




Accelerated
Message Transmission Mode

Figure 3

210. The '236 Patent thus describes, *inter alia*, "[a] method in a mobile

communications device that transmits status messages to a recipient application, each status message including at least one status update, the method comprising: transmitting status messages using a first message transmission mode; and upon determining that the recipient application is actively processing status updates, transmitting status messages using a second message transmission mode, the second message transmission mode being different from the first message transmission mode." *Id*., at claim 1.

**The Inventions Claimed in the '236 Patent Were Not Well-Understood, Routine, or Conventional**

211. Using a mobile communication device to transmit status messages including status updates to a recipient application using a first transmission mode and, upon determination that the recipient application is actively processing status updates, transmitting status messages using a different second transmission mode was not common or conventional at the time of the invention of the '236 Patent.

212. At the time of the invention of the '236 Patent, mobile communication devices supported a variety of data-enabled applications, "including applications that utilize data generated or collected at the mobile communications device." '236 Patent at 1:21-24. This generated or collected data, such as the mobile device's location data, could be transmitted to other recipient devices and applications in the form of status updates. *Id*. at 1:14-17. Repeated transmission of status updates allows a recipient to attain an accurate, near real-time view of the status of the sender or sending application. However, the frequent transmission of status updates taxes the limited resources of the transmitting mobile device, including the device's battery life and, in some instances, bandwidth, as every transmission consumes power and could also utilize a wireless communications channel. *Id*. at 1:33-36. The '236 Patent's inventors therefore recognized that "[t]o conserve resources, a solution for efficient transmission of status updates from mobile communications devices would provide an advance in the field." *Id*. at 1:37-39.

213. The inventors of the ’236 Patent recognized that an efficient means of transmitting status updates from a mobile communications device could be provided by utilizing different transmission modes based on whether or not the recipient application is actively processing status updates. *Id*. at 3:7-13. For example, the mobile communications device may implement different amounts of delay between status update messages or may adjust the amount of data contained in each message depending on the transmission mode. *Id*. at 3:13-16. The transmitting mobile device thereby tailors the way in which it transmits status updates based on a determination of the recipient’s use thereof thereby allowing the transmitting device to conserve resources during times when the recipient is not actively processing status updates. *Id*. at 3:20-24.

214. Given the state of the art at the time of the invention of the ’236 Patent, the inventive concepts of the ’236 Patent cannot be considered to be conventional, well-understood, or routine. The ’236 Patent discloses, among other things, an unconventional solution to an issue specifically arising in the context of mobile communications devices and offered a technological solution to that issue resulting in improved communications devices, including by introducing novel elements directed to improving the function and working of communications devices such as, *inter alia*, the claimed “transmitting status messages using a first message transmission mode; and upon determining that the recipient application is actively processing status updates, transmitting status messages using a second message transmission mode, the second message transmission mode being different from the first message transmission mode” (claim 1), “a mode selector configured to determine whether a recipient application is actively processing status updates and to select a message transmission mode based on whether the recipient application is actively processing status updates” (claim 15), and “a message generator configured to generate status messages and to cause transmission of status messages from the mobile communications device to a recipient application using the selected message

transmission mode" (claim 15).

215. Consistent with the problem addressed being rooted in electronic communications devices and systems, the '236 Patent's solutions naturally are also rooted in the same technology that cannot be performed with pen and paper or in the human mind.

216. This technical context is reflected in the '236 Patent's claims. For example, various claims of the '236 Patent require a mobile communications device, a recipient application, first and second transmission modes, a mode selector, and a message generator.

217. A person having ordinary skill in the art at the time of the inventions of the '236 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the '236 Patent and the problem it was specifically designed to address. Doing so would also run counter to the inventors' detailed description of the invention and the language of the claims and be a practical impossibility.

**'236 Patent Allegations**

218. Defendants Facebook and WhatsApp have infringed and are infringing, either literally or under the doctrine of equivalents, the '236 Patent in violation of 35 U.S.C. § 271 *et seq.*, directly and/or indirectly, by making, using, selling, offering for sale, and/or importing into the United States without authority or license, the Facebook Messenger and WhatsApp Messenger applications (hereinafter "the '236 Accused Products") that infringe at least claims 1-2, 4, and 15-16 of the '236 Patent. The '236 Accused Products are non-limiting examples that were identified based on publicly available information, and BlackBerry reserves the right to identify additional infringing activities, products and services, including, for example, on the basis of information obtained during discovery.

219. On information and belief after reasonable investigation, the '236

Accused Products contain status update transmission functionality designed and used to transmit status messages in different modes depending on whether a recipient application is actively processing status updates in a manner that infringes the '236 Patent.

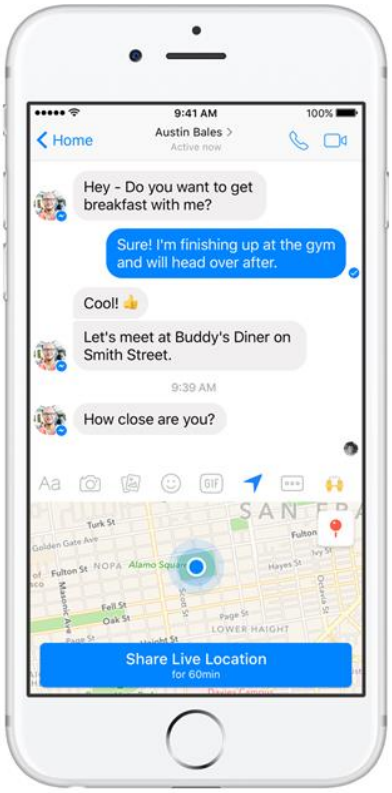
220. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 1 of the '236 Patent in connection with the "Share Live Location" feature of the Facebook Messenger and WhatsApp Messenger applications. On information and belief, Facebook Messenger's "Live Location" is materially the same functionality as WhatsApp Messenger's "Share Live Location" feature, thereby also infringing the claim.

221. This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information about the '236 Accused Products that it obtains during discovery.

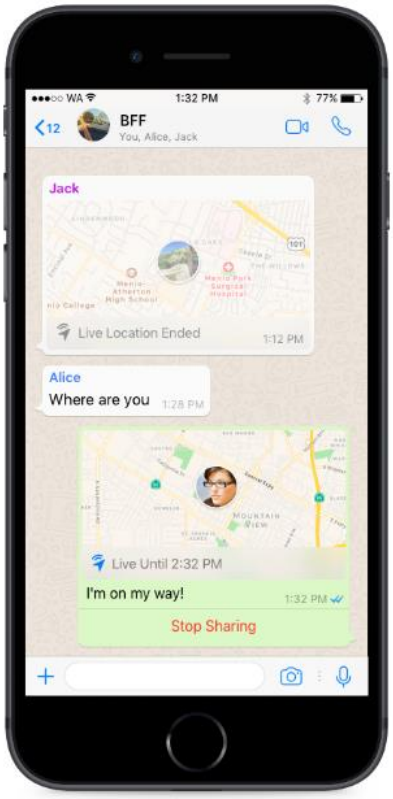
*1(a) A method in a mobile communications device that transmits status messages to a recipient application, each status message including at least one status update, the method comprising:* - Facebook and WhatsApp make and use the Facebook Messenger and WhatsApp Messenger software applications. Regardless of whether the preamble of claim 1 adds any substantive limitation to the claim, the claim language is met by the '236 Accused Products, as the '236 Accused Products include a method in a mobile communications device that transmits status messages to a recipient application, each status message including at least one status update—such as a status update of the device's location—as further described below for the remaining claim limitations. *See, e.g.*, https://newsroom.fb.com/news/2015/06/a-new-way-to-send-a-location-in-messenger/; https://newsroom.fb.com/news/2017/03/introducing-live-location-in-messenger/ ("Today we're excited to announce a new way to share your location in Messenger. Our new Live Location feature makes it simple and seamless for you to choose to

share where you are with your friends and family. This is rolling out globally and is available on both iOS and Android."); https://blog.whatsapp.com/10000634/Share-your-live-location ("Today, we're rolling out a new feature that allows you to share your location in real-time with family or friends. Whether you're meeting up with friends, letting loved ones know you're safe, or sharing your commute, Live Location is a simple and secure way to let people know where you are.").

*1(b) transmitting status messages using a first message transmission mode; and;*



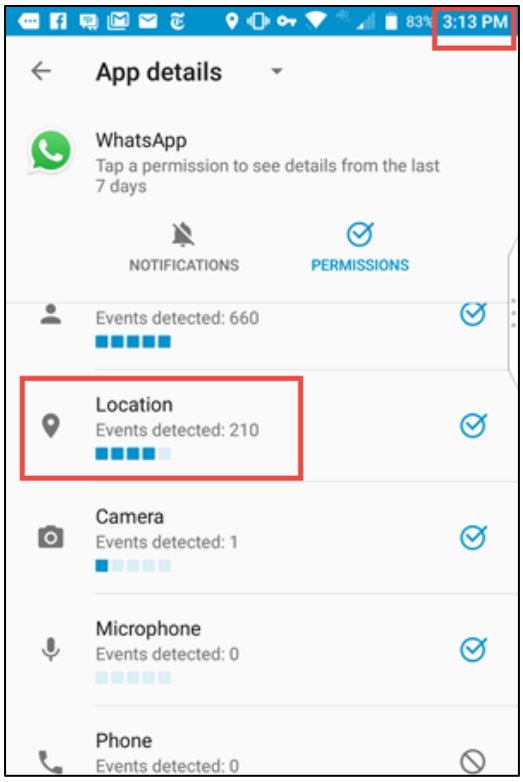

Facebook Messenger

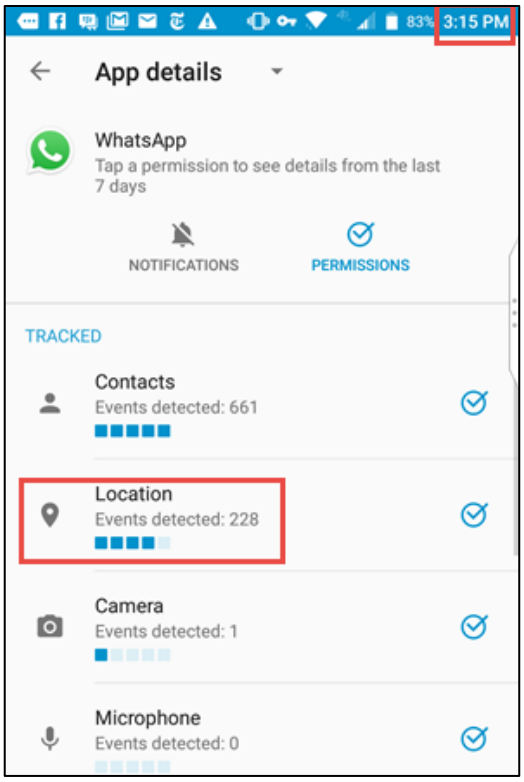



WhatsApp Messenger

Based on statements made by Zafir Khan, Product Manager at WhatsApp, WhatsApp Messenger transmits in different modes depending on whether a recipient is currently viewing a shared location. Regarding the WhatsApp "Share Live Location" feature, Mr. Khan stated: "[w]e have special techniques to help conserve your battery when sharing live location. So it takes into account a number of different factors, such as how long you've been sharing your live location, *whether*

*someone on the other end who you are sharing with is actually looking at the map*, your current battery level."[26] On information and belief, Facebook Messenger implements the same functionality in order to preserve device battery life. Further, the images below show analytics taken from the WhatsApp Messenger application over a two-minute period wherein the application was sharing live location information with a recipient and the recipient device was not actively viewing the location information. During this two-minute period, WhatsApp accessed the sending device's location data a total of 18 times.



