

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner

v.

CARBYNE BIOMETRICS, LLC,
Patent Owner

Case: IPR2024-00329
U.S. Patent No. 9,972,010

**PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE**

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<i>Salazar v. AT&T Mobility LLC</i> , 64 F.4th 1311 (Fed. Cir. 2023)	13, 19

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Exhibit	Description
2001	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 14 (Defendant’s Rule 12(b)(6) Motion to Dismiss the Complaint for Failure to State a Claim Under 35 U.S.C. §101) (W.D. Tex. May 24, 2023)
2002	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 30 (Plaintiff’s Response to Defendant’s Rule 12(b)(6) Motion to Dismiss the Complaint for Failure to State a Claim Under 35 U.S.C. §101) (W.D. Tex. June 1, 2023)
2003	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 31 (Defendant’s Reply Brief In Support of Motion to Dismiss for Failure to State Claim Under 35 U.S.C. §101) (W.D. Tex. June 28, 2023).
2004	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 64 (Defendant’s Opposed Motion to Stay Pending Transfer) (W.D. Tex. November 28, 2023)
2005	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 37 (Defendant’s Opposed Motion to Transfer (redacted)) (W.D. Tex. July 26, 2023)
2006	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 66 (Carbyne’s Response to Motion to Stay Pending Transfer) (W.D. Tex. December 5, 2023)
2007	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 50 (Carbyne’s Response to Motion to Transfer Venue) (W.D. Tex. October 27, 2023)
2008	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 55 (Apple’s Reply In Support of Its Motion to Transfer Venue) (W.D. Tex. November 10, 2023)

2009	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 60 (Carbyne’s Surreply in Response to Motion to Transfer Venue) (W.D. Tex. November 16, 2023)
2010	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 42 (Apple’s Opening Claim Construction Brief) (W.D. Tex. October 4, 2023)
2011	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 49 (Carbyne’s Response to Apple’s Proposed Claim Construction) (W.D. Tex. October 25, 2023)
2012	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 54 (Apple’s Reply Claim Construction Brief) (W.D. Tex. November 8, 2023)
2013	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 62 (Carbyne’s Sur-Reply to Apple’s Claim Construction Brief) (W.D. Tex. November 22, 2023)
2014	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 69 (Minute Entry re Markman Hearing and Motion to Transfer Venue) (W.D. Tex. December 12, 2023)
2015	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 73 (Apple’s Motion to Stay Pending The Court’s Written Order on Transfer) (W.D. Tex. January 17, 2024)
2016	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 79 (Carbyne’s Response to Motion to Stay Pending Written Order on Transfer) (W.D. Tex. January 24, 2024)
2017	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 80 (Apple’s Reply in Support of Motion to Stay Pending Court’s Written Order on Transfer) (W.D. Tex. January 24, 2024)
2018	<i>In Re Apple</i> , Case No. 2024-111, Dkt 2 (Apple’s Petition for Writ of Mandamus) (Fed. Cir. February 1, 2024)

2019	<i>In Re Apple</i> , Case No. 2024-111, Dkt. 13 (Carbyne’s Response to Writ of Mandamus) (Fed. Cir. February 20, 2024)
2020	<i>In Re Apple Inc.</i> , Case No. 2024-111, Dkt 15 (Apple’s Reply In Support of Petition for Writ of Mandamus) (Fed. Cir. February 27,
2021	<i>In Re Apple Inc.</i> , Case No. 2024-111, Dkt 18 (Order Denying Writ of Mandamus) (Fed. Cir., March 18, 2024)
2022	United States Patent and Trademark Office Memorandum Dated June 21, 2022 re: Interim Procedure for Discretionary Denials in AIA post-grant proceedings with Parallel District Court Litigation
2023	<i>Cloud of change, LLC v. Lightspeed POS Inc.</i> , Case NO. 6:21-cv-0102 Order Denying Lightspeed POS Inc’s Opposed Motion to Stay Pending Resolution of <i>Inter Partes</i> Review (W.D. Tex. Dated May 15, 2023)
2024	<i>Sonrai Memory Limited v. LG Electronics, Inc.</i> 2022 WL 2307475 (W.D. Tex. June 27, 2022)
2025	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Apple’s Amended Preliminary Invalidity Contentions (W.D. Tex. October 6, 2023) (excerpts)
2026	Email Correspondence From Counsel Of Petitioner To Counsel of Patent Owner re <i>Sotera</i> Stipulations and <i>Carbyne Biometrics, LLC v. Apple Inc.</i> , 1:23-cv-0032 (W.D. Tex.)
2027	Email Correspondence From Counsel Of Petitioner To The Board re <i>Sotera</i> Stipulations for IPRs IPR2024-00329, -00330, -00331, -00332, -00333, -00334 and-00507
2028	U.S. Patent No. 5,164,992 (“Turk Patent”)
2031	CV of Dr. Michael Goodrich
2032	Declaration of Dr. Michael Goodrich
2033	<i>Carbyne Biometrics, LLC v. Apple Inc.</i> , Case No. 1:23-cv-00324, Dkt 155 (Apple Inc.’s Final Election of Asserted Prior Art) (W.D. Tex. October 23, 2024)

I. INTRODUCTION

Carbyne Biometrics LLC (“Patent Owner”) files this sur-reply responding to Apple Inc.’s (“Petitioner”) Reply to Patent Owner’s Response concerning U.S. Patent No. 9,972,010 (“the ’010 Patent”). Petitioner has failed to meet its burden to establish that any Challenged Claim of the ’010 Patent is obvious. Petitioner’s reply only highlights the shortcomings of its purported obviousness grounds.

First, Petitioner has failed to show that its references disclose the *same* virtual likeness of the face of the account holder as required for limitations [1.2]-[1.5]. Petitioner in its Petition and now in its reply fails to identify one virtual likeness of an account holder disclosed in Stone (Petitioner’s primary reference) that is received, stored and associated in a data store with the account holder’s account, and rendered in an interface by one or more processors as required by the ’010 Patent’s Challenged Claims. *Second*, Petitioner has not shown that Stone discloses a memory coupled to a single processor that performs all the limitations required by claim 1, as required by law. *Finally*, Petitioner cannot establish that a POSITA would have been motivated to combine Stone with the secondary references for any of its obviousness grounds. Unlike the ’010 Patent, Stone is not directed to reducing fraud in electronic transactions, much less directed to eradicating spoofing of biometric authentication systems by employing techniques to ensure the user is alive as contemplated by Petitioner’s secondary references.

For these reasons, the Board should uphold the patentability of '010 Patent's Challenged Claims.

II. GROUND 1: STONE COMBINED WITH HOYOS DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

A. Stone combined with Hoyos does not render obvious independent claims 1, 9, and 17.

1. Stone-Hoyos does not disclose or render obvious the “virtual likeness of the face of the account holder” for Limitations [1.2]-[1.5].

