UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

METAVANTE CORPORATION and
FIDELITY NATIONAL INFORMATION SERVICES
Petitioner

v.

CHECKFREE CORPORATION
Patent Owner

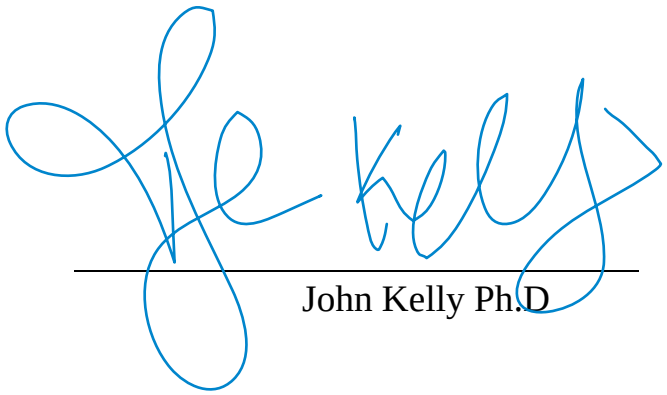
Patent No. 7,853,524
Issued: December 14, 2010
Filed: December 16, 2001
Inventors: Kight, *et al.*
Title: Systems and Methods for Risk Based Determination of a Form for Crediting a Payee on Behalf of a Payer

Covered Business Method Review No. CBM-2013-00030

DECLARATION OF DR. JOHN KELLY

I, John Kelly, Ph.D., do hereby declare and state, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: March 20, 2014



John Kelly Ph.D

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VII. INTRODUCTION

1. I make this declaration based on my personal knowledge, consideration of the materials I discuss herein, and my expert opinions.

A. Engagement

2. I have been retained by counsel for CheckFree, Inc. as an expert witness in the above-captioned proceeding. I have been asked to provide my opinion about the state of the art of the technology described in U.S. Patent No. 7,853,524 ("the '524 patent") and on the subject matter in claims 1-21. The following is my written report on these topics.

B. Background and Qualifications

3. My *Curriculum Vitae* describing my background and experience is submitted herewith as Appendix C. I have personal knowledge of the facts and opinions set forth in this declaration, and, if called upon to do so, I would testify competently thereto.

4. I hold Bachelor of Arts and Master of Arts degrees with Honors in Mathematics from the University of Cambridge, England. I hold a Ph.D. in Computer Science from the University of California, Los Angeles (UCLA).

5. From 1982 through 1986, I was a professor in the Computer Science Department at U.C.L.A. From 1986 through 1997, I was a professor in the

Electrical and Computer Engineering Department of the University of California, Santa Barbara, where I held tenure.

6. I am the principal of Kelly Computing, Inc. I teach and consult in many different aspects of computer science and engineering, including computer hardware and software architecture and design, software engineering and fault tolerance. My particular areas of expertise include computer architecture, software engineering and "clean-room" development and evaluation, reverse engineering, operating systems (including real-time and embedded), network computing (including Internet computing), storage systems, fault tolerance, parallel and distributed computing systems, transaction processing systems, database systems, and program management.

7. As a result of my education and professional experience, I have extensive development experience and knowledge of computer operating systems including access control concepts, data encryption/decryption techniques, networking technologies, database systems, communication protocols including network communication protocols, user interfaces including graphical user interfaces and computer hardware design, and software analysis, design, and development.

8. I have developed computer software and hardware for many different computer systems and applications including financial and payment processing systems.

9. I have also analyzed several software and hardware products related to payment processing systems. For example, I have analyzed payment processing systems for Dell, Groupon, iBahn and financial systems for VISA, Citibank and others. I have also analyzed the source code for computer operating systems such as Apple's Mac OS X, Microsoft Windows, Linux, etc.

10. I have also testified in Court on several occasions as a computer science expert to report my analysis and opinions.

11. I have worked in the area of computer software, hardware and system design and development for nearly forty years. I have extensive experience in the design and development of small and large scale software systems. I have been involved in the specification, development, integration, and testing of computer systems with a wide range of requirements, sizes and types. These have included, by way of example, custom hardware and software for a US Air Force fighter plane, a distributed real-time system for US FAA air traffic control, a distributed geographical information system for the US Department of Energy, and a distributed network of ATMs for Citibank.

12. From 1978 to 1995, I specified, designed and implemented distributed database architectures, systems and applications for Los Alamos National Laboratory and NASA's Jet Propulsion Laboratory and database machine design and implementation at Transaction Technology Incorporated, Ordain, Inc. and Teradata.

13. From 1985 to 1998, I consulted for AT&T GIS, NCR, Symbios Logic, and LSI Logic, including working as a member of the AT&T GIS Science Advisory Committee ("SAC"). The SAC evaluated AT&T's organization, technical direction and product strategy and made recommendations to the Vice President of Technology and Development.

14. From 1982 to 1989, I worked on several projects involving transaction processing systems where I developed software for financial systems including routing payments and processing ATM transactions for Citibank among others. In this work, I designed and implemented special purpose hardware and software to provide the required functionality.

15. In my career, in addition to other programming languages, I have worked extensively with COBOL, which is a programming language that has been widely used in the financial services industry.

C. Compensation and Prior Testimony

16. I am being compensated for my time spent in connection with this case. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

17. A listing of testimony that I have provided in the last four years and my compensation is attached hereto as Appendix B.

D. Information Considered

18. My opinions are based on my years of education, research and experience, as well as my investigation and study of relevant materials. In forming my opinions, I have considered the materials I identify in this report and those listed in Appendix A.

19. I may rely upon these materials and/or additional materials to respond to arguments raised by the Petitioner. I may also consider additional documents and information in forming any necessary opinions — including documents that may not yet have been provided to me.

20. My analysis of the materials produced in this investigation is ongoing and I will continue to review any new material as it is provided. This report represents only those opinions I have formed to date. I reserve the right to revise,

supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

VIII. THE '524 PATENT

A. Effective Filing Date of the '524 Patent

21. I understand that the application that issued as the ’524 patent was filed December 26, 2001 as application serial No. 10/025,897 (“the ’897 application”). The ’897 application was filed as a continuation of application serial no. 09/250,711 (“the ’711 application”), which was filed on February 16, 1999, and was abandoned. The '711 application is a continuation of application serial no. 08/372,620 (“the ’620 application”), which was filed on January 13, 1995, and issued as U.S. Pat. No. 5,873,072 on February 16, 1999. The '620 application is a continuation of application serial no. 07/736,071 (“the ’071 application”), which was filed on July 25, 1991, and issued as U.S. Pat. No. 5,383,113 on January 17, 1995.

22. In my analysis I have used July 25, 1991, as the effective filing date of all the claims. Ex. 1001 at page 1.

23. I understand claims 1, 11, and 21 of the ’524 patent are independent claims. I also understand that claims 2-10 depend directly or indirectly from claim 1. I understand that claims 12-20 depend directly or indirectly from claim 11. The

two groups of dependent claims (2-10 and 12-20) use very similar language (e.g., claims 2 and 12 have the same claim elements).

B. The Person of Ordinary Skill in the Art

24. I believe a person of ordinary skill in the art in the field of the invention of the '524 patent would have been a person with five or more years of experience in the development and operation of electronic payment systems and an understanding of both paper and electronic payment forms.

25. I have considered the definition proposed by Patent Owner in its Preliminary Response, and I agree with that formulation. *See* Preliminary Response at 3. Relevant experience could include designing the processes to be implemented on electronic systems and working with engineers to implement those designs. It also would include experience developing the software implementing those processes.

C. Overview of the Claims of the ’524 Patent

26. The '524 patent claims generally concern electronic bill payment (EBP) systems and methods. *See* Ex. 1001 at 7:51-10:28. Claim 1 defines a "computer-implemented method for directing a payment" using a "payment service provider computer." Ex. 1001 at 7:51-67. Claim 11 defines a system that implements the method defined in claim 1 for operating an EBP system. Ex. 1001 at 8:50-62. Claim 21 defines a particular system using means-plus-function

limitations whose functions correspond to the method steps of claim 1. Ex. 1001 at 10:14-28.

D. Description of the Background Technology Relevant to the ’524 Patent

27. Electronic bill payment is common today, and consumers take it for granted that their banks will offer EBP services. But twenty years ago, in the early 1990s, EBP services were rare and limited. This is explained in the '524 Patent as follows:

> Some banks have attempted to provide a service for making payment to a few billing entities to which the banks have established relations. The banks that do provide that type of service are limited in that they provide the service only for their own customers since the banks have not developed a system for accurately acquiring and processing account numbers and balances of customers of all other banking institutions and coordinating that information with bill payment.

Ex. 1001 at 1:51-59.

28. The introduction of the ‘524 patent provides a fairly detailed explanation of a problem that existed in 1991 with electronic payment systems. As it explains:

> **A need exists** for a method whereby a consumer can contact a single source and inform the source to pay various bills of the consumer, to have the source adjust the consumer's account with the consumer's financial institution (i.e., bank, credit union, savings and loan

> association, etc.) to reflect a bill payment, and to actually pay the billing entity a specified amount by a particular time. The system should be efficient and not unreasonably expensive and relatively simple for a consumer to interact with. Some banks have attempted to provide a service for making payment to a few billing entities to which the banks have established relations. The banks that do provide that type of service are limited in that they provide the service only for their own customers since the banks have not developed a system for accurately acquiring and processing account numbers and balances of customers of all other banking institutions and coordinating that information with bill payment. Furthermore, banks have not developed a system for managing the risks involved in providing such a service and the inherent complexities of providing the service to consumers other than the bank's own customers. Therefore, **a need exists for a single source bill payment system** that would be available to any consumer, regardless of where the consumer banks and regardless of what bills are to be paid.

Ex. 1001 at 1:43-65 (emphasis added).

29. The last sentence of this paragraph is describing what is needed to solve the problem – "a need exists for a single source bill payment system that would be available to any consumer, regardless of where the consumer banks and regardless of what bills are to be paid." Ex. 1001 at 1:63-65.

30. The introduction to the ‘524 patent also explains that the invention solves the **problem** it has identified. For example, the ‘524 patent introduction explains that:

> The single source service provider for consumer bill payment could be any entity with the capability to practice **the invention as described hereinafter**.” Ex. 1001 at 2:25-27. (emphasis added).

31. I note that this discussion in the introductory section of the ‘524 patent may have created some confusion for the Board. The decision of the Board (Appendix A), for example, incorrectly describes the sentence at 2:25-27 as saying that the specification describes “the **payment service provider** as **an entity with the capability to practice the invention**. Ex. 1001, col. 2, ll. 25- 27.” (emphasis added). What this sentence is actually saying is that **use** of the invention can solve the problem the introductory section of the ‘524 patent identifies. See Ex. 1001 at 2:25-27 (“The **single source service provider** for consumer bill payment could be any entity with the capability **to practice the invention as described hereinafter**.”) (emphasis added). In other words, the ‘524 patent is saying the **use** of the invention will help solve the problem of the lack of a viable single-source electronic bill payment system.

32. The ‘524 patent further explains:

> The invention provides a **universal bill payment system** that works regardless of the consumer's financial institution and bill to be paid.

> The present invention provides a computerized system by which a consumer may pay bills utilizing the telephone, a computer terminal, or other electronic, data transmission means. Transactions are recorded against the consumer's account wherever he or she banks. The consumer may be an individual or a business, large or small. The present invention works regardless of where the consumer banks.

Ex. 1001 at 1:67-2:9.

33. The '524 Patent makes it clear that the electronic bill payment system described in the patent is a conceptually different approach to payment of multiple bills on a recurring basis relative to writing checks and mailing them. *See* Ex. 1001 at 1:33-42 ("In today's economy, it is not unusual for a consumer to have several regular monthly invoices to pay. Writing individual checks to pay each invoice can be time consuming and costly due to postage and other related expenses.") This conceptually different approach is absolutely linked to the particular systems that are described in the patent. I do not believe based on my review of the '524 patent that a person of ordinary skill in the art could conclude otherwise.

IX. ANALYSIS OF THE '524 PATENT

A. The Claims of the '524 Patent I Am Addressing in This Report

34. The '524 patent has 21 total claims—three independent claims and 18 dependent claims. My opinion addresses all 21 claims of the '524 patent.

35. Independent claims 1, 11 and 21 are reproduced below (emphasis added):

1. A computer-implemented method for directing a payment, comprising:

receiving, at **a payment service provider**, a request to pay a payee on behalf of a payer;

selecting, by at least **one payment service provider computer** prior to a debiting of a financial account of the payer, a form for crediting the payee, wherein the selection is based on at least one of:

(i) comparing a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee, or

(ii) comparing a payment amount associated with the received request to a merchant credit limit associated with the payee; and

directing, **by the** at least one **payment service provider computer**, a payment to the payee in accordance with the selected form for crediting.

11. A system, comprising:

an **interface** to a network configured to **receive a request to make a payment** to a payee on behalf of a payer; and

a **processor** configured (i) to select, prior to a debiting of a financial account of the payer, a

form for crediting the payee based on at least one of (1) a comparison of a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee, or (2) a comparison of a payment amount associated with the received request to a merchant credit limit associated with the payee, and (ii) **to direct issuance of a payment** to the payee in accordance with the selected form for crediting.

21. A system comprising:

means for receiving, at a payment service provider, a request to pay a payee on behalf of a payer;

means for selecting, prior to a debiting of a financial account of the payer, a form for crediting the payee, wherein the selection is based on at least one of:

(i) comparing a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee, or

(ii) comparing a payment amount associated with the received request to a merchant credit limit associated with the payee; and

means for directing a payment to the payee in accordance with the selected form for crediting.

B. Overview of the Electronic Bill Payment System Described in the '524 Patent

36. The '524 patent describes the components and key features of the electronic bill payment system at both a high level and in significant detail. For example, it provides a general summary of the key functional processing steps of the system as follows:

> The method of the present invention includes: gathering consumer information and creating a master file with banking information and routing codes; inputting payment instructions by the consumer at a convenient location (e.g., at home), typically remote from the payment service provider, by using an input terminal such as a push-button telephone; applying the payment instructions to the consumer's file; using computer software of the present invention to examine various files to determine such things as what is the appropriate form of payment based on variables involving banking institutions and merchants; comparing each transaction against a dynamic credit file and routing based on set parameters; and, if the payment system determines that everything is ready for payment to be made, adjusting the consumer's account (usually by debiting) and making payment directly to the billing entity. Ex. 1001 at 2:10-25.

37. The various steps performed by the electronic bill payment system are clearly linked to each other and together function to make the electronic bill payment system operational. For example, the payment instruction input sequence yields a bill payment request that will be evaluated by a computer using different

data sets maintained by the computer to determine which mode of payment is appropriate. Based on that determination, the computer then initiates the specified payment method—for example, an electronic funds transaction linked to a customer account and other financial institution computer systems. These steps are not performed outside of an electronic bill payment system.

38. I believe a person of ordinary skill would recognize that the EBP system payment process is conceptually different than the conventional way people would pay multiple bills over time (e.g., writing a paper check and sending it in the mail). As I explain in more details below, the various functions identified as being part of the ‘524 invention therefore only make sense in the context of *electronic* bill payment (i.e., receiving requests to pay a bill via the EBP system and processing the payment using the EBP system).

C. Components of the EBP System

39. The '524 patent extensively describes the components and the overall networked configuration of the EBP systems and methods that are defined in the claims. The '524 Patent provides detailed descriptions of the components of the claimed EBP systems and processes by describing the particular operations that the components must perform. Based on the '524 Patent's descriptions of the components of the EBP system, a person of ordinary skill in the art would know how to implement the particular functionality and operations in the EBP system.

Computer system design is flexible, and my analysis of the '524 Patent below is not meant to imply that particular structures disclosed in the '524 Patent must be present in the claimed EBP processes and systems. For example, the '524 Patent describes various databases, such as the "consumer pay table." A person of ordinary skill in the art would understand that there is no requirement that a database such as the consumer pay table be in a particular form. Rather, the claims recite certain functionality based on comparisons involving particular data elements—e.g., an account number and a payment amount. A person of ordinary skill in the art would have understood that data structures and processing components can be distributed without impacting the operation of the EBP system as described and claimed.

40. There are three functions required by all of the claims; namely:

(i) a data capture step during which payment request data in electronic form is received by a component of the electronic bill payment system;

(ii) a payment form determination made by a payment service provider computer based on the data associated with the payment request; and

(iii) directing the payment in the form that was determined by the payment service provider computer.

41. There are several figures in the patent that describe various parts of the system and how it performs its payment processes.

- Figure 1 shows the system components providing support for consumer enrollment through the creation of a consumer database. See Ex. 1001 at 2:34-35 ("FIG. 1 is a diagrammatical representation of the creation of a consumer database").
- Figure 2 shows the system components providing support for a payer using a “consumer telecommunication device” (e.g., a personal computer or telephone) to transmit a request to add a new payee or a make a payment request, and initial processing of that request. See Ex. 1001 at 2:36-38 ("FIG. 2 is a diagrammatical representation of the establishment of a merchant's (billing entities) database and the making of payments").
- Figure 3 shows the system components providing support for receiving payment request data and then storing it in a “consumer pay table” data structure, which is used to support payment processing during a payment cycle. See Ex. 1001 at 2:39-40 ("FIG. 3 is a diagrammatical representation of the creation of a consumer pay table").

