

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EARLY WARNING SERVICES, LLC,

Petitioner

v.

INTELLECTUAL VENTURES II, LLC,

Patent Owner

Inter Partes Review No.

IPR2024-01221

U.S. Patent No. 7,314,167

FIRST SUPPLEMENTAL DECLARATION OF THOMAS PURVES

1. I incorporate herein by reference Ex. 1002, the Declaration of Thomas Purves, in its entirety.
2. I have reviewed Patent Owner's Preliminary Response (POPR), and the exhibits cited therein, which I understand were filed in the PTAB on November 20, 2024.
3. I have been asked how a person of ordinary skill in the art (POSA) would interpret the term "embedded" as that term is used in the '167 patent and its prosecution history, which I have been told is referred to legally as its "plain and ordinary meaning." With this understanding, and as I explain further below, it is my opinion that the plain and ordinary meaning of "embedded" includes any information contained in barcodes—whether hidden or unhidden, encrypted or unencrypted, and provided for any purpose, e.g., for security purposes or other purpose. To be clear, the term "embedded," as used in the '167 patent, in my opinion, does not require encryption. My opinion is supported by the '167 patent specification, its prosecution history, and by the extrinsic evidence, as explained below.
4. I understand that PO argues "embedded" describes "information in the image that is *hidden* in the image and used to *provide security* for the transaction." POPR at 34, 46-47. According to PO, this construction excludes conventional

barcodes since the information can be decoded by a barcode scanner. POPR at 34, 46-47 (emphasis added). I do not agree with PO in this regard since PO's construction of "embedded" reads on conventional barcodes, which contain hidden information that require barcode readers to decode, thereby providing a level of security. For purposes of this declaration, however, I have interpreted PO's position to be that the term "hidden" requires some level of encryption.

5. It is my view that PO's construction is incorrect as it improperly adds two limitations ("hidden" and "provides security") to the term "embedded," both of which add ambiguity rather than clarify the term. I find both the term "hidden" and "provides security" to be unclear. For example, a barcode is clearly visible, and so it is not hidden. But information itself decoded from the barcode is hidden in that you need a barcode scanner to decode it. Further, product information pulled up from a lookup table using decoded barcode information is further hidden in that you require a lookup table. It is unclear to me how hidden embedded information must be in order to satisfy PO's construction of "embedded." Similarly, conventional barcodes provide a degree of security in that an individual cannot decode a barcode without, at a minimum, a barcode reader. It is unclear to me how much security is required to satisfy PO's construction of the term "embedded." It is also my opinion that PO's proposed construction is at odds with the plain and ordinary meaning, as understood in view of the '167 patent specification.

6. I understand that the words of a claim are generally given their ordinary and customary meaning as understood by a [POSA] when read in the context of the specification and prosecution history. I have been told that there are two exceptions: (i) when there is a definition, or (ii) there is a “clear and unmistakable disclaimer” of subject matter. From my review of the ’167 patent and its prosecution history, neither applies here. No definition was provided, and I was unable to find any clear or unmistakable disclaimer in the patent or its prosecution history in connection with the term “embedded.” As such, it is my understanding that no construction is required, and the plain and ordinary meaning should control.

7. I have been advised that the plain and ordinary meaning reflects how a POSA would interpret the term in light of the specification and prosecution history. From my review of the ’167 patent, it is apparent that although the term “hidden” appears in the Background section of the patent, it appears nowhere in the ’167 patent’s description of the alleged invention. From this, it is my view that the term “hidden” should have no bearing on the interpretation of “embedded.” It is similarly unnecessary in my view to weave the “provide security” limitation into the claims when that feature is already positively recited in the claims (“secure transaction”) *and* satisfied by other claim limitations, e.g., the “verify the user” step. Thus, it is my conclusion that the specification does not support PO’s construction.

8. In continuing my analysis of the '167 patent for purposes of discerning the plain and ordinary meaning of the term “embedded,” I found that the '167 patent specifically refers to information embedded in 1-D and 2-D barcodes—the exact type of barcodes discussed in Grounds 1-6 of the Petition. Ex. 1001 at 5:21-29, 51-52; 6:49; 10:33-36; 11:61; 13:46-49; claims 7-10. For this reason, it is my opinion that the plain and ordinary meaning of “embedded” includes information contained in any barcode, regardless of whether it is encrypted or “hidden.”

