Description

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a cash register or similar proceeds processing apparatus.

Description of the Prior Art

A proceeds processing apparatus such as a cash register is usually installed in a store or similar facility and operated by an attendant or a clerk to enter article codes, amounts of money, etc. In response, the apparatus executes proceeds processing including summation of the amounts of money, receipt of money, issuance of a detailed account, and totalization. Proceeds processing apparatus applicable to a POS system is interconnected to a host data processing apparatus by a communication line to interchange transaction data with the latter. With this kind of proceeds processing apparatus, it is possible to debit a customer's account when a credit card is used or to settle accounts even when a debit card is used.

A prior art proceeds processing apparatus has a body which is composed of a keyboard and/or a scanner for entering article codes, amounts of money and so forth, a display for displaying article codes, amounts of money and so forth as well as operation guidances, a printer for printing out transaction data on a recording medium to issue a detailed account or receipt, and a card reader having a slot for receiving a card and reading data out of the card. An operation control unit controls such components of the apparatus to sum the individual amounts of money and settle the accounts. A communication control unit is interconnected to the operation control unit while a communication line is interconnected to the communication control unit, whereby the communication of the apparatus with a host computer is controlled.

A proceeds processing operation available with the above construction is as follows. When an attendant or a clerk starts up the apparatus by, for example, turning on the power switch of the apparatus, a guidance meant for the attendant appears on the display. Guided by the guidance, the attendant enters amounts of money and other similar data on the keyboard or via the card reader. In response, the apparatus totalizes the inputted data and communicates with the host computer to execute proceeds processing. The contents of the proceeds processing are printed out on a recording medium by the printer to produce a detailed account, e. g. a receipt.

A problem with the prior art proceeds processing apparatus is that usually a customer at a store, for example, cannot see the contents of a transaction processed by the apparatus until a receipt issued after a sequence of proceeds processing has been handed to the customer. More specifically, a customer is not allowed to compare the contents of a transaction processed by the apparatus with those of the actual transaction until a receipt has been issued. Assume that the result of processing executed by the apparatus differs from the contents of the actual transaction due to the attendant's erroneous operations of keys. Then, the customer in many cases cannot find the error until the customer receives a detailed account. In such a case, the attendant has to cancel the entire proceeds processing executed by the apparatus and start inputting all the necessary again.

A current trend in business transactions including shopping is toward the use of credit cards and cash cards in place of cash. With such a card, it is likely that the prior art proceeds processing apparatus finishes processing without allowing a customer to carefully check at the point of time (counter) the contents of a transaction which are entered by an attendant. Actually, it often occurs that a customer does not notice incorrect processing executed by the apparatus until the store debits the customer's account later, for example.

As stated above, the prior art proceeds processing apparatus is not satisfactory in various aspects such as efficient processing, customer service, and mutual reliance between customers and facilities.

A proceeds processing apparatus which guarantees the issuance of a detailed account of a transaction is disclosed in Japanese Patent Laid-Open Publication No. 157995/1986. The apparatus disclosed in this Laid-Open Publication is constructed such that until a detailed account of a transaction has been issued and an exclusive operation for confirming the receipt thereof has been performed, processing associated with the next transaction cannot be done. This is successful in, for example, preventing a person from unjustly including data of a certain transaction in the processing of the subsequent transaction.

EP-A- 0 266 798 discloses a payment making terminal device including a front side display and a rear side display. An operator enters data relating to the purchased items and the operation is simultaneously displayed on the customer's display disposed on the rear side thereof. However, EP-A- 0 266 798 does not disclose any device for a customer inputting a data notifying the attendant of whether or not the transaction is agreed to.

US-A- 4,775,782 discloses a checkout counter including an optical scanning system mounted therein and a cover member positioned in the top surface of the counter having an aperture through which a coded label on the merchandise item can be scanned. Then the customer can observe the price of the item being scanned and the total amount of money due for the purchased items. Then the customer's operation in making a check or preparing a credit or a debit

charge to pay for the purchased items is facilitated by the information displayed in the display member. However, US-A- 4,775,782 does not disclose any means for a customer inputting data to notify the attendant of whether or not the operation of the transaction is agreed to.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a proceeds processing apparatus which allows a customer to confirm the contents of proceeds processing entered by an attendant at the spot of transaction, while enhancing proceeds processing efficiency.