- Figures 4A to 4C depict the logic flow of the software that runs on the payment service provider computer to execute a payment cycle. See Ex. 1001 at 2:41-44 ("FIGS. 4a is a diagrammatical representation of a payment processing cycle; FIG. 4b is a continuation of the diagram of FIG. 4a; FIG. 4c is a continuation of the diagram of FIG. 4b").
- Figures 5 and 6 depict representative configurations of the EBP system, showing the components used to handle initial data input, data evaluation and payment direction. See Ex. 1001 at 2:45-50 ("FIG. 5 is a diagrammatical representation of a computer hardware system that may be used for accomplishing the present invention; and FIG. 6 is a diagrammatical representation of another computer hardware system that may be used for accomplishing the present invention").

1. Data Capture for Payment Instructions

42. The first step is a data capture step that is used to obtain the data representing the payment request. The process for capturing and validating the payment request data is shown in Figures 2 to 3. The payment request data is used by several of the computer-based components that make up the system. I will describe this step in some detail below.

43. The ‘524 patent explains this data capture step is performed through an electronic data capture event – either the user inputs information to the system

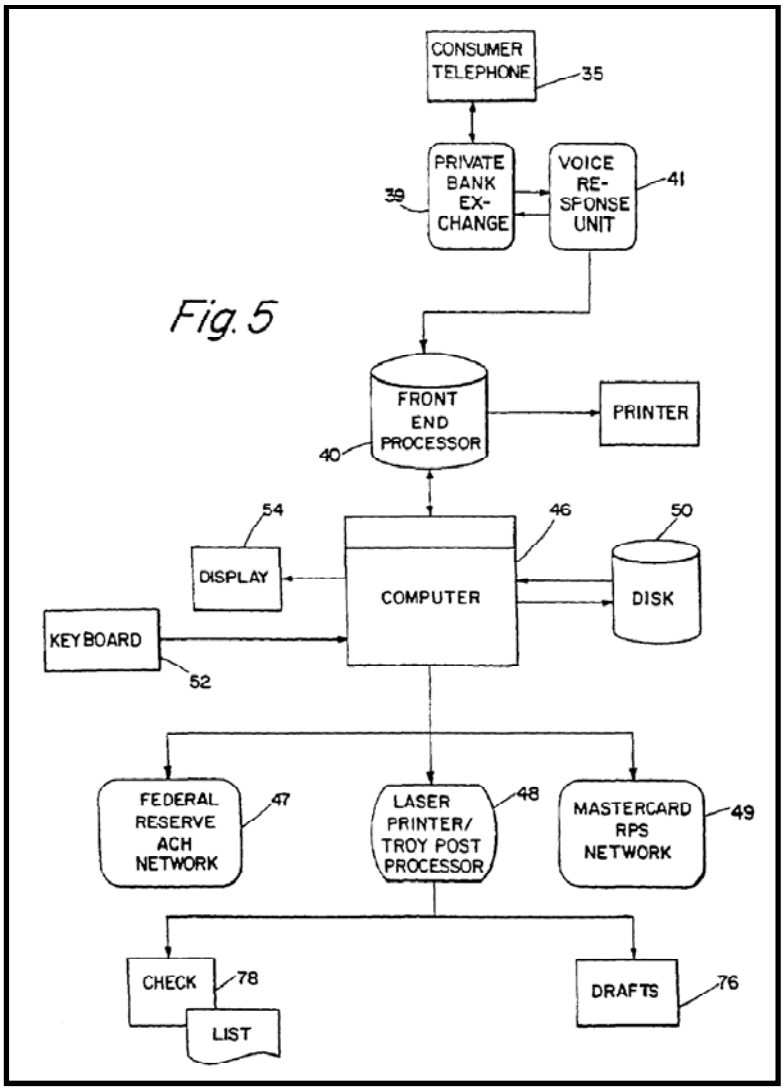
by pressing keys during a telephone call in response to automated prompts, sends the information from a computer running software over a communications network, or sends the request by another form of electronic communication. See Ex. 1001 at 1:21-27 (“[T]he present invention is a computerized system for paying bills whereby a consumer may contact a single source from a remote location via a telephone, a computer terminal with modem, or other electronic means, to direct the single source to pay the consumer's bills instead of the consumer writing checks for each bill.").

44. The ‘524 patent generally describes the data capture process as follows:

> Through a telecommunications terminal 34 (e.g., a push button telephone or computer terminal), a consumer may initiate payment of bills. Through the terminal, the consumer may access his merchant list and input the payment date and amount. The system may be provided with a payment date editor 36 to insure that the date is valid and logical (i.e., payment dates already in the past or possibly a year or more into the future would be questioned). As payments are initiated, a consumer “checkbook register” may be created and automatically updated to reflect this activity. The merchant list can be visible on the consumer’s personal computer screen. On a personal computer a consumer may enter merchant payment amounts and payment dates on the computer screen and then transmit this information to the service provider. Ex. 1001 at 3:56-4:3.

45. Figures 5 and 6 each illustrate a representative configuration of the EBP system in the telephone input and computer input methods, respectively. Ex. 1001 at 2:45-50 ("FIG. 5 is a diagrammatical representation of a computer hardware system that may be used for accomplishing the present invention; and FIG. 6 is a diagrammatical representation of another computer hardware system that may be used for accomplishing the present invention.")

46. Figure 5 (shown below) describes a configuration of the EBP system that uses telephone input to capture payment instructions. It explains that a consumer can use a telephone (item 35) to make a call through a private bank exchange (item 39) to a "voice response unit" (item 41) that mediates the interactions with the user. See Ex. 1001 at 4:48-54 ("For example, as shown in FIG. 5, the front end processor 40 may be a DEC VAX which is connected to an IBM main frame 46 Model 4381. Consumers may call by telephone 35, a number that passes through the private bank exchange (PBX) 39 and contacts a voice response unit 41 in association with the front end processor 40.") This process captures the payment instructions from the user in the form of information which is then used by the EBP in subsequent steps.



47. The '524 patent explains how the data representing the payment instruction is captured via the telephone input method:

> By telephone, the list may be presented by programmed voice. The voice may be programmed to ask the consumer if a particular merchant (selected from the consumer's MMF, which may be updated from time to time) is to be paid and to tell the consumer to press 1 if yes, or press 2 if no. If yes, the voice may instruct the consumer to enter the amount to be paid by pressing the numbers on a touch tone phone. The asterisk button could be used as a decimal point. After the

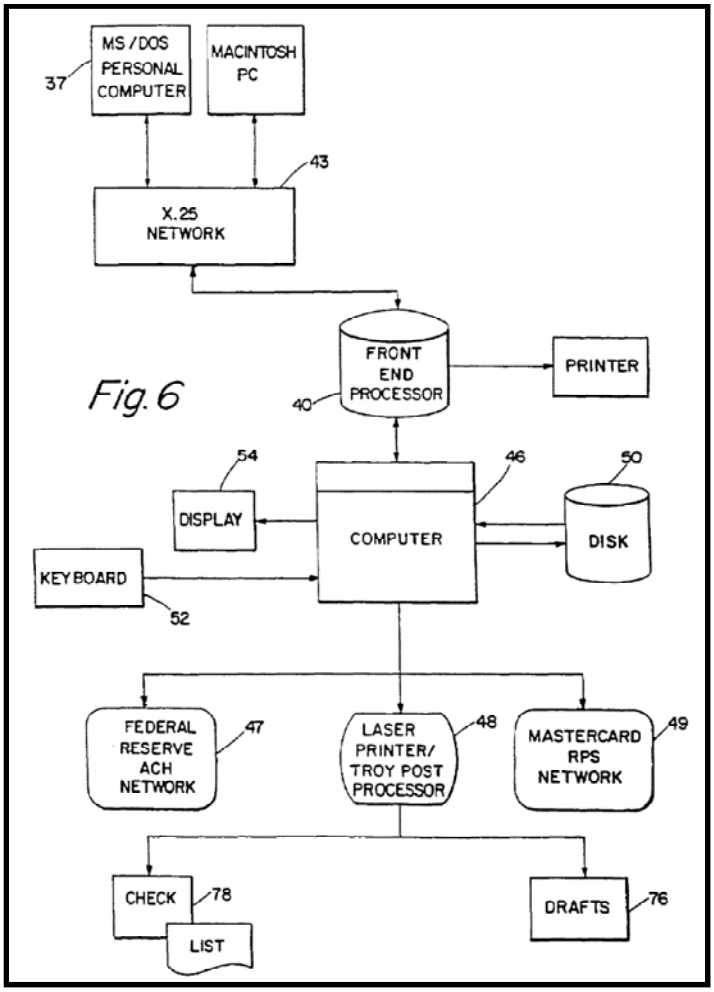
> amount is entered, the voice may ask the consumer to enter the date on which payment is to be made to the merchant. This may be accomplished by assigning each month a number, such as January being month 01. The consumer may then enter month, day and year for payment. The programmed voice may be accomplished with a VRU (voice response unit) available from AT&T or other vendors. It may communicate with a data processor to obtain consumer information. At the end of the consumer's session on the terminal a confirmation number may be sent to the consumer, providing a record of the transaction.

Ex. 1001 at 4:4-22. The '524 Patent explains that the "list" is the consumer's "merchant list." See Ex. 1001 at 3:58-60 ("Through the terminal, the consumer may access his merchant list and input the payment date and amount.").

48. The '524 Patent identifies a DEC VAX as an example of a front end processor. Ex. 1001 at 4:49-50. This is just one example of a front end processor, and it demonstrates that the interface to a network of claim 11 is a specialized device that is required in an EBP system in order to allow consumers to connect to the EBP system and submit payment requests.

49. The computer-based input method is also illustrated, in Figure 6 (shown below). As the '524 patent explains, "FIG. 6 illustrates a similar arrangement for use when the consumer is using a personal computer 37 to instruct

the service provider. The personal computer may access the front end processor 40 through the standard X.25 Network 43." Ex. 1001 at 5:4-8.



50. The '524 patent also explains the computer-based input process for providing a payment instruction. For example, the '524 patent explains:

> Through the terminal, the consumer may access his merchant list and input the payment date and amount. The system may be provided with a payment date editor 36 to insure that the date is valid and logical (i.e., payment dates already in the past or possibly a year or more into the future would be questioned). As payments are initiated, a consumer "checkbook register" may be created and automatically

> updated to reflect this activity. The merchant list can be visible on the consumer's personal computer screen. On a personal computer a consumer may enter merchant payment amounts and payment dates on the computer screen and then transmit this information to the service provider. Ex. 1001 at 3:56-4:3.

51. In other words, when a personal computer is used, visual displays can be used to capture the necessary parameters of a payment request (e.g., merchant name, amount of payment, date of payment, etc.).

52. Both the telephone-based and computer-based input methods utilize electronic communications to transmit data acted on by the EBP system. As the '524 patent explains, "Through a telecommunications terminal 34 (e.g., a push-button telephone or computer terminal), a consumer may initiate payment of bills." Ex. 1001 at 3:56-58; Ex. 1001 at 4:24-27 ("The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network.").

53. The front end processor (item 40) is a component of the EBP system that manages the interactions with customers wishing to use the EBP system to initiate electronic bill payment. The front end processor manages telephone or computer-based interactions with the customer. Ex. 1001 at 3:56-58, 4:48-54, 5:4-8, Figs. 5, 6. The front end processor is integral to the EBP system because of the specialized nature of an EBP system, which must capture information in digital

form from the consumer representing payment instructions and other information necessary to effect payments via the EBP system.

54. The functions that are performed by the front end processor are described at several places in the '524 patent. For example, Figure 2 shows the relationship of the front end processor to the receipt of consumer instructions to add a new payee or make a payment.

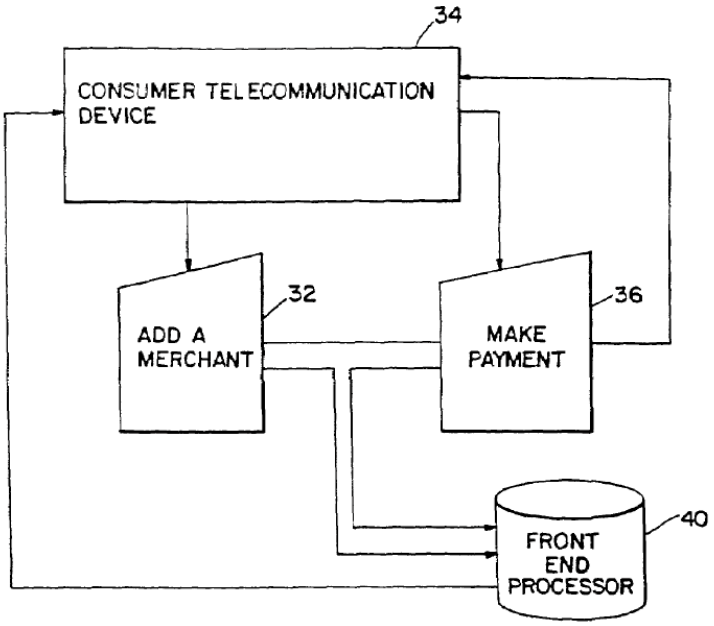


Fig. 2

55. The front end processor 40 is a computer that is programmed to handle the functions described in the '524 patent, as explained below. For example, the '524 patent explains that "the front end processor 40 may be a DEC VAX which is connected to an IBM main frame 46 Model 4381." Ex. 1001 at

4:49-51. Figures 5 and 6 of the '524 Patent depict the front end processor 40 connected to a payment service provider computer 46. Ex. 1001 at Figs. 5, 6.

56. The ‘524 patent also explains that the front end processor receives and acts on data files and interfaces with telecommunications networks. See, e.g., Ex. 1001 at 4:24-27 (“The consumer's files may be *received at the service provider on a front end processor **40*** that interfaces with the telecommunications network.”) (emphasis added); Ex. 1001 at 4:51-54 ("Consumers may call by telephone **35**, a number that passes through the private bank exchange (PBX) **39** and contacts a voice response unit **41** in association with the front end processor **40**."); Ex. 1001 at 5:6-8 ("The personal computer may access the front end processor **40** through the standard X.25 Network **43**.").

57. Figure 3 (below) illustrates the creation of a consumer pay table using the front-end processor 40 (Ex. 1001 at 4:4:23-27):

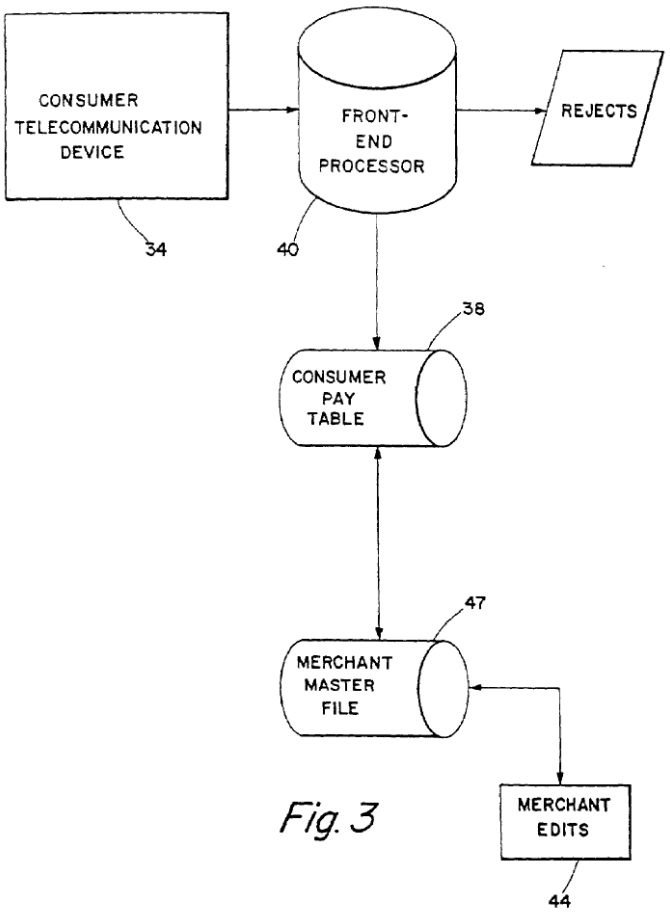


Fig. 3

58. Consumer payment data is subjected to several different validation checks by the front end processor and by the payment service provider computer 46. The payment request validation checks and data handling associated with those validation checks are outlined generally in Figure 3, and described in the '524 patent as follows:

> In FIG. 3 the steps are shown for the creation of the consumer pay table 38 and making updates to it. The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network. The consumer's records may be edited 44 for validity by comparing to the merchants'

> account scheme. Any new merchant records are added to the consumer' s pay table. New merchants are compared to the MMF 42 and appropriately cross-referenced to the pay table to check if a merchant record already exists. If no merchant record exists, a merchant record will be created on the MMF 42.
>
> Payment records may also be received on the service provider's processor. The payment may first go through a validation process against the pay table. The validation process checks for duplicate payments and if duplicates are found they are sent to a reject file. The validation process also verifies that merchants are set up and may check for multiple payments to be paid to a particular merchant. Orders for payment go to the consumer pay table to determine when the payment should be released and how it will be released for payment.

Ex. 1001 at 4:23-43.

59. After payment requests are validated, they are added to the consumer pay table 38, which can be accessed by both the front end processor and the payment service provider computer 46. The consumer pay table can be any type of data structure that maintains the payment requests that are ready to be acted on by the payment service provider computer.

