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AN ENTRY DEVICE

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BACKGROUND OF THE INVENTION

1. Field of the Invention

5 This invention relates to a terminal such as an automatic contract machine for issuing a contract card requested by a customer, and more particularly to an improved entry device to be used in the terminal.

2. Discussion of the Related Art

10 Heretofore, there has been proposed an automatic contract machine, in which, when a customer sets an identification medium such as a driver's license or a health insurance card and an application form at a predetermined position to prove the customer's identity, the medium is automatically received
15 by the machine to be read for judgement and issues a contract card requested by the customer if its validity is confirmed and a contract is made. Thus, a contract card requested by a customer is automatically issued by an unmanned machine, so that the customer oneself can complete his or her operation, a
20 window service of a teller be saved and the service for customers be improved.

In the proposed automatic contract machine, however, a scanner for reading an identification medium and an application form is separately disposed from a main body of
25 the machine. Accordingly, a whole construction of the machine

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is bulky and takes a large space for its installation.

Moreover, the machine has the disadvantages that a customer is confused by the order of the machine and its operation due to the separate operation of both separate devices and

5 erroneously sets the identification medium or the application form to be read with a troublesome operation.

SUMMARY OF THE INVENTION

It is, therefore, a primary object of this invention to provide an improved entry device in which a reading unit is
10 efficiently installed into a main body of the device as a single unit without employing a separate construction so as to decrease the size of the device and simplify its operation.

According to a first aspect of this invention, there is provided an entry device including an image information
15 display means for displaying image information on a display panel, an image information reading means for reading image information of a medium set on the display panel, and a guide display means for displaying a guidance on the display panel to guide an operator about a set position of a medium. As a
20 customer puts a medium on the display panel so that data of the medium presented by the customer may be received and entered in the device, the data stored in the medium is read by the image information reading means to be entered therein.

According to a second aspect of this invention, there
25 is provided an entry device further including a press means

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for pressing the medium set on the display panel. To read the data of the medium, the medium put on the display panel is pressed and held by the press means to read the held medium.

5 According to a third aspect of this invention, there is provided an entry device further including an entry means for entering the kind of the medium therein to change the guidance by the guide display means in accordance with the kind of the entered medium. Upon entering the kind of the medium to be read, the guidance display is changed.

10 According to a fourth aspect of this invention, there is provided an entry device further including a reading area display means for displaying a reading area of the image information reading means on the display panel, whereby the position where the medium to be read should be set is easy to
15 be found.

According to a fifth aspect of this invention, there is provided an entry device further including a reading area changing means for changing a reading area in accordance with the kind of the entered medium. Upon entering the kind of the
20 medium, the reading area is changed corresponding to the kind.

According to a sixth aspect of this invention, there is provided an entry device in which the reading area is displayed by indication of a rough picture of the medium. By displaying the rough picture of the medium, the kind of the
25 medium to be set is made clear.

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According to a seventh aspect of this invention, there is provided an entry device further including a judging means for judging whether or not the position of the medium set in the reading area is proper, whereby erroneous reading can be avoided.

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According to an eighth aspect of this invention, there is provided an entry device in which the guidance is displayed within the reading area.

According to a ninth aspect of this invention, there is provided an entry device further including a reading direction display means for displaying a reading direction.

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According to a tenth aspect of this invention, there is provided an entry device in which the display panel is represented by a touch panel which can be used as a touch input. Thus, the guidance display panel on the display is constituted with the touch panel to allow touch entry.

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According to an eleventh aspect of this invention, there is provided an entry device further including an ultrasonic reading means for reading touch input by its ultrasonic signal. The position information is read by sensing the position entered by a touch operation with the ultrasonic signal.

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Thus, according to this invention, the medium reading function, the entry function and the display function are represented by a single entry device to integrate customer

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service operations, whereby the entry operation is improved.
Moreover, the position for setting the medium to be read, the
input position and the display position to guide the customer
are disposed in the same position, whereby the whole size of
5 the device is decreased and its arrangement space is
minimized.

The customer sets the medium for reading and executes an
input operation by watching the displayed guidance at the same
position, so that the customer can smoothly operate with
10 receiving a proper operation guidance and the confusion by the
customer about the operation be resolved. Thus, the operation
time is shortened and the customer service is improved.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objectives and advantages of this invention will be
15 more readily apparent from the following detailed description
provided in conjunction with the following figures, of which:

Fig. 1 is a perspective view of an automatic contract
machine as a first embodiment of this invention;

Fig. 2 is a side view showing an internal construction of
20 the machine of Fig. 1:

Fig. 3 shows a guidance of a setting state of a reverse
side of a driver's license:

Fig. 4 shows a guidance of a setting state of a health
insurance card;

25 Fig. 5 shows one example of a contract employed in this

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machine;

Fig. 6 is a top plan view of an operation panel of the machine showing a setting state of a variety of mediums;

5 Fig. 7 shows a guidance to guide an initial setting of a document;

Fig. 8 is a side view of a press holder showing its press operation;

Fig. 9 is a schematic perspective view of the press holder at a press position showing its press state;

10 Fig. 10 is a partial sectional enlarged view of a layered construction of the input operation panel of the machine;

Fig. 11 is a partial perspective view of a scanner employed in the input operation panel showing its scanning state;

15 Fig. 12 a longitudinal sectional view of an image sensor employed in the input operation panel to explain a reading principle thereof;

Fig. 13 is a partial perspective disassembled view of a scanning mechanism of the image sensor;

20 Fig. 14 shows a sectional view of the input operation panel to explain common operations of reading and entering at left-and-right hand side positions;

Fig. 15 is a partial side sectional view showing a document collecting path employed in this machine;

25 Fig. 16 is a schematic block diagram of a control circuit



employed in the machine;

Fig. 17 shows a monitored picture displayed by way of an example on a display of a teller terminal associated with the automatic contract machine;

5 Fig. 18 is a flow chart of a whole processing operation in the automatic contract machine;

Fig. 19 is a flow chart of an operation to process an identification card employed in the machine;

10 Fig. 20 is a flow chart continuing to the flow chart of Fig. 19;

Fig. 21 is a flow chart to process an application form in the machine;

Fig. 22 is a flow chart continuing to the chart of Fig. 21 and;

15 Fig. 23 is a flow chart showing a collecting operation for a document.

DETAILED DESCRIPTION OF THE INVENTION

Referring, now, to Fig. 1, there is shown a perspective view of an automatic contract machine 11 as a first embodiment of this invention which automatically issues a contract card. The machine 11 includes a camera window 12 at an upper front of the machine, a card issuing aperture 13, an input operation panel 14, a press holder 15, an application form/contract issuing aperture 16, a customer service table 17, and a writing instrument tray 18.

