

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION and MICROSOFT MOBILE, INC.,
Petitioners

v.

GLOBAL TOUCH SOLUTIONS, LLC
Patent Owner

Case IPR2015-01148
Patent No. 7,498,749 B2

DECLARATION OF ROBERT E. MORLEY, JR.

Global Touch Solutions, LLC
Exhibit 2005
Microsoft Corporation and Microsoft
Mobile, Inc.
v. Global Touch Solutions, LLC
IPR2015-01148

I, Robert E. Morley Jr. do hereby declare and state that:

I. INTRODUCTION

1. My name is Robert Morley. I am a Professor in the Electrical and Systems Engineering Department at Washington University in St. Louis, Missouri. I hold the degrees of BS, MS and D.Sc. all conferred on me by Washington University in St. Louis in 1973, 1975 and 1977, respectively. Prior to joining the faculty of Washington University I worked in the industry addressing electronics and micro-electronics. I have remained active in the industry during my appointment to the faculty of Washington University in St. Louis.

2. I have been retained as an expert witness by counsel on behalf of Global Touch Solutions (hereinafter “GTS”) in connection with a series of *Inter Partes* Reviews (hereinafter “IPR”) of a number of patents held by GTS. These patents include, in no particular order, U.S. Patent Nos. 7,994,726; 7,798,749; 7,329,970; 7,781,980; and 8,288,952. I understand that this proceeding involves U.S. Patent No. 7,498,749 (hereinafter “the ‘749 Patent”). It is my understanding that the other patents are the subject of related IPRs and that the subject matter specific to each is considered in each separate Declaration.

3. As an example of the interrelationship of the various proceedings, it is my understanding that the current case involves the assertion that Claims 1, 2, 5-7, 14, 15, 21 and 23 of the '749 Patent (sometimes referred to herein as the "challenged claims") are unpatentable as obvious over U.S. Patent No. 6,125,286 to Jahagirdar taken in view of U.S. Patent No. 4,053,789 to Schultz. At the same time I understand that in a distinct but related proceeding, IPR2015-01172, Claims 21 and 23 of the same '749 Patent are challenged as obvious over two different references, U.S. Patent No. 5,898,290 to Beard and U.S. Patent No. 5,955,869 to Rathmann. While I have prepared a separate and distinct Declaration for that proceeding as well, and the other related proceedings, it is easy to see that there is a substantial amount of technical overlap in the subject matter of these proceedings, and I have considered this family of patents, the GTS patents, together.

4. I have reviewed and am familiar with the '749 Patent as well as its prosecution history. I also have reviewed and am familiar with the Petition filed and the Jahagirdar and Schultz patents. I also have reviewed and am familiar with the Declaration of Mark Horenstein, Ph.D., provided to me as Ex. 1011. I have also reviewed the Decision of the Patent Trial and Appeal Board identified as Paper No. 12, dated November 17, 2015. While

it is the opinion expressed in Paper No. 12 that the combination of Jahagirdar and Schultz, as would have been made by one of skill in the art, renders the challenged claims obvious, in this Declaration I express the opinion that one of skill in the art would not have combined those references in the fashion relied upon, and that the challenged claims are not obvious over that combination of art as considered by a person of skill in the art around 1998.

5. As noted, I am familiar with the type of technology addressed in the '749 Patent as of 1998, which I understand to be the year in which the patent application from which priority is claimed in the '749 Patent was originally filed. I have been asked to provide my technical review, analysis, insights, and opinions regarding the assertions in the Petition concerning the alleged obviousness of the challenged claims of the '749 Patent by the Jahagirdar and Schultz Patents. I am being compensated for my work in connection with the GTS Patents and the several IPRs at my established rate of \$500 per hour. My compensation is not dependent on the outcome of this proceeding.

6. In forming the opinions and beliefs expressed herein, I have relied on my own experience and knowledge, my review of the '749 Patent and its file history, and Jahagirdar and Schultz patents. Although the other

IPRs directed at the GTS patents and the art cited therein from a backdrop for my opinions, if I have relied on art other than that cited in this proceeding for my opinions in a specific or selective way, it is specifically mentioned in my Declaration.

