

*United States Patent and Trademark Office
Before the Patent Trial and Appeal Board*

***Askeladden L.L.C.,
Petitioner***

v.

***Liberty Peak Ventures, LLC,
Patent Owner***

***IPR2023-00421 (Patent 7,837,100 B2)
IPR2023-00422 (Patent 8,905,301 B2)***

***Petitioner's Demonstrative Exhibits for
April 25, 2024 Oral Argument via Teleconference***

***Charles R. Macedo, Reg. No. 32,781
Amster, Rothstein & Ebenstein LLP
Lead Counsel for Petitioner***

Petitioner's Demonstrative Exhibits

IPR2023-00421 (Patent 7,837,100 B2)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASKELODDEN L.L.C.,
Petitioner,

v.

LIBERTY PEAK VENTURES LLC,
Patent Owner.

Case IPR2023-00421
Patent No. 7,837,100 B2

PETITION FOR INTER PARTES REVIEW OF CLAIMS 1-17 OF U.S. PATENT NO. 7,837,100 B2

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US007837100B2

(12) **United States Patent**
Bonalle et al.

(10) **Patent No.:** US 7,837,100 B2
(45) **Date of Patent:** Nov. 23, 2010

(54) **SYSTEM, METHOD, AND COMPUTER
PROGRAM PRODUCT FOR ISSUING AND
USING DEBIT CARDS**

(56) **References Cited**

U.S. PATENT DOCUMENTS

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(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 935 days.

<http://www.debitman.com>, "Debitman's mission is to help mer-
chants reduce their interchange costs", 2006 Debitman Card, Inc.,
Last viewed: Sep. 28, 2006.

* cited by examiner

(21) **Appl. No.:** 11/478,140

Primary Examiner—Thien M Le

(22) **Filed:** Jun. 30, 2006

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(65) **Prior Publication Data**

US 2007/0175982 A1 Aug. 2, 2007

(57) **ABSTRACT**

Related U.S. Application Data

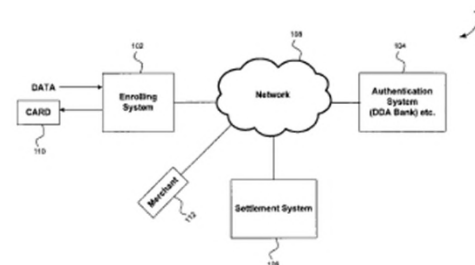
(60) Provisional application No. 60/695,855, filed on Jul. 5,
2005.

A system, method, and computer program product are used to
issue and track debit cards. A system comprises an enrolling
system that verifies an enrollee, associates an enrollee's main
and overdraft account, and issues a debit card, an authentication
system that receives information regarding a requested
transaction of a debit card and that receives information
regarding the main and overdraft account associated with the
debit card and accepts or rejects the requested transaction
based thereon, and a settlement system that generates a peri-
odic report of at least one of the transactions, the main
account, and the overdraft account. The overdraft account can
be a charge or credit account.

(51) **Int. Cl.** G06K 5/00 (2006.01)
G06K 7/01 (2006.01)
(52) **U.S. Cl.** 235/380; 235/382
(58) **Field of Classification Search** 235/380;
235/382, 379, 383

See application file for complete search history.

17 Claims, 13 Drawing Sheets



ASKELODDEN EXHIBIT 1001

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Petition, IPR2023-00421, Paper 1

Ex. 1001, '100 Patent

IPR2023-00421

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE - ASK-DX-2

IPR2023-00421 (Patent 7,837,100 B2)

Ground 1: Claims 1, 12 and 15 are unpatentable as anticipated by Gopinathan (Ex1010) under 35 U.S.C. §102(b)¹.

Ground 2: Claims 1-17 are rendered obvious over Gopinathan in view of Hirka (Ex1009) under 35 U.S.C. §103(a).

Petition, Paper No. 1, p. 5

With respect to Independent Claims 1 and 15, the Patent Owner is disputing:

- (1) that the main reference (Gopinathan, Ex1010) discloses the use of an account associated with a debit card (as opposed to a credit card) (Paper 9 at 8-9; 11-12);
- (2) even if it does, whether Gopinathan discloses that the debit cards are associated with demand deposit accounts or overdraft accounts (*id.*); and
- (3) with respect to Ground II, that a POSITA would be motivated to combine Hirka with Gopinathan. (*Id.* at 14).

Dependent Claims 2-5 and 16-17 depend from Independent Claims 1 and 15 respectively and Patent Owner raises the same challenges to them as well.

Petitioner's Reply, Paper No. 10, pp. 2-3

1. A method comprising:
authenticating, by a processing device, a transaction requested by a debit card against at least one of a demand deposit account associated with the debit card or an overdraft account associated with the debit card, wherein the authentication includes fraud assessment, and wherein the fraud assessment includes communication with data sources via a network; and
updating, by the processing device, information regarding at least one of the demand deposit account and the overdraft account based on the transaction.

Ex. 1001, '100 Patent, Independent Claim 1

1. Gopinathan Is Not Limited to Accounts Associated with Credit Cards and Includes Charge Cards (Debit Cards) and ATM Cards

2. Description of the Related Art

In the following discussion, the term “credit card” will be used for illustrative purposes; however, the techniques and principles discussed herein apply to other types of customer accounts, such as charge cards, bank automated teller machine cards and telephone calling cards. 40

Ex. 1010, Gopinathan, col. 1, ln. 37-41

with the present invention. Transaction information is applied to system 100 via data network 105, which is connected to a conventional financial data facility 106 collecting transaction information from conventional sources such as human-operated credit-card authorization terminals and automated teller machines (not shown). CPU 55

Ex. 1010, Gopinathan, col. 3, ln. 56

In my opinion, a POSITA at the time of the invention in July 5, 2005, would understand that Gopinathan’s teachings would apply not merely to “credit cards”, but to “debit cards” also which is a kind of “charge card” which uses the same networks and payment transaction types as charge card accounts.

**Ex. 1003, Zatkovich Dec., p. 91, ¶ 169 (quoting Ex1010, col. 1, line 37-41)
(cited in Petitioner’s Reply, Paper No. 10, p. 3)**

2. A POSITA Would Understand that the Charge Cards in Gopinathan Are Linked to Demand Deposit Accounts

In my opinion, a POSITA at the time of the invention in July 5, 2005, would understand that Gopinathan's teachings would apply not merely to "credit cards", but to "debit cards" also which is a kind of "charge card" which uses the same networks and payment transaction types as charge card accounts.

Ex. 1003, Zatkovich Dec., p. 91, ¶ 169 (quoting Ex. 1010, col. 1, line 37-41) (cited in Petitioner's Reply, Paper No. 10, p. 3)

185. As discussed above in Par. 170, Hirka further confirms "A **debit card** is a card ... linked to a consumer's cash account, **such as a demand deposit account (DDA), typically a checking account.**" (Ex1007, [0004] (Hirka '404); Ex1009, p.1). This understanding is consistent with my experience in the industry at the time of the invention in July 2005 and is consistent with Gopinathan's disclosure that one of the data sources could be an "automated teller machine" (Ex1010, 3:56), thus recognizing, at least in some embodiments, the charge card is tied to banking accounts like **checking accounts** and **savings accounts**. As such, at least in some embodiments, Gopinathan's authentication would be against the **customer's DDA or checking account.**

Ex. 1003, Zatkovich Dec., pp. 100-101, ¶ 185
(cited in Petitioner's Reply, Paper No. 10, pp. 3-4)

For these and other reasons, cash accounts such as bank debit cards have emerged to service consumer needs. A debit card is a card that may be linked to a consumer's cash account, such as a demand deposit account (DDA), typically a checking account. When the consumer wishes to make a purchase from a merchant, the debit card is swiped at the point of sale as a credit card would be, except the funds used to pay the merchant are deducted from the cardholders checking account rather than paid from a third party credit network. The need to carry a checkbook is eliminated, while concerns regarding credit

Ex. 1009, Hirka, p. 1, Ex. 1007, [0004]

2. PO Argues that “Available Credit (or Balance)” and “Credit Line” in Gopinathan Would Not Relate to DDA and Overdraft Accounts Associated with Debit Cards

According to Gopinathan, in assessing a transaction the fraud detection system may examine information such as “available credit (or balance)” and/or “credit line.” Ex. 1010 at 24:44-49. The “available credit (or balance)” refers to the available credit or balance of the credit card account that is being used for the transaction, while the “credit line” is simply the maximum amount that may be charged against the credit card account. *See* Ex. 1003 at ¶ 190 (Petitioner’s declarant confirming these parameters are associated with the credit card account). Simply put, neither the “available credit (or balance)” nor the “credit line” is a demand deposit account or an overdraft account. Instead, both parameters are attributes of the credit card account against which the fraud detection analysis is being done. Thus, while Gopinathan may describe performing a fraud detection analysis against a credit card account, Gopinathan does *not* teach performing such an analysis against a demand deposit account or an overdraft account associated with a debit card, as required by claim 1.

