



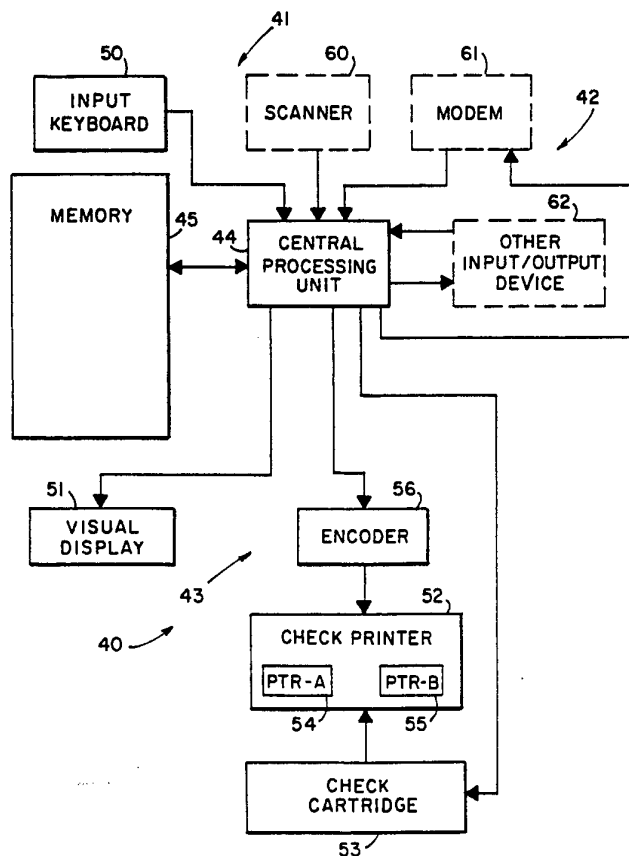
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁵ : G06F 15/00, 15/22, 15/24 G06G 7/52, B42D 15/00</p>	<p>A1</p>	<p>(11) International Publication Number: WO 94/02902 (43) International Publication Date: 3 February 1994 (03.02.94)</p>
<p>(21) International Application Number: PCT/US93/06799 (22) International Filing Date: 14 July 1993 (14.07.93) (30) Priority data: 07/914,971 15 July 1992 (15.07.92) US (71) Applicant: SHAKTI SCIENCE AND ENGINEERING, INC. [US/US]; P.O. Box 9183, Box 307, 955 Massachusetts Avenue, Cambridge, MA 02139 (US). (72) Inventor: MOODLEY, Sadha ; P.O. Box 9183, Box 307, 955 Massachusetts Avenue, Cambridge, MA 02139 (US).</p>		<p>(74) Agent: HERBSTER, George, A.; Pearson & Pearson, 12 Hurd Street, Lowell, MA 01852 (US). (81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>

(54) Title: IMPROVED METHOD AND APPARATUS FOR PREPARING DOCUMENTS

(57) Abstract

Apparatus (40) and a form for facilitating the processing of bank checks and like documents. A blank check includes locations for receiving information in visually recognized and machine-readable forms. Certain of this information, such as an identification of a bank and account, may be prerecorded. The customer adds other information, such as the amount of the check, the identification of the payee and his or her signature. The apparatus (40) receives this information (50, 60, 61, 62) and prints (52, 54, 55) the corresponding information onto the check form (53) in both visually recognized and machine-readable form. Consequently the check, when issued, contains all important information in machine-readable form.



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DescriptionIMPROVED METHOD AND APPARATUS FOR PREPARING DOCUMENTSTechnical Field

This invention generally relates to the preparation
5 of documents requiring authentication and more
particularly to a method and apparatus for preparing
checks, drafts and related documents in an improved
manner.

Background Art

10 When an individual prepares a bank check or similar
document, the bank check or document contains certain
information in visually recognized and machine-readable
form. "Visually recognized form" means that an individual
can understand the information merely by looking at it
15 with the human eye. "Machine-readable form" means that
the information is in a form that can be recognized by
automatic sensing equipment. Information in machine-
readable form may or may not be visually recognizable.