The proceeds processing apparatus of the present invention is claimed in claim 1. Further embodiments are disclosed in claims 2 and 3.

In the above construction, when transaction data is entered on the first input device, the operation control executes processing necessary for proceeds processing on the basis of the transaction data. In this instant, when the second input device is operated to enter an input for checking the contents of the transmission data, the operation control determines whether or not the transmission data is agreed to on the basis of the input on the second input device. This allows a customer to check at the spot the contents of a transaction entered on the apparatus by an attendant, thereby enhancing the chance that the customer finds out errors.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects and features of the present invention will become more apparent from the consideration of the following detailed description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of a proceeds processing apparatus embodying the present invention;

FIG. 2 is a block diagram schematically showing the functional construction of the embodiment shown in FIG. 1;

FIG. 3 is a front view of a customer-oriented input unit of the illustrative embodiment;

FIGS. 4A and 4B, when combined as shown in FIG. 4, are a flowchart demonstrating a specific operation flow of an operation control included in the embodiment;

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1 and 2 of the drawings, a proceeds processing apparatus embodying the present invention is shown and generally made up of an attendant-oriented apparatus body 1 and a customer-oriented input unit 11. The apparatus of the illustrative embodiment may be installed in a store or similar facilities. The apparatus body 1 is operated by an attendant such as a clerk of a store to enter article codes and amounts of money and so forth, and executes various kinds of proceeds processings which include summing the amounts of money, receiving money, issuing a detailed account, and totalization. This apparatus body 1 includes a keyboard 2 accessible for entering article codes, amounts of money, numbers of individual articles, and other data associated with a transaction. The keyboard 2 is interconnected to an operation control 7 which sums the amounts of money and settles accounts, performs arithmetic operations such totalization, and supervises the entire apparatus. The apparatus body 1 further includes a display 3 and a printer 4 which are also interconnected to the operation control 7. The display 3 displays the amounts of money and other transaction data as well as messages for guiding the operator, under the control of the operation control 7. The printer 4 prints out transaction data on a recording medium to thereby produce a detailed account or receipt 4a.

The proceeds processing apparatus is interconnected to a host computer or similar host data processing system, not shown, by a communication line 6a in order to interchange transaction data with the data processing system. The apparatus is, therefore, capable of settling accounts with a card 5a which may be a credit card or a debit card, for example. For this purpose, the apparatus body 1 has a card reader 5 which is provided with a slot 5b for receiving the card 5a. The card reader 5 reads data out of the card 5a when the latter is inserted in the slot 5b. The card 5a is implemented as a card-like medium capable of storing data therein, e.g. a magnetic card, IC card, or optical card. The card reader 5 is also interconnected to the operation control 7. Further interconnected to the operation control 7 is a communication control unit 6. The communication line 6a is accommodated in the communication control unit 6 so as to control the communication of the apparatus with the host. The components 2, 3, 4, 5 and 6 described above are housed in a single casing 1.

The customer-oriented input unit 11 basically is located at the same place as the apparatus body 1 and in principle operated by a customer for confirming transaction data. The input unit 11 has a display 13 for allowing a customer to see data included in a transaction as well as a customer's PIN (Personal Identification Number) entered, and a keyboard or keypad 12 which a customer may operate to enter instructions for confirmation or data as well as his or her PIN.

In the illustrative embodiment, an interface 8 is incorporated in the apparatus body 1. The customer-oriented input unit 11 is interconnected to the operation control 7 via the interface 8 by a cable 16. The

operation control 7 has a function of determining whether or not the processing associated with a certain transaction is approvable, in response to data entered on the input unit 11. If desired, the cable 16 may be replaced with a wireless link which uses a radio wave.

