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(54) **METHOD AND SYSTEM FOR PROCESSING FINANCIAL INSTRUMENT DEPOSITS PHYSICALLY REMOTE FROM A FINANCIAL INSTITUTION**

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(58) **Field of Classification Search** 705/40, 705/42, 43, 44, 45, 16, 17, 18; 235/379, 235/380, 381
See application file for complete search history.

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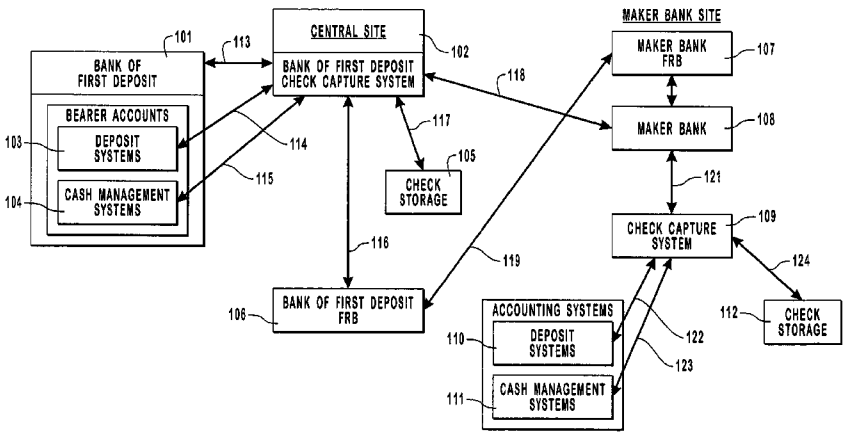
(57) **ABSTRACT**

A system that includes computer hardware, computer software, apparatus, and methodology that enables individuals, businesses, and all types of organizations (both for profit and non-profit) to capture and securely transmit check images (including, but not limited to, personal checks, business checks, travelers checks, money orders, merchant coupons, food coupons, line of credit checks, etc.), deposit information, and other information from remote locations (i.e., locations that could include the financial institution's remote locations, other financial institution's locations, businesses, private residences, etc.), for the purpose of having those checks credited to the depositing individual's or organization's bank account(s) and having the check images (and/or physical checks) entered into the bank check clearing channels for ultimate delivery to the maker bank for payment out of the maker's account.

55 Claims, 15 Drawing Sheets



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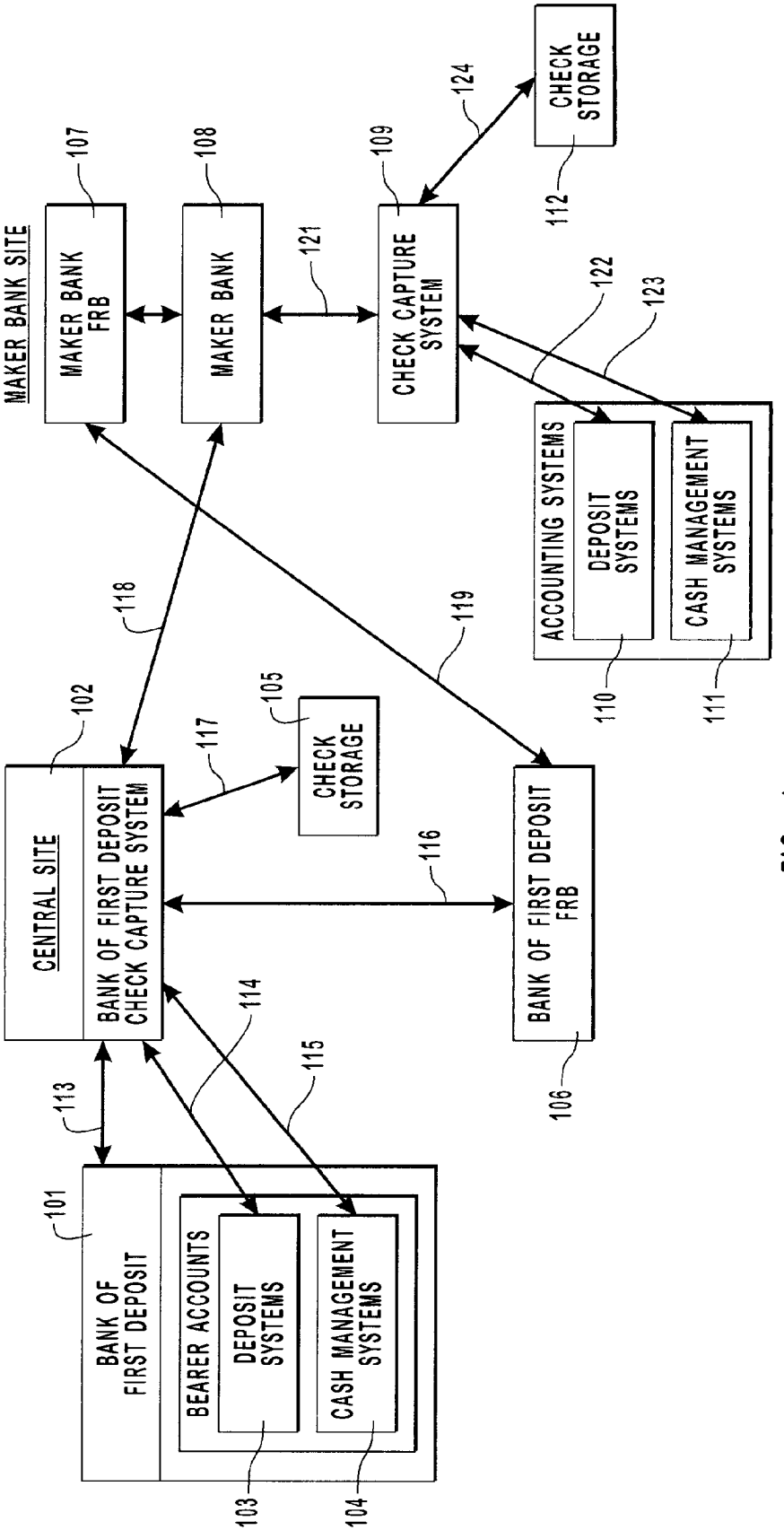
MAKER BANK SITE
MAKER BANK FRB
MAKER BANK
CHECK CAPTURE SYSTEM
CHECK STORAGE
ACCOUNTING SYSTEMS
DEPOSIT SYSTEMS
CASH MANAGEMENT SYSTEMS
CENTRAL SITE
BANK OF FIRST DEPOSIT CHECK CAPTURE SYSTEM
CHECK STORAGE
BANK OF FIRST DEPOSIT FRB
BANK OF FIRST DEPOSIT
BEARER ACCOUNTS
DEPOSIT SYSTEMS
CASH MANAGEMENT SYSTEMS
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
121
122
123
124

FIG. 1

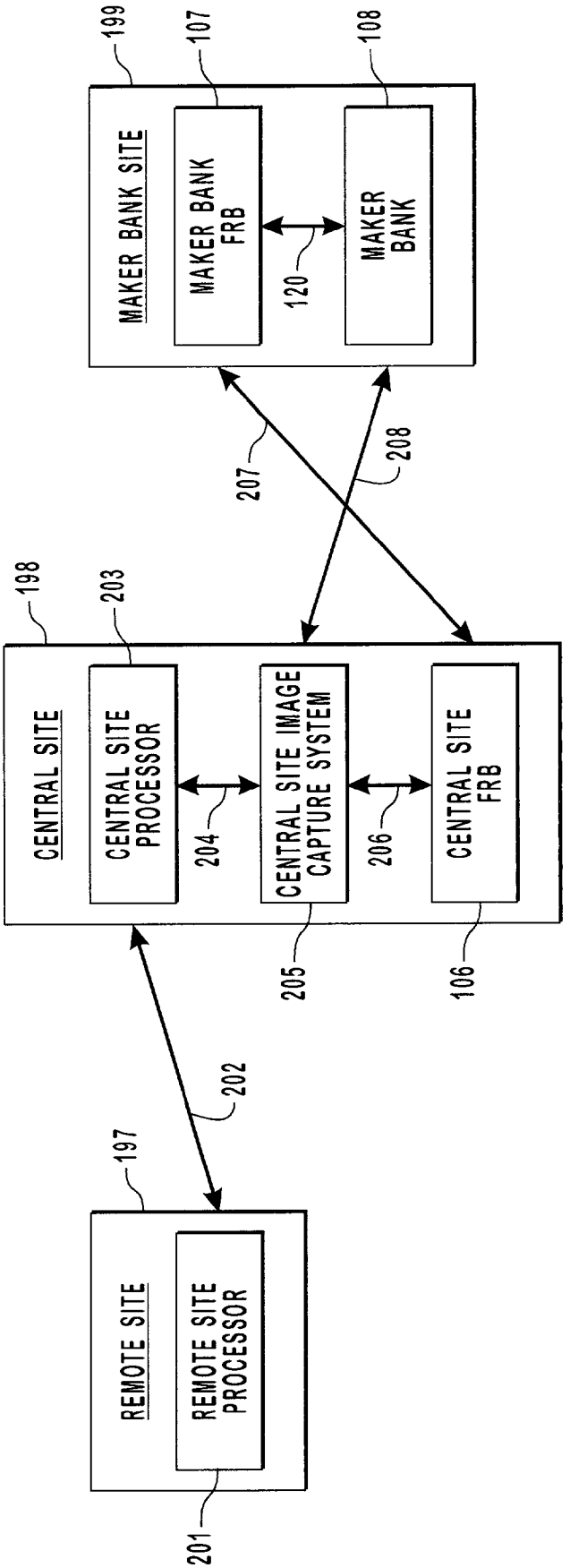
199
107
108
MAKER BANK SITE
MAKER BANK FRB
120
MAKER BANK
207
208
198
203
CENTRAL SITE
CENTRAL SITE PROCESSOR
204
CENTRAL SITE IMAGE CAPTURE SYSTEM
206
CENTRAL SITE FRB
205
106
202
197
REMOTE SITE
REMOTE SITE PROCESSOR
201

FIG. 2

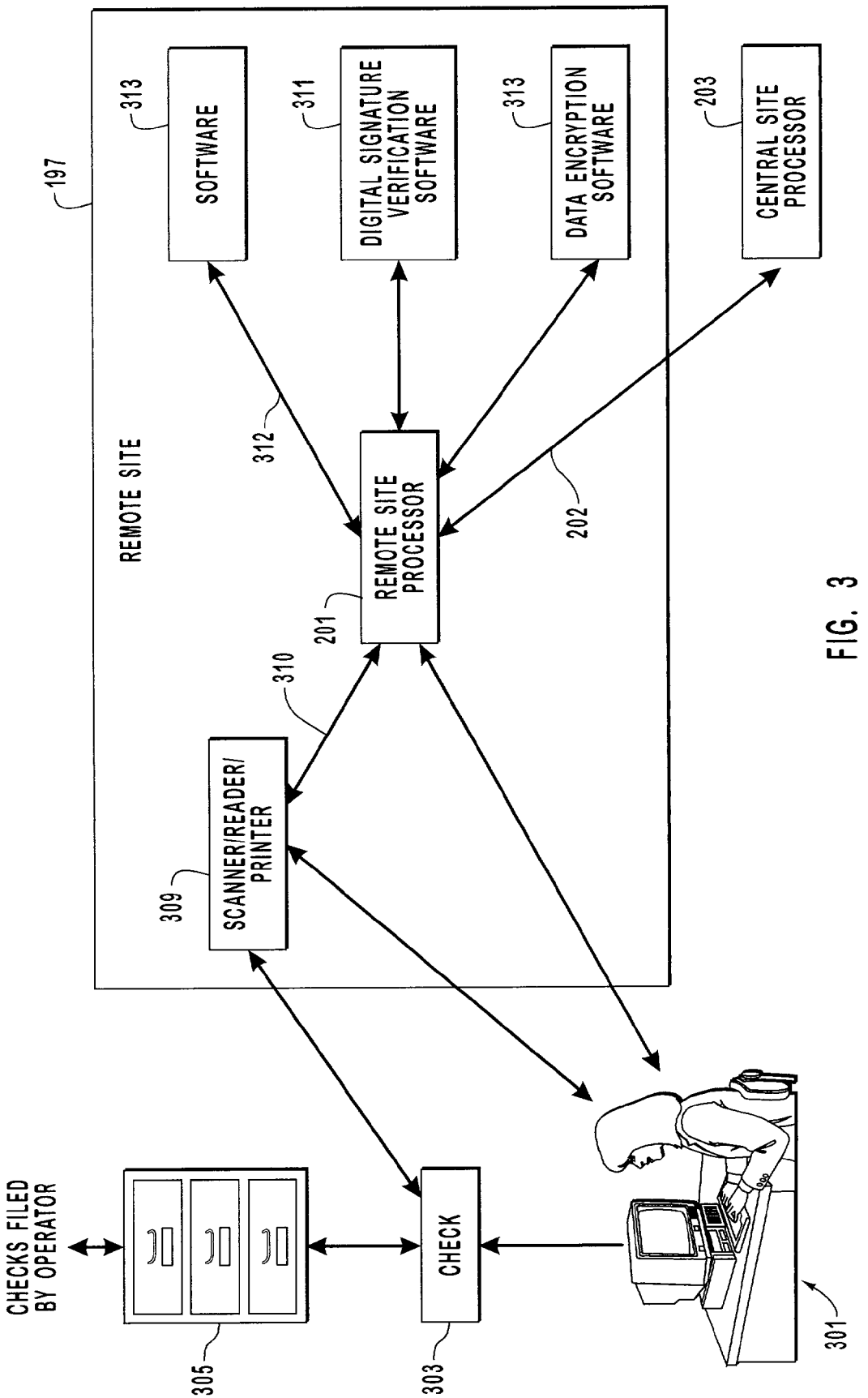
197
REMOTE SITE
313
SOFTWARE
311
DIGITAL SIGNATURE VERIFICATION SOFTWARE
313
DATA ENCRYPTION SOFTWARE
203
CENTRAL SITE PROCESSOR
312
202
REMOTE SITE PROCESSOR
201
310
SCANNER/READER/ PRINTER
309
CHECKS FILED BY OPERATOR
CHECK
305
303
301