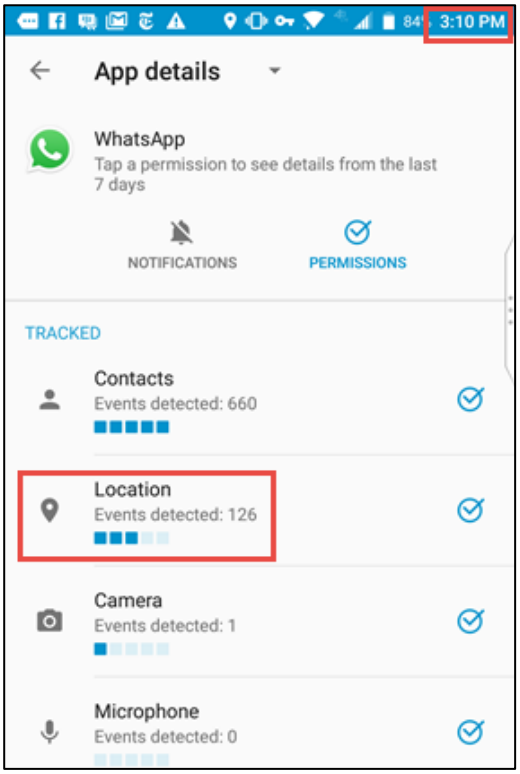



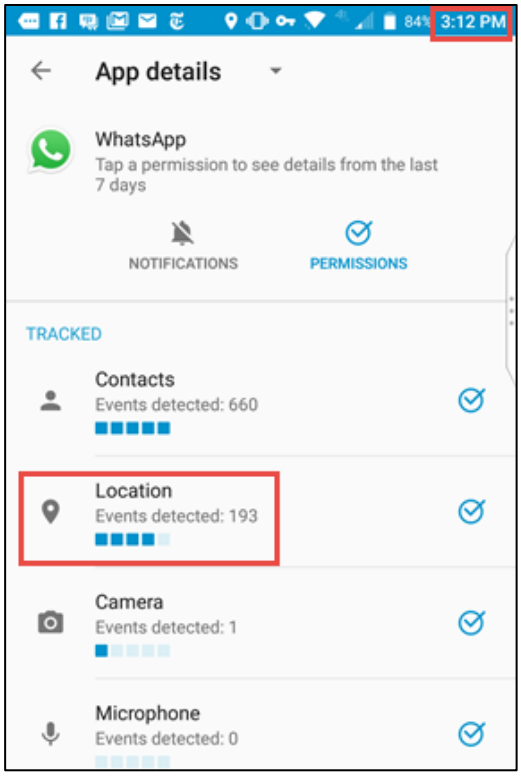

*1(c) upon determining that the recipient application is actively processing status updates, transmitting status messages using a second message transmission mode, the second message transmission mode being different from the first message transmission mode.* - Based on statements made by Zafir Khan, Product Manager at

[26] *See* https://gadgets.ndtv.com/apps/news/whatsapp-live-location-sharing-feature-tracking-apk-android-how-to-get-it-1764236.

WhatsApp, WhatsApp Messenger transmits in different modes depending on whether a recipient is currently viewing a shared location. Regarding the WhatsApp "Share Live Location" feature, Mr. Khan stated: "[w]e have special techniques to help conserve your battery when sharing live location. So it takes into account a number of different factors, such as how long you've been sharing your live location, *whether someone on the other end who you are sharing with is actually looking at the map*, your current battery level."[27] On information and belief, Facebook Messenger implements the same functionality in order to preserve device battery life. Further, the images below show analytics taken from the WhatsApp Messenger application over a two-minute period wherein the application was sharing live location information with a recipient and the recipient device was actively viewing the location information. During this two-minute period, WhatsApp accessed the sending device's location data a total of 67 times. A sending mobile device using WhatsApp's "Share Live Location" function accesses the device's location data and, on information and belief, transmits location updates based on that data far more frequently when a recipient is actively viewing the transmitted location updates.

[27] *Id.*




222. Additionally, Facebook and WhatsApp have been, and currently are, active inducers of infringement of the ’236 Patent under 35 U.S.C. § 271(b) and contributory infringers of the ’236 Patent under 35 U.S.C. § 271(c).

223. Facebook and WhatsApp knew of the ’236 Patent, or should have known of the ’236 Patent but were willfully blind to its existence. Upon information and belief, Facebook and WhatsApp have had actual knowledge of the ’236 Patent since at least as early as the filing and/or service of this Complaint. Facebook and WhatsApp have provided the ’236 Accused Products to their customers and, on information and belief, instructions to use the ’236 Accused Products in an infringing manner while being on notice of or willfully blind to the ’236 Patent and Facebook’s and WhatsApp’s infringement. Therefore, on information and belief, Facebook and WhatsApp knew or should have known of the ’236 Patent and of their own infringing acts, or deliberately took steps to avoid learning of those facts.

224. Facebook and WhatsApp knowingly and intentionally encourage and

aid at least their end-user customers to directly infringe the '236 Patent.

225. Upon information and belief, Facebook and WhatsApp provide the '236 Accused Products to customers through various third-party application stores (*e.g.*, the Apple App Store), and instructions to end-user customers so that such customers will use the '236 Accused Products in an infringing manner. For example, Facebook and WhatsApp provide instructions to end-user customers on how to set up, configure, and use various features of the '236 Accused Products, as well as to use Live Location functionality.[28]

226. Facebook's and WhatsApp's end-user customers directly infringe at least claims 1-2, 4, and 15-16 of the '236 Patent by using the '236 Accused Products in their intended manner. Facebook and WhatsApp induce such infringement by providing the '236 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '236 Patent. Upon information and belief, Facebook and WhatsApp specifically intend that their actions will result in infringement of at least claims 1-2, 4, and 15-16 of the '236 Patent, or subjectively believe that their actions will result in infringement of the '236 Patent but took deliberate actions to avoid learning of those facts.

227. Additionally, Facebook and WhatsApp contributorily infringe at least claims 1-2, 4, and 15-16 of the '236 Patent by providing the '236 Accused Products and/or software components thereof that embody a material part of the claimed inventions of the '236 Patent, that are known by Facebook and WhatsApp to be specially made or adapted for use in an infringing manner, and are not staple articles

[28] *See* https://newsroom.fb.com/news/2017/03/introducing-live-location-in-messenger/; https://www.facebook.com/help/messenger-app/1256099024444800; https://newsroom.fb.com/news/2015/06/a-new-way-to-send-a-location-in-messenger/; https://blog.whatsapp.com/10000634/Share-your-live-location; https://faq.whatsapp.com/en/android/26000049/; https://faq.whatsapp.com/en/iphone/26000053/?category=5245251.

with substantial non-infringing uses. The '236 Accused Products are specially designed to infringe at least claims 1-2, 4, and 15-16 of the '236 Patent, and their accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

228. Additional allegations regarding Facebook's and WhatsApp's knowledge of the '236 Patent and willful infringement will likely have further evidentiary support after a reasonable opportunity for discovery.

229. Facebook's and WhatsApp's infringement of the '236 Patent was and continues to be willful and deliberate, entitling BlackBerry to enhanced damages and attorneys' fees.

230. Facebook's and WhatsApp's infringement of the '236 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

231. BlackBerry has been damaged by Facebook's and WhatsApp's infringement of the '236 Patent and will continue to be damaged unless Facebook and WhatsApp are enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

232. BlackBerry is entitled to recover from Facebook and WhatsApp all damages that BlackBerry has sustained as a result of Facebook's and WhatsApp's infringement of the '236 Patent, including without limitation lost profits and not less than a reasonable royalty.

## COUNT VI: INFRINGEMENT OF U.S. PATENT NO. 8,677,250

233. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

### The '250 Patent

234. The '250 Patent discloses, among other things, systems and methods for "enabling a game to be played on an electronic device, comprising: enabling a game application on the electronic device to utilize a contact list for an instant messaging application, during a game in progress with a particular contact in the contact list, preparing game messages to be sent to the particular contact by including game progress data, communicating at least one game message during the game in progress with the particular contact using an instant messaging system used by the instant messaging application; displaying at least one instant message in an instant messaging conversation user interface; and displaying a game in progress user interface associated with the game play, after detecting a selection in the instant messaging conversation user interface to switch to the game in progress." '250 Patent, Abstract.

235. The '250 Patent explains that "[c]ommunication devices such as personal computers, wireless mobile telephones, personal data assistants, etc. often provide data communication abilities to users. One currently popular form of such communication is Instant Messaging (IM) facilitated by an application having a graphical user interface (GUI) whereby two or more users of different communication devices can engage in a conversational data communication exchange." *Id*. at 1:23-30.

236. The '250 Patent also explains that "[t]o permit IM message exchanges, a user may invite another to agree to receive IM messages and be included in the user's list of IM contacts (sometimes called an IM friend or buddy in view of the agreement to be a potential IM message recipient)." *Id.* at 1:31-35. Furthermore, "[i]n addition to conducting conversations, an IM user may invite a buddy to engage in an on-line game where two (or more) players take turns during game play to compete against each other. Conventional board and card games such as checkers or poker may be adapted for IM game playing for example, among others. A game may be invoked via a game application interface or from within an IM application

providing an interface to a game application." *Id*. at 1:45-52.

237. The '250 Patent provides a technological improvement in wireless communications and mobile gaming. The '250 Patent discloses, for example, enabling a game application on an electronic device to utilize a contact list for an instant messaging application for playing games with contacts by identifying game play in the contact list. Fig. 7B illustrates an exemplary instant messaging interface wherein "a single individual contact element (*e.g.* 704) may represent a contact element for both IM conversation and IM game purposes…." *Id.* at 10:60-63.