9. The '167 patent also mentions the optional use of encryption. *See, e.g.*, Ex. 1001 at 5:50-60 (“The information embedded...*may be* created using...decryption/encryption algorithms...”); 7:1-5 (“*If* the image...has been generated using an encryption or decryption algorithm....”); 9:20-23 (“The embedded information *might be* encrypted....”) (emphasis added). From my review, however, none of this language constitutes a clear and unmistakable disavowal of unencrypted information. Thus, it is my view that the intrinsic evidence ('167 patent and its prosecution history) supports a plain and ordinary meaning of “embedded” that reads on any information derived from barcodes—whether encrypted, unencrypted, hidden, or unhidden.

10. Additionally, I disagree with PO’s assertion that in every embodiment of the '167 patent the embedded information corresponds to information that is hidden in an image and protected using a security technique such as encryption, decryption,

or a message authentication algorithm. POPR at 5-6. In my review of the '167 patent, I note that several of the embodiments disclosed in the '167 use the term “embedded” *without any discussion of hidden, encrypted or otherwise secured data*. For example, the embodiments related to Figures 10 and 11 of the '167 patent both involve scanning a barcode that includes embedded information relating to the transaction. The barcode is scanned, the secure device 100 derives the relevant information related to the transaction (i.e., the embedded information), and subsequently displays the transaction information to the user, as shown in blocks 1010 and 1110 of the '167 patent. Ex. 1001 at 13:43-50; 14:8-15. The discussion related to Figures 10 and 11 fails to disclose, explicitly or implicitly, any usage of hidden, encrypted, or otherwise secure information being used to embed such information in the barcode. Rather, as shown in blocks 1010 and 1110 of the '167 patent, the transaction information derived from the barcode involves only information that, in my view, a POSA would recognize as being readily known by both parties of the transaction: a merchant name, the sender's identifier, and a transaction amount. Thus, in my opinion, the information embedded in relation to Figures 10 and 11 of the '167 patent is not disclosed as being required to be hidden/encrypted or provided for security purposes. The use of the term “embedded” in at least these embodiments is consistent with optionally hiding/encrypting the information, as discussed above.

11. I also have been told that under the doctrine of claim differentiation a dependent claim is necessarily narrower than its independent claim. From my review, this doctrine appears to contradict PO's position that "embedded" refers to hidden, i.e., encrypted, information, provided for security purposes. Here, dependent claims 3 and 25 recite a "decryption algorithm" to decode "embedded" information. As such, it is my opinion that independent claims 1 and 23, from which claims 3 and 25 depend, respectively, should be construed more broadly to cover embodiments *not* employing encryption/decryption, e.g., unhidden information.

12. I have also reviewed various extrinsic evidence, which I understand includes contemporaneous documents other than the patent and its prosecution history. Specifically, I have reviewed Exhibits 1037-1042, summaries of which are provided below.

13. The 2003 article, "Graphical Indicia" (Ex. 1037), explains that one dimensional barcodes "are employed in low information content applications such as a "product index" or "serial number registries." Ex. 1037, at 1. Two dimensional barcodes, however, are used when "more information [is] to be embedded, including electronic postal indicia, mail addresses...or **embedding** the compressed content of a printed page." *Id.* In one embodiment, the "**embedded** information includes a digital signature that can be used to verify the integrity and

authenticity.” *Id.* at 3. The function of a digital signature is that it is created by a specific individual possessing a private key, but the signature itself can be verified by anyone using non-secret public decryption keys. A person of ordinary skill in the art would understand that this exhibit does not require that the embedded information is hidden or provided for security purposes.

14. The 2003 article, “Practical Guide to Bar Coding for Patient Medication Safety” (Ex. 1038), provides an overview of a rule the FDA was to propose in 2003 which required “bar-code labels on all human drugs and biologicals.” Ex. 1038, at 1. The article describes barcoding technology as comprising data format. Data format “refers to the data **embedded** within the bar code” *Id.* at 3. A person of ordinary skill in the art would understand that this exhibit does not require that the embedded information is hidden or provided for security purposes.