60. I do not believe a person of ordinary skill could read the '524 patent in a way that would suggest the data capture processes mediated by the front end processor could be performed by hand. This is because the EBP system uses data

captured through an automated process, which is then used by computer-based systems to determine the proper form of payment. See Ex. 1001 at 2:12-20 ("inputting payment instructions by the consumer at a convenient location (e.g., at home), typically remote from the payment service provider, *by using an input terminal such as a push-button telephone*; applying the payment instructions to the consumer's file; *using computer software of the present invention to examine various files to determine* such things as what is *the appropriate form of payment* based on variables involving banking institutions and merchants . . . ."); Ex. 1001 at 4:54-57 ("After the consumer's payment instructions are received an analysis is performed to determine the most cost effective and least risk mode of payment for the service provider to use."); Ex 1001 at Figs. 4A-4C. The automated nature of the data capture process is important because, if an individual had to process each payment request that was sent to a payment service provider, the EBP system would not be able to handle large volumes of transactions, and the human element would introduce additional risks for errors. Those subsequent steps are performed without the need for further involvement by the user, which is one of the main benefits of the EBP system. See Ex. 1001 at 6:37-39 ("The software of the present invention is designed in part to make several decisions relating to particular transactions for consumers."); Ex. 1001 at 5:9-14 ("Referring now to FIGS. 4a, 4b and 4c, the payment process is shown. The payment process may be cycled 56

each day or more or less frequently. The first step is to establish when payment items are to be processed. This may be accomplished through a processing calendar 58. A processing calendar 58 may be built into the system."). Obviously, errors may arise after payment instructions are received (e.g., consumer's merchant account number does not match merchant account scheme, etc.), but the design of the system is to carry out payment requests in an automated fashion without having the user or entities managing the system playing a further role in that process. See Ex. 1001 at 6:50-52, Figs. 4B-4C (disclosing that "[t]he account numbers provided by the consumer for the merchants to be paid, are also checked to determine if they are valid" and if they are not, the system selects a paper draft as the form of payment, according to steps 65 and 76 in Figs, 4B and 4C, respectively). The automated nature of the EBP system allows the system to handle large volumes of transactions efficiently and with less risk of error.

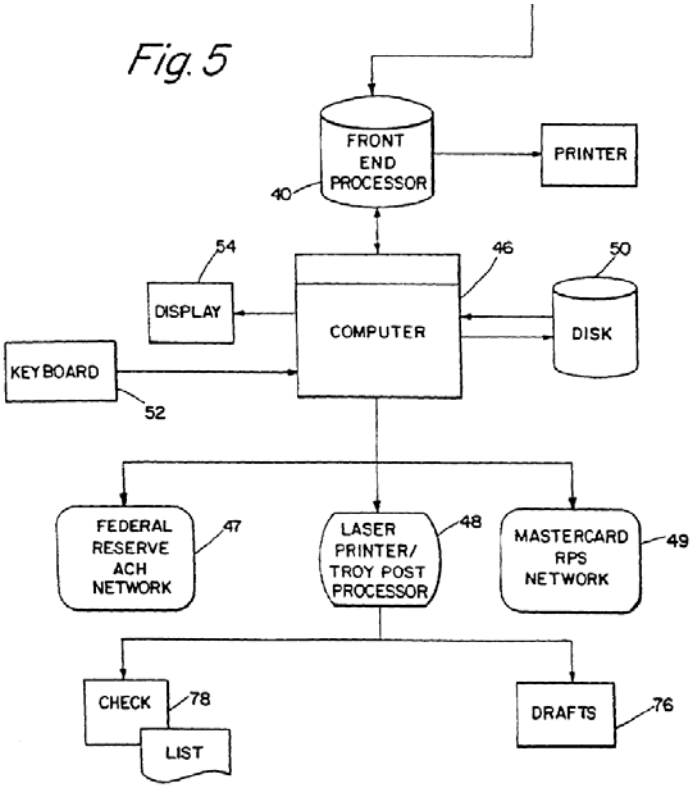
61. As explained above, the '524 Patent provides a detailed description of operations that certain components of the EBP system perform, such as the front end functionality. Based on the '524 Patent's description of the front end functionality, a person skilled in the art could configure one or multiple computer systems to perform the functions that the front end processor is handling, including having the payment service provider computer 46 handle these functions. These

functions are clearly integral to the EBP process and the EBP system described in the ‘524 patent.

2. Payment Service Provider Computer

62. An important, and perhaps central, component of the EBP system described in the ‘524 patent is the payment service provider computer 46.

63. Figures 5 and 6 show the role of the payment service provider computer within the EBP system. For example, in a part of Figures 5 and 6 that is the same in both figures, the computer (46) is shown interfacing with the front end processor, with computer storage, display and input elements, and managing three types of payment processes (i.e., Federal Reserve ACH Network 47, Laser Printer/Troy Post Processor 48 and MasterCard RPS Network 49).



64. The '524 Patent explains that computer 46 is specially programmed, and points to source code included with the patent. See Ex. 1001 at 1:27-32 ("A microfiche appendix has been submitted with the parent case of this application Ser. No. 07/736,071, which issued as U.S. Pat. No. 5,383,113 on Jan. 17, 1995, which contains the program code of the present invention and which in its entirety is incorporated herein by reference. An additional hard copy of the appendix is attached as Exhibit A.").

65. I reviewed the program code appended to the '524 Patent. Ex. 2001 at 158-219. The code is written in a programming language called COBOL, which stands for Common Business-Oriented Language. Ex. 2023 at 23-86. As noted above in the section discussing my qualifications, I have extensive experience with COBOL, and I can read it and program in it.

66. COBOL is a programming language that has been widely used in the financial services industry. See Ex. 2023 at 8-143 ("COBOL is a higher-level language designed for use in business-applications programming. It supports files of multilevel use. COBOL is especially good at handling many small pieces of similar data, the kind of file found in commercial and industrial data-handling programs. It is oriented toward reading and writing complicated data records and arranging them in storage for easy processing."). Although COBOL is not currently used as widely for developing new applications as other programming

languages, such as C, C++, and Java, it is still one of the most prevalent programming languages because a large amount of legacy software in the financial services sector is programmed in COBOL. Because an EBP system is a particular type of system in the financial services information technology field, COBOL is one of the programming languages that I would expect for such an application, although it is certainly not required.

67. The specification of the '524 Patent explains that payment service provider computer 46 makes determinations about the form of payment and then initiates the payment. Computer 46 thus acts independently to evaluate the incoming payment instruction data and then causes other actions to be taken to effectuate the payment. See, e.g., Ex. 1001 at 2:16-20 (“using computer software of the present invention to examine various files to determine such things as what is the appropriate form of payment based on variables involving banking institutions and merchants . . . .''); Ex. 1001 at 6:37-40 (“The software of the present invention is designed in part to make several decisions relating to particular transactions for consumers. The following example is provided to more fully describe the software.'').

68. The '524 Patent uses flowcharts in figures 4A to 4C to describe the algorithms used to program the computer 46 to perform its functions during a payment processing cycle. See Ex. 1001 at 2:41-44 (“FIGS. 4a is a diagrammatical

representation of a payment processing cycle; FIG. 4b is a continuation of the diagram of FIG. 4a; FIG. 4c is a continuation of the diagram of FIG. 4b."). Flowcharts are often used by computer programmers to outline the logic in the computer program code that directs the actions of the computer when it is executing the program code. A programmer can translate an algorithm depicted in flowcharts into source code.

69. The algorithms in Figures 4A to 4C make it clear that the payment service provider computer 46 is both central to the EBP process and is performing the key steps of that process without human intervention. See, e.g., Ex. 1001 at 6:37-39 (“The software of the present invention is designed in part to make several decisions relating to particular transactions for consumers.”). See also Ex. 2013 (grandparent application of the ‘524 patent) at 38 (“The software of the present invention makes several decisions related to particular transactions for consumers as shown in Figures 4A, B, C. The following example is provided to more fully describe the software.”).

70. Figures 4A-4C are reproduced below:

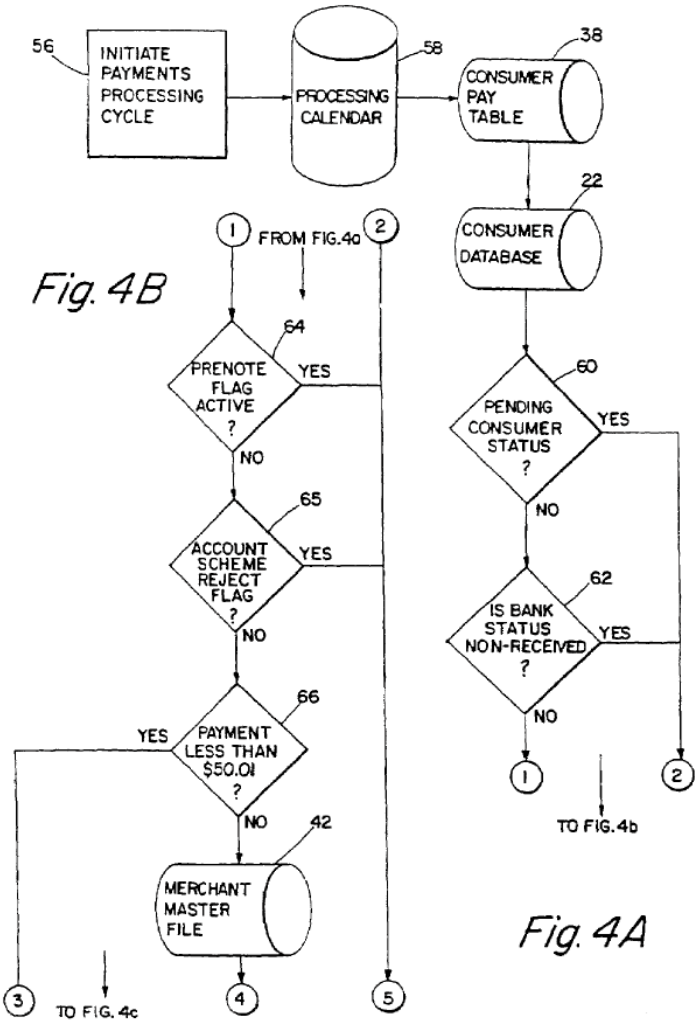

56
INITIATE PAYMENTS PROCESSING CYCLE
58
PROCESSING CALENDAR
38
CONSUMER PAY TABLE
22
CONSUMER DATABASE
1
FROM FIG.4a
2
64
PRENOTE FLAG ACTIVE ?
YES
NO
65
ACCOUNT SCHEME REJECT FLAG ?
YES
NO
66
PAYMENT LESS THAN $50.01 ?
YES
NO
42
MERCHANT MASTER FILE
3
TO FIG. 4c
4
5
60
PENDING CONSUMER STATUS ?
YES
NO
62
IS BANK STATUS NON-RECEIVED ?
YES
NO
1
2
TO FIG. 4b

Fig. 4B

Fig. 4A

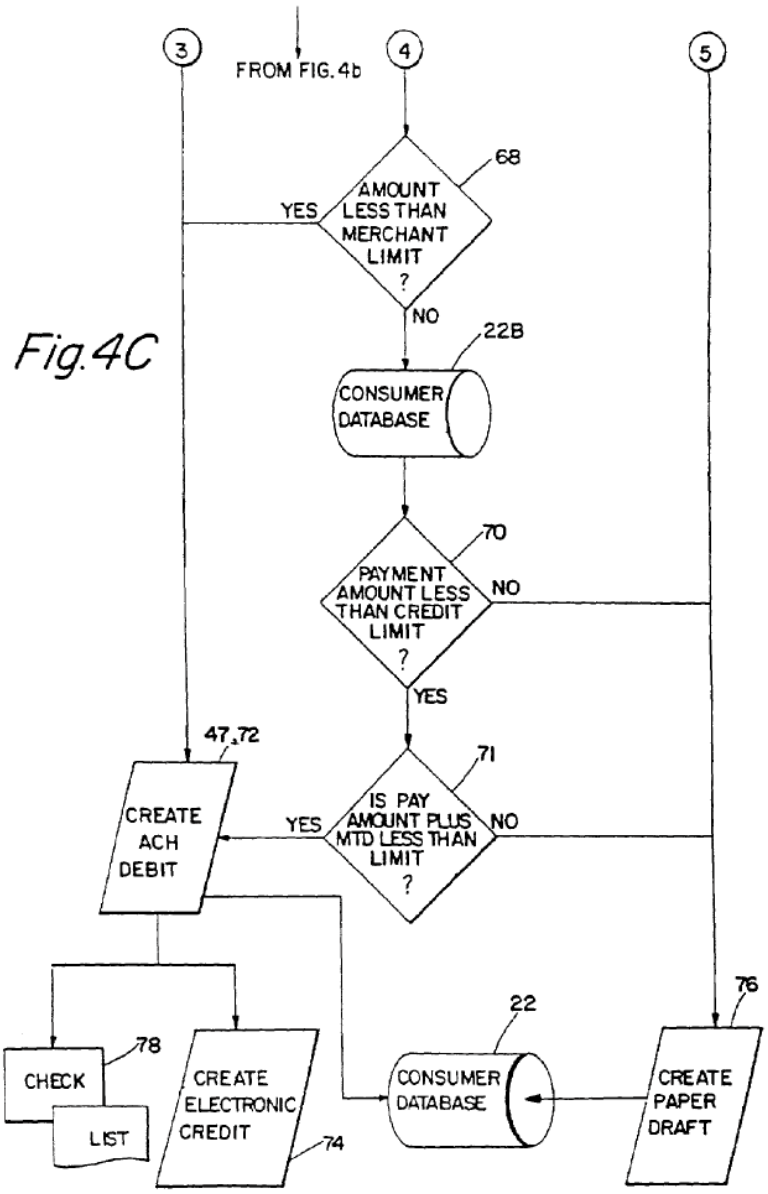


Fig. 4C

71. All of the steps shown in the flowcharts in Figures 4A to 4C are performed by or at the direction of computers, such as computer 46. The system thus is designed to function automatically based on the payment instructions captured through the data capture steps at the start of the process, which I described at § IX.C.1 above.

72. The way that the payment cycle process is discussed in the ‘524 patent also makes this clear. For example, the ‘524 patent explains that the payment cycle described in the flowchart is designed to be repeated daily or multiple times per day. See, e.g., Ex. 1001 at 5:9-11 (“Referring now to FIGS. 4a, 4b and 4c, the payment process is shown. The payment process may be cycled 56 each day or more or less frequently.”). This cycling design is consistent with computer software that performs particular functionality according to a set of programmed instructions.

73. The ‘524 patent explains what the various steps in the flowchart are doing. For example, Figure 4A contains box 56 labeled "INITIATE PAYMENT PROCESSING CYCLE." Ex. 1001 at Fig. 4A. The '524 Patent describes that step as follows:

> The first step is to establish **when payment items are to be processed**. This may be accomplished through a **processing calendar 58**. A processing calendar 58 may be built into the system. The calendar 58 enables the system to consider each date, including weekends and the Federal Reserve holidays. **Payments are released from the consumer pay table 38 using the due date**. Any bank date, payments, or payments within a period such as four business days may be released the same day. All future payment dates would be stored in the consumer pay table 38."
>
> Ex. 1001 at 5:11-20, Fig. 4A (emphasis added).

74. The '524 Patent also provides examples showing how the payment cycle is applied to a particular set of payment instructions. One example is at Ex. 1001 at 6:44-50 (which refers to Fig. 4A):

> For this example, assume that a consumer has five transactions of varying amounts for which the consumer has asked the service provider to arrange payment. For simplicity, assume that the five payments are to be made on the same day. First, the consumer database 22 is edited to validate the **status**, banking institution, and pre-note flags associated with the consumer's requested payments."

75. The reference to "status" in this example is to decision box 60 (labeled "PENDING CONSUMER STATUS ?") in the flowchart of Figure 4A. The '524 Patent explains what the customer status is:

> Each consumer may be assigned a status such as: active=good; inactive=bad; and, pending=uncertain, risky. If a consumer's status is pending 60, when reviewing the payment file with the processing calendar 58, the payment should go out as a draft paper to protect the service provider. Ex. 1001 at 5:31-35.

76. The flowcharts in Figures 4A through 4C contain diamond-shaped boxes. A diamond in a flowchart indicates that a decision is made and paths are chosen based on the outcome of that decision. A programmer can implement a decision in code in a number of ways, depending on the programming language used. In COBOL, for example, an IF-THEN-ELSE construct may be used. If the

decision evaluates as true or yes, then a certain action is performed. If the decision evaluates as false or no, another action is performed (the "ELSE" path).

77. In the case of decision box 60, if the customer status is pending, the evaluation is "YES" and a paper draft is generated. Ex. 1001 at 5:31-35, Figs. 4A-4C. If the evaluation is "NO," then the algorithm moves to the next decision, box 62 labeled "IS BANK STATUS NON-RECEIVED ?" Here, the '524 Patent explains that: "If the consumer's bank transit number does not indicate an electronic bank 62 (i.e., a banking institution that will accept electronic funds transfer), the program associated with FIF 24 sends the payment as a draft." Ex. 1001 at 5:48-52.

78. The YES path from box 62 leads to the creation of a paper draft, while the NO path can lead to an electronic funds transfer (EFT) form of payment, subject to additional conditions. Ex. 1001 at Figs. 4A-4C.