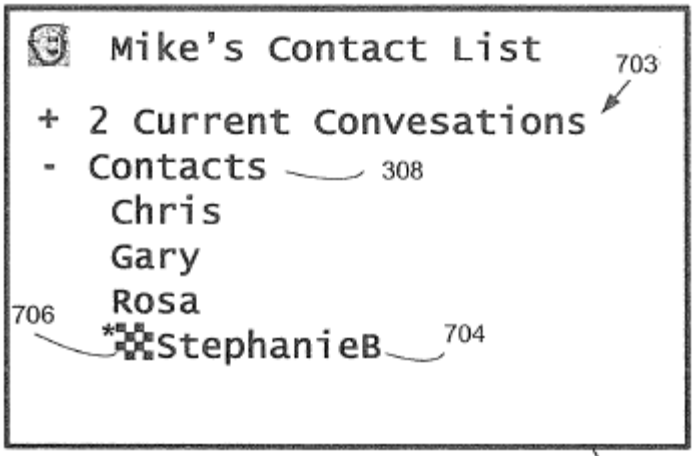



FIG. 7B

238. The '250 Patent further discloses preparing game messages to be sent to a contact during a game in progress with that contact by including game progress data in an instant message with an identifier to associate the data with the game application, sending at least one game message during the game in progress via an instant messaging system, and displaying at least one instant message in an instant messaging conversation indicating game progress. Fig. 5B illustrates an exemplary instant messaging user interface where "[a]s a new move is received from the contact in the associated game in progress, a notification of the new move 522 is presented in the conversation screen (*e.g.* portion 504) in a manner similar to how a new message is presented." The '250 Patent also discloses displaying a game in progress user interface after detecting a selection in the instant messaging user

interface to switch to the game in progress. Referring to Fig. 5B, a "user may then select and open or switch (not shown) to the game in progress from the conversation interface 520."

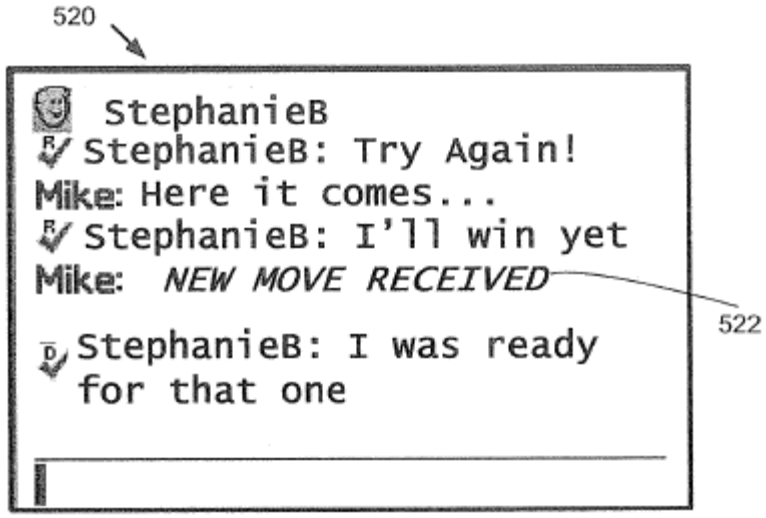



FIG. 5B

239. The '250 Patent thus describes, *inter alia*, "[a] method of enabling a game to be played on an electronic device, the method comprising: enabling a game application on the electronic device to utilize a contact list for an instant messaging application for playing games with contacts in the contact list by identifying game play in the contact list; during a game in progress with a particular contact in the contact list, preparing game messages to be sent to the particular contact by including game progress data in an instant messaging message and an identifier to associate the data with the game application; communicating at least one game message during the game in progress with the particular contact using an instant messaging system used by the instant messaging application; displaying at least one instant message in an instant messaging conversation user interface associated with the particular contact indicative of game progress, the instant messaging conversation user interface enabling additional instant messages to be sent to the particular contact in addition to instant messages indicating game play; and displaying a game in progress user interface associated with the game play, after detecting a selection in the instant messaging conversation user interface to switch

to the game in progress." *Id*. at claim 1.

**The Inventions Claimed in the '250 Patent Were Not Well-Understood, Routine, or Conventional**

240. An electronic communication device enabling a game application on the device to utilize a contact list for an instant messaging application, prepare and send game messages to a particular contact during a game in progress with the contact using the instant messaging application, and displaying the game in progress interface upon detecting a selection in the instant messaging user interface was not common or conventional at the time of the '250 Patent.

241. At the time of the '250 Patent, communication device users were able to invite instant messaging contacts to play on-line games. However, the '250 Patent recognizes that "[a] user may play more than one game at a time or play a game in a non-linear manner, leaving a game interface to perform other tasks such as email, calendar review, etc." '250 Patent at 1:53-55.

242. The inventors of the '250 Patent recognized the benefit of providing an interface between an instant messaging application and a game in progress, and the inventors solved this problem by, *inter alia*, providing an electronic device enabling a game application to utilize a contact list for an instant messaging application, preparing and sending game messages to a contact during a game in progress with the contact, and enabling a switch to a game in progress user interface associated with the game upon detecting a selection in the instant messaging user interface.

243. Given the state of the art at the time of the invention of the '250 Patent, the inventive concepts of the '250 Patent were not conventional, well-understood, or routine. The '250 Patent discloses, among other things, an unconventional solution to an issue arising in the context of electronic communication devices, instant messaging communications applications within those devices, and gaming applications within those devices. The '250 Patent offered a technological solution to that issue that provides a specific and substantial improvement over prior gaming

and messaging platforms in electronic devices, including by introducing novel elements directed to improving the function and working of electronic devices such as, *inter alia*, the claimed "enabling a game application on the electronic device to utilize a contact list for an instant messaging application for playing games with contacts in the contact list by identifying game play in the contact list" (claims 1, 9, and 17), "during a game in progress with a particular contact in the contact list, preparing game messages to be sent to the particular contact by including game progress data in an instant messaging message and an identifier to associate the data with the game application" (same), "communicating at least one game message during the game in progress with the particular contact using an instant messaging system used by the instant messaging application" (same), "displaying at least one instant message in an instant messaging conversation user interface associated with the particular contact indicative of game progress, the instant messaging conversation user interface enabling additional instant messages to be sent to the particular contact in addition to instant messages indicating game play" (same), and "displaying a game in progress user interface associated with the game play, after detecting a selection in the instant messaging conversation user interface to switch to the game in progress" (same).

244. Consistent with the problem addressed being rooted in gaming and messaging systems on electronic devices, the '250 Patent's solutions naturally are also rooted in the same technology that cannot be performed with pen and paper or in the human mind.

245. This technical context is reflected in the '250 Patent's claims. For example, various claims of the '250 Patent require an electronic device, a game application on the electronic device, a contact list for an instant messaging application, an instant messaging message, an instant messaging conversation user interface, and a game in progress user interface.

246. A person having ordinary skill in the art at the time of the inventions of

the ’250 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the ’250 Patent and the problem it was specifically designed to address. Doing so would also run counter to the inventors’ detailed description of the inventions and the language of the claims and be a practical impossibility.

**’250 Patent Allegations**

247. Facebook has infringed and is infringing, either literally or under the doctrine of equivalents, the ’250 Patent in violation of 35 U.S.C. § 271 *et seq*., directly and/or indirectly, by making, using, selling, offering for sale, and/or importing into the United States without authority or license, the www.facebook.com website and Facebook Messenger application (hereinafter “the ’250 Accused Products”) that infringe at least claims 1, 9, and 17 of the ’250 Patent. The ’250 Accused Products are non-limiting examples that were identified based on publicly available information, and BlackBerry reserves the right to identify additional infringing activities, products and services, including, for example, on the basis of information obtained during discovery.

248. On information and belief after reasonable investigation, the ’250 Accused Products contain functionality designed and used to enable a game application to utilize a contact list for an instant messaging application, to prepare and send game progress messages using the instant messaging application, and to display a game in progress user interface after a selection in the instant messenger interface in a manner that infringes the ’250 Patent.

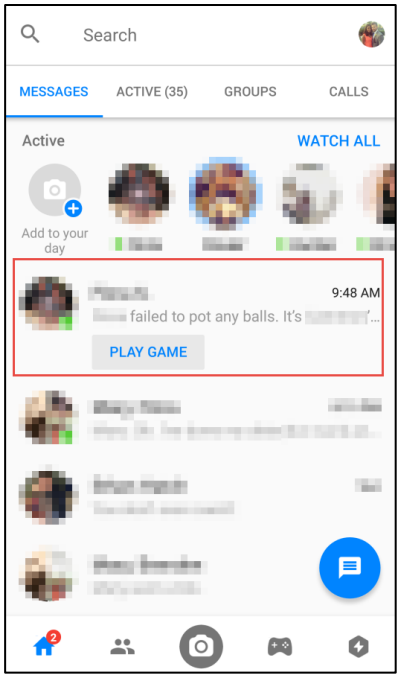
249. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 1 of the ’250 Patent in connection with www.facebook.com and Facebook Messenger. This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information about the ’250

Accused Products that it obtains during discovery.

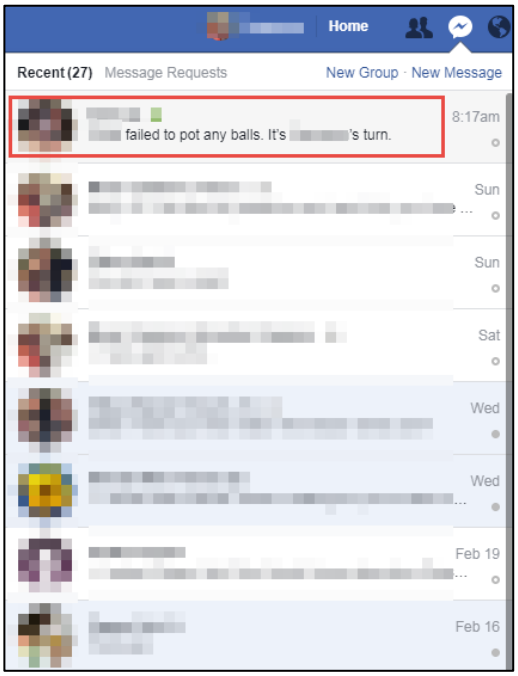
*1(a) A method of enabling a game to be played on an electronic device, the method comprising:* - Facebook makes and uses the Facebook Messenger application and www.facebook.com website. Regardless of whether the preamble of claim 1 adds any substantive limitation to the claim, the claim language is met by www.facebook.com and Facebook Messenger, as the Instant Games included in both www.facebook.com and the Facebook Messenger application enables a game to be played on an electronic device. *See, e.g.*:


https://newsroom.fb.com/news/2016/11/game-on-you-can-now-play-games-on-messenger/.

