

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SkyHawke Technologies, LLC
Petitioner

v.

L&H Concepts, LLC
Patent Owner

Cases IPR2014-00437 & IPR2014-00438
Patent 5,779,566

DECLARATION OF ALAN BALL

1. I am making this declaration at the request of the Real Party in Interest L&H Concepts in the matter of Inter Partes Review of U.S. Patent No. 5,779,566.

2. I am being compensated for my work. My compensation does not depend on the outcome of this proceeding.

3. In forming the opinions I express below, I considered:

- a. The '566 Patent (Ex. 1001 in IPRs 2014-00437 & 438);
- b. The File Histories for the '566 Patent (Exs. 1002 and 1003 in IPRs 2014-00437 & 438);
- c. Petitions by SkyHawke (Paper 1 in IPRs 2014-00437 & 438);
- d. Decision of Institution of Inter Partes Review as to the '566 Patent in IPR2014-00437 (Paper 7);
- e. Decision of Institution of Inter Partes Review as to the '566 Patent in IPR 2014-00438 (Paper 7);
- f. Ex. 1005 – 1007 (Palmer, Vanden Heuvel, and Osamu) in IPRs 2014-00437 & 438;
- g. Ex. 1012 (Declaration of Carl Gutwin) and supporting exhibits in IPRs 2014-00437 & 438;
- h. Ex. 2011 (Deposition of Carl Gutwin) and supporting exhibits in IPRs 2014-00437 & 438;

4. I summarize my relevant knowledge and experience below. My *curriculum vitae* contains additional information and is Ex. 2013.

5. I have almost 30 years' experience in the product and industrial design field. At the time the '566 patent was filed, I was the Director of Design for Altitude

Inc., a company that I founded and worked at from 1992 until 2000.

6. I am a named inventor on 11 utility patents and 55 design patents.

7. I have been member in good standing of the Industrial Design Society of America for over 30 years and a member of Design Management Institute for over 10 years.

8. I hold a Bachelor's Degree in Industrial Design from Syracuse University, with a concentration in information science.

9. As shown on my CV, I have received numerous product design awards including three IDSA/BusinessWeek IDEA Gold Awards and numerous Silver and Bronze awards.

10. I have worked on the design of several different handheld products employing LCD screen-based user interfaces and I am familiar with the state of that art in 1992. In the early 1990s, while working as a designer at Design Continuum, I designed microwave ovens for Samsung, including the user interface of a touch pad control panel with LED display. I also designed VCRs and VCR remote controls for Samsung at this time. Starting in 1992, and for the next 8 years, I designed many handheld/wearable data terminals and barcode scanners for Symbol Technologies. These products featured both graphic and segmented character LCD displays and were to be used in rugged environments both inside and out. In 1997 I designed a handheld medical diagnostic device which features a key/display based user

interface, and in 2000, I designed an IP telephone handset system which featured a key and scroll wheel based user interface based on a rolodex-like navigation metaphor. In 2003 I designed a handheld electronic Scrabble companion device with key/display based UI, for Franklin Electronic Publishers. In subsequent years I have designed many electronic or electro-mechanical products which feature user interfaces such as kitchen appliances, medical equipment, sporting equipment, laboratory instrumentation, and industrial process equipment. I have seen the state of the art involving displays, switch technology, processing power, battery technology, and UI design change dramatically over the last 27 years.

11. I have reviewed the disclosure of the '566 patent and I concur with the inventor that the field of the '566 invention is handheld sports, particularly golf, recording devices. Ex. 1001 at 1:8-14 and 2:19-27.

12. I am aware that SkyHawke's expert stated that the relevant field was "human computer interaction," and I believe that this field is overly broad given the disclosure of the '566 patent and the state of the art in 1992. I believe that Dr. Gutwin is using his own hindsight to broaden the field of the '566 patent beyond what a person of ordinary skill would know at the time of the invention. This broadening is apparent to me in both Dr. Gutwin's description of the art and his product examples. For example, Dr. Gutwin incorrectly asserts that a 1990 Sony VCR, a Casio digital watch, a miniature PC, and a pager (at least) were within the same field

as the '566 patent. Ex. 1012 at ¶¶27-29. In 1992, however, watches, VCRs, miniature PCs, pagers, and golf computers were wholly different fields of endeavor with different purposes and goals.

13. The VCR originated as an offshoot of camera and video recording technology. As a shelf top device, its size and weight were not of primary importance. Moreover, as product used exclusively inside, no concern was needed for outdoor use – far different from the '566 patent.

14. Similarly, digital watches were one of many innovations in the centuries long history of watchmaking. As the main function of a watch is telling the time, entry of data is limited to setting the time and simple start/stop operations. Digital watches focused instead on being small enough to be worn on a person's wrist and being able to work for months at a time on a single set of batteries – also far different than the '566 patent.