Stone combined with Hoyos does not disclose or render obvious the virtual likeness elements of the independent claims. Claim 1 of the '010 Patent is exemplary of the independent claim and recites a system comprising:

[1.1] one or more processors configured to:

[1.2] **receive** a virtual likeness of a face of an account holder; **associate**, in a data store, *the virtual likeness of the face of the account holder* with an account of the account holder;

[1.3] **render**, in an interface, *the virtual likeness of the face of the account holder*;

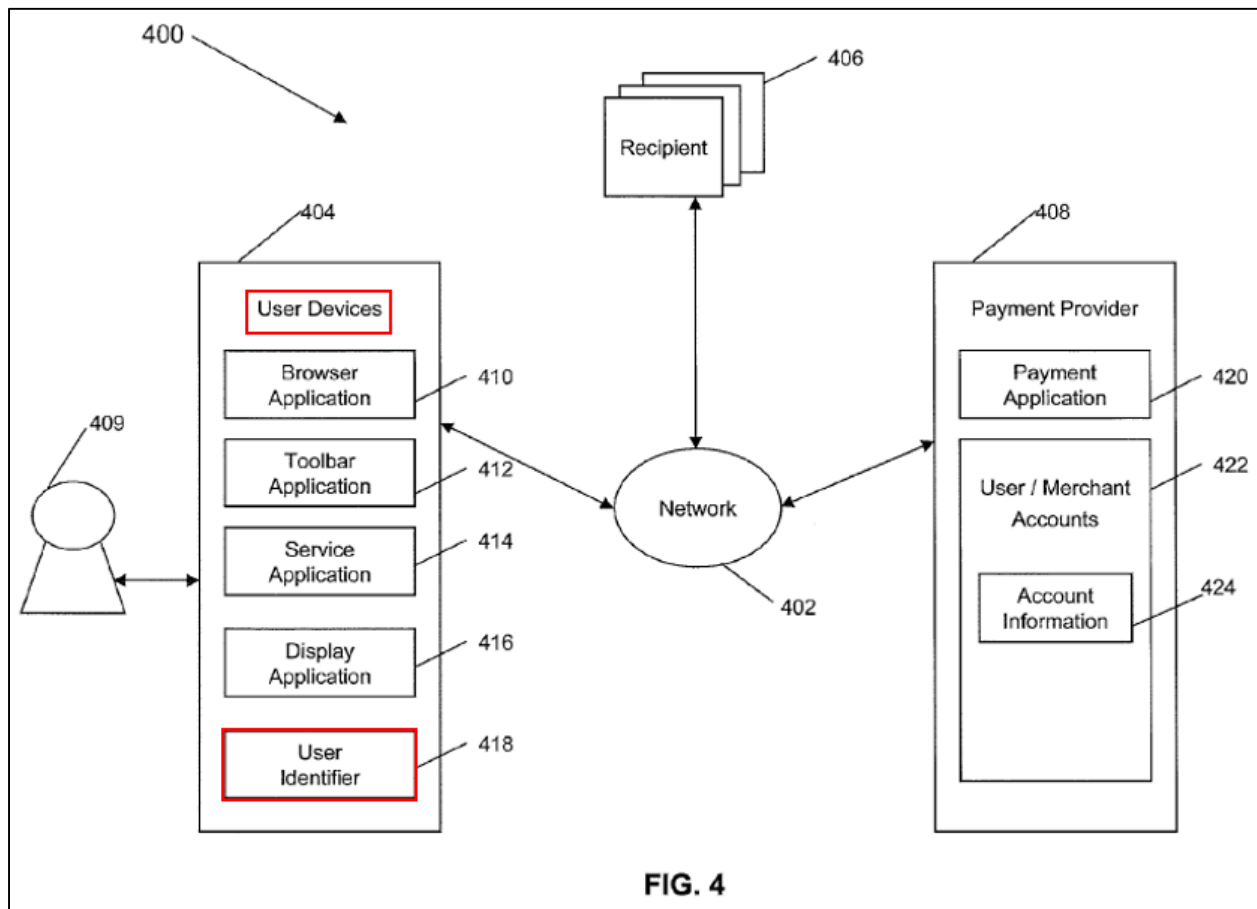
Ex. 1001, cl. 1 (emphasis added).

Limitations [1.4] and [1.5] include additional requirements for the interface in which the “the virtual likeness of the face of the account holder” is rendered. *Id.*

Petitioner in its reply does not dispute that for claim 1 of the '010 Patent, the antecedent-basis rule for claim drafting requires the *same* “virtual likeness of the

face of the account holder” is received, associated in a data store with an account of an account holder, and rendered in an interface. *See* Pet. Reply, 2-3. That said, the Petition fails to identify a single virtual likeness in Stone that satisfies these limitations. *See* Pet., 26-31. For the receive and associate elements of [1.2], the Petition states that “Stone teaches one or more processors (e.g., processor 504 in user device 404 alone, or in combination with other processors) are configured to receive a virtual likeness of a face (‘photograph image’) of an account holder (user 409 (as either sender or recipient) with a user account 422), and store the received photograph image in user identifier 418 of user device 408.” Pet., 26-27 (citing Ex. 1008, [0045] and [0048]).

Stone Figure 4 (reproduced below) provides a block diagram showing one embodiment (system 400) configured to implement Stone’s virtual currency display over a network. Ex. 1008, [0040]. In the example system of Figure 4, user device 404 may contain a user identifier 418, which may include identifiers related to the user device or “attributes related to the user, such as personal information (e.g., a username, password, photograph image, biometric id, address, phone number, etc.) and banking information (e.g., banking institution, credit card issuer, user account numbers, security information, etc.).” *Id.*, [0045].



Ex. 1008, Fig. 4 (annotated).

Then, for limitation [1.3] (“render, in an interface, the virtual likeness of the face of the account holder”), the Petition identifies two items from Stone as the virtual likeness of the face of the account holder rendered in an interface: (1) recipient photo 202 and (2) the image of the sender in a PayPal transfer on a user-created, personalized currency. Pet. 29-31; Ex. 1008, Figs. 1 & 2, [0007], [0019], [0024]. Recipient photo 202 and the personalized currency are depicted in the figures from Stone below.

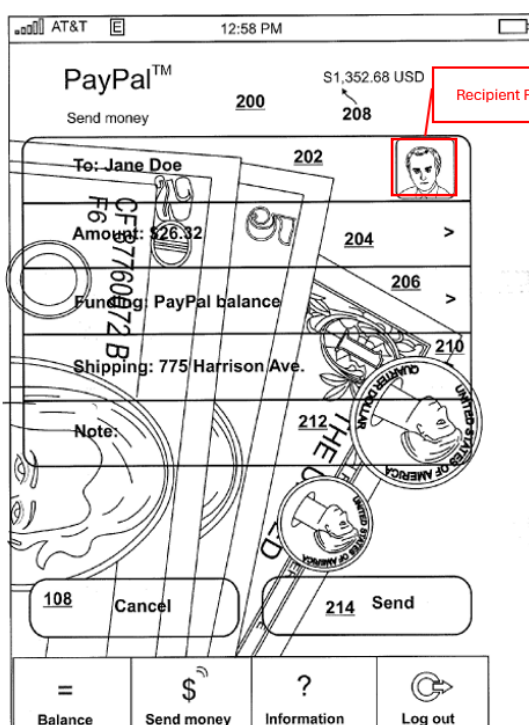


FIG. 2

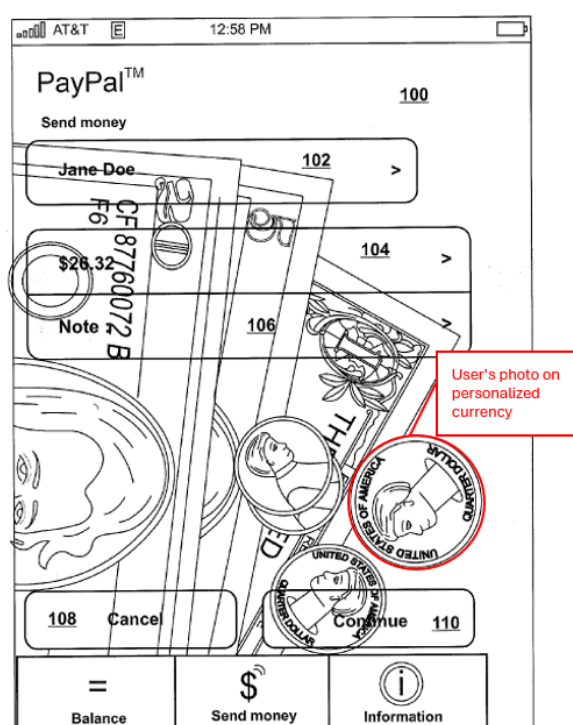


FIG. 1

Ex. 1008, Figs. 1 & 2 (annotated).