*1(b) enabling a game application on the electronic device to utilize a contact list for an instant messaging application for playing games with contacts in the contact list by identifying game play in the contact list;*

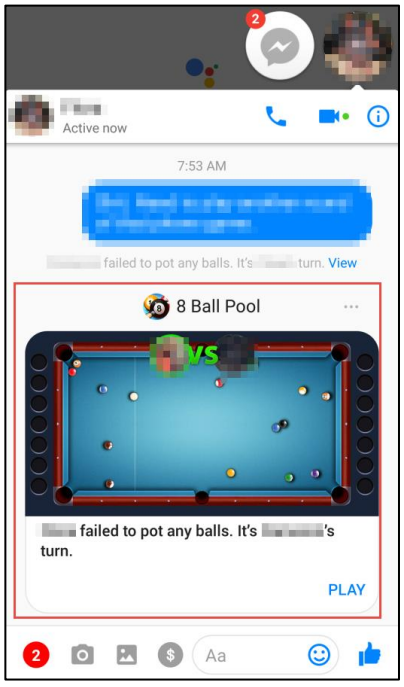



Facebook Messenger

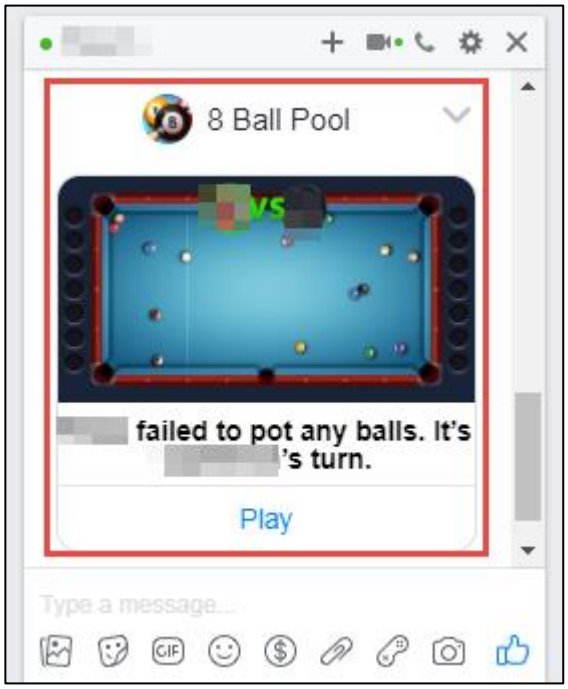



Facebook Website

*1(c) during a game in progress with a particular contact in the contact list, preparing game messages to be sent to the particular contact by including game progress data in an instant messaging message and an identifier to associate the data with the game application;*

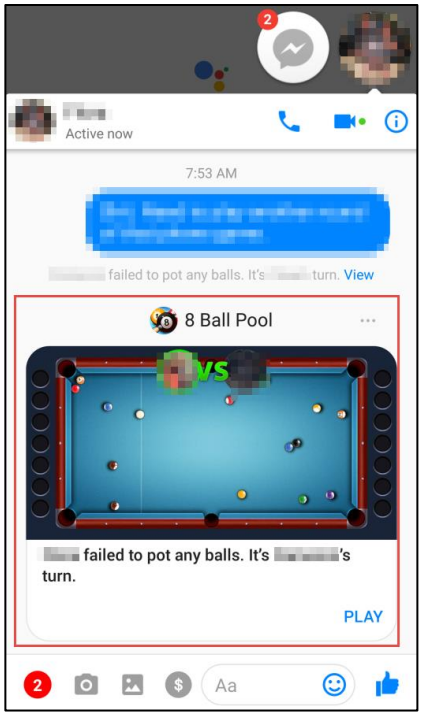



Facebook Messenger

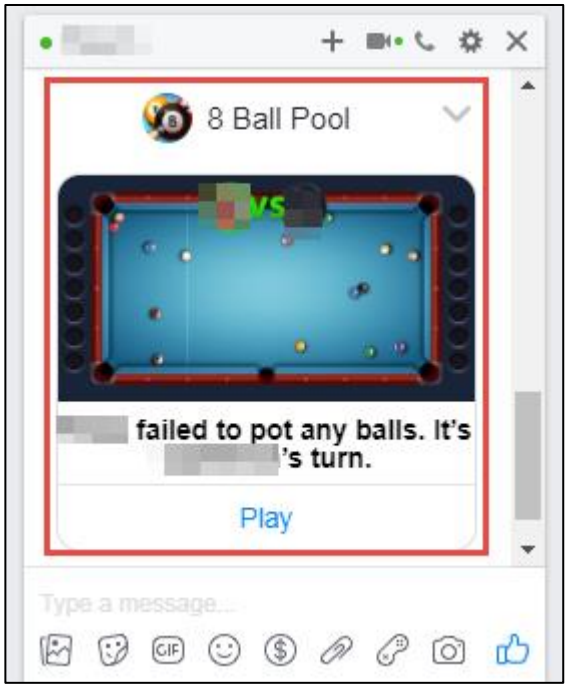



Facebook Website

*1(d) communicating at least one game message during the game in progress with the particular contact using an instant messaging system used by the instant messaging application;*

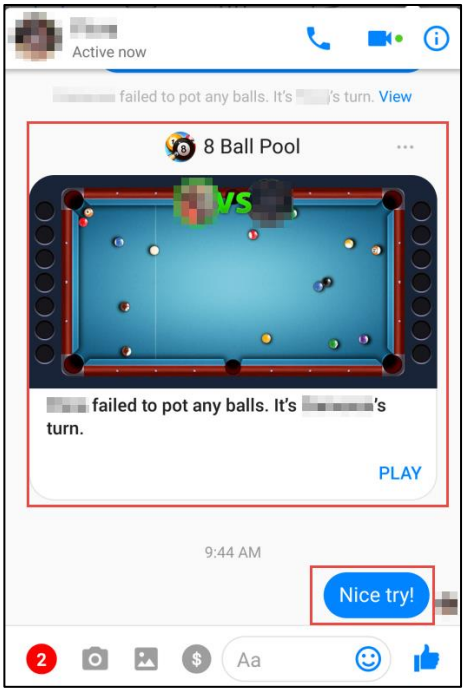



Facebook Messenger

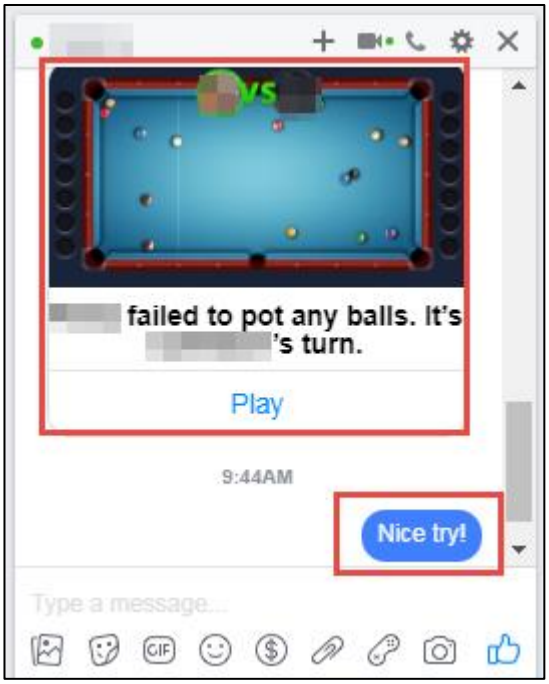



Facebook Website

*1(e) displaying at least one instant message in an instant messaging conversation user interface associated with the particular contact indicative of game progress, the instant messaging conversation user interface enabling additional instant messages to be sent to the particular contact in addition to instant messages indicating game play; and*

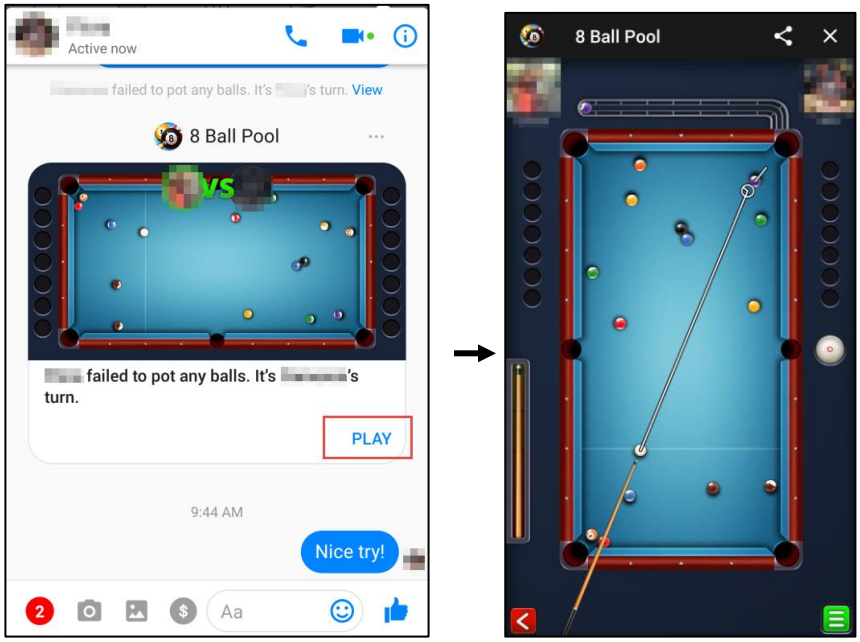



Facebook Messenger

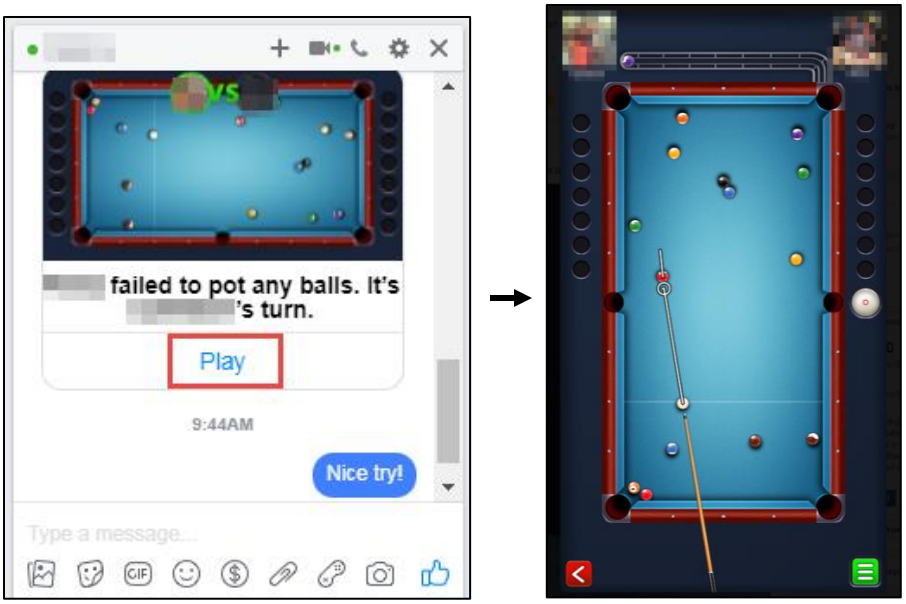



Facebook Website

*1(f) displaying a game in progress user interface associated with the game play, after detecting a selection in the instant messaging conversation user interface to switch to the game in progress.*




Facebook Messenger




Facebook Website

250. Additionally, Facebook has been, and currently is, an active inducer of infringement of the '250 Patent under 35 U.S.C. § 271(b) and contributory infringer of the '250 Patent under 35 U.S.C. § 271(c).