Bank checks usually include the name of the bank, the
20 customer's name, address and account number, and in some
cases, a check number in both forms. The customer then
adds, in handwritten form, a date, a payee, the amount of
the check in numeric and alphabetic form and a signature.
After the payee deposits this check, it is processed at a
25 check clearing facility to effect the appropriate
transfers between accounts. A particular clearing
facility may handle hundreds of thousands or even millions
of checks each day. Consequently, these facilities rely
on automated processing to read machine-readable codes.
30 However, important information such as the check amount is
not present on the check in machine-readable form when it
reaches the clearing facility. It has been proposed to
use other optical character recognition equipment to read
hand-written amounts on the check to generate a machine-
35 readable code that can then be applied to the check in
machine-readable form for subsequent processing.

Oftentimes, however, it is not possible for optical
character recognition equipment to read this information

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accurately. When this occurs, the check is shifted to a manual input keying station where an individual tries to read the handwritten information and encode the corresponding information onto the check. This process is highly susceptible to operator error due to the bad handwriting of individuals preparing checks and to the normal error rates encountered when a large quantity of data is typed manually. The quality control that is necessary to monitor these operations to reduce errors and the cost of correcting those errors that do occur are significant costs and a great deal of effort is being directed toward the elimination of these errors.

Banks also have concerns with improper signatures on a check. There is no ready way of authenticating any signature automatically. Authentication can only occur by visually comparing a signature on a check with a signature on file. Normally, however, the facility is at a remote location from the bank where the authentication signature is stored. Even if the signatures were at a common site, the costs of visually comparing signatures is prohibitive, even on a sampled basis. Consequently, there is essentially no effort to verify the authenticity of any signature during the clearing process.

Several attempts have been made to change the way in which people write checks. For example the following patents disclose portable checkbooks and check writing devices:

	4,623,965	(1986)	Wing
	4,455,100	(1984)	Bauer
30	4,222,109	(1980)	Suwila

United States Letters Patent 4,623,965 to Wing discloses a pocket-sized check writing apparatus with a liquid crystal display, a keyboard for entering data into a microprocessor and a removable cartridge for blank checks. This apparatus prints the check amount, payee, date and other memo information onto the check in a visually recognized form only.

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United States Letters Patent 4,455,100 to Bauer discloses a portable check writing apparatus with mosaic printing heads independently controllable and disposed at fixed locations that correspond to area for printing on the check. A keyboard and display screen enable an individual to operate the system. This apparatus is adapted to operate only after a card that bears a user-specific PIN (Personal Identification Number) is inserted into and recognized by the apparatus.

10 United States Letters Patent 4,222,109 to Suwila discloses a portable electronic checkbook that enables an individual to enter check amounts using a keyboard and display screen. Although this apparatus maintain an account balance electronically, all checks are
15 handwritten.

None of these approaches have received widespread commercial recognition or acceptance. The reluctance to use such apparatus seems to stem from the lack of any positive benefit other than presenting the information in
20 clearer form. For example, while the Wing patent prints information on the check in a consistent format, that might be useful in reducing input errors; however, nothing authenticates a signature. The Bauer patent provides some security by limiting the use of the apparatus to
25 individuals holding a particular card but none of this information is added to the check. Suwila's apparatus does not provide any suggestion for reducing input errors or authentication errors.

It has also been suggested to locate apparatus for
30 writing information onto checks in a machine-readable format at various business establishments thereby to minimize the cost of encoding checks. Such apparatus is disclosed in the following patents:

4,672,377 (1985) Murphy et al
35 4,786,789 (1986) Gaucher
4,385,285 (1983) Horst

United States Letters Patent 4,672,377 discloses a check verification system adapted for use in supermarkets.

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The system has an entrance station and a cash register station. A customer enters a Personal Identification Number and inserts a blank check into the entrance station. The system then accesses a database that reveals
5 the consumer's credit status and thereafter prints a unique number on the customer's check in both machine-readable and visually recognized forms. Apparatus at the cash register scans this code and authorizes the receipt of the check. Alternatively, the apparatus at the cash
10 register can verify the check amount and then print the actual amount due onto the check in visually recognized and machine-readable form.

United States Letters Patent 4,786,789 discloses an apparatus and method for reading and printing magnetic ink
15 on checks. This apparatus is typically stationed at a vendor's business and prints an amount, the payee, the date and an endorsement on the customer's check in machine-readable form.