**PO’s Response, Paper No. 9, p. 9
(cited in Petitioner’s Reply, Paper No. 10, p. 4)**

In addition to the above, claim 1 is not anticipated by Gopinathan because Gopinathan does not teach “updating . . . information regarding at least one of the demand deposit account and the overdraft account based on the transaction,” as required by claim 1. According to the Petition, Gopinathan teaches updating a customer profile database with transaction data. Pet. at 36 (referencing Ex. 1010 at 25:58-60 and Fig. 16). Petitioner’s declarant testifies that this means accounts associated with a “charge card” are updated. Ex. 1003 at ¶ 199. As noted above, neither credit cards nor charge cards, the subjects with which Gopinathan is concerned, are demand deposit accounts nor overdraft accounts. Hence, taking Petitioner’s declarant at his word, if Gopinathan teaches updating the accounts associated with a charge card (or credit card), then Gopinathan cannot be read as teaching updating a demand deposit account or an overdraft account associated with a debit card, as required by claim 1, because neither the charge card nor the credit card is such an account. Because such a teaching is not present, claim 1 is not anticipated by Gopinathan.

**PO’s Response, Paper No. 9, p. 11
(cited in Petitioner’s Reply, Paper No. 10, p. 14)**

2. PO Misunderstands Mr. Zatkovich's Point in Paragraph 190

According to Gopinathan, in assessing a transaction the fraud detection system may examine information such as "available credit (or balance)" and/or "credit line." Ex. 1010 at 24:44-49. The "available credit (or balance)" refers to the available credit or balance of the credit card account that is being used for the transaction, while the "credit line" is simply the maximum amount that may be charged against the credit card account. See Ex. 1003 at ¶ 190 (Petitioner's declarant confirming these parameters are associated with the credit card account). Simply put, neither the "available credit (or balance)" nor the "credit line" is a demand deposit account or an overdraft account. Instead, both parameters are attributes of

**PO's Response, Paper No. 9, p. 9
(cited in Petitioner's Reply, Paper No. 10, p. 4)**

Declaration (Ex1003). (421 POR at 9). The Patent Owner takes out of context the argument presented in paragraph 190 of my Original Declaration (Ex1003), which does not discuss the definition of those terms but why, with respect to Ground II, even if Gopinathan is deemed not to anticipate the '100 Patent, it would in any event be obvious to a POSITA at the time of the July 5, 2005 invention to modify Gopinathan to apply to more than "credit cards". Hirka teaches that even "credit

Ex. 1014, Zatkovich Supp. Decl. ¶636

Yellow Highlighting Supplied

189. Accordingly, in view of this prior art teaching, which is consistent with my experience in the art at the time of the invention in July 5, 2005, in my opinion a POSITA at the time of the July 5, 2005 invention would understand that it would be obvious and desirable to additionally link the charge card (e.g., a debit card) to an **overdraft account**, as taught in Hirka and as was well known at the time with respect to debit cards in general. Transactions conducted using such a debit card would result in authentication against the **overdraft account** using the systems and methods disclosed by Gopinathan.

190. Furthermore, in my opinion, a POSITA at the time of the July 5, 2005 invention would understand that the system of Gopinathan would be easily configured to authenticate transactions involving cards associated with overdraft accounts. Gopinathan is directed towards authenticating transactions involving "credit cards" (which Hirka confirms, in embodiments, are set up to "handle overdrafts" (Ex1009, 7:10-12)) and uses data commonly associated with such accounts such as "available credit" and "credit line". (Ex1010, 1:29-31; 24:44-47).

191. In my opinion, a POSITA at the time of the July 5, 2005 invention would have been motivated to modify Gopinathan to include authentication against an **overdraft account** as discussed and taught in Hirka because doing so would have protected cardholders and card issuing systems from fraud associated with debit cards with overdraft protection.

Ex. 1003, Zatkovich Decl. ¶¶189-191

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE - ASK-DX-7

2. “Available Balance” Information Relates to Demand Deposit Accounts, Such As Checking Accounts

45 The current transaction data from database 805 typically includes information such as: transaction dollar amount; date; time (and time zone if necessary); approve/decline code; cash/merchandise code; available credit (or balance); credit line; merchant category code; merchant ZIP code; and PIN verification (if applicable).

Ex. 1010, Gopinathan, 24:44-49

642. Next, Patent Owner asserts that “‘available credit (or balance)’ refers to the available credit or balance of the credit card account that is being used for the transaction”. (421 POR at 9). However, in my opinion, a POSITA at the time of the July 5, 2005 invention would understand that “available ... balance”, as used by Gopinathan, also refers to the balance of a checking account (i.e., a DDA, as confirmed by Patent Owner, 421 POR at 7). Thus, in embodiments taught by Gopinathan where the card is a debit card (such as an ATM card), as discussed above, the “available ... balance” information in the database 805 shows that the transaction requested by the debit card would go against the “available ... balance” of a DDA.

**Ex. 1014, Zatkovich Supp. Dec., p. 11, ¶ 642
(cited in Petitioner’s Reply, Paper No. 10, p. 4)**

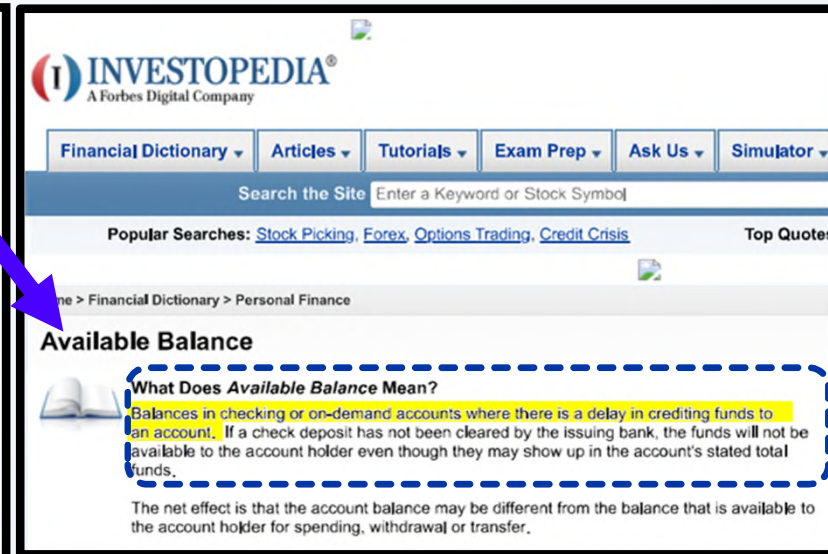
2. “Available Balance” Information Relates to Demand Deposit Accounts, Such As Checking Accounts

643. Indeed, as Investopedia from around the time of the invention confirms, consistent with a POSITA’s understanding at the time of the July 5, 2005 invention, “[a]vailable ... balance” is an industry term related to “[b]alances in a checking or on-demand account where there is a delay in crediting funds to an account”. (Ex1015).

644. Accordingly, in my opinion, a POSITA at the time of the July 5, 2005 invention would understand that the term “available ... balance” as used in Gopinathan references the balance of a DDA checking account associated with the debit card (such as an ATM card) being used for the transaction.

645. In sum, in addition to the reasons I explained in my Original Declaration, a POSITA at the time of the July 5, 2005 invention would understand that each and every feature of element [’100-1A] is disclosed in Gopinathan.