But the Petition does not allege, nor does Stone disclose, that either recipient photo 202 or the personalized currency rendered in the interface (limitation [1.3]) is related to the photo that can be used for user identifier 418—the only photo the Petition identifies as a likeness that is *associated* with the account holder’s account for limitation [1.2]. *See* Pet., 26-29. By failing to identify in the Petition a single image from Stone that meets each aspect of the “virtual likeness” of the ’010 Patent’s independent claims, Petitioner has failed to show that the ’010 Patent’s independent claims are obvious. *See In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (“[W]hile the PTO has broad authority to establish procedures for

revisiting earlier-granted patents in IPRs, that authority is not so broad that it allows the PTO to raise, address, and decide unpatentability theories never presented by the petitioner and not supported by record evidence.”).

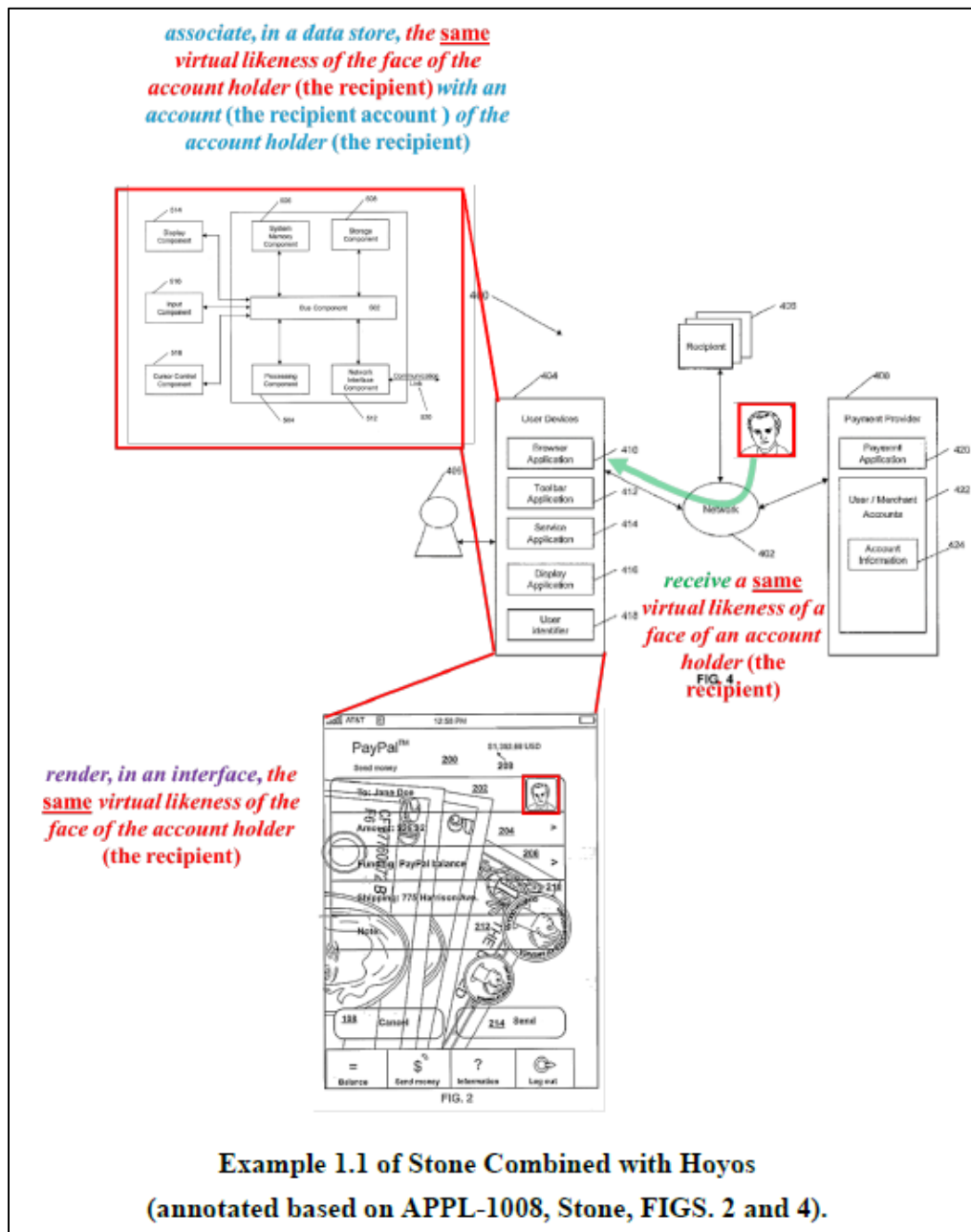
Petitioner now tries to correct its deficient Petition. In its reply, Petitioner, for the first time, identifies four purported “examples” from Stone that “each alone render obvious the same virtual likeness of [a/the] face of [an/the] account holder claimed in limitations [1.2]-[1.5].” Pet. Reply, 3. These examples rely on the recipient photo 202 and the personalized currency display applied in either a client-server or client-only configuration. *Id.*, 3-16.

But, as mentioned above, the Petition never identifies either the recipient photo 202 or the personalized currency display for the *receive* or *associate* limitations of [1.2]. *See* Pet., 26-28. Therefore, the Board should ignore Petitioner’s untimely examples asserted for the first time in its reply and hold Petitioner to the Grounds as asserted in the Petition, which fail on their face. *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1380 (Fed. Cir. 2023) (Petitioner “may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a prima facie case of unpatentability.” (quoting U.S. Patent Trial and Appeal Board, Consolidated Trial Practice Guide 73 (Nov. 2019))).

But even if the Board considers Petitioner's untimely examples (it should not), these examples fail to disclose a virtual likeness that satisfies all the limitations of the '010 Patent's Challenged Claims.