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Fig. 2 shows an internal construction of the machine 11 of this embodiment, which enclose a television camera 21 at an internal position corresponding to the camera window 12 to take a picture of a customer and a card issuing device 22 at an internal position corresponding to the card issuing aperture 13 to dispense an issued card.

The input operation panel 14 is disposed at an angle of inclination suitable for an input operation and a view angle and has a wide rectangular shape to allow display/input/read operations through the panel 14. Inside of the panel 14 there are enclosed a display 23 serving as an touch input and a scanner 24. The display 23 is disposed to guide a touch input operation, a setting operation, and the contents of the operations. The scanner 24 is disposed to read recorded data of an identification card 25 such as a driver's license or a health insurance card, or a document 26 such as an application form or a contract, which is set on the input operation panel 14. On reading, the press holder 15 presses and holds the identification card 25 and the document 26 set on the input operation panel 14.

At a lower side of the input operation panel 14, there is disposed a document collection path 27 to take in the read document 26 downward for collection. The path 27 at a lower internal end thereof is connected with a collection box 28 located below the customer service table 17 to collect the

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document 26.

An inside of the application form/contract aperture 16 is connected through a document exhausting path 29 with a printer 30 having a document enclosure which prints contents of the contract and issues an application form or a contract from the document enclosure when a customer executes a contract operation.

The table 17 is of a flat type suitable for writing thereon, and horizontally projects from a front of the machine. Along the lower wall of the table 17 there is disposed the collection box 28 having a similar configuration thereto so that it can be independently opened and closed by a clerk or teller to easily take out the collected documents.

The collection box 28 is also disposed near the lower side of the input operation panel 14 to decrease a distance between the input operation panel 14 and the collection box 28, whereby the path length of the document collection path 27 connecting therebetween is shortened to decrease a collection time from the input operation panel 14 to the collection box 28 or a return time from the collection box 28 to the input operation panel 14.

Fig. 3 shows a guidance by way of an example to set an identification card 25 on the input operation panel 14, in which a driver's license is employed as the identification card and the guidance is a display guidance for a setting

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position to read a reverse side of the driver's license
continuing to reading a front side thereof.

5 The display guidance on the input operation panel 14
includes a character guidance display section 31 to guide the
setting position of the reverse side of the driver's license
and its confirmation operation, a set position designating
guidance display section 32 to designate and guide the
position for setting the license, a graphic guidance display
10 33 section to dynamically guide a setting operation of the
reverse side of the license by animation, an application
cancel key section 34, a picture section 35 displaying a
teller's face, and a confirmation key section 36. In
conjunction with these display sections a voice guidance is
generated to confirm the guidance of the setting operation of
15 the reversed side of the driver's license.

Fig. 4 shows a display guidance of a setting position a
health insurance card, and includes a character guidance
display section 41 to guide the setting position of an entered
side of the insurance card and its confirmation operation, a
20 set position designating guidance display section 42 to
designate and guide the position for setting the card, a
graphic guidance display 43 section to dynamically guide a
setting operation of the reverse side of the card by
animation, an application cancel key section 44, a picture
25 section 45 displaying a teller's face, and a confirmation key

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section 46. In conjunction with these display sections a voice guidance is generated to confirm the guidance of the setting operation of the reversed side of the health insurance card.

5 Fig. 5 shows one example of a contract 26a. Contents of the contract 26a are entered on a column 51 thereof, and approval items of name and address are written on an approval column 52 of the contract 26a by a borrower after approving the contents. A setting direction designation mark 53 is
10 clearly marked on an upper left corner of the contract to designate a direction and front-and-reverse sides thereof at a predetermined position, whereby a setting operation of the contract 26a to the input operation panel 14 is simplified. Not only this contract 26a, such a mark for designating a
15 setting direction is also marked on an application form for easier setting operation. Such marking may be replaced by a cut portion at a corner of such document to designate the direction and its front and reverse.

20 Fig. 6 shows a setting state of different size of identification cards 25 (25a and 25b) and document 26 (26a and 26b). In case of identification card 25 such as driver's license 25a and health insurance card 25b, the base of the setting position is defined at the left bottom corner of the input operation panel 14. In case of document 26 such as
25 application form 26b and contract 26a, a lower edge thereof is

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a little inserted into the document collection path 27 and a left edge thereof is set to a datum line for fixing its position, whereby the document is longitudinally set and pressed and held by the press holder 15 to initiate a reading operation.

As pressed by the holder, a right-hand portion of the input operation panel 14 is exposed with a predetermined width, and the exposed portion can be used to display an operation guidance to guide a setting position.

For instance, Fig. 7 shows the input operation panel 14 divided into a pair of sections. On a left section of the panel 14, there are displayed a document setting operation guides having a set position designation guidance 71, a graphical guidance 72 dynamically displaying a document setting operation by animation and an insertion set direction 73, and on a right section thereof there are displayed an application cancel key 74 and a character guidance 75 to guide a document set operation. Thus, the left hand side of the input operation panel 14 plays a display panel serving also as a reading unit, and the right hand side thereof plays a display panel serving also as an input unit.