Ex. 1014, Zatkovich Supp. Dec., pp. 11-12, ¶ ¶ 643-645
(cited in Petitioner’s Reply, Paper No. 10, p. 13)



Ex. 1015, Available Balance

2. “Available Credit” and “Credit Line” Information Refers to Overdraft Accounts

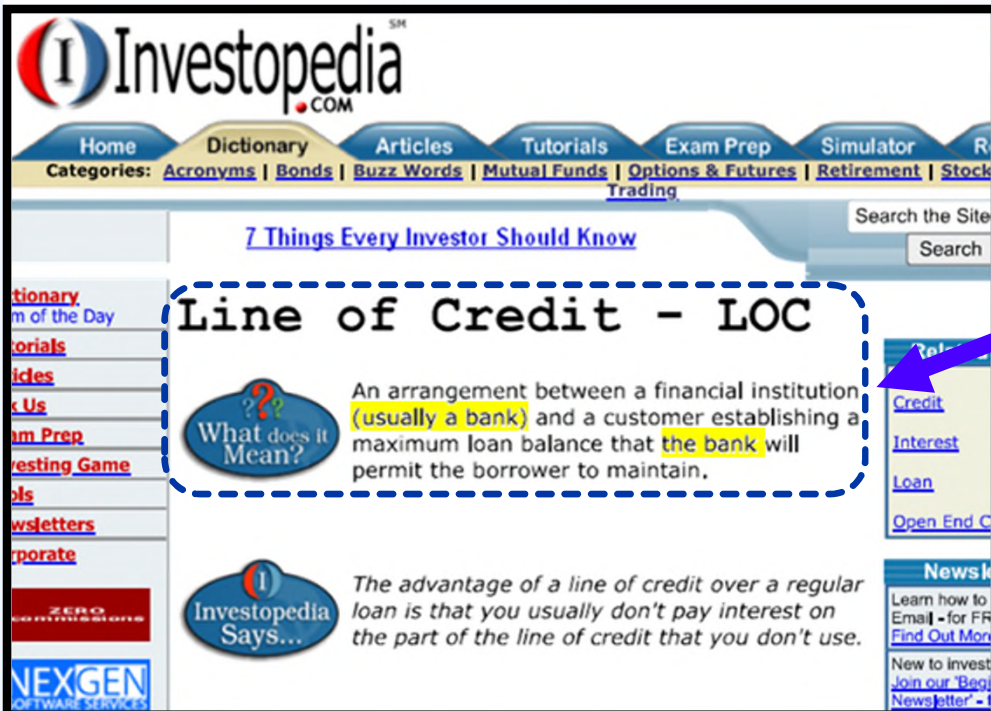
45 The current transaction data from database 805 typically includes information such as: transaction dollar amount; date; time (and time zone if necessary); approve/decline code; cash/merchandise code; available credit (or balance); credit line; merchant category code; merchant ZIP code; and PIN verification (if applicable).

Ex. 1010, Gopinathan, 24:44-49

637. In my opinion, Patent Owner thus misses the point that the “available credit” and “credit line” information are used by the overdraft account associated with the card that is being processed. Thus, in embodiments taught by Gopinathan where the card is a debit card, as discussed above, in my opinion, a POSITA at the time of the July 5, 2005 invention would understand that the “available credit” and “credit line” information in the database 805 shows that when the transaction requested by the debit card is more than otherwise available, it would go against an overdraft account.

Ex. 1014, Zatkovich Supp. Dec., pp. 8-9, ¶ 637
(cited in Petitioner’s Reply, Paper No. 10, p. 4)

2. “Available Credit” and “Credit Line” Information Refers to Overdraft Accounts



Ex. 1017, Line of Credit - LOC

638. Consistent with my understanding of how the “credit line” information would have been understood by a POSITA at the time of the July 5, 2005 invention, a “line of credit” (which is synonymous with “credit line”) was commonly used by banks and other financial institutions, not just those offering credit card accounts. As Investopedia from that time period explains, the term “line of credit” refers to “[a]n arrangement between a **financial institution (usually a bank)** and a customer establishing a maximum loan balance that the bank will permit the borrower to maintain.” (Ex1017). “Credit line” is not a term limited to credit card accounts.

Ex. 1014, Zatkovich Supp. Dec., p. 9, ¶638
(cited in Petitioner’s Reply, Paper No. 10, p. 4)

2. “Available Credit” and “Credit Line” Information Refers to Overdraft Accounts

639. Indeed, during prosecution (Ex1005, at 99), paragraph six from Hirka '404 was relied upon to show element ['100-1A] was met by the following passage:

Thus, some **debit cards** offer **overdraft protection** in the form of a secondary **line of credit**. A **checking account** accessible **with a debit card**, for example, **may be backed by a credit line** for use in the event that there are insufficient funds in the checking account to cover a purchase.

(Ex1007, [0006], *see also* Ex1009 at 2:6-9 (accord)). This illustrates a typical use at the time of the invention of the term “credit line” as applying to debit cards tied to an overdraft account to cover a purchase. In my opinion, this use of a “credit line” as applying to debit cards tied to an overdraft account to cover a purchase is consistent with how a POSITA would have understood the use of the term “credit line” at the time of the July 5, 2005 invention.

**Ex. 1014, Zatkovich Supp. Dec., pp. 9-10, ¶639
(cited in Petitioner’s Reply, Paper No. 10, p. 11)**

Regarding claims 1, 4, 10, Hirka discloses a method and a system comprising the steps, features of:

(i) authenticating a transaction requested by a debit card against at least one of the demand deposit account and an overdraft account (see par. 0006, 0012, 0017, 0019, 0020);

Ex. 1005, '100 Prosecution History, p. 99

Thus, some debit cards offer overdraft protection in the form of a secondary line of credit. A checking account accessible with a debit card, for example, may be backed by a credit line for use in the event that there are insufficient funds in the checking account to cover a purchase.

Ex. 1009, Hirka, at 2:6-9; Ex1007, Hirka '404, [0006]

2. Patent Owner Fails to Apply the Claim Language for the “Updating” Step (Which Updates Information Regarding Accounts, Not Necessarily the Account Itself)

are updated. Ex. 1003 at ¶ 199. As noted above, neither credit cards nor charge cards, the subjects with which Gopinathan is concerned, are demand deposit accounts nor overdraft accounts. Hence, taking Petitioner’s declarant at his word, if Gopinathan teaches updating the accounts associated with a charge card (or credit card), then Gopinathan cannot be read as teaching updating a demand deposit account or an overdraft account associated with a debit card, as required by claim 1, because neither the charge card nor the credit card is such an account. Because such a teaching is not p
I is not anticipated by Gopinathan.

1. A method comprising:
authenticating, by a processing device, a transaction requested by a debit card against at least one of a demand deposit account associated with the debit card or an overdraft account associated with the debit card, wherein the authentication includes fraud assessment, and wherein the fraud assessment includes communication with data sources via a network; and
updating, by the processing device, information regarding at least one of the demand deposit account and the overdraft account based on the transaction.

Ex. 1001, ‘100 Patent, Independent Claim 1

647. The Patent Owner’s argument misstates the claim language, which only requires “updating ... information regarding” the account, not the account itself. As discussed in my original declaration, Gopinathan explicitly discloses updating the “customer profile database 806 with the new transaction data 1610” “after each transaction” (Ex1010, 25:58-60, 37-38). In my opinion, a POSITA at the time of the July 5, 2005 invention would understand that this teaches updating information regarding the account. (Ex1003, ¶199).

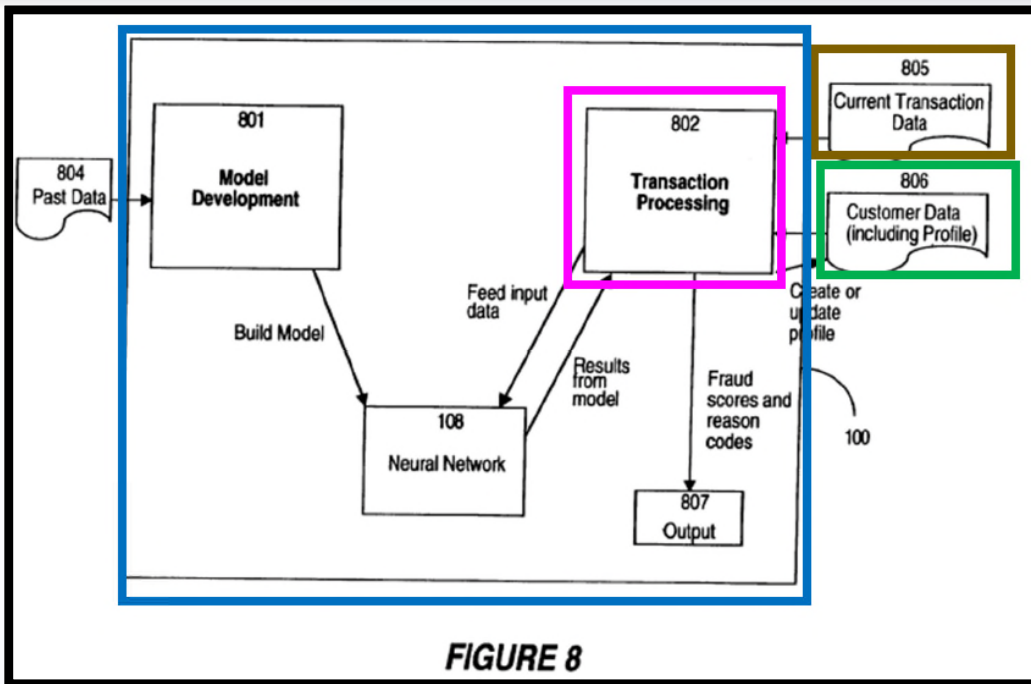
**Ex. 1014, Zatkovich Supp. Dec., pp. 12, ¶ 647
(cited in Petitioner’s Reply, Paper No. 10, p. 14)**

3. It Would Have Been Obvious to a POSITA to Combine Gopinathan with Hirka, and a POSITA Would Have Been by Motivated to Do So in Order to Protect Consumers from Fraud

172. In any event, as **Ground 2 of Petition 1**, to the extent that Gopinathan does not expressly state it is applicable to “debit cards” as a kind of “charge card”, it would have been obvious to a POSITA at the time of the invention in July 5, 2005, to use the “techniques and principles” of fraud detection processes taught by Gopinathan with a “debit card” system as taught in Hirka (*See* Par. 170, above, citing Hirka at 3), since debit cards use the same standardized transaction requests as credit cards.