FIG. 3

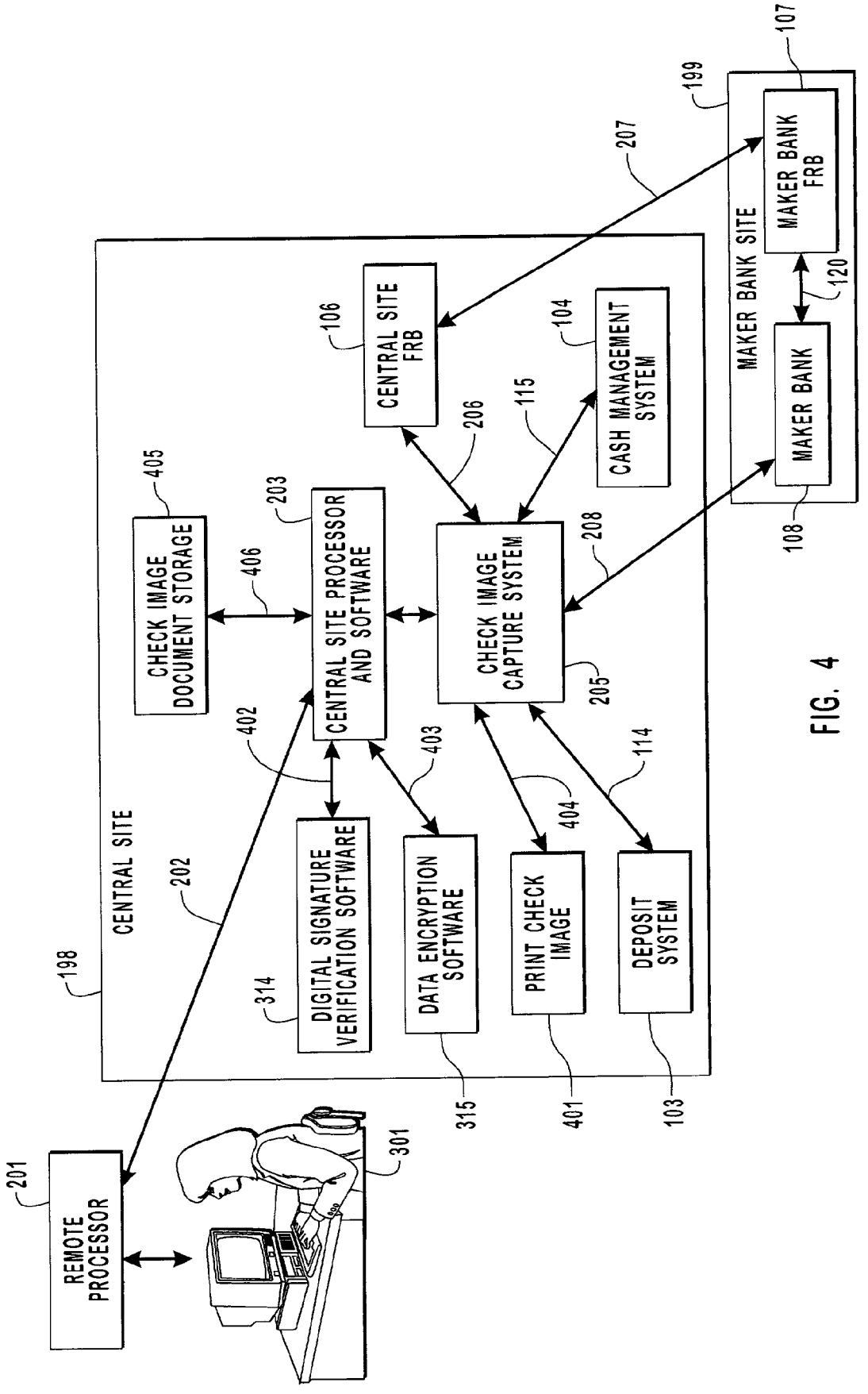
CENTRAL SITE
198
REMOTE PROCESSOR
201
202
CHECK IMAGE DOCUMENT STORAGE
405
406
CENTRAL SITE PROCESSOR AND SOFTWARE
203
402
403
CHECK IMAGE CAPTURE SYSTEM
208
205
114
404
DIGITAL SIGNATURE VERIFICATION SOFTWARE
314
DATA ENCRYPTION SOFTWARE
315
PRINT CHECK IMAGE
401
DEPOSIT SYSTEM
103
CENTRAL SITE FRB
106
206
CASH MANAGEMENT SYSTEM
104
115
207
MAKER BANK SITE
199
MAKER BANK FRB
107
120
MAKER BANK
108
301

FIG. 4

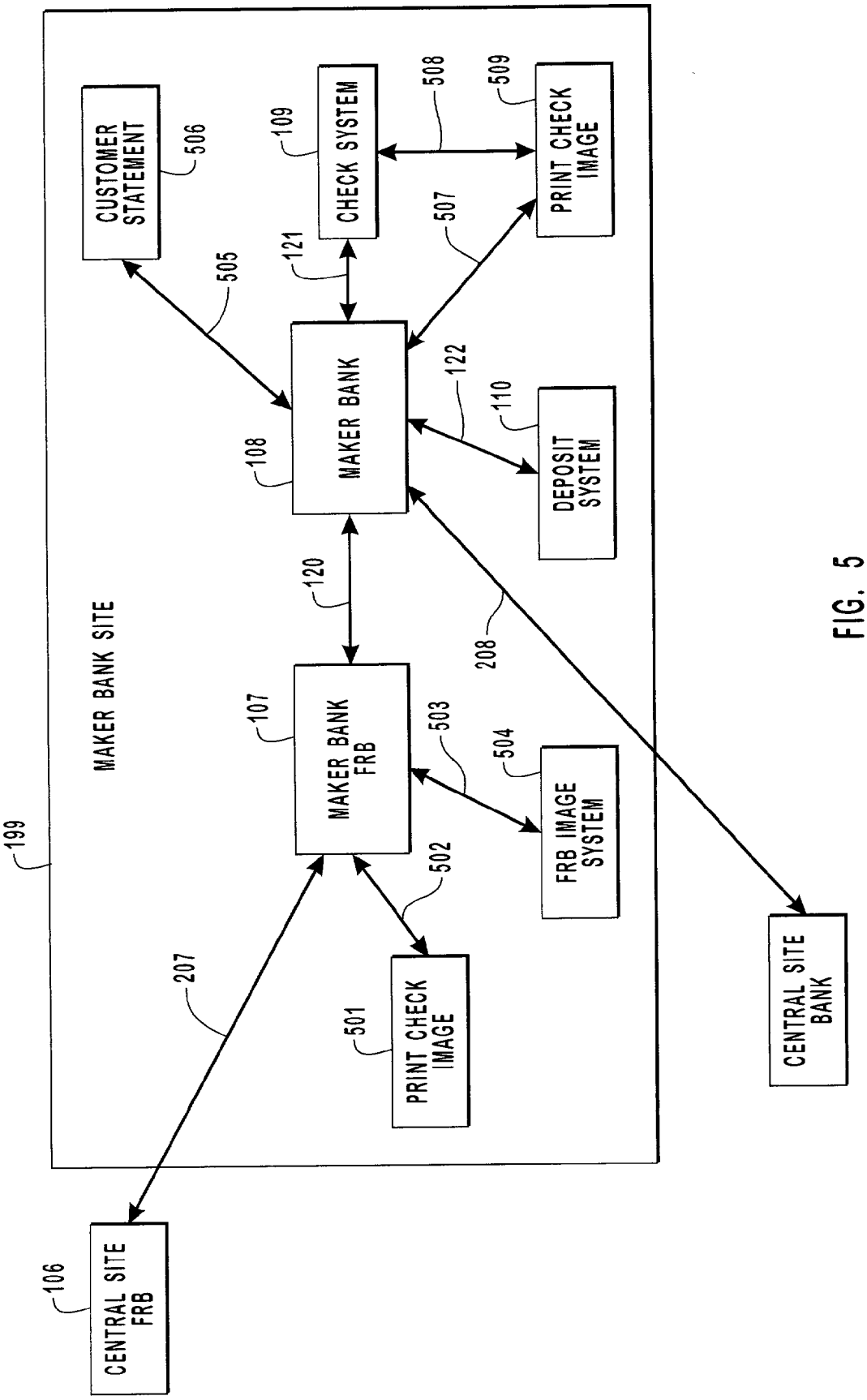
MAKER BANK SITE
199
CUSTOMER STATEMENT
506
CHECK SYSTEM
109
508
PRINT CHECK IMAGE
509
505
121
507
MAKER BANK
108
122
110
DEPOSIT SYSTEM
120
208
MAKER BANK FRB
107
503
504
FRB IMAGE SYSTEM
502
207
PRINT CHECK IMAGE
501
CENTRAL SITE FRB
106
CENTRAL SITE BANK

FIG. 5

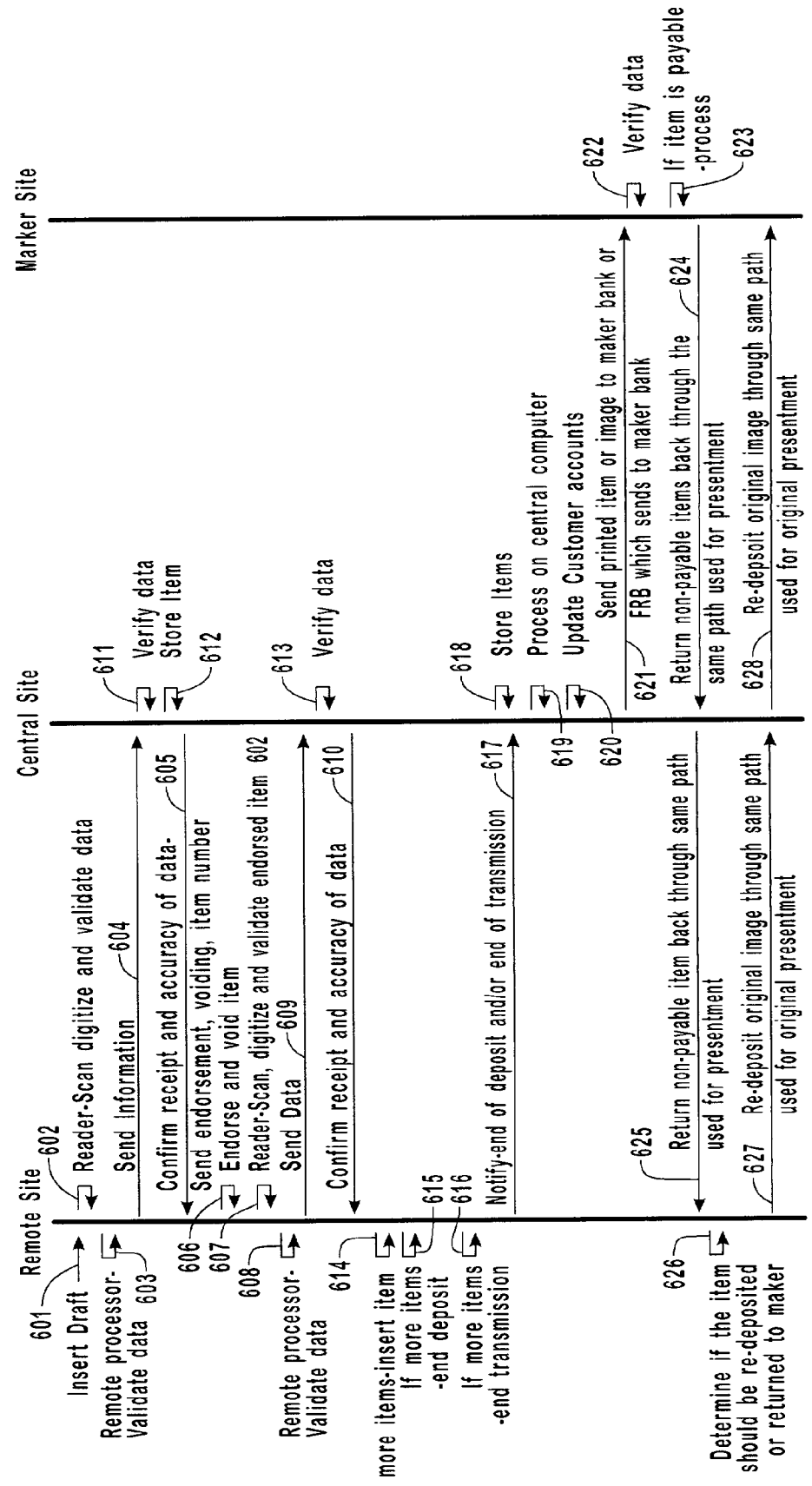
Remote Site
Central Site
Marker Site
601
Insert Draft
602
Reader-Scan digitize and validate data
603
Remote processor-Validate data
604
Send Information
605
Confirm receipt and accuracy of data-
606
Send endorsement, voiding, item number
607
Endorse and void item
608
Reader-Scan, digitize and validate endorsed item 602
609
Send Data
610
Confirm receipt and accuracy of data
611
Verify data
Store Item
612
613
Verify data
614
If more items-insert item
615
If more items -end deposit
616
If more items -end transmission
617
Notify-end of deposit and/or end of transmission
618
Store Items
619
Process on central computer
620
Update Customer accounts
621
Send printed item or image to maker bank or FRB which sends to maker bank
622
Verify data
623
If item is payable -process
624
Return non-payable items back through the same path used for presentment
625
Return non-payable item back through same path used for presentment
626
Determine if the item should be re-deposited or returned to maker
627
Re-deposit original image through same path used for original presentment
628
Re-depsoit original image through same path used for original presentment

FIG. 6

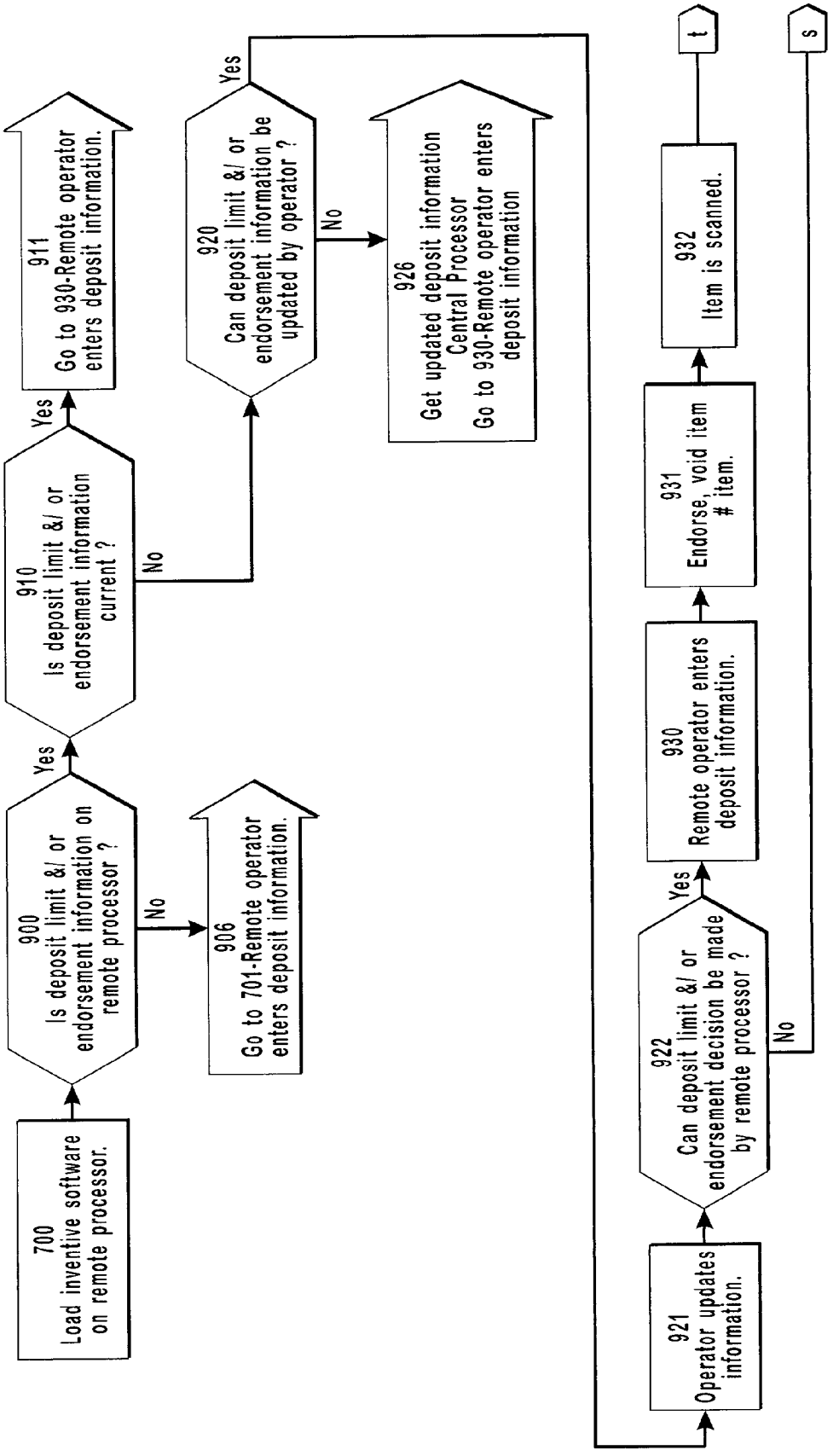
700
Load inventive software on remote processor.
900
Is deposit limit &/ or endorsement information on remote processor ?
Yes
No
906
Go to 701-Remote operator enters deposit information.
910
Is deposit limit &/ or endorsement information current ?
Yes
No
911
Go to 930-Remote operator enters deposit information.
920
Can deposit limit &/ or endorsement information be updated by operator ?
Yes
No
926
Get updated deposit information
Central Processor
Go to 930-Remote operator enters deposit information
921
Operator updates information.
922
Can deposit limit &/ or endorsement decision be made by remote processor ?
Yes
No
930
Remote operator enters deposit information.
931
Endorse, void item # item.
932
Item is scanned.
t
s