Figs. 8 and 9 show an press operation of the press holder 15. This press holder waits at a side standby position neighboring on the input operation panel 14, and is movably and freely supported between the standby position and the

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input operation panel 14 by a manual horizontal hold mechanism 81 in which a connecting arm 84 at a lower end thereof is rotatably supported on a holder supporting shaft 83 fixed on a base plate 82 and at an upper end thereof is connected with a pivot shaft 85 of the press holder 15, whereby the press holder 15 is manually moved in a semicircular locus in right and left directions around the holder supporting shaft 83 serving as a swingable support point, retaining a generally horizontal direction.

As a scanner 86 for reading is housed within the press holder 15, it can read an opposite side to the input operation panel 14. Thus, in case the scanner 86 is separately disposed from the input operation panel 14, display/input/read operations may be executed at the same position on the panel 14. At an entrance portion of the document collection path 27 there may be disposed a confirmation scanner 24a (see Fig. 2) to confirm setting documents and read the same on taking in, whereby detection of an illegal act such as replacement on setting a document is improved.

Fig. 10 shows a layered construction of the input operation panel 14 which includes a transparent touch panel 101 as an upper layer, a scanner 24 provided with a movable image sensor 102 as a middle layer, and a TFT display (color liquid crystal display) 103 as a lower layer.

The touch panel 101 senses a position of a touch input by

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an ultrasonic signal, the image sensor 102 having a length of a complete width of the panel 14 scans a whole area of the panel 14 for reading as also shown in Fig. 11, and the TFT display 103 subsequently displays the operation contents.

5 As shown in Fig. 12, the image sensor 102 has a V-shaped section. A LED array 121 is disposed inside of one slope of the V-shaped section and a sensor array 122 is disposed inside of another slope to receive a reflected signal from the LED array 121 for reading the entered data on the identification
10 card 25 and the document 26. An outline of an object to be measured thereby may be detected by the absence or existence of the reflected light, whereby an external recognition of documents may be executed, and erroneous set and positional shift may be easily detected.

15 Fig. 13 shows a scanning mechanism 131 of the image sensor 102, in which a driving transmitting force from a scanning driving motor M1 rotatably drives through gears 132 and pulleys 133 a timing belt 134. The belt 134 is applied in a detecting direction, and fixed by one end of the image
20 sensor 102. The image sensor 102 at both ends thereof is supported by left-and-right guide rails 135 and 136 in parallel with the timing belt 134.

The touch panel 101 generates an ultrasonic wave signal along a panel flat direction thereof to sense a position of a
25 touch input on the panel 14. As shown in Fig. 14, the left-

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hand side of the panel 14 represents a reading area held by
the press holder 15, and the right-hand side thereof
represents an exposed display panel to also serve as a touch
input by a finger 141 of a customer, wherein the position
5 entered by the touch input is precisely defined by the
ultrasonic signal utilizing ultrasonic characteristics
irrelevant to a press force by the press holder 15, so that
such an input operation can be executed with reading data on
the same display panel and the input operation panel 14 can be
10 processed with a high efficiency. In this embodiment, the
press holder 15 is composed of ultrasonic non-interference
materials such as hard materials to avoid any inconvenience by
using ultrasonic signals.

Fig. 15 shows the document collecting path 27 along which
15 there are arranged a shutter 151, a document hold roller 152,
a stopper 153, and a flapper 154 in an inward direction from
the entrance to connect the inward collection box 28.

On the document collecting path 27 there are disposed
first thorough third sensors S1 through S3 to detect and
20 confirm a conveyance state of a document 26. On the document
exhausting path 29 crossing the path 27 at the flapper 154,
there is provided a fourth sensor S4 to detect and confirm the
conveyance state of the document 26. The paths 27 and 29 are
driven by a path driving motor M2.

25 For example, when the document is received, the shutter

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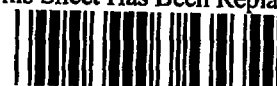
151 and the document hold roller 152 at the entrance side of
the document collecting path 27 are opened but the stopper 153
is closed to be standby for receipt, whereby a lower end of
the document inserted on setting is restricted at the stopper
5 153 to complete the receipt setting on the input operation
panel 14. After completion of the receipt setting, the
entered data on the document 26 is read, and when an
examination passes the read data, the process moves to a
collecting operation for the document to take the same inward
10 for temporal waiting at a temporal collecting portion 28a
disposed at an entrance of the collection box 28. If any
correction or cancellation is necessary in the contents of the
document, the document is reversely conveyed to be returned to
the customer.

15 When an application form or a contract is issued, the
flapper 154 is switched at the cross position of the paths 27
and 29 to release the document exhausting path 29.

Fig. 16 is a schematic block diagram of a control circuit
employed in the automatic contract machine 11 employing a CPU
20 161 which controls respective circuit devices according to a
program stored in a ROM 162 and stores control data in a RAM
163 to be read therefrom.

A path convey processor 164 is disposed to turn on/off
the path driving motor M2, the shutter 151, the document hold
25 roller 152, the stopper 153 and the flapper 154 in order to

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drive the document collection path 27 and the document
exhausting path 29 so that the document 26 may be taken into
or returned from the collection box 28 by the document
collection path 27 and the application form or the contract
5 may be dispensed from the machine by the document exhausting
path 29.

A communication processor 165 is disposed to communicate
a running state of the automatic contract machine 11 with a
remote teller terminal 166 to be monitored by a teller. The
10 terminal 166 receives the data produced when a customer makes
a contract through the contract machine 11 so as to be
monitored by the teller at a remote location for advancing the
unmanned automatic contract operation by the customer oneself.

Other components shown in Fig. 16 which are also shown in
15 Figs. 2 and 15 are associated with the CPU 161 to be
controlled thereby.

In Fig. 17 there is exemplarily shown a monitored picture
displayed on a display 171 of the teller terminal 166, in
which the contents entered by the customer on contracting are
20 partially cut and displayed. For example, the entry of the
address and the name of the customer is cut out to be
confirmed by the teller whether or not it is satisfactory.
Such confirmation may be printed out by a printer to resolve
any trouble of reading by the scanner and establish a stable
25 input operation.

