

April 7, 1970

W. F. RUDDOCK ET AL.

3,505,501

FORM SET AND METHOD OF MAKING SAME

Original Filed Aug. 17, 1964

3 Sheets-Sheet 1

Fig. 1

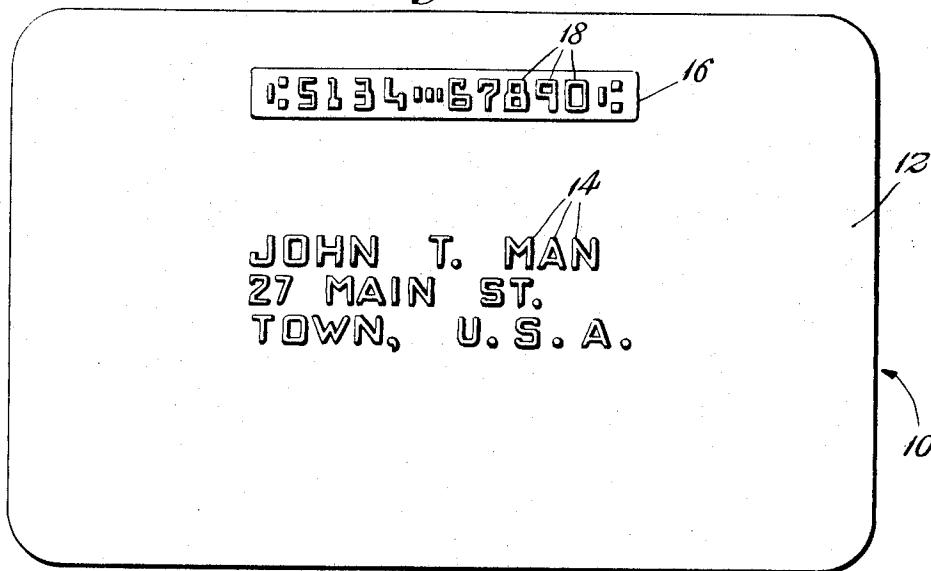
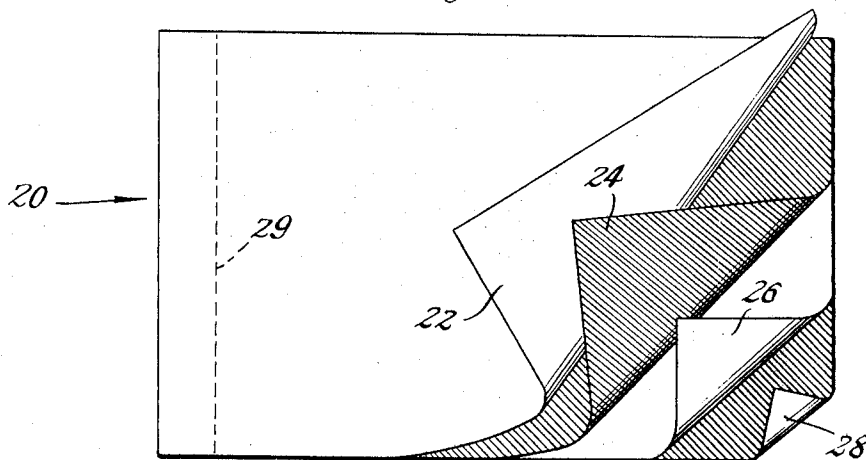