United States Letters Patent 4,385,285 to Horst
20 discloses a check issuing machine activated when a customer enters a written signature and account number. This apparatus evaluates the signature to determine whether the signature is authorized and to order a withdrawal of funds from the entered account number. If
25 that account number is approved, the apparatus issues a guaranteed check with the amount, the account number and other information printed thereon in alphanumeric characters and in machine-readable form.

In order to use the apparatus and method disclosed by
30 the Murphy et al patent, a customer must be authorized to cash checks at a facility where the apparatus is located and must authorize access to his or her financial information. Similarly, the Gaucher and Horst patents disclose apparatus that must be used at particular sites.
35 The customer may not use this apparatus at will. Given these constraints a customer can only use such apparatus at a particular location, often at particular times. None of this apparatus is adapted for use by a customer and

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none of it is portable. The limited accessibility and use of such equipment therefore does not really provide any solutions to the problems financial institutions face in clearing checks.

5 Disclosure of Invention

Therefore it is an object of this invention to provide a check form and apparatus for printing that form that can be used to prepare a check for payment.

Another object of this invention is to provide a
10 check form and apparatus for preparing that form that produces a check with information in visually recognized form and machine-readable form.

Yet another object of this invention is to provide apparatus for preparing a check form that is portable and
15 easy to use.

Yet still another object of this invention is to provide a check form and simple portable apparatus for preparing that form with information in visually recognized and machine-readable forms thereby to minimize
20 processing costs at a central processing facility.

In accordance with this invention, a check is preprinted in visually recognized form and machine-readable form with certain information such as bank identification and customer account number. The customer
25 uses the apparatus of this invention to identify a payee, an amount and signature authentication information into the apparatus. The apparatus then prints all this information onto the check in both visually recognized and machine-readable forms. Consequently, the check, on
30 signature, is fully negotiable and fully prepared for processing at a clearing facility.

Brief Description of the Drawings

The appended claims particularly point out and distinctly claim the subject matter of this invention.
35 The various objects, advantages and novel features of this invention will be more fully apparent from a reading of the following detailed description in conjunction with the

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accompanying drawings in which like reference numerals refer to like parts, and in which:

Fig. 1 depicts a check form constructed in accordance with this invention;

5 Fig. 2 is a schematic of apparatus for use in practicing this invention; and

Fig. 3 depicts the check form of Fig. 1 after it has been printed by the apparatus in Fig. 2.

Best Mode for Carrying Out the Invention

10 A blank check constructed in accordance with this invention contains certain information in both visually recognized and machine-readable form. Fig. 1 discloses such a check 10 in blank that includes the name and address of the account holder at a location 11, a check
15 number at a location 12 and a number of other areas into which the customer inserts information. In addition the blank check 10 includes an area 13 for storing information in machine-readable form. By "machine-readable" form it is intended to mean a form in which the data is recorded
20 magnetically on a strip, or visually in either conventional optical character codes or bar codes or otherwise. The blank check 10, however, will include in the block 13 a bank identification section 14 and an account identification section 15 and may include a check
25 number 16 if the check numbers are preprinted at location 12.

In this particular embodiment, the customer is to supply a date at a date location 20, the name of a payee at a payee line 21, a numeric representation of the check
30 amount at location 22 and an alphabetic designation of the payment amount at location 23. The check also includes a signature line 24 and an optional memorandum line 25.

When the customer utilizes the apparatus of Fig. 2, the customer will provide information that allows the
35 apparatus to complete the check 10. The apparatus of Fig. 2, as will be described, for example will print on the check in visually recognized form the month, day and year,

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designated {month}, {day} and {year} at location 20. The payee line 21 will contain the name of the payee, designated "{payee}" in Fig. 3, at location 21. The amount block will appear in numeric form as "{amount}" at location 22 and as "{amount-written}" at location 23. The signature line 24 will contain the customer's signature, designated "{signature}" in Fig. 2. In addition the apparatus of Fig. 2 will encode into the block 13 in machine readable form a personal identification number in location 30 and the amount 31 at location 31. Block 13 may also include, in machine-readable form, the name of the payee in block 32 and the date in block 33. Other information may be stored in the block 31 in areas represented generally by extension block 34 in Fig. 3.