79. If the evaluation of box 62 is NO, the software moves to the next evaluation, box 64 labeled "PRENOTE FLAG ACTIVE ?" Ex. 1001 at Figs. 4A, 4B. The '524 Patent explains that:

> A pre-note 28 is required any time 64 new banking information is entered on a consumer and the bank shows on FIF 24 as an electronic receiving bank. The pre-note period is ten (10) days under federal law. Any payments released during this period are sent as paper." Ex. 1001 at 5:52-56.

80. The '524 Patent uses the term "flag." This term is commonly used in computer programming to refer to a variable that is set up to reflect a certain condition which will affect how a program is executed. The benefit of using a flag in programming is that it can be updated independently as needed, and the flag can obviate the need to repeat a test. So, for example, a flag can be set for a variable based on testing a condition at the start of repetitive cycle of operations, and that flag value can be used instead of repeating the test of the condition during each cycle. Then, the next time a cycle is performed, the condition can be tested once for that cycle. As I explain above, the '524 Patent describes a cycling design for the payment process executed on the payment service provider computer. See ¶ 72 above. The use of flags enables the payment service provider computer to make determinations based on certain conditions by simply checking the flag without having to perform the particular evaluation represented by the flag each time it needs to know the condition. In this case, the '524 Patent is using a "pre-note flag" that has been set to YES during the pre-note period. If the pre-note flag is set to "YES," then the system sends a paper draft. Ex. 1001 at 5:52-56, Figs. 4A-4C.

81. If the pre-note flag, however, is set to "NO" (depicted in box 64), the software moves to the next evaluation, box 65 labeled "ACCOUNT SCHEME REJECT FLAG ?" Ex. 1001 at Fig. 4B. The '524 patent explains that this test

inquires as to whether the account numbers for the payee originally provided by the user are valid. As it explains:

> The account numbers provided by the consumer for the merchants to be paid, are also checked to determine if they are valid. Assuming the merchant account numbers are valid, the program begins with the first dollar analysis." Ex. 1001 at 6:50-54.

82. As I discuss above, a flag is used in programming to reflect a certain condition and can be set independently of an operation that needs to know the value of the flag. The ‘524 uses another flag at this point to reflect whether the account number for the merchant is valid. The '524 explains one way to set this flag by the process described in Figure 3:

> In FIG. 3 the steps are shown for the creation of the consumer pay table 38 and making updates to it. The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network. The consumer's records may be edited 44 for validity by comparing to the merchants' account scheme." Ex. 1001 at 4:23-28 (emphasis added).

83. The account scheme reject flag thus reflects the result of a comparison that is performed between the account number provided by the consumer and the merchant account scheme. If the account scheme reject flag is set to “YES,” this means that the account number provided by the consumer did not match the merchant account scheme, and the computer handles this condition by determining

that the payment should be paid via a paper instrument, which triggers the sequence that results in the system generating a paper draft. Ex. 1001 at 4:23-43, 6:50-52, Figs. 4B-4C.

84. If the “account scheme reject flag” in box 65 is set to be “NO,” the software moves to the next evaluation, box 66, which is labeled "PAYMENT LESS THAN $50.01 ?" Ex. 1001 at Fig. 4B. This condition is evaluating whether the payment is below a threshold amount (i.e., $50.00 or less). If true, the ‘524 patent explains that "if the check limit is greater than zero and the payment is $50.00 or less 66, the item may be released as electronic 74 or by service provider check 78." Ex. 1001 at 5:66-6:2 (emphasis added).

85. Figures 4B and 4C show that the logic of the software applies up to three additional tests if the amount is more than $50.00; namely, whether the amount is less than the merchant credit limit (Box 68), whether the amount is less than the consumer’s individual transaction credit limit (Box 70), and whether the month-to-date total plus the payment exceed the consumer’s month-to-date credit limit (Box 71). As the '524 Patent explains:

> In this example, the initial payment of $25.00 will satisfy the $50.01 edit and therefore will be paid without any further edits being conducted for this particular payment. Continuing with the example, the next edit may be a merchant dollar edit that is established for the specific merchant to which the transaction is being sent. For purposes

> of this example, this edit is set at $100.00 for all merchants. Different dollar edits can be incorporated for different merchants. . . .
>
> In the example, the next edit is for a consumer individual transaction limit set at $200.00. The $150.00 payment is less than the $200.00 consumer individual transaction limit and is, therefore, sent as an ACH debit to the consumer's account and paid. The other two remaining payments yet to be made exceed the $200.00 limit in this example and pass to the next edit.
>
> In the next edit, which happens to be the last edit in the example, the consumer's month-to-date "unqualified" risk limit is checked.

Ex. 1001 at 6:65-7:23; see also Ex. 1001 at 5:66-6:15.

86. Under the logic of the flowchart, NO paths from either decision box 70 ("PAYMENT AMOUNT LESS THAN CREDIT LIMIT ?") or decision box 71 ("IS PAY AMOUNT PLUS MTD LESS THAN LIMIT ?") result in the system generating a paper draft. Ex. 1001 at Fig. 4C. Conversely, if the tests of 70 and 71 are both “yes,” an electronic credit transaction may be used to make the payment.

87. The sequence of decisions and steps in the flowcharts and other parts of the ‘524 patent are unquestionably describing a computer-implemented process. None of these steps is designed to be performed by hand, and it would make no sense for those steps to be performed by hand. Instead, the steps are linked together as part of a logical cycle of computer processing steps that can be efficiently performed only by a computer-based system.

3. Back End Processing Components

88. The '524 Patent describes another communications interface—what I will refer to as the back end of the EBP system. The back end components of the EBP system are the parts of the system that direct payment after the payment service provider computer 46 determines how payment should be made.

89. The ‘524 patent generally explains the back end functionality as follows:

> After the consumer's payment instructions are received an analysis is performed to determine the most cost effective and least risk mode of payment for the service provider to use. One preferred mode of payment is electronic funds transfer through the Federal Reserve Automated Clearing House (ACH) Network 47. If the service provider is not a bank, a bank intermediary may be needed to be connected to the Federal Reserve Network. Another payment mode is a charge to the consumer's credit card through the RPS Network 49. Additionally, an IBM Laser Printer attached to a micr post printer 48 may be used by the service provider to send drafts 76 or consolidated checks 78 to merchants. The main frame 46 has data storage means 50 and runs the FIF 24 and MMF 42 programs. It may also have a tape drive or telecommunication interface for accomplishing electronic funds transfer." Ex. 1001 at 4:54-5:2 (emphasis added).

90. The components of the back-end of the EBP system are important features of the EBP system, as they enable the automated payment process to proceed without human intervention. These additional processing steps require

devices that act on the decisional output of the payment service provider computer 46 – either initiation of an electronic funds transaction (which is effected using computer-based communications over a network) or creation of a paper instrument (check or draft) that will be mailed to the merchant being paid.

91. As the ‘524 patent explains:

> The service provider may pay merchants by a draft or check (paper) or by electronic funds transfer. To create a draft that will pass through the banking system, it must be specially inked. This may be accomplished by a printer which puts a micr code on drafts, like standard personal checks. For example, as shown in FIG. 5, the front end processor 40 may be a DEC VAX which is connected to an IBM main frame 46 Model 4381. Consumers may call by telephone 35, a number that passes through the private bank exchange (PBX) 39 and contacts a voice response unit 41 in association with the front end processor 40. After the consumer's payment instructions are received an analysis is performed to determine the most cost effective and least risk mode of payment for the service provider to use. One preferred mode of payment is electronic funds transfer through the Federal Reserve Automated Clearing House (ACH) Network 47. If the service provider is not a bank, a bank intermediary may be needed to be connected to the Federal Reserve Network. Another payment mode is a charge to the consumer's credit card through the RPS Network 49. Additionally, an IBM Laser Printer attached to a micr post printer 48 may be used by the service provider to send drafts 76 or consolidated checks 78 to merchants. The main frame 46 has data storage means 50

> and runs the FIF 24 and MMF 42 programs. It may also have a tape drive or telecommunication interface for accomplishing electronic funds transfer. FIG. 6 illustrates a similar arrangement for use when the consumer is using a personal computer 37 to instruct the service provider.

Ex. 1001 at 4:44-5:6.

92. The payment direction steps are automatic in the EBP system. As the '524 patent explains:

> Referring now to FIGS. 4a, 4b and 4c, the payment process is shown. The payment process may be cycled **56** each day or more or less frequently. The first step is to establish when payment items are to be processed. This may be accomplished through a processing calendar **58**. A processing calendar **58** may be built into the system. The calendar **58** enables the system to consider each date, including weekends and the Federal Reserve holidays. Payments are released from the consumer pay table **38** using the due date. Any bank date, payments, or payments within a period such as four business days may be released the same day. All future payment dates would be stored in the consumer pay table **38**. On-line inquiry may be made on the consumer pay table **38**. The service provider has on-line capability to make changes to the consumer payment upon request until the day the payment is released. A consumer's merchant change may also affect the consumer's payment on the pay table **38**.

Ex. 1001 at 5:9-25.

93. In the case of an EFT transaction, the '524 Patent explains that the EBP system will use back-end communication interfaces to payment networks, particularly the ACH network and the RPS network, to initiate electronic communications necessary to direct payment via an EFT credit transaction. As the '524 patent explains:

> The main frame **46** has data storage means **50** and runs the FIF **24** and MMF **42** programs. It may also have a tape drive or *telecommunication interface for accomplishing electronic funds transfer*. It should be recognized that various other hardware arrangements could be used to accomplish the present invention.

94. The ACH and MasterCard RPS networks are well-known networks used for effecting electronic fund transfers. See Ex. 2016 at ¶¶ 67, 75; see also Ex. 2016 at ¶¶ 65-81.

95. The '524 patent explains that the alternative to the EBP system directing an electronic funds transfer payment is creation of a physical (paper) instrument (check or draft) that can be efficiently processed by a merchant (payee) and the banking system:

> When payment is made by draft, the service provider is not a contractual party to the transaction. The consumer's bank account codes are actually encoded onto the draft prepared by the service provider and act much like the consumer's personal check. The draft has been specially designed for this process. The draft is payable to

> either the service provider or the particular merchant. This allows the draft to be delivered to the merchant for payment and depositing, but allows the draft to be legally payable by the bank, with proper authorization. Additionally, posting information for the merchant is contained on the body of the draft. To the applicant's knowledge, it is the first time a draft has been used in such a manner and with this unique design to accomplish this. . . . The third manner in which the service provider may pay bills is by a check written on the service provider's account. A consolidated check may be written if many customers have asked the service provider to pay the same merchant. Under this method of payment the service provider assumes some risk since the service provider writes the check on its own account. The service provider is later reimbursed by the (consumer's) banking institution.").

Ex. 1001 at 5:35-64.

96. The '524 Patent explains that the EBP system will create a paper instrument printed using an MICR code that allows it to pass through the banking system. Ex. 1001 at 4:45-48. The term "MICR" is an acronym in the field of financial payment processing that stands for magnetic ink character recognition. See Ex. 2022 at 1802. This is done using a printer that can generate an MICR encoded check draft. As the ‘524 patent explains:

> To create a draft that will pass through the banking system, it must be specially inked. This may be accomplished by a printer which puts a micr code on drafts, like standard personal checks.

Ex. 1001 at 4:45-48 (emphasis added).

97. The ‘524 patent provides an example of a device that creates MICR-encoded checks. For example, it explains that “an IBM Laser Printer attached to a micr post printer 48 may be used by the service provider to send drafts 76 or consolidated checks 78 to merchants." Ex. 1001 at 4:63-65 (emphasis added). Figures 5 and 6 also identify a "TROY POST PROCESSOR" as an example of a "micr post printer 48." Ex. 1001 at Figs. 5 and 6 (element 48).

98. MICR printing is almost universally associated with automated banking applications and payment systems. See Ex. 2022 at 1802 ("MAGNETIC INK CHARACTER RECOGNITION (MICR). Developed primarily as the common machine language for bank check handling, the early work on this system dates back to the early 1950s, when the American Bankers Association commenced writing specifications for a suitable system to be used with the then rapidly developing electronic business machines. The system is used by nearly all banking institutions."). A person of ordinary skill in the art would have understood that a MICR printer would not be used, and would be unnecessary, in a general computing application.

99. The EBP systems thus include specialized components that will act on the positive output of processing of each payment request initiated by the user – either a communications interface that initiates an EFT transaction over a payment

network or a device/printer that will generate an MICR encoded paper check. Both are integral and necessary components of the EBP system being described in the '524 patent.

X. ANALYSIS OF THE BOARD'S FINDINGS

100. I understand that in a covered business method proceeding, claims are to be given their broadest reasonable interpretation in view of the specification.

101. I also understand that, where a patent applicant explicitly defines a term to mean something in the patent disclosure, that definition should be used when evaluating the claims. This type of definition can be informal or formal as long as a person of ordinary skill would understand that the term when it is used in the patent or the claims has a particular intended meaning.

102. I understand that if no explicit definition is provided for a term in the patent specification, the claim terms must be given their plain meaning unless that would be plainly inconsistent with how the term is being used in the claim or the patent specification.

103. I also understand that the standards for claim construction used in the Patent Office are different than those used in district court proceedings. The main difference, as I understand it, is that in this proceeding, the claims are to be read as broad as is reasonable based on the specification. I understand that this may cause the claims to cover certain things that a court might find are not within the scope of

the claims in its proceeding, but these meanings must not conflict with the guidance in the specification.

104. I have read the Decision instituting a trial in this proceeding (Paper No. 16). For the reasons that follow, I believe the Board has interpreted a number of the terms in the claims of the ‘524 patent in a way that is not compatible with how the ‘524 patent drawings and specification are describing these components and steps.

A. "Payment service provider," “payment service provider computer,” and "processor"

105. The terms "payment service provider" and "payment service provider computer" appear in claim 1 of the '524 patent and in some of the claims dependent on claim 1. Claim 1 is defining a computerized process that is performed using the payment service provider computer. The same payment service provider computer is also identified in claim 11 as being part of the system defined by that claim – it is the “processor” listed in Claim 11 that performs actions in response to the payment request. The payment service provider computer is also listed in claim 21. It is at least the “means for selecting…” and "means for directing a payment…" parts of that claim.

106. Initially, I note that the Board, in its technical analysis, stated:

> In claim 1, the payment service provider receives a request to make a payment, selects a form of crediting the payee, and directs the

> payment accordingly. The specification identifies the payment service provider as an entity with the capability to practice the invention. Ex. 1001, col. 2, ll. 25-27. The payment service provider computer is the computer used by the payment service provider that functions to perform these actions. There is no particular structure recited in the claim for the payment service provider computer or any indication of intent to limit the claim to an embodiment described in the specification.
>
> Dec. at 6-7.

107. This statement is a bit confusing, as it suggests that the payment service provider itself performs the actions listed in the claims, but then the Board says the computer performs those actions. I believe the latter point is correct based on the claim language and the description of the invention in the '524 patent – the programmed computer is performing the steps.

108. The Board suggests that "there is no particular structure recited in the claim for the payment service provider computer or any indication of intent to limit the claim to an embodiment described in the specification." Dec. at 6-7. I do not believe this is an accurate conclusion to draw. For example, the only programmed computer that is labeled a "payment service provider computer" in the specification is a programmed computer that performs the steps that are listed in the claims, particularly making payment form determinations and directing payment. I believe a person of ordinary skill would have interpreted "payment

service provider computer" as used in the claims to mean the payment service provider computer being discussed in the specification. I note, of course, that the payment service provider computer in claims 1 and 11 (the "processor") only has to carry out the functions needed to perform the steps listed in the claims.

109. Also, in each of claims 1, 11 and 21, the payment service provider computer is required to functionally interact with other components of the EBP process or system that is being defined by the claim. For example, each claim requires the payment service provider computer to use payment request data to select the form for payment of that particular payment request, and to direct the payment of the payment request.

110. The Board in its Decision stated that a "payment service provider computer" was "a computer that performs the functions recited in the claims." Decision at 7. It also used the same approach to define what a "processor" is in claim 11 – it states that the processor is "a device configured to carry out the functions recited in claim 11." Decision at 9. The Board also found the "means for selecting" and "means for directing a payment" components of claim 21 were the payment service provider computer component 46 that is also part of the method and system of claims 1 and 11, respectively. Decision at 10-11.

111. The Board appeared to not appreciate the functional interdependence of the first step and the second and third steps, which the payment service provider

computer performs. As I explain below, the first step in each claim captures data representing a payment request that is then used in the second step to perform a form of payment selection, which, in turn, is used to direct a payment. Thus, while I agree with the Board that the payment service provider computer performs the functions as required by the claims, I do not believe the Board appreciated what is necessary to enable the payment service provider computer to actually do that.

112. The Board also did not appear to appreciate that the steps listed in claims 1, 11 and 21 are being performed without human intervention – they are the steps being performed by the payment service provider computer and/or the front end processor 40. First, the preamble of claim 1 recites that this is a "computer-implemented method." Ex. 1001 at 7:51-52. The first step of claim 1—" receiving, at a payment service provider, a request to pay a payee on behalf of a payer"—is a data capture step performed by the front end processor that receives payment instruction input data that is then used in the second and third steps of claim 1. Ex. 1001 at 7:53-54; see § XI.A; see also § IX.C.1, IX.C.2, IX.C.3. In the second and third steps, the received data is evaluated, and the payment service provider computer determines the form of payment and initiates payment. Ex. 1001 at 7:55-67; see § XI.A; see also § IX.C.1, IX.C.2, IX.C.3. Each of the computers is able to do that because it runs code that causes it to conduct the

necessary data capture, validation, evaluation and payment steps referred to in claims 1, 11 and 21.