(a) Petitioner's Example 1.1 (Recipient Photo 202, Client-Side Single Processor)

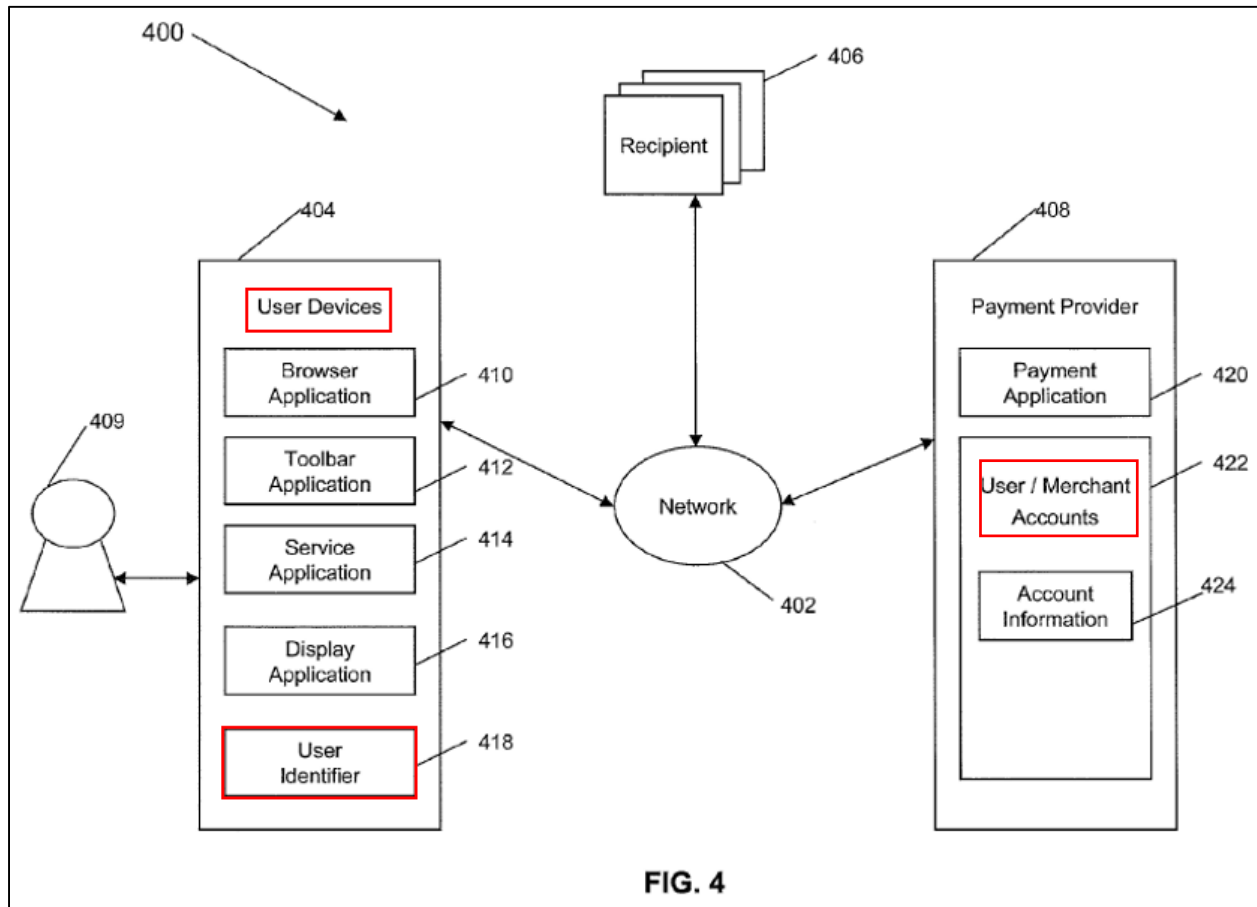
Petitioner's Example 1.1 is recipient photo 202 implemented using a single processor on user device 404 to meet the receive, store, and render elements of limitations [1.2] and [1.3]. Pet. Reply, 3-6. The graphic below is Example 1.1 reproduced from Petitioner's reply.



Pet. Reply, 4.

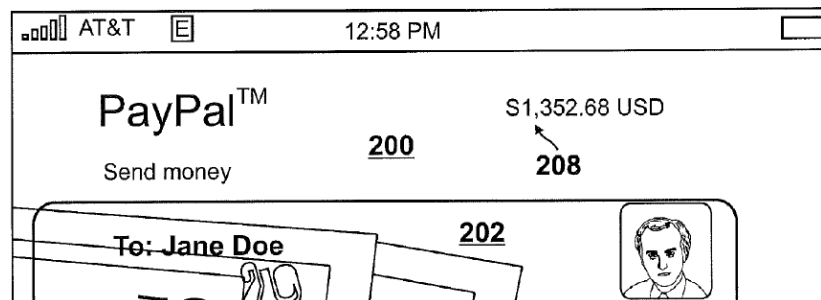
Petitioner states that for user device 404 “to display the recipient image on the interface of FIG. 2, sender user device 404 has to receive the recipient image (e.g., through the network from recipient device 406), and has to associate it with the

recipient account for ‘Jane Doe’, such that the recipient image is displayed together with ‘To: Jane Doe’ in the field 202 of FIG. 2.” Pet. Reply, 5. But Stone does not state that an *association* between recipient photo 202 and the recipient’s account occurs anywhere on user device 404. Petitioner’s cobbled together graphic points to the schematic of the user device (Fig. 5 at the top left of Petitioner’s graphic reproduced above) as where the “association” occurs between recipient photo 202 and the recipient’s account, but nothing in the Stone reference states that any association of recipient account information occurs in any component of the user device shown in Figure 5. The only association of users with specific account information disclosed in Stone occurs on the payment provider server 408 and the association is between user identifier 418 and the user account 422, not recipient photo 202. *See* Ex. 1008, [0045]-[0046]; POR, 18; Ex. 2032 (Dr. Goodrich Declaration) ¶¶ 57-58.



Ex. 1008, Fig. 4 (annotated).

Stone does not teach that recipient photo 202 can be or is related to user identifier 418. POR, 18; Ex. 2032 ¶¶ 57-58. And looking at Stone Figure 2, it appears the recipient's name and photo do not even match. The recipient in the "To" line is Jane Doe and the recipient photo is male.

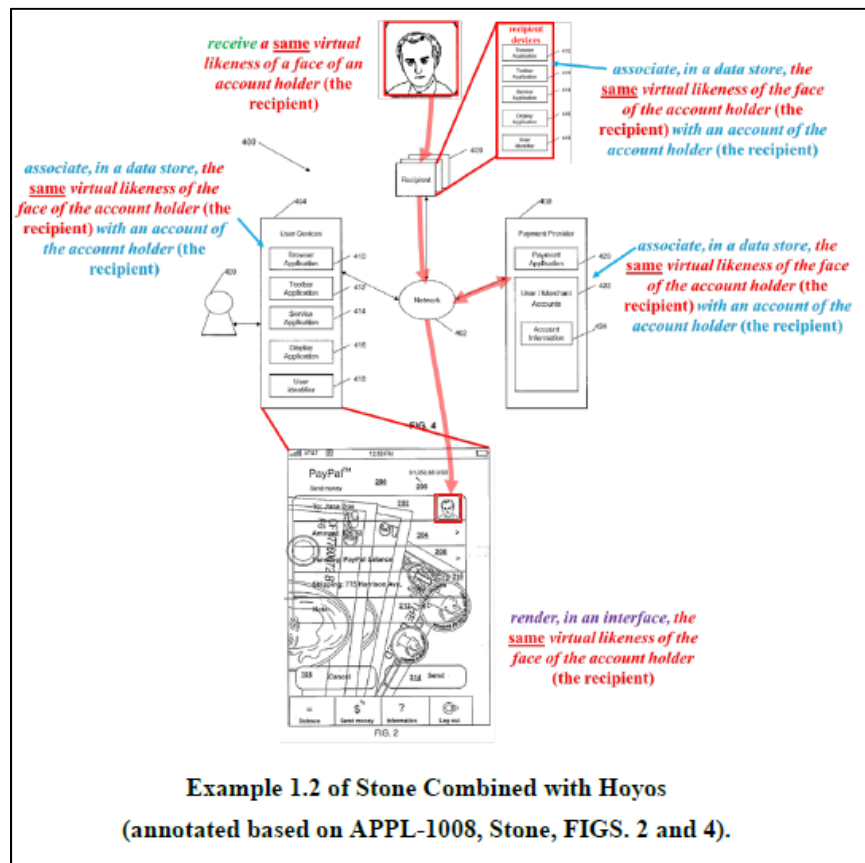


Ex. 1008, Fig. 2

Petitioner's Example 1.1 ultimately fails on two fronts: (1) recipient photo 202 is never associated with any user account, and (2) even if the recipient photo were associated with a user account, any association would occur on payment server 408—not the user device. *See* Ex. 1008, [0045]-[0046].

