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James

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[54] ELECTRONIC PAYMENT INTERCHANGE CONCENTRATOR

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[75] Inventor: David L. James, Dublin, Ohio

Primary Examiner—James P. Trammell  
Attorney, Agent, or Firm—Porter, Wright, Morris & Arthur

[73] Assignee: Huntington Bancshares Inc., Columbus, Ohio

### [57] ABSTRACT

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[52] U.S. Cl. .... 395/235; 395/239

[58] Field of Search ..... 364/401 R, 404, 364/405, 406, 407, 408; 395/201, 235, 237, 239, 240, 242, 243, 244

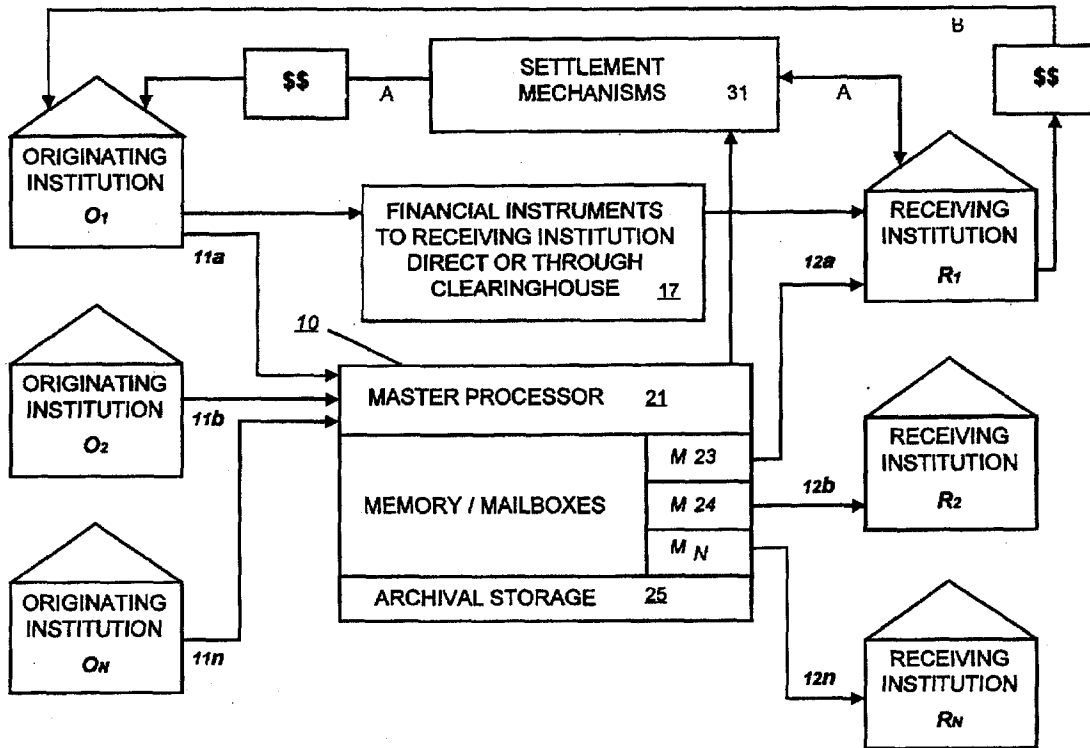
An apparatus, system and process for effecting one or more of the reception, transmission, translation and storage of data files containing information relating to financial instruments among and between multiple institutions wherein a data file in a first file format is received from an originating institution, the file is translated into a second data file format selected by an institution that is to receive the information, the information is stored in memory which is uniquely accessible to the receiving institution and transmitted to the receiving institution. Information derived from the financial instrument information contained in the second data file format may be transmitted to a settlement mechanism. The transmission to the receiving institution and to a settlement mechanism may occur on demand, based on instructions by the originating institution and within a prearranged time period.