113. As I explained above, the ‘524 patent describes a particular EBP system and how the components of that system function and relate to each other. *See* §§ IX.B and IX.C above. The EBP system described in the ‘524 patent is a highly automated system that receives payment instruction data, uses that data to determine the appropriate manner of making that payment, and then initiates the payment via either an EFT transaction or by creating a paper check or draft, all without human involvement after the payment instructions have been specified. §§ IX.B and IX.C above.

114. Claim 1 identifies key operations performed by the payment service provider computer. Initially, I note that the language in the claim starts by stating that all of the steps listed in claim 1 require one or more computers to perform them – it says they are steps of a **computer-implemented method**. Ex. 1001 at 7:51-52. Claims 11 and 21 similarly define a “**system**” that includes the payment service provider computer as a key component, along with other components, such as the front end processor 40 and components that, with the payment service provider computer, will perform the payment direction steps. The components and functionality of the front end processor, of course, can be implemented using the payment service provider computer, which is a programmed computer.

115. The first step or element in all of the claims requires receipt of data (i.e., the payment request/instruction). For example, the first clause of claim 1 states "**receiving, at a payment service provider, a request to pay a payee on behalf of a payer**." In claim 11, the first element is an interface to a network component "configured **to receive a request to make a payment to a payee on behalf of a payer**…" In claim 21, it is the "means for receiving, at a payment service provider, a request to pay a payee on behalf of a payer…" that corresponds to this step.

116. The payment request referred to in claims 1, 11 and 21 is the payment instruction data that is shown in the '524 patent being generated by interactions over a network between a consumer telecommunication device (e.g., a consumer telephone **35** in Figure 5 or a personal computer **37** in Figure 6) and the front end processor **40**. See § IX.C.1 above; see also Ex. 1001 at 3:56-58; 4:51-5:8, Figs. 5, 6.

117. The '524 patent clearly shows that the front end processor 40 handles capture of the payment request data. The front end processor is the part of the EBP system described in the '524 patent as interacting with the consumer telecommunications unit (e.g., the consumer telephone 35 (via the voice response unit 41) or the personal computer 37 of the user). See § IX.C.1 above; see also Ex. 1001 at 3:56-58, 4:48-54, 5:4-8, Figs. 5, 6. The front end processor also is shown

in the ‘524 patent as being connected to one or more networks for the purpose of receiving payment instructions (e.g., via a voice response unit 41 to communicate with a consumer telephone 35 or over a data communications network to communicate with a personal computer 37). See § IX.C.1 above; see also Ex. 1001 at 3:56-58, 4:48-54, 5:4-8, Figs. 5, 6; see also Decision at 10 (Board observed that front end processor 40 is the “means for receiving” in claim 21).

118. I note that the ‘524 patent refers in various ways to a payment request (i.e., request to pay, payment instruction, etc.). These terms or phrases are used interchangeably throughout the ‘524 patent to refer to the same thing – data representing the parameters of a payment the user wishes to make (e.g., an identification of the amount, an identification of the payee/merchant, an identification of the date of the payment). See, e.g., Ex. 1001 at 2:10-17 (emphasis added) (“The method of the present invention includes: … inputting *payment instructions* by the consumer at a convenient location (e.g., at home), typically remote from the payment service provider, by using an input terminal such as a push-button telephone; applying the *payment instructions* to the consumer’s file…”); *id.* at 3:56-60 (emphasis added) ("Through a telecommunications terminal 34 (e.g., a push-button telephone or computer terminal), a consumer may initiate *payment of bills*. Through the terminal, the consumer may access his merchant list and input the *payment date and amount*."); *Id*. at 3:67-4:3 (emphasis added) (“On a

personal computer a consumer may enter merchant *payment amounts* and payment dates on the computer screen and then transmit this information to the service provider."); *Id*. at 6:44-46 (emphasis added) ("For this example, assume that a consumer has *five transactions* of varying amounts for which the consumer has asked the service provider *to arrange payment*. For simplicity, assume that the five payments are to be made on the same day. First, the consumer database 22 is edited to validate the status, banking institution, and pre-note flags associated with the consumer's *requested payments*.").

119. The payment request data received in step 1 is used in the next step or by the next component listed in claims 1, 11 and 21. This is evident from the claim language and the corresponding descriptions in the patent specification and drawings. For example, the second clause in claim 1 says that the **payment service provider computer** will select a form of payment based on certain data evaluations (i.e., comparison of **payer account number** to a merchant account scheme or a **payment amount in the request** to a merchant credit limit associated with the payee, or both). Claims 11 and 21 each include a similar processing sequence specifying that the payment service provider computer uses the received data. In order for the payment service provider computer to perform those steps, it must receive the payment request in the form of data it can evaluate.

120. The ‘524 patent shows that the front end processor **40** will initially evaluate the data, and forward it to the payment service provider computer 46 only if it passes an initial validation step. See Ex. 1001 at 3:56-63 ("Through a telecommunications terminal 34 (e.g., a push-button telephone or computer terminal), a consumer may initiate payment of bills. Through the terminal, the consumer may access his merchant list and input the payment date and amount. The system may be provided with a payment date editor 36 ***to insure that the date is valid and logical*** (i.e., payment dates already in the past or possibly a year or more into the future would be questioned)."). This is a logical requirement, as entry of erroneous data, such as a payment date in the past, would make it impossible for the computer 46 to initiate payment as required in the third element of each claim.

121. The received payment request data is then evaluated by the payment service provider computer to select the form of payment to be made to the payee specified in the payment request. Claim 1 clearly states that **the computer** will evaluate the payment request data – it states that the computer selects the proper form of payment “based on at least one of

> (i) comparing a **payer account number associated with the payer and the payee** to a merchant account scheme associated with the payee, or

(ii) comparing a **payment amount associated with the received request** to a merchant credit limit associated with the payee…"

Ex. 1001 at 7:59-64 (emphasis added)

122. The payment service provider computer thus uses data associated with the payment request to make determinations that result in a payment form selection. This is what the ‘524 patent specification and drawings also clearly describe. For example, the two comparisons in claims 1, 11 and 21 are described in flowchart 4A-4C at step 65 (testing a flag that resulted from comparing the account number with the merchant account scheme) and step 68 (comparing the payment amount with a merchant credit limit), and are discussed in the ‘524 patent specification at, e.g., Ex. 1001 at 4:27-28, 5:65-6:5, 6:50-52, 6:67-7:14, Figs. 4A-4C. Each uses data that is associated with a particular payment request.

123. The first of the two data evaluations listed in claims 1, 11 and 21 compares a **payer account number** associated with the payer and the payee **with a merchant account scheme** associated with the payee.

124. The payer account number may be transmitted with the payment request, which is illustrated in the ‘524 patent at various locations. For example, the ‘524 patent describes the process of establishing merchants to be paid and for making payments in Figure 2 and at column 3, lines 37-55 as follows:

In FIG. 2 the steps are shown for establishing merchants to be paid and the **making of a payment**. The **consumer must inform the**

> **service provider or processor** of a merchant's name, address, phone number and the **consumer's account number with the merchant 32**. The term "merchant" as used herein is intended to pertain to any person or entity that the consumer wishes to pay and is not to be limited to the usual merchants most consumers pay, such as the electric company, a home mortgage lender, etc. **This information is put into a merchant master file database 42 (MMF).** The consumer may also indicate whether the merchant is a variable or fixed merchant. A variable merchant is one in which the date and amount of payment will vary each month. A fixed merchant is one in which the date and amount remain the same each month. If the merchant is fixed, the frequency of payment may be other than monthly, such as weekly, quarterly, etc. The consumer should inform the service provider of the date on which the merchant is to be paid and the amount to be paid. (emphasis added)

125. The '524 patent shows that payment requests are added to the **consumer pay table**. For example, the '524 patent shows creation and updating of consumer pay table to contain payment requests that have been submitted by a payer. The '524 patent explains the process of creating and updating the consumer pay table at Ex. 1001 at 4:23-33 as follows:

> In FIG. 3 the steps are shown for the **creation of the consumer pay table 38** and making updates to it. The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network. The consumer's records may be edited 44 for validity by comparing to the merchants'

> account scheme. Any new **merchant records are added to the consumer's pay table**. New merchants are compared to the MMF 42 and appropriately **cross-referenced to the pay table to check if a merchant record** already exists. If no merchant record exists, a merchant record will be created on the MMF 42. (emphasis added)

The description of the consumer pay table in the ‘524 patent shows that the EBP system will use certain data elements in order to direct a payment. Some of these data elements are provided with a payment request (e.g., the payment amount, the payment date, certain merchant information). Other data, such as the customer’s account number with the merchant may be added earlier or obtained from another source. This is reflected in an example in the patent where the “consumer may access his merchant list and input the payment date and amount…” This is showing the merchant-specific information being provided to the system at a different point in time relative to the time the payment date and payment amount values are captured from the consumer. See, e.g., Ex. 1001 at 3:56-4:3 ("Through a telecommunications terminal 34 (e.g., a push-button telephone or computer terminal), a consumer may initiate payment of bills. Through the terminal, the consumer may access his merchant list and input the payment date and amount. . . . The merchant list can be visible on the consumer's personal computer screen. On a personal computer a consumer may enter merchant payment amounts and payment

dates on the computer screen and then transmit this information to the service provider.").

126. Payment requests are acted on during a payment processing cycle managed by the payment service provider computer. Ex. 1001 at 4:48-5:8, 5:9-7:43, Figs. 4A-4C. In each cycle, the payment service provider computer will retrieve payment request data from the consumer pay table 38. See, e.g., Ex. 1001 at Fig. 4A (step 38); Ex. 1001 at 5:9-25. As the '524 patent explains:

> Referring now to FIGS. 4 a, 4 b and 4 c, the payment process is shown. The payment process may be cycled 56 each day or more or less frequently. The first step is to establish when **payment items are to be processed**. This may be accomplished through a processing calendar 58. A processing calendar 58 may be built into the system. The calendar 58 enables the **system to consider each date**, including weekends and the Federal Reserve holidays. **Payments are released from the consumer pay table 38 using the due date**. Any bank date, payments, or payments within a period such as four business days may be released the same day. All future payment dates would be stored in the consumer pay table 38. **On-line inquiry may be made on the consumer pay table 38**. The service provider has on-line capability to make changes to the consumer payment upon request until the day the payment is released. A consumer's merchant change may also affect the consumer's payment on the pay table 38. Ex. 1001 at 5:9-25.

127. As I explained earlier, each of claims 1, 11 and 21 requires that the payment service provider computer make a “form of payment” determination on the basis of comparisons of certain sets of data values associated with a payment request. See § IX.C.2 above. One of these data values is the “payer account number associated with the payer and the payee.” Ex. 1001 at 4:23-29 ("In FIG. 3 the steps are shown for the creation of the consumer pay table 38 and making updates to it. The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network. The consumer's records may be edited 44 for validity by comparing to the merchants' account scheme. Any new merchant records are added to the consumer's pay table."). The payer account number value can be retrieved or accessed by the EBP system during the process of transmitting or capturing the payment request data (e.g., when the user is presented with a merchant list to select for making a payment to). Another data value is the “payment amount associated with the received request” which is stored in the consumer pay table as new orders for payment are stored there. See Ex. 1001 ("*Orders for payment go to the consumer pay table* to determine when the payment should be released and how it will be released for payment.") (emphasis added); Ex. 1001 at 3:58-60 ("Through the terminal, the consumer may access his merchant list and input the *payment date and amount*.") (emphasis added); Ex. 1001 at 3:67-4:3 ("On a personal computer a

consumer may enter merchant *payment amounts* and payment dates on the computer screen and then transmit this information to the service provider.") (emphasis added).

128. The payment request received in the first step of claim 1 and the first component in claims 11 and 21 thus is integrally linked to the computer processing steps performed in the second step/component of claims 1, 11 and 21. Specifically, certain data values (e.g., payment amount) associated with the received payment request data input by the payer with the payment request will dictate the form of payment determination made by the payment service provider computer.

129. Claims 1, 11 and 21 also make clear that the form of payment determination made by the payment service provider computer is based on results from one or both of the tests specified in the claims. As I explained above at ¶¶ 121-122, these are the comparisons using the "payer account number" data value and the "payment amount" data value in the payment request.

130. The '524 Patent also explains that the payment service provider computer will make other determinations incidental to the form of payment determination specified in the claims. For example, it explains:

> After the consumer's payment instructions are received an analysis is performed to determine the most cost effective and least risk mode of payment for the service provider to use. One preferred mode of

> payment is electronic funds transfer through the Federal Reserve Automated Clearing House (ACH) Network 47. If the service provider is not a bank, a bank intermediary may be needed to be connected to the Federal Reserve Network. Another payment mode is a charge to the consumer's credit card through the RPS Network 49. Additionally, an IBM Laser Printer attached to a micr post printer 48 may be used by the service provider to send drafts 76 or consolidated checks 78 to merchants. The main frame 46 has data storage means 50 and runs the FIF 24 and MMF 42 programs." Ex. 1001 at 4:54-5:2.

131. A person of ordinary skill in the art would understand that computer 46 is the "payment service provider computer" of claim 1. As noted above, claim 1 requires particular functionality in the payment service provider computer. In particular, the payment service provider computer "select[s] . . . a form for crediting the payee . . . ." and "direct[s] . . . a payment to the payee . . . ." Ex. 1001 at 7:55-67.

132. As I explain above, the '524 Patent describes computer 46 as having been specially programmed to perform a range of functions, including the data evaluations specified in claims 1, 11 and 21. For example, the '524 Patent shows that the computer selects a certain form for payment based on whether or not the account scheme reject flag is set. *See* § IX.C.2 above; Ex. 1001 at 4:23-43, 6:50-52, Figs. 4A-4C. This corresponds to the specially-programmed payment service provider computer's operation in claim 1 of "selecting . . . a form for crediting the

payee, wherein the selection is based on at least one of: (i) comparing a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee . . . ." Ex. 1001 at 7:55-61.

133. The '524 Patent also explains that the payment service provider computer is specially programmed to select a form for payment based on whether or not the payment amount is the same as or exceeds a merchant credit limit. *See* § IX.C.2 above; Ex. 1001 at 5:66-6:15, Figs. 4B, 4C. A person of ordinary skill would have understood that this corresponds to the specially-programmed payment service provider computer's operation in claim 1 of "selecting . . . a form for crediting the payee, wherein the selection is based on at least one of: . . . (ii) comparing a payment amount associated with the received request to a merchant credit limit associated with the payee . . . ." Ex. 1001 at 7:55-64.

134. The '524 Patent also describes that computer 46 in the EBP system—i.e., the payment service provider computer—initiates payments based on the selection of the form for payment. *See* §§ IX.C.2, IX.C.3 above; Ex. 1001 at 4:44-5:2, Figs. 4A-4C, 5, 6. As I describe above, the EBP system contains back-end functionalities and components used to initiate payments. *See* § IX.C.3 above. For example, the EBP system connects to payment networks. *See* § IX.C.3 above; Ex. 1001 at 4:54-5:2, Figs. 5, 6. The payment service provider computer is able to

initiate payments because it operates within an EBP system that has this back-end functionality for effectuating payments.

135. Based on this analysis, I believe the payment service provider computer in claim 1, 11 and 21 is a specially programmed computer that performs a number of particular functions within an EBP system, not just those that listed in the claim language. As I explain above, the payment service provider must retrieve data stored in databases, such as the consumer pay table, in order to evaluate the claimed comparisons. See ¶¶ 126-127; see also ¶¶ 122-125. And data necessary for the making a payment, including the payment amount and the payment date, must be retrieved by the payment service provider computer. See ¶¶ 126-128. A person of ordinary skill would understand that there are many complex functions the payment service provider computer must perform as part of the EBP system other than those listed explicitly in the claims in order to, for example, retrieve and manipulate data and communicate over networks.

136. I also believe the payment service provider computer performs interrelated functions in each of claims 1, 11 and 21. As I explained above, the initial action involves receiving payment request data that is used by the computer to carry out the determinations in the second clause of each claim. Then, the outcome of the determination just made by the computer determines the nature of

the action taken by the computer in the final clause – the directing payment step. Again, that final step is integrally linked to the preceding steps.

B. "Merchant account scheme associated with the payee"

137. The Board defined "account scheme" to mean "the format of account numbers assigned by the merchant to its customers for making payment" and "merchant" to mean "any person or entity that the consumer wishes to pay." Decision at 7. I understand that the Patent Owner proposed that the term "merchant account scheme associated with the payee" is "a scheme for a merchant's account numbers that is used within an EBP system." Preliminary Response at 12.

138. I believe the Board's interpretation is generally consistent with the interpretation proposed by the Patent Owner. In both, the merchant account scheme is defining a format for account information for a particular payee. The format is compared to the format of a "payer account number associated with the payer and the payee" as stated in the claim.

139. The comparison being called for in claims 1, 11 and 21 is to see if the format of the account number associated with the payment request matches the format of account numbers used by the merchant account scheme. The account number in the payment request will have been input by the payer into the EBP system. The outcome of the comparison of the format of the account number in

the payment request to the format of account numbers assigned by the merchant for making payments to it is used later to determine the format of payment (e.g., EFT or paper instrument).