(b) Petitioner's Example 1.2 (Recipient Photo 202, Server Multiple Processors)

Petitioner's Example 1.2 is recipient photo 202 implemented across multiple processors on the user's device 404 and payment server 408 to meet the receive, store, and render elements of limitations [1.2] and [1.3]. Pet. Reply, 7-9. The graphic below is Example 1.2 reproduced from Petitioner's reply.



Pet. Reply, 8.

Petitioner’s Example 1.2 relies on recipient photo 202 as disclosing the “virtual likeness of the face of the account holder” limitations of the ’010 Patent’s independent claims using three different processors: the recipient device processor 406 (receive element), the recipient device processor 406 and payment provider server 408 (associate element), and the user device processor 404 (render-in-the-interface element). *See* Pet. Reply, 9. But as with Petitioner’s example 1.1, Stone does not disclose that the recipient photo is ever associated with a recipient account on the recipient device or the payment provider server. The only association of user

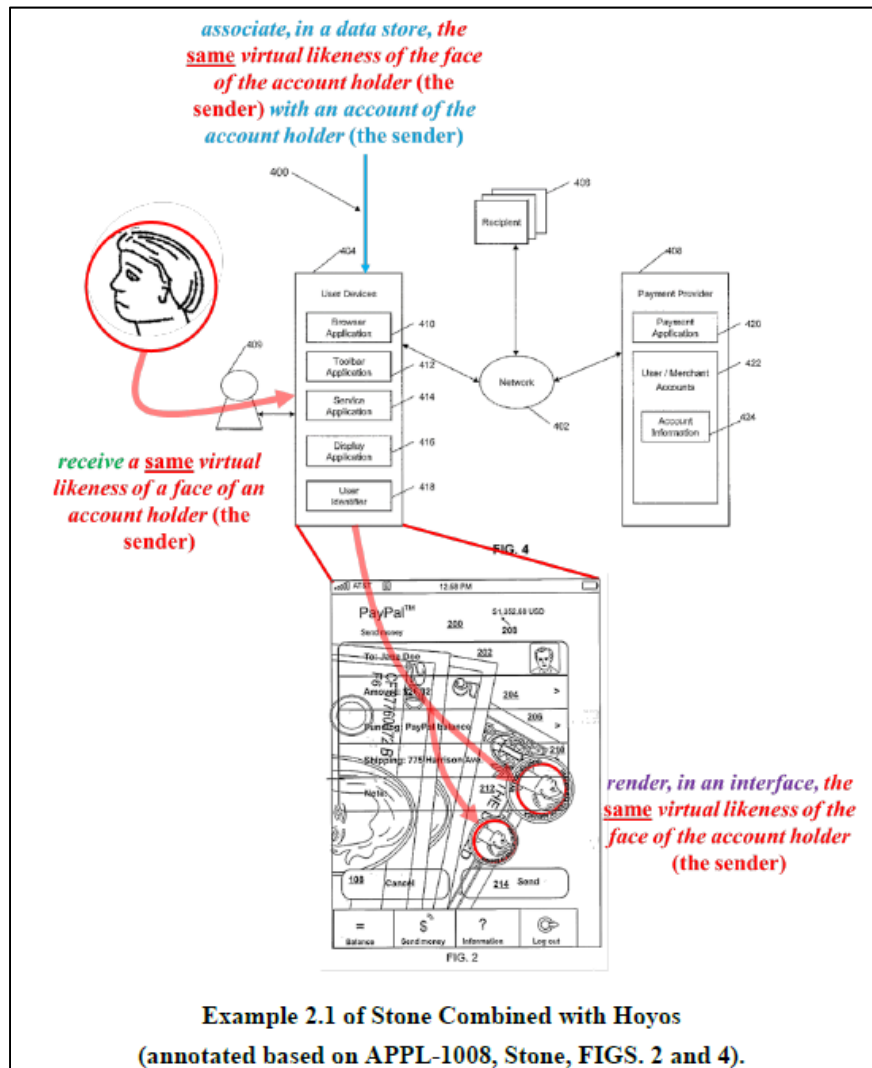
information associated with specific accounts is user identifier 418, which is not rendered in the interface of Stone and not the same as recipient photo 202. Ex. 1008, [0045]-[0046].

Additionally, combining functionality of multiple processors to disclose the virtual likeness limitations does not suffice. While the '010 Patent's claims recite "one or more processors," the Federal Circuit has held for similarly worded claims where there is "a processor" or "one or more processors" configured to perform a series of limitations, there must be *at least one* processor capable of performing *each of the claimed functions*. See *Salazar v. AT&T Mobility LLC*, 64 F.4th 1311, 1317 (Fed. Cir. 2023) (holding that a claim to "a microprocessor" (meaning "one or more microprocessors") "require[s] that at least one microprocessor be capable of performing each of the claimed functions."). By pointing to multiple processors as disclosing [1.2] and [1.3], Petitioner's Example 1.2 fails to disclose or render obvious "one or more processors configured to perform" the functionality of the '010 Patent's Challenged Claims. POR, 14-19; Ex. 2032 ¶¶ 54-58.

(c) Petitioner's Example 2.1 (Currency Image, Client-Side Single Processor)

Petitioner's Example 2.1 is the personalized currency display using a single processor on the user's device 404 to meet the receive, store, and render elements of

limitations [1.2] and [1.3]. Pet. Reply, 10-13. The graphic below is Example 2.1 reproduced from Petitioner's reply.



Pet. Reply, 11.

In support of its example 2.1, Petitioner states that “user device 404 receives a sender image and associates it with a sender user account (e.g., using a user identifier 418) in a storage of user device 404. It would have been obvious to use the already received and associated sender image in [1.2] that is stored in user device

404 for display on the virtual currency in [1.3], because that sender image is already associated with the sender account and stored in the system 400.” Pet. Reply, 12. According to Petitioner, the use of the already received, associated and stored image of the sender, would “have the benefits of being efficient and reliable and avoid redundancy and unnecessary user effort, compared to a new separate user image that PO.” *Id.*

Not so. First, Petitioner’s justification concedes that the image on the virtual currency, if the user chooses to create one using a photo of the user’s face, is actually not associated with the user’s account by now arguing it would have been obvious to use the same photo for both the user identifier and personalized currency. Pet. Reply, 12. But nothing in Stone suggests any link between the virtual currency and user identifier 418 or that it would be obvious for a user to use the same photo for both.