FIG. 7a

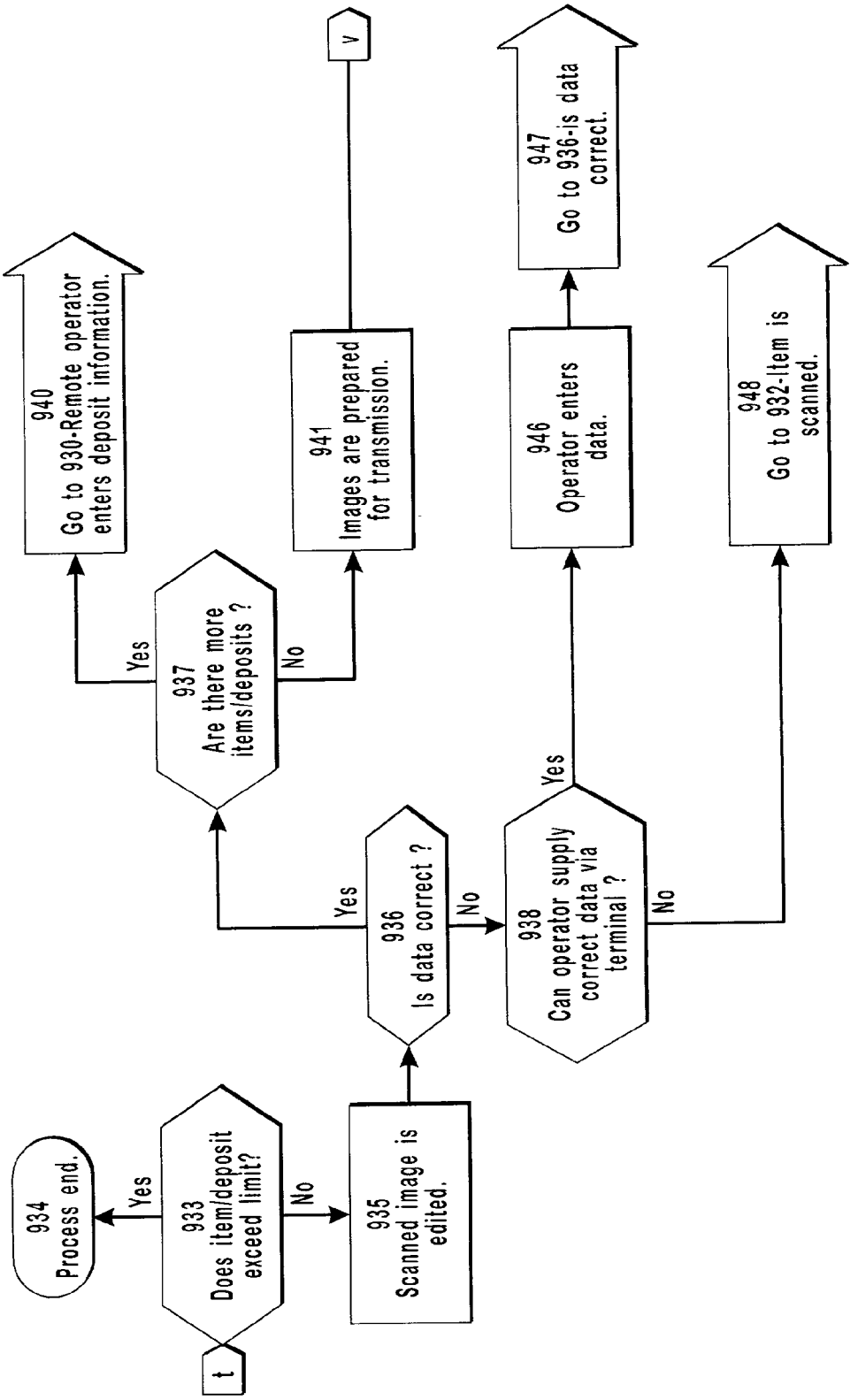
934
Process end.
933
Does item/deposit exceed limit?
Yes
No
t
935
Scanned image is edited.
936
Is data correct ?
Yes
No
938
Can operator supply correct data via terminal ?
Yes
No
946
Operator enters data.
947
Go to 936-is data correct.
948
Go to 932-Item is scanned.
937
Are there more items/deposits ?
Yes
No
940
Go to 930-Remote operator enters deposit information.
941
Images are prepared for transmission.
v

FIG. 7b

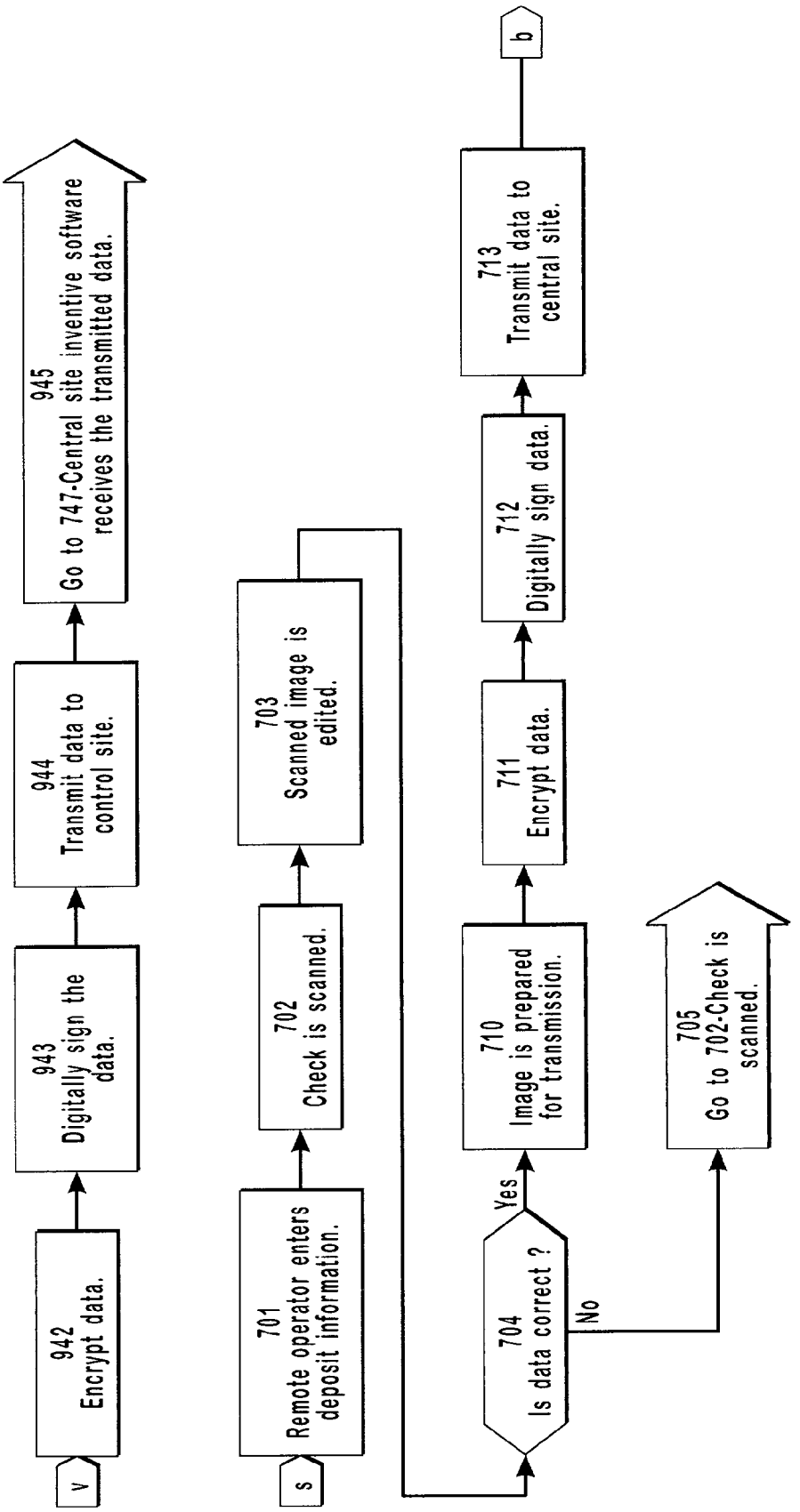
v
942
Encrypt data.
943
Digitally sign the data.
944
Transmit data to control site.
945
Go to 747-Central site inventive software receives the transmitted data.
s
701
Remote operator enters deposit information.
702
Check is scanned.
703
Scanned image is edited.
704
Is data correct ?
Yes
No
710
Image is prepared for transmission.
711
Encrypt data.
712
Digitally sign data.
713
Transmit data to central site.
b
705
Go to 702-Check is scanned.

FIG. 7c

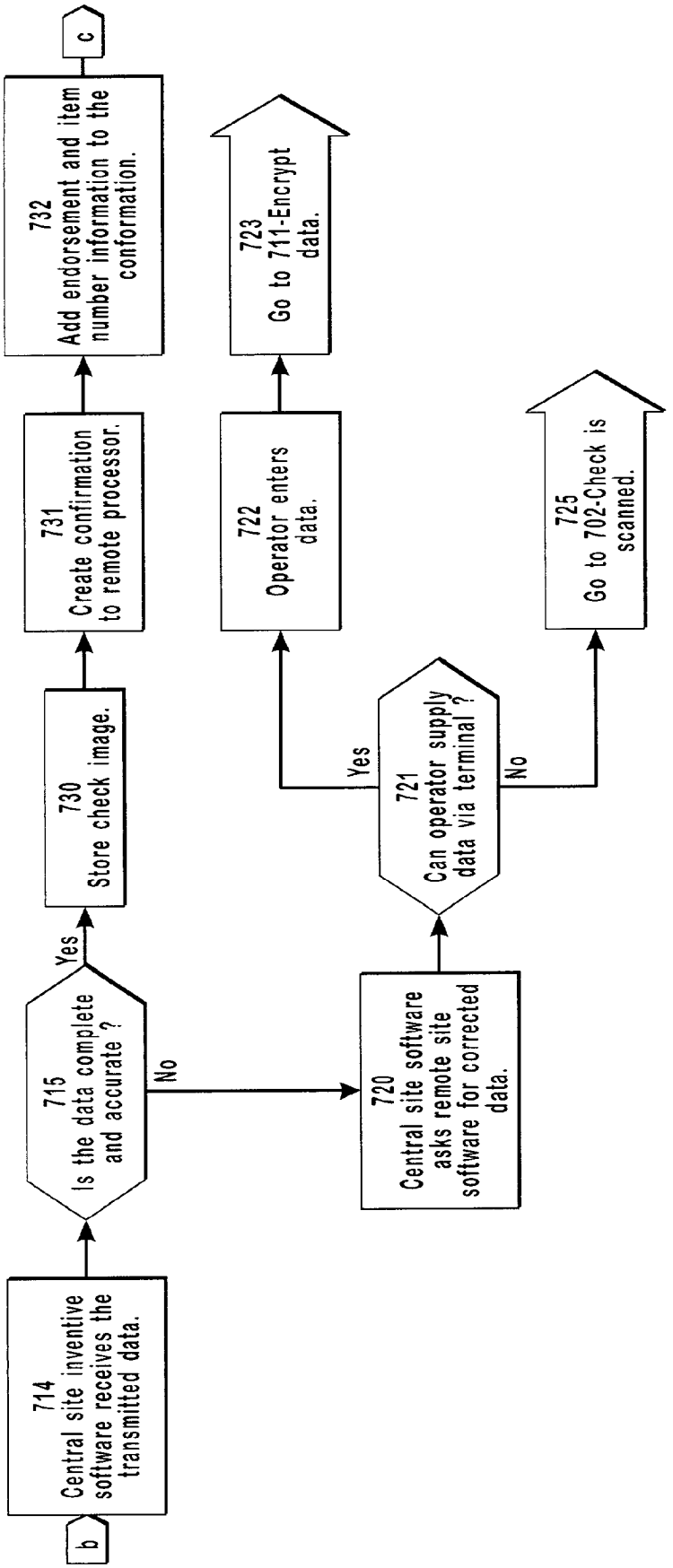
b
714
Central site inventive software receives the transmitted data.
715
Is the data complete and accurate ?
Yes
No
730
Store check image.
731
Create confirmation to remote processor.
732
Add endorsement and item number information to the conformation.
c
720
Central site software asks remote site software for corrected data.
721
Can operator supply data via terminal ?
Yes
No
722
Operator enters data.
723
Go to 711-Encrypt data.
725
Go to 702-Check is scanned.