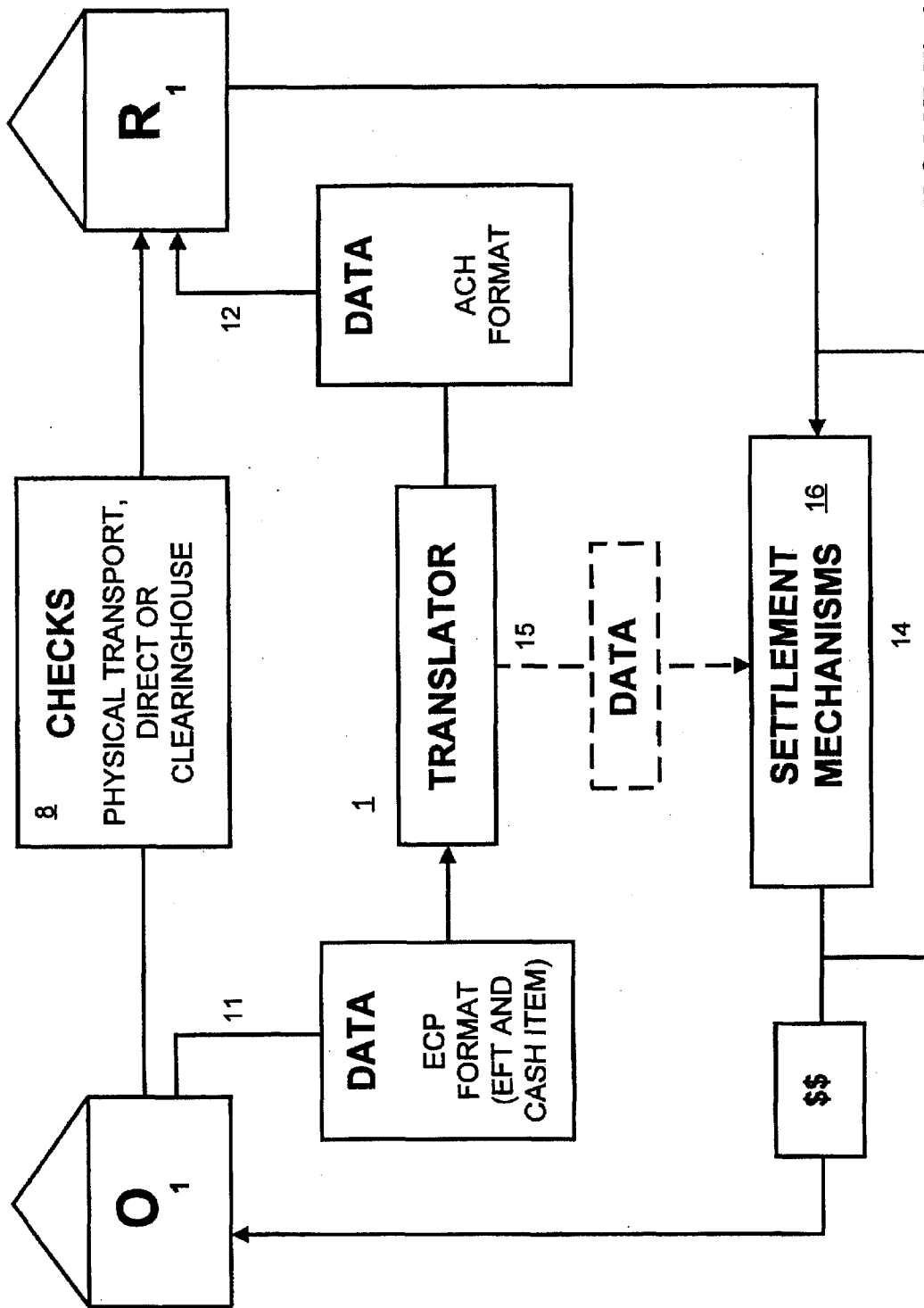
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