251. Facebook knew of the '250 Patent, or should have known of the '250 Patent but was willfully blind to its existence. Upon information and belief, Facebook has had actual knowledge of the '250 Patent since at least as early as the filing and/or service of this Complaint.

252. Facebook has provided the '250 Accused Products to its customers and, on information and belief, instructions to use the '250 Accused Products in an infringing manner while being on notice of or willfully blind to the '250 Patent and Facebook's infringement. Therefore, on information and belief, Facebook knew or should have known of the '250 Patent and of its own infringing acts, or deliberately took steps to avoid learning of those facts.

253. Facebook knowingly and intentionally encourages and aids at least its end-user customers to directly infringe the '250 Patent.

254. Upon information and belief, Facebook provides the '250 Accused Products to customers through various third-party application stores (*e.g.*, the Apple

App Store) and instructions to end-user customers so that such customers will use the '250 Accused Products in an infringing manner. For example, Facebook provides instructions to end-user customers on how to set up, configure, and use various features of the '250 Accused Products, as well as to play games using Facebook Messenger.[29]

255. Facebook's end-user customers directly infringe at least claims 1, 9, and 17 of the '250 Patent by using the '250 Accused Products in its intended manner to infringe. Facebook induces such infringement by providing the '250 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '250 Patent. Upon information and belief, Facebook specifically intends that its actions will result in infringement of at least claims 1, 9, and 17 of the '250 Patent, or subjectively believes that its actions will result in infringement of the '250 Patent but took deliberate actions to avoid learning of those facts, as set forth above.

256. Additionally, Facebook contributorily infringes at least claims 1, 9, and 17 of the '250 Patent by providing the '250 Accused Products and/or software components thereof, that embody a material part of the claimed inventions of the '250 Patent, that are known by Facebook to be specially made or adapted for use in an infringing manner, and are not staple articles with substantial non-infringing uses. The '250 Accused Products are specially designed to infringe at least claims 1, 9, and 17 of the '250 Patent, and its accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

[29] *See* https://newsroom.fb.com/news/2016/11/game-on-you-can-now-play-games-on-messenger/; https://www.facebook.com/help/357155771011033.

257. Additional allegations regarding Facebook's knowledge of the '250 Patent and willful infringement will likely have further evidentiary support after a reasonable opportunity for discovery.

258. Facebook's infringement of the '250 Patent was and continues to be willful and deliberate, entitling BlackBerry to enhanced damages and attorneys' fees.

259. Facebook's infringement of the '250 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

260. BlackBerry has been damaged by Facebook's infringement of the '250 Patent and will continue to be damaged unless Facebook is enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

261. BlackBerry is entitled to recover from Facebook all damages that BlackBerry has sustained as a result of Facebook's infringement of the '250 Patent, including without limitation lost profits and not less than a reasonable royalty.

## COUNT VII: INFRINGEMENT OF U.S. PATENT NO. 9,349,120

262. BlackBerry incorporates by reference and re-alleges all of the foregoing paragraphs of this Complaint as if fully set forth herein.

### The '120 Patent

263. The '120 Patent discloses, among other things, "[m]ethods, systems, and computer programming products . . . for silencing message threads" whereby "[o]nce a message thread has been silenced, the user will no longer receive notifications of new messages added to the thread." '120 Patent, Abstract.

264. The '120 Patent explains that "[e]lectronic messages, such as electronic mail messages and messages posted to group sites, can be grouped into message threads. Each message thread can relate to a particular matter such as a particular

topic of conversation or an activity. For example, a user may be part of an email group which is involved in an ongoing discussion. Each email in the discussion could be included in the same message thread. A user may receive a notification each time an electronic message is received. Notifications could include, for example, auditory user alerts such as ring tones, visual alerts such as flashing lights or pop-ups and physical alerts such as vibrations." *Id*. at 1:22-32.

265. The '120 Patent provides a user with the capability to silence such notifications on a per-thread basis, thereby overriding a currently enabled notification setting and allowing notifications to be received for other non-silenced threads. *Id*. at 2:22-49. Figures 5 and 6 of the '120 Patent detail an exemplary method by which such notification silencing for a method thread occurs. As shown in Fig. 5, "[a] method 500 can begin at 502 where a user can, using suitably-configured GUI(s) and input device, select a message inbox. [An] inbox generally refers to a virtual folder with which incoming messages are initially associated. . . . At 504, the user selects a message thread using, for example, a user interface such as a GUI 304, displaying one or more selectable options such as a list of one or more message threads. A message thread may be selected by the user by, for example, selecting a displayed, selectable option associated with the message thread using point-and-click functionality as described above. At 506, a user can silence a message thread or reactivate a message thread that had previously been silenced with respect to a device the user is using." *Id*. at 11:11-13:1.

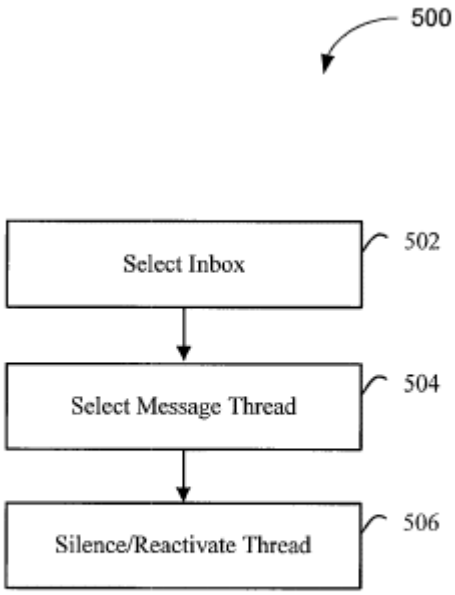



FIG. 5

266. Fig. 6 shows an exemplary method of handling an incoming electronic message depending on whether or not the message thread with which the message is associated has been silenced. "A method 600 can begin at 602 where a message is received which is addressed or otherwise identified in such a way as to be associated with an inbox. . . . At 604, it may be determined whether or not the message relates to a new matter, such as a new topic of conversation or a new activity. . . . If the message does relate to a new matter, at 606, a new message thread is started. At 608, the user is notified of the message according to any currently-enabled notification settings, as described above. If the message does not relate to a new matter, at 610, a thread to which the message belongs may be determined. . . . At 612, it is may determined whether or not the message thread to which the message belongs has been silenced by the user. For example, a data record in memory 300 which is associated with the message thread may be checked to determine whether a flag has been set indicating that the thread has been silenced. If the message thread has been silenced by the user then no notification may be activated. . . . If the message thread

has not been silenced by the user, then at 616 the user may be notified of the incoming message according to any currently-enabled notification settings." *Id*. at 14:5-55.

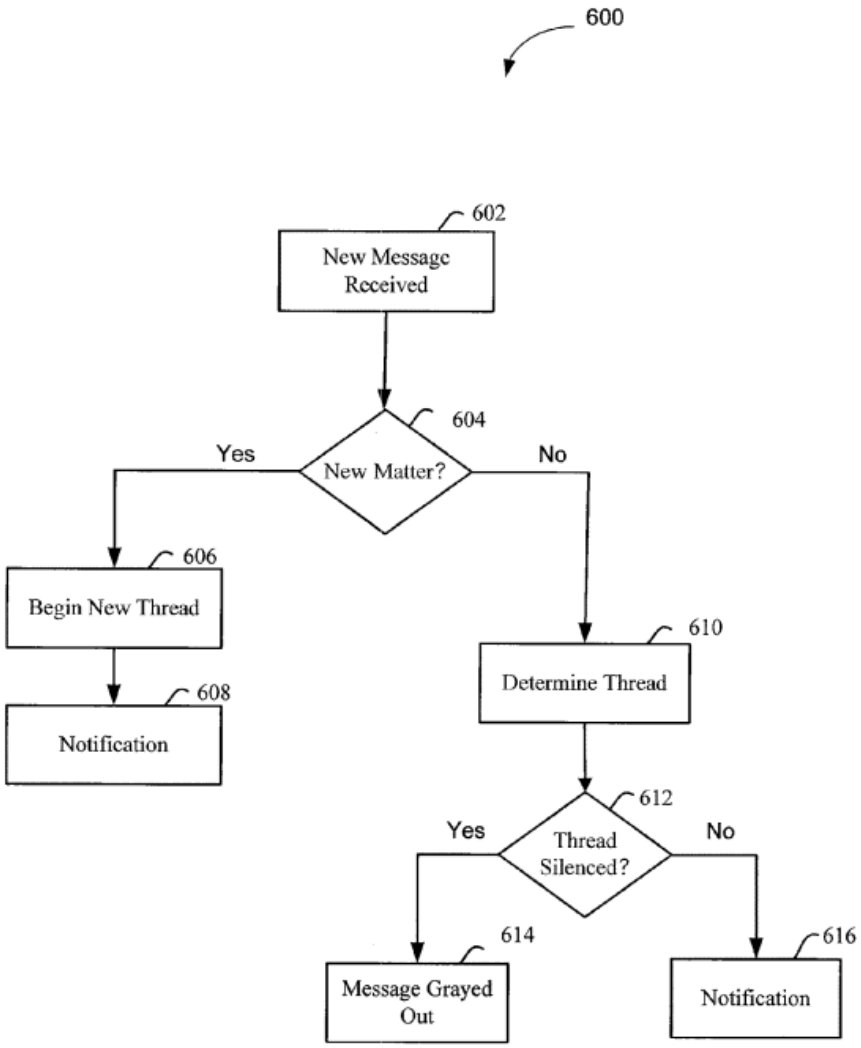



**FIG. 6**

267. The '120 Patent thus describes, *inter alia*, "[a] method for silencing notifications for incoming electronic messages to a communication system, the communication system comprising a data processor, media readable by the data processor and a communications subsystem, the communications subsystem adapted to receive the incoming electronic messages, the method comprising: receiving one or more selected message threads for silencing; in response to receiving the one or

more selected message threads, activating one or more flags, each flag in association with a selected message thread of the one or more selected message threads, wherein the one or more flags indicate that the associated one or more selected message threads have been silenced; receiving a new incoming electronic message; identifying the new incoming message as associated with the selected one or more message threads; determining that a message thread associated with the new incoming message has been flagged as silenced using the one or more flags; overriding at least one currently-enabled notification setting to prevent a notification pertaining to receipt of the new incoming message from being activated; and displaying the new incoming electronic message in an inbox together with any message thread not flagged as silenced, while silencing any further notifications pertaining to receipt of the new incoming electronic message; wherein the new incoming message thread flagged as silenced is displayed in the inbox in a different manner than any message thread not flagged as silenced." *Id*. at claim 13.