15. The 1993 article, “Bridging the Paper and Electronic Worlds: The Paper User Interface” (Exhibit 1039), describes “a method for **embedding** digital data in documents as diagonal marks on paper, and reading back this data from images of the document.” *Id.* at 2. A person of ordinary skill in the art would understand that this exhibit does not require that the embedded information is hidden or provided for security purposes.

16. United States Patent US7287284, (filed 04-22-2003) (Ex. 1040) provides a “method for **embedding** additional information in document data.” Ex. 1040 at 34,

49. A person of ordinary skill in the art would understand that this exhibit does not require that the embedded information is hidden or provided for security purposes.

17. United States Patent US20050092839A1, (filed 10-31-2003) (Ex. 1041) describes a “platform independent execution environment for executing **embedded** instructions. In one example, the instruction may be embedded in an active barcode format.” *See* Ex. 1041 at 1. Non-proprietary information is among the exemplary information embedded in the barcode, “for example inventory management, security, tracking purposes, program loading, random number generation, and/or a myriad of other applications.” *Id.* at 10. A person of ordinary skill in the art would understand that this exhibit does not require that the embedded information is hidden or provided for security purposes.

18. The 1998 instruction manual, “DataMax Programmers manual” (Ex. 1042), provides instructions “to write programs that will enable Datamax label printers to create label formats (designs)” which can be “printed, stored and edited.” *See* Ex. 1042 at 2. Under Appendix G are provided a list of available barcodes to print including UPA-A and EAN-13, which are “used when the price or weight of an item is **embedded** into the barcode data (this is commonly used in the food industry.)” *Id.* at 181. A person of ordinary skill in the art would understand that this exhibit does not require that the embedded information is hidden or provided for security purposes.

19. It is my view that the foregoing Exhibits 1037-1042 also support my conclusion concerning the plain and ordinary meaning of the term “embedded,” since each of them use the term “embed” (and variations thereof) in simply referring to information contained in conventional barcode technology. *See, e.g.*, 1037 at 1 (“two-dimensional barcodes are used in applications that require more information to be *embedded*....”); 1038 at 1 (the “elements of bar coding...[include] data format, which refers to the *embedded* data....”); 1039 at 2 (“a method for *embedding* digital data in documents as diagonal marks....”); 1040 at 46 (the “process may visibly *embed* additional information using a one- or two-dimensional barcode.”); 1041 at 10 (“the *embedded* information may be included in a...barcode....”); 1042 at 181 (“price or weight of an item is *embedded* into the barcode...”). Each of these references uses the term “embedded” consistently with how the ’167 patent uses the term—as referring to *any* information derived from a barcode, whether encrypted, unencrypted, hidden, or unhidden and provided for any purpose. These references, in addition to the ’167 patent itself, support my view that the term “embedded” is not a “term of art” limited to hidden information used for security purposes as alleged by PO in its POPR at 38.

20. I have also reviewed the extrinsic evidence cited by PO in its POPR, including Exhibits 2003-2008. For the reasons discussed above, PO’s extrinsic evidence does not appear to use the term “embedded” in the same manner as the

term is used in the '167 patent. For this reason, these exhibits do not change my opinion in any way. When considering the totality of intrinsic and extrinsic evidence, it was clear to me that the correct plain and ordinary meaning of “embedded,” as understood in view of the '167 patent and its prosecution history, includes any information contained in barcodes.

21. In view of the foregoing, it is my opinion that PO’s narrow interpretation of “embedded” is incorrect, and that the correct plain and ordinary meaning of the term “embedded” includes any information contained in barcodes, whether encrypted, unencrypted, hidden, or unhidden, and provided for any purpose since this meaning is consistent with (i) the '167 patent’s recitation of information contained in barcodes, (ii) the optional use of encryption, and (iii) the extrinsic evidence.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on: Dec 5, 2024

(Date)

By: _____

(Signature)