Fig. 2



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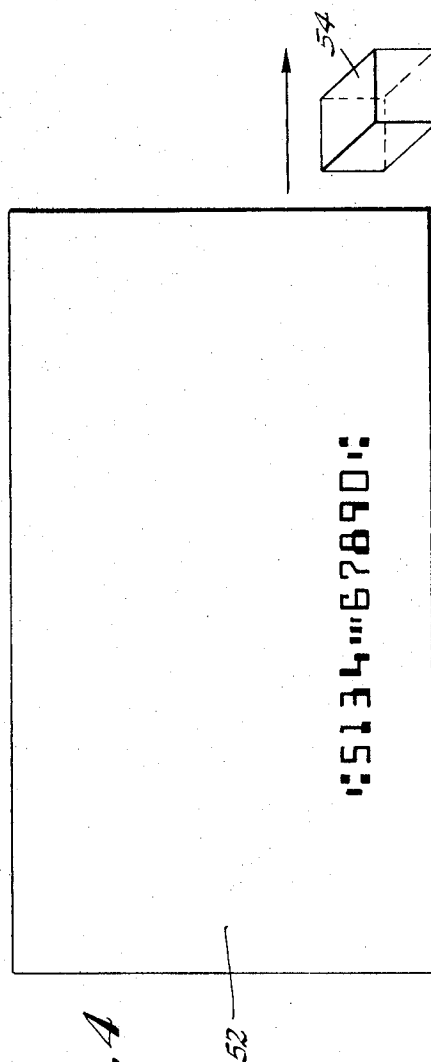
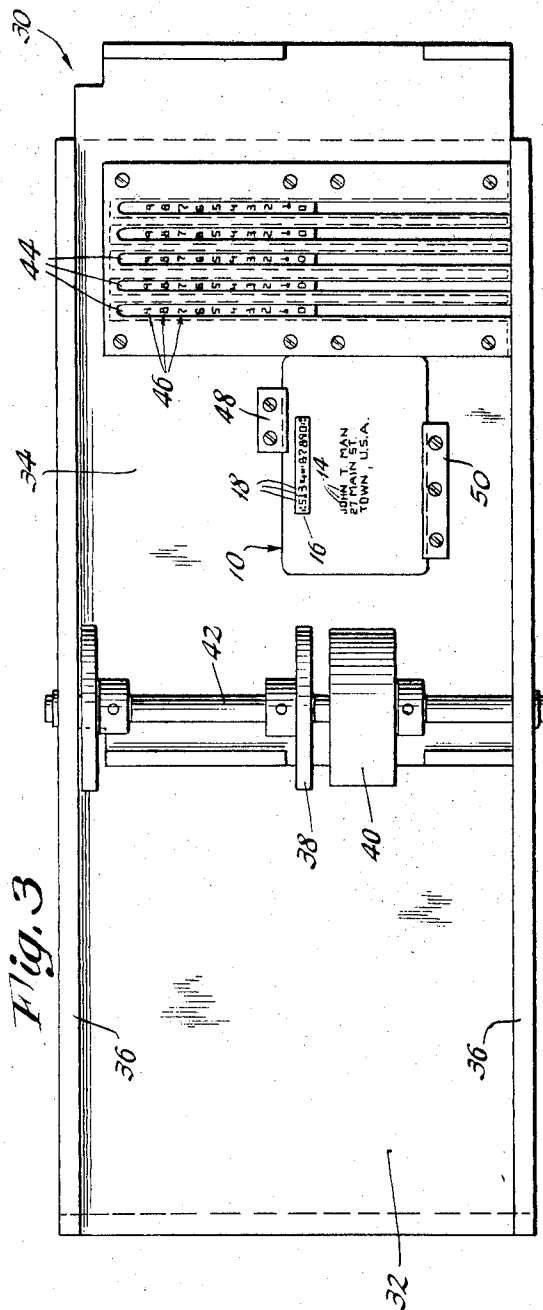
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FORM SET AND METHOD OF MAKING SAME

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3 Sheets-Sheet 2



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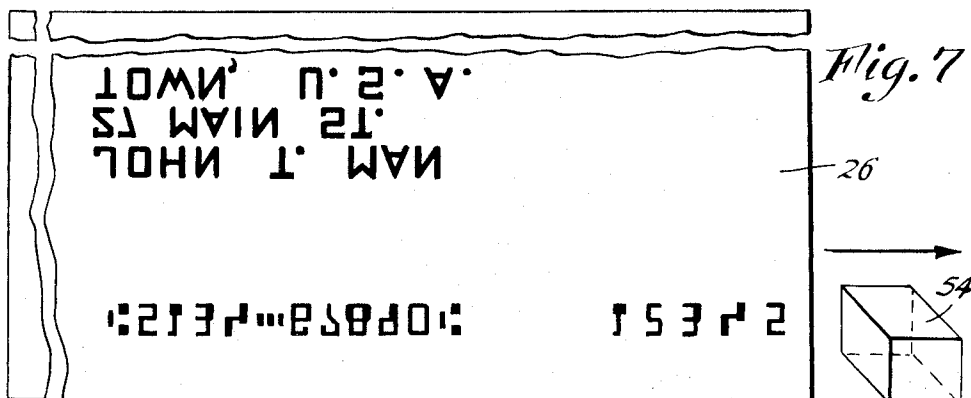
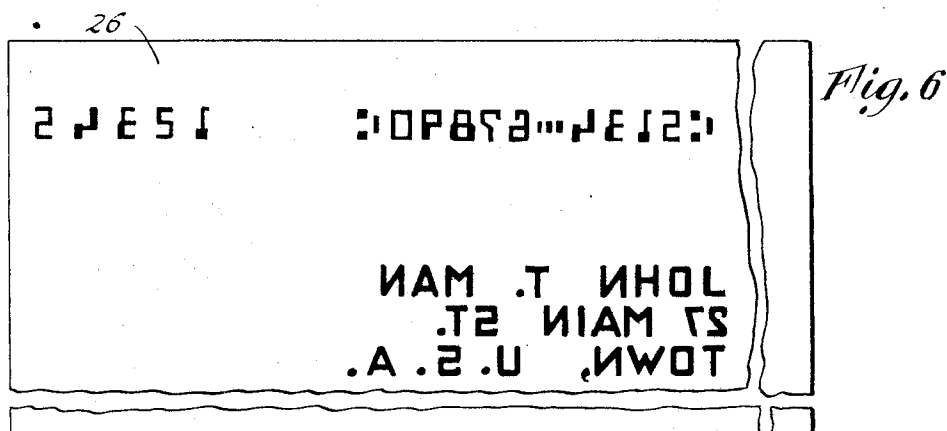
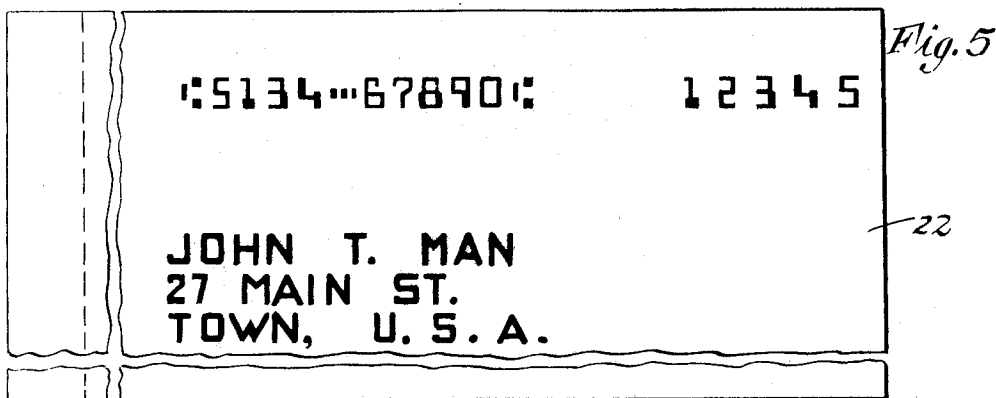
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FORM SET AND METHOD OF MAKING SAME