FIG. 7d

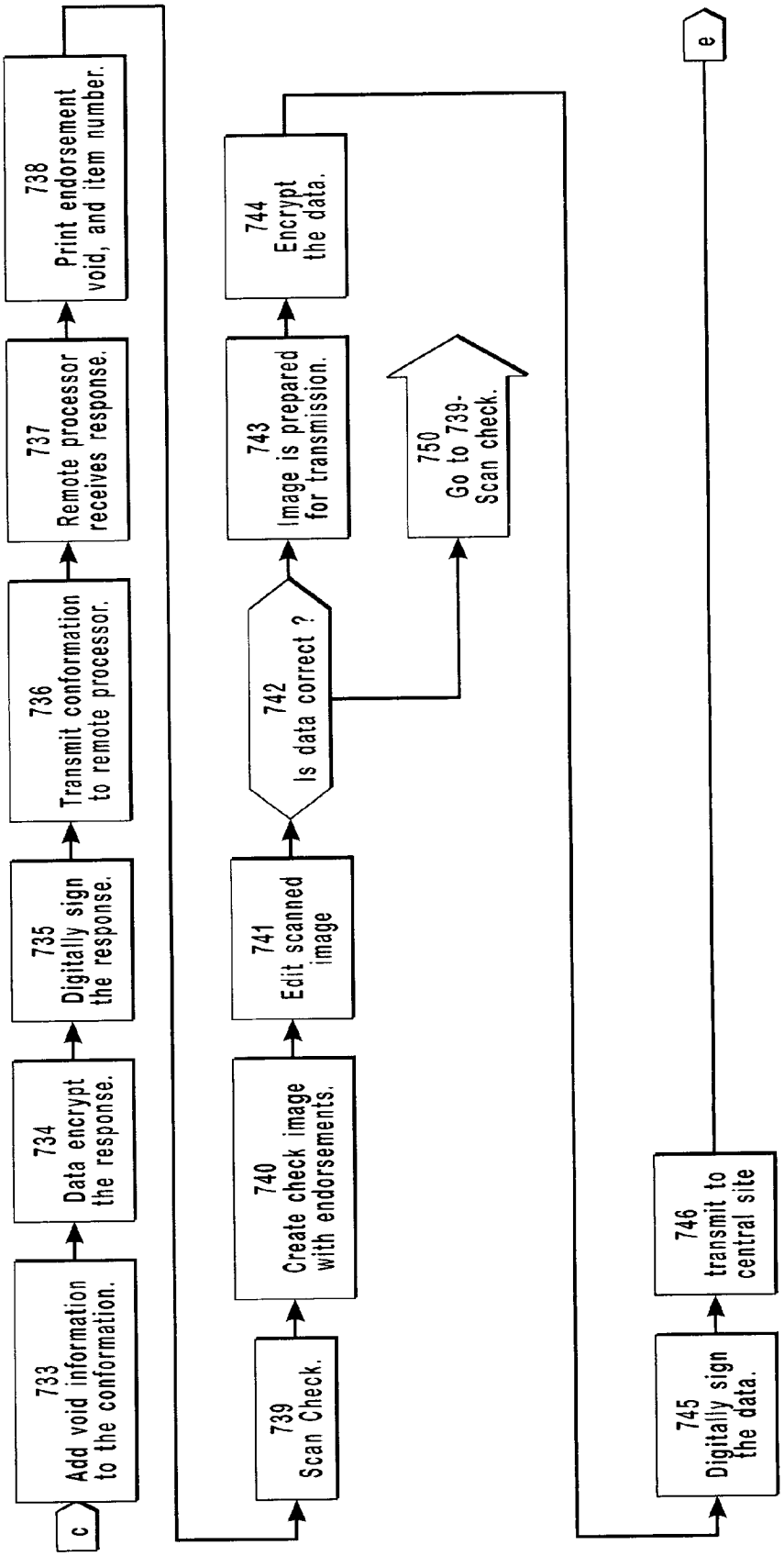
c
733
Add void information to the conformation.
734
Data encrypt the response.
735
Digitally sign the response.
736
Transmit conformation to remote processor.
737
Remote processor receives response.
738
Print endorsement void, and item number.
739
Scan Check.
740
Create check image with endorsements.
741
Edit scanned image
742
Is data correct ?
743
Image is prepared for transmission.
744
Encrypt the data.
745
Digitally sign the data.
746
transmit to central site
e
750
Go to 739-Scan check.

FIG. 7e

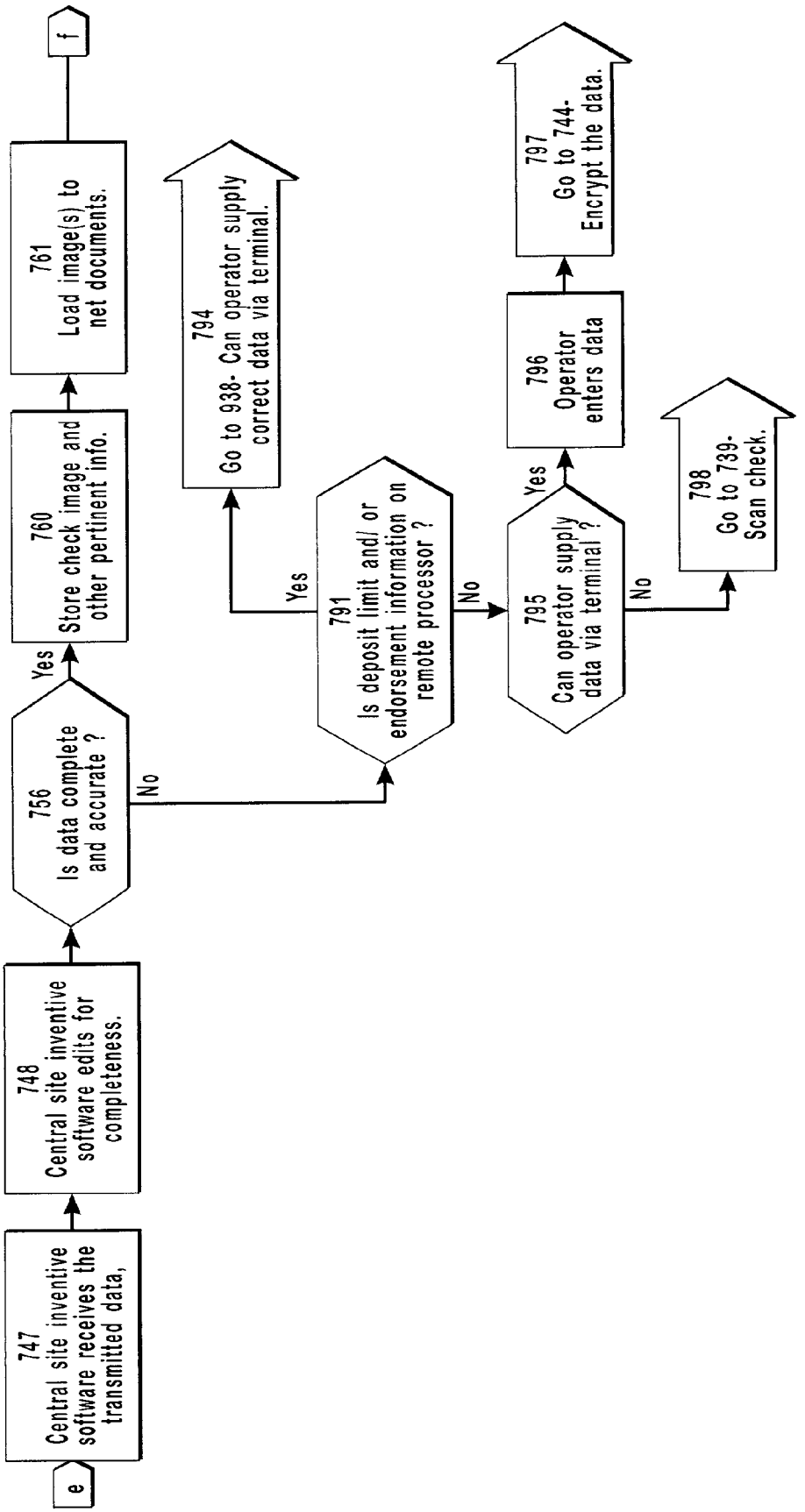
e
747
Central site inventive software receives the transmitted data,
748
Central site inventive software edits for completeness.
756
Is data complete and accurate ?
Yes
No
760
Store check image and other pertinent info.
761
Load image(s) to net documents.
f
791
Is deposit limit and/ or endorsement information on remote processor ?
Yes
No
794
Go to 938- Can operator supply correct data via terminal.
795
Can operator supply data via terminal ?
Yes
No
796
Operator enters data
797
Go to 744- Encrypt the data.
798
Go to 739- Scan check.

FIG. 7f

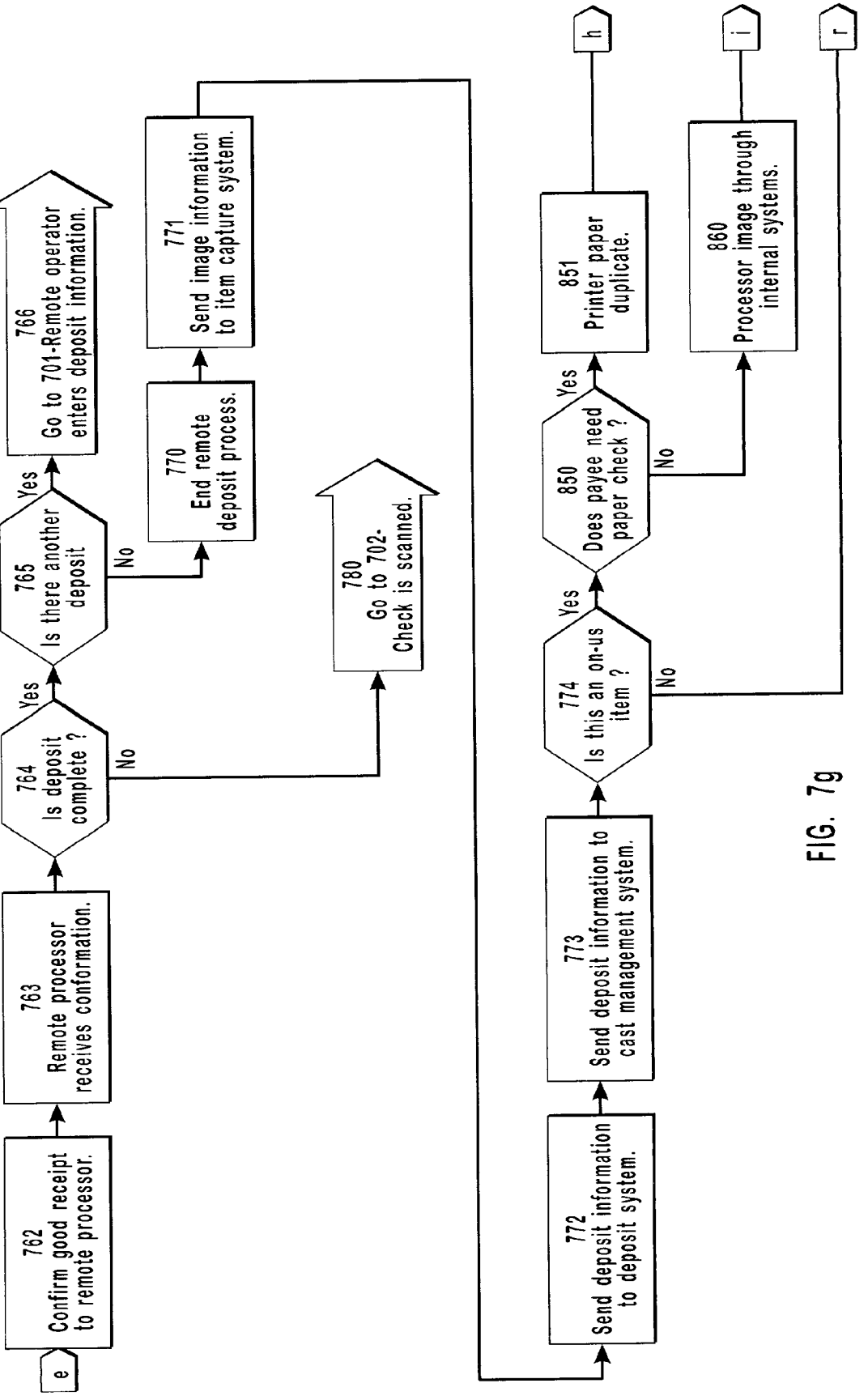
e
762
Confirm good receipt to remote processor.
763
Remote processor receives conformation.
764
Is deposit complete ?
Yes
No
765
Is there another deposit
Yes
No
766
Go to 701-Remote operator enters deposit information.
770
End remote deposit process.
771
Send image information to item capture system.
780
Go to 702-Check is scanned.
772
Send deposit information to deposit system.
773
Send deposit information to cast management system.
774
Is this an on-us item ?
Yes
No
850
Does payee need paper check ?
Yes
No
851
Printer paper duplicate.
860
Processor image through internal systems.
h
i
r

FIG. 7g

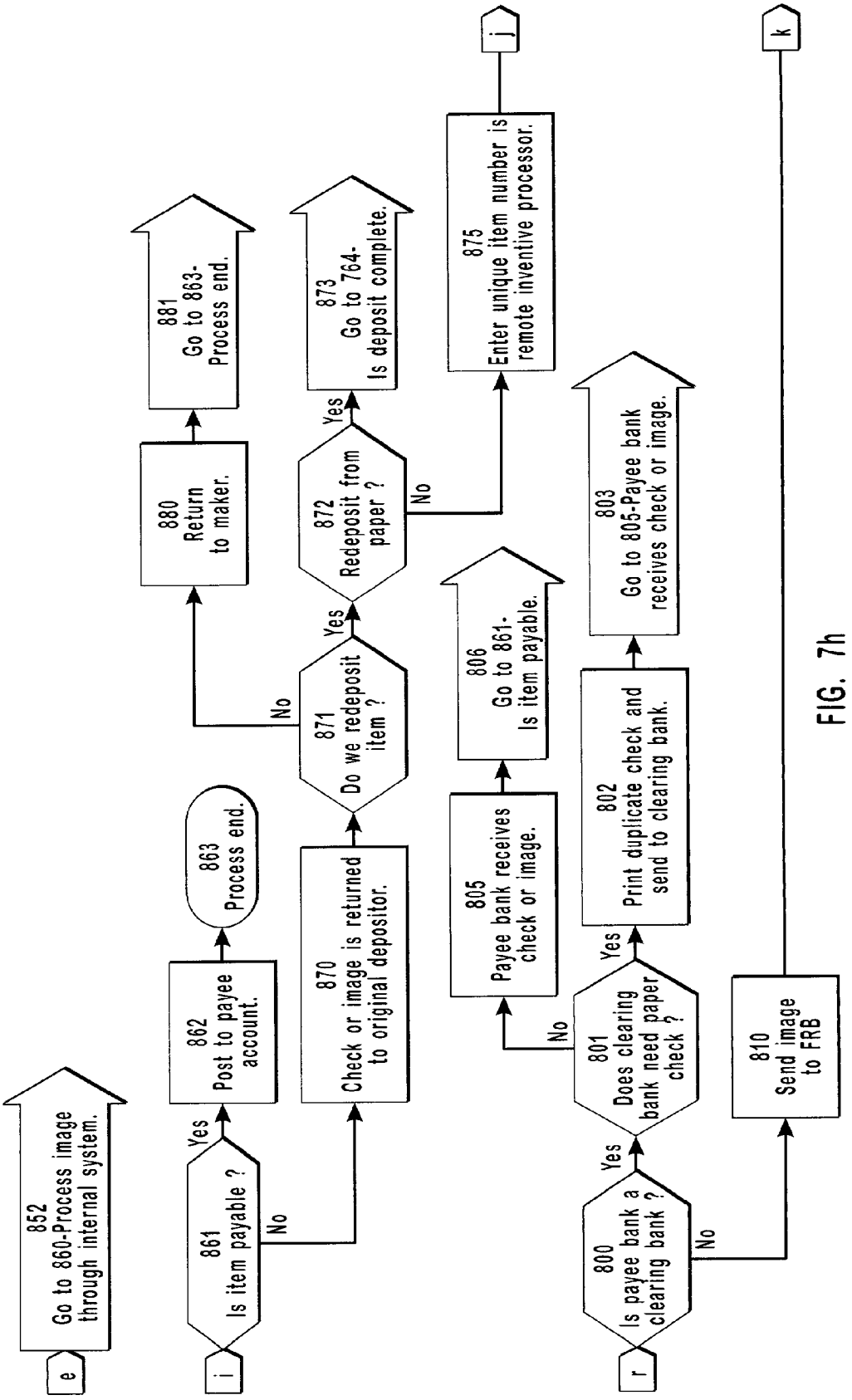
852
Go to 860-Process image through internal system.
e
861
Is item payable ?
Yes
No
i
862
Post to payee account.
863
Process end.
870
Check or image is returned to original depositor.
871
Do we redeposit item ?
Yes
No
872
Redeposit from paper ?
Yes
No
880
Return to maker.
881
Go to 863-Process end.
873
Go to 764-Is deposit complete.
875
Enter unique item number is remote inventive processor.
j
800
Is payee bank a clearing bank ?
Yes
No
r
801
Does clearing bank need paper check ?
Yes
No
805
Payee bank receives check or image.
806
Go to 861-Is item payable.
802
Print duplicate check and send to clearing bank.
803
Go to 805-Payee bank receives check or image.
810
Send image to FRB
k