Ex. 1003, Zatkovich Dec., p. 92, ¶ 172
(cited in Petitioner’s Reply, Paper No. 10, p. 16)

3. Gopinathan (Ex1010) Teaches Authenticating a Transaction Against an Account



Petition, Paper No. 1, p. 14

(Ex1010, Fig. 8; Ex1003, ¶103). System 100 includes a “transaction processing component 802” that operates in the context of a “conventional authorization or posting system” (Ex1010, 24:34-37) and “performs three functions”, encompassing the elements of Claim 1:

- “1) it **determines the likelihood of fraud for each transaction**” by feeding data from various sources 805, 806 into neural network 108, obtaining results, and outputting them 807;
- 2) when applicable, it creates a record in a profile database 806 summarizing past transactional patterns of the customer; and
- 3) when applicable, it **updates** the appropriate record in profile database 806.” (Ex1010, 5:4-10, 24:37-43); Ex1003, ¶¶104-105, 110).

Petition, Paper No. 1, p. 14

2. Description of the Related Art

In the following discussion, the term “credit card” will be used for illustrative purposes; however, the techniques and principles discussed herein apply to other types of customer accounts, such as charge cards, bank automated teller machine cards and telephone calling cards. 40

Ex. 1010, Gopinathan, col. 1, ln. 37-41

3. Hirka Teaches Using Debit Cards Associated with Demand Deposit Accounts and Overdraft Accounts

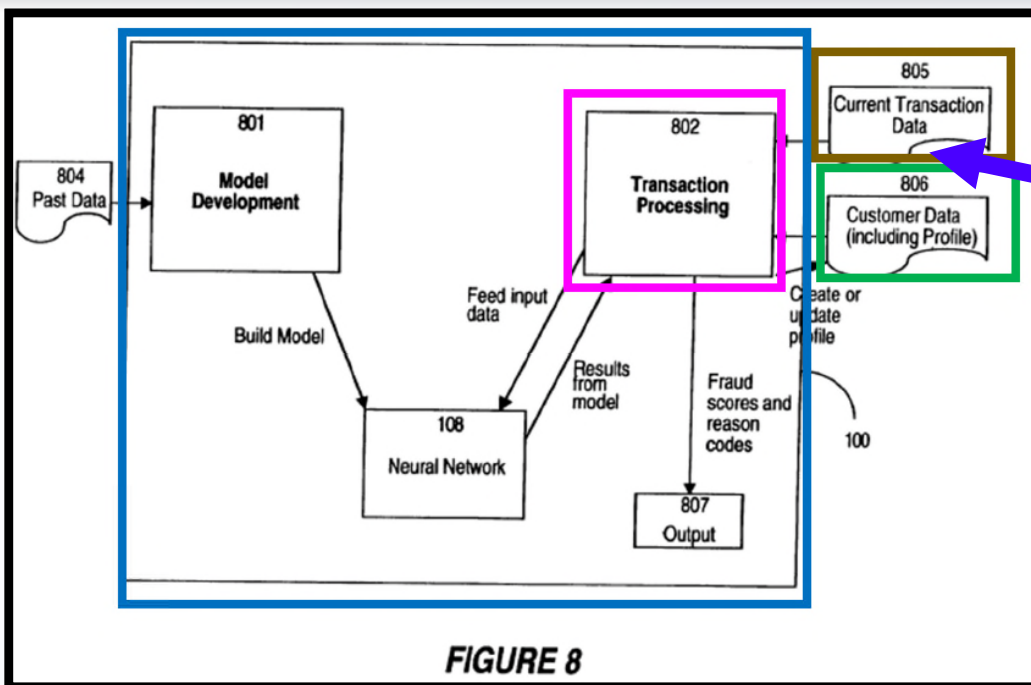


FIGURE 8

Petition, Paper No. 1, p. 14

For these and other reasons, cash accounts such as bank debit cards have emerged to service consumer needs. A debit card is a card that may be linked to a consumer's cash account, such as a demand deposit account (DDA), typically a checking account. When the consumer wishes to make a purchase from a merchant, the debit card is swiped at the point of sale as a credit card would be, except the funds used to pay the merchant are deducted from the cardholders checking account rather than paid from a third party credit network. The need to carry a checkbook is eliminated, while concerns regarding credit

Ex. 1009, Hirka, p. 1, Ex1007, [0004]

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One advantage of the invention is the ability of a cardholder to set up a cash account of their choice to make purchases, and have the funds withdrawn from one or more of demand deposit or other accounts, regardless of the institution holding the account. This allows consumers to benefit from card purchases even if their bank does not offer traditional debit-card services.

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Another advantage of the invention is the flexibility of the collateral credit account. The consumer may use an existing credit account, open a credit account with the institution issuing the linked account card, or set up another type of account to supply the overdraft protection.

Ex. 1009, Hirka, 3:30-4:7, Ex1007, [0019]–[0020]

3. Gopinathan Provides a Motivation to Use the Authentication for Other Cards

174. In my opinion, at the time of the invention, a POSITA at the time of the July 5, 2005 invention would have been motivated to use Gopinathan's fraud detection "techniques and principles" for all the reasons discussed in Gopinathan. (See Ex1009, 1:26-2:39). As Gopinathan explains:

"It is desirable, therefore, to have an automated system that uses available information regarding cardholders, merchants, and transactions to screen transactions and isolate those which are likely to be fraudulent, and which captures a relatively high proportion of frauds while maintaining a relatively low false-positive rate. Preferably, such a system should be able to handle a large number of interdependent variables, and should have capability for re-development of the underlying system model as new patterns of fraudulent behavior emerge."

(Ex1009, 2:29-2:38).

175. Moreover, in my opinion, a POSITA at the time of the July 5, 2005 invention would have found it easy to adapt the transaction authorization system of Gopinathan to be used with debit cards, as such cards bear substantial similarity in design and form with credit cards and processed using very similar networks and transaction authorization systems.

Ex. 1003, Zatkovich Dec., p. 93-94, ¶ ¶ 174-175
(cited in Petitioner's Reply, Paper No. 10, p. 19)

"It is desirable, therefore, to have an automated system that uses available information regarding cardholders, merchants, and transactions to screen transactions and isolate those which are likely to be fraudulent ..."

Ex. 1010, Gopinathan, 2:29-2:38

3.A POSITA Would Have Been Motivated to Combine Gopinathan's Fraud Protection with Hirka's Authentication Against Overdraft Accounts for Debit Card Transactions

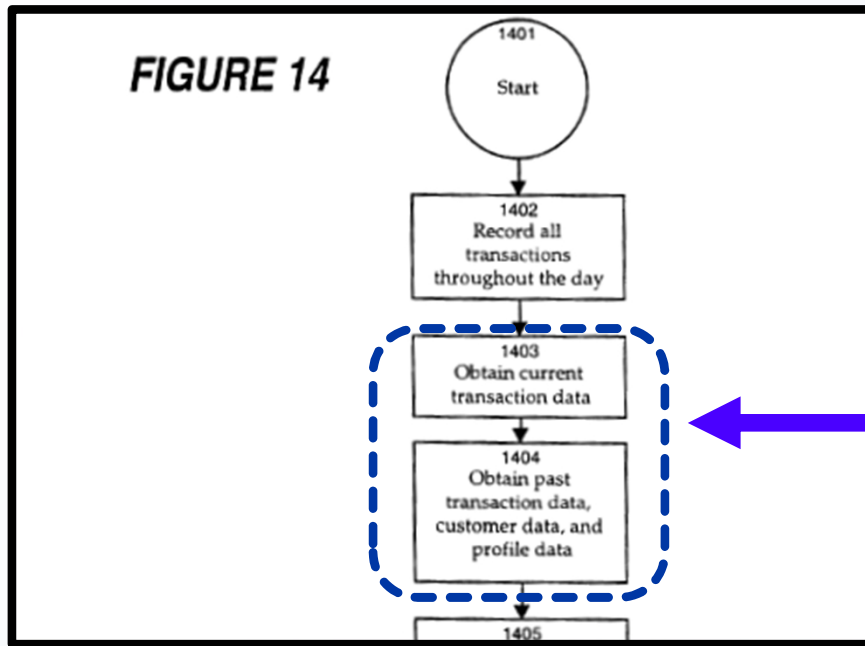
191. In my opinion, a POSITA at the time of the July 5, 2005 invention would have been motivated to modify Gopinathan to include authentication against an **overdraft account** as discussed and taught in Hirka because doing so would have protected cardholders and card issuing systems from fraud associated with debit cards with overdraft protection.