Fig. 2 depicts a block diagram of apparatus 40 for printing a blank check having the form of Fig. 1 and producing a completed check having the form of Fig. 3. The check printing apparatus 40 includes a plurality of input devices 41, input/output devices 42 and output devices 43, all operated under the control of a central processing unit 44 in response to programs stored in a memory 45. The basic input device is an input keyboard 50 that connects to the central processor unit 44. A customer receives visual feedback of his or her actions at a visual display 51 that can comprise a liquid crystal or similar display. Presentations at the visual display 51 are under control of the central processing unit 44 so that the programs in the memory 45 can prompt the customer for particular information in menu-like or structured question-and-answer-like formats.

For example, when the customer turns on the system the central processing unit 44 can transfer a prompt to the visual display 51 requesting the user to enter a password. After the user enters the password through the input keyboard 50, the central processing unit 44 and memory 45 determine whether the password is appropriate. If it is, another prompt issues to the visual display 51

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allowing the customer to select any of several procedures from a menu.

The customer could select a process for preparing a check through the input keyboard 50. Then the central processing unit 44 would react by requesting the name of the payee. As the name is presented through the input keyboard 50, the central processing unit 44 would display the results in the visual display 51 to permit the customer to verify the entry. Next the apparatus could request the date and the amount in sequence. If any changes were required, an editing program could allow the customer to provide that change. However, once the transaction was properly noted and verified, the central processing unit 44 could print a check.

More specifically, the central processing unit 44 activates a check printer 52 and a check cartridge 53 thereby to supply a check in the form shown in Fig. 1 to the printer 52. In Fig. 2 the check printer 52 is represented as having two printing heads PTR-A 54 and PTR-B 55. The PTR-A printing head 54 functionally represents apparatus for printing information on the check in visually recognized form. The PTR-B printing head 55 functionally represents apparatus for applying the related information on to the check in machine-readable form. If it is possible to recognize the machine-readable form visually, the functions might be combined in a single head.

An encoder 56 may be included intermediate the central processing unit 44 and the check printer 52. This represents either conventional circuitry for converting ASCII or other characters in standard format into a printed format of particular characters. Alternatively, it can include an encryption capability. When the check printer 52 provides the information in an optically recognized form, the personal identification number needs to be encrypted. Either the central processing unit 44 or encoder 56 can be selected to provide such encryption. The encryption may be standard or may be based on other

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information on the check. Such encryption procedures are well known in the art.

In a more sophisticated approach, the memory 45 can contain additional information relating to balances and accounts for bookkeeping purposes. When that situation exists, it is possible to modify the program described above so that the central processing unit 44 requests an account number. If the checking account balance is available, the central processing unit 44 can also determine whether the entered amount will produce an overdraft and allow the customer to determine whether to proceed.

Fig. 2 also discloses, as a dashed box, an optional optical scanner 60 as another input device 41. When this scanner 60 is in place, and the customer selects a scanning input or menu, the central processing unit 44 prompts the customer, through the visual display 51, to scan an invoice the includes invoicing information in machine readable form. Encoded invoices include the name of the payee, invoice and account number information, outstanding balance information and a customer identification in the code. Thus, by using the scanner 60, the central processing unit 44 can then display all the information on the visual display 51 and enable the customer to determine if all the information is correct. An editing program then allows the customer to change any information including the amount. Once the information is verified, the customer instructs the central processing unit 44 through the input keyboard 50 to print a check. As will be apparent the use of the optional scanner on invoices of this type greatly facilitates the ease and speed with which a check can be prepared.

Fig. 2 discloses, as another optional input/output device 42, a modulator-demodulator (MODEM) 61 for enabling the apparatus in Fig. 2 to communicate over telephone lines or the like with other data processing systems. The use of a modem 61 allows a customer to receive information from various sources. For example, it would be possible

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to dial a number on that customer's bank and obtain a list of canceled checks. It is also possible to use the modem to communicate directly with other individual's who have similar systems. For example, the customer could

5 establish communications with a vendor and receive all the information that would otherwise appear in an invoice over the telephone lines and immediately produce a check in the form of Fig. 3.

