

- [54] **ENCODING AND PROCESSING OF DRUG PRESCRIPTION FORMS**
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- [22] Filed: **Mar. 20, 1972**
- [21] Appl. No.: **236,125**
- [52] U.S. Cl. **235/61.11 D; 235/61.11 E**
- [51] Int. Cl. **G06f 3/00**
- [58] Field of Search 340/172.5; 235/61.11 R, 235/61.7, 61.9; 11/11

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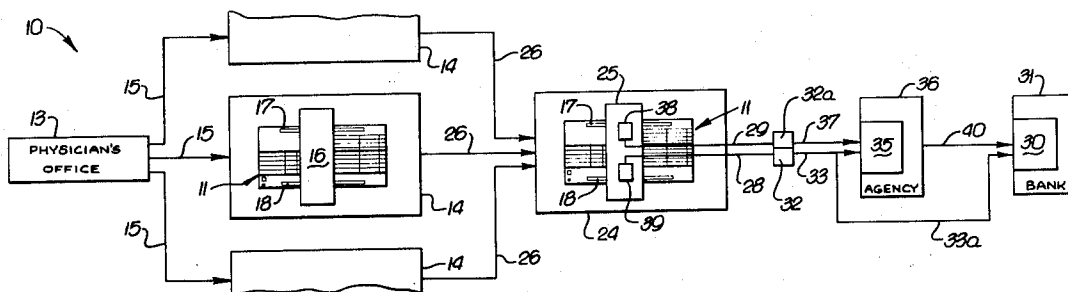
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[57] **ABSTRACT**

Method and apparatus enables encoding of medical prescriptions at pharmacies and scanning at scanning stations to derive data corresponding to prescribed drugs, their strengths, quantities and prices, and identities of certain parties, all derived data being transmitted to government controlled data processing equipment, and only certain of the data being transmitted to data processing equipment at banks for crediting of pharmacists accounts, without loss of desirable confidentiality as between patient, physician and pharmacist.

6 Claims, 2 Drawing Figures

- [56] **References Cited**
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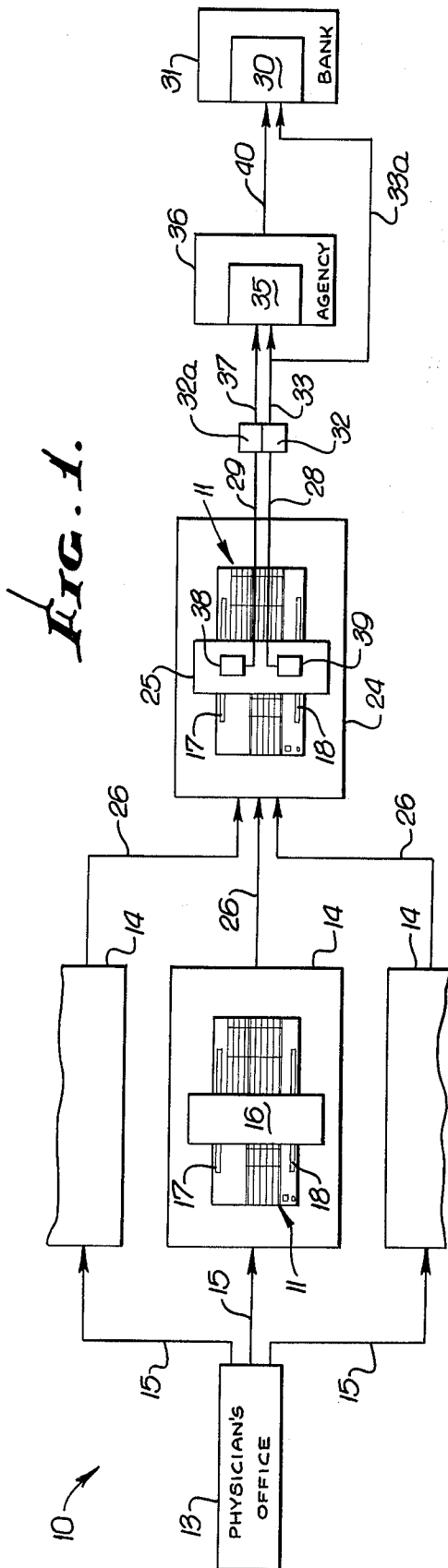


FIG. 2.

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14

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12

11

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8

7

6

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4

3

2

1

Rx

NAME

ADDRESS

DATE

SIG

mg or cc

No.