As a clerk or similar attendant starts up the proceeds processing apparatus by performing a predetermined operation such as the turn-on of a power switch of the apparatus, a guidance or message appears on the display 3 of the apparatus body. Then, guided by the message, the attendant enters the amounts of money and other necessary data associated with a transaction on the keyboard 2 or via the card reader 5.

The customer-oriented input unit 11 comprises a control 14 in addition to the keyboard 12 and display 13. When a customer enters an amount of money relating to a transaction on the keyboard 12, the amount appears on the display 13 and is sent to the operation control 7 of the apparatus body 1 via the interface 8.

Fig. 3 is an enlarged view of a panel or operation board which is provided on the top of the customer-oriented input unit 11. As shown, in the illustrative embodiment, the keyboard 12 has numeral keys 12c, a cancel key 12b, and a confirm key 12a. A customer enters an amount of money on the numeral keys 12c and then presses the confirm key 12a to indicate the end of the inputting operation. In the event when the customer has entered an incorrect numerical value inadvertently, the customer may press the cancel key 12b to cancel it and then reenter a correct numerical value.

The operation control 7 performs totalization and other arithmetic operations necessary for proceeds processing in response to proceeds data which the attendant enters on the keyboard 2 of the apparatus body 1. When the processing reaches a certain stage, the operation control 7 urges the customer to enter data on the customer-oriented input unit 11. On the entry of data on the input unit 11, the operation control 7 determines whether or not it should continue with the proceeds processing, on the basis of the entered data. If the result of the decision is positive, the operation control 7 executes totalization and, if necessary, communicates with the host over the communication control unit 6 and communication line 6a to execute proceeds processing. The contents of the proceeds processing are printed out on a detailed account or receipt 4a by the printer 4.

The operation of the proceeds processing apparatus having the above construction will be described with reference to FIGS. 4A and 4B. First, a proceeds processing mode is set up by the turn-on of the power switch of the apparatus body 1 or the manipulation of an exclusive key, not shown (step 601). In response, the operation control 7 displays on the display 3 a guidance for urging the operator or attendant to enter an amount of money, e. g. a message "INPUT AMOUNT" (step 602). As soon as the attendant enters an amount of money as guided by the message (step 603), the amount appears on the display 3 (step 604). The entered amount of money is written to a store built in the operation control 7 (step 605). Subsequently, a guidance in the form of a message "INPUT AMOUNT", for example, also appears on the display 13 of the customer-oriented input unit 11 (step 606). As the customer enters an amount of money on the keyboard 12 of the input unit 11 (step 607), the operation control 7 compares it with the amount written to the store as stated above (step 608) to see if the two amounts compare equal (step 609). If the result of decision at the step S609 is positive (Y), the operation control 7 decides that the transaction has been concluded (step 610). Then, the apparatus executes further processing. However, when the result of decision at the step S609 is negative (N), the operation control 7 determines whether or not non-coincidence has occurred a predetermined number of times (step 611). If the result of this decision at the step 611 is positive (Y), the operation control 7 decides that the transaction has not been concluded and inhibits the apparatus from executing further processing. If the number of times that non-coincidence has occurred is smaller than the predetermined value as decided in the step 611 (N), the program returns to the step 602.

The illustrative embodiment allows the customer to see the contents of a transaction on the input unit 11 at the spot. This enhances the chance that the customer immediately finds out incorrect transaction data which may be inputted inadvertently by the attendant on the apparatus body 1. Eventually, efficient proceeds processing is enhanced to offer better customer service. In addition, troubles often experienced in debiting the customer's account are eliminated, so that mutual reliance between customers and facilities is improved.

In summary, it will be seen that the present invention provides a proceeds processing apparatus with which a customer can confirm at the spot the contents of a transaction entered by an attendant, by using customer-oriented inputting means. The apparatus, therefore, relatively easily improves the proceeds processing efficiency, customer service, and mutual reliance between customers and facilities.

Claims

1. A proceeds processing apparatus comprising an attendant apparatus and a customer apparatus interconnected therebetween; said attendant apparatus comprising:
   a first casing (1);
   first input means (2,5) provided on said first casing (1) for an attendant entering first data indica-

operation control 7 has a function of determining whether or not the processing associated with a certain transaction is approvable, in response to data entered on the input unit 11. If desired, the cable 16 may be replaced with a wireless link which uses a radio wave.