FIG. 7h

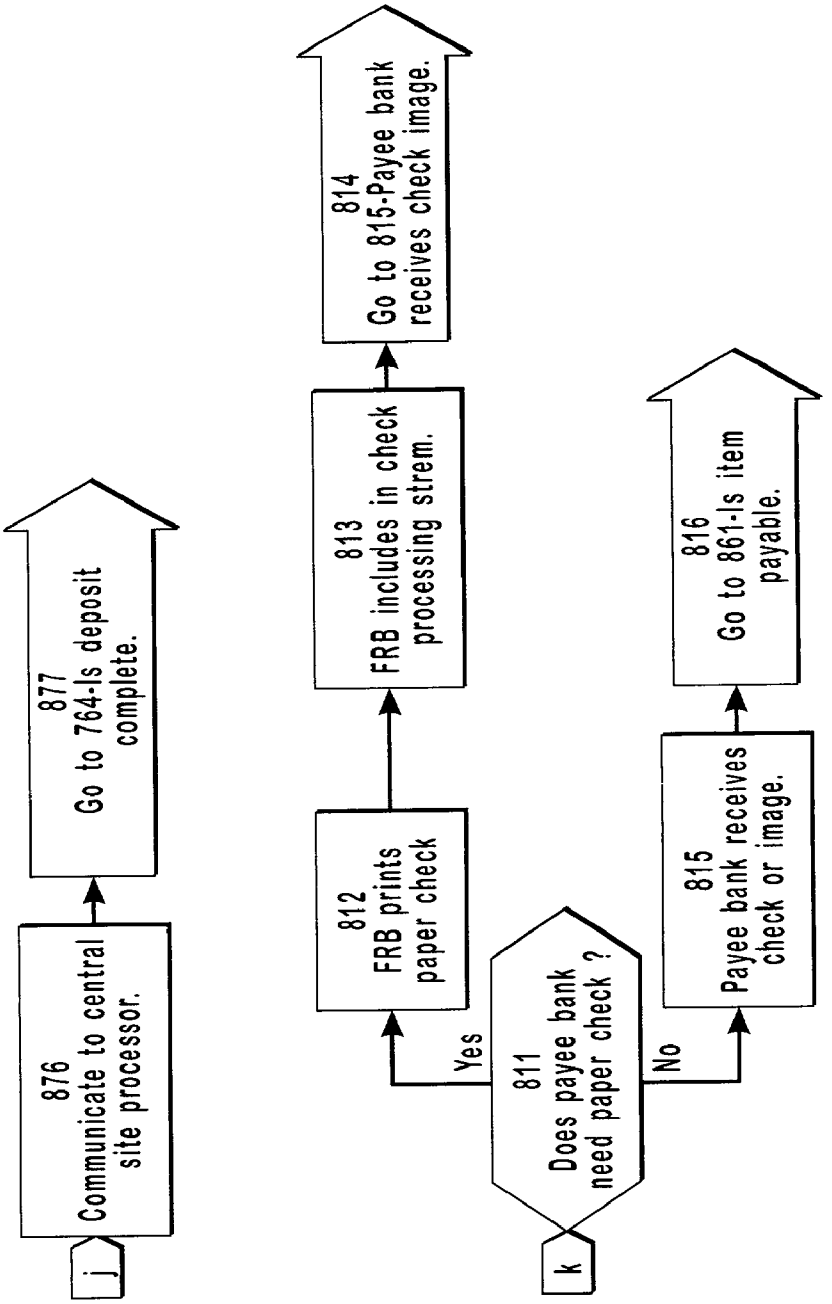
j
876
Communicate to central site processor.
877
Go to 764-Is deposit complete.
k
811
Does payee bank need paper check ?
Yes
No
812
FRB prints paper check
813
FRB includes in check processing strem.
814
Go to 815-Payee bank receives check image.
815
Payee bank receives check or image.
816
Go to 861-Is item payable.

FIG. 7i

METHOD AND SYSTEM FOR PROCESSING FINANCIAL INSTRUMENT DEPOSITS PHYSICALLY REMOTE FROM A FINANCIAL INSTITUTION

BACKGROUND OF THE INVENTION

1. The Field of the Invention

The present invention relates to physical financial instrument processing. More particularly, the present invention relates to a method and system for remotely processing checks through electronic interaction between the physical location of the instrument and a financial institution.

2. Related Applications

The act of depositing or otherwise converting a financial instrument such as a check, draft, or other instrument has generally required the physical presentment of the instrument by the bearer to a financial institution such as a bank, credit union, or other institution authorized to accept and process monetary instruments. Indeed, the depositing and clearing of checks has heretofore involved individuals or organizations physically taking their deposit, such as in the form of a check, to financial institutions or trusted remote institutional branches, otherwise known as the bank of first deposit, where the deposit may be accepted, and credited to the bank customer's account, of course, subject to the check "clearing" with the maker financial institution.

Financial institutions have developed methods for reducing the amount of paper flow associated with checks within their organizations, however, their target has not been to reduce processing costs, improve the timeliness of the money collection from other financial institutions, and reduce costs associated with handling, storing and returning paper checks to the maker. Therefore, it would be an advancement to provide a new system centered on electronic information that does not require the use of paper items for any purpose.

Therefore, it would be advantageous to provide an electronic processing system and method that could provide a bearer of a check the convenience to "deposit" a check at a facility, such as a home or office, that is not a traditional bank or bank branch facility.

It would also be advantageous to provide a method and system for allowing the remote depositing and processing a check that does not require the physical routing of the actual check in order to accomplish the various post-deposit processing of a check. It would yet be a further advantage to provide a method and system for improving the collection time involved with the funds represented by the check (i.e., reduce credit "float").

It would be a benefit to provide a method and system for reducing expenses associated with the transportation costs involved in sending the checks from the bank of first deposit to the maker financial institution.

It would also be a benefit to provide a method and system for reducing the check storage expenses incurred by the bank of first deposit.

It would be a further benefit to enable the bank of first deposit to reduce the staffing, facilities (i.e., physical buildings), and equipment required to accept and process physical checks.

SUMMARY AND OBJECTS OF THE INVENTION

The present invention has been designed to reduce the issues associated with the physical handling of paper items

by financial institutions and to improve the collections of associated funds by processing electronic images of checks as opposed to the slower method of sending paper checks through the traditional check clearing routes. Not withstanding the premise for the inventive processes to use electronic images of items to facilitate processing and clearing of items, it would also be desirable for the present invention to accommodate the current use of paper items and all other commonly accepted methods for clearing checks until such time as the use of electronic images becomes a common accepted practice for clearing checks.

This new process involves inventive computer-based software that can be used at financial institution locations and locations remote from financial institution offices for capturing deposits, together herein referred to as remote locations. The remote capture system can be used by individuals and businesses (including the financial institution) to capture deposit information and images of the monetary items, such as checks, required for depositing the checks into their deposit accounts at the financial institution. Once this information is captured and validated at the remote site, it is transferred to the financial institution over telecommunications lines (leased lines, switched lines, Internet, etc.) to a receiving computer at the financial institution. The financial institution computer verifies the information received, stores the image of the items, and passes back to the remote site computer information that is used by the remote site computer to endorse, cancel, and item number, and otherwise mark, void, and identify the check. Another image of the check is then created at the remote location showing the endorsements information. This image is then sent to the central site of the financial institution for storage and to be used for research and re-depositing of the check if this becomes necessary. The depositor retains the deposit slips and monetary item(s) at the remote site.

As an alternative to the interactive process of passing voiding, endorsing, unique number information back and forth between the central site and the remote site, it will be possible (based on parameters set in the inventive software) to do most of the decision-making on the remote site processor before transmitting the check information to the central site. This can be done by pre-loading the endorsement, voiding, and item numbering information on the remote site processor and/or updating on a regular basis. This allows for checks to be endorsed, voided and item numbered and the image(s) associated with a check deposit to be created and passed to the central site without the need for interactive validation of data between the remote and central sites.

In addition to deposits, decisions based on remote site information, the present invention also allows deposits of any number, combination, and dollar amounts of deposit, and checks based upon decisions made regarding the customer by information stored at the central site. This information can be loaded onto the central site and communicated to the remote processor as part of the interactive exchange of data during the process of validating the deposit. Additionally, this information while being preloaded on the remote processor can also be updated on a regular basis.

Once complete deposit data is received by the central site processor at the bank of first deposit's central site, it is passed to the central site's check processing, deposit, and cash management, etc., systems for processing. As an alternative, if the remote site or central site is being used as a collection center for deposits from other institutions, the deposit information can be passed to the other institutions

check processing, deposit, and cash management, etc., systems for processing. The image of the checks can be used to either print the customer statements (for items drawn on the bank of first deposit or routed through the normal check clearing paths (i.e. directly to clearing and correspondent banks or through the FRB electronic clearing process). If the maker or maker bank(s) require physical checks for their internal purposes, a duplicate check is printed by either the bank of first deposit's central site, or the maker bank or by the maker banks FRB.

Once received by the maker bank, the check image or duplicate printed check is processed by the maker bank through their computer systems and included as per their policies in their customer statements. Checks returned to the depositor for any reason will take the reverse path back to the depositor. Any re-depositing of items by the original depositor is done using the either the printed duplicate paper item (if there is one) or the original endorsed image created and stored at the bank of first deposit's central site.

All transmission of data preferably undergoes digital signature verification and certification and data encryption to ensure privacy and confidentiality of the data being transmitted. In addition, the check images will be stored on a document storage database at the remote site or bank of first deposit as well as Internet enabled and accessible database(s). The information on these database(s) will be available to the depositor and research personnel at the bank of first deposit's central site under security control through remote access such as Internet access.

The system includes computer hardware, computer software, apparatus, and methodology that enables individuals, businesses, and all types of organizations (both for profit and non-profit) to capture and securely transmit check images (including, but not limited to, personal checks, business checks, travelers checks, money orders, merchant coupons, food coupons, line of credit checks, etc.), deposit information, and other information from remote locations (i.e., locations that could include the financial institution's remote locations, other financial institution's locations, businesses, private residences, etc.), for the purpose of having those checks credited to the depositing individual's or organization's bank account(s) and having the check images (and/or physical checks) entered into the bank check clearing channels for ultimate delivery to the maker bank for payment out of the maker's account.

These and other objects and features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

A more extensive description of the present invention, including the above-recited features, advantages, and objects, will be rendered with reference to the specific embodiments that are illustrated in the appended drawings. Because these drawings depict only exemplary embodiments, the drawings should not be construed as imposing any limitation on the present invention's scope. As such, the present invention will be described and explained with additional specificity and detail through use of the accompanying drawings in which:

FIG. **1** illustrates an overview of a process of capturing and processing deposits from financial institutions and their branches which can be adapted to incorporate some of the features of the present invention;

FIG. **2** illustrates an overview of remotely capturing and processing deposits remote from a financial branch or bank, in accordance with a preferred embodiment of the present invention;

FIG. **3** is a more detailed block diagram showing the capturing and processing at the remote site or point of check presentment, in accordance with a preferred embodiment of the present invention;

FIG. **4** illustrates central site processing of image data as captured at the remote site, in accordance with a preferred embodiment of the present invention;

FIG. **5** illustrates processing at the maker or payor institution site, in accordance with a preferred embodiment of the present invention;

FIG. **6** illustrates a processing diagram of the interaction between entities of the present invention; and

FIG. **7** is a process flowchart of check processing of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The invention is described below with reference to drawings. These drawings illustrate certain details of specific embodiments that implement the systems and methods of the present invention. However, describing the invention with drawings should not be construed as imposing, on the invention, any limitations that may be present in the drawings. The present invention contemplates both methods and systems for remotely accepting a check for deposit and electronically processing the deposit without physically routing the physical paper copy of the check. The embodiments of the present invention may comprise a special purpose or general purpose computer including various computer hardware, the execution unit portion of which may also be known herein as a "processor."

Embodiments within the scope of the present invention also include computer-readable media for carrying or having computer-executable instructions or data structures stored thereon and also known as software. Such computer-readable media can be any available media which can be accessed by a general purpose or special purpose computer. By way of example, and not limitation, such computer-readable media can comprise RAM, ROM, EPROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to carry or store desired program code means in the form of computer-executable instructions or data structures and which can be accessed by a general purpose or special purpose computer. When information is transferred or provided over a network or another communications connection (either hardwired, wireless, or a combination of hardwired or wireless) to a computer, the computer properly views the connection as a computer-readable medium. Thus, any such a connection is properly termed a computer-readable medium. Combinations of the above should also be included within the scope of computer-readable media. Computer-executable instructions comprise, for example, instructions and data which cause a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Computer-executable instructions may also be properly termed "software" as known by those of skill in the art.

Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by computers in

network environments. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Computer-executable instructions, associated data structures, and program modules represent examples of the program code means for executing steps of the methods disclosed herein. The particular sequence of such executable instructions or associated data structures represent examples of corresponding acts for implementing the functions described in such steps.

Those skilled in the art will appreciate that the invention may be practiced in network computing environments with many types of computer system configurations, including personal computers, hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by local and remote processing devices that are linked (either by hardwired links, wireless links, or by a combination of hardwired or wireless links) through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

An exemplary system for implementing the portions of the invention includes a general purpose computing device in the form of a conventional computer, including a processing unit, a system memory, and a system bus that couples various system components including the system memory to the processing unit. The system memory may include read only memory (ROM) and random access memory (RAM). The computer may also include a magnetic hard disk drive for reading from and writing to a magnetic hard disk, a magnetic disk drive for reading from or writing to a removable magnetic disk, and an optical disk drive for reading from or writing to removable optical disk such as a CD-ROM or other optical media. The drives and their associated computer-readable media provide nonvolatile storage of computer-executable instructions, data structures, program modules and other data for the computer.

Program code or software means comprising one or more program modules may be stored on the hard disk, magnetic disk, optical disk, ROM or RAM, including an operating system, one or more application or software programs, other program modules, and program data.

The computer may operate in a networked environment using logical connections to one or more remote computers having processors. Logical connections may include a local area network (LAN) and a wide area network (WAN) that are presented here by way of example and not limitation. Such networking environments are commonplace in office-wide or enterprise-wide computer networks, intranets and the Internet.

It should also be pointed out that while the term "check" may be generically used herein, it is contemplated by the inventors that other financial instruments are also contemplated within this meaning and therefore, the use of the term "check" is assumed to have the broader meaning, both in the specification and the claims.

Additionally, the term "bank of first deposit" means the financial institution sponsoring the remote site and which owns or employs a central site for processing financial transactions.