140. The '524 Patent explains that the account number in a consumer request may be checked against the format required by the merchant account scheme by the system to ensure the account number is valid. As it states:

> In FIG. 3 the steps are shown for the creation of the consumer pay table 38 and making updates to it. The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network. **The consumer's records may be edited 44 for validity by comparing to the merchants' account scheme**.

Ex. 1001 at 4:23-28 (emphasis added).

141. The check against the merchant account scheme is also illustrated in Figure 4B, at decision box 65 is labeled "ACCOUNT SCHEME REJECT FLAG ?" As the '524 Patent explains:

> The **account numbers provided by the consumer for the merchants to be paid, are also checked to determine if they are valid**. Assuming the **merchant account numbers are valid**, the program begins with the first dollar analysis.

Ex. 1001 at 6:50-54 (emphasis added).

142. Based on this comparison step, if the account number associated with the payment request is determined not to be valid when compared to the merchant account scheme, the account scheme reject flag in the system would be set, resulting in a paper draft being created.

C. "Merchant credit limit associated with the payee" (Claims 1-21)

143. The Board defined "merchant credit limit associated with the payee" to mean "a maximum amount of credit a merchant extends to a payer." Decision at 8. .

144. The Board stated that "Claim 1 recites that the 'merchant credit limit' is a limit associated with the payee, but does not recite that it is stored in a particular system or manner.." Decision at 8.

145. I believe a person of ordinary skill in the art reading the '524 patent would conclude that the "merchant credit limit associated with the payee" must be a value associated with a payee, as the claims requires, that is used by the EBP system as part of the process for selecting a form for crediting the payee. Ex. 1001 at 7:62-64 (claim 1), 10:24-26 (claim 21) ("(ii) comparing a payment amount associated with the received request to **a merchant credit limit associated with the payee**"); Ex. 1001 at 8:58-60 (claim 11).

146. The '524 patent states that "[a]s a means of minimizing risk to the service provider, any transaction **may be compared** to the **MMF 42 credit limit**."

Ex. 1001 at 5:65-66 (emphasis added). MMF 42 is the merchant master file database. Ex. 1001 at 3:46-47. The patent then explains that "[t]he main frame 46 has data storage means 50 and runs the FIF 24 and **MMF 42** programs." Ex. 1001 at 4:65-67 (emphasis added).

147. The flowcharts showing the operations of the payment service provider computer during a payment cycle also show that the merchant credit limit is a data value being used by the EBP system. For example, a payment request is evaluated relative to the merchant credit limit at step 68. See Ex. 1001 at Fig 4C, step 68. The '524 illustrates how this test is applied:

> For example, if the check limit is greater than zero and the payment is $50.00 or less 66, the item may be released as electronic 74 or by service provider check 78. If the payment is greater than $50.00 **but less than or equal to the merchant credit limit 68, the payment may be released as electronic payment 74 or check 78**. Any payments within the merchant's credit limit 70 are added to the consumer's monthly ACH balance 72. This provides a monthly total billing day to billing day summary **of the consumer's electronic payment activity**. Any transaction may be compared **to the consumer's database credit limit parameters**. If a payment amount is greater than the consumer's credit limit, the item is released as a draft 76 which is written on the consumer's account. If the payment amount plus the total of electronic payments in a particular month is greater than the consumer's credit limit, the item is released as a draft

76. Items not released as paper are initiated as an ACH debit against the consumer's account.

Ex. 1001 at 5:65-6:16 (emphasis added).

148. The ‘524 patent also shows that the MMF 42 credit limit is the credit limit parameter stored in the merchant master file (“MMF”) database for the merchant. See, e.g., Ex. 1001 at 3:38-47, Fig. 2. (“In FIG. 2 the steps are shown for establishing merchants to be paid and the making of a payment. The consumer must inform the service provider or processor of a merchant's name, address, phone number and the consumer's account number with the merchant 32. The term 'merchant' as used herein is intended to pertain to any person or entity that the consumer wishes to pay and is not to be limited to the usual merchants most consumers pay, such as the electric company, a home mortgage lender, etc. **This information is put into a merchant master file database 42 (MMF)**.”) (emphasis added).

149. The merchant master file database (MMF) is used by the EBP system—it is a database of values associated with merchants being paid through the EBP system. The MMF maintains, among other information, a merchant credit limit. Ex. 1001 at 5:65-66. The '524 explains that different limits can be stored for different merchants. See Ex. 1001 at 7:4-5 ("Different dollar edits can be incorporated for different merchants."). A person of ordinary skill would have understood that data such as the merchant credit limit could be stored in a number

of ways to be used by the EBP system. As such, a person of ordinary skill would have understood that the "merchant credit limit associated with the payee" is a value that used by the EBP system and reflects a credit limit associated with a particular payee.

D. "Interface to a network" (Claims 11-20)

150. The Board stated that "Claim 11 sufficiently defines the interface as one configured to receive a request to make a payment to a payee on behalf of a payer." Decision at 9. The Board then criticized Patent Owner's proposed construction, stating: "Patent Owner's proposed construction does not identify specific 'front-end tasks' to which the term is purportedly limited." Decision at 9.

151. I understand that Patent Owner had proposed the term "interface to a network" to mean: "a specialized computer within an EBP system that performs a range of front-end tasks, including handling incoming communications and performing initial processing of payment requests originating from a personal computer of the consumer wishing to pay a bill." Preliminary Response at 15-16. Patent Owner's construction thus pointed to specific front end tasks shown in the '524 patent, such as handling incoming communications from a customer.

152. As I explained above, the front end functionality that handles interactions with consumer telecommunication devices is an essential part of the EBP system being described in the '524 patent. See § IX.C.1 above. This is the

part of the EBP system that captures the payment request data from a payer in a form that the system can act on and process. This is the functionality of the system that enables a customer to access the system to submit requests to pay bills electronically. *See* § IX.C.1 above.

153. Claim 11 requires "an interface to a network configured to receive a request to make a payment to a payee on behalf of a payer." Ex. 1001 at 8:51-52. As I discuss above, a person of ordinary skill in the art would understand that the "interface" is the component of the EBP system that connects, on the front end, to a network through which it interacts with consumer telecommunication devices that are used by consumers to submit payment requests. *See* § IX.C.1 above. This is depicted clearly in Figures 2, 3, 5 and 6.

154. For example, Figure 3 (below) shows the interactions of the consumer telecommunication device 34 with the front end processor 40:

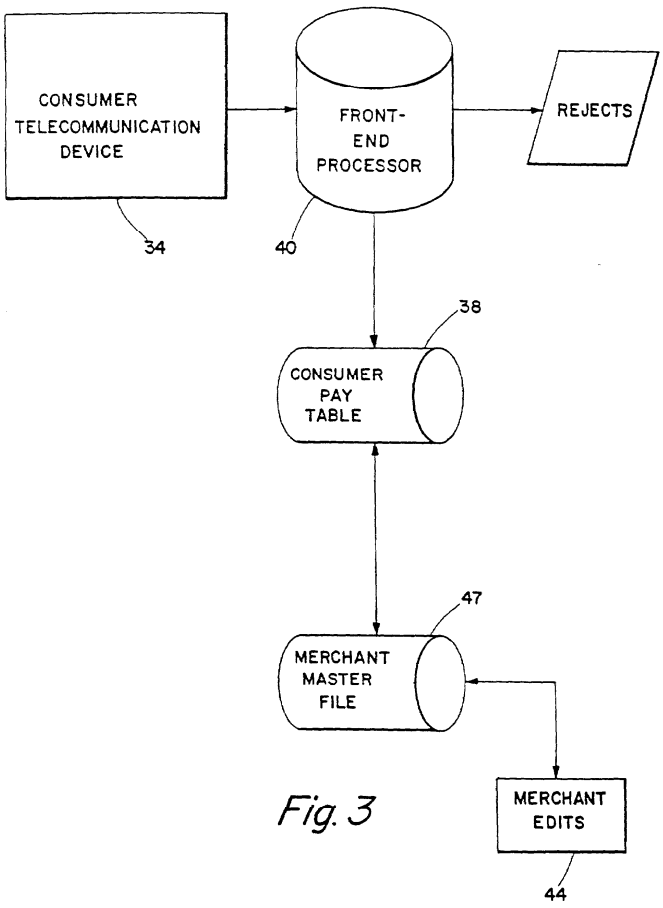


Fig. 3

155. The '524 Patent also clearly explains that the front end processor 40 handles this functional role of receiving payment request data that has been transmitted to the EBP system over a communications network. As it states:

> The consumer's files may be received at the service provider on a front end processor 40 that interfaces with the telecommunications network." Ex. 1001 at 4:24-27 (emphasis added).

156. The '524 Patent also explains that the front end processor is a computer that has been programmed to interact with the consumer telecommunication device over different types of networks. See, e.g., Ex. 1001 at

4:48-54.("For example, as shown in FIG. 5, the front end processor 40 may be a DEC VAX which is connected to an IBM main frame 46 Model 4381. Consumers **may call by telephone 35**, a number that passes through the private bank exchange (PBX) 39 **and contacts a voice response unit 41 in association with the front end processor 40**."); Ex. 1001 at 5:4-8 ("FIG. 6 illustrates a similar arrangement for use when the consumer is using a personal computer 37 to instruct the service provider. The **personal computer may access the front end processor 40 through the standard X.25 Network 43**.") Figures 5 and 6 illustrate configurations of the front end processor directly or indirectly connected to (i.e., being an interface to) telecommunications networks—telephone and data networks, respectively. Figures 2 and 3 together with the description in the specification also illustrate the front end processor being connected to a network, such as a telecommunications network, in order to communicate with the consumer telecommunication device shown in the figures. Ex. 1001 at 3:38-58 ("In FIG. 2 the steps are shown for establishing merchants to be paid and the making of a payment. . . . Through a telecommunications terminal 34 (e.g., a push-button telephone or computer terminal), a consumer may initiate payment of bills."); Ex. 1001 at 4:23-27 ("In FIG. 3 the steps are shown for the creation of the consumer pay table 38 and making updates to it. The consumer's files may be received at the

service provider on a front end processor 40 that interfaces with the telecommunications network."); Ex. 1001 at Figs. 2, 3.

157. The '524 Patent's description of the EBP system makes it clear that particular front end functionality is required and that the front end processor is a specialized computer within the EBP system. Therefore, I agree with the Patent Owner's proposed construction of the "interface to a network" as "a specialized computer within an EBP system that performs a range of front-end tasks, including handling incoming communications and performing initial processing of payment requests originating from a personal computer of the consumer wishing to pay a bill." Furthermore, the EBP system could not operate without the front end functionality that handles interactions with consumer telecommunication devices. See § IX.C.1 above. The “interface” in claim 11 is therefore an integral part of the EBP system being described in the ‘524 patent, and is necessary to enable its operation as an automated bill payment system.

E. “Means for receiving, at a payment service provider, a request to pay a payee on behalf of a payer” (Claim 21)

158. I understand that this claim limitation is what is called a "means-plus-function" limitation. Decision at 9. I understand this type of limitation is used to identify a component of a system that performs a particular function, and that you have to look into the specification of the patent to find the structure that performs

that function. The Board determined that the corresponding structure is "processor 40." Decision at 10.

159. The function in the claim is receiving a payment request. A person of ordinary skill in the art would have understood that the structure disclosed in the specification for receiving a payment request is the part of the EBP system that handles front-end communications tasks, which as I explain above, is the front end processor 40. Therefore, I believe the Board identified the correct corresponding structure.

160. In addition, as I explain above in reference to "interface to a network" in claim 11, the front end processor described in the specification handles a number of communications tasks that are used to capture a payment request within the EBP system. *See* § X.D above. Specifically, the front end processor communicates over a network with a consumer telecommunications device to receive payment requests. *See* § X.D above; see also § IX.C.1 above.

161. A person of ordinary skill in the art would have understood that the structure corresponding to the means for receiving limitation of claim 21 is the same as the "interface to a network" in claim 11— components of the EBP system that handle the front-end communications tasks (*e.g.*, handling incoming communications and performing initial processing of payment requests originating

from a personal computer of the consumer wishing to pay a bill). *See* § X.D above.

F. "Means for selecting …" (Claim 21)

162. I understand that this claim limitation is also a "means-plus-function" limitation. I understand that the Board determined that the "means for selecting" is the "computer 46 and the algorithm set forth in the flow charts in Figures 4A-4C to the extent that the algorithm carries out the functions of (i) comparing the account number associated with the payer and the payee to a merchant account scheme associated with the payee, or (ii) comparing the payment amount associated with the received request to a merchant credit limit associated with the payee." Decision at 11.

163. I believe that a person of ordinary skill in the art would have understood that the flow charts in Figures 4A-4C, as well as the description in the specification, disclose the algorithm to be implemented in software on the computer to perform the functions of the "means for selecting" in claim 21.

164. The functions performed by the means for selecting are the same operations performed by the payment service provider computer in claim 1 and by the processor in claim 11: selecting a form for payment based on at least one of two comparisons. Ex. 1001 at 10:18-28.

165. A person of ordinary skill in the art would have understood that the structure corresponding to the means for selecting of claim 21 is the component of the EBP system that is the payment service provider computer of claim 1 or the processor of claim 11. *See* §§ X.A.

G. "Means for directing a payment to the payee in accordance with the selected form for crediting" (Claim 21)

166. I understand that this claim limitation is also a "means-plus-function" limitation. The functions performed by the means for directing a payment are the same operations performed by the payment service provider computer in claim 1 and by the processor in claim 11: directing a payment based on the selected form for payment. Ex. 1001 at 10:28-29. I understand that the Board determined that the "means for directing a payment to the payee in accordance with the selected form for crediting" corresponds to "computer 46, which runs the financial institution file program." Decision at 11.

167. I believe that a person of ordinary skill in the art would have understood that the structure corresponding to the means for directing a payment of claim 21 is the component of the EBP system that is the payment service provider computer of claim 1 or the processor of claim 11. *See* § X.A above. The '524 Patent describes that the payment service provider computer is specially programmed to operate with payment networks to effectuate payment via the selected payment form according to the software algorithms disclosed in the

specification. *See* Ex. 1001 at 4:48-5:2, 4:23-7:43, Figs. 4A-4C, Figs. 5, 6; § X.A above. The '524 Patent also describes that the payment service provider computer may be specially configured to operate with printers capable of producing checks that are recognizable by the banking system. *See* Ex. 1001 at 4:48-65, Figs. 5, 6; § IX.C.3 above. I also note that the Board specifically identified the "financial institution file program" in its construction. The '524 Patent explains that the financial institution file contains routing and other information associated with individual financial institutions that is used for making payment. Ex. 1001 at 3:10-22 ("This information may be edited against an internal financial institutions file (FIF) database 24 of the present invention. FIF 24 is a database of financial institutions' identification codes and account information for the consumer. This file edits the accuracy of the routing transit number and the bank account number. If the numbers do not correspond with the correct routing and bank numbers, they are rejected and the data entry is done again. FIF 24 in conjunction with the software of the present invention also updates the consumer database 22 for both electronic and paper draft routing and account information. The needed information may be obtained from each banking institution and each consumer."). The '524 Patent explains that the financial institution file program is only one of several components of the system with which the payment service provider computer may, but does not have to, interact with during the payment process. *See*

Ex. 1001 at 4:65-67 ("The main frame 46 has data storage means 50 and runs the FIF 24 and MMF 42 programs."); see § IX.C.2 above.

XI. ADDITIONAL OBSERVATIONS ON THE CLAIMS

A. Claim 1

168. Claim 1 defines a "computer-implemented method for directing a payment":

> A computer-implemented method for directing a payment, comprising:
>
> receiving, at a payment service provider, a request to pay a payee on behalf of a payer;
>
> selecting, by at least one payment service provider computer prior to a debiting of a financial account of the payer, a form for crediting the payee, wherein the selection is based on at least one of:
>
> (i) comparing a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee, or
>
> (ii) comparing a payment amount associated with the received request to a merchant credit limit associated with the payee; and
>
> directing, by the at least one payment service provider computer, a payment to the payee in accordance with the selected form for crediting.
>
> Ex. 1001 at 7:51-67.

169. Claim 1 expressly requires use of a "payment service provider computer." As I explain above, the payment service provider computer is a specially programmed computer operating within the electronic bill payment system of the '524 Patent that performs particular operations. *See* § X.A above; Ex. 1001 at Figs. 4A-4C, 5, 6, 4:23-7:43.

170. Claim 1 specifies that the payment service provider computer selects a form for crediting a payee based on certain determinations it makes. Ex. 1001 at 7:55-64. As I explain above, the payment service provider is specially programmed to determine what form of payment to make. *See* §§ IX.C.2, X.A above.

171. Claim 1 also specifies that the payment service provider computer directs a payment in accordance with the form that it is programmed to select based on the payment request received. I previously explained that the payment service provider computer effects payments based on the results of data evaluation steps it performs, that are also listed in claim 1. *See* §§ IX.C.2, X.A above.

172. A person of ordinary skill in the art would have understood that the payment service provider computer performs the steps listed in claim 1 within the EBP system being described in the ‘524 patent. As I explain above, an EBP system must have front-end and back-end functionalities to receive payment requests and then direct payments. *See* §§ IX.C.1, IX.C.2, IX.C.3 above.