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Referring to a flow chart of Fig. 18, a whole processing operation of thus constructed automatic contract machine 11 will be described hereinafter, in which steps n1 through n9 are executed by the automatic contract machine 11 operated by a customer, and steps o1 through o5 are executed by the teller terminal 166 operated by a teller.

When a customer requests issue of a contract card by the automatic contract machine 11 located at an unmanned service corner, the customer is requested to set his or her identification card (ID document) 25 on the input operation panel 14 to be read thereby for confirmation of the identification (step n1).

If the identification is confirmed by the teller based on the displayed data in the teller terminal 166 (step o1), the contract machine 11 issues an application form and the customer is requested to write contents of a regulated contract on the form (step n2). As the customer sets the entered application form at the predetermined position after such writing, the contents of the application are read out (step n3).

The read data is transmitted to the terminal 166 to be confirmed by the teller (step o2) and to be examined after confirmation of the applied contents (step o3), and a result of the examination is notified to the customer who waits the examination through the machine 11 (step o4 and step n4).

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If the examination result is acceptable to the teller, the contract transaction should be established and a contract 26a is issued to be filled with the contract contents requested by the customer (steps n5 and n6).

5 As the customer sets the filled contract at the reading position of the input operation panel 14 to be read thereby (step n7), the contents of the contract is confirmed by the teller in the teller machine (step o5). If the contents is proper, contract items are printed out by the printer 30 and a
10 copy of the contract and the contract card are issued, thus one contract operation is completed (steps n8 and n9).

Referring to Figs. 19 and 20 an identification process operation of the identification card 25 will be described hereinafter.

15 Now, if the input operation panel 14 displays selection of document to be used to identify that an operator of the machine is a customer oneself prior to the execution of automatic contract (step n11) and the customer chooses a
20 driver's license 25a as an identification (step n12), the input operation panel 14 displays the driver's license read area guide for positioning a customer's driver's license 25a (step n13). If the customer chooses a health insurance card, the panel 14 displays the health insurance card read area guide for positioning a customer's health insurance card 25b
25 (step n14).

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If according to the display guide, the identification card 25 is set to the predetermined position and a confirmation input is entered by the depression of the confirmation key to initiate reading the data (step n15), the
5 data on the identification card 25 is read by scanning its image (step n16).

It is enquired if the card is properly set and the image is normal. In case of the driver's license 25a, a ruled line characterized by the license is extracted to judge if the
10 setting position is proper (steps n17 and n18). Unless proper, a rereading operation is executed (step n19). If proper, specifically cut out data is transmitted to the teller terminal 166 to request customer's identification (steps n20 and n21).

15 If an affirmed answer confirming the identification is applied from the teller terminal 166, the identification confirming operation by the identification card 25 is completed (steps n20 and n21). Unless such an affirmed answer is applied from the teller terminal 166, a reconfirm guide is
20 displayed to request a re-operation for identification (steps n22 and n23).

As the teller terminal 166 receives the image data of the identification card 25 cut out by the automatic contract machine 11 (step o11), the data is displayed on the display
25 171 of the teller terminal to be reviewed by the teller, and

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if necessary, printed out for a visual confirmation (steps 012 and 013).

5 Based on this process, the teller judges if the identification is proper. If proper, the sequence moves to the process in which the identification is accepted and the application form is issued. Unless proper, the rereading operation is executed. (steps 014 to 016)

10 Next, referring to a flow chart of Figs. 21 and 22, the process operation when the application form 26b is received will be described hereinafter.

15 Based on the above-mentioned confirmation of the identification about the identification card 25, the automatic contract machine 11 issues the application form 26b and the customer writes his or her requesting contract contents into an entry column of the form 26b. The input operation panel 14 displays a guidance of the application read area to set the entered application form 26b into the reading position thereof (step n31).

20 Following to the guidance the customer depresses the confirmation key after he or she sets the application form 26b into the predetermined position (step n32), and data on the set application form 26b is read out by scanning the image of the form (step n33), wherein it is confirmed if the form is properly set without any positional shift or if the image is
25 normal (steps n34 and n35).

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5 If the setting is judged to be improper, a rereading operation is executed (step n36). If proper, the cut out data as shown in Fig. 17 is transmitted to the teller terminal 166 to confirm the contents of the application form 26b (step n37 to n38).

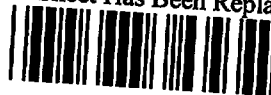
10 As an approval answer is applied the machine 11 from the teller terminal 166, the application form receipt operation is completed. Unless such an approval answer is applied to the machine 11 or if the application is rejected, the panel 14 displays a reconfirm operation guidance of the application form by showing the major reasons of such rejection such as non-entry of letter, an erroneous letter, an omitted letter and so forth (steps n39 and n40).

15 When the teller terminal 166 receives image data of the application form 26b cut out in the automatic contract machine 11 in the step n37 of Fig. 21 (step o31 of Fig. 22), the data is displayed by the display 171 of the teller terminal 166 to be reviewed by the teller and, if necessary, printed out for a visual inspection (steps o32 and o33).

20 If the teller judges the form to be acceptable, he or she approves it and the sequence moves to the following step for issuing a contract. Unless acceptable, the rereading operation is executed (steps o34 and o36).

25 Upon completion of receipt of the application form 26b, the automatic contract machine 11 issues the contract 26a to

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be written with the contract contents requested by the customer. The written or entered contract 26a is set in the same operation as that of the application form 26b to be read for examination about the entered contents. If the
5 examination passes the contract, a copy of the contract which is printed with the contract contents is issued and a contract card requested by the customer is issued. Thus, the contract card is issued by customer's self input operation.