Referring to FIG. **1**, a bank of first deposit **101** receives a check from the bearer to begin processing the instrument. Bank of first deposit **101** actually forwards, in step **113**, the physical check(s) to a central site **102** for additional physical processing of the actual check. The physical check is processed at central site **102** using a reader/sorter (not separately shown but included in **102**) to acquire information such as the information stored on the Magnetic Ink Character Recognition (MICR) line. This information includes the maker bank number, the account number, a check serial number, etc. The information from the check is then sent to an in-house computer system (included in **102**) for posting in steps **114**, **115** to the appropriate bearer account(s) **103**, **104** in the bank of first deposit **101**. If the check is an on us item (i.e. an item that is drawn on the bank that is processing it), the check is retained in a step **117** at storage **105** at bank of first deposit **101**, otherwise the check is sent in steps **116** and **119** or, alternatively in step **118** into a maker bank **108** for collection of funds. The check(s) are either sent physically in step **18** directly to maker bank **108** or routed in steps **116** and **119** through a Federal Reserve Banks (FRB) **106** and **107** check clearing processes to a maker bank **108**.

The path taken by the check is determined by the working agreement that bank of first deposit **101** has with maker bank **108**. If maker bank **108** is a member of the local clearing-house association (thereby being a clearing bank), the checks can be exchanged directly with maker bank **108**. If the maker bank **108** is a correspondent bank (a bank that has agreed to exchange checks directly with the bank of first deposit) the checks can be sent directly to maker bank **108**. All other checks are forwarded in steps **116** and **119** to the FRBS, **106** and **107** for exchange with maker bank **108**. If a check is not paid by maker bank **108** for any reason (i.e. it is a forgery, there are not sufficient funds in the makers account to cover the amount of the check, etc.) the check is returned to the depositor using the reverse path. Once the check is received by maker bank **108**, the check is processed in step **121** through the maker bank's check capture system **109**. Information from the check is then sent in steps **122** and **123** to the maker bank's accounting systems **110** and **111** and the checks are either stored in step **124** at the maker bank's check storage **112**, or sent directly to the maker with their check statement.

FIG. **2** depicts a high-level processing diagram of the various entities involved in the overall financial processing of the present invention, in accordance with the preferred embodiment. The present invention comprises three primary processing entities: (i) a remote site **197**, (ii) a central site **198**, and (iii) a maker bank site **199**. Each of these sites enlists specific processing techniques which furthers the novel financial instrument processing technique of the present invention.

In the present invention, a remote site processor **201** (further detailed in FIG. **3**) either autonomously, or under operator/depositor control initially remotely "processes" a check into electronic check data both in the form of image data and informational data which can be further processed and approved at subsequent portions of the overall process. In essence, the remote site provides a processing front-end that electronically interacts via interface **202** with central site **198** through the transfer of electronic check data for review and processing by electronic means at a central site. Remote site **197** performs functions relating to the physical check including scanning, reading, and printing on the checks. Remote site **197** also exchanges image and/or authorization data with the other entities as further described below.

Central site **198** of FIG. **2** interacts via interfaces **207**, **208** with maker bank site **199** for completing the clearing process relating to the check or related instrument. Central site **198** is comprised of a central site processor **203** which

coordinates verification and account interaction. Central site **198** also provides both electronic storage of image and information data as well as providing an interface to maker bank site **199**. Central site **198** provides image conversion technology for converting check data from electronic form back to a hard copy check format for processing, printing, and archiving when required by more traditional banking processes. Otherwise, a system **205** may process the image of the check in image format. System **205** prevents the need to reprint the check and send the duplicate check through the check reader sorters.

Maker bank site **199** performs more traditional account processing of information received from central site **198** such as from central site Federal Reserve Bank **106**. Maker bank site **199** is further comprised of maker bank FRB **107** and maker bank **108** and engages in account processing and statement generation.

FIG. **3** depicts the remote site as well as the interaction by a depositor or operator, in accordance with a preferred embodiment. The present invention commences with the presentation of a physical instrument such as a check by a bearer to remote site **197**. A remote scanner/reader/printer **309** provides the interface to the bearer for presentment of the check. Remote scanner/reader/printer **309**, in the preferred embodiment, is a multifunction device capable of independently performing each of the functions of scanning, reading, and printing upon the check or physical financial instrument. It is also contemplated that individual devices for performing each of these functions, scanning-reading-printing, may be integrated, whether automatically or manually, to perform the combination of functions upon the check.

Remote scanner/reader/printer **309** is connected via an interface **310** to remote processor **201**. Remote site processor **201**, like each of the other processor elements in the present invention, may be comprised of execution-capable devices, and is preferably comprised of a computer, such as a personal, network, or general purpose computer. Remote processor **201** is further coupled to central site processor **203** via an interface transmission or network media **202**, which may take the form of one or more of wired or wireless media such as public switched lines, Internet or wide-area network connection, microwave, satellite, digital phone, private leased lines, or any other current or future acceptable communications facility and may further employ include encryption over the interface.

Remote site processor **201** executes according to executable instructions such as computer-executable instructions which are figuratively depicted in FIG. **3** as software **313**. Software **313** is loaded or interfaces with remote processor **201** via a bus or other physical interface depicted as interface **312**. Generally, software **313** is comprised of executable instructions for (i) causing remote site processor **201** to instruct and execute the necessary steps for capturing the check or financial instrument both physically and electronically, (ii) performing requisite data processing on the electronic data from the capturing step, and (iii) exchanging the captured data over interface or media **202** to central site processor **203** when appropriate.

While details relating to the processing and method steps executed by remote site processor **201** via software **313** are described below, remote site processor **201** further determines if remote processing decisional information such as comparison information for making decisions on the number of deposits, dollar amount of deposits or dollar amount of monetary items is available on remote site processor **201**. If such decisional information is not available at remote site **197**, then central site check processing may require additional steps. Remote site processor **201** also determines if the remote processing information needed to void, endorse and itemize number each check **303** is available to remote processor **201** for processing of check **303**, according to the method of the present invention. If such remote processing information is available but not current, the remote processing information may be updated by either having the updated information manually entered, for example by way of an operator via a keyboard at terminal **301** attached to remote processor **201**, or the updated information may be retrieved by remote processor **201**, under the direction of software **313**, from central site processor **203**.

In a preferred embodiment, the updated information may be housed in a data set at central site processor **203** and updated by the bank of first deposit, affiliated with remote site **197** prior to loading to remote site processor **201**. Remote site processor **201**, executing software **313**, then determines if all of the decisions concerning voiding, endorsing, item numbering, number of deposits, number of checks or dollar sizes of deposits or items can be made by remote site processor **201** by checking the remote processing information as pre-defined in remote site processor **201**.

If the decisions on endorsing, voiding, item numbering, number of deposits, number or dollar amounts of deposits or monetary items can be made by remote site processor **201**, then to ensure proper account processing of check **303**, a depositor at terminal **301** is lead through a series of instructions to gather deposit information required to ensure credits are made to the appropriate deposit accounts(s). In one preferred embodiment, the deposit information is read, interpreted and entered automatically by reader/scanner/printer **309**. In another embodiment, the deposit information is entered manually on, for example, terminal **301** attached to remote site processor **201**. Additionally, during the practice of the invention, scanner/reader/printer **309** encodes check **303** with endorsement and voiding information in order to physically "void" check **303**, thereby keeping check **303** from being re-transmitted, for example over media **202**, or re-deposited at an actual financial institution location for an additional collection. In addition, a unique item identification number may be encoded on check **303** by remote site processor **201** via scanner/reader/printer **309** to aid in tracking data resulting from processing of check **303**.

The process of the present invention continues when scanner/reader/printer **309** performs the functions of scanning check **303** to create electronic check data comprised of image data, informational data including MICR encoding (using either MICR, Optical Character Recognition (OCR) or other like techniques). Scanner/reader/printer **309** "voids" check **303** by endorsing check **303** and printing tracking data thereon. The electronic image data and informational data such as MICR information of the voided and endorsed check **303** is transferred over interface **310** to remote site processor **201** for processing which includes image integrity verification. When the image integrity is suspect, the integrity is enhance by either rescanning check **303** or, alternatively, by manual intervention by an operator at terminal **301**. If check **303** is rescanned, scanner/reader/printer **309** does not reprint the endorsement, voiding and item numbering information on check **303**.

Once the electronic image data and the MICR encoding for the first check **303** is determined to be readable and accurate, remote site processor **201** determines if this process should be repeated for additional deposits and/or monetary item(s). When remote site processor **201** determines that processing by scanner/reader/printer **309** of individual

check(s), under the direction of remote site processor **201** has ended and that the information is complete and ready for transmission via interface/media **202**, remote site processor **201** formats the electronic image data and the MICR encoding and adds any additional control information in preparation for transmission to central site processor **203**. The physical check **305** is stored in file **305** at the remote site. In addition, the check image is stored on the remote site processor (i.e., magnetic disk, cd rom, etc. not shown on drawing.) Communications between remote site processor **201** and central site processor **203** preferably incorporates digital signature verification/certification performed by process **311** and data encryption performed by process **313** to ensure confidentiality.

FIG. **4** depicts the central site processor and the various processes and interfaces associated therewith, in accordance with a preferred embodiment of the present invention. While the accuracy of electronic check data transferred from remote site processor **201** to central site processor **203** will generally retain its integrity through the transmission, when electronic check data received by central site processor **203**, as evaluated and processed by computer-executable instructions or software loaded therein, is incomplete or inaccurate, or if the image data is not readable, central site processor **203** communicates with remote processor **201** giving detailed information to an operator at terminal **301** concerning the need for additional information to restore image information or complete incomplete or inaccurate data. Depending upon the type of missing or otherwise incorrect information, corrected or supplemental information may be supplied by an operator at terminal **301** at remote site **197**. It may even be necessary to re-scan check(s) **303** and re-transmit at least portions of the check data including image and/or MICR data to central site processor **203**. If check **303** is re-scanned, then endorsement, voiding and item number information are not reprinted on check **303**.

Once central site processor **203** determines the new check data received for the deposit is accurate and complete, central site processor **203** stores the check image and MICR data of check(s) **303** along with any additional associated information such as time that deposit was captured, who the customer was who captured the deposit, item number, etc. as received from remote site **201**. Central site processor **203** confirms receipt of accurate information by sending a notification reply to remote site processor **201** freeing-up remote site processor **201** for further processing of subsequent remote check deposit interactions. In alternate embodiments, central site processor **203** may store image data on an Internet-enabled check image document storage **405** thereby allowing access by the depositor/operator from a terminal such as terminal **301**, their designee, or the financial institution of first deposit. It should be pointed out that because of present banking processes, the remote site should still be associated with a chartered financial institution that is authorized to accept the checks from the remote site and process them through normal check clearing paths. The remote site may be a branch extension of the financial institution or may be a person, or other entity with or without a legal relationship to the financial institution that provides the access services to the financial institution. Such an affiliated financial institution is still known as the bank of first deposit. The present embodiment does not propose eliminating the bank of first deposit, only replacing the method used to capture deposits. Central site processor **203** maintains authentication and data integrity at check image document storage **405** through the use of digital signature verification and certification, as well as via data encryption as shown in processes **314** and **315**.

Referring back to FIG. **3**, in another embodiment, if the decisions of endorsing, voiding, item numbering, number of deposits number or checks or dollar amounts of deposits or monetary items cannot be made by remote site processor **201**, for example, when the telecommunications line goes down and the decision information cannot be updated on the remote site processor, or when the central site processor is inoperable, or the specific remote site is not authorized to make these decisions (i.e. we will determine and pass that information to the remote site processor when the remote site processor contacts the central site processor prior to accepting deposit information at the remote site), then remote site processor **201** leads a depositor at for example terminal **301** through a series of instructions to gather deposit information required to ensure credits are made to the appropriate deposit accounts(s) **104**. This can be done by either using the reader/scanner/printer **309** or by entering the necessary information on the terminal **301** attached to remote processor **201**.

Then, check **303** is placed into the scanner/reader/printer **309** where the item is scanned, the MICR encoding is read preferably using either MICR or Optical Character Recognition (OCR) techniques, and an electronic image is created of check **303**. The electronic image data and informational data such as MICR information is transferred from scanner/reader/printer **309** onto remote site processor **201** where remote site processor **201** edits and confirms that the electronic check data is readable. If the electronic check data is not readable or correct, the check data is corrected at the direction of remote site processor **201** by either re-scanning check **303** or having a remote site operator manually key the information in using terminal **301** or other interface device attached to remote site processor **201**.

Once the check data is determined to be readable and accurate, remote site processor **201** then formats the scanned check data and adds additional control information in preparation for transmission to central site processor **203** and the alternate embodiment approach concludes.

Returning to FIG. **4**, after receipt of valid and accurate check data, if it is determined that the maker bank or maker of the check requires a physical item, the check image is printed in process **401** and then processed through the central site check image capture system **205**. If a physical item is not required, the image is sent to the check image capture system **205**. In either case, the check image capture system **205** interfaces with the central site **198** deposit systems **103**, cash management systems **104**, etc. for posting information. The central site then forwards either the printed duplicate check or check image to the maker bank **108**. This can be done directly through path **208** if the bank of first deposit's central site **198** has an agreement with maker bank **108** to exchange checks directly, or if the maker bank and the central site bank of first deposit do not have an exchange agreement then through FRBs **106**, **107** through path **207**.

FIG. **5** depicts the various component and processes of the maker bank site, in accordance with the preferred embodiments of the present invention.

The maker bank **108** receives either images of the original paper items **303** or printed duplicates of the original paper items **303** either directly from the bank of first deposit's central site through path **208** or from the central site Federal Reserve Bank (FRB) **106** clearing process through path **206** (FIG. **4**), **207**, **120**.

Central site FRB **106** will process the check images or paper items through their capture system and forward the images or paper items to the maker bank FRB **107** through path **207**. The maker bank FRB then processes the items or images through their check capture system **504** through path **503** and if necessary, (i.e., when paper duplicate of item has not already been printed by the bank of first deposit), print a duplicate of the original check **303** image if a paper item is required by maker bank **108**. A maker bank FRB **107** will then forward the printed items or images to the maker bank **108** via communications or transportation path depicted as path **120**. Maker bank **108** will then process the image or paper item though their in-house application systems depicted by deposit system **110**, print check image process, **509**, check system process, and customer statement process **506** through paths **122**, **507**, **508**, **121**, **505**, and **507**.

These in house systems are not to be taken as systems that all banks will have or use for this process. They are meant to represent the in house processing by maker banks to post monetary items to their accounting systems and to send the items (either image or printed duplicate of original items) to the check maker.

FIG. **6** is an interface diagram depicting a high level description of the interactions between the various components of the present invention, in accordance with a preferred embodiment.

In the preferred embodiment, the remote site operator enters deposit information into the remote processor then inserts a draft in a step **601** at the scanner/reader/printer located at the remote site. The scanner/reader/printer reads the item, digitizes and validates the check image information and passes it to the software on the remote site processor in a step **602**. The remote site processor software receives the digitized data from the scanner/reader/printer and validates data to ensure that the check information is readable and valid in a step **603**. When the image is ready for transmission to the central site. The remote site processor contacts the transmission facility and, incorporating digital signature verification and certification and data encryption software to ensure confidentiality, transmits in a step **604** the item image and control information to the central site. The central site receives the transmitted data and edits and in a step **611** verifies the check data for completeness and content.

When the central site has determined the check image and other associated data (relating to both the check image and data, and the deposit information) is complete and accurate and meets the deposit and/or item dollar limits, the central site stores the electronic image of the check and any additional associated information received from the remote site, and then confirms in a step **605** receipt of good information by sending to the remote site information needed to endorse the physical check and to void the physical item to keep it from being re-transmitted or deposited at a physical financial institution location for collection. In addition, a unique item identification number can be transmitted to the inventive software on the remote site processor for printing on the physical checks as a tracking and research mechanism. The invention allows for printing of the unique item number if it is determined by the bank employing the present invention that it is desirable to print the unique item number for tracking and research purposes.