Rep

DRUGS TOTAL

NOT LABEL

MD

1800 7 NK

ZB174 VIN

ENCODING AND PROCESSING OF DRUG PRESCRIPTION FORMS

BACKGROUND OF THE INVENTION

This invention relates generally to the processing of drug prescription forms, and more particularly concerns system and method to enable accumulation and analysis of information on such forms at different stations such as banks and governmental offices.

At the present time the processing of data on drug prescriptions forms to correlate with state of federal medical care programs is excessively cumbersome and time consuming. This complicates, and oftentimes renders ineffective, governmental programs for drug abuse control. There is need for upgrading of prescription processing to remove the above problems and difficulties; however, the absence of standardization of prescription forms and their incompatibility with present day data processing techniques has effectively restrained development in this area. Also, the risk of loss of desirable confidentiality as between patient, physician and pharmacist has imposed restrictions on disclosure of data on prescriptions.

SUMMARY OF THE INVENTION

It is a major object of the invention to provide system and method solutions to the above problems and difficulties.

Basically, the invention contemplates the processing of physician completed medical prescriptions, with steps that include encoding on different portions of the prescription, indicia representing a drug or drugs listed by the physician on the form and which may include drug identity, strength and quantity, the price associated with that drug as supplied by the pharmacy, and the identity of the pharmacy, the patient's identity also being encodable; deriving from that indicia at a prescription scanning station, electronic data corresponding to such information; and transmitting drug price and pharmacy identity data (but not drug identity data) to a financial station, such as a bank computer, to register financial credit available to the pharmacy. Further, all derived data may be transmitted to another station, as for example a governmental agency computer, for checking and analysis. As a result, unauthorized use of data transmitted to the bank computer cannot reveal the identity of the drugs prescribed to a particular patient, so that essential confidence between patient, doctor and pharmacist is maintained. At the same time, credit may be made readily available to the pharmacist under a governmental medical care program.

Additional features of the invention include encoding the drug price and pharmacy identity indicia on one portion of the form, other data being recorded on another portion of the form, so that mis-transmission of all data to a bank computer is obviated; and the provision of a reading of scanning station for serving multiple pharmacies and to which prescriptions may be taken, or mailed, for scanning of encoded data.

These and other objects and advantages of the invention, as well as the details of an illustrative embodiment, will be more fully understood from the following description and drawings, in which:

DRAWING DESCRIPTION

FIG. 1 is a system diagram; and

FIG. 2 is a view showing a poly-prescription adapted to be encoded, as will be described.

DETAILED DESCRIPTION

In accordance with the invention, the system 10 is arranged for processing physician completed medical prescriptions, one unusually advantageous example of which is seen at 11. The form 11 is elongated between side edges 12, and contains spaces for systematic entry of multiple drug data. Except for the encoded portions to be described, the form 11 is described in the Journal of the American Medical Association, volume 216, No. 13, page 2141, June 28, 1971. Such a form is completed by the physician, with one or more drugs listed, along with the amounts thereof, FIG. 1 identifying such completion at 13.

First means is provided at a first station, as for example a selected pharmacy 14, for encoding, on different portions of the prescription, indicia representing the drug or drugs listed on the form by the physician, the identity of the selected pharmacy, the price or prices associated with the drugs as supplied by that pharmacy, and physician and patient identities, etc. In this regard, the physician identity may have been previously printed on the form. For example, the patient may take the prescription 11 to the first station or pharmacy, the arrow 15 indicating such presentation. The pharmacist fills the prescription in the usual manner, delivering the listed drugs to the patient. He also operates an encoder 16 to encode on the prescription the data referred to, an example of an optical encoder being an IBM SELECTRIC typewriter. Other pharmacies 14 are also designated, as shown.

Referring to FIG. 2, the prescription 11 has multiple portions or zones 17 and 18 which are elongated in the length direction of the form, and located near the upper and lower edges 19 and 20, respectively, of the form, but above and below the main body of the form on which the drugs and their amounts are listed. These are unusually advantageous examples, of such zones, other zone locations also being contemplated. The reason for such spacing of zones 17 and 18 will appear. The indicia may be numeric, or alpha-numeric, but it is important to separate on the form the indicia (as for example indicia 22 in zone 18) representative of the price associated with the drugs (as for example the price charged the customer) and also representative of the identity of the selected pharmacy, from the indicia (for example indicia 21 in zone 17) representative of the drugs and their strength and quantity listed on the prescription, or the indicia representative of the patient's identity. All data may be encoded in separate portions of zone 17, if desired. Indicia may alternatively be encoded on the form in magnetic ink.