7. My experience relied on in arriving at the opinions expressed in this Declaration includes my work as a Professor of Electrical Engineering, my work in industry including the development of various microprocessor-based technologies focusing on system design, and my research in the area of computer architecture and magnetic media. My experience and education is spelled out more fully in my curriculum vitae, submitted herewith as Exhibit No. 2001. My own personal experience in assisting other lawyers in the prosecution of patent applications and the enforcement of U.S. Patents has, over the years, allowed me to develop a fundamental understanding of the concepts underlying obviousness.

i. Other Relevant Qualifications

8. As noted above, I have had significant involvement in the preparation and prosecution of United States Patents and patent applications as well as the enforcement of United States Patents, including 17 of those naming me as inventor. Obviousness of claims over the prior art is a

question I have addressed in fields and technologies distinct from those presented in the above-captioned IPR.

9. I have previously served as an expert in litigation matters and as a consultant to companies involved in research and development of electrical devices, particularly in conjunction with the development of microprocessor-based systems. As noted above, my *curriculum vitae* includes a compilation of my publications, patents and relevant experience.

II. THE ‘749 PATENT

10. The referenced Petition seeks invalidation of certain claims of the ‘749 Patent. The subject matter of this patent is generally directed to devices and devices powered by electricity, and specifically including a microprocessor or microchip to control electrical switching. By reliance on a microchip or integrated circuit based switching system, multiple functions can be combined into one device, and power savings and the like may be realized.

11. The ‘749 Patent is illustrated largely in terms of an “intelligent flashlight.” While the terms of the patent are applied directly to a flashlight, such that the bulb of the flashlight constitutes the electrical “load” of the device, in fact the Patent makes it clear that this is for purposes of illustration only and in no way limiting of its application. At Col. 6, ll. 33–

47, the '749 Patent makes it clear that the application of the invention to a flashlight is for purposes of illustration, and the invention is applicable to many other devices by using the '749 Patent's electrical switching design.

12. Claim 1 of the '749 Patent recites two principal elements of the claimed electronic device. As noted, this device could be a flashlight, or any type of electrical device that benefits from a microchip/microprocessor based electrical switching and control system. The two principal elements recited are the microchip itself, which is recited as connected to a user interface switch structure and a visible indicator controlled by the microchip.

13. Claim 1 of the '749 Patent further indicates that the switch structure is a touch sensor type switch which includes a sense pad.

14. Claim 1 of the '749 Patent also recites that the visible indicator is one that provides an indicator activation function. The claim indicates that the indicator provides a visible indication reflecting activation when a signal (electrical in nature) is received through the touch sensor switch such that the indicator is active when the load is not activated. In terms of the illustrated flashlight, this would mean that the indicator is visible when the bulb of the flashlight is off.

15. Claim 1 of the '749 Patent also recites that the microchip at least partially implements the touch sensor switch. It also provides that the

user interface mentioned above has at least one of three features: 1) an automatic delayed deactivation of a function; 2) the indicator is activated in response to the microchip receiving a signal from the user interface switch to indicate conditions of the device; or 3) a touch sensor switch pad which is integral with the housing of the device, which may be the flashlight as illustrated.

16. With respect to the first alternative, an automatic delayed deactivation of a function, the ‘749 Patent illustrates this in terms of deactivation of an S.O.S. distress signal, Col. 7, ll. 44–59, or, in the case of a radio, automatically shutting off the radio of a battery powered radio after a given duration of play Col. 10, ll. 3-8.

17. The second alternative, providing an indication of the condition of the device (e.g., flashlight) in response to the microchip receiving a signal from the switch illustrated in the ‘749 Patent as providing, for example, the condition of the battery powering the device. Col. 9, ll. 32–34.

18. The third alternative, that the touch sensor is integral with the device’s housing, is described in detail at Col. 8, ll. 10–14.

19. Each of Claims 2, 5–7, 14 and 15 of the challenged claims depends from Claim 1, and to my understanding, accordingly requires the limitations discussed above, in addition to those recited in the dependent

claim. Thus, for illustrative purposes, Claim 6 has all the limitations discussed above, but wherein the third alternative recited in Claim 1 must be met, that is, where a touch sensor switch pad is provided that is integral with the housing of the product.