The application forms 26b and contracts 26a which have
10 been used in the contract operation are collected into the collection box 28 to be stored therein, and are adapted to be ready to be returned in case the documents 26 are necessary to be corrected or canceled during the contract executing operation. The collection operation for the documents 26 will
15 be described referring to a flow chart shown in Fig. 23 hereinafter.

Now, the input display panel 14 displays a document waiting picture after completing the identification operation, which shows a guidance to put the document 26 on the input
20 operation panel 14 to guide the document toward the set position (step n41). If the customer depresses the confirmation key after setting the document (step n42), a lower end of the document 26 is held in a fixed position by the document hold roller 152 and an upper end of the document
25 is pressed to be held by the press holder 15 so as to retain

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the fixedly holding state suitable for reading the document (steps n43 and n44).

5 As the scanner 24 starts to read the document 26 held in a fixed position and finishes such reading (steps n45 and n46), the document is released from being fixedly held and taken inward for temporal waiting at the temporal collecting portion 28a (steps n47 and n48).

10 In this waiting state, the read data of the document 26 is transferred to the teller terminal 166. Unless there is any abnormal detection such as modification in the answered information from the teller terminal 166, the document 26a temporarily stored in the temporal collecting portion 28a is perfectly taken into a predetermined position within the collection box 28 for completion (steps n49 through n51).

15 If the terminal 166 sends a correction request in the answer information such as no-entry, an erroneous letter or an omitted letter, the document 26 waited in the temporal collecting portion 28a is reversely sent to its original position on the input operation panel 14 to be returned to the customer and the panel displays a screen for rewriting the document and setting the same again (steps n52 and n53).

20 Thus, according to this embodiment, the entry device is represented by the automatic teller machine 11, the medium is represented by the identification card 25 such as the driver's license 25a and the document 26 such as the health insurance

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card 26a and the application form 26b. The input operation
panel 14 is associated with the display, the reading portion,
the reading area, the reading display, the reader, and the
medium setting position. The reading means is represented by
5 the scanner 24 housed in the image sensor 102. The reading
means disposed outside the display area of the display is
represented by the set confirmation scanner 24a. The reading
means at the press portion is represented by the scanner 86 of
the press holder 15. The CPU 161 represents the switching
10 means, the set position judging means, the reading area
designating means, and the data editing means. The display
designating means and the guidance display means correspond to
the graphical guide display 33, 43 and 72. The printing means
is represented by the printer 30. The display 171 of the
15 teller terminal 166 represents the character display means,
the confirming means and the modification allowing means. The
setting direction of the medium corresponds to the setting
direction designation arrow mark 53.

While the invention has been described and illustrated
20 with respect to certain embodiments which give satisfactory
results, it will be understood by those skilled in the art
that various other changes and modifications may be made
without departing from the spirit and scope of the invention,
and it is, therefore, intended in the appended claims to cover
25 all such changes and modifications.

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What is claimed is:

1. An entry device (11) for receiving data read from a medium
(25 and 26) and entering the data therein comprising

5 image information display means (14) for displaying image
information on a display panel,

image information reading means (24) for reading image
information of the medium (25 and 26) set on the display
panel, and

10 guide display means (14, 32 and 41) for displaying a
guidance on the display panel to guide an operator about a set
position of a medium.

2. An entry device (11) as set forth in Claim 1 further
comprising press means (15) for pressing the medium set on the
display panel.

15 3. An entry device (11) as set forth in Claim 1 further
comprising entry means (14 and n11) for entering the kind of
the medium therein to change the guidance by the guide display
means in accordance with the kind of the entered medium.

20 4. An entry device (11) as set forth in Claim 1 further
comprising reading area display means (14 and n31) for
displaying a reading area of the image information reading
means on the display panel.

25 5. An entry device (11) as set forth in Claim 4 further
comprising entry means (14) for entering the kind of the
medium therein, and reading area changing means (n13 and n14)

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for changing a reading area in accordance with the kind of the entered medium.

5 6. An entry device (11) as set forth in Claim 4 in which the reading area (14) is displayed by indication of a rough picture of the medium.

7. An entry device (11) as set forth in Claim 4 further comprising judgement means (161) for judging whether or not the position of the medium set in the reading area is proper.

10 8. An entry device (11) as set forth in Claim 4 in which the guidance is displayed within the reading area (14).

9. An entry device as set forth in Claim 4 further comprising reading direction display means (73) for displaying a reading direction.

15 10. An entry device (11) as set forth in Claim 1 in which the display panel is represented by a touch panel (101) which can be used as a touch input.

11. An entry device (11) as set forth in Claim 10 further comprising ultrasonic reading means (101) for reading touch input by its ultrasonic signal.