Original Filed Aug. 17, 1964

3 Sheets-Sheet 3



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3,505,501

FORM SET AND METHOD OF MAKING SAME

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Continuation of application Ser. No. 521,760, Dec. 16, 1965, which is a division of application Ser. No. 389,955, Aug. 17, 1964, now Patent No. 3,390,060. This application Jan. 31, 1967, Ser. No. 613,034

Int. Cl. G06k 19/00

U.S. Cl. 235—61.12

4 Claims

ABSTRACT OF THE DISCLOSURE

A method of making a form set for use in data processing systems. A form set is provided with a top translucent paper sheet followed by a double-sided transfer sheet, a paper sheet, and a one-sided transfer sheet having a magnetizable material on its upper face. The form set is placed over a credit card having raised type faces in normal-reading disposition and a printing platen is biased against the form set to effect a printing step.

This application is a continuation of application Ser. No. 521,760, filed Dec. 16, 1965, now abandoned, and which in turn is a division of application Ser. No. 389,955, filed Aug. 17, 1964, now Patent No. 3,390,060.

This invention relates to a form set useful in data processing systems and to a method utilizing this form set.

A typical form set in present-day use for credit card systems consists of three coextensive sheets fastened together at one side. The top sheet is formed of translucent paper, the middle sheet is double-sided transfer paper (better known as carbon paper) and the bottom sheet is a so-called tab card which can be encoded by punching holes therein at selected positions for subsequent decoding by a tabulating machine. Information is printed on the top translucent sheet and in duplicate on the bottom tab card. This duplicate printing is done in a single step with a plastic credit card or other printing plate having raised type faces.

According to one method, the credit card has lines of raised type faces in mirror-image disposition and is placed on a printing bed with the raised type faces uppermost. Then, the form set is placed on the credit card with the translucent sheet lowermost and a printing platen is biased against the form set (toward the credit card thereunder) whereby the transfer paper transfers material both to the back face of the translucent sheet and to the front face of the tab card at the locations and in the configuration of the type faces. When the form set is picked up and turned over, the characters printed in transfer material on the back face of the translucent sheet appear through the latter in "right-reading" disposition. The term "right-reading" refers to characters which are upright in proper disposition for reading by a human. The printed material on the front face of the tab card will also be in right-reading disposition. A disadvantage of this method is that neither the credit card nor the form set is disposed on the printing platen in the proper orientation for human reading. That is, the type-faces on the credit card appear in mirror-image disposition and the form set, when placed on the credit card, is back-face up. This is not only confusing to an operator but leads to errors because the operator cannot readily verify that the card and form set are properly oriented for printing.