**Ex. 1003, Zatkovich Dec., p. 103, ¶ 191
(cited in Petitioner's Reply, Paper No. 10, p. 17)**

654. Furthermore, to the extent Gopinathan is deemed not to explicitly disclose the use of debit cards, or of overdraft or demand deposit accounts associated with debit cards, in my opinion, a POSITA at the time of the July 5, 2005 invention would have been further motivated to modify Gopinathan to provide its fraud detection in the "debit card" system taught in Hirka in order to expand the reach and applicability of the fraud detection system taught in Gopinathan. This would allow operators of the system to expand their customer base beyond merely financial institutions offering credit card services.

**Ex. 1014, Zatkovich Supp. Dec., pp. 14-15, ¶ 654
(cited in Petitioner's Reply, Paper No. 10, p. 19)**

3. Gopinathan and Hirka Use Similar Transaction Data



Ex. 1010, Gopinathan, Fig. 14

Transactions may be initiated by swiping the linked account card at a point of sale (P.O.S.) terminal 110 when purchasing goods and/or services from merchants, or via other mechanisms such as telephone or Internet remote authorizations against the linked account card.

...

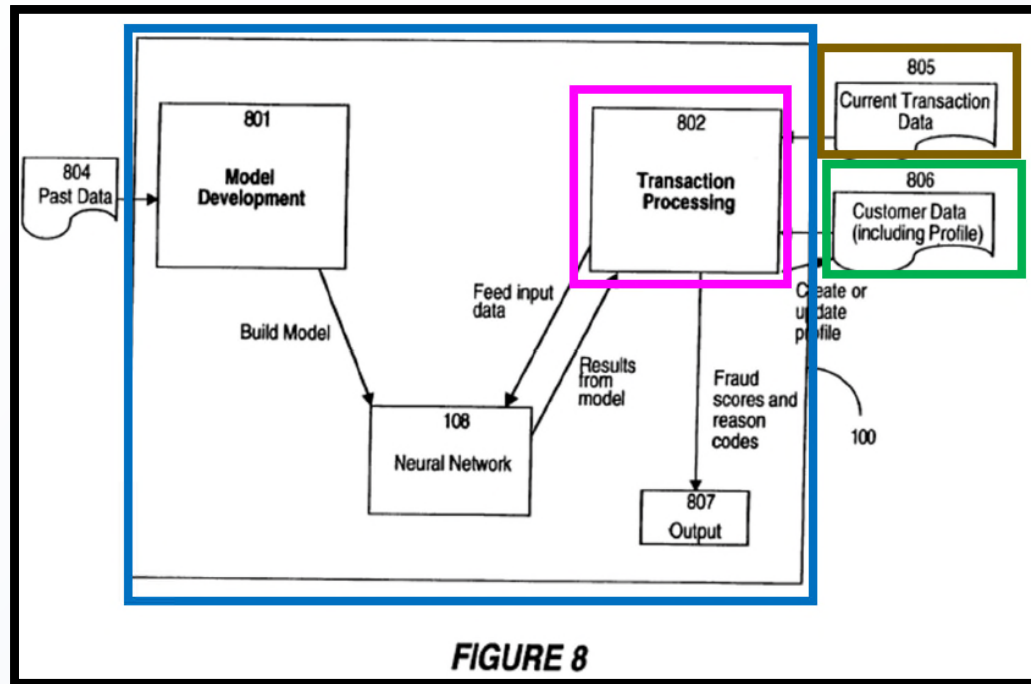
Communication with the cardholder (step 588) may take one or more forms. Statements of linked account card activity will be sent on a regular basis to the cardholder detailing each card transaction (step 590). Additionally, the cardholder may have access to their transaction history and daily spending limit information, via additional services (step 592) such as an interactive voice response (IVR) unit. This information may also be accessible through a web-site hosted by the card-issuing institution.

658. As described in Fig. 14, Gopinathan uses Point-of-Sale transactions (1402 & 1404), past transactions, customer data, and profile data (1404) in its predictive model. (Ex1010, Fig. 14, 25:1-6). All of this data is the same type of data that is readily available in Hirka. (Ex1007, [0033] (describing transaction “initiated by swiping the linked account card at a point of sale (P.O.S.) terminal 110”); see also Ex1007, [0083] (“transaction history and daily spending limit information” for individual cardholders is stored by the system)).

659. In my opinion, a POSITA at the time of the July 5, 2005 invention would understand that this fraud detection algorithm of Gopinathan is equally applicable, with little to no modification, to the transactions processed by the embodiments of the systems disclosed in both Gopinathan and Hirka.

Ex. 1014, Zatkovich Supp. Dec., p. 16, ¶¶ 658-659
(cited in Petitioner’s Reply, Paper No. 10, p. 19)

3. Implementing Gopinathan's Fraud Detection as Financial Rules in Hirka Would Have Been Easy to Implement



Petition, Paper No. 1, p. 14

- 8 -

In step 310, the cardholder may present the linked account card to the merchant. In step 316, the merchant may request authorization from an authorization server through a processing network, such as the VISA™, MASTERCARD™, or other network. The authorization server 130 determines in step 340 whether the transaction may authorized.

5 This determination may depend in part on whether the cardholder's daily cumulative spending limit or "open to buy" amount has been reached.

If it has, the authorization server 130 may not authorize the transaction. If the daily spending limit has not been reached, the authorization server 130 may authorize the transaction. The authorization server 130 may also process authorizations against this

10 "open to buy" amount using business rules established by the institution issuing the linked account card, along with other financial rules.

Ex. 1009, 8:1-11 (see also Ex1007, [0048], cited by Ex. 1014, Zatkovich Supp. Dec., ¶¶ 655-657)

657. In my opinion, a POSITA at the time of the July 5, 2005 invention would readily understand that Hirka's transaction processing system designed to include "financial rules" would be an excellent prospect for Gopinathan to provide fraud detection services.

Ex. 1014, Zatkovich Supp. Dec., p. 15, ¶¶ 655-657 (cited in Petitioner's Reply, Paper No. 10, p. 19)

The Other Claims of the '100 Patent Are Unpatentable

Claim	Petition / Zatkovich Declaration (Ex1003)
Dependent Claim 2	Pet. 39-40; Ex1003, pp. 110-112, ¶¶ 207-213 (Ground 2)
Dependent Claim 3	Pet. 40-42; Ex1003, pp. 112-115, ¶¶ 214-226 (Ground 2)
Dependent Claim 4	Pet. 42-45; Ex1003, pp. 116-119, ¶¶ 227-237 (Ground 2)
Dependent Claim 5	Pet. 45-46; Ex1003, pp. 120-122, ¶¶ 238-246 (Ground 2)
Independent Claim 6	Pet. 47-56, 68; Ex1003, pp. 123-133, ¶¶ 248-277 (Ground 2)
Dependent Claim 7	Pet. 57-58; Ex1003, pp. 134-137, ¶¶ 281-287 (Ground 2)
Dependent Claim 8	Pet. 58-63; Ex1003, pp. 137-143, ¶¶ 288-306 (Ground 2)
Dependent Claim 9	Pet. 63-64; Ex1003, pp. 144, ¶¶ 307-311 (Ground 2)
Dependent Claim 10	Pet. 65-66; Ex1003, pp. 145, ¶¶ 312-316 (Ground 2)
Dependent Claim 11	Pet. 66-68; Ex1003, pp. 146-147, ¶¶ 317-324 (Ground 2)
Independent Claim 12	Pet. 68-76; Ex1003, pp. 149-157, ¶¶ 325-346 (Ground 1*, 2)
Dependent Claim 13	Pet. 77-78; Ex1003, pp. 159, ¶¶ 349-350 (Ground 2)
Dependent Claim 14	Pet. 79; Ex1003, pp. 161, ¶¶ 353-354 (Ground 2)
Dependent Claim 16	Pet. 78-79; Ex1003, pp. 160, ¶¶ 351-352 (Ground 2)
Dependent Claim 17	Pet. 80; Ex1003, pp. 162, ¶¶ 355-356 (Ground 2)

* Unchallenged Ground

Petitioner's Demonstrative Exhibits

IPR2023-00422 (Patent 8,905,301 B2)

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASKELADDEN L.L.C.,
Petitioner,

v.