20. Unlike device Claims 1–12, Claim 21 of the ‘749 Patent is a method claim, which specifies three steps in the context of the microchip-based switching system of the devices disclosed in the ‘749 Patent. Claim 21 requires: 1) that the visible indicator of a product be activated in response to a signal from a user interface switch, it indicates 2) that the indicator is activated when the load (the flashbulb in the context of the illustrative flashlight) is not activated by the user and that 3) an automatic deactivation of a function that was activated in response to an activation signal from the user interface switch be performed.

21. As discussed above in the context of the challenged device claims, the ‘749 Patent illustrates each of these steps. The ‘749 Patent refers frequently to “activation.” This term seems to be used consistently to indicate turning something on. Activation of a deactivation signal would, of course, mean turning something off. Everywhere the ‘749 Patent disclosure refers to “activating” or “deactivating” it appears to refer to turning a module on or off, as opposed to merely providing some information to that

module. I have set forth my opinions below, consistent with this understanding.

III. LIST OF DOCUMENTS CONSIDERED IN FORMULATING MY OPINION

22. In formulating my opinion, I have considered all of the following documents:

Exhibit	Description and Designation
	Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,798,749, IPR2015-01148, Paper 5 (“Petition”)
1001	U.S. Patent No. 7,798,749
1002	File history for U.S. Patent 7,798,749
1004	U.S. Patent 6,125,286 “Jahagirdar”
1005	U.S. Patent 4,053,789 “Schultz”
1011	Declaration of Mark Horenstein
	Decision of the PTAB to Institute (Paper 12)
2001	Robert E. Morley, Jr. <i>curriculum vitae</i>
2002	U.S. Patent 3,879,593
2003	U. S. Patent 4,391,845
2004	U. S. Patent 4,602,135

IV. PERSON OF ORDINARY SKILL IN THE ART

23. I am informed that it is permissible to determine the level of ordinary skill in the art from a review of relevant prior art references. For purposes of this Declaration, I am relying on the 1998 priority date listed on the face of the ’749 Patent to establish the appropriate level of ordinary skill.

24. In my view, the level of ordinary skill relevant to the '749 Patent is evident from a review of the prior art references cited in the Petition and related art. These and other contemporaneous references invoke a limited body of knowledge in electronics and microchip controlled circuitry and related art. A student of electrical engineering with an undergraduate degree electronics, electrical circuitry or equivalent degree, is representative of the person of skill in this art. Such an individual would be familiar with the design and application of low-level circuitry and switching functions, and have a working knowledge of microchip operation, application, and design.

25. A degree alone does not confer on an individual real world knowledge and understanding of how systems are designed, implemented and operated. Thus, the undergraduate degree would be augmented, in someone of ordinary skill in the art, with a year or so of work in the field (such as laboratory work for hire by a private corporation or postgraduate study) preferably in the design, construction and implementation of microchip-based electronic circuitry.

26. A person of ordinary skill in this art would have experience with or knowledge of microprocessor-based software design, as well as an understanding of then available microchips and their application.

V. LEGAL STANDARDS

27. I have not been asked to offer an opinion on the law; however, I understand that I am obliged to follow existing law. I have therefore been asked to apply the following legal principles to my analysis, and I have done so.

A. Anticipation

28. I understand that to be valid, a patent claim must be “novel,” and is invalid if “anticipated” by a single prior art reference. I further understand a reference anticipates if it discloses each and every element as arranged in the claim, so as to enable a person of ordinary skill in the art to make and use the claimed invention without undue experimentation.

29. I understand that the express, implicit, and inherent disclosures of a prior art reference may be relied upon when analyzing anticipation. However, I understand the fact that a certain result or characteristic may occur or may be present in the prior art is not sufficient to establish the inherency of that result or characteristic.

30. I also understand the disclosure in an allegedly anticipating reference must provide an enabling disclosure of the desired subject matter. The considerations I evaluated in assessing whether a reference sets forth the elements of a claim in a sufficient manner such that a person of ordinary

skill in the art could have readily made and used the claimed invention without undue experimentation include: the breadth of the claim, the nature of the invention, the state of the prior art, the level of one of ordinary skill, the level of predictability in the art, the amount of direction provided by the reference, the existence of working examples, and the quantity of experimentation needed to make or use the invention based on the content of the disclosure.