According to a second method, the credit card has raised type faces in right-reading disposition and is placed on the printing bed in right-reading disposition. The pre-

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viously described form set is placed on the credit card with the front face of the translucent sheet uppermost, and the printing platen is biased against the form set (toward the credit card thereunder). The printed information will be in right-reading disposition both as it appears from the front face of the translucent sheet and on the front face of the tab card. This alternative method obviates the above-noted disadvantage of the first method, but suffers the disadvantage that the printing is accomplished from the raised type faces through the relatively thick tab card. As is well known by those skilled in the art, the thicker the medium through which printing is effected, the greater will be the distortion of the printed characters (from the configuration of the type faces), particularly at the edges of each stroke of the printed characters.

After the form set has been printed, whether by the first or the second method as noted above, the translucent sheet is separated from the form set and tendered as a record and/or receipt to the credit card holder (i.e., the person or entity to whom the credit is extended). The tab card is separated from the form set and is sent to a central accounting installation where a portion of the information that was printed thereon as described above (such as the account number of the credit card holder), is encoded into the tab card by a key punch operator who reads the printed information on the tab card and transposes this information by punching holes at selected positions in the tab card. Subsequently, the tab card is placed in a group of similarly processed tab cards and the group is run through a tabulating machine or other data processing equipment. This procedure has the disadvantage that the encoding of the tab card for subsequent data processing is a step separate from and additional to the original printing operation; which additional step admits of the possibility of errors on the part of the key punch operator.

According to another method, a credit card having precisely formed mirror-image, raised type faces is provided. The credit card is placed on a printing bed, a transfer sheet is placed on the credit card with the transfer material uppermost, and a sheet to be printed is placed on the transfer sheet. The transfer material in this case includes a magnetizable constituent. A printing platen is biased against the sheet to be printed (toward the credit card) whereby printing is effected from the type faces through only the relatively thin transfer sheet. Because of this the printed characters exhibit a high degree of print quality. This print quality is sufficiently good that the printed characters satisfy the requirements anticipated by the specifications set forth in Bank Management Publication 147, published April 1959 by the Bank Management Commission of the American Bankers Association, New York, N.Y. These specifications are for printed characters of the so-called E-13B font; in which font information is printed in magnetic ink on bank checks for reading by human beings as well as by one-dimensional scan magnetic character reading machines. Consequentially, the printing or a portion thereof as accomplished by this method can be decoded or read by a magnetic character reader such, for example, as that disclosed in U.S. Patent No. 3,000,000. This method, then, obviates a disadvantage of said first and second methods in that no step separate from the printing step is required to encode the printed sheet for subsequent automatic data processing operations. This method does, however, have the disadvantage in common with said first method that the raised type faces of the credit card are in mirror-image disposition and the sheet to be printed is placed on the credit card back-face-up preparatory to printing.

According to still another method, the raised type faces on the credit card are in right-reading disposition and a sheet of paper to be printed is placed front face up on the credit card for printing. A sheet of transfer paper having magnetizable material incorporated therein is placed transfer-material-face-down on the sheet to be printed. As with all of the above-described methods, the printing on the document is right-reading. However, high-speed document handling machines (such for example, as that disclosed in U.S. Patent No. 2,977,114, granted on Mar. 28, 1961 to W. J. Hanson et al.) ordinarily require that the material being handled have a certain amount of rigidity such, for example, as that exhibited by common bank checks. To achieve such rigidity, a certain amount of paper thickness must be maintained. Although the printing with this method is accomplished from the type faces through only the sheet to be printed, the disadvantage is suffered that considerable distortion of the printed characters results when the thickness of the sheet is great enough to be sufficient for high-speed document handling purposes.

With the present invention, all of the disadvantages noted above are obviated and all of the advantages noted above are realized. According to the embodiment of the invention particularly disclosed herein, a form set is provided which includes a top translucent paper sheet disposed next to a double-sided transfer sheet. Next to the latter is a paper sheet (this sheet will hereinafter be referred to as the data processing sheet), and at the bottom of the form set is a one-sided transfer sheet having transfer material incorporating a magnetizable material at its upper face. According to the method for operating on this form set as particularly disclosed herein, a credit card having raised type faces in right-reading disposition is placed front face up on a printing bed; the form set is placed on the credit card with the front face of the top translucent sheet uppermost, and a printing platen is biased against the form set (toward the credit card) to effect the printing step. After printing, the printed characters as they appear through the front face of the translucent sheet are right-reading as also are the printed characters on the front face of the data processing sheet. On the back face of the data processing sheet, characters are printed which are in mirror-image, end-to-end-reversed disposition but which are reliably readable by one-dimensional, vertical-line side-to-side scan character readers without special programming or other modification of the latter from that which is required to read characters in right-reading disposition.

Accordingly an object of this invention is the provision of a new and improved method for printing and encoding documents.

A further object is to provide a new and improved form set adapted for the printing and encoding of documents which form a part of the form set.