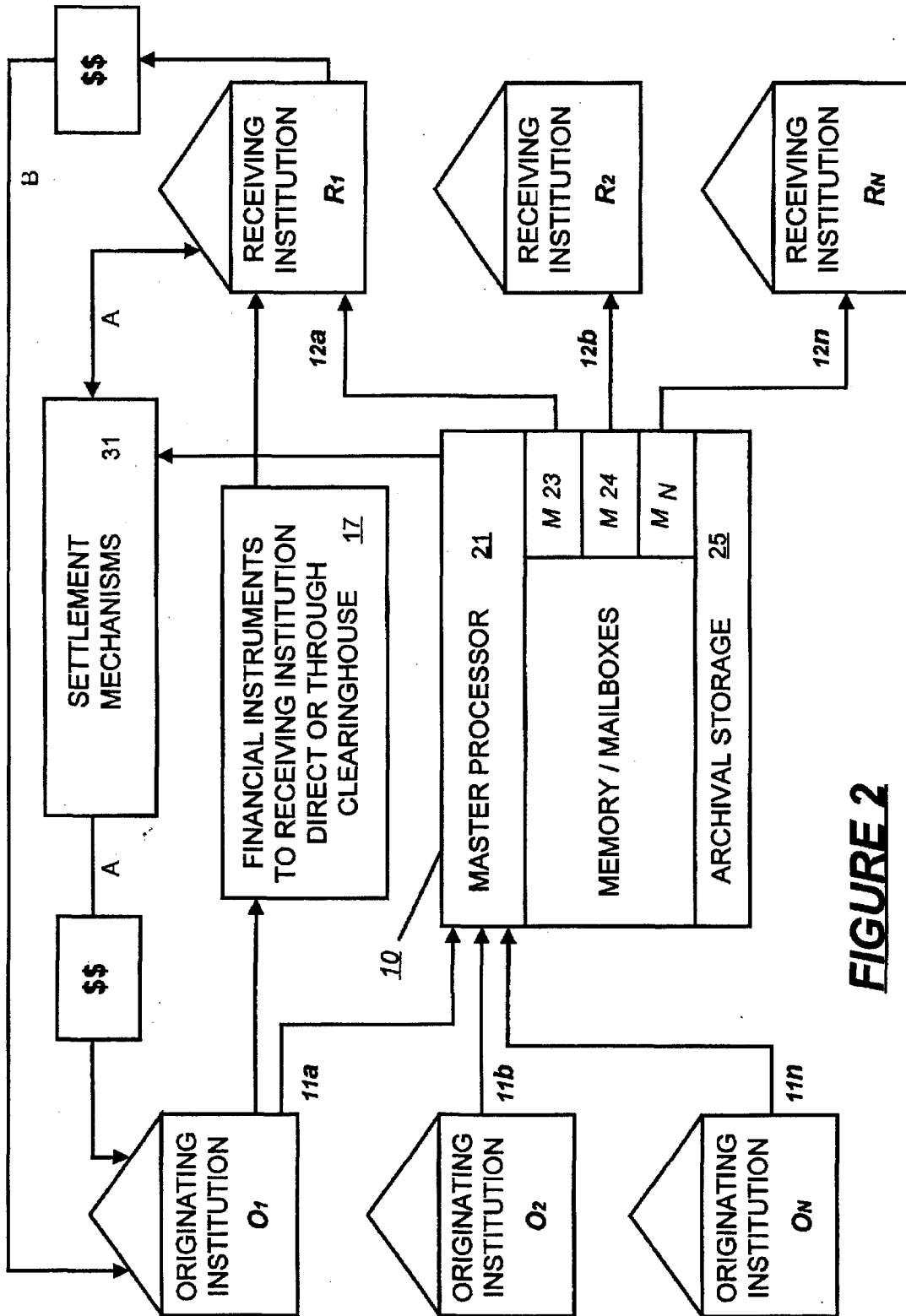
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91 Claims, 2 Drawing Sheets