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ABSTRACT OF THE DISCLOSURE

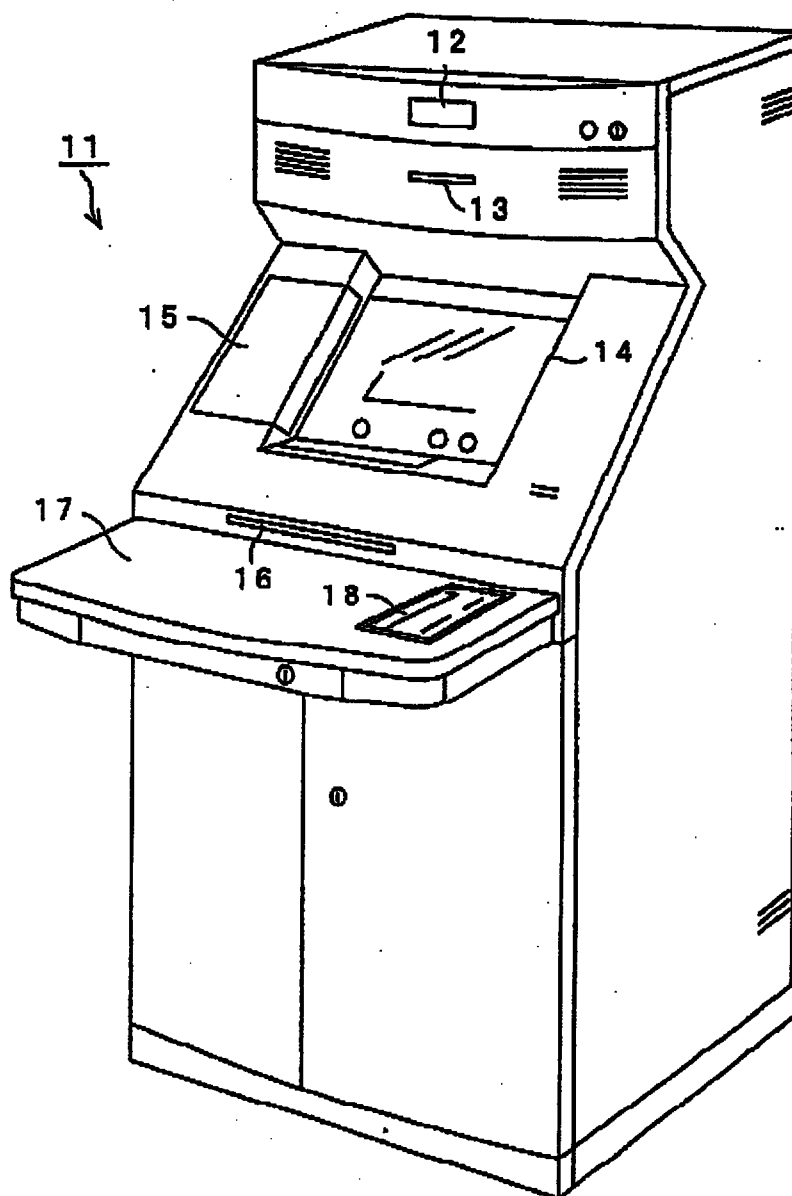
An entry device for receiving data read from a medium and entering the data therein includes an image information display for displaying image information on a display panel, an image information reading means for reading image information of a medium set on the display panel, and a guide display means for displaying a guidance on the display panel to guide an operator about a set position of a medium.

5

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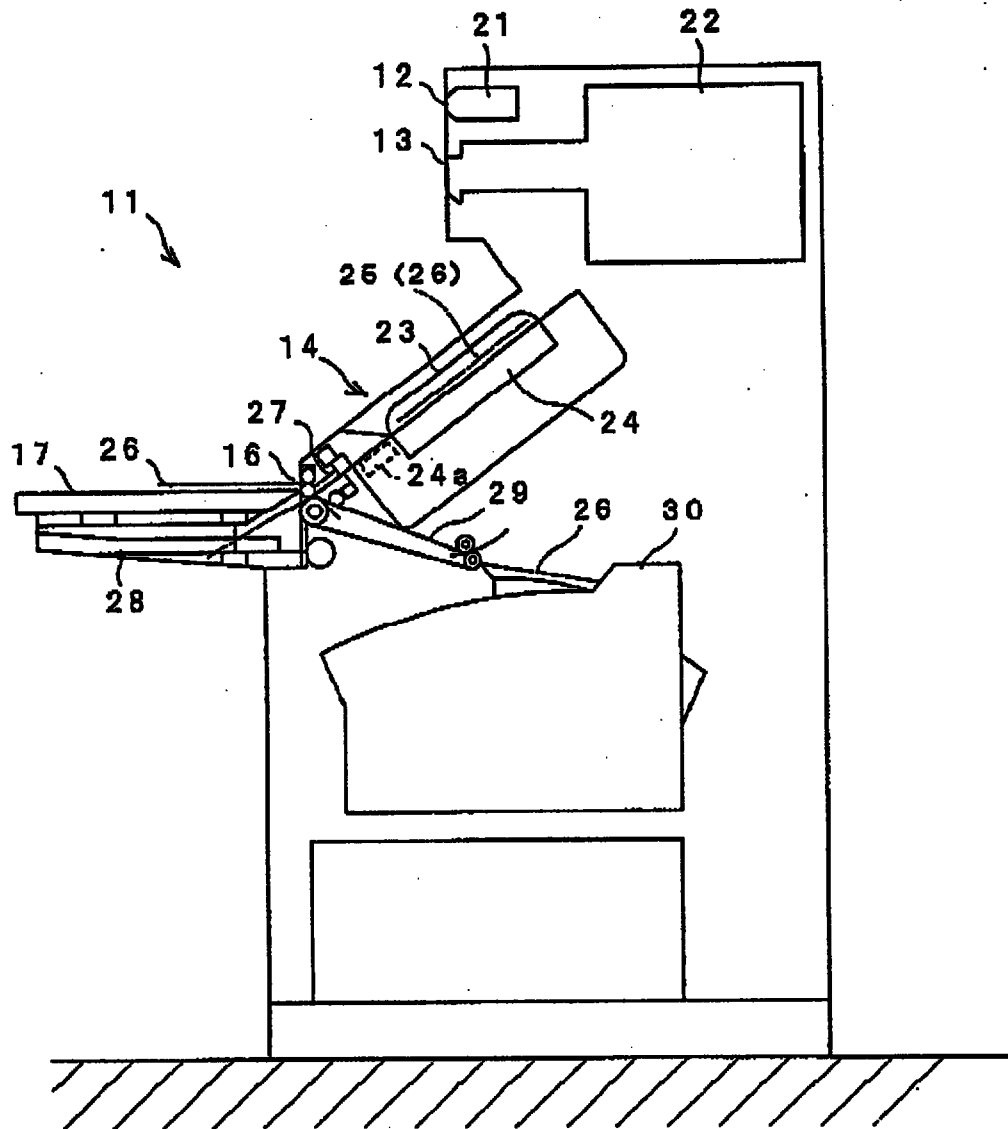
FIG. 1