Moreover, apparatus including a modem 61 can also be
10 used to transfer funds telephonically. In this operation, a customer obtains payment information from the input keyboard 50, the scanner 60, the modem 61 or other input/output device 62. Then during connection to a funds transfer facility the customer, again through a series of
15 prompting messages at the visual display 51, uses the input keyboard 50 to initiate a transfer of information, including some authorization information such as a personal identification number and/or password protocol, to the funds transfer facility for immediate credit to a
20 third party's account or other purpose. During such a transfer, the apparatus 40 in Fig. 2 could also produce a receipt at the check printer 52 having the same form as a check in Figs. 1 and 3, but being identified to be a non-negotiable instrument.

25 The apparatus in Fig. 2 also has the capability for transferring such information directly to the third party for forming a check having the customer's account information, again in both visually recognized and machine-readable form, added to a blank check form. In
30 such a system it the form in Figs. 1 and 3 could be modified to leave the account information, for example, blank, such that the receiving apparatus 40 could supply that information on the check.

The apparatus may also include other input and/or
35 output devices 62, such as a credit or debit card reader. A vendor who accepts credit cards could produce a credit card receipt using the customer's credit card that would include the vendor's name, type of transaction, amount of

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the transaction and date all encoded in the form of a bar code that could then be scanned into the system by a user. This would also tend to minimize credit card fraud because any difference between the account number and the
5 authentication code on the credit card receipt would be readily detected.

Therefore, in accordance with the various objects and advantages of this invention, there has been disclosed a check form and an apparatus for printing on the check form
10 that satisfy the various objects of this invention. Particularly, the check, credit card receipt or other document includes first information supplied by one party such as a bank in both visually recognized and machine-readable form. The apparatus enables a customer to supply
15 additional information, again in both visually recognized and machine-readable forms. This information can be printed directly on the check or encoded magnetically and provides a document that is ready for processing by automated processing equipment without requiring manual
20 processing input. Moreover, if a signature identification code is placed on the document along with the signature, the possibility of payments being made on checks with improper signatures signed is greatly reduced. The use of apparatus with scanners and modems and other input/output
25 devices further expands the overall flexibility of the system to operate with a wide variety of transactions.

This invention has been described in terms of a specific embodiment and operating methods. It will be apparent that many modifications and variations can be
30 made to this structure and to operating methods for controlling such structure with the attainment of some or all of the objects and advantages of this invention. Therefore, it is the intent of the appended claims to cover all such variations and modifications as come within
35 the true spirit and scope of this invention.