LIBERTY PEAK VENTURES LLC,
Patent Owner.

Case IPR2023-00422
Patent No. 8,905,301 B2

**PETITION FOR INTER PARTES REVIEW OF
CLAIMS 1-20 OF U.S. PATENT NO. 8,905,301 B2**

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Patent Trial and Appeal Board
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Petition, IPR2023-00422, Paper 1



US608905301B2

(12) **United States Patent**
Bonalle et al.

(54) **SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR ISSUING AND USING DEBIT CARDS**

(75) Inventors: **David S. Bonalle**, New Rochelle, NY (US); **Emily A. Cheng**, New York, NY (US); **Hsin Chuang**, Brooklyn, NY (US); **Lauren E. Dardick**, New York, NY (US); **Jennifer A. Elwood**, Chelsea Manor St (GB); **William J. Gray**, Peoria, AZ (US); **David J. Wong**, Oceanport, NJ (US)

(73) Assignee: **III Holdings I, LLC**, Wilmington, DE (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1023 days.
This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/907,955**

(22) Filed: **Oct. 19, 2010**

(65) **Prior Publication Data**
US 2011/0060687 A1 Mar. 10, 2011

Related U.S. Application Data

(63) Continuation of application No. 11/478,140 filed on Jun. 30, 2006, now Pat. No. 7,337,100.

(60) Provisional application No. 60/095,855, filed on Jul 5, 2005.

(51) Int. Cl. (2006.01)
G06K 5/00 (2012.01)
G06Q 20/40 (2012.01)
G06Q 20/04 (2012.01)
G06Q 20/26 (2012.01)

(52) U.S. Cl. (2013.01); **G06Q 20/04** (2013.01); **G06Q 20/40** (2013.01); **G06Q 20/26** (2013.01)
CPC **G06Q 20/04** (2013.01); **G06Q 20/40** (2013.01); **G06Q 20/26** (2013.01)
USPC **235/380**; **235/382**

(10) **Patent No.:** **US 8,905,301 B2**

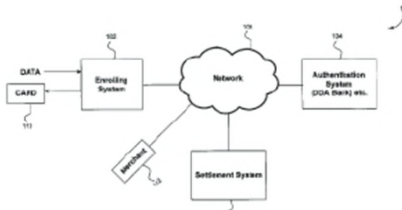
(45) **Date of Patent:** ***Dec. 9, 2014**

(58) **Field of Classification Search**
CPC **G06Q 20/04**; **G06Q 20/20**; **G06Q 20/40**; **G06Q 20/04**; **G06Q 20/10**; **G06Q 20/20**; **G06Q 20/40**; **G06Q 20/26**; **G06Q 20/341**; **G06Q 30/0238**; **G06Q 20/105**; **G06Q 20/28**; **G06Q 20/32**; **G06Q 20/357**; **G06Q 30/0219**; **G06Q 30/0235**; **G06Q 40/12**; **G07F 7/10**; **G07F 19/20**; **G07F 19/201**; **G07F 19/207**; **G07F 7/025**; **G07F 7/1008**; **G07F 7/1083**
USPC **235/380**, **382**, **379**, **383**
See application file for complete search history.

(56) **References Cited**
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6,038,152 A 3/2000 **Teischi et al.**
6,267,292 B1 7/2001 **Walker et al.**
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<http://www.debitman.com>, "Debitman's mission is to help merchants reduce their interchange costs", 3066 Debitman Card, Inc., Last viewed: Sep. 28, 2006.
Primary Examiner — **Thien M Le**

(57) **ABSTRACT**
A system, method, and computer program product are used to issue and track debit cards. A system comprises an enrolling system that verifies an enrollee's main and overdraft account, and issues a debit card, an authentication system that receives information regarding a requested transaction of a debit card and that receives information regarding the main and overdraft account associated with the debit card and accepts or rejects the requested transaction based thereon, and a settlement system that generates a periodic report of at least one of the transactions, the main account, and the overdraft account. The overdraft account can be a charge or credit account.

20 Claims, 13 Drawing Sheets



Page 1 of 22

ASKELADDEN EXHIBIT 1002

Ex. 1002, '301 Patent

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE - ASK-DX-22

IPR2023-00421 (Patent 7,837,100 B2)

Ground 1: Claims 1, 3-5, and 7-16 are unpatentable as anticipated by Foss (Ex1008) under 35 U.S.C. §§ 102(a) & 102(e).²

Ground 2: Claim 14 is rendered obvious by Foss in view of the admitted prior art (Ex1005) under 35 U.S.C. §103(a).

Ground 3: Claim 3 is rendered obvious by Foss in view of Gopinathan (Ex1010) under 35 U.S.C. §103(a).

Ground 4: Claims 2, 6, 17-20 are rendered obvious by Foss in view of Hirka (Ex1009) under 35 U.S.C. §103(a).

Petitioner's Reply, Paper No. 10, p. 7.

Patent Owner does not offer any challenge to Independent Claims 16 or Dependent Claims 17-20. (Paper 9). For the same reasons as set forth in the Petition (Paper 1 at 48-54, 76-84), and Mr. Zatkovich's original supporting declaration (Ex1003, ¶¶ 469-482, 570-612), each of these claims should be found invalid in any event.

Petitioner's Reply, Paper No. 10, p. 15

Patent Owner Only Disputes Element 1[B] of Claim 1 and Corresponding Element 7[B] of Claim 7 are Met by Foss (Ex 1008), and Their Respective Dependent Claims 2-6 and 8-15

Claim Language

1. A method comprising:
receiving, at a computer-based authorization system, a transaction request associated with a debit account, wherein the debit account is associated with a separate account;
sending, using the computer-based authorization system, an account information request that includes **account information of the separate account**;
receiving, at the computer-based authorization system, status information of the separate account in response to the account information request; and
authorizing, using the computer-based authorization system, the transaction request based on the status information.

7. An article of manufacture including a non-transitory, tangible computer readable medium having instructions stored thereon that, in response to execution by a computer-based authorization system, cause the computer-based authorization system to perform operations comprising:
receiving, at the computer-based authorization system, a transaction request associated with a debit account, wherein the debit account is associated with a separate account;
sending, using the computer-based authorization system, an account information request that includes **account information of the separate account**;
receiving, at the computer-based authorization system, status information of the separate account in response to the account information request; and
authorizing, using the computer-based authorization system, the transaction request based on the status information.

Ex. 1002, '301 Patent

Highlighting, Underscore Supplied

The “ordinary and customary meaning” of the sending step of claim 1, especially in light of the teachings of the specification, is that the account information request sent by the computer-based authorization system includes *account information of the separate account*. Ex. 1002 at 13:1-3. In this context, the word “of” specifies a possessive relationship – i.e., the information *belongs to* the separate account and is not merely associated with it. The American Heritage Dictionary notes that this type of “double generative” construction, in which a possessive form appears as the object of the preposition “of,” has been in use in the English language since the 1300s and serves to eliminate ambiguities that can arise in language. For example, whereas the phrase “Bob’s photograph” could mean either “a photograph of Bob” (i.e., one containing Bob’s image) or “a photograph that is in Bob’s possession,” a “photograph of Bob’s” can only mean one that Bob has in his possession, regardless of who or what is shown in the image. Ex. 2001. Using “of” in such a fashion, as it is in claim 1, thus advances the goal of “particularly pointing out and distinctly claiming the subject matter which the inventor [] regards as the invention.” 35 U.S.C. § 112(b).