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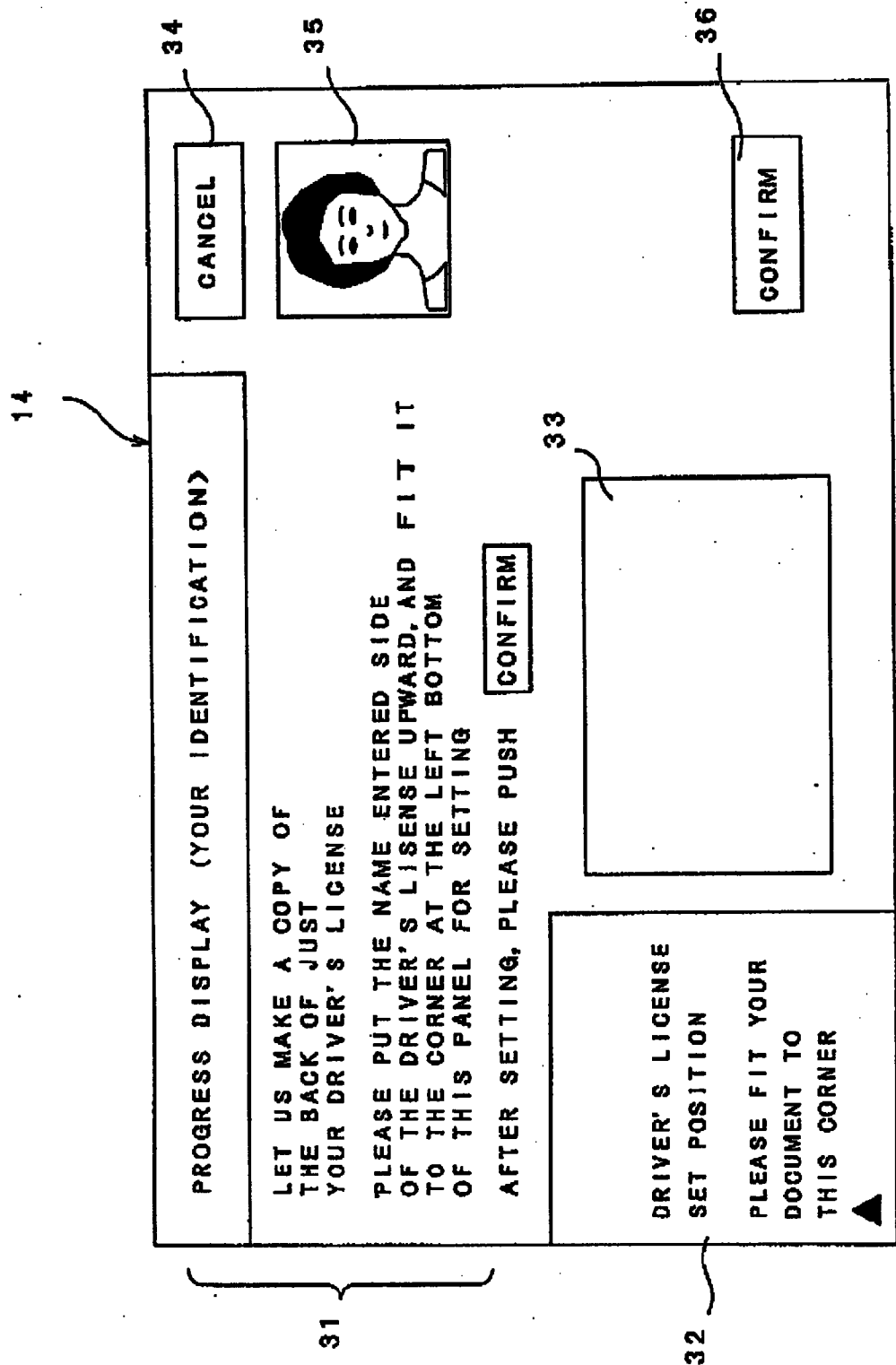
FIG. 2



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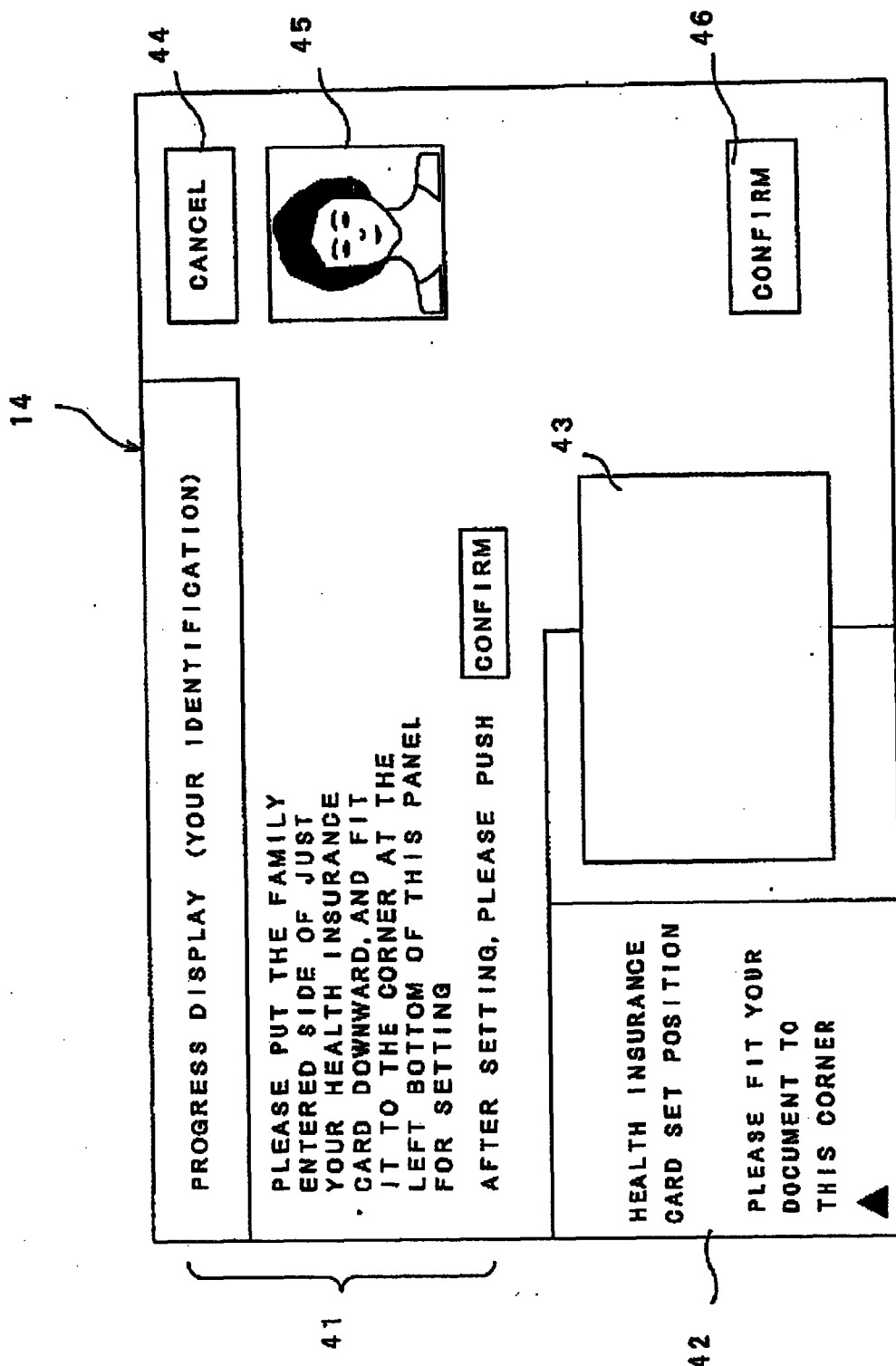
FIG. 3