Referring back to FIG. 1, second means is provided for deriving, from the indicia, and at a prescription scanning station 24 electronic data corresponding to the drug, pharmacy identity and drug price data. Such means may include an indicia scanning reader or readers 25, as for example a Control Data Corporation 936 Optical Document Reader, or a magnetic ink character reader in the case of magnetic ink indicia. The reader may be located directly following the encoder (as for example may be represented by arrow 26), but it is contemplated that in practice one scanning station will service multiple pharmacies 14. In such case, the pharmacists periodically deliver or mail (as represented by arrows 26) their accumulated encoded prescription

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forms to the accessibly nearby located station 24, for rapid reading, after which the forms are returned to the pharmacists (as indicated by arrows 27) for safekeeping.

Reading of a prescription produces two groups of electronic data, one group (appearing on output line or terminal 28, for example) corresponding to drug price and pharmacy identity data (but not drug identity date), and the other group (appearing on output line or terminal 29, for example) typically corresponding to all data, from both zones 17 and 18. Other means is provided to respond to the data on line 28, for transmission to a third station (as for example a data processor or computer 30 at a bank 31) to register financial credit applicable to the selected pharmacy in that pharmacy's account. Such means may take the form of a data transmitter indicated at 32, along with communications link 33 such as a telephone line, computer 35 and line 40, thereby to provide on-line communication between the reader 25 and bank computer 30. For example, transmitter 32 may include known logic and modem apparatus. Also, it may be incorporated in reader 25. Alternatively, the box 32 may represent a known device responsive to electronic data on line 28 for storing or recording the data as by encoding magnetic tape, which is subsequently taken to computer 35 to be processed and transmitted to the memory of computer 35. Accordingly, there is no possibility that the data transmitted to the bank can be used to determine the identities of drugs prescribed for a patient, thereby preserving confidence between the physician, pharmacist and patient.

Additional means is provided to respond to all the data (price, drug, pharmacy identity, and physician and patient identities, etc.) for transmission to a fourth station (as for example data processor or computer 35 at a governmental agency location 36) to register all data at the latter station, under confidential restrictions. As a result, prices may be checked against drugs supplied, prior to transmission of price data to bank 31, and computer analysis may be run for detection of abuse and "overuse" of drugs by patients. Such additional means may take the form of a transmitter indicated at 32a (and as referred to above at 32) and a communications link 37, such as a telephone line, to provide on-line communication between the reader 25 and computer 35. Alternatively, the box 32a may represent a device responsive to data on line 29 for storing the data as by encoding magnetic tape subsequently taken to the location 36 for entry into the computer memory. Reader 25 may have dual heads 38 and 39 operable to simultaneously read the indicia in zones 17 and 18 as the prescription is advanced endwise past the heads.

It is further contemplated that data obtained from zones 17 and 18 by reader 25 may be serially transmitted on one link (28, 32 and 33, or 29, 32a and 37) to

the agency 36; also, data on line 33 may be optionally directly transmitted via line 33a to processor 30.

I claim:

1. In a system for processing physician completed medical prescription forms, the combination comprising

a. a prescription form having encoded on one edge portion thereof at a first station primary indicia representing a drug listed by the physician on the prescription, and on another edge portion thereof secondary indicia representing the identity of a selected pharmacy, and a price associated with the drug as supplied by that pharmacy, said primary indicia extending only in a linear sequence parallel to and everywhere adjacent one edge of the form and said secondary indicia extending only in a linear sequence parallel to and everywhere adjacent another edge of the form, and parallel to said primary indicia, the form having main extent between said indicia sequences and which contains columns and rows of blanks to receive physician entered prescription data, the width of said main extent between said indicia sequences being at least several times greater than the maximum width of each of said sequences,

b. scanning means for scanning said edge portions thereby deriving, from said indicia, and at a prescription scanning station, one group of electronic data corresponding to said drug, and another group of electronic data corresponding to pharmacy identity, and drug price, the prescription received at said scanning station, and

c. other means operatively connected with the scanning means for responding to the price and pharmacy identity electronic data only, for electrical transmission to a third station to register financial credit applicable to the selected pharmacy.

2. The combination of claim 1 wherein said form is lengthwise elongated between opposite side edges thereof, and said indicia appear on spaced portions of the prescription proximate the upper and lower elongated edges thereof, and said scanning means includes scanning heads which are spaced apart widthwise of the forms to overlap said indicia sequences.

3. The combination of claim 1 wherein the scanner is an optical scanner.

4. The combination of claim 1 wherein the scanner is a magnetic indicia scanner.

5. The combination of claim 1 including said third station located at a bank.

6. The combination of claim 1 including additional means operatively connected with the scanning means to be responsive to all of the data for transmission to a fourth station for storage and checking by a governmental authority, and including a computer at the fourth station for receiving all of said data.

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