PO Response, Paper No. 9, pp. 6-7

(cited by Petitioner’s Reply, Paper No. 10, p. 2)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE - ASK-DX-24

Elements [1B] and [7B] Do Not Use the Double Genitive Form of “of” in the “account information of the separate account” Limitation

Usage Note: The "double genitive" construction, in which a possessive form appears as the object of the preposition *of*, as in *a friend of my father's* or *a book of mine*, is looked down on by some grammarians and usage critics. But this construction has been used in English since the 1300s and serves a useful purpose. It can help sort out ambiguous phrases like *Bob's photograph*, which could mean either "a photograph of Bob" (i.e., revealing Bob's image) or "a photograph that is in Bob's possession." *A photograph of Bob's*, on the other hand, can only be a photo that Bob has in his possession and may or may not show Bob's image. There are also cases in which the double genitive may be more elegant; for example, many speakers find such sentences as *That's your only friend that I've ever met* or *That's your only friend I've ever met* to be awkward or impossible, but rephrasing using the double genitive provides an acceptable alternative, as in *That's the only friend of yours that I've ever met*. • Adverbs of degree, such as *too*, *that*, and *so*, tend to cause a shift in the word order of a sentence under certain circumstances. For instance, it's common to speak of "a long movie" or "a big deal," but not of "a too long movie" or "a that big deal." The customary way of rewording in these cases is to place the adverb and adjective before the indefinite article rather than after it: *too long a movie*; *that big a deal*. Often, especially in speech, an *of* is inserted as well: *too long of a movie*; *that big of a deal*. But this construction using *of* is considered ungrammatical; in our 2012 survey, 74 percent of the Usage Panel found the sentence *That's too long of a movie for me to sit through* unacceptable. A somewhat smaller number, but still a majority—58 percent—disapproved of *He wanted to apologize, but I told him it wasn't that big of a deal*.

Ex. 2001, Amer. Heritage Dict., p. 3

(cited in Petitioner's Reply, Paper No. 10, p. 3)

Since the Claims 1 and 7 do Not Use a “Double Genitive” Form of “of” as Described by the American Heritage Dictionary, Patent Owner’s Argument Fails in the First Instance

Claim Language

1. A method comprising:

receiving, at a computer-based authorization system, a transaction request associated with a debit account, wherein the debit account is associated with a separate account;

sending, using the computer-based authorization system, an account information request that includes **account information of the separate account**;

receiving, at the computer-based authorization system, status information of the separate account in response to the account information request; and

authorizing, using the computer-based authorization system, the transaction request based on the status information.

7. An article of manufacture including a non-transitory, tangible computer readable medium having instructions stored thereon that, in response to execution by a computer-based authorization system, cause the computer-based authorization system to perform operations comprising:

receiving, at the computer-based authorization system, a transaction request associated with a debit account, wherein the debit account is associated with a separate account;

sending, using the computer-based authorization system, an account information request that includes **account information of the separate account**;

receiving, at the computer-based authorization system, status information of the separate account in response to the account information request; and

authorizing, using the computer-based authorization system, the transaction request based on the status information.

Double Genitive form of “of” is not in claim 1 or claim 7

Unfortunately for Patent Owner’s analysis, the limitation “an account information request that includes account information of the separate account” in Claims 1 and 7 is not using the possessive form of “separate account.” If it were, the claim would read “... account information of the separate account’s.” Therefore, the term “of” in “account information of the separate account” is not being used in the “double genitive”. (See, e.g., Ex1014, ¶670). Thus, since the Claims 1 and 7 do not use a “double genitive” form of “of” as described by the American Heritage Dictionary, Patent Owner’s argument fails in the first instance.

Petitioner’s Reply, Paper No. 10, p. 8
(See also Paper No. 9, pp. 6-7)

The More Natural Meaning of the Term “of” in the Context of “account information of the separate account” as Used in Elements [1B] and [7B] Includes “Associated With” and “Connected To”

of ⓘ (ʊv, ɔv; əv when unstressed)

prep.

1. Derived or coming from; originating at or from: *customs of the South.*
2. Caused by; resulting from: *a death of tuberculosis.*
3. Away from; at a distance from: *a mile east of here.*
4. So as to be separated or relieved from: *robbed of one's dignity; cured of distemper.*
5. From the total or group comprising: *give of one's time; two of my friends; most of the cases.*
6. Composed or made from: *a dress of silk.*
7. Associated with or adhering to: *people of your religion.*
8. Belonging or connected to: *the rungs of a ladder.*

Petitioner's Reply, Paper No. 10, p. 9 (Ex2001 as annotated)
(See also Ex. 2001, American Heritage pp. 2-3 of 6)

671. Rather, in my opinion a POSITA at the time of the July 5, 2005 invention, would adopt the more natural construction of the term “of” to mean “associated with” or “connected to.” Such a construction is consistent with Def. Nos. 7 and 8 of the same dictionary offered by the Patent Owner:

Ex1014, Zatkovich Supp. Dec., p. 21
(cited in Petitioner's Reply, Paper No. 10, p. 5)

The American Heritage Dictionary Confirms That “of” Has Other Applicable Meanings, including “Associated with or adhering to” (Ex200I, Def. No. 7) and “Belonging or connected to” (Ex200I, Def. No. 8)

of ⓘ (ʊv, ɔv; əv when unstressed)

prep.

1. Derived or coming from; originating at or from: *customs of the South*.
2. Caused by; resulting from: *a death of tuberculosis*.
3. Away from; at a distance from: *a mile east of here*.
4. So as to be separated or relieved from: *robbed of one's dignity; cured of distemper*.
5. From the total or group comprising: *give of one's time; two of my friends; most of the cases*.
6. Composed or made from: *a dress of silk*.
7. Associated with or adhering to: *people of your religion*.
8. Belonging or connected to: *the rungs of a ladder*.
9.
 - a. Possessing; having: *a person of honor*.
 - b. On one's part: *very nice of you*.
10. Containing or carrying: *a basket of groceries*.
11. Specified as; named or called: *a depth of ten feet; the Garden of Eden*.
12. Centering on; directed toward: *a love of horses*.
13. Produced by; issuing from: *products of the vine*.
14. Characterized or identified by: *a year of famine*.
15.
 - a. With reference to; about: *think highly of her proposals; will speak of it later*.
 - b. In respect to: *slow of speech*.
16. Set aside for; taken up by: *a day of rest*.
17. Before; until: *five minutes of two*.
18. During or on a specified time: *of recent years*.
19. By: *beloved of the family*.
20. Used to indicate an appositive: *that idiot of a driver*.
21. Archaic On: *"A plague of all cowards, I say" (Shakespeare)*.

Petitioner's Reply, Paper No. 10, p. 9

(See also Ex. 2001, pp. 2-3 of 6 (highlight added))

Under Either Construction, Foss's (Ex1008) Linkage Information "Between the Credit/Overpayment Component and the Stored Value Component" is Account Information of the Separate Account in Elements [1B] and [7B]

387. In particular, a POSITA at the time of the July 5, 2005 invention would understand that an account number or other form account identification using the "linkage between the **credit/overpayment component** and the **stored value component**" (Ex1008, [0017]) would be associated with the **overdraft account**, and used to check the available balance of the overdraft account in step 446 of Foss as a simple, easy method to identify what balance was being checked.

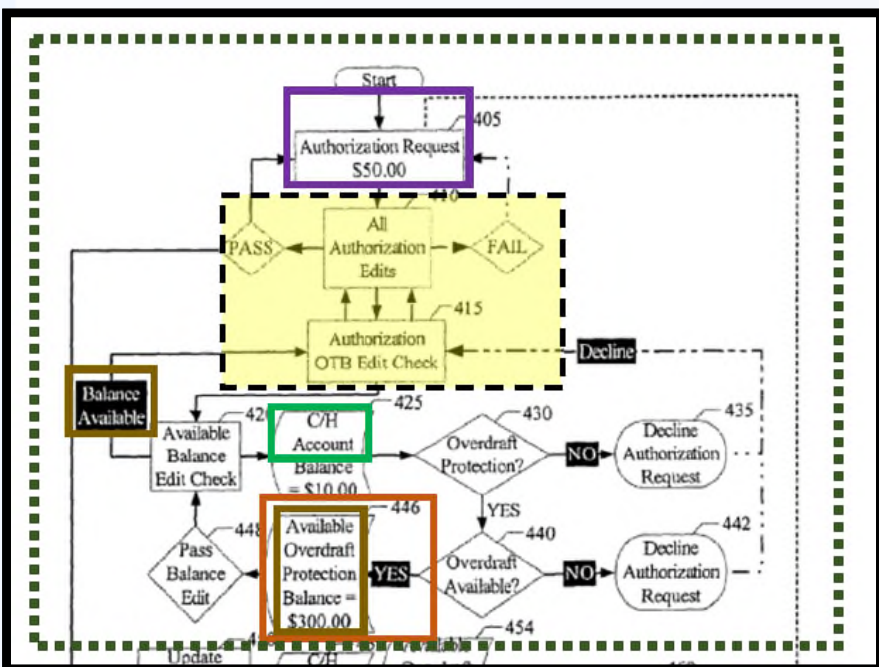
Ex1003, Zatkovich Dec., p. 189

(cited in Petitioner's Reply, Paper No. 10, p. 6)