Further objects of the invention are the provision of such a method and such a form set whereby a credit card or other printing plate used for printing has raised type faces in right-reading disposition; whereby said printing plate and said form set are both positioned, the latter on the former, front face up preparatory to printing; whereby a data processing document of said form set is printed from said raised type faces through only a relatively thin transfer sheet; whereby the printed characters appear in right-reading disposition at the front face of a translucent sheet of said form set and on the front face of said data processing document; whereby printing on said data processing document can be read by a one-dimensional, vertical-line, side-to-side scan, right-reading character reader without modification of the latter; whereby no encoding step is required in addition to the original printing step for subsequent automatic data processing of said data processing document; and whereby said data

processing document is suitable for handling by high-speed document handling equipment.

Further objects and advantages will become apparent as the description proceeds.

An embodiment of the invention is shown in the accompanying drawing wherein:

FIG. 1 is a front plan view of a credit card having raised, right-reading type faces according to the invention;

FIG. 2 is a front plan view of a form set according to the invention, the respective sheets thereof being turned back from one corner to illustrate the same;

FIG. 3 is a top plan view of a printing device associated with the credit card of FIG. 1;

FIG. 4 is a front plan view of a document conventionally printed with characters readable with a one-dimensional vertical-line side-to-side scan character reader, this view also including a schematically depicted read head of such a character reader;

FIG. 5 is a front plan view of the form set of FIG. 2 after the printing thereof according to the method of the invention;

FIG. 6 is a rear plan view of the data processing document of said form set after printing and after removal of this document from the form set; and

FIG. 7 is a rear plan view of said data processing document after inverting this document from the position of FIG. 6, this view also including a schematically depicted read head of a one-dimensional vertical-line side-to-side scan character reader.

Referring to FIG. 1 of the drawing, a printing plate is shown in the form of a credit card generally designated by the reference numeral 10. The credit card 10 includes a flat rectangular blank 12 formed of a material such as vinyl chloride, zinc, steel, etc. The blank 12 is embossed by conventional procedures to provide a group of raised, right-reading type faces 14. The type faces 14 are capable of printing characters readable by a human and, as can be seen in FIG. 1, these type faces denote the name and address of the credit card holder. Fixed to the blank 12 is a strip 16 having a plurality of raised, right-reading, precision type faces 18 integral therewith. The type faces 18 are capable of printing characters which are readable by a human as well as by one-dimensional vertical-line side-to-side scan character readers such, for example, as that disclosed in the previously cited U.S. Patent No. 3,000,000. The strip 16 is secured to the blank 12 in any suitable manner.

The credit card 10 is used, according to the invention, to print documents of a form set generally indicated at 20 in FIG. 2. The form set 20, according to the invention, includes a front sheet 22 formed of a conventional translucent paper. The translucent sheet 22 is to be printed upon and is superimposed upon a transfer sheet (often referred to as a carbon sheet) having transfer material at both of its opposite faces. The transfer sheet 24 is, in turn, superimposed on a sheet 26 to be printed upon. The sheet 26 is superimposed on a transfer sheet 28 having transfer material at its front face opposing the rear or back face of the sheet 26. This transfer material of the transfer sheet 28 incorporates a magnetizable constituent for printing characters capable of being read by magnetic character readers. Such a transfer sheet 28 so incorporating a magnetizable constituent is well known and is commercially available.

The four sheets of the form set 20 are secured as by cementing each to the next, at the lefthand side thereof (as viewed in FIG. 2) and each of the sheets 22 and 26 is perforated along a tear line 29 which facilitates removal of these two sheets from the form set by tearing along the tear line.

From the above and from FIG. 2, it is clear that the rear face of the front translucent sheet 22 opposes the transfer material coated front face of the transfer sheet 24; the front face of the sheet 26 opposes the transfer material coated rear face of the transfer sheet 24; and

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the rear face of the sheet 26 opposes the transfer material coated front face of the transfer sheet 28.

A printing device, generally indicated at 30 in FIG. 3, is representative of a number of different printing devices which can be utilized in carrying out the method of this invention. The printing device 30 includes a flat base 32, a carriage 34 which is slidable along the base 32 between upstanding side wall guides 36, 36 of the latter, and two printing platen rollers 38 and 40, respectively. The platen rollers 38, 40 are fixed on a shaft 42 supported for rotation by the side walls 36, 36. Five type-face-carrying strips or slides 44 are supported for longitudinal sliding movement to any one of ten settable positions at each of which one of the ten digits 46 from zero through nine is disposed at a printing position in alignment with the platen roller 38. The respective type faces 46 carried by the strips 44 are capable of printing characters which are readable by a human as well as by one-dimensional vertical-line side-to-side scan magnetic character readers, as are the type faces 18 carried by the credit card 16.