After the inventive software on the remote processor receives specific information required to void, endorse, and print the unique item number, the remote site processor and the scanner/reader/printer will pass the check again where the remote site will print in a step **606** the information on the physical item at the locations required by the rules governing automated check processing. The item is also scanned in a step **607** again under the direction of the remote site inventive software and the new image (containing endorsement, voiding and item number information), and associated additional information required by the inventive software for tracking and control purposes, is edited in a step **608** for accuracy and completeness and if correct is then transmitted in a step **609** to the central site by the remote site using the transmission facility set up for this purposes.

If the data is not readable or correct, the information is corrected at the direction of the remote site by either re-scanning the item or having the remote site operator key the information in using the terminal attached to the remote site processor. If the item is rescanned at this point, the endorsement, voiding and item number information is not reprinted by the scanner/reader/printer. When the image is ready for transmission to the central site, the remote site processor contacts the transmission facility and, incorporating digital signature verification and certification, and data encryption software to ensure confidentiality, transmits in a step **609** the item image and control information to the central site.

The central site receives the transmitted updated image data and edits in a step **613** for completeness and content. If the data is incomplete or inaccurate, or if the image data is not readable, the central site communicates, with the remote processor and gives detailed information to the operator concerning the need for additional information to complete the inaccurate data or image information. Based on the specific need, this information can be supplied using the terminal on the remote site processor or by re-scanning the physical item and re-transmitting it to the central site. In either case, this information is supplied under the direction of the remote site processor. Such additional information is transmitted to the central site processor from the remote site processor. If the physical item is rescanned at this point, the endorsement, voiding and item number information is not reprinted by the scanner/reader/printer.

Once the central site determines the new data received for the deposit is accurate and complete, the central site stores in a step **618** the updated image of the physical item (on the database(s) maintained by the bank of first deposit's central site for this purpose) along with any additional associated information received from the remote site, and then confirms receipt in a step **610** of good information by sending a notification to the remote site that the process for that specific deposit is complete unless more items are present in a step **615** and allows for termination of the transmission of information or for the same process to be followed for other items in a step **614** in that deposit or for another deposit in a step **616**.

In another embodiment of the invention, the central site stores the check image(s) on an Internet enabled documents storage system allowing access by the depositor, their designee, or the central site processing center of the bank of first deposit. The central site for storing check images and associated information preferably employees incorporating digital signature verification and certification, and data encryption to ensure confidentiality.

If the check is removed from the scanner/reader/printer prematurely, at any time during the process of capturing and transmitting data from the remote site, the transaction information associated with that check will be considered invalid and not part of the deposit. The depositor will need to re-scan and re-enter data associated with that check.

The remote site operator will have the option at the remote site to release deposit information to the central site for

processing. This can be done after either a completion of single deposit in step **615** (containing one or more checks) or after completion of all deposits in step **616** (each containing one or more checks) from the remote site.

After the deposit(s) from a specific remote site are complete, the central site formats deposit information for processing in the accounting systems of the bank of first deposit's central site in a step **619**, including sending the image and other appropriate information for application processing in step **620** (including deposit accounting systems, MICR capture, cash management processing, float processing, etc.,).

If an item is an "on us" item, the central site determines that a physical check is required by the maker, that information is relayed to the central site and an identical image or facsimile of the original item can be printed by either the central site processor or by the item capture system in step **619**.

If the maker bank is a clearing or correspondent bank then the bank of first deposit will determine if the maker bank requires a paper or image item. If the maker bank requires a paper item, then the bank of first deposit's central site will print an exact duplicate of the paper item and route in step **621** the item to the maker bank. The duplicate printed item will generally be as exact as possible based on the quality of the original image. If the maker bank does not require a paper item then the bank of first deposit will route the check image to the maker bank.

If the maker bank is not a clearing or correspondent bank, the check data including image will be forwarded in step **621** using the FRB item clearing processes to route the item image to the FRB affiliated with the maker bank. The maker bank FRB determines if the maker bank will accept check data including an image of the item. If the maker bank requires a paper item, the maker bank FRB prints an identical image of the original item with information showing that it is a duplicate and that the bank of first deposit is central site guarantees the item. This duplicated item is then sent in step **621** to the maker bank for the collections of funds.

As an alternative, the check image or a printed reproduction of the check can be sent in step **621** to the maker bank from either the bank of first deposit is central site or the maker bank FRB using any other acceptable clearing method or process.

Check items that need to be returned, are done so in steps **624** and **625** to the bank of first deposit to be routed back through the same route that was used to clear the item. If a paper item has been created, that item will be returned along with information showing the reason for return. Otherwise, the image will be used for return item purposes until the return item image is returned to the bank of first deposit's central site. At that point, if the remote site processor **201** is able to receive an item image, the image along with the return reason will be passed to the remote site processor **201**. If the remote site processor is not capable of receiving check data including an item image, a paper duplicate showing the return reason will be printed either by the central site or by the item capture system under the direction of the central site and sent to the remote site operator **301**. The unique item number assigned at capture time by either the central site or the remote site can a be included in all return images and/or returned paper items to enable complete and accurate tracking of all return items

Re-deposit may be performed in steps **626**, **627**, **628** of items facilitated by the remote site prompting the remote site operator with instructions on how to scan and transmit the returned paper item or re-deposit the endorsed image previously captured and stored. The unique item number assigned at capture time by either the central site or the remote site facilitates both options.

FIG. **7** is a detailed flowchart depicting the specific steps for carrying out the invention in accordance with a preferred embodiment.

In a step **700**, the software is loaded or otherwise made available to the remote site processor for execution. Those skilled in the art appreciate the various processes and steps for performing loading of software into a processor such as the remote site processor. It is also contemplated within the scope of the present invention that the software for execution on any of the processors may take the form of embedded executable instructions.

Query step **900** determines if deposit processing criteria, (e.g., deposit limit and endorsement information) are present at the remote site processor thereby enabling the initial check deposit processing decisions to be performed locally at the remote site processor or, alternatively, when the deposit processing criteria is not local on the remote site processor, processing passes through path **906** to step **701**.

When query step **900** determines that deposit processing criteria is present at the remote site processor, a query step **910** determines if the information required to determine deposit limits and endorse the item is current on the remote site processor. If this information is present and current on the remote site processor, processing passes through path **911** to step **930** where the remote site operator enters deposit information, as well as the endorsement voiding and item numbering information in process step **931** prior to reading the first monetary item in process step **932** and then proceeding to query step **933**. If this information is not present on the remote site processor or if it is not current, then query step **920** determines if this information can be updated by the operator. If the operator cannot update this information, then process step **926** allows for updating the deposit information from the central site processor and then proceeds to process step **930** where the operator begins the remote capture function by entering deposit information. If the operator can update this information, then process step **921** allows for the operator to update the deposit limit and endorsement information and then proceed to process query step **922**.

Query step **922** determines if the remote site processor can make deposit limit and/or endorsement decisions. If the decision can be made by the remote site processor, then process step **930** allows for the remote operator to enter deposit information, as well as the endorsement voiding and item numbering information in process step **931** prior to reading the first monetary item in process step **932** and then proceeding to query step **933**.

Query step **933** determines if the current item exceeds the item dollar limit or makes the deposit exceed the deposit dollar limit. If the limits are exceed then the process of entering items for the given deposit in process end **934**, and the remote site operator has the option of beginning another deposit or ending the deposit process with the central site processor. If the limits are not exceeded, then process step **935** accounts for the scanned item **932** being edited for accuracy and completeness at the remote location prior to proceeding to query step **936** where it is determined if the data from the scanned item is correct.

In query step **936**, if the data is correct, then query step **937** determines if there are more items to scan. If there are more items to scan, then process step **940** passes back to process step **930** to allow the remote operator to begin the item capture process over again. If query step **937** deter-

mines that there are no more items or deposits to process, then process step **941** prepares the item image data or check data for transmission prior to encrypting the data in process step **942** and digitally signing the data in process step **943**. Process step **944** transmits the data image to the central site processor for editing in process step **747**.

In query step **936**, if the data is not correct, then query step **938** determines if the operator can correct the data using a data terminal connected to the remote site processor. If the operator can correct the data, it is done in process step **946** prior to passing through process step **947** and going back to query step **936** to test data image for correctness. In query step **938**, if the scanned item image is not correct, process step **948** passes through to process **932** where the item is rescanned.

Stepping back to query step **922**, if endorsement and deposit limit information cannot be made by the remote site processor, then the remote site operator, enters deposit information in process step **701** before scanning the physical monetary item in process step **702** after which the item image is edited in process step **703**.

In query step **704**, if the image data is not correct, the check is returned to process step **702** where it is rescanned and re-edited in step **703**. If query step **704** determines the image data is correct, then the data is passed successfully through process step **710** where the image is prepared for transmission to process step **711** where the date is encrypted and step **712** where the digital signature is added in preparation for transmitting the data to the central site in process step **713**.

Process step **714** receives the transmitted image data and passes it to query step **715** where it is edited for accuracy and completeness. If the data is not accurate or complete, it is passed to process step **720** where the data is corrected by requesting updated information from the remote site processor. If the remote site operator cannot supply correct date via the terminal attached to the remote site processor in query step **721**, then the check passes through process step **725** to process step **702** where it is scanned again in preparation for editing and transmitting the corrected image to the central site processor. If the remote site operator is able and authorized to correct the data in query step **721**, the data is entered in process step **722** and passed through path **723** to process step **711** where the data is encrypted in preparation for transmitting to the central site processor.

If in query step **715** the check image data is complete and accurate, the data is passed to process step **730** where the image is stored in data sets used by the bank for document archival and research as well as in a database that is Internet enabled and available for access and research purposes by the depositing customer and bank of first deposit. After the image is stored, a confirmation of good data receipt is created in process step **731**. This confirmation contains necessary endorsement, item numbering and voiding information, which is added to the confirmation record in process steps **732** and **733** prior to the confirmation being sent to the remote site processor. The confirmation record is then data encrypted in process step **734** and a digital signature is added in process step **735** prior to the record being transmitted to the remote processor in process step **736**. Upon receipt by the remote processor in process step **737**, the endorsement, item numbering and voiding information is printed on the physical check in process step **738** prior to it being re-scanned in process step **739**.

After a new check image is created showing the necessary endorsement and voiding information in process step **740**, the new check image is edited to ensure the scanned check data is correct. If in query step **742**, it is determined that the image data is not complete or accurate, the image is passed through process step **750** to process step **739** where the physical check is scanned again. If the check is passed through the reader again at this point, the endorsement information has already been printed and will not be printed again. If in query step **742** it is determined that the check image data is good, the data in prepared for transmission in process step **743** prior to the data being encrypted in process step **743** and digitally signed in process step **745** prior to being transmitted to the central site in process step **746**.

As the central site receives the transmitted image data in process step **747**, the image is edited by the central site software in process step **748** to ensure completeness and accuracy of data. Query step **756** determines quality of data and if the data is not complete or accurate, it is sent to query step **791** where it is determined if the deposit limit and or endorsement information is available on the remote site processor. If this information is available on the remote site processor then the central site processor communicates with the remote site processor through path **794** to determine if the remote site operator can supply the correct image data in query step **938**. The process involved in query step **938** was discussed above. If query step **791** determines that the deposit limit and endorsement information is not on the remote processor then query step **795** determines if the remote operator can supply the correct image information. If the operator can supply the correct image information, it is entered in process step **796** and the check image is prepared for transmission in process step **797** and passed to process step **744** (previously discussed) for digital signature and transmission. If in query step **795** the operator cannot correct/update the image information, the check is processed through path **798** to process step **739** (previously discussed) where it is scanned again in preparation for transmitting to central site processor.

Stepping back to query step **756**, if the data image is complete and accurate the endorsed image of the check is stored in process step **760** in datasets used by the bank for document archival and research as well as in a database in process step **762** that is Internet enabled and available for the depositing customer and bank of first deposit to be able to access for research purposes.

The central processor site then sends confirmation of good receipt of data in process step **762** to the remote processor in process step **763**. At this point query step **764** at the remote processor determines if the deposit currently being worked on is complete. If the deposit is not complete, then process step **780** returns control to the previously discussed process step **702** where the next item is scanned. If the deposit is complete query step **764** asks the operator in query step **765** if there is another deposit. If there is another deposit to be processed, process step **766** passes through to previously discussed process step **701** where the new deposit process is initiated. If there is not another deposit as determined in query step **765**, the remote entry process is completed and the captured deposit and image information is entered into application processing for the bank of first deposit's central site item capture system in process step **771**, the deposit systems in process step **772** and the cash management systems in process step **773**.

In the course of processing a deposit, it is integral to the decision making to understand which banks the deposited items are drawn (i.e. who is the maker bank). Query step **774** determines if the monetary items in the deposit are "on us" items (i.e. items drawn on the bank of first deposit). If the items are "on us," the system determines, in query step **850**,

if the check maker requires a paper check. If they do, then a duplicate of the original check is printed in process step **851** and the paper item is sent to the maker of the check. In addition, the image of the item is sent to process step **860** (discussed below) for processing on internal computer accounting systems. In query step **850**, if the maker of the check does not require a paper duplicate of the original item, process step **860** passes the checks image through the internal accounting systems to query step **861** where it is determined if the item is payable (i.e., does the check maker have sufficient funds in their account to cover the check, is the maker account still open, etc.).

If query step **861** determines the item is payable, the check data is posted to the maker's account and the process ends for that check item in step **863**. If query step **861** determines the item is not payable, then process step **870** returns either the printed duplicate of the check or the check image to the original depositor at the remote location. In query step **871**, a remote site operator determines if they want to re-deposit the item or return it. If they decide to return the item, this is done in process step **880** and path **881** sends control to previously discussed process end step **863**. If query step **871** determines that the item should be re-deposited for collection, query step **872** determines if this is to be done using the duplicate paper item or the original check image.

If the return from query step **872** is to be done using the duplicate paper item, then this is done in path **873** where control is sent back to previously discussed process step **764** where the item is deposited using the scanner/reader/printer. If the check return from query step **872** is to be done using the original captured check image for the item, process step **875** allows for the remote operator to initiate this process in a step **875** by entering the unique number assigned to the original check at capture time. This information is sent to the central site processor via process step **876** and control is then passed through path **877** to process step **764** where the item is deposited using the check original check image.

Stepping back to query step **774** where it is determined if the item is an on us item, if query step **774** determines that the item in not an "on us" item then query step **800** determines if the maker bank is a clearing bank or a correspondant bank. If the maker bank is a clearing bank or a correspondent bank, then query step **801** determines if the maker bank requires a paper copy of the original check item. If they require a paper duplicate, then a paper duplicate of the original item is printed in process step **802** and sent to the maker bank in path **803** which passes control to process step **805** discussed below. If query step **801** determines that the maker bank does not require a printed duplicate check, the image of the original item drawn on the maker bank is sent to the maker bank in process step **805** and the maker bank sends the item through path **806** to previously discussed process step **861** to determine if the item is payable at the maker bank.