15. Miniature PCs of the time, such as the Tandy PDA cited by Dr. Gutwin, were designed to replicate as much as possible the general purpose nature of a computer for a general audience. They typically employed a rudimentary pen-based touch screen interface and a general operating system suitable for a variety of types of software – all far different from the single use handheld sports recording device of the '566 patent.

16. Still different further were early pagers from the 1990s, such as the

selective call receiver of the Vanden Heuvel reference (Ex. 1007). As the Vanden Heuvel reference itself explains, it was focused on receiving wireless messages over the air and updating internal databases with the newly received wireless information. Ex. 1007 at 2:19-21. Although limited user input was certainly possible with the Vanden Heuvel device, as the title and the numerous figures of Vanden Heuvel show, the focus of the system was providing quick access to wirelessly updated information. Ex. 1007 at Title, Figures 2-4 & 6-8; 2:55-68. The interface design for that purpose is from a far different field from the '566 patent.

17. As I describe further below, Dr. Gutwin's incorrect evaluation of the field of the '566 patent directly leads to his flawed determination that one of ordinary skill in the art would have combined the Vanden Heuvel reference with Palmer and/or Osamu. One of ordinary skill in the art in 1992 would not have looked to a pager (a device in a wholly different field of endeavor) when designing a handheld sports recording device as described in the '566 patent.

18. I understand that Dr. Gutwin indicated that the level of ordinary skill in the art in 1992 was exceedingly low, especially compared to today. Ex. 2011 at 100:20 – 103:2 (conceding that he had not identified minimum levels of formal education or experience for such a person). I agree that in 1992, no secondary school education was required to be one of ordinary skill in the art. However, I believe that an ordinary artisan would have at least some experience working in the field of

handheld sport devices either designing or building them. In time, the level of ordinary skill in this area would grow as the technology improved and the number of highly educated individuals in the field increased, but that was several years after 1992.

19. I was at least one of ordinary skill in the art in 1992. Moreover, I worked with many people of ordinary skill in the art as a product designer, and I am familiar with their knowledge and approach to design challenges in 1992.

20. I understand that a patent claim is invalid for obviousness only if the invention described in the claim would have been obvious to a person of ordinary skill in the art at the time the invention was made. I understand that the fundamental question in an obviousness analysis is whether the claimed invention would have been obvious to a person of ordinary skill in the art, taking into account (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of ordinary skill in the art, and (4) any secondary considerations of non-obviousness, including commercial success of products or processes using the invention, long felt need for the invention, failure of others to make the invention, industry acceptance of the invention, and copying of the invention by others.

21. I further understand that multiple references can be combined with one another, or with the knowledge of a person of ordinary skill in the art, to render a

claim obvious. However, obviousness is not established simply because all of the elements of a patent claim can be found in the prior art. In fact, a claim is not invalid as obvious solely because it is a predictable use of prior art elements according to their established functions. Rather, I understand that there must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.

22. In addition, I understand that obviousness of a patent cannot properly be established through hindsight, and that elements from different prior art references, or different embodiments of a single prior art reference, cannot be selected to create the claimed invention using the invention itself as a roadmap. The claimed invention as a whole must be compared to the prior art as a whole, and courts must avoid aggregating pieces of prior art through hindsight which would not have been combined absent the inventors' insight.

23. I understand that the claim terms in this IPR are entitled to their Broadest Reasonable Interpretation. To the extent that a claim term was defined by the Board in the Institution Decisions, I have applied that construction. To the extent that a claim term was not explicitly defined by the Board, I have applied the Broadest Reasonable Construction of that term to my analysis.