**FIGURE 1**



**FIGURE 2**

## ELECTRONIC PAYMENT INTERCHANGE CONCENTRATOR

### FIELD OF THE INVENTION

The present invention relates to the processing of financial instruments among banks and similar institutions. More particularly, the present invention provides a means for translating dissimilar data file formats containing financial instrument information between participating financial institutions. The information is received from an originating institution in one of a plurality of industry data file formats, translated to a data file format selected by the institution that is to receive the information, and transmitted to the receiving institution. Thus, a turn-key system is provided allowing multilateral exchanges between and among a plurality of institutions having different transmitting and receiving formats.

### DESCRIPTION OF RELATED ART

In the prior art, to effect the clearing and/or transfer and settlement of financial instruments such as a check, financial institutions must either typically transport the instrument to the payor's bank physically or submit the instrument into a settlement clearing system, local clearing houses or more sophisticated national clearing houses such as that described in the present assignee's U.S. Pat. No. 5,265,007. A bank, which has received an instrument on behalf of a payee (bank of first deposit), presents the instrument either directly to the drawer's bank for payment or introduces the instrument into a mechanism in the appropriate payment system. Bilateral or multi-party agreements are entered into between each bank of first deposit and each payor bank in order to facilitate settlement between and among the participants. Delays in check processing, transportation, settlement and subsequent availability of funds are frequently associated with conventional processing. Alternatively, electronic settlement and presentment is faster; however, certain obstacles must be overcome to enable electronic settlement between or among participating institutions, namely the installation of requisite and costly hardware and software systems to facilitate associated electronic transmissions.

Financial institutions which exchange financial instrument information electronically must communicate data in the same data file formats. Several distinct formats are currently used to process financial instrument transactions, such as payment of checks, electronically. An originating institution in receipt of a check deposited by a customer transmits data derived from Magnetic Ink Character Recognition (MICR) line codes from the check, including the check amount, account number, serial number and routing transit number, and/or other information, in one of several standardized formats. If the format required by the receiving (payor) institution is different, dedicated software is required to translate the originator's file into a format readable by the receiving institution. If this is the case, substantial monetary investment is required to provide both hardware and software capabilities at the originating and/or receiving institution to allow the exchange of electronic check data if different data formats are involved with respect to the receiving or originating institutions. Usually, institutions using different formats do not communicate on a bilateral basis.

By way of example, a first depository bank (customarily the payee's bank) in receipt of a check from one of its customers may desire to send electronic data files in a standard electronic format such as the Federal Reserve's

Electronic Cash Letter (ECL) format to the drawer's bank (i.e., the payor bank). However, if the payor bank upon which the check is drawn is capable only of receiving data files in the Automated Clearing House (ACH) format, the two institutions are incapable of exchanging check MICR line data and engaging in bilateral settlements. When either the payee or payor bank is a small institution or an institution that otherwise does not process a high volume of checks, these institutions cannot attain the efficiencies of speed and funds availability associated with bilateral electronic exchanges. A substantial software investment is necessary in this instance. If a bank did invest to provide this capability, the increased costs associated with recoupment of the investment would increase operational costs, a commercial undesirable.

### OBJECTS OF THE INVENTION

Accordingly, it is an object of the present invention to enable the exchange of financial instrument information between and among multiple institutions for processing when the data file formats utilized by the institutions are dissimilar.

It is also an object of the present invention to provide a system which simplifies and expedites the electronic exchange of financial instrument information between a plurality of institutions.

Another object of the present invention is to provide a system which allows financial institutions to receive information representing various financial instruments from multiple institutions originating in a variety of standard data file formats, but received by a receiving institution in a selected format determined by the receiving institution.

An object of the present invention is to provide a system which receives information representing financial instruments in a first data file format from a financial institution and translates the data into a format acceptable to one or more of a plurality of settlement mechanisms.

Another object of the present invention is to provide a system which allows financial institutions to receive information, derived from financial instruments, from multiple institutions originating in a variety of standard data file formats, but received by a receiving institution in a selected format determined by the receiving institution.

Another object of the present invention is to provide a system which allows financial institutions to receive information, derived from financial instruments, from multiple institutions originating in a variety of standard data file formats, and transmitted to one or more of a plurality of settlement mechanisms in a format acceptable to each mechanism.

It is a further object of this invention to provide a system which allows financial institutions to receive electronic information representing check MICR line and/or other data, or data representing an electronic funds transfer, from multiple institutions originating in a variety of standard data formats, but received by a receiving institution in a selected format determined by the receiving institution.

Another object of the present invention is to provide a system which receives check MICR line and/or other or additional data in a first data file format from a financial institution and translates the data into a format acceptable to one or more of a plurality of settlement mechanisms.

Another object of the invention is to provide a permanent memory storage device which archives financial instrument information exchanged between originating and receiving institutions.

An object of the present invention is to provide a system which allows an originating institution to transmit a data file containing information representing a plurality of financial instruments to be exchanged between the originating institution and one or more receiving institutions, separating and translating the first data file into one or more data files and data file formats corresponding to each of the designated receiving institutions, and transmitting the separated and translated data files to each of the receiving institutions.