Stepping back to query step **800**, if the payee bank is not a clearing bank or correspondent bank, process step **810** sends the check image to the Federal Reserve Bank (FRB) serving as the clearing entity for the bank of first deposit. That branch of the Federal Reserve Bank forwards the check image to the Federal Reserve Bank serving as the clearing agent for the maker bank. That Federal Reserve Bank determines in query step **811** if the maker bank requires a paper duplicate of the original paper check. If the maker bank requires a paper item, the FRB prints the paper item in process step **812**, incorporates the duplicate check in their processing systems as depicted in process step **813** where the item is sent in path **814** to process step **815** where the maker bank receives the paper item. If in query step **811** the maker bank does not require a paper check, the FRB sends the image to the maker bank that receives the image in process step **815** and passes, via path **816**, either the check image or printed duplicate of the original check to previously discussed query step **861** to determine if the item is payable by the maker.

The present invention may be embodied in other forms without departing from its spirit or essential characteristics. As properly understood, the preceding description of specific embodiments is illustrative only and in no way restrictive. The scope of the invention is, therefore, indicated solely by the appended claims as follows.

What is claimed and desired to be secured by United States Letters Patent is:

1. A method for deposit processing at a central system a plurality of checks deposited at a remote site with accompanying deposit information, comprising:

the central system receiving deposit information for a plurality of different deposit transactions, with the deposit information including for each of the different deposit transactions a deposit account designation, electronic check data and check image data for at least one check to be deposited, wherein the central system is separate from MICR capture, deposit accounting, cash management, and float processing systems for a bank of first deposit and wherein the deposit account designation for each of at least a subset of the plurality of the deposit transactions is to a different bank of first deposit;

the central system transmitting the electronic deposit data and optionally the check image data for each different deposit transaction of the subset of the plurality of the deposit transactions to a respective different one of the banks of first deposit;

the central system performing at least one of sorting the received deposit information and error checking the received deposit information before transmission to any of the MICR capture, deposit accounting, cash management, and float processing systems of each of the different banks of first deposit designated in the respective deposit account designations in the deposit information; and

the central system transmitting electronic check data and the check image data directly or indirectly to a maker bank or a Federal Reserve Bank or a correspondent bank in a transmission having a transmission path that bypasses the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

2. The method as defined in claim **1**, further comprising at the remote site:

reading said check image data to create image information data; and

comparing the image information data to the electronic check data.

3. The method as defined in claim **1**, further comprising the step of storing at least one of the check image data and endorsed and/or voided check image data on a server accessible from the Internet.

4. The method as defined in claim **1**, further comprising the steps of:

the central system determining if the maker bank requires a hard copy of the check; and

if it does, sending check image data to the Federal Reserve Bank for printing a hard copy of the check and

sending the hard copy of the check directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction; and

if it does not, sending the check image data directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

5. The method as defined in claim **1**, further comprising the steps of:

the central system determining if the maker bank requires a hard copy of the check;

if it does, printing a copy of the check from the check image data and forwarding directly or indirectly the printed check to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction; and

if not, sending the check image data directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

6. The method as defined in claim **1**, wherein if the check image data is inaccurate or unreadable, then the central system sending an instruction to the remote site to correct without first storing at the central system the check image data having the error; and

receiving corrected check image data.

7. The method as defined in claim **1**, further comprising sending an electronic notification to the remote site that a deposit is complete.

8. The method as defined in claim **1**, further comprising formatting the electronic check data and the check image data for processing in an accounting system of the bank of first deposit.

9. The method as defined in claim **1**, further comprising

the central system receiving return check image data for a return check coupled with a reference key for an original deposit transaction.

10. The method as defined in claim **9**, further comprising

the central system sending the return check image data with the reference key directly or indirectly to the maker bank for re-presentment.

11. The method as defined in claim **10**, further comprising

the central system determining if a re-presentment of the returned check requires a duplicate hard copy of the return check or if the check data image is acceptable for the re-presentment; and

if the check image is acceptable, obtaining the reference key associated with the original deposit transaction; and

sending directly or indirectly the check image data and the reference key to the maker bank.

12. The method as defined in claim **1**, further comprising a system with a plurality of different remote sites, the following steps being performed at each of the plurality of remote sites:

the remote site obtaining electronic deposit data for the one or more checks;

the remote site converting data for each of the one or more checks into electronic check data;

the remote site creating an image of the one or more checks to obtain original check image data;

the remote site endorsing and/or voiding the one or more checks with a bank endorsement to obtain endorsed and/or voided checks;

the remote site creating an image of each of a plurality of the endorsed and/or voided checks to obtain endorsed and/or voided check image data;

the remote site electronically associating the electronic deposit data, the electronic check data and the original check image data and the endorsed and/or voided check image data; and

the remote site transmitting the electronically associated electronic check data and the original check image data and/or the endorsed and/or voided check image to the central system.

13. The method as defined in claim **12**, wherein the transmitting to the central system step comprises transmitting both the original check image data and the endorsed and/or voided check image data.

14. The method as defined in claim **12**, further comprising:

determining if endorsement information at one of the remote sites for printing on the check is up-to-date; and

if the endorsement information at the remote site is not up-to-date, then downloading updated endorsement information from the central system.

15. The method as defined in claim **12**, further comprising the step of comparing an amount of a deposit or an amount of one or more checks against a deposit maximum, and providing a notice if the deposit exceeds the deposit maximum.

16. The method as defined in claim **12**, further comprising receiving return check image data for a return check coupled with a reference key for an original deposit transaction and a return reason.

17. The method as defined in claim **1**, further comprising the central system sending endorsement information to the remote site to be used to add an endorsement.

18. The method as defined in claim **1**, further comprising receiving the endorsed and/or voided check image data from the remote site.

19. A computer-readable medium comprising a program product for deposit processing at a central system a plurality of checks deposited at a remote site with accompanying deposit information, comprising:

at least one computer readable medium having computer readable program code embodied therein to be executed by a computer, the computer readable program code, when executed, causing a machine to perform the following method steps

the central system receiving deposit information for a plurality of different deposit transactions, with the deposit information including for each of the different deposit transactions a deposit account designation, electronic check data and check image data for at least one check to be deposited, wherein the central system is separate from MICR capture, deposit accounting, cash management, and float processing systems for a bank of first deposit and wherein the deposit account designation for each of at least a subset of the plurality of the deposit transactions is to a different bank of first deposit;

the central system transmitting the electronic deposit data and optionally the check image data for each different deposit transaction of the subset of the plurality of the deposit transactions to a respective different one of the banks of first deposit;

the central system performing at least one of sorting the received deposit information and error checking the received deposit information before transmission to any of the MICR capture, deposit accounting, cash management, and float processing systems of each of the different banks of first deposit designated in the respective deposit account designations in the deposit information; and

the central system transmitting electronic check data and the check image data directly or indirectly to a maker bank or a Federal Reserve Bank or a correspondent bank in a transmission having a transmission path that bypasses the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

20. The computer-readable medium as defined in claim **19**, further comprising program code for causing the following method steps at the remote site:

reading said check image data to create image information data; and

comparing the image information data to the electronic check data.

21. The computer-readable medium as defined in claim **19**, further comprising program code for causing the step of storing at least one of the check image data and endorsed and/or voided check image data on a server accessible from the Internet.

22. The computer-readable medium as defined in claim **19**, further comprising program code for causing the steps of:

determining if the maker bank requires a hard copy of the check; and

if it does, sending check image data for printing a hard copy of the check and sending the hard copy of the check directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction; and

if it does not, sending the check image data directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

23. The computer-readable medium as defined in claim **19**, further comprising program code for causing the steps of:

determining if the maker bank requires a hard copy of the check;

if it does, printing a copy of the check from check image data and forwarding directly or indirectly the printed check to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction; and

if not, sending the check image data directly or indirectly to the maker bank or the Federal Reserve Bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

24. The computer-readable medium as defined in claim **19**, wherein if the check image is inaccurate or unreadable, then sending an instruction to the remote site to correct without first storing at the central system the check image data having the error; and

receiving corrected check image data.

25. The computer-readable medium as defined in claim **19**, further comprising program code for causing the step of sending an electronic notification to the remote site that a deposit is complete.

26. The computer-readable medium as defined in claim **19**, further comprising program code for causing the step of formatting the electronic check data and the check image data for processing in an accounting system of the bank of first deposit.

27. The computer-readable medium as defined in claim **19**, further comprising program code for causing the step of receiving return check image data for a return check coupled with a reference key for an deposit transaction.

28. The computer-readable medium as defined in claim **27**, further comprising program code for causing the step of sending the return check image data with the reference key directly or indirectly to the maker bank for re-presentment.

29. The computer-readable medium as defined in claim **28**, further comprising program code for causing the machine to perform the step of

determining if a re-presentment of the returned check requires a duplicate hard copy of the return check or if the check data image is acceptable for the re-presentment; and

if the check image is acceptable, obtaining a reference key associated with an deposit transaction; and

sending directly or indirectly the check image data and the reference key to the maker bank.

30. The computer-readable medium as defined in claim **19**, comprising program code at a plurality of different remote sites for causing when executed a machine at the respective remote site to perform the following method steps:

the remote site obtaining electronic deposit data for the one or more checks;

the remote site converting data for each of the one or more checks into electronic check data;

the remote site creating an image of the one or more check to obtain original check image data;

the remote site endorsing and/or voiding the one or more checks with a bank endorsement to obtain endorsed and/or voided checks;

the remote site creating an image of each of a plurality of the endorsed and/or voided checks to obtain endorsed and/or voided check image data;

the remote site electronically associating the electronic deposit data, the electronic check data and the original check image data and the endorsed and/or voided check image data; and

the remote site transmitting the electronically associated electronic check data and the original check image data and/or the endorsed and/or voided check image to the central system.

31. The computer-readable medium as defined in claim **30**, wherein the transmitting to the central system step comprises transmitting both the original check image data and the endorsed and/or voided check image data.

32. The computer-readable medium as defined in claim **30**, further comprising program code to cause the machine to perform the following method steps:

determining if endorsement information at one of the remote sites for printing on the check is up-to-date; and

if the endorsement information at the one of the remote sites is not up-to-date, then sending updated endorsement information to that remote site.

33. The computer-readable medium as defined in claim 30, further comprising program code for causing a machine to perform the following step of comparing an amount of a deposit or an amount of one or more checks against a deposit maximum, and providing a notice if the deposit exceeds the deposit maximum.

34. The computer-readable medium as defined in claim 30, further comprising program code for causing the machine to perform the following method step of receiving return check image data for a return check coupled with a reference key for an original deposit transaction and a return reason.

35. The computer-readable medium as defined in claim 19, further comprising program code for the central system sending endorsement information to the remote site to be used to add an endorsement.

36. The computer-readable medium as defined in claim 19, further comprising program code for receiving the endorsed and/or voided check image data from the remote site.

37. A system for deposit processing at a central system a plurality of checks deposited at a remote site with accompanying deposit information, comprising:

an electronic storage; and

a set of processors that use the electronic storage, wherein a set is one or more, and wherein the set of processors include among them the following components

a component at the central system for receiving deposit information for a plurality of different deposit transactions, with the deposit information including for each of the different deposit transactions a deposit account designation, electronic check data and check image data for at least one check to be deposited, wherein the central system is separate from MICR capture, deposit accounting, cash management, and float processing systems for a bank of first deposit and wherein the deposit account designation for each of at least a subset of the plurality of the deposit transactions is to a different bank of first deposit;

a component at the central system for transmitting the electronic deposit data and optionally the check image data for each different deposit transaction of the subset of the plurality of the deposit transactions to a respective different one of the banks of first deposit;

a component at the central system performing at least one of sorting the received deposit information and error checking the received deposit information before transmission to any of the MICR capture, deposit accounting, cash management, and float processing systems of each of the different banks of first deposit designated in the respective deposit account designations in the deposit information; and

a component at the central system for transmitting electronic check data and the check image data directly or indirectly to a maker bank or a Federal Reserve Bank or a correspondent bank in a transmission having a transmission path that bypasses the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

38. The system as defined in claim 37, further comprising a component for sending the check image data to a bank of first deposit.

39. The system as defined in claim 37, further comprising:

a component for reading said check image data to create image information data; and

a component for comparing the image information data to the electronic check data.

40. The system as defined in claim 37, further comprising a component for storing at least one of the check image data and endorsed and/or voided check image data on a server accessible from the Internet.

41. The system as defined in claim 37, further comprising:

a component for determining if the maker bank requires a hard copy of the check, and, if it does, sending the check image data for printing a hard copy of the check and sending the hard copy of the check directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction, and if it does not, sending the check image data directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

42. The system as defined in claim 37, further comprising:

a component for the central system determining if the maker bank requires a hard copy of the check, if it does, printing a copy of the check from the check image data and forwarding directly or indirectly the printed check to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction, and if not, sending the check image data directly or indirectly to the maker bank, but not through the MICR capture, deposit accounting, cash management, and float processing systems of the bank of first deposit for that deposit transaction.

43. The system as defined in claim 37, wherein if the check image data is inaccurate or unreadable, then sending an instruction to the remote site to correct without first storing at the central system the check image data having the error; and

a component for receiving corrected check image data.

44. The system as defined in claim 37, further comprising a component for sending an electronic notification to the remote site that a deposit is complete.

45. The system as defined in claim 37, further comprising a component for formatting the electronic check data and the check image data for processing in an accounting system of the bank of first deposit.

46. The system as defined in claim 37, further comprising

a component at the central system for receiving return check image data for a return check coupled with a reference key for an original deposit transaction.

47. The system as defined in claim 46, further comprising

a component at the central system for sending the return check image data with the reference key directly or indirectly to the maker bank for re-presentment.

48. The system as defined in claim 47, further comprising

a component for determining if a re-presentment of the returned check requires a duplicate hard copy of the return check or if the check data image is acceptable for the re-presentment; and if the check image is acceptable, obtaining the reference key associated with the deposit transaction and sending directly or indirectly the check image data and the reference key to the maker bank.

49. The system as defined in claim 37, further comprising a subsystem at a plurality of different remote sites, with the subsystem at each of the plurality of remote sites comprising:

a component for obtaining electronic deposit data for the one or more checks;

a component for converting data for each of the one or more checks into electronic check data;

a component for creating an image of each of the one or more checks to obtain original check image data;

a component for endorsing and/or voiding the one or more checks with a bank endorsement to obtain endorsed and/or voided checks;

a component for creating an image of each of a plurality of the endorsed and/or voided checks to obtain endorsed and/or voided check image data;

a component for electronically associating the electronic deposit data, the electronic check data and the original check image data and the endorsed and/or voided check image data; and

a transmitter for transmitting the electronically associated electronic check data and the original check image data and/or the endorsed and/or voided check image data to the central system.

50. The system as defined in claim 49, wherein the transmitter for transmitting to the central system is programmed to transmit both the original check image data and the endorsed and/or voided check image data.

51. The system as defined in claim 49, further comprising:

a component for determining if endorsement information at one of the remote sites for printing on the check is up-to-date; and

a component for, if the endorsement information at the one of the remote sites is not up-to-date, then downloading updated endorsement information from the central system.

52. The system as defined in claim 49, further comprising a component for comparing an amount of a deposit or an amount of one or more checks against a deposit maximum, and providing a notice if the deposit exceeds the deposit maximum.

53. The system as defined in claim 49, further comprising a component for receiving return check image data for a return check coupled with a reference key for an original deposit transaction and a return reason.

54. The system as defined in claim 37, further comprising a component for the central system sending endorsement information to the remote site to be used to add an endorsement.

55. The system as defined in claim 37, further comprising a component for receiving the endorsed and/or voided check image data from the remote site.

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