Petitioner also ignores the different purposes the virtual currency and user identifier serve. The virtual currency is a way to customize the display by allowing the user to “create his own currency for display, such as casino chips, gold bars, personalized currency with the user’s photo, etc.” Ex. 1008, [0007]; *see also id.*, [0019]. Conversely, Stone never discloses that the user identifier 418 is ever displayed on the interface. *See id.*, [0045]. Rather, Stone states that the user’s device may include user identifiers that “may be used by payment provider server 408 to

associate user 409 with a particular user account maintained by payment provider server”:

one or more user identifiers 418, which may be implemented, for example, as operating system registry entries, cookies associated with browser application 410, identifiers associated with hardware of user device 404, or various other appropriate identifiers. User identifier 418 may include attributes related to the user, such as personal information (e.g., a username, password, photograph image, biometric id, address, phone number, etc.) and banking information (e.g., banking institution, credit card issuer, user account numbers, security information, etc.). In various implementations, user identifier 418 may be passed with a user money transfer request to payment provider server 408, and user identifier 418 may be used by payment provider server 408 to associate user 409 with a particular user account maintained by payment provider server 408.

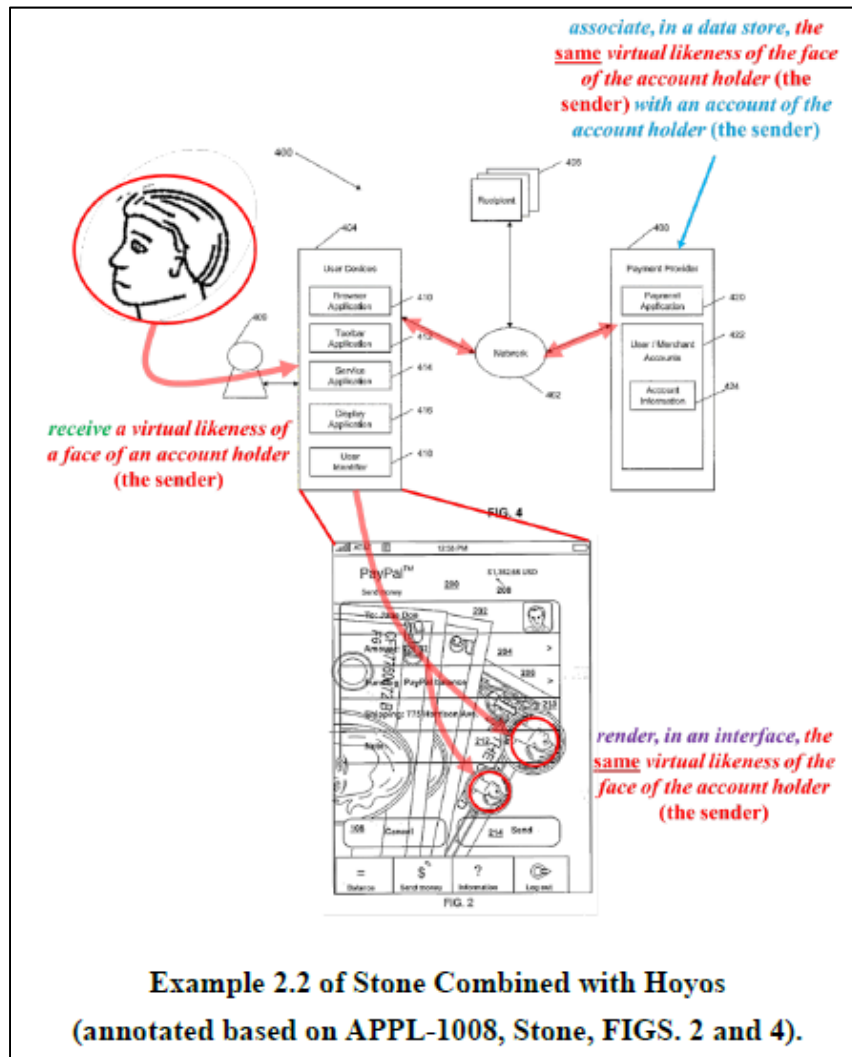
Ex. 1008, [0045] (emphasis added).

The difference between a photo for a virtual currency display and user identifier is like the difference between a social media picture and passport photo. One expresses personal individuality, the other is for identification. Nothing in Stone suggests that the virtual currency and user identifier 418 are interchangeable or even related. Thus, Example 2.1 fails to disclose a virtual likeness associated with an account holder’s account.

(d) Petitioner’s Example 2.2 (Currency Image, Server Multiple Processors)

Petitioner’s Example 2.2 is the customized currency using multiple processors on the user’s device 404 and a payment server 408 to meet the receive, store, and

render elements of limitations [1.2] and [1.3]. Pet. Reply, 14-16. The graphic below is Example 2.2 reproduced from Petitioner's reply.



Pet. Reply, 15.

For its Example 2.2, Petitioner points to the sender's image used for the virtual currency display. The difference here from Example 2.1 is that Petitioner alleges the "association" step occurs in the payment provider server, not on the user device. Pet. Reply, 14. ("[P]rocessor 504 in payment provider server 408 is configured to

associate, in a data store (storage of payment provider server 408), the virtual likeness of the face of the account holder (the sender image) with an account of the account holder (the sender account of the sender account holder).”). Petitioner then states that a POSITA, “would have been motivated to use the already received and associated sender image in [1.2] that is stored in payment provider server 408 for display on the virtual currency in [1.3], because that sender image is already associated with the sender account and stored in system 400.” Pet. Reply, 15.

But as with example 2.1, Stone does not teach that an image used for the personalized virtual currency display is associated with any user account on the user’s device or in the payment server. Stone only discloses that user identifier 418, which could include a user photo, “may be used by payment provider server 408 to associate user 409 with a particular user account maintained by payment provider server 408.” Ex. 1008, [0045]. Stone refers to no other user photo that is associated with a user account, or even hints that any association might occur.

Example 2.2 also fails because it improperly relies on multiple processors. *See* Section II.A.1.(b).

2. **Stone-Hoyos does not disclose Limitation [1.9]: “a memory coupled to the one or more processors and configured to provide the one or more processors with instructions.”**

Petitioner contends that both its client-side and server-side implementation of Stone-Hoyos would render obvious Limitation [1.9]. Pet. Reply, 16-19. Petitioner is wrong.

First, Petitioner's client-side model fails because it is predicated on Stone's processor on the user device 404 as being configured to perform all the functionality of the '010 Patent's claim 1. But as just explained, the user device processor 404 does not disclose all the limitations of the '010 Patent's claim 1, so it cannot be "*the* one or more processors" coupled to "a memory" for limitation [1.9]. *See* Section II.A.1.

For the purported server-side implementation of Stone-Hoyos, a POSITA would not have been motivated to implement the biometric authentication techniques of Hoyos within a remote setup as explained below in Section II.A.3.(c) (no motivation to combine Stone and Hoyos). Petitioner also cannot point to multiple processors as disclosing all the limitations the one or more processors must be configured to perform. *See* Section II.A.1.(b); *Salazar*, 64 F.4th at 1317. Additionally, recipient photo 202 and the personalized virtual currency Petitioner relies on for limitation [1.3] (rendering the virtual likeness in an interface) are never associated with a user account in the payment server, meaning neither the recipient photo nor personalized currency display can meet *all* the limitations required of the virtual likeness in the '010 Patent's claim 1. *See* Section II.A.1.(b).

Petitioner has also not identified for [1.9] a memory “coupled to” and “configured to provide the one or more processors with instructions.” Pet., 46-47. Petitioner alleges that memory 506 of the user device 404 discloses “a memory” that “is coupled to the one or more processors” because it is “(directly coupled to processor 504 of user device 404, which is at least one of the collective ‘one or more processors’ and coupled through the network to other processors in system 400) *and is configured to provide the one or more processors with instructions* (providing instructions to processor 504 of user device 404, which is at least one of the collective ‘one or more processors’).” Pet. Reply, 18.