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Claims

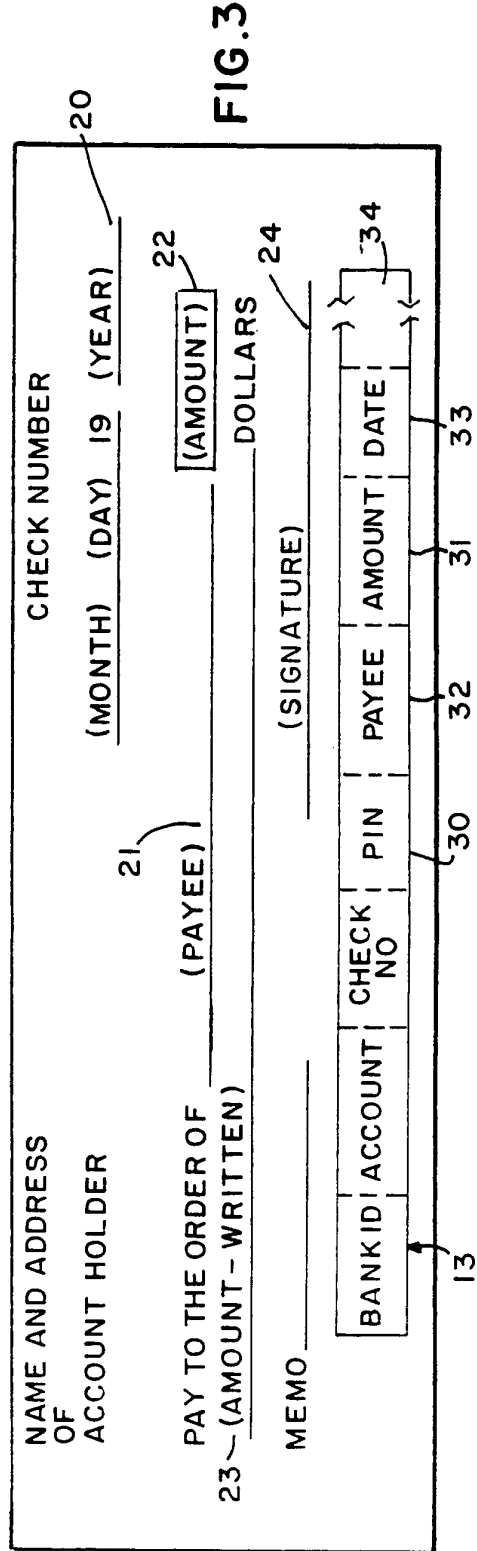
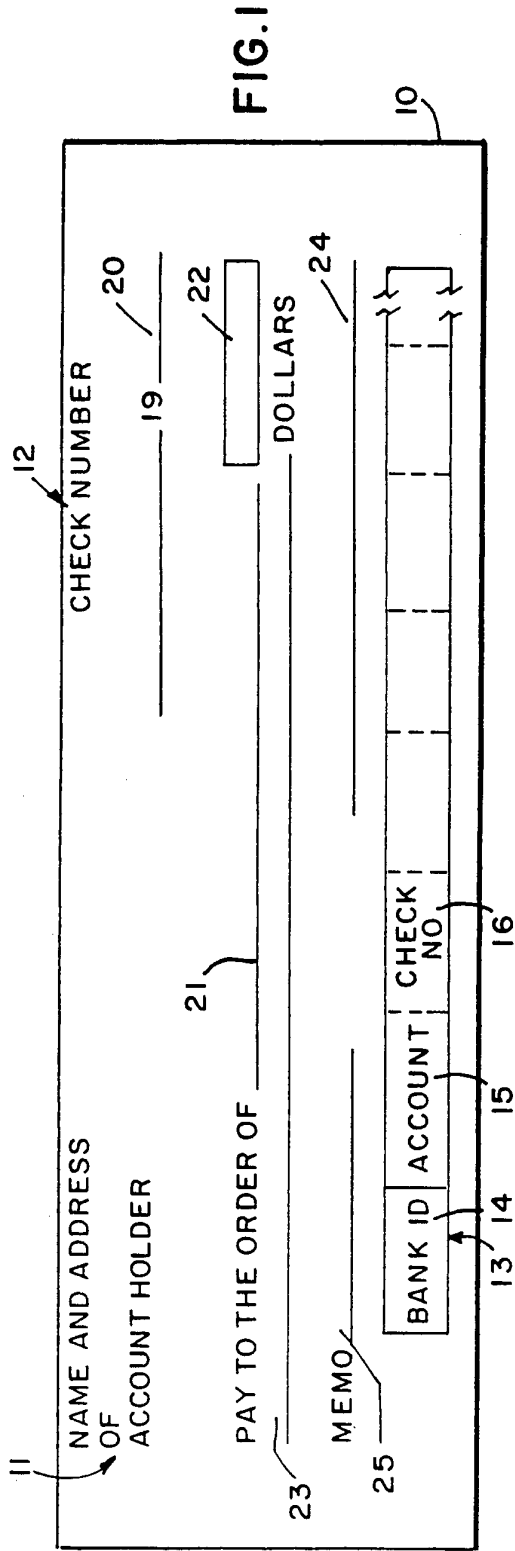
1. In a document supplied by one party for completion and use by a second party and for processing by data processing equipment after use by the second party
5 wherein the document includes first information supplied by the one party in both visually recognized and machine readable forms at each of a plurality of first predetermined positions of the document, said document additionally comprising a second plurality
10 of predetermined positions, certain of said second plurality of predetermined positions receiving information supplied by the second party in visually recognizable form and corresponding information in machine readable form.
- 15 2. A document as recited in claim 1 wherein said second plurality of predetermined positions receives the signature of the second party in visual form and a code, supplied by the second party and corresponding to the signature, in machine readable form.
- 20 3. A document as recited in claim 2 wherein others of said second plurality of predetermined positions receiving, respectively, from the second party other items of information in visually recognized and machine readable form.
- 25 4. A bank check to be completed by a bank customer and including information in both visually recognizable and machine readable form at different positions on the check information supplied by the bank identifying the bank and the consumer's account, the
30 improvement of a first position for receiving customer supplied information in visually recognized form and a second position for receiving from the customer the corresponding information in machine readable form.
- 35 5. A document as recited in claim 4 wherein said customer supplied information is the customer's signature on a check signature line as said first