173. The front-end communications interface allows a customer to access the EBP and submit a payment request, which is expressly required by claim 1: "receiving, at a payment service provider, a request to pay a payee on behalf of a payer." Ex. 1001 at 7:53-54; *see* Ex. 1001 at 3:56-58, 4:24-47, 4:48-54, 5:4-8, Figs. 5, 6; § IX.C.1.

174. The '524 Patent explains that "[t]he method of payment to the merchant may be either paper (draft or check) or electronic." Ex. 1001 at 5:26-27. Therefore, a person of ordinary skill in the art would understand that the claim language "directing . . . a payment" means that the system will direct payment in the form of an electronic payment or a paper instrument. The back-end communications interface of an EBP system provides the payment service provider computer access to payment networks to make electronic payments. *See* Ex. 1001 at 4:54-5:2, Figs. 5, 6; § IX.C.3 above. The EBP system can also effect payments by producing paper instruments (a paper check or draft) using special printers. *See* Ex. 1001 at 4:45-48, 4:63-65, Figs. 5, 6; § IX.C.3 above.

175. A person of ordinary skill in the art would have understood that the payment service provider computer identified in claim 1 is an integral part of the EBP system and is necessary to perform the steps listed in the claim.

176. A person of ordinary skill in the art would have also appreciated that the method of claim 1 performs a transformation. In particular, the payment

service provider takes an electronic payment request and transforms it into a particular form of payment. For example, the payment service provider computer, operating within the EBP system, makes payment via an electronic payment network or produces a physical check or draft. *See* Ex. 1001 at 4:44-5:2, 5:26-5:64, Figs. 5, 6; § X.A above.

B. Claim 11

177. Claim 11 defines a system that implements the method defined in claim 1 for operating an EBP system:

> A system, comprising:
>
> an interface to a network configured to receive a request to make a payment to a payee on behalf of a payer; and
>
> a processor configured (i) to select, prior to a debiting of a financial account of the payer, a form for crediting the payee based on at least one of
>
> (1) a comparison of a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee, or
>
> (2) a comparison of a payment amount associated with the received request to a merchant credit limit associated with the payee, and
>
> (ii) to direct issuance of a payment to the payee in accordance with the selected form for crediting.

Ex. 1001 at 8:50-62.

178. Claim 11 requires an "interface to a network" and a specially-configured "processor." As I explain above, the interface to the network in claim 11 allows a customer to access the EBP system to submit payment requests. *See* § X.D above. The processor is the payment service provider computer of claim 1. *See* § X.A above. The "system" of claim 11 is the EBP system being described in the ‘524 patent.

179. As explained above with respect to claim 1, the components listed in claim 11 operate within an EBP system. The EBP system provides, for example, access to payment networks or check-generating printers that the processor must have in order to effectuate payment. *See* Ex. 1001 at 4:44-5:2, 5:26-5:64, Figs. 5, 6; §§ IX.C.3, XI.A above.

180. As was the case for claim 1, the EBP system of claim 11 produces a physical transformation. In particular, the processor takes an electronic payment request received via the interface and transforms it into a particular form of payment. For example, the processor, operating within the EBP system, makes payment via an electronic payment network or produces a physical check or draft. *See* Ex. 1001 at 4:44-5:2, 5:26-5:64, Figs. 5, 6; § X.A above.

C. Claim 21

181. Claim 21 defines a particular system using means-plus-function limitations whose functions correspond to the method steps of claim 1:

A system comprising:

means for receiving, at a payment service provider, a request to pay a payee on behalf of a payer;

means for selecting, prior to a debiting of a financial account of the payer, a form for crediting the payee, wherein the selection is based on at least one of:

(i) comparing a payer account number associated with the payer and the payee to a merchant account scheme associated with the payee, or

(ii) comparing a payment amount associated with the received request to a merchant credit limit associated with the payee; and

means for directing a payment to the payee in accordance with the selected form for crediting.

Ex. 1001 at 10:14-28.

182. As I explain above, the limitations of claim 21 are means-plus-function limitations and the specification describes the particular structures that perform the recited functions. *See* §§ X.E, X.F, and X.G above.

183. The components listed in claim 21 —"means for receiving," "means for selecting," and "means for directing a payment"—are components that operate within an EBP system, as I explained is the case for claim 11. *See* §§ XI.B, X.E, X.F, and X.G above.

184. Also, as with claim 11, these components perform a physical transformation. In particular, the means for selecting and means for directing, which correspond to the payment service provider computer of claim 1 and the processor of claim 11, take a payment request received via means for receiving and transforms it into a particular form of payment. For example, these components, operating within the EBP system, make payment via an electronic payment network or produce a physical check or draft. *See* Ex. 1001 at 4:44-5:2, 5:26-5:64, Figs. 5, 6; § X.A above.

D. Dependent Claims 2-10 and 12-20

185. Claims 2-10 depend directly or indirectly from independent claim 1, and claims 12-20 depend directly or indirectly from independent claim 11. Aside from some minor differences in language, dependent claims 2-10 and 11-20 specify very similar limitations relative to their respective independent claims.

1. Claims 2 and 12

186. Claims 2 and 12 depend from claims 1 and 11, respectively, and specify that "*the form for crediting comprises at least one of (i) a check payable to the payee and written on an account of the payment service provider, (ii) an electronic credit, or (iii) a paper draft payable to the payee and written on an account of the payer*."

187. These claims specify that the EBP system selects particular forms of payment, and they recite the particular forms of payment that the '524 Patent describes and that are implicitly defined as the "form for crediting" in claims 1 and 11. *See* Ex. 1001 at 4:44-45 ("The service provider may pay merchants by a draft or check (paper) or by electronic funds transfer."); 5:26-27 ("The method of payment to the merchant may be either paper (draft or check) or electronic."); see also Ex. 1001 at 5:26-64. As I explain above, the form for payment is determined by the payment service provider computer based on payment request information captured at the EBP system from the consumer. See § IX.C.2 above. The Board actually noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above.

2. Claims 3 and 13

188. Claims 3 and 13 depend from claims 2 and 12, respectively, and specify that "*the selected form for crediting is a check written on an account of the payment service provider, and wherein the check is a consolidated check*."

189. Like claims 2 and 12, claims 3 and 13 also specify that the EBP system selects a particular form of payment—in this case, a consolidated check written on an account of the payment service provider. The '524 Patent explains:

> The third manner in which the service provider may pay bills is by a check written on the service provider's account. A consolidated check may be written if many customers have asked the service provider to pay the same merchant. Under this method of payment the service provider assumes some risk since the service provider writes the check on its own account. The service provider is later reimbursed by the (consumer's) banking institution.

Ex. 1001 at 5:57-64. See also, *e.g.*, Ex. 1001 at 4:23-43, 5:9-7:43, Figs. 4A-4C.

190. As I explain for claims 2 and 12, the Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above.

3. Claims 4 and 14

191. Claims 4 and 14, depend from claims 3 and 13, respectively. Claim 4 states that: "*the request is a first request and the payer is a first payer, and further comprising: receiving a second request to pay the payee on behalf of a second payer; and selecting, by the at least one payment service provider computer, a check written on an account of the payment service provider as the form for crediting the payee on behalf of the second payer; wherein the consolidated check combines payment of the first request and payment of the second request*." A similar limitation in claim 14 is written from the standpoint of a system claim.

192. Claims 4 and 14 specify that the EBP system selects a particular form of payment—a consolidated check as in claims 3 and 13—by evaluating two payment requests. The EBP system transforms payment requests from multiple users into a consolidated check sent to that payee. See, e.g., Ex. 1001 at 5:59-60 ("consolidated check may be written if **many customers** have asked the service provider to **pay the same merchant**.") (emphasis added). As I explain for claims 2-3 and 12-13, the Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above. This sequence of transactions—receiving another payment request, selecting a consolidated check as the form for payment, and combining the two payment amounts into the consolidated check—further confirm that steps of claims 1 and 11 are functionally interdependent, as I explain above. See ¶¶ 111-113. Claims 4 and 14 also highlight one of the benefits of the claimed EBP systems—their ability to handle multiple payment requests from many payers through automated processing.

4. Claims 5 and 15

193. Claims 5 and 15 depend from claims 3 and 13, respectively. Claim 5 specifies "*transmitting, by the at least one payment service provider computer, a*

remittance list associated with the consolidated check to the payee." Claim 15 is a similar phrase written from the standpoint of a system claim.

194. Claims 5 and 15 specify that the EBP system produces an additional physical transformation by capturing multiple requests and generating a remittance list associated with the consolidated check. A remittance list identifies the customers on whose behalf the payments are being made via the consolidated check. The Board stated:

> Claims 5 and 15 recite transmitting a remittance list associated with the consolidated check in claims 4 and 14, respectively. The remittance is merely an expedient associated with the consolidated check and does not render the claim any less abstract.

Decision at 19. I disagree with the Board's characterization of claims 5 and 15. As I explained above for claims 3 and 13, the consolidated check is a form of payment (§ III.C.3.a above), and the Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. Furthermore, the remittance list is another example of a physical transformation performed by this claim—it is a physical printed document. See Ex. 1001 at 6:21-23 ("For example, a merchant set up with a settlement code '01' results in a check and remittance list 78 being mailed to the merchant"). This further confirms that these claims are not abstract.

5. Claims 6 and 16

195. Claims 6 and 16 depend from claims 2 and 12, respectively, and specify that "*the electronic credit comprises at least one of (i) an Automated Clearing House (ACH) credit or (ii) a remittance processing system credit*."

196. ACH and RPS credits are forms of credits provided in two well-known and established electronic fund transfer networks. See Ex. 2016 at ¶¶ 67, 75-81. Claims 6 and 16 confirm that the EBP system has back-end components, which I describe above, that allow the system to initiate payments. See § IX.C.3 above. The Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above

6. Claims 7 and 17

197. Claims 7 and 17 depend from claims 2 and 12, respectively, and further specify that "*the selected form for crediting is a paper draft, and the paper draft comprises posting information for the payee*."

198. Like claims 2 and 12, claims 7 and 17 also specify that the EBP system selects a particular form of payment—in this case, a paper draft having posting information. As the '524 patent explains:

> When payment is made by draft, the service provider is not a contractual party to the transaction. The consumer's bank account codes are actually encoded onto the draft prepared by the service provider and act much like the consumer's personal check. The draft has been specially designed for this process. The draft is payable to either the service provider or the particular merchant. This allows the draft to be delivered to the merchant for payment and depositing, but allows the draft to be legally payable by the bank, with proper authorization. **Additionally, posting information for the merchant is contained on the body of the draft.**

Ex. 1001 at 5:35-46 (emphasis added).

199. As I explain for claims 2 and 12, the Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above.

7. Claims 8 and 18

200. Claims 8 and 18 depend from claims 1 and 11, respectively. Claim 8 specifies "*selecting the form for crediting the payee is further based at least in part on an examination of a settlement code associated with the payee*." The limitations of claim 18 are similar and written from the standpoint of a system claim.

201. As I explain above, the payment service provider computer determines the form for payment based on evaluations of various data, including

payment request information. In this case, the claims specify that the payment service provider computer uses additional data, which the ’524 patent explains:

> The consumer database may be reviewed for proper electronic funds transfer (EFT) routing. Payment to the merchant may be accomplished one of three ways, **depending on the merchant's settlement code**. **Various merchant's settlement codes may be established**. For example, a merchant set up with a settlement code “01” results in a check and remittance list 78 being mailed to the merchant. Merchants with a settlement code, such as “10” produce an ACH customer initiated entry (CIE). Merchants with a settlement code, such as, “13” produce a remittance processing system (RPS) credit.

Ex. 1001 at 6:17-26 (emphasis added).

202. The ’524 patent explains that the steps being addressed in claims 8 and 18 show that the payment service provider computer examines the settlement codes in the database used by the EBP system in the process of selecting a form for crediting the payee. For example, the ‘524 patent explains that a variety of data elements associated with each merchant are stored in databases maintained by the EBP system including the Financial Institution File (FIF) database 24 and the Merchant Master File (MMF) database 42. See, e.g., Ex. 1001 at 3:39-47 ("The consumer must inform the service provider or processor of a merchant's name, address, phone number and the consumer's account number with the merchant 32. The term "merchant" as used herein is intended to pertain to any person or entity

that the consumer wishes to pay and is not to be limited to the usual merchants most consumers pay, such as the electric company, a home mortgage lender, etc. This information is put into a merchant master file database 42 (MMF)."); Ex. 1001 at 3:10-22 ("This information may be edited against an internal financial institutions file (FIF) database 24 of the present invention. FIF 24 is a database of financial institutions' identification codes and account information for the consumer. This file edits the accuracy of the routing transit number and the bank account number. If the numbers do not correspond with the correct routing and bank numbers, they are rejected and the data entry is done again. FIF 24 in conjunction with the software of the present invention also updates the consumer database 22 for both electronic and paper draft routing and account information. The needed information may be obtained from each banking institution and each consumer."). The explanation in the ‘524 patent of merchant settlement codes and how they can be used is that one of the data values that can be associated with a merchant indicates the form of payment that the EBP system should use with that merchant. Ex. 1001 at 6:18-26. The Board stated that "Inspecting the code or account number and selecting the form of payment accordingly is itself an abstraction that does not render these dependent claims any less abstract than the independent claim from which they depend." Dec. at 19. I disagree because claims 8 and 18 specify logical operations that the payment service provider

computer is specially programmed to follow to select a form of payment based on certain data.

203. Claims 8 and 18 are thus addressing one particular option for configuring the EBP system described in the ‘524 patent.

8. Claims 9 and 19

204. Claims 9 and 19 depend from claims 1 and 11, respectively. Claim 9 specifies that the step of “*selecting the form for crediting*” in claim 1 includes the step of “*selecting, by the at least one payment service provider computer, an electronic credit as the form for crediting the payee if the payment amount is less than or equal to the merchant credit limit*.” Claim 19 is similar and written from the standpoint of a system claim.

205. Claims 9 and 19 define features of the EBP system that are identified in examples in the ‘524 patent. Specifically, the payment service provider computer will select an electronic credit as the form of crediting if the payment amount in the payment request is less than or equal to the merchant credit limit:

> If the payment is greater than $50.00 but less than or equal to the merchant credit limit 68, the payment may be released as electronic payment 74 or check 78.”

Ex. 1001 at 6:2-5. Figure 4C also depicts this step at decision box 68, which states “AMOUNT LESS THAN MERCHANT LIMIT ?”

206. The ‘524 patent thus explains that the payment service provider computer evaluates this comparison to make a payment form determination, as illustrated in the flowcharts in Figures 4A-4C, confirming that the payment service provider computer is specially programmed. The Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above. The limitations of claims 9 and 19 also demonstrate that the steps of claims 1 and 11 are functionally interdependent because it shows that the payment service provider computer must evaluate payment request data received in the first step to select a form for payment in the second step and then direct payment in the third step. See ¶¶ 111-113.

9. Claims 10 and 20

207. Claims 10 and 20 depend from claims 1 and 11, respectively. Claim 10 recites that the “*selecting the form for crediting*” of claim 1 includes “*comparing the payer account number associated with the payee to a merchant account scheme associated with the payee*” and “*selecting, by the at least one payment service provider computer, a paper draft as the form for crediting the payee if the payer account number with the payee fails to correspond to the*

merchant account scheme." Claim 20 is similar and written from the standpoint of a system claim.

208. Claims 10 and 20 correspond to examples shown in the '524 patent where payment by a paper draft will occur if a payer account number does not match a merchant account scheme. The '524 patent describes this in some detail in the specification and the figures.

209. For example, Figure 4B depicts a decision box 65 labeled "ACCOUNT SCHEME REJECT FLAG?" The '524 patent explains that this means that "[t]he consumer's records may be edited 44 for validity by comparing to the merchants' account scheme." Ex. 1001 at 4:27-28. This passage and Figures 4B-C are explaining that the ACCOUNT SCHEME REJECT FLAG is set if the payer account number does not correspond to the merchant account scheme, resulting in the selection of a paper draft by the payment service provider computer. *See* § IX.C.2 above. This demonstrates that the payment service provider computer is specially programmed to make a payment for determination. The Board noted that "a form of payment constitutes a physical element . . . ." Decision at 18. I agree that the form of payment is physical, and this further confirms my opinion above that the claims perform a physical transformation. See §§ XI.A, XI.B, XI.C above. The limitations of claims 10 and 20 also demonstrate that the steps of claims 1 and 11 are functionally interdependent because it shows

that the payment service provider computer evaluates data associated with the payment request data received on the front end to select a form for payment in the second step and then direct payment in the third step. See ¶¶ 111-113. The Board stated that "Inspecting the code or account number and selecting the form of payment accordingly is itself an abstraction that does not render these dependent claims any less abstract than the independent claim from which they depend." Dec. at 19. I disagree because the operations specified by claims 10 and 20 demonstrate that the payment service provider computer is specially programmed and performs a physical transformation, as I explain above.

XII. BOARD'S OBSERVATIONS ON TECHNOLOGICAL NATURE OF THE '524 INVENTION

210. In my review of the Board's Decision, I saw that the Board concluded that the EBP system being described in the '524 patent "does not solve a technical problem using a technical solution." I do not believe this accurately describes the EBP system that is being described by the '524 patent.