But memory 506 fails to disclose the “memory” of the ’010 Patent’s claim 1 because it does not provide instructions to the claimed “one or more processors.” First, memory 506, as Petitioner concedes, only provides instructions to the processor 504 on the user device. Pet. Reply, 18. A POSITA reading claim 1 of the ’010 Patent would understand the plain meaning of “provide the one or more processors with instructions” to include at least the instructions to perform the limitations of claim 1 (e.g., receive, associate in a data store, and render in an interface the virtual likeness of the face of the account holder). *See* Ex. 1050, Goodrich Tr. 59:3-59:8. Stone does not disclose, nor does Petitioner allege, that memory 506 on the user device provides any instructions to the payment provider server 408 where the association step occurs in Petitioner’s server-side model. *See*

Pet., 26-29. In Petitioner’s client-side model, memory 506 does not provide the necessary instructions to perform the ’010 Patent’s claim 1 limitations because processor 504 on the user device does not perform these limitations. *See* Section II.A.1.(a).

Petitioner’s rebuttal to PO’s position is two-fold. First, Petitioner asserts that the plain meaning of “instructions” in light of the specification does not require the memory to provide “instructions to perform all steps of claim 1.” Pet. Reply, 18. Second, Petitioner contends that even if “instructions” requires instructions for performing all steps of [1.2]-[1.8], the client-side authentication Examples 1.1 and 2.1 do this with the memory and processor on the user device. *Id.*

Petitioner is, again, wrong on both accounts. *First*, as Dr. Goodrich explained, “a POSITA would understand the instructions to be the instructions to perform the steps of claim 1 that came above [processor limitations [1.2]-[1.8]] as an antecedent basis.” *See* Ex. 1050, 59:3-59:8. If the memory of the ’010 Patent’s claim 1 is not providing instructions to the processor to perform the claimed functions, it would be superfluous and otherwise irrelevant to the claim. *See Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (stating that interpretations of claims rendering claim terms superfluous is generally disfavored). *Second*, for Petitioner’s client-side example, the processor on user device 404 does not perform

all the limitations of the '010 Patent's claim 1, and therefore does not disclose the claimed "memory." *See* Section II.A.1.

3. Petitioner fails to establish that a POSITA would have combined Stone with Hoyos and would have had a reasonable expectation of success in doing so.

The Petition fails to identify a sufficient justification for why a POSITA would have been motivated to combine Stone and Hoyos. POR, 22-34; Ex. 2032 ¶¶ 66-83. Petitioner's reply arguments fare no better.

First, PO has not failed to rebut the Petition's reasons to combine Stone-Hoyos, as Petitioner suggests. Pet. Reply, 20. The Petition's only stated reason for combining Stone with Hoyos is that "it was well-known that financial transactions of Stone had a need for authentication including fraud detection (e.g., with higher levels of security for some transactions)." Pet., 17. So "in view of Stone's need to implement authentication with fraud detection, a POSITA would have implemented biometric authentication and fraud detection as taught by Hoyos in the system of Stone." *Id.* 18.

But as the POR explains, Petitioner's justification for combining Stone and Hoyos is conclusory. POR, 23-26; Ex. 2032 ¶¶ 66-70. It overgeneralizes and presupposes the problem of electronic fraud and assumes a POSITA would apply a narrow class of fraud detection techniques (aliveness detection) without explaining why a POSITA would choose these techniques over others. POR, 23-26. For one,

Petitioner has provided no evidence “that financial *transactions of Stone* had a need for authentication including fraud detection.” Pet., 17 (emphasis added). Stone itself does not identify payment fraud as a problem that needs addressing. POR, 28, Ex. 2032 ¶ 76. The sources Petitioner cites identify a need for higher security authentication in high-risk banking and financial institution transactions over certain dollar amounts. *See* Pet., 17-18, citing Ex. 1010 (noting banks and financial institutions may want higher security authentication for transactions over a certain amount); Ex. 1016 (patent application assigned to Bank of America noting that “necessary authentication level is determined based on the transaction criteria based on factors such as value and type of transaction, as well as other factors”). Conversely, Stone is assigned to eBay and its figures depict PayPal transfers. Neither PayPal nor eBay is a bank or financial institution, and the example transaction in Stone are for low-dollar amounts. *See* Ex. 1008, Figure 2 (transfer for \$26.32). So Petitioner’s claim that it was “well-known” that the specific transactions of Stone—lower-dollar, non-bank transactions—required fraud detection is not supported by record evidence.

But even if a POSITA believed Stone required additional authentication, Petitioner has given no reason why a POSITA would have implemented the specific techniques disclosed in Hoyos. Hoyos addresses the narrow problem of spoofing in biometric systems with a pointed solution: determining a user is a living person and

not a printed photo or other inanimate object, for example. *See* Ex. 1013, [0011]-[0014], cl.1. Stone, for its part, never mentions fraud as a problem and never discusses any techniques for countering fraud, much less specific ways to counter spoofing attempts on biometric systems. Simply put, for a POSITA starting with Stone's disclosure of a virtual currency display, the obvious question would not be how to improve fraud detection for Stone's currency display, much less that Hoyos' anti-spoofing techniques were the obvious solution. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 424-25 (2007).

Second, Stone is not analogous art to the '010 Patent because it is not directed to improved techniques to prevent and detect fraud within electronic transactions. POR, 28. Petitioner's proposed field of endeavor "electronic financial transactions," Pet. 7, is too broad such that it would be beyond what a POSITA would reasonably be expected to look for to find a solution to the problem facing the inventor, i.e., fraud detection. *See* POR, 27.

Third, Stone and Hoyos teach away from each other such that a POSITA would not have thought to combine their teachings because they require incompatible computing environments. POR, 29-34; Ex. 2032 ¶¶ 77-83. The currency display of Stone requires a server structure. POR, 30-31; Ex. 2032 ¶¶ 78. In Stone, the payment server stores all user account information needed to process a money transfer. POR, 31-32; Ex. 2032 ¶¶ 80-81. Petitioner does not dispute this.

Hoyos, on the other hand, discloses implementation of biometric authentication techniques on a client device and never discusses implementing its techniques on a server. *Id.*

A POSITA starting with Stone would understand a server structure is required and would not consider implementing local (client-side) fraud detection techniques like those disclosed in Hoyos. POR, 31-32; Ex. 2032 ¶¶ 80-81. For one, local authentication would be redundant. *Id.* All user account information for processing transactions is stored on the payment server. Ex. 1008, [0045]-[0046]. Storing the same user account information on the user device would be a waste of device storage—antithetical to using a remote server. *Id.* Besides, local authentication can be problematic given variance among user devices in security, processing power, camera resolution, and biometric capabilities. Running computationally intensive biometric analysis locally could lead to performance bottlenecks, especially on older or lower-end devices. *See, e.g.,* Ex. 1038, 64 (Systems using client-side matching “are not secure if the client device is not trusted; therefore additional cryptographic support is needed.”).

Nor would a POSITA implement Hoyos’ techniques over a remote server. POR, 32-33; Ex. 2032 ¶¶ 81-83. Hoyos does not disclose any remote server applications. It discloses its techniques are performed locally on a computer, connected to a camera. *See, e.g.,* Ex. 1013, [0018]-[0020], cls. 5-7, 13, 17-18.