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The illustrative embodiment allows the customer to see the contents of a transaction on the input unit 11 at the spot. This enhances the chance that the customer immediately finds out incorrect transaction data which may be inputted inadvertently by the attendant on the apparatus body 1. Eventually, efficient proceeds processing is enhanced to offer better customer service. In addition, troubles often experienced in debiting the customer's account are eliminated, so that mutual reliance between customers and facilities is improved.

In summary, it will be seen that the present invention provides a proceeds processing apparatus with which a customer can confirm at the spot the contents of a transaction entered by an attendant, by using customer-oriented inputting means. The apparatus, therefore, relatively easily improves the proceeds processing efficiency, customer service, and mutual reliance between customers and facilities.

Claims

1. A proceeds processing apparatus comprising an attendant apparatus and a customer apparatus inerconnected therebetween; said attendant apparatus comprising:
   a first casing (1);
   first input means (2,5) provided on said first casing (1) for an attendant entering first data indica-

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tive of contents of a transaction;
operation control means (7) accomodated in said first casing (1) for executing data processing including proceeds processing by performing arithmetic operations with inputted data; and
output means (3,4) provided on said first casing (1) and interconnected to said operation control means (7) for outputting a result of data processing;
said customer apparatus comprises
a second casing (11);
characterized in that
said customer apparatus further comprises:
second input means (12,14) electrically interconnected to said operation control means (7) with interconnecting means (8,16) and provided on said second casing (11) for a customer inputting second data representative of at least a part of contents of the transaction;
said second input means further comprising:
numeral keys (12c) for inputting the second data;
a confirm key (12a) for indicating the end of the second data; and
a cancel key (12b) for cancelling inputting of the second data when erroneously inputted,
said operation control means (7) determining whether or not the first data are agreed to by comparing the second data with the first data and in case the result of comparison is negative, repeating the determination of whether or not the first data are agreed to.

2. An apparatus in accordance with claim 1, characterized in that said apparatus further comprises first display means (13) for displaying a message for urging entry of the second data on said numeral keys (12c).

3. An apparatus in accordance with claim 1 or claim 2, characterized in that said interconnecting means (8,16) further comprises:
interface means (8) interconnected to said operation control means (7) for interfacing said operation control means (7) and said second input means (12,14) to each other; and
a cable (16) for electrically interconnecting said interface means (8) and said second input means (12,14).

Patentansprüche

1. Ergebnisberechnungsgerät, das ein Bedienergerät und ein Kundengerät aufweist, die miteinander verbunden sind;
wobei das Bedienergerät aufweist:
ein erstes Gehäuse (1);
eine auf dem ersten Gehäuse (1) vorgesehene erste Eingabeeinrichtung (2, 5) für eine Bedienungsperson, die erste Daten eingibt, die den Inhalt einer Transaktion anzeigen;
eine in dem ersten Gehäuse (1) untergebrachte Betriebssteuereinrichtung (7) zur Ausführung von Datenberechnungen einschließlich Ergebnisberechnungen durch Durchführung von arithmetischen Operationen mit eingegebenen Daten; und
eine Ausgabeeinrichtung (3, 4), die auf dem ersten Gehäuse (1) vorgesehen und mit der Betriebssteuereinrichtung (7) verbunden ist, zur Ausgabe eines Datenverarbeitungsergebnisses;
wobei das Kundengerät ein zweites Gehäuse (11) aufweist;
dadurch gekennzeichnet, daß das Kundengerät weiterhin aufweist:
eine zweite Eingabeeinrichtung (12, 14), die mit einer Verbindungseinrichtung (8, 16) elektrisch mit der Betriebssteuereinrichtung (7) verbunden ist und auf dem zweiten Gehäuse (11) für einen Kunden vorgesehen ist, der zweite Daten eingibt, die wenigstens einen Teil des Inhalts der Transaktion darstellen;
wobei die zweite Eingabeeinrichtung weiterhin aufweist:
numerische Tasten (12c) zur Eingabe der zweiten Daten;
eine Bestätigungstaste (12a) zur Anzeige des Endes der zweiten Daten; und
eine Löschtaste (12b) zum Löschen der Eingabe der zweiten Daten, wenn falsch eingegeben,
wobei die Betriebssteuereinrichtung (7) bestimmt, ob den ersten Daten zugestimmt wird oder nicht, indem sie die zweiten Daten mit den ersten Daten vergleicht und im Falle, daß das Vergleichsergebnis negativ ist, die Bestimmung wiederholt, ob den ersten Daten zugestimmt wird oder nicht.