B. Obviousness

31. I understand that even if a patent is not anticipated, it is still invalid if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole in my view would not have been innovative at the time the invention was made to a person having ordinary skill in the pertinent art.

32. I understand a person having ordinary skill in the art (*i.e.*, a PHOSITA) is a hypothetical person who is presumed to have known the relevant art at the time of the invention was made. I understand the requirement “at the time the invention was made” is to avoid impermissible hindsight. I also understand an expert is to analyze the prior art from the perspective of a person of ordinary skill in the art and not simply provide his own personal conclusions.

33. I also understand that an obviousness determination includes several factual inquiries, including (1) determining the scope and content of the prior art; (2) ascertaining the differences between the claimed invention and the prior art; (3) resolving the level of ordinary skill in the pertinent art; and (4) taking into consideration any secondary indicia of non-obviousness.

34. I am informed that secondary indicia of non-obviousness may include (1) a long felt but unsolved need that was satisfied by the claimed invention; (2) commercial success attributable to the claimed invention; (3) unexpected results achieved by the claimed invention; praise by experts of the claimed invention with factual support; (4) taking of licenses under the patent by others for reasons related to the alleged non-obviousness of the claimed invention; and (5) evidence that competitors in the marketplace are copying the invention instead of using the prior art. I also understand that there must be a relationship, or nexus, between any such secondary indicia and the claimed invention, i.e., objective evidence of non-obviousness must be attributable to the claimed invention. I further understand that near simultaneous invention by two or more equally talented inventors working independently may or may not be an indication of obviousness when considered in light of all the circumstances.

35. I understand a conclusion of obviousness can be based on a combination of multiple prior art references. I understand that exemplary rationales that may support a conclusion of obviousness include:

- (A) Combining prior art elements according to known methods to yield predictable results;
- (B) Simple substitution of one known element for another to obtain predictable results;
- (C) Use of known technique to improve similar devices (methods, or products) in the same way;
- (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (E) “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the

prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

36. I further understand that an obviousness analysis recognizes that market demand, rather than scientific literature, often drives design trends.

37. I understand that if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

38. I also understand that practical and common sense considerations should guide a proper obviousness analysis, because familiar items may have obvious uses beyond their primary purposes. I further understand that applying common sense does not require a “specific hint or suggestion in a particular reference,” only a reasoned explanation that avoids conclusory generalizations.

39. I understand a person of ordinary skill in the art addressing a problem will often be able to fit the teachings of multiple publications together like pieces of a puzzle. In this regard, I understand that an obviousness analysis may take into account the inferences and creative steps that a person of ordinary skill in the art would employ.

40. I understand a particular combination may be proven obvious merely by showing that it was obvious to try the combination. For example, when there is a design need or market pressure to solve a problem and/or there is a finite number of identified, predictable solutions, with a reasonable expectation of success, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. I understand that if this leads to anticipated success, it is likely the result not of innovation but of ordinary skill and common sense.

41. I understand the combination of familiar elements according to known methods is likely obvious when it does no more than yield predictable results. When work is known in one field of endeavor, it may prompt variations of that work for use in either the same field or a different one, based on design incentives and other market forces. If a technique has been used to improve one device, and a person of ordinary skill in the art can implement a predictable variation, it is likely unpatentable.

42. It is further my understanding that to be proper for use in an obviousness analysis, a reference must be analogous art to the claimed invention. Accordingly, I understand that under the correct analysis, any need or problem known in the field of endeavor at the time of the invention

and addressed by the claimed invention can provide a reason for combining the elements in the manner claimed.

43. I understand a claim can be obvious in light of a single reference, without the need to combine references, if the elements of the claim that are not found explicitly or inherently in the reference can be supplied by the common sense of one of skill in the art. For example, combining two embodiments disclosed adjacent to each other in a prior art patent does not require a leap of inventiveness.

44. I understand a claimed invention may be obvious if it involves merely simple substitution of one known element for another to obtain predictable results. I understand further that the prior art need not be like two puzzle pieces that must fit together perfectly. For example, a claimed invention may be found obvious if a person of ordinary skill in the art would view rearrangement as an obvious matter of design choice.

45. Finally, I have been informed and understand that the obviousness analysis requires a comparison of the properly construed claim language to the prior art on a limitation-by-limitation basis.