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- position and a machine readable form of the signature supplied by the customer at said second position.
6. A document as recited in claim 5 wherein said bank check additionally includes an other first position
5 and second position and said customer supplied information for said other first and second positions is the amount of the check.
7. A document as recited in claim 5 wherein said bank check additionally includes an other first position
10 and second position and said customer supplied information for said other first and second positions is identification of the payee named on the check.
8. A document as recited in claim 7 wherein said bank check additionally includes an other first position
15 and second position and said customer supplied information for said other first and second positions is the amount of the check.
9. A document as recited in claim 8 wherein said bank check additionally includes an other first position
20 and second position and said customer supplied information for said other first and second positions is check number.
10. Apparatus for producing a check wherein the check includes a first and a second position thereon for
25 receiving customer supplied information in visually recognized and machine readable form, respectively, said apparatus comprising:
- A. input means for receiving the consumer supplied information,
- 30 B. means for converting said consumer supplied information into a machine readable form,
- C. means for transferring the consumer supplied information in visually recognized and machine readable form to the first and second positions
35 respectively.
11. Apparatus as recited in claim 10 wherein said input means comprises an input keyboard for enabling the consumer to enter information in alphanumeric form.

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12. Apparatus as recited in claim 11 wherein certain information for a check available in machine readable form and wherein said input means additionally comprises scanning means for reading said machine readable form information.
- 5 13. Apparatus as recited in claim 11 wherein said transfer means comprises alphanumeric printing means for placing customer supplied information onto the check in visually recognized form.
- 10 14. Apparatus as recited in claim 13 wherein said transfer means additionally comprises means for encoding the customer supplied information into a machine readable format and means for adding the machine readable format information to the check.
- 15 15. Apparatus as recited in claim 11 additionally comprising visual output means for displaying keyboard entries.
- 20 16. Apparatus as recited in claim 15 adapted for communicating with auxiliary data processing equipment, said apparatus additionally comprising modulator-demodulator means as an auxiliary input-output means for transferring information between said apparatus and the auxiliary data processing equipment.