**The Inventions Claimed in the '120 Patent Were Not Well-Understood, Routine, or Conventional**

268. A communication system enabling a flag associated with an electronic message thread to be activated in order to silence notifications for the message thread and thereby override a currently-enabled notification setting was not common or conventional at the time of the '120 Patent.

269. The inventor of the '120 Patent recognized the need in electronic communications systems to silence notifications for specific message threads while still allowing new incoming messages in the silenced threads to be displayed in an inbox together with any message thread not flagged as silenced. '120 Patent, Abstract. The inventor further identified the benefit of solving this described problem by providing a communication system enabling "receiving a new incoming electronic message; identifying the new incoming message as associated with one or more message threads; determining that a message thread associated with the new

incoming message has been flagged as silenced; and overriding at least one currently-enabled notification setting to prevent a notification pertaining to receipt of the new incoming message from being activated." *Id*. at 2:42-49. Thereby, notifications for messages associated with a specific messaging thread may be silenced while still allowing for notifications from non-silenced message threads.

270. Given the state of the art at the time of the invention of the '120 Patent, the inventive concepts of the '120 Patent were not conventional, well-understood, or routine. The '120 Patent discloses, among other things, an unconventional and technological solution to an issue arising specifically in the context of electronic communications systems and electronic messaging received within those communications systems. The solution implemented by the '120 Patent provides a specific and substantial improvement over prior messaging notification systems, resulting in an improved electronic communications system, including by introducing novel elements directed to improving the function and working of communications systems such as, *inter alia*, the claimed "activating one or more flags, each flag in association with a selected message thread of the one or more selected message threads, wherein the one or more flags indicate that the associated one or more selected message threads have been silenced" (claims 13 and 24; substantially similar limitation in claim 1), "determining that a message thread associated with the new incoming message has been flagged as silenced using the one or more flags" (claims 13 and 24; substantially similar limitation in claim 1), and "displaying the new incoming electronic message in an inbox together with any message thread not flagged as silenced, while silencing any further notifications pertaining to receipt of the new incoming electronic message; wherein the new incoming message thread flagged as silenced is displayed in the inbox in a different manner than any message thread not flagged as silenced" (claims 13 and 24; substantially similar limitation in claim 1).

271. Consistent with the problem addressed being rooted in electronic

messaging between wireless communications devices, the '120 Patent's solutions naturally are also rooted in the same technology that cannot be performed with pen and paper or in the human mind.

272. This technical context is reflected in the '120 Patent's claims. For example, various claims of the '120 Patent require one or more electronic messages associated with one or more message threads, selected message thread(s) for silencing, settings for notifications pertaining to receipt of new incoming electronic messages associated with one or more such threads, and displaying such messages in an inbox.

273. A person having ordinary skill in the art at the time of the inventions of the '120 Patent would not have understood that the inventions could or would be performed solely in the human mind or using pen and paper. Using pen and paper would ignore the stated purpose of the '120 Patent and the problem it was specifically designed to address. Doing so would also run counter to the inventors' detailed description of the inventions and the language of the claims and be a practical impossibility.

**'120 Patent Allegations**

274. Defendants have infringed and are infringing, either literally or under the doctrine of equivalents, the '120 Patent in violation of 35 U.S.C. § 271 *et seq*., directly and/or indirectly, by making, using, selling, offering for sale, and/or importing into the United States without authority or license, the Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, WhatsApp Messenger, and Instagram applications (hereinafter "the '120 Accused Products") that infringe at least claims 1, 13, and 24 of the '120 Patent.

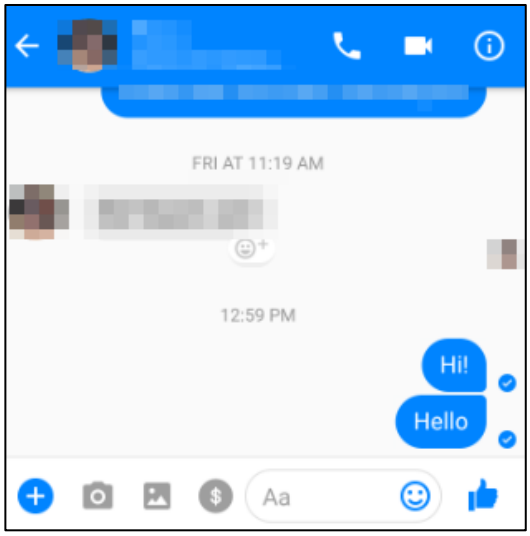
275. On information and belief after reasonable investigation, the '120 Accused Products contain messaging functionality designed and used to silence notifications for selected conversation threads thereby overriding a currently-enabled notification setting in an infringing manner.

276. As just one non-limiting example, set forth below (with claim language in italics) is a description of infringement of exemplary claim 24 of the '120 Patent in connection with the Facebook Messenger, Facebook Messenger Lite, WhatsApp Messenger, and Instagram software applications. On information and belief, the Facebook Workplace Chat software application implements the same or substantially similar infringing functionality as the Facebook Messenger application.[30] This description is based on publicly available information. BlackBerry reserves the right to modify this description, including, for example, on the basis of information about the '120 Accused Products that it obtains during discovery.

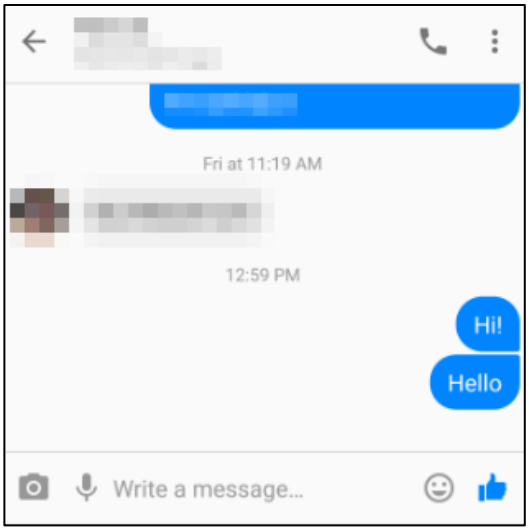
*1(a) A non-transitory computer readable medium comprising processing instructions which when executed by a data processor cause the data processor to perform a method for silencing notifications for incoming electronic messages to a communication system, the method comprising:* - Defendants make and use the Facebook Messenger, Facebook Workplace Chat, WhatsApp Messenger, and Instagram software applications. Regardless of whether the preamble of claim 1 adds any substantive limitation to the claim, the claim language is met by the '120 Accused Products, as the '120 Accused Products include a non-transitory computer readable medium comprising processing instructions which when executed by a data processor cause the data processor to perform a method of silencing notifications for incoming electronic messages to a communication system as further described below for the remaining claim limitations.

*1(b) receiving one or more selected message threads for silencing;*

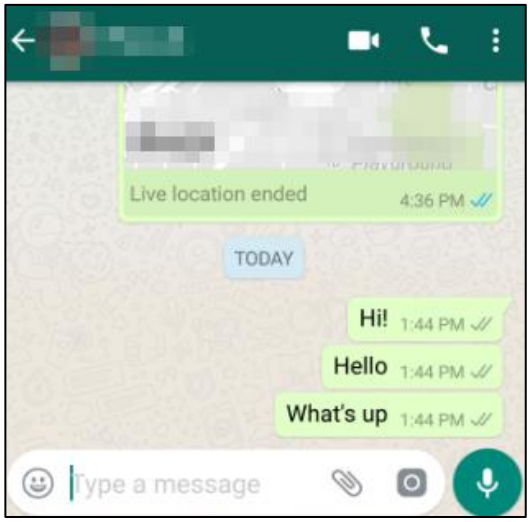
[30] *See, e.g.*, https://www.facebook.com/help/work-chat/iphone/447690225439543; https://www.facebook.com/help/messenger-app/330627630326605?helpref=topq.



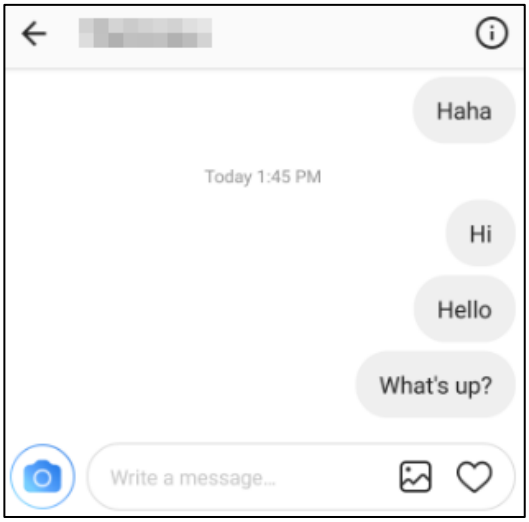

Facebook Messenger




Facebook Messenger Lite

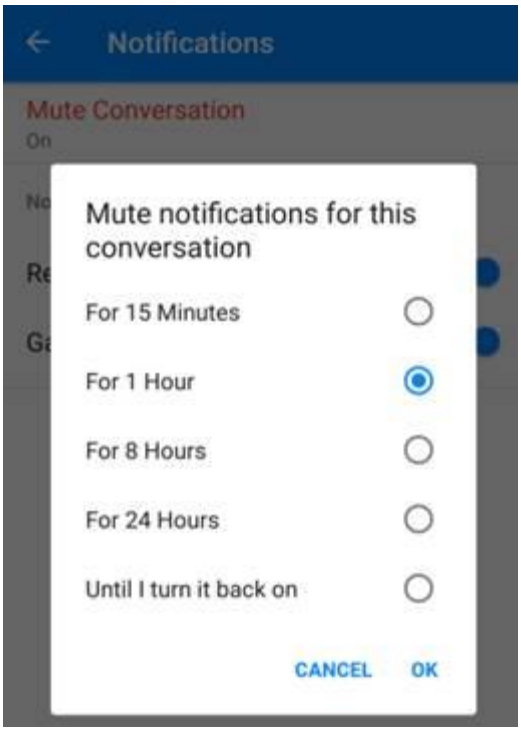



WhatsApp Messenger

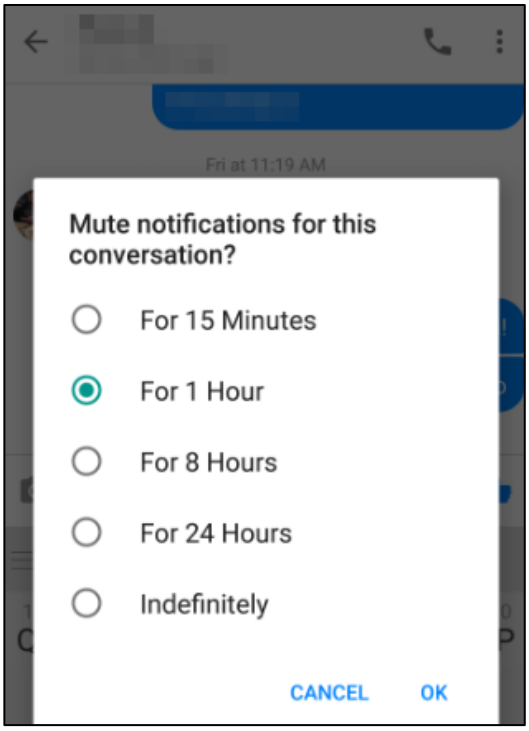



Instagram Direct

*1(c) in response to receiving the one or more selected message threads, activating one or more flags, each flag in association with a selected message thread of the one or more selected message threads, wherein the one or more flags indicate that the associated one or more selected message threads have been silenced;*