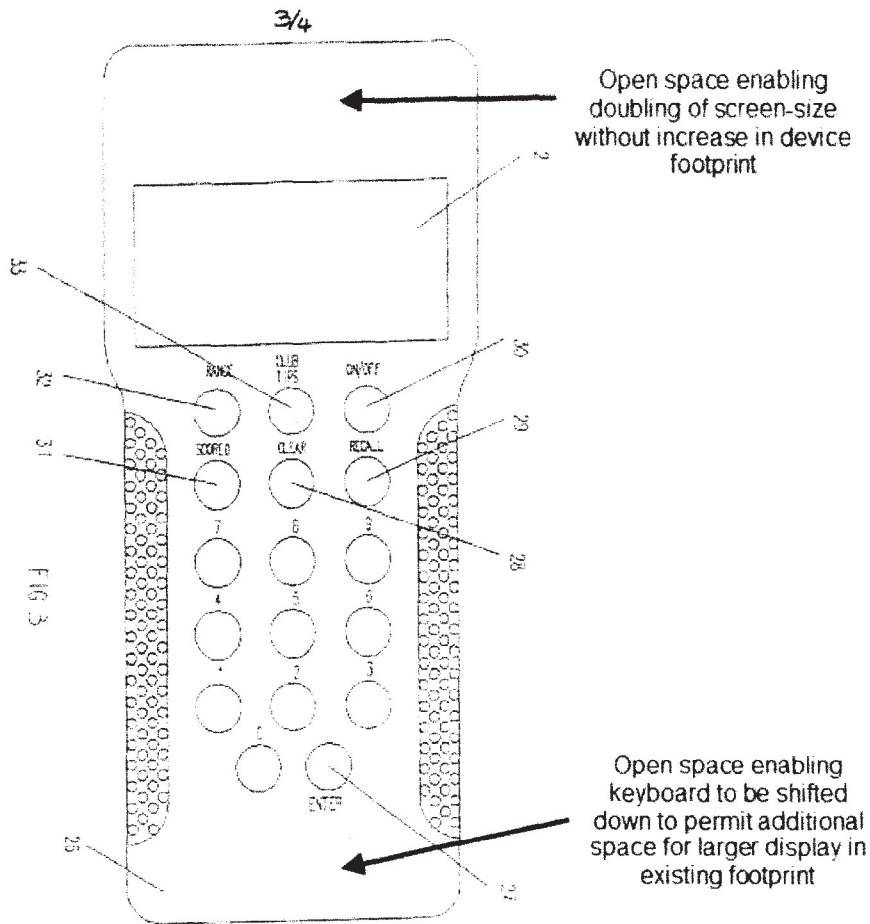
24. I also understand that the burden to establish that the claims of the '566 patent are obvious rests with the Petitioner, who must show that it is more likely than

not that the claims of the '566 patent are invalid.

25. As I note above, I have reviewed the Petitions, the Institution Decisions, the prior art cited by the Petitioner, and Dr. Gutwin's declaration and deposition, and I believe that the conclusion of invalidity is flawed.

26. First, I reviewed the reasons stated by the Petitioner for combining the Palmer reference with the Vanden Heuvel reference and I find those reasons to be lacking. In particular, Petitioner asserts on page 20 of the 437 IPR and page 27 of the 438 IPR that one of ordinary skill in the art would have modified Palmer in view of Vanden Heuvel to "increase the [Palmer] device's display size, thereby rendering the device more easily usable on the golf course."

27. However, even a cursory review of the Palmer reference itself shows Petitioner's reason for combination to be flawed. As I show below, the device of Palmer (as shown below in annotated version of Figure 3 of Palmer), already includes considerable open space for expanding the screen size:



28. If an ordinary artisan in 1992 wished to increase the size of the screen of Palmer without changing the device's footprint, the presence of the keyboard was clearly not a barrier to such an expansion. In fact, the existing footprint of the Palmer device enabled the addition of even more keys if desired.

29. Moreover, neither Petitioner nor Dr. Gutwin provides an explanation of how or why increasing the size of Palmer's screen would make the device "more usable." To the contrary, removing one or more of the buttons of Palmer would make the Palmer device less usable. As designed, the Palmer device has single

function buttons that enable a user to press a single button to enter the range finder mode, to recall data, to enter a score, etc. The existing Palmer buttons were also capable of selecting data both sequentially (ENTER and RECALL) and non-sequentially (CLUB TIPS, RANGE, and number keys).

30. If, as Petitioner proposes, one were to replace these buttons with a screen dependent data entry mechanism, such as used in Vanden Heuvel, the user would be forced to hit multiple buttons multiple times to transverse through multiple menus to either select a feature or enter data. Far from being easier to use, it would actually be more difficult and time consuming to use Petitioner's modified Palmer device than the original. Clearly, one of ordinary skill in the art would have no reason to modify the Palmer device to make it more difficult to use.

31. Moreover, Petitioner also provides no rationale to support its assertion that a larger screen would make the Palmer device more usable besides an implicit assertion that "bigger is better." While it may be true that bigger is better in certain fields or for certain types of devices, Petitioner identifies no problem or limitation from the screen size in the Palmer reference. Quite to the contrary, the LCD screen shown in Palmer appears more than capable of displaying the types of text data required of it. Ex. 1005 at Figure 3 and pages 8-9. Moreover, a larger screen would be disadvantageously heavier, more fragile, and require more power than the existing screen design.

32. Even if one of ordinary skill chose to ignore the inefficiencies and disadvantages in removing Palmer's dedicated keys, replacing those keys with a screen dependent input mechanism would lead to a Palmer device that would be more often than not largely unusable during a game of golf. This is the case because the LCD screens of the time (early 1990s) were extremely difficult to read in direct sunlight. Even Dr. Gutwin grudgingly conceded in his deposition that bright sunlight could negatively affect the readability of early 90's LCD screens. *See Ex. 2011 at 238:3-25.*

33. This unfortunate feature of early LCD screens was significantly diminished in Palmer through the use of marked keys. A user of the Palmer device did not necessarily need to be able to read the entire screen to enter sports data into the device or to trigger function because the user could use the dedicated marked keys to enter information or make selections even if the direct sunlight was partially or completely obscuring the screen. However, if Palmer were modified to use a screen dependent input mechanism instead of its marked keys, the user would be unable to enter any data without finding shade or going inside. As golf is a game played exclusively outside (and hopefully away from the trees), the modified Palmer device would often times be partially or wholly unusable for a given game of golf.