Employing Hoyos' techniques over a remote server would also undermine the benefits of local authentication that Petitioner associates with Hoyos. *See* Ex. 1003 ¶ 68. For instance, it would increase latency by requiring communication with a server and decrease privacy and security of user information by requiring transfer of sensitive data over a network. *See* POR 33; Ex. 2032, ¶¶ 81-83.

Ultimately, a POSITA starting with Stone's currency display would not have implemented local authentication within Stone's server structure and would not have applied Hoyos' local authentication techniques using a remote server. *See* POR 33; Ex. 2032, ¶¶ 81-83.

B. Stone combined with Hoyos does not render obvious the Challenged Dependent Claims.

Stone-Hoyos does not render obvious any of the dependent Challenged Claims 2, 4-6, 10, 12-14, 20-21 and 23 for the same reasons Stone-Hoyos does not render obvious the independent claims. POR, 34. Stone-Hoyos also does not disclose the dependent limitations of claims 4, 6, 12, and 14. *Id.*; Ex. 2032 ¶ 62-65.

1. Stone-Hoyos does not disclose or render obvious “wherein the transaction icon includes a graphical representation of payment form” in claims 4 and 12.

Petitioner contends that PO has not rebutted that a POSITA would have been motivated to implement a graphical representation of payment form as the transaction icon. Pet. Reply, 22-24. But Petitioner has given no explanation *why* a

POSITA would have implemented a transaction icon that includes a graphical representation of payment form. *Id.* Petitioner has the burden to establish a motivation to combine and has failed to offer one. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1367-68 (Fed. Cir. 2016). Petitioner has failed to meet its burden and thus failed to establish the obviousness of claims 4 and 12.

2. Stone-Hoyos does not disclose or render obvious “wherein the virtual likeness comprises an avatar selected by the account holder” in claims 6 and 14.

Petitioner contends that it would have been obvious to utilize an avatar for the virtual likeness of claim 1 simply because an avatar is a “well-known alternative of a picture for a user icon.” Pet. Reply, 24. However, Stone fails to disclose a single virtual likeness that meets all the requirements of the ’010 Patent’s claim 1 (e.g., receive, associate, render). *See* Section II.A.1. Replacing any of the user images Petitioner relies on from Stone (recipient photo 202, personalized currency, user identifier 418) would not meet these requirements either.

III. GROUND 2: STONE IN VIEW OF HOYOS AND VARGHESE DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

A POSITA would not have been motivated to combine Varghese with Stone and Hoyos for largely the same reasons a POSITA would not have combined Stone and Hoyos. POR, 36-38, Ex. 2032 ¶¶ 85-88. Varghese, like Stone, requires a server

structure for its location capture. *See* POR 36-37; Ex. 2032 ¶ 85. For the reasons explained in Section II.A.1.3, a POSITA would not implement Hoyos’ localized biometric authentication in Stone’s server structure and would not have implemented Hoyos’ techniques using a remote server.

Petitioner’s reference to Dr. Goodrich’s writings recognizing the two broad approaches to authentication (client-side and server-side) is a red herring. Pet. Reply, 25. Dr. Goodrich has never disputed that authentication can be done either locally on a device or via a remote server. Rather, he explained in his declaration the reasons why a POSITA would have found these approaches *incompatible with Petitioner’s reference combinations*. Ex. 2032 ¶¶ 77-83.

Finally, PO and Dr. Goodrich’s reference to Varghese’s goal of providing a “purely software-based solution to identify theft that does not require hardware devices to be issued and maintained” merely emphasizes that Varghese is not concerned with implementing client-side authentication. POR, 37-40; Ex. 2032 ¶¶ 86-87. In criticizing PO’s position, Petitioner provides no citation from Varghese referring to client-side authentication. Pet. Reply, 25-26.

IV. GROUND 3: STONE COMBINED WITH THE FFIEC GUIDANCE DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS

A. Stone-FFIEC Guidance does not render the independent claims obvious.

Petitioner's Ground 3 relies on the same elements of Stone it relied on in Ground 1 as disclosing limitations [1.2]-[1.5], and [1.9] and thus fails for the same reasons as Ground 1 above.

A POSITA, as defined in the Board's Institution Decision, also would not have been motivated to combine Stone with the FFIEC Guidance when developing new methods for detecting fraud in electronic transactions. POR, 41-45; Ex. 2032 ¶¶ 93-99.

First, Petitioner's claim that the record illustrates a POSITA's interest in the Guidance is unavailing. Pet. Reply, 27. For starters, the FFIEC's regulatory authority is limited to banks and financial institutions. Ex. 1037, 1. For the '010 Patent, a POSITA as defined in the Board's Institution Decision has no credentials or affiliation with the banking industry. *See* Paper [10], 21. Further, Stone, Petitioner's primary reference, is assigned to eBay, which is not a bank or financial institution subject to the FFIEC's authority. The three patent disclosures Petitioner cites as referencing the Guidance are also all assigned to financial institutions or expressly reference compliance requirements of financial institutions. *See* Pet. Reply, 27; Ex. 1003, ¶ 50. And Petitioner's expert's personal knowledge of and testimony about the Guidance's "significance" is based on his work in standard setting organizations, which is far beyond a POSITA's limited work experience (bachelor's degree and two years' experience in development of biometric authentication techniques). Ex.

1049, 55:4-55:12 (“[T]hose of us in the standardization community paid great attention to it [FFIEC Guidance], so I’ve been familiar with it since.”).

Petitioner’s suggestion that PO’s arguments are contrary to Dr. Goodrich’s own practices is also false. Pet. Reply, 27-28. Dr. Goodrich’s patent application, WO 2008/020991, was developed specifically in response to EU privacy regulations. Ex. 1052 at [0011]. The ’010 Patent does not refer to any regulations, nor does it limit itself to the banking industry. *See generally* Ex. 1001. The ’010 Patent is focused solely on addressing technical problems with technical solutions. *Id.*

Dr. Goodrich’s class notes Petitioner cites are also irrelevant. Pet. Reply, 28. These notes pertain to copyright law, not patent law, and give an overview of basic copyright principles. Ex. 1051, 2-9. These class notes are not related to biometric authentication and reference no regulatory guidance. Finally, the chapter on Digital Rights Management in Dr. Goodrich’s textbook *Introduction to Computer Security* is eight pages and includes a single-page section on “Legal Issues” pertaining to copyright that does not discuss regulatory guidance and bears no relevance to a POSITA’s knowledge or interest in regulatory guidance in relation to fraud reduction. *See* Ex. 1054, 10.

B. Stone-FFIEC Guidance does not render obvious the challenged dependent claims.

Petitioner's Ground 3 relies on the same elements of Stone it relied on in Ground 1 for the dependent claims and fails to render these claims obvious for the same reasons as Ground 1.

V. CONCLUSION

For the reasons above, Patent Owner respectfully requests that the Board find all claims of the '010 Patent valid.

Dated: February 27, 2025

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CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE** specified in 37 C.F.R. §42.24 have 5,550 words, in compliance with the 5,600 word limit set forth in 37 C.F.R. §42.24(b)(1). This word count was prepared using Microsoft Word 2010.

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CERTIFICATION OF SERVICE

The undersigned hereby certifies that a copy of this **PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE PURSUANT TO 37 C.F.R. § 42.10(b)** has been served on Petitioner via email on the following counsel of record for Petitioner:

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