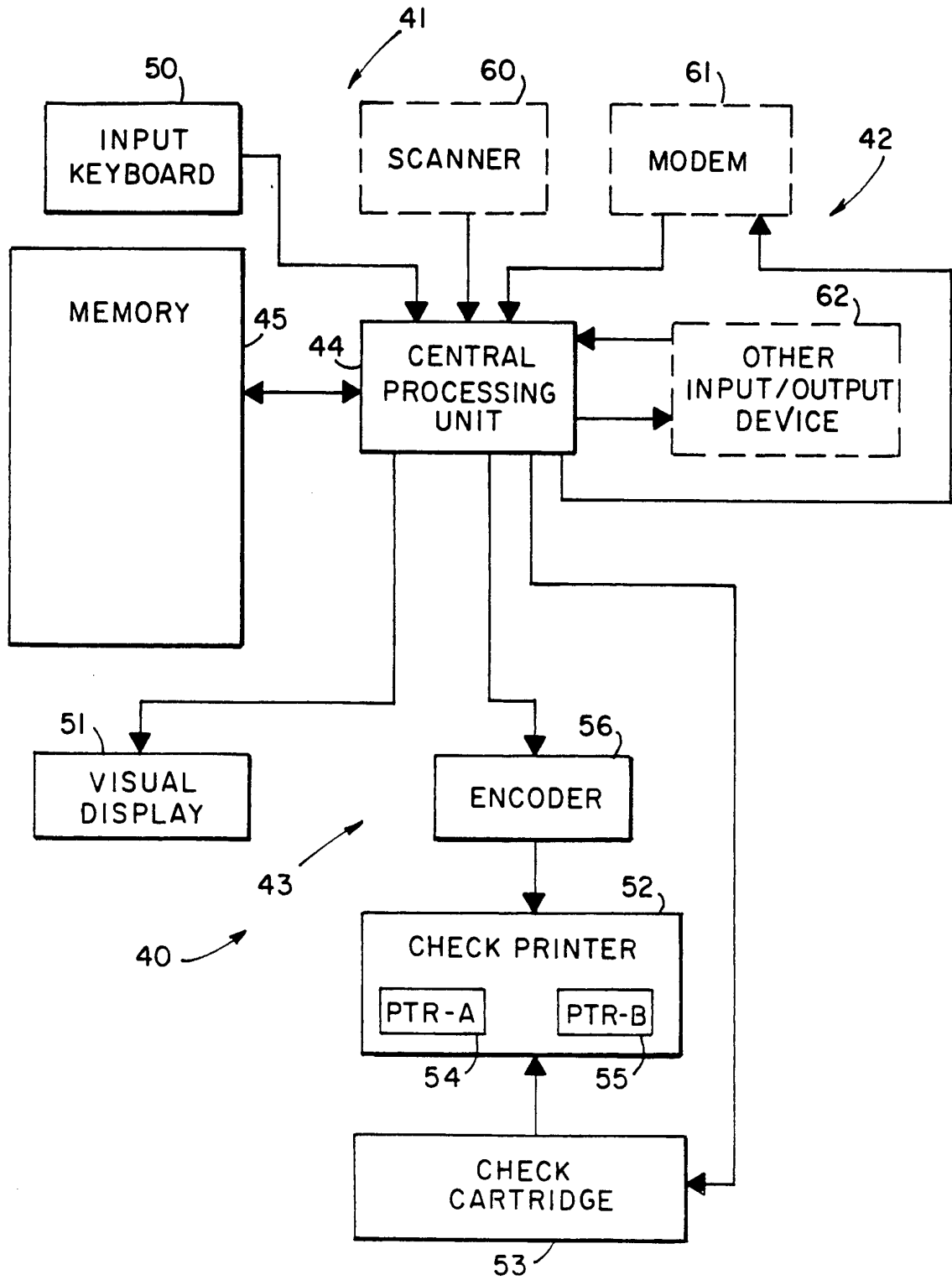


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/06799

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US, A, 5,016,919 (Rotondo) 21 MAY 1991 see Figs. 1,2,3,and 4; col. 3, line 59 to col. 4, line 22	1-9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/06799

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(5) :G06F 15/00,22,24; G06G 7/52; B42D 15/00
 US CL :364/401,406; 283/57,58
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 364/400,401,405,406,408; 283/57,58; 235/3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 APS:check or cheque, magnetic ink, modem, keyboard, display, printer
 DIALOG: check, cheque, bar code, barcode, magnetic ink, magnetic strip, modem, printer, electronic check, check writing

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 4,385,285 (Horst et al.) 24 MAY 1983 see Figs. 1,2A,2B,3; col. 3, line 66 to col. 4, line 11; col. 4, lines 43-60	1-16
Y	US, A, 3,531,628 (White) 29 SEPTEMBER 1970 see fig. 1; col. 1, line 68 to col. 2, line 13; col. 2, lines 41-64	1-9
A	US, A, 4,588,211 (Greene) 13 MAY 1986 see Abstract	1-9
A	US, A, 4,623,965 (Wing) 18 NOVEMBER 1986 see Abstract	1-16
X	US, A, 4,672,377 (Murphy et al.) 09 JUNE 1987 see col. 10, lines 47-53; col. 10, lines 9-13; col. 5, lines 31-37	1-16

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be part of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"G" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 20 SEPTEMBER 1993	Date of mailing of the international search report 17 DEC 1993
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. NOT APPLICABLE	Authorized officer ROY N. ENVALL, JR. <i>B. N. Envall</i> Telephone No. (703) 305-3800 <i>501</i>
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/06799

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
(Telephone Practice)

- I. Claims 1-9, drawn to a bank check.
- II. Claims 10-16, drawn to an apparatus for producing a check.

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

- Remark on Protest
- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.