Facebook Messenger

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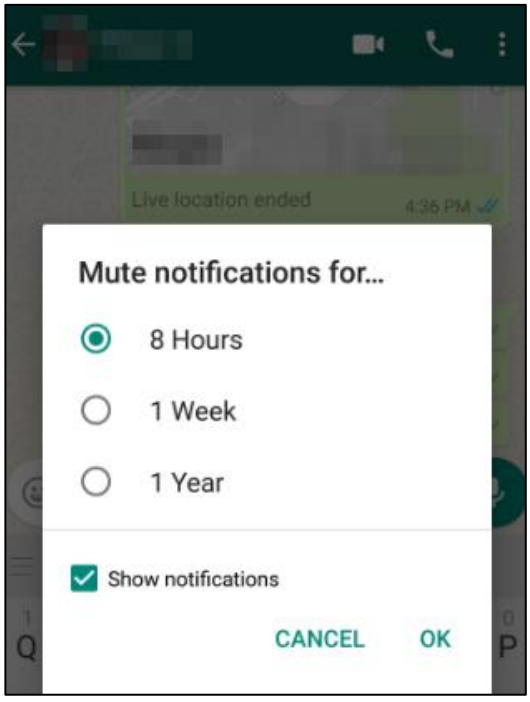


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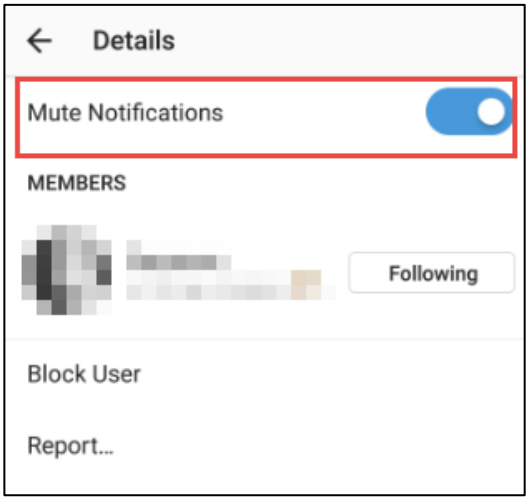


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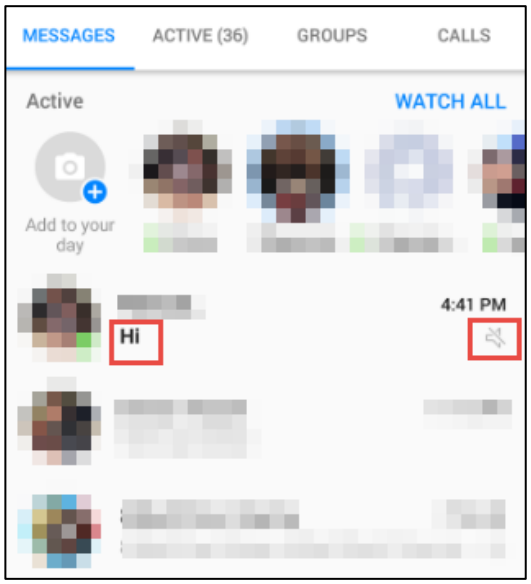
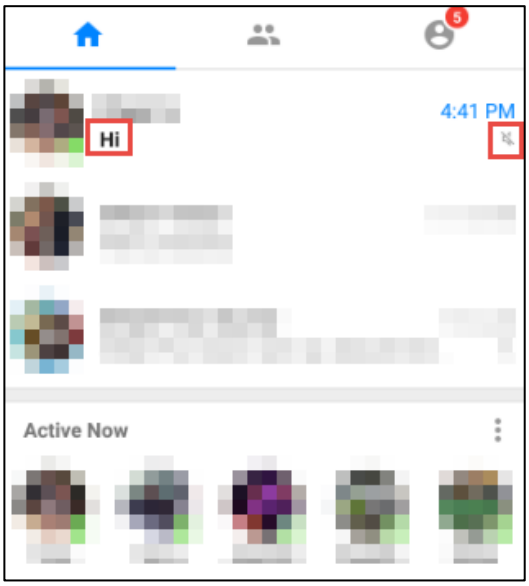
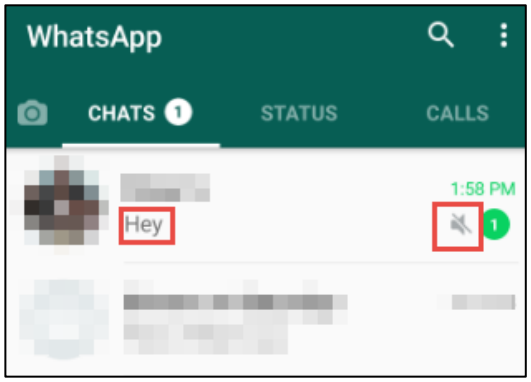
*1(d) identifying the new incoming message as associated with the selected one or more message threads; determining that a message thread associated with the new incoming message has been flagged as silenced using the one or more flags;*



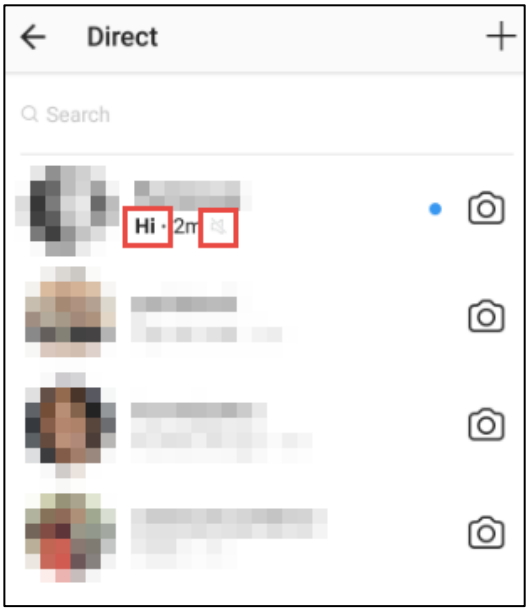

Facebook Messenger




Facebook Messenger Lite

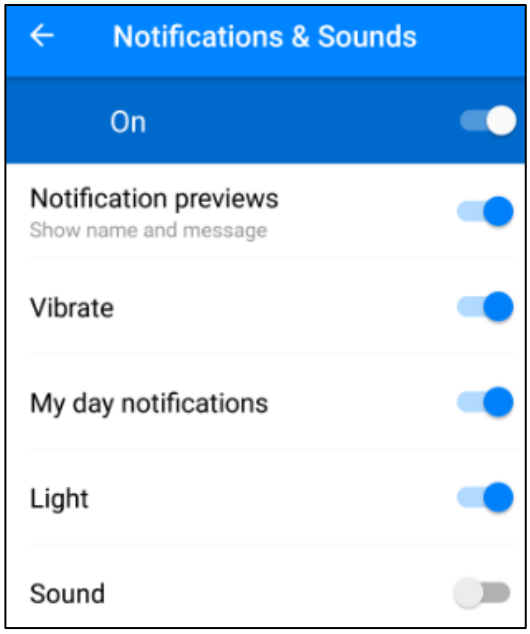



WhatsApp Messenger

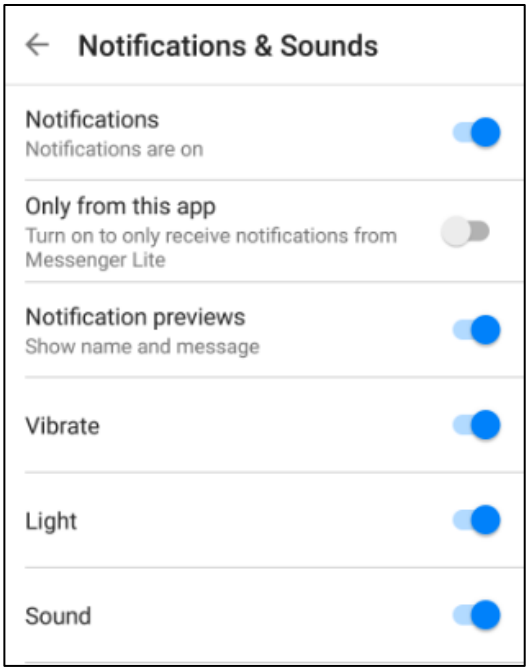



Instagram Direct

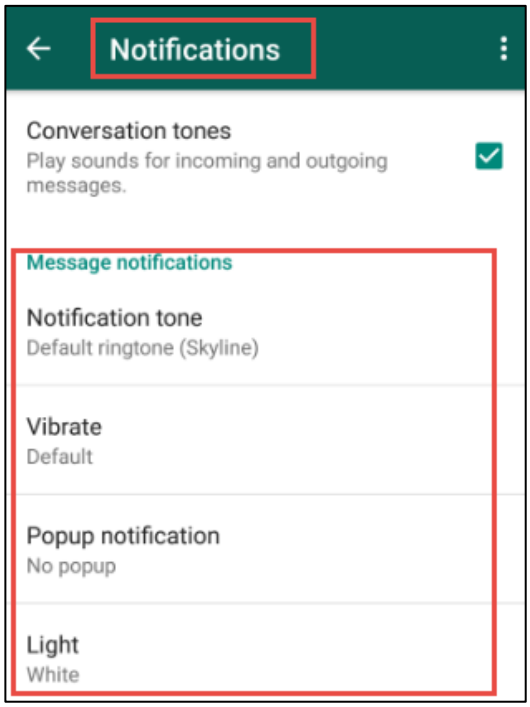
*1(e) overriding at least one currently-enabled notification setting to prevent a notification pertaining to receipt of the new incoming message from being activated; and*