The carriage 34 has two retaining members 48, 50 secured thereto between which a credit card such as the card 10 can be supported in a printing position at which the type faces 18 and selected ones of the type faces 46 are in alignment with the platen roller and the type faces 14 are in alignment with the platen roller 40.

In carrying out the method of the invention, the credit card 10 is placed front-face-up on the carriage 34 with the raised type faces 14 and 18 uppermost and in right-reading disposition. Each of the five settable slides 44 will be set to bring one of the type faces 46 into alignment with the platen roller 38. The form set 20 is placed front-sheet-uppermost upon the type faces 14, 18 and 46. As will be clear, the front face of the translucent sheet 22 (as well as the front face of the data processing sheet 26) will ordinarily be pre-printed with human-readable information, and this aids the operator in correctly placing the form set front-sheet-uppermost on said raised type faces because such correct placements is the case when said printed information appears to the operator in right-reading disposition.

By way of example, the type faces 14 will identify the credit card holder by name and address, the type faces 18 will identify the credit card holder by his account number, and the type faces 46 carried by the strips 44 will designate the amount of credit extended by the particular transaction. As will be understood, the type faces 14 and/or either one of the type faces 18 and 46 can be eliminated depending upon the purposes of any given system.

With the form set 20 in place on the carriage 34 as described above, the latter is moved relative to the platen rollers 38, 40 (to the left as viewed in FIG. 3) to bias the form set against the respective raised type faces 14, 18 and 46 to print characters in the configuration of these type faces by the deposit of transfer material from the transfer sheets 24 and 28 to the translucent sheet 22 and to the data processing sheet 26. In this regard, the characters of the type faces are printed by the deposit of transfer material from the front face of the transfer sheet 24 onto the back face of the translucent sheet 22, from the back face of the transfer sheet 24 onto the front face of the data processing sheet 26, and from the front face of the transfer sheet 28 onto the back face of the data processing sheet 26. The printing on the back face of the translucent sheet 22 will be in upright mirror-image disposition, but when viewed from the front face of this translucent sheet, will appear through this sheet in right-reading disposition as shown in FIG. 5. The printing on the front face of the data processing sheet 26 will be in right-reading disposition in the same manner as that shown in FIG. 5. The printing on the back face of the data processing sheet 26 will be in upright mirror-image disposition as shown in FIG. 6.

At this point it may be noted that the printing on the

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back face of the data processing sheet was accomplished from the type faces 14, 18, 46 through only the single thickness of the relatively thin transfer sheet 28. Consequently, very little distortion of the printed characters results and the print quality on these printed characters is correspondingly high. Also, the data processing sheet 26 need be only sufficiently thick to satisfy the rigidity requirements imposed by high speed document handling machines. By way of example, a thickness of 0.003 of an inch is more than adequate. This is in contrast to tab card stock which may run in the range of 0.007 of an inch. Consequently, the print quality of the characters printed on the front face of the data processing sheet 26 and on the back face of the translucent sheet 22, which characters were printed from the type faces 14, 18, 46 through the data processing sheet 26, is correspondingly high.

The raised type faces 14 extend to a level higher than that of the type faces 18 and 46, and this is accommodated by the platen rollers 38 and 40 in that the latter is of a diameter correspondingly smaller than that of the former. As a result, any of the type faces 46 that become disposed in alignment with the platen roller 40 will not print on a form set disposed on the carriage 34.

As can be seen in FIG. 6, the characters printed on the back face of the data processing sheet 26 in transfer material containing a magnetizable constituent are in upright mirror-image disposition and are therefore readable by a human only with considerable difficulty. These characters, however, are not intended to be read by a human. Rather, the same characters are printed in right-reading disposition on the front face of the data processing sheet 26 for reading by humans.

In FIG. 4, a document 52 is shown which has characters printed thereon in conventional right-reading fashion with ink or transfer material containing a magnetizable constituent for reading by a human as well as by a one-dimensional vertical-lines side-to-side scan magnetic character reader. This, for example, is representative of the manner in which bank checks are presently printed for reading by humans and by such magnetic character readers. Ordinarily, the printed characters on such documents 52 are scanned with a read head schematically shown at 54 in FIG. 4 of such a character reader by feeding the document 52 in the direction of the arrow to move the characters printed thereon past the read head 54 in the same direction. Of course, such a magnetic character reader has its logic set up to read the printed characters when the scan is along a vertical line which moves from the right side to the left side of these characters and when the characters are in right-reading disposition. An advantage of the form set 20 and of the method of the present invention is that the characters printed from the type faces 18 and 46 are also readable by the same character reader without special programming or other modification thereof.