211. The Board stated as follows:

> Further, the claimed subject matter does not solve a technical problem using a technical solution. For example, claim 1 recites receiving the request for payment to a payee on behalf of the payer, and selecting the form for crediting the payee by comparing the payer account number associated with the payer and the payee to a merchant account scheme or comparing the payment amount to the merchant credit limit

> associated with the payee. According to claim 1, **the service provider** then directs payment to the payee in accordance with the selected form for crediting. Claim 1 recites a method for performing a financial transaction that does not provide a technical solution to a technical problem. Claim 1 is not drawn to an improvement in the technical aspects of financial transaction processing equipment, systems, or methods used to implement such systems.
>
> Decision at 12.

212. I disagree with this characterization of claim 1 and the Board's conclusions for several reasons.

213. First, the steps listed in claim 1 are clearly being performed by a *computer system*. Claim 1 says that they are. For example, steps two and three in claim 1 include the phrase "by [the] at least one ***payment service provider computer***…" The receiving step also must occur through use of a computer – the payment request is received in a form of data that is then used by the computer in the second and third steps to select the form of payment and direct the payment specified by the payment request. See §§ XI.A, IX.C.1 above.

214. Second, the Board incorrectly stated that claim 1 states that the "**service provider** then directs payment to the payee in accordance with the selected form for crediting." Decision at 12. . Earlier in the Decision, the Board similarly incorrectly stated: "In claim 1, the payment service provider receives a request to make a payment, selects a form of crediting the payee, and directs the payment

accordingly." Decision at 6. The second and third clauses in claim 1 say that it is the “payment service provider computer" that selects the form for crediting and directs payment. See Ex. 1001 at 7:55-67 (emphasis added) (“selecting, **by at least one payment service provider computer** prior to a debiting of a financial account of the payer, a form for crediting the payee . . . and directing, **by the at least one payment service provider computer**, a payment to the payee in accordance with the selected form for crediting.”

215. Third, the Board’s reading cannot be reconciled with how the EBP system functions as it is described in the ‘524 patent. For example, the ‘524 patent makes it clear that the selection of form of payment by the payment service provider computer is directly implemented by the computer, then causing either an EFT transaction or creation of a paper instrument (check or draft). See Ex. 1001 at 4:54-5:8, 5:9-7:43, Figs. 4A-4C, 5, 6; §§ IX.C.2, IX.C.3, X.A above.

216. The Board’s statements also are not consistent with how I believe a person of ordinary skill would have evaluated the invention as it is described in the ‘524 patent. The ‘524 patent is absolutely clear that the invention is a particular computer-based system that works on the basis of data representing payment requests, and then, without requiring additional human guidance or interaction, automatically selects the form of payment and directs payment. It is an automated

system that would make no sense to try to implement outside of an integrated computer environment.

217. I also disagree that claim 1 does not address a technical problem. The ‘524 patent itself identifies the technical problem – how to establish systems that enable a consumer to easily pay anyone. Ex. 1001 at 1:62-65 ("Therefore, a ***need exists for a single source bill payment system*** that would be available to any consumer, regardless of where the consumer banks and regardless of what bills are to be paid.") The ‘524 patent explains that the invention solves this problem because it “is **a computerized system for paying bills** whereby a consumer may contact a single source from a remote location **via a telephone, a computer terminal with modem, or other electronic means**, to direct the single source to pay the consumer's bills instead of the consumer writing checks for each bill.” Ex. 1001 at 1:21-26.

218. A person of ordinary skill in the art would have understood that there were serious technical impediments that had to be solved to develop a system to automatically and reliably perform payment processing, enabling a consumer, through a single point of entry, to make payments to any payee. Examples of these technical problems are identified in the patent. For example, the ‘524 patent explains that banks could not viably provide electronic payments on behalf of their clients outside their own banking systems. See, e.g., Ex. 1001 at 1:53-62 (“Some

banks have attempted to provide a service for making payment to a few billing entities to which the banks have established relations. The banks that do provide that type of service are limited in that they provide the service only for their own customers since the banks have not developed a system for accurately acquiring and processing account numbers and balances of customers of all other banking institutions and coordinating that information with bill payment. Furthermore, banks have not developed a system for managing the risks involved in providing such a service and the inherent complexities of providing the service to consumers other than the bank's own customers.”). These are **technical** problems that had to be solved to enable the automated electronic payment system being described in the ‘524 patent.

219. The inventors had to solve these technical problems to make a viable electronic payment system. For example, the invention is configured to electronically communicate on the front-end with consumers who wish to pay bills and on the back-end with payment networks over which payment is made. *See* §§ IX.C.1, IX.C.3 above. The particular operations performed by the payment service provider computer are technical operations requiring hardware and special programming. *See* § IX.C.2 above.

220. The Board also stated:

> Although Patent Owner did not point to specific support in the specification for adding 'merchant account scheme' to the claims and the term did not appear in the priority application (*id.*), Petitioner acknowledges that 'merchant account scheme' is used in the specification at column 4, lines 23-33 in the context of creating and updating a consumer pay table. Pet. 25." Decision at 13.

221. I believe this was another simple error. The term “merchant account scheme” does appear in the priority application. The passage appearing at column 4, lines 23-33 of the '524 Patent is found on page 9 of the priority application. Ex. 2013 at 32.

222. The Board stated:

> Claims 1, 11, and 21 each recite receiving a request to pay a payee and selecting a form of crediting the payee based on comparing the payer account number associated with the payer and the payee to the merchant account scheme associated with the payee.

Decision at 14. This is not completely accurate as claims 1, 11, and 21 each recite that the computer selects the form for crediting "based on at least one of . . . ." two comparisons. Ex. 1001 at 7:51-67, 8:50-62, 10:14-28. The comparison recited by the Board is one of the two comparisons recited in the claims.

223. I also note that the Board referred to the consumer as the "payee." Decision at 15 ("the consumer, i.e., the payee . . . ."). I believe this was another simple error as the '524 Patent refers to the consumer as the party that is making a

payment to a merchant, or payee. Ex. 1001 at 3:38-46 ("In FIG. 2 the steps are shown for establishing merchants to be paid and the making of a payment. The consumer must inform the service provider or processor of a merchant's name, address, phone number and the consumer's account number with the merchant 32. The term 'merchant' as used herein is intended to pertain to any person or entity that the consumer wishes to pay and is not to be limited to the usual merchants most consumers pay, such as the electric company, a home mortgage lender, etc.").

224. I also do not agree with the Board's assessment of the computer systems being described in the '524 patent. The Board stated:

> Mr. Cook's testimony that implementing claim 1 requires unique software implemented on a machine capable of processing corresponding object code does not persuade us that claim 1 recites anything more than a typical computer-aided process to implement an abstract concept. Claim 1 is silent as to how the computer has any significance to performing the method and, therefore, does not recite patent eligible subject matter." Decision at 17.

225. As I explained above, claim 1 is clearly not silent as to how the computer has any significance in performing the method. See § XI.A above. The payment service provider computer in claim 1 is a specially programmed computer that must process received payment request data, evaluate it according to a particular algorithm, and then execute payment instructions based on that evaluation. That is not "a typical computer-aided process." In addition, those

functionalities listed in claim 1 are not optional – they are integral to the system and how it works.

226. I also believe the Board misunderstood the implications of the system claims defined in claims 11 and 21. The Board said the following regarding these claims:

> System claims 11 and 21 also **are silent as to how the computer has any significance to performing the method**. Claim 11 recites a processor configured to carry out the recited functions. Claim 21, written in means plus function terms, recites a special purpose computer. *See Aristocrat Techs.*, 521 F.3d at 1333-34. However, each of the configured processor in claim 11 and the special purpose computer in claim 21 is limited to a machine that is programmed to perform the functions recited in the claim. In each claim the functions are comparing account numbers or payment amounts and directing payment accordingly. **A computer used for its most basic function, the performance of repetitive calculations, does not impose a meaningful claim limitation**. *Bancorp Servs., L.L.C. v. Sun Life Assurance Co.*, 687 F.3d 1266, 1278-79 (Fed. Cir. 2012). As in the case of claim 1, we are not persuaded that system claims 11 and 21 include limitations in which a computer plays a significant part in implementing the abstract concept of comparing account numbers and amounts and directing payment accordingly."
>
> Decision at 17-18. (emphasis added)

227. I disagree that system claims 11 and 21 are silent as to how the computer has any significance. The claim language indicates which components perform which functions, and how those components of the system relate to each other. See §§ XI.B, XI.C above. For example, claim 11 explains that the system must have an interface to a network that is able to receive the payment request data that is used to make payment form determinations and direct payment. See § XI.B above. The processor component in claim 11 explains what the processor must be able to do, which must be implemented by computer programmers in software that performs the specified functions. See § XI.B above.

228. I also disagree that claims 11 and 21 are using a computer for "its most basic function, the performance of repetitive calculations . . . ." The ‘524 patent makes it clear that “performance of repetitive calculations” is not what the payment service provider computer is doing. The key operation being performed by that computer is management of a payment cycle. The payment cycle is not simply performing calculations. It is using context from the payment request to evaluate multiple criteria, and then, using a number of different data sets, making determinations that automatically route a request for a particular type of payment. The process relies on rules established by the system for each type of payment request, and this must be done accurately. See §§ IX.C.2, X.A above.

229. The Board also stated that “Although a form of payment constitutes a physical element, there is nothing in the particular form of payment that renders any of these claims any less abstract than the independent claim from which it depends." Decision at 18. The Board further stated: "Inspecting the code or account number and selecting the form of payment accordingly is itself an abstraction that does not render these dependent claims any less abstract than the independent claim from which they depend." Decision at 19.

230. I do not agree with these statements. The dependent claims in the ‘524 patent outline a number of very specific configurations of the EBP process and system that is defined in claims 1 and 11. These configurations make it clear to me that the system is a very tangible and useful system. In addition, the payment transactions that are being performed are real events – a payment request triggers a specific sequence of events, resulting in directing the payment that has been requested.

231. A person of ordinary skill in the art would have understood that the form of payment is a tangible thing because different components of the EBP system are required to effectuate different forms of payment. I therefore do not agree that the claimed method and systems are “abstractions.” They are very useful, practical systems and methods.

232. For the reasons presented above, it is my opinion that claims 1-21 of the ’524 patent cover patent eligible subject matter.

XIII. APPENDIX A: MATERIALS CONSIDERED

Exhibit #	Reference Name
1001	U.S. Patent No. 7,853,524
1008	Deposition Transcript of Kenneth Cook, taken April 12, 2013 in *CheckFree Corp. et al. v. Metavante Corp. et al.*, 3:12-cv-00015
1009	Exhibit 6 from April 12, 2013 Deposition of Kenneth Cook, *CheckFree Corp. et al. v. Metavante Corp. et al.*, 3:12-cv-00015
1010	Exhibit 7 from April 12, 2013 Deposition of Kenneth Cook, *CheckFree Corp. et al. v. Metavante Corp. et al.*, 3:12-cv-00015
1016	Original Specification for priority application of U.S. Patent Application No. 10/025,897 (U.S. Patent No. 7,853,524)
1018	Declaration of Dr. Michael I. Shamos
2001	Prosecution History of U.S. Patent No. 7,853,524
2002	Declaration of Elliott McEntee in Support of CheckFree's Opposition to Defendant's Renewed Motion for Summary Judgment under 35 U.S.C. § 101, Docket No. 192, *CheckFree v. Metavante*, 3:12-cv-00015-MMH-JBT (M.D. Fla. July 1, 2013)
2003	Declaration of Elliott McEntee in Support of CheckFree's Opposition to Defendant's Motion for Summary Judgment under 35 U.S.C. § 112, Docket No. 223, *CheckFree v. Metavante*, 3:12-cv-00015-MMH-JBT (M.D. Fla. Sept. 27, 2013)
2004	Declaration of Kenneth Cook in Support of CheckFree's Opposition to Defendant's Motion for Summary Judgment under 35 U.S.C. § 101, Docket No. 139, *CheckFree v. Metavante*, 3:12-cv-00015-MMH-JBT (M.D. Fla. Jan. 10, 2013)
2005	Walter Mossberg, "Personal Technology," Wall Street Journal (Oct. 31, 1991)
2006	Ann H. Spiotto, "Electronic Bill Payment and Presentment: A Primer," Federal Reserve Bank of Chicago Policy Studies, Emerging Payments Occasional Paper Series (EPS-2001-5) (Dec. 2001)
2007	Carrick Mollencamp, "Entrepreneur's Tough Sell: Pay Your Bills Online --- CheckFree Bought a Big Rival And Now Must Win Over Banks, Billers, Consumers," Wall Street Journal (Feb. 18, 2000)
2008	Rebecca Buckman, "Bills, Bills (Click), More Bills... A Race Is On for Best Paperless-Payment System," Wall Street Journal (Nov. 19, 1998)

Exhibit #	Reference Name
2009	Carrick Mollencamp, "CheckFree to Buy Rival TransPoint In a $1 Billion Stock-Swap Accord," Wall Street Journal (February 16, 2000)
2010	Chris Shipley, "CheckFree's Payment System," PC Computing 206-07 (Aug. 1991)
2011	Deposition Transcript of Dr. Michael Shamos (September 18, 2013), *CheckFree v. Metavante*, 3:12-cv-00015-MMH-JBT
2012	Declaration of Simon Nahnybida in Support of CheckFree's Opposition to Defendant's Motion for Summary Judgment under 35 U.S.C. § 112, Docket No. 224, *CheckFree v. Metavante*, 3:12-cv-00015-MMH-JBT (M.D. Fla. Sept. 27, 2013)
2013	U.S. Application No. 07/736,071, filed July 25, 1991
2014	U.S. Patent No. 7,296,004
2016	Declaration of Elliott McEntee
2020	U.S. Patent No. 7,996,311
2021	U.S. Patent No. 7,792,749
2022	Excerpt from Van Nostrand's Scientific Encyclopedia (6th Ed.) 1983, at 1802 (definition of "Magnetic Ink Character Recognition (MICR)")
2023	Excerpts from Electronics Engineers' Handbook (3rd Ed.) 1989, at 8-143 and 23-86.

XIV. APPENDIX B: LIST OF TESTIMONY

In the past four years I have testified as an expert witness by deposition or at trial in the following cases:

- ZapMedia Services, Inc., v. Apple Inc., United States District Court for the Eastern District of Texas, Marshall Division, No. 2:08cv104
- Sabre Inc. et. al., v. International Air Transport Association, et. al., Ontario Superior Court of Justice, No. 07-CL-006825
- Medtronic Sofamor Danek USA, Inc., et al., v. Nuvasive, Inc., United States District Court Southern District of California, No. 3:08-CV-1512 MMA (AJB)

- The Apple iPod iTunes Anti-Trust Litigation, United States District Court for the Northern District of California, San Jose Division, No. C 05-00037 JW (HRL)

- Affinity Labs of Texas, LLC v. Apple Inc., United States District Court for the Northern District of California, Oakland Division, No. CV 09-4436-CW

- Invesco Institutional (N.A.), Inc., v. Deutsche Investment Management Americas Inc., Supreme Court of the State of New York, County of New York, No. 650154/2007

- DVD Copy Control Association, Inc., a Delaware corporation, v. Kaleidescape, Inc., a Delaware corporation, Superior Court of the State of California, County of Santa Clara, No. 104 CV 031829

- In the Matter of Certain DC-DC Controllers and Products Containing Same, United States International Trade Commission, Washington D.C., Investigation No. 337-TA-698

- Bose Corporation, v. SDI Technologies, Inc., et. al., United States District Court for the District of Massachusetts, No. 09-cv-11439-PBS

- MobileMedia Ideas LLC, v. Apple Inc., United States District Court for the District of Delaware, No. 10-258-SLR

- American Broadcasting Companies, Inc., et. al., v. Aereo, Inc., and Wnet, et. al., v. Aereo, Inc., United States District Court, Southern District of New York, Nos. 15430 (AJN) and 1543 (AJN)

- Cardsoft, Inc. et. al., v. Verifone Systems, Inc., et. al., United States District Court for the Eastern District of Texas, Marshall Division, No. 2:08cv98

- SSL Services, LLC, v. Citrix Systems, Inc. et. al, United States District Court for the Eastern District of Texas, Marshall Division, No. 2:08-cv-158(TJW)

- Ancora Technologies Inc., v. Apple Inc., United States District Court for the Central District of California, No. 2:10-cv-10045-AG

- International Air Transport Association vs. Travelport Global Distribution System BV, ICC 17129/JHN/CFG

- VirnetX, Inc., v. Cisco Systems, Inc., et. al., United States District Court for the Eastern District of Texas, Tyler Division, No. 6:10-cv-417-LED
- In the Matter of Certain Electronic Devices with Graphics Data Processing Systems, Components Thereof and Associated Software, United States International Trade Commission, Washington, D.C., No. 337-TA-813
- Sightsound Technologies, LLC, v. Apple Inc., United States District Court for the Western District of Pennsylvania, No. 2:11-cv-01292-DWA
- In the Matter of Certain Devices with Secure Communication Capabilities, Components Thereof, and Products Containing the Same, United States International Trade Commission, Washington D.C., No. 337-TA-858
- Microunity Systems Engineering, Inc., v. Apple, Inc., et. al., United States District Court for the Eastern District of Texas, Marshall Division, No. 02:10-cv-91-LED-RP
- TAS Distributing Company, Inc., v. Cummins, Inc., United States District Court for the Central District of Illinois, Peoria Division, No. 07-cv-1141

For my work in connection with the analysis reflected in this report and for any time I spend testifying about that study and my opinions, Kelly Computing, Inc. is being compensated at a rate of $950 per hour and I am being reimbursed for my expenses.

XV. APPENDIX C: CV