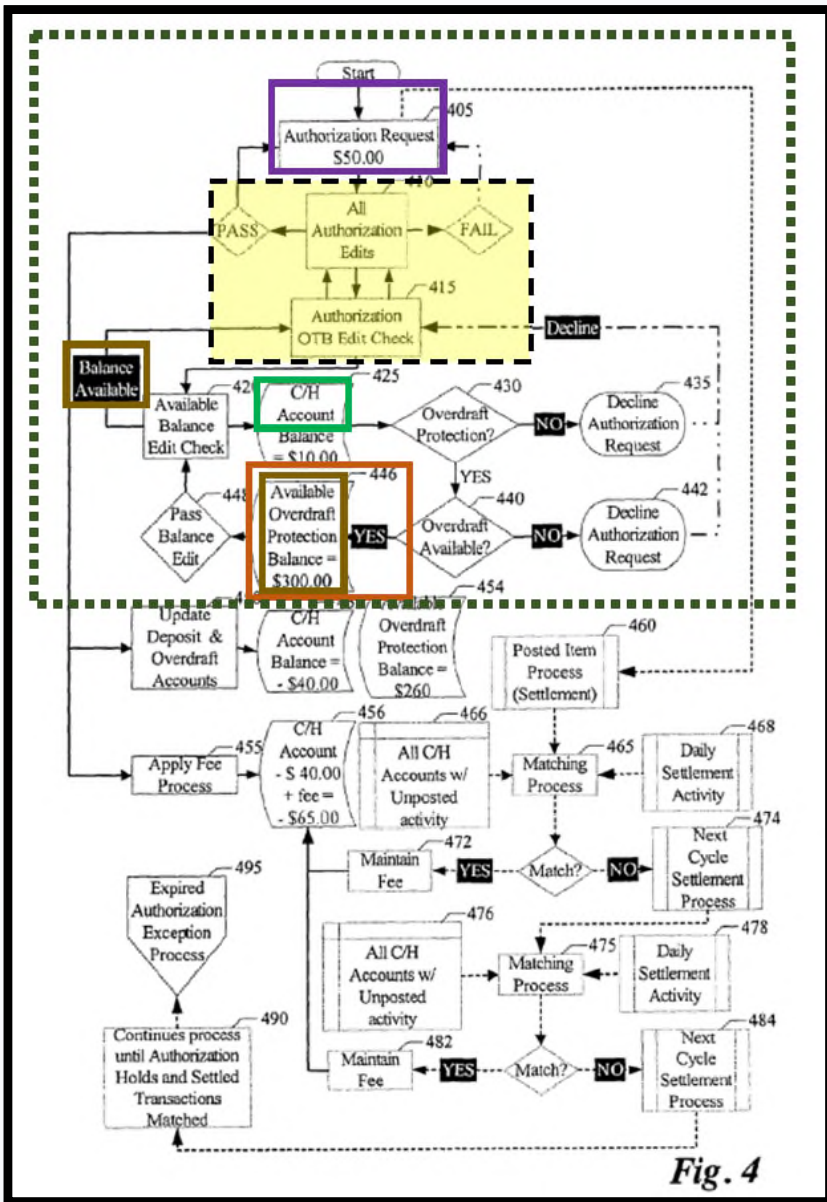
[0017] The typical stored value system operates to create accounts for the issuance of a card, and provide the settlement and authorization functionalities. The present invention provides a customization or modification to such stored value systems. **The modification operates to allow for a linkage to be created between a credit/overpayment component and the stored value component.**

Ex. 1008, Foss, [0017]

Petition, Paper No. 1, p. 16 (Ex. 1008, Foss, Fig. 4, annotated)
(cited in Petitioner's Reply, Paper No. 10, p. 11)



Under Either Construction, Foss's (Ex1008) Linkage Information "Between the Credit/Overpayment Component and the Stored Value Component" is Account Information of the Separate Account in Elements [1B] and [7B]



- Element [1B/7B]: Foss’ authorization process sends an **information request** with **account information** of the **separate account**. First, “[i]f the account has overdraft protection 430, the process checks if overdraft funds are available at step 440.” (Ex1005, [0066]; Ex1003, ¶¶142, 382-388). If funds are available, **“the available overdraft protection balance is checked at step 446”** (Ex1005, [0066]; Ex1003, ¶¶142, 382-388).

**Petition, Paper No. 1, p. 17
(cited in Petitioner's Reply, Paper No. 10, p. 12)**

As step 446 of the transaction process 400 shown in Figure 4, Foss discloses sending, using the computer-based authorization system an account information request (e.g., “If overdraft funds are available at step 440, the available overdraft protection balance is checked at step 446”). (Ex1008, [0066]; Ex1003, ¶¶384-385). See, e.g., Ex1008, Fig. 4:

**Ex. 1003, Zatkovich Dec., p. 79
(cited in Petitioner's Reply, Paper No. 10, p. 11)**

**Petition, Paper No. 1, p. 16
(cited in Petitioner's Reply, Paper No. 10, p. 11)**

Under Either Construction, Foss's (Ex1008) Linkage Information "Between the Credit/Overpayment Component and the Stored Value Component" is Account Information of the Separate Account in Elements [1B] and [7B]

675. The Patent Owner offers no explanation why the "linkage information", which is indisputably linked to the "separate account" (the "credit/overpayment component" in Foss), does not also "belong to" the "separate account." The entire analysis offered, without any expert support, is that a system can be set up which sends a number other than the account number of the separate account. In my opinion, such analysis is not relevant. Whether an account number or some other linkage information is sent, both numbers would "belong" to the "separate account" which is linked as taught by Foss. Foss clearly teaches sending "linkage information" which, by definition, belongs to the "separate account" to which it is linked. To the extent the term "of" is limited to "belonging to" as Patent Owner, in my opinion, improperly asserts, the linkage information taught by Foss also belongs to the overdraft account to which it is clearly linked.

"Whether an account number or some other linkage information is sent, both numbers would 'belong' to the 'separate account which is linked as taught by Foss'"

**Ex1014, Zatkovich Supp. Dec., p. 23
(cited in Petitioner's Reply, Paper No. 10, p. 14, ¶¶ 675-677)**

The Other Claims of the '301 Patent Are Unpatentable

Claim	Petition / Zatkovich Declaration (Ex1003)
Dependent Claim 2	Pet. 72-74; Ex1003, pp. 233-235, ¶¶553-560 (Ground 4)
Dependent Claim 3	Pet. 54-58; Ex1003, pp. 210-217, ¶¶486-510 (Ground 1) Pet. 59-67; Ex1003, pp. 217-226, ¶¶511-534 (Ground 3)
Dependent Claim 4	Pet. 35-36 ; Ex1003, pp. 183-185, ¶¶402-412 (Ground 1)
Dependent Claim 5	Pet. 36-37; Ex1003, pp. 186-187, ¶¶413-420 (Ground 1)
Dependent Claim 6	Pet. 74-75; Ex1003, pp. 235-238 , ¶¶561-569 (Ground 4)
Dependent Claim 8	Pet. 38-39; Ex1003, pp. 189-191, ¶¶428-435 (Ground 1)
Dependent Claim 9	Pet. 39-42; Ex1003, pp. 191-194, ¶¶436-444 (Ground 1)
Dependent Claim 10	Pet. 37-38; Ex1003, pp. 188-189, ¶¶421-427 (Ground 1)
Dependent Claim 11	Pet. 38-39; Ex1003, pp. 189-191, ¶¶428-435 (Ground 1)
Dependent Claim 12	Pet. 39-42; Ex1003, pp. 191-194, ¶¶436-444 (Ground 1)
Dependent Claim 13	Pet. 39-42; Ex1003, pp. 194-196, ¶¶445-450 (Ground 1)
Dependent Claim 14	Pet. 45-48; Ex1003, pp. 199-202, ¶¶458-468 (Grounds 1, 2)
Dependent Claim 15	Pet. 42-44; Ex1003, pp. 196-198 , ¶¶451-457 (Ground 1)
Independent Claim 16	Pet. 48-54; Ex1003, pp. 202-209, ¶¶469-482 (Ground 1)*
Dependent Claim 17	Pet. 76-79; Ex1003, pp. 238-243, ¶¶571-585 (Ground 4)*
Dependent Claim 18	Pet. 79-81; Ex1003, pp. 243-247, ¶¶586-597 (Ground 4)*
Dependent Claim 19	Pet. 81-84; Ex1003, pp. 247-551, ¶¶598-606 (Ground 4)*
Dependent Claim 20	Pet. 81-84; Ex1003, pp. 251-, ¶¶607-612 (Ground 4)*

* Unchallenged Ground