FIG. 6 shows the back face of the data processing sheet 26 after printing and after this sheet has been separated from the remainder of the form set 20. FIG. 7 shows this same face of the sheet 26 after the latter has been reversed end-for-end from the position of FIG. 6. Also, the sheet 26 as shown in FIG. 7 is in the position assumed thereby when inverted top-for-bottom after being separated from the form set 20 as picked up front-face-uppermost off the carriage 34 of the device 30 after printing. By comparing the printing on the common document (bank check) of FIG. 4 with the corresponding printing on the sheet 22 of FIG. 5 it can be seen that the same characters are shown as having been printed on both documents. It follows that the set of characters printed on the common document 52 (FIG. 4) are the same as the corresponding set of characters printed on the back face of the data processing sheet 26 except, of course, that the latter set of characters is in inverted mirror-image disposition. However, a one-dimensional, vertical line, side-to-side scan character reader which reads the set of

characters printed on the document 52 in FIG. 4 will read the corresponding set of characters as they appear in FIG. 7 with equal facility and without any modification thereof.

Comparing these two sets of characters, it will be clear that the sequence of the characters is the same in both sets. That is, when the set of characters printed on the document 52 moves past the read head 54, the three-dot symbol is followed in succession by zero, nine, eight, seven, etc. The same is the case when the corresponding set of characters printed on the document 26 in FIG. 7 moves past the read head 54 in the direction of the arrow. Also, a one-dimensional (horizontal) scan along a vertical line from side to side (i.e., from the right side to the left side, for example, as depicted in FIGS. 4 and 7) produces the same effect from both of the two sets of characters. This will be clear to those skilled in the art, but a brief amplification of this assertion may be in order. With the character readers disclosed in U.S. Patent No. 3,000,000, a read head is provided which includes a magnet having a narrow vertical gap past which the magnetized characters move. The flux density across the gap varies according to the change in amount of magnetic material presented to the gap by the magnetized characters moving therepast. Each magnetized character, therefore, produces a distinctive pattern or flux density variation which is reflected by the read head as a distinctive electrical output waveform. Logic means is provided for analyzing the respective waveforms and for producing a distinctive recognition signal for each of the waveforms. Accordingly, each magnetized character produces the same waveform when scanned in right-reading disposition as that produced when scanned in inverted mirror-image disposition. This is confirmed by moving a vertical line from right-to-left past any two corresponding ones of the two sets of printed characters now under discussion. In this regard, when two vertical lines are moved in synchronism, each past any given one of the respective characters of the two sets from the lead edge to the trail edge thereof (from the right-hand edge to the left-hand edge), the amount of magnetized material at both of the lines at any given instant is the same.

Accordingly, with the present invention the advantage is achieved that the printed characters on the back face of the data processing sheet 26 are readable by a conventional one-dimensional, vertical-line side-to-side scan character reader without modification of the latter. This advantage is achieved along with others including those whereby a printing plate with raised type faces in right-reading disposition is used; the printing plate and the form set are placed front face uppermost in position for printing; the printed characters, as they appear when the front face of the translucent sheet 22 and data processing sheet 26 are viewed, are in right-reading disposition, printing of the characters on the back face of the data processing sheet is accomplished from the raised type faces through only the relatively thin transfer sheet 28, the data processing sheet 26 offers substantially less thickness for printing therethrough as compared with that offered by tab card stock, and the printing of the characters on the back face of the data processing sheet 26 encodes this sheet for subsequent automatic data processing without requiring an additional time-consuming error-inducing encoding operation as required, for example, with key-punched tab cards.

With certain credit card systems, no provision is made for a second copy to be used for any purpose such as tendering to the credit card holder. In this case the translucent sheet 22 will be eliminated from the form set 20 and, instead of the double-faced transfer sheet 24, a transfer sheet having transfer material at only its back face (opposing the front face of the data processing sheet 26) will be substituted for the double-sided transfer sheet 24. Furthermore, although the entire front face of the transfer sheet 28 is disclosed herein as being covered or coated

with transfer material, it will be clear that only those areas at which printing is to be accomplished need be so coated. The same applies, of course, to both faces of the transfer sheet 24.

It will be understood that, as is conventional in the art, a "slip" or "tear" sheet can be interposed in the form set 20 between any one of the sheets 22, 26 and the next respective transfer sheet to prevent inadvertent transfer of the transfer material to the sheets 22, 26. Such tear sheet or sheets would, of course, be separated from the form set before the printing operation.

Although the invention has been described above in connection with credit card systems, it will be clear that it is useful in other data processing applications.

Since many changes can be made in the embodiment of the invention as particularly described and shown herein without departing from the scope of the invention, it is intended that this embodiment be considered as exemplary and that the invention not be limited except as warranted by the following claims.