34. Notably, the pager of Vanden Heuvel was not designed for exclusive outdoor use and as such a user of Vanden Heuvel did not have the same concern.

When a message is received by the Vanden Heuvel pager, its user could simply take the pager indoors to read it away from direct sunlight. In fact, it appears that Vanden Heuvel was even cognizant of the fact that its screen may be difficult to read and, thus included an “alert device 38 to alert the user that a selective call message has been received.” Ex. 1007 at 4:38-42. The alert device is either an LED light or an audio signal – neither of which are affected by direct sunlight. Ex. 1007 at 5:14-23.

35. The screen dependent input mechanism of Vanden Heuvel would further be unsuitable for use with Palmer because it would reduce the available screen space for the display of golf information, as some portion of that screen space would need to be used for the screen input mechanism. Although Palmer mentions no problems displaying the types of information described in the reference itself, it did not contemplate displaying this information on a screen in which the display space was reduced by on-screen menus and selection mechanisms of the type disclosed in Vanden Heuvel. *See ex. 1006 at Fig.9, 13, and 14.*

36. Next, the disclosures of Palmer, Osamu, and Vanden Heuvel also do not include any provision for displaying pre-game and/or game interactive screens in a sequential fashion or in a logical order.

37. First, none of the references disclose the use of pre-game screens at all. One of ordinary skill in the art would understand that the interactive training exercises cited by the Petitioner take place while playing the game of golf. This is

the case because each of them describes information that is displayed when a user is either practicing golf or playing a practice game of golf. They are not a pre-game screen, as recited in the claims. Palmer never describes this activity as a “pre-game” activity, and to the contrary describes a lengthy series of game activities that could easily occupy an entire golf outing. Ex. 1005 at 10-13. As such, the training exercises are not pre-game screens, but rather game interactive screens. *See* Ex. 1001 at 7:61-66 (describing pre-game screens) and 8:1-10 (describing the tracking of shots on the game interactive screens); Ex. 1005 at 10 and 15.

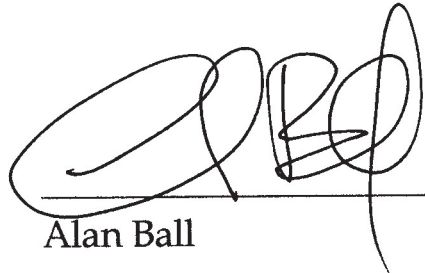
38. Palmer’s “golf course database” is similarly a game interactive screen as it is only described as being used during a game, and thus can also not be a pre-game screen. Ex. 1005 at 15. Further, the ability of the Palmer device to recall the result of a previous game is a post-game screen, as this feature is related to recalling the result after a game has been completed – not preparing for a new game. *See* Ex. 1001 at 8:47-65 (describing post game screens displaying scores).

39. Osamu also does not disclose any pre-game screens. The section relied upon by the Petitioner in its Petitions for “pre-game screens” refers to a screen presented when a golfer “comes to a tee shot at each hole,” which makes this screen a game interactive screen because it is displayed while playing golf. Ex. 1006 at 18-19.

40. Moreover, Palmer, Osamu, and Vanden Heuvel do not disclose displaying the pre-game and/or game interactive screens in a sequential or logical order. Vanden Heuvel makes no mentioning of playing a game, and thus cannot disclose these features. While Palmer and Osamu do make mention of displaying golf related information, neither reference describes presenting pre-game and/or game interactive information in a particular screen or logical order of screens. To the contrary, in its description, Palmer merely provides various lists of the types of information that could be provided to the user with little or no description of how that information would be presented. Ex. 1005 at 10, 14, and 15. Osamu is little better. Ex. 1006 at 19 (describing that scores “may be reviewed by displaying on the LCD panel as desired”); *see also* Ex. 1006 at 20.

41. Given the extreme length of the declarations prepared by Dr. Gutwin and the large number of assertions unrelated to the actual assertions of invalidity set forth by Petitioner, I have not attempted in this declaration to identify or address every flaw in Dr. Gutwin’s opinions. I have instead focused on providing my opinions regarding the proper analysis to be used in considering the validity of the claims of the SkyHawke IPRs. To the extent I have not addressed a point by Dr. Gutwin, it does not mean that I agree with that point. In many cases, his mistakes simply did not appear relevant enough to the ultimate questions at issue for me to address.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed this 19th day of December, 2014.



Alan Ball