2. Gerät nach Anspruch 1, dadurch gekennzeichnet, daß das Gerät weiterhin eine erste Anzeigeeinrichtung (13) zur Anzeige einer Mitteilung zum Erbitten einer Eingabe der zweiten Daten auf den numerischen Tasten (12c) aufweist.

3. Gerät nach Anspruch 1 oder Anspruch 2, dadurch gekennzeichnet, daß die Verbindungseinrichtung (8, 16) weiterhin aufweist:
eine Schnittstelleneinrichtung (8), die mit der Betriebssteuereinrichtung (7) verbunden ist, um die Betriebssteuereinrichtung (7) und die zweite Eingabeeinrichtung (12, 14) über eine Schnittstelle miteinander zu verbinden; und ein Kabel (16) zur elektrischen Verbindung der Schnittstelleneinrichtung (8) und der zweiten Eingabeeinrichtung (12, 14).

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Revendications

1. Appareil de traitement de montants comprenant un appareil destiné au personnel et un appareil destiné aux clients, interconnectés entre eux; ledit appareil destiné au personnel comprenant:

un premier boîtier (1);

un premier moyen d'introduction (2, 5) disposé sur ledit premier boîtier (1) pour que le personnel introduise des premières données indicatrices du contenu d'une transaction;

un moyen (7) de commande de fonctionnement adapté dans ledit premier boîtier (1) pour exécuter un traitement de données comportant un traitement de montants en effectuant des opérations arithmétiques sur les données introduites; et un moyen de sortie (3, 4) disposé sur ledit premier boîtier (1) et interconnecté audit moyen (7) de commande de fonctionnement pour délivrer le résultat d'un traitement de données;

ledit appareil destiné aux clients comprenant un second boîtier (11);

caractérisé en ce que

ledit appareil destiné aux clients comprend en outre:

un second moyen d'introduction (12, 14) interconnecté électriquement audit moyen (7) de commande de fonctionnement avec ledit moyen d'interconnexion (8, 16) et disposé sur ledit second boîtier (11) pour qu'un client introduise des secondes données représentatives d'au moins une partie du contenu de la transaction;

ledit second moyen d'introduction comprenant en outre:

des touches numériques (12c) pour introduire les secondes données;

une touche de confirmation (12a) pour indiquer la fin des secondes données; et

une touche d'annulation (12b) pour annuler l'introduction des secondes données lorsqu'elles sont introduites de manière erronée,

ledit moyen (7) de commande de fonctionnement déterminant si oui ou non les premières données sont acceptées par comparaison des secondes données avec les premières données et, dans le cas où le résultat de la comparaison est négatif, répétition de la détermination pour savoir si oui ou non les premières données sont acceptées.

2. Appareil selon la revendication 1, caractérisé en ce que ledit appareil comprend en outre un premier moyen d'affichage (13) pour afficher un message afin de procéder à l'introduction des secondes données par l'intermédiaire desdites touches numériques (12c).

3. Appareil selon la revendication 1 ou la revendication 2, caractérisé en ce que le moyen d'interconnexion (8, 16) comprend en outre:

un moyen d'interface (8) interconnecté audit moyen (7) de commande de fonctionnement pour interfacer ledit moyen (7) de commande de fonctionnement et ledit second moyen d'introduction (12, 14) l'un avec l'autre; et un câble (16) pour interconnecter électriquement ledit moyen d'interface (8) et ledit second moyen d'introduction (12, 14).