VI. JAHAGIRDAR and SCHULTZ

46. The Petition seeking to invalidate Claims 1, 2, 5–7, 14, 15, 21 and 23 relies on the combination of two references, U.S. Patent No. 6,125,286 to Jahagirdar and U.S. Patent No. 4,053,789 to Schultz. The Decision to Institute, Paper No. 12, refers to these references by the last name of the first named inventor, and I shall refer to them in the same fashion in this Declaration.

47. Jahagirdar is directed to what would now be recognized as a “flip-phone”, i.e., a cell phone where the keys of the keypad used to dial the phone, to input data, etc., are uncovered by “opening” the flap of the phone that covers the keypad. The specific improvement addressed in Jahagirdar is the provision of a secondary display panel at the “top” edge or joint of the phone so that it need not be opened to read pertinent information, such as the number of the calling party.

48. Jahagirdar provides operational flow charts for the phone in Figures 8A and 8B. As shown in Fig. 8A, when the phone is closed the very first step in the process is “activation” of the display on the edge of the phone, i.e., turning it on. Given the relevant time (Jahagirdar was filed in 1977) the display of the phone did not have a complicated function, or

numerous applications to drive. Rather, Jahagirdar speaks to the transceiver and controller as features of the electrical circuitry, Col. 3, ll. 59–67.

49. Jahagirdar specifically describes the provision of pushbutton keys on keypad 134, Col. 3, ll. 16–24. There are also keys that are accessible on an exterior edge of the flip phone housing, indicated as keys 144.

50. Closing the phone provides power to the driver and the phone's external display at step 802. Col. 5, ll. 26–36. The various keys provide signals to the circuitry that affects the information the phone displays. Thus, in step 814, as set forth at Col. 5, ll. 54–65, if the “INFO” input key 150 is pressed, the controller sends data for new information to the external display 130.

51. While it is clear that the inventors of Jahagirdar were acquainted with a variety of circuitry approaches, it is noteworthy that they chose to combine the data displays with the physical pushbutton keys. Jahagadir indicates that in part such keys were selected to mimic the pushbutton keypads of phones prevalent at the time, while providing additional keys for functions specific to the phone, such as illuminating the displays.

52. Schultz is not directed to a phone or cellular communications device of any sort. Instead, Schultz is directed to a touch switch that is activated by, and responsive to, the touch of an animal. Col. 1, ll. 27–31. The touch of an animal, such as a human, bridges spaced conductors and introduces a capacitance to ground, causing the load to be operated in the switch of Schultz. Col. 1, ll. 46–63.

53. The “load” to be operated in response to the pulse caused by contact of an animal with the touch surface is not described with particularity. Col. 3, ll. 30–38. What is made clear is that the touch sensor is not selective between types of touch - it is responsive to the touch of any animal, the patent indicating that the pulse is generated, and the load operated, in response to the touch of “a human finger, an animal’s paw or its nose.” Col. 3, l. 50.

54. Schultz does not describe the size or character of the touch sensor set forth. It does not describe the interaction of multiple sensors, and provides no information on how many touch sensors can be provided together. What is clear, however, is since the switch is intended to be activated by something as broad as an animals nose (picture a dog’s nose) the switches or touch sensors of the reference are not small or confined. If

they were, the animal would find it difficult to direct its nose to the appropriate location to operate the switch.

VII. JAHAGIRDAR AND SCHULTZ DO NOT RENDER THE CLAIMS OBVIOUS

55. The Decision to Institute concludes that the evidence then-considered supports a conclusion that, more likely than not, the combination of Jahagirdar and Schultz would render the challenged claims obvious. The Board's Decision appears to accept the arguments set forth in the Petition, including 1) that one of skill in the art would combine Jahagirdar and Schultz for reasons of convenience and aesthetics, to eliminate problems of mechanical failure and primarily to "minimize accidental actuation."

56. The Board's Decision also appears to accept without question the Petitioner's characterization that the "activation" of display element 516 in response to an "activation signal" received from key 150, Decision, page 8, discloses the activation step of the challenged claims.