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FIG. 4



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FIG. 5

26a

53

CONTRACT xxx

61 { CONTRACT NUMBER LOAN MAX.

DATE

52 BORROWER

51 TRANSFER

51 BORROWING

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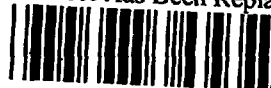
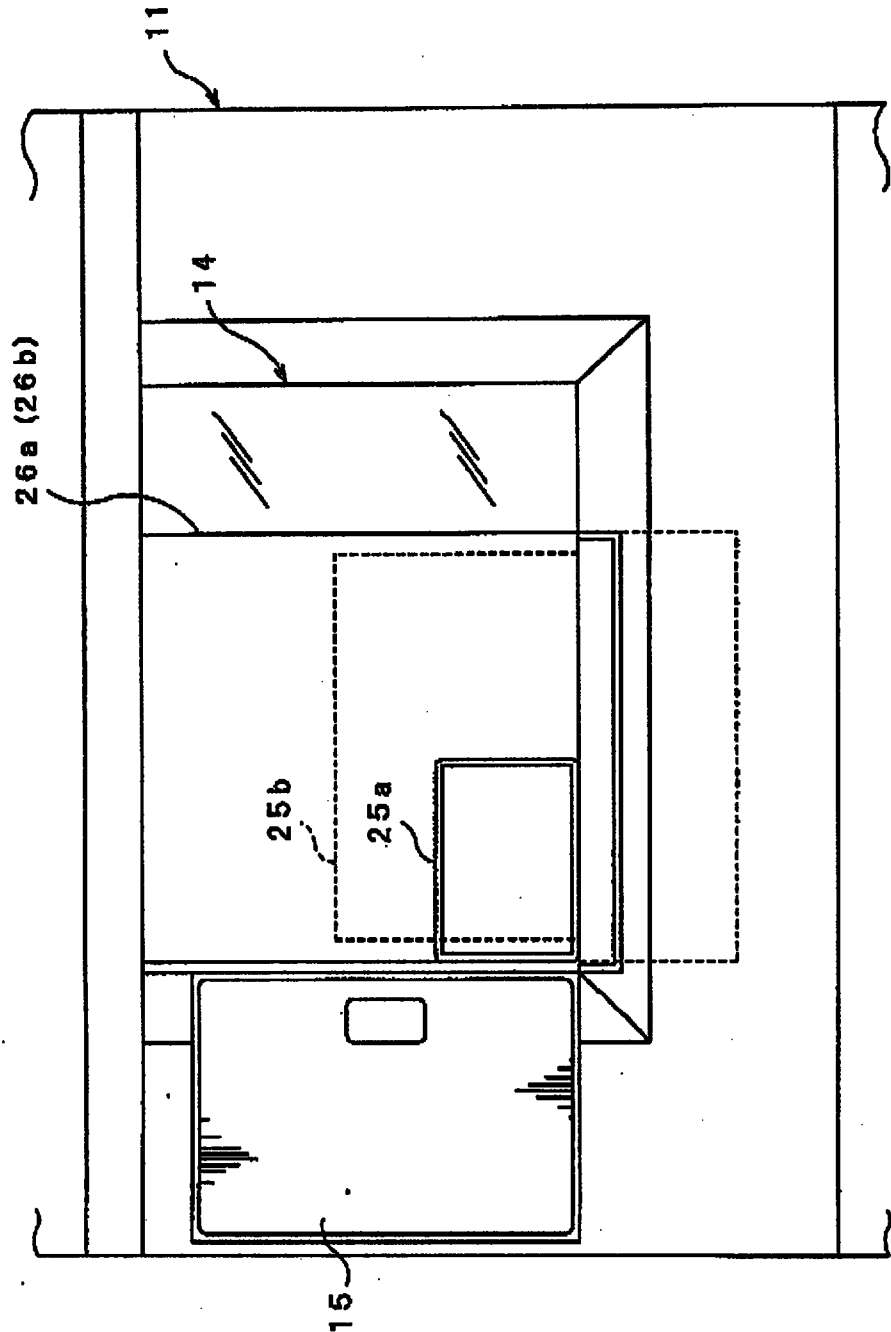