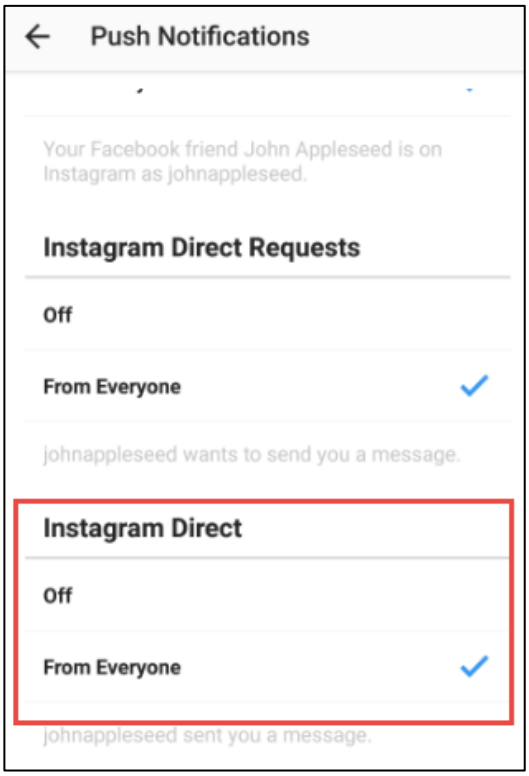

Facebook Messenger




Facebook Messenger Lite

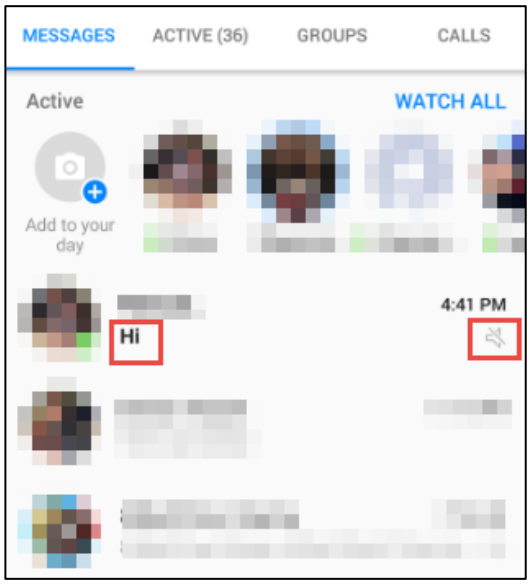



WhatsApp Messenger

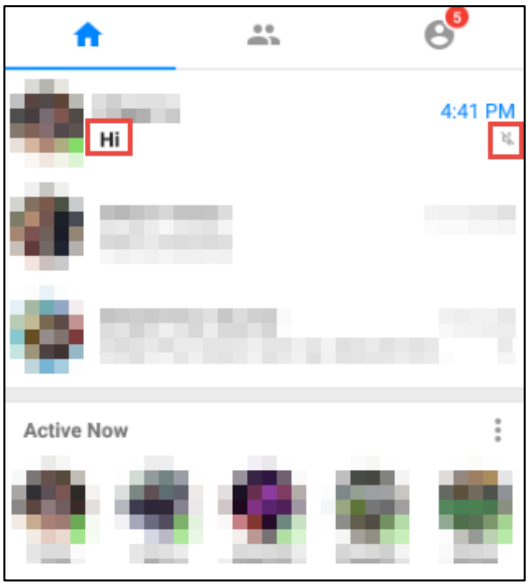



Instagram Direct

*1(f) wherein the new incoming message thread flagged as silenced is displayed in the inbox in a different manner than any message thread not flagged as silenced.*




Facebook Messenger

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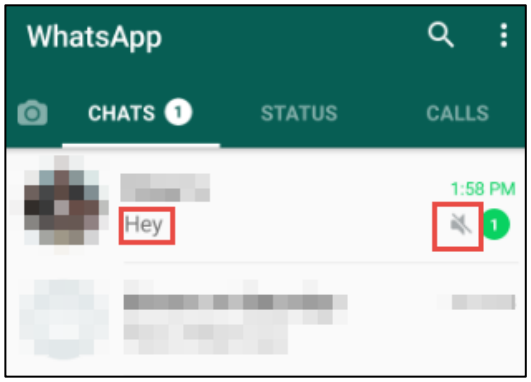
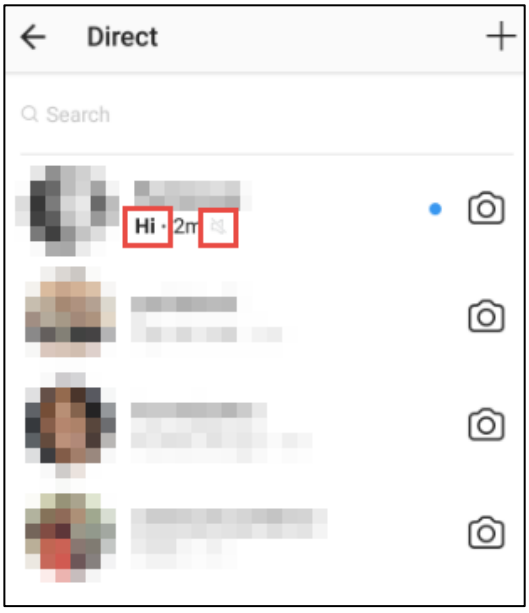



WhatsApp Messenger




Instagram Direct

277. Additionally, Defendants have been, and currently are, active inducers of infringement of the '120 Patent under 35 U.S.C. § 271(b) and contributory infringers of the '120 Patent under 35 U.S.C. § 271(c).

278. Defendants knew of the '120 Patent, or should have known of the '120

Patent but were willfully blind to its existence. Upon information and belief, Defendants have had actual knowledge of the '120 Patent since at least as early as the filing and/or service of this Complaint. Defendants have provided the '120 Accused Products to their customers and, on information and belief, instructions to use the '120 Accused Products in an infringing manner while being on notice of or willfully blind to the '120 Patent and Defendants' infringement. Therefore, on information and belief, Defendants knew or should have known of the '120 Patent and of their own infringing acts, or deliberately took steps to avoid learning of those facts.

279. Defendants knowingly and intentionally encourage and aid at least its end-user customers to directly infringe the '120 Patent.

280. Upon information and belief, Defendants provide the '120 Accused Products to customers through various third-party application stores (*e.g.*, the Apple App Store) and instructions to end-user customers so that such customers will use the '120 Accused Products in an infringing manner. For example, Defendants provide instructions to end-user customers on how to set up, configure, and use various features of the '120 Accused Products, as well as to mute notifications for select conversation threads.[31]

281. Defendants' end-user customers directly infringe at least claims 1, 13, and 24 of the '120 Patent by using the '120 Accused Products in their intended manner to infringe. Defendants induce such infringement by providing the '120 Accused Products and instructions to enable and facilitate infringement, knowing of, or being willfully blind to the existence of, the '120 Patent. Upon information and belief, Defendants specifically intend that their actions will result in infringement of

[31] *See* https://www.facebook.com/help/work-chat/iphone/447690225439543; https://www.facebook.com/help/messenger-app/330627630326605?helpref=topq; https://faq.whatsapp.com/en/wp/28060004/?category=5245251; https://help.instagram.com/1637687493174595.

at least claims 1, 13, and 24 of the '120 Patent, or subjectively believe that their actions will result in infringement of the '120 Patent but took deliberate actions to avoid learning of those facts, as set forth above.

282. Additionally, Defendants contributorily infringe at least claims 1, 13, and 24 of the '120 Patent by providing the '120 Accused Products and/or software components thereof, that embody a material part of the claimed inventions of the '120 Patent, that are known by Defendants to be specially made or adapted for use in an infringing manner, and are not staple articles with substantial non-infringing uses. The '120 Accused Products are specially designed to infringe at least claims 1, 13, and 24 of the '120 Patent, and their accused components have no substantial non-infringing uses. In particular, on information and belief, the software modules and code that implement and perform the infringing functionalities identified above are specially made and adapted to carry out said functionality and do not have any substantial non-infringing uses.

283. Additional allegations regarding Defendants' knowledge of the '120 Patent and willful infringement will likely have further evidentiary support after a reasonable opportunity for discovery.

284. Defendants' infringement of the '120 Patent is exceptional and entitles BlackBerry to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

285. BlackBerry has been damaged by Defendants' infringement of the '120 Patent and will continue to be damaged unless Defendants are enjoined by this Court. BlackBerry has suffered and continues to suffer irreparable injury for which there is no adequate remedy at law. The balance of hardships favors BlackBerry, and public interest is not disserved by an injunction.

286. BlackBerry is entitled to recover from Defendants all damages that BlackBerry has sustained as a result of Defendants' infringement of the '120 Patent, including without limitation lost profits and not less than a reasonable royalty.

## PRAYER FOR RELIEF

WHEREFORE, BlackBerry respectfully requests:

A. That Judgment be entered that Defendants have infringed one or more claims of the Patents-in-Suit, directly and indirectly, literally and/or under the doctrine of equivalents;

B. That, in accordance with 35 U.S.C. § 283, Facebook, WhatsApp, Instagram, and all their affiliates, employees, agents, officers, directors, attorneys, successors, and assigns and all those acting on behalf of or in active concert or participation with any of them, be preliminarily and permanently enjoined from (1) infringing the Patents-in-Suit and (2) making, using, selling, and offering for sale the Facebook, Facebook Messenger, Facebook Messenger Lite, Facebook Workplace Chat, Facebook Pages Manager, WhatsApp Messenger, and Instagram applications and websites;

C. An order directing Defendants to file with the Court and serve upon BlackBerry's counsel within thirty (30) days after entry of the order of injunction, a report setting forth the manner and form in which Defendants have complied with the injunction, including the provision relating to destruction and recall of infringing products and materials

D. An award of damages sufficient to compensate BlackBerry for Defendants' infringement under 35 U.S.C. § 284, including an enhancement of damages on account of Defendants' willful infringement;

E. That the case be found exceptional under 35 U.S.C. § 285 and that BlackBerry be awarded its reasonable attorneys' fees;

F. Costs and expenses in this action;

G. An award of prejudgment and post-judgment interest; and

H. Such other and further relief as the Court may deem just and proper.

DATED: March 6, 2018

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**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, BlackBerry respectfully demands a trial by jury on all issues triable by jury.

DATED: March 6, 2018

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