57. I do not agree with the Board's understanding based solely on Petitioner's characterizations. In particular, it seems to me unlikely that one of skill in the art would combine the disclosures of Jahagirdar and Schultz in the fashion set forth for the reasons proposed, and even if combined, the operation of the references fails to provide the activation required by the claims (both device and method claims).

**A. One of Skill in the Art Would not Combine Jahagirdar
and Schultz**

58. There seems to me to be little reason to combine Schulz with Jahagirdar, and good reasons not to combine them. While the suggestion is made that such a combination would “minimize accidental actuation” Decision, page 6, in fact quite the opposite would happen. Bear in mind that several keys are located on an exterior edge of the housing of Jahagirdar’s phone. Indeed, to answer a call in step 832 of Fig. 8b, one must grasp the housing and change the position of the flap to “open” the phone. There are a number of keys 144 on the exterior of the housing of the phone. If these keys were converted to the touch sensors of Schultz, they would inevitably be initiated by accidental touches from the hand of the operator while attempting to open the flap of the phone.

59. It is not clear to me, in fact why the presence of touch sensors would “minimize” accidental actuation. Specifically, the “accidental actuation” minimized by Schultz is the actuation of prior art touch sensors, not the type of switches employed in flip phones. The prior art touch sensors can be actuated by resistance or capacitance. Shultz, Col. 1, ll. 5–24. However, since any touch by an animal – human or pet – includes both resistive coupling across the separated conductors and inherently provides

capacitance, Col. 1, ll. 25–63, ANY touch by a human will result in a pulse being sent to indicate activation of the switch.

60. When the operator goes to answer a call by grasping it to open the flap, the operators' hands will inevitably, touch the exterior keys 144. If in fact these were the touch sensors of Schultz instead – as suggested – unintentional activation must result if all the operator wanted to do is open the phone or look at the display. While the Horenstein Declaration asserts at paragraphs 57–58 that replacing the pushbutton keys of Jahagirdar with the touch sensors of Schultz would reduce inadvertent activation because the Shcultz reference says it would, that is comparing apples and oranges.

61. Janagadir specifies pushbutton keys. While there are drawbacks associated with pushbutton keys, unintentional activation is not one of them. Any time the phone operator went to pull the phone out of the holster 406 of Jahagirdar, or went to handle housing 105 for any reason, there would be a likelihood of inadvertent activation. If instead one wanted to combat the problems of “contamination and mechanical problems” that are associated with pushbutton keypads of the time, one would more likely turn to membrane switches or the like, which are far less susceptible to inadvertent activation.

62. The problem of inadvertent touching is only magnified by replacing all the keys of Jahagirdar with the sensors of Schultz. It is unclear how closely these may be set or how much space is required, but multiple information and function keys set side by side that are all activated by the same, or indeed any, touch from an animal or human, will virtually guarantee inadvertent touches in operation.

63. The only inadvertent activation avoided by adopting the touch sensors of Schultz in place of the pushbutton keys of Jahagirdar is activation by inanimate objects. See Schultz at Col. 1, ll. 20–25. What would not be possible, for example, is activation by a stylus, thimble or other substitute used in connection with pushbutton keys. Inadvertent actuation by pressing the exterior keys 144 of Jahagirdar with some inanimate object seems unlikely – Horenstein offers no explanation of how this might occur. Replacing the pushbutton keys of Jahagirdar with the touch sensors of Schultz, guarantees problems of inadvertent actuation will be exacerbated rather than reduced.

64. It seems unlikely, in any event, that one of skill in the art would modify Jahagirdar by incorporating the touch sensors of Schultz, to provide for reduced “contamination and mechanical failures.” The ‘749 Patent itself describes improving devices known in the art by adopting the “low current

signal switches” of the ‘749 Patent. As disclosed, these “membrane type switches...can be smaller, more reliable, less costly, easier to seal and less vulnerable to the effects of corrosion and oxidation.” The ‘749 Patent, having identified a type of known switch that in fact achieves the stated advantages of the Schultz switch without the attendant problems of inadvertent activation, it seems illogical to me that one of skill in the art would turn to the decidedly more “touchy” touch sensor switches of Schultz.