What is claimed is:

1. A method of data input preparation comprising the steps of:

(A) disposing a first carbon transfer sheet having transfer material on at least one face thereof in face to face relationship with a data processing sheet with the transfer material facing the data processing sheet, (B) disposing a second carbon transfer sheet having transfer material incorporating a magnetizable constituent therein on one face of the transfer sheet in face to face relationship with the exposed face of the data processing sheet with the transfer material facing the data processing sheet,

(C) disposing raised right-reading type faces in face to face relationship with the exposed face of the second transfer sheet with the raised type faces facing the second transfer sheet,

(D) biasing the raised type faces and all of the sheets together to simultaneously effect deposition of transfer material on opposite faces of the data processing sheet, and

(E) separating the sheets to expose the indicia of the raised type faces on both faces of the data processing sheet in right-reading disposition on one face thereof and in mirror image disposition on the other face, the latter being constituted by the transfer material having the magnetizable constituent therein and readable in inverted position with the read head of a one-dimensional side-to-side vertical-line scan magnetic character reader.

2. A method of data input preparation comprising the steps of:

(A) disposing a translucent paper sheet in face to face relationship with a carbon transfer sheet having transfer material on opposite faces thereof,

(B) disposing a data processing sheet in face to face relationship with the exposed face of the carbon transfer sheet,

(C) disposing a second carbon transfer sheet having transfer material incorporating a magnetizable constituent therein on one face of the transfer sheet in face to face relationship with the exposed face of the data processing sheet with the transfer material facing the data processing sheet,

(D) disposing a printing plate having raised right-reading type faces thereon in face to face relationship with the exposed face of the second transfer sheet with the raised type faces facing the second transfer sheet,

(E) biasing the printing plate and all of the sheets together to simultaneously effect deposition of transfer material on one face of the translucent sheet and on both faces of the data processing sheet, and

(F) separating the sheets to expose the indicia of the printing plate on one face of the translucent sheet

in right-reading disposition through the sheet and on both faces of the data processing sheet in right-reading disposition on one face thereof and in mirror-image disposition on the other face, the latter being constituted by the transfer material having the magnetizable constituent therein and readable in inverted position with the read head of a one-dimensional side-to-side vertical-line scan magnetic character reader.

3. A method of data input preparation comprising the steps of:
 - (A) disposing a translucent paper sheet having right-reading preprinted indicia on one face thereof in face to face relationship with a carbon transfer sheet having transfer material on both faces thereof such that the carbon transfer sheet is facing the non-indicia bearing face of the translucent sheet,
 - (B) disposing a data processing sheet having substantially similar right-reading preprinted indicia on one face thereof in face to face relationship with the exposed face of the transfer sheet such that the indicia bearing face of the data processing sheet is facing the transfer sheet,
 - (C) disposing a second carbon transfer sheet having transfer material incorporating a magnetizable constituent therein on one face of the transfer sheet in face to face relationship with the exposed face of the data processing sheet with the transfer material facing the data processing sheet,
 - (D) disposing a printing plate having raised right-reading type faces thereon in face to face relationship with the exposed face of the second transfer sheet in registration with selected portions of the preprinted indicia on the translucent sheet and the data processing sheet and with the raised type faces facing the second transfer sheet,
 - (E) biasing the printing plate and all of the sheets together to simultaneously effect deposition of transfer material on the non-indicia bearing face of the translucent sheet and on both faces of the data processing sheet, and
 - (F) separating the sheets to expose the indicia of the printing plate on the preprinted indicia bearing face of the translucent sheet in right-reading disposition

through the sheet and on both faces of the data processing sheet in right-reading disposition on one face thereof and in mirror-image disposition on the other face, the latter being constituted by the transfer material having the magnetizable constituent therein and readable in inverted position with the read head of a one-dimensional side-to-side vertical-line scan magnetic character reader.

4. A method of visual and machine recognition of identical indicia comprising the steps of
 - (A) simultaneously printing on one face of a translucent sheet and on opposite faces of an opaque data processing sheet identical indicia, at least part of which is in the form of magnetic character recognition symbols, with the indicia on the translucent sheet being right-reading and on one face of the data processing sheet being in exact registration with the indicia on the other face is right-reading and on the other face is a mirror-image of the indicia on the one face, the printing of the indicia forming the mirror-image being accomplished with a printing material having a magnetizable constituent therein, and
 - (B) orienting the mirror-image indicia on the data processing sheet with the read head of a one-dimensional side-to-side vertical-line scan magnetic character reader in indicia character top-to-bottom opposition to the orientation normally maintained when presenting right-reading magnetic character recognition indicia to the same data processing equipment, and
 - (C) scanning the mirror-image indicia with the read head aforesaid in the same direction as that normally employed when scanning right-reading magnetic character recognition indicia whereby the data processing equipment aforesaid recognizes the mirror-image indicia with the same wave form when thus scanned as when scanned in reverse oriented, right-reading disposition.

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DARYL W. COOK, Primary Examiner