A still further object of the present invention is to provide an integrated system which allows financial institutions to receive electronic information representing financial instruments from a plurality of institutions originating in a variety of standard data formats, translating the information into a second data format selected by the receiving institution, storing the second data format and information contained therein in a memory storage address uniquely accessible to a specific receiving institution, providing a means for a receiving institution to access such stored data, transmitting the data to the receiving institution, and providing an archival memory storage device. An integrated system is provided which allows financial institutions to receive financial instrument information in a data file from multiple institutions originating in a variety of standard data formats. The information is translated into a data format selected by the institution that is to receive the information and the financial instrument information is transmitted to one or more of a plurality of settlement mechanisms.

The present invention also provides a process which allows institutions to receive financial instrument information from multiple institutions originating in a variety of data formats, to translate the data into a format specified by the institution that is to receive the information, to store the information contained in the data file in a memory storage address uniquely accessible to a specific receiving institution, to provide a means for the receiving institution to access the stored data, and to transmit same to the receiving institution.

It is yet another object of the present invention to avoid strict timing requirements in that both originating and receiving institutions are provided an ability to unilaterally determine the timing of sending and/or receiving financial instrument information within the system rather than be bound by a strict schedule.

#### SUMMARY OF THE INVENTION

The foregoing objectives are achieved in an electronic payment interchange concentrator system for effecting one or more of the reception, transmission, translation and storage of data files containing information relating to financial instruments among and between multiple institutions. The invention includes a means for receiving a data file from an originating institution. The data file is in a first file format established by the originating institution and contains a designation that the information in the data file is to be received by a predetermined institution or institutions. The data file may contain co-mingled financial instrument information, portions of which are intended for one or more of a multiple of receiving institutions or settlement mechanisms. A processor translates the financial instrument information in the first data file format into a second data file format selected by each institution that is to receive the information. Also included is a means for storing the financial instrument information in the second data file format in memory which is uniquely accessible to each institution that is to receive the information. The system also includes a

means for transmitting the financial instrument information in the second data file format to the institution that is to receive the information upon one of demand from the receiving institution, instructions by the originating institution and within a prearranged time period.

These and further objectives will become apparent from the following description.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a simplified illustration showing a data file format translator in a bilateral relationship of two clearing banks with regard to an instrument presented for payment, and one or more possible settlement mechanisms.

FIG. 2 illustrates multiple participating financial institutions; the electronic payment interchange concentrator ("EPIC"); the translation of a data file containing financial instrument information from a first file format established by an originating institution to a second file format established by a receiving institution; a memory storage area within EPIC accessible to a specific originating and/or receiving institution; the transmission of the second file format to the receiving institution; the optional transmission of information to a settlement mechanism; and an archival mechanism for permanently storing the financial instrument information.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

A system is provided that expedites the processing of financial instrument information by (1) receiving an electronic data file containing financial instrument information from an originating institution; (2) translating the data file format received from the originating institution into a format established by the institution that is to receive the information; (3) transmitting the reformatted data file to the receiving institution; and (4) providing an archival facility to store the financial instrument information. In contrast with bilateral translation systems, the invention provides for the exchange of information among multiple institutions in different formats in a system which is adapted to deliver translated files in differing formats to different receiving institutions, and further to include in the files additional information that is useful in the settlement and reconciliation of exchanged information. The present invention also communicates with existing clearing and settlement mechanisms to expedite the clearing of the financial instruments represented by the information in the data file and the settlement of funds represented by the financial instruments.

The electronic payment interchange concentrator, EPIC, allows financial institutions to receive electronic information such as usually associated with categories appearing in check MICR line data, representing financial instruments and electronic funds transfers, and additional system generated information such as trace number, bank of first deposit, account deposited to, and the like, from a variety of sources originating in a plurality of industry data file formats. EPIC translates the information sent by the originating institution(s) into a format selected by the receiving institution. EPIC provides individual memory storage for each receiving institution which allows retrieval of financial instrument information on a timely basis by the receiving institution according to clearing requirements or options determined by the institution.

Many financial institutions are now capable of transmitting and receiving data files, however they are not usually capable of exchanging data files in a plurality of different file