65. In support of these arguments, while many references may be cited, I refer to U.S. Patent 3,879,593 (Ex. 2002). This Patent, filed 45 years ago, describes an early membrane switch, as its title implies. The Patent discusses the shortcomings of manually operated switches such as push keys, Col. 1, lines 16 – 27, and the problems associated with touch sensors, Col. 1, lines 28 – 37. At Col. 2, lines 13 – 23, the shortcomings of touch sensors, as opposed to membrane switches, is discussed in some detail.

66. Indeed, by the filing date of the ‘749 patent, membrane switches had become the subject of inexpensive methods of manufacturing, and were commonly employed in environments such as that of Jahagirdar. See for example, U.S. Patents 4,391,845 and 4,602,135, Exhibits 2003 and 2004 hereto. I can see no reason why one of skill in the art would replace the pushbutton keys of Jahagirdar with touch sensors subject to inadvertent or

unintended activation, when the alternative of membrane switches was clearly available and preferable, if the issues of contamination, prolonged use and inadvertent activation were of concern.

67. Those of ordinary skill in the art have yet to substitute any type of touch sensitive switches, taught by Schultz or anyone else, for the membrane switches used on the outer edges of today's cell phones. For example all models of the iPhone by Apple have employed non-touch, membrane switches for the volume controls, power and home keys. I am not aware of any touch sensitive switch as taught by Schultz ever being used as an external switch on a cell phone. If this substitution was so obvious and a skilled artisan would have been motivated to make it, certainly Petitioners would have been in possession of evidence to offer in support of the proposition that such a substitution was motivated by the fact that it had been made.

B. The Combination of Jahagirdar and Schultz Does not Provide Activating the Indicator When the Load is Not Activated

68. As noted above, each of the device claims challenged, Claims 1, 2, 5–7, 14 and 15 provide a requirement that a visible indicator be provided that is activated in response to a microchip receiving a user interface switch signal when the load is not activated by the user. Challenged

method Claims 21 and 23 echo this requirement by requiring “activating the indicator (a visible indicator) in response to a user interface switch activation signal when the load is not activated by the user.

69. The Decision to Institute seems to accept the argument advanced by Petitioners that this is shown by the sequence of events set out in Jahagirdar that begins with detecting the INFO key 150 is pressed at step 814 (Fig 8A of Jahagirdar). See the Decision at pages 8 and 9, which indicates that display element 516 is “activated” by a signal from key 150. Yet, display element 516 is already activated, i.e., turned on – this occurred at operation 802 and was in response to the flap of the phone being closed – not to a user interface switch activation as required. (“Controller 504 enables power to driver 514 and display element 516 through line 524 (step 802).” Parenthetical in original.)

70. What has happened is that Petitioners have mixed up “activation” with “transmit data to.” Activation is a term used in the claims of the ‘749 Patent to mean on/off. It is always used in that fashion. See, e.g., Col. 4, ll. 15–31. Activation, in the claims of the ‘749 Patent, occurs when something is turned on.

71. It is easy to see the argument that Jahagirdar (Schultz provides no aspect of this analysis) teaches **activation** of the indicator (display 516)

when the load is not active rests on this confusion of terms. Display 516 is turned on, activated, at step 802. Many steps later, step 814 involves detection of *actuation* of key 150, which causes the controller to send new information to the already activated display 516. Jahagirdar, Col. 5, ll. 54–57. Indeed, the reference itself makes it clear that this step is not turning the display (indicator) off or on, but rather, involves providing “new visual information” for the already active display. Col, 5, ll. 56–57.

72. Accordingly, I cannot conclude that the identified sequence of steps, and corresponding features of Jahagirdar, even as modified by Schultz, provide the essential requirement of an indicator activated when the load is not active. The indicator is activated by closing the phone, not by activating a switch on the user interface.

73. I recognize that in providing this Declaration, it may be used as evidence in the above-captioned proceeding. I accordingly agree to appear for cross-examination within the scope of this Declaration and a convenient time and place within the United States, should the same be requested.

All statements made herein of my own knowledge are true, and all statements made on information and belief is believed to be true. Further, I am aware that willful false statements and the like are punishable by fine,

imprisonment or both, under 18 U.S.C. 1001, and that any such willful false statement may impact the validity of U.S. Patent 7,498,749.

Subscribed and sworn to pursuant to the penalties of perjury.

Dated: March 2, 2016


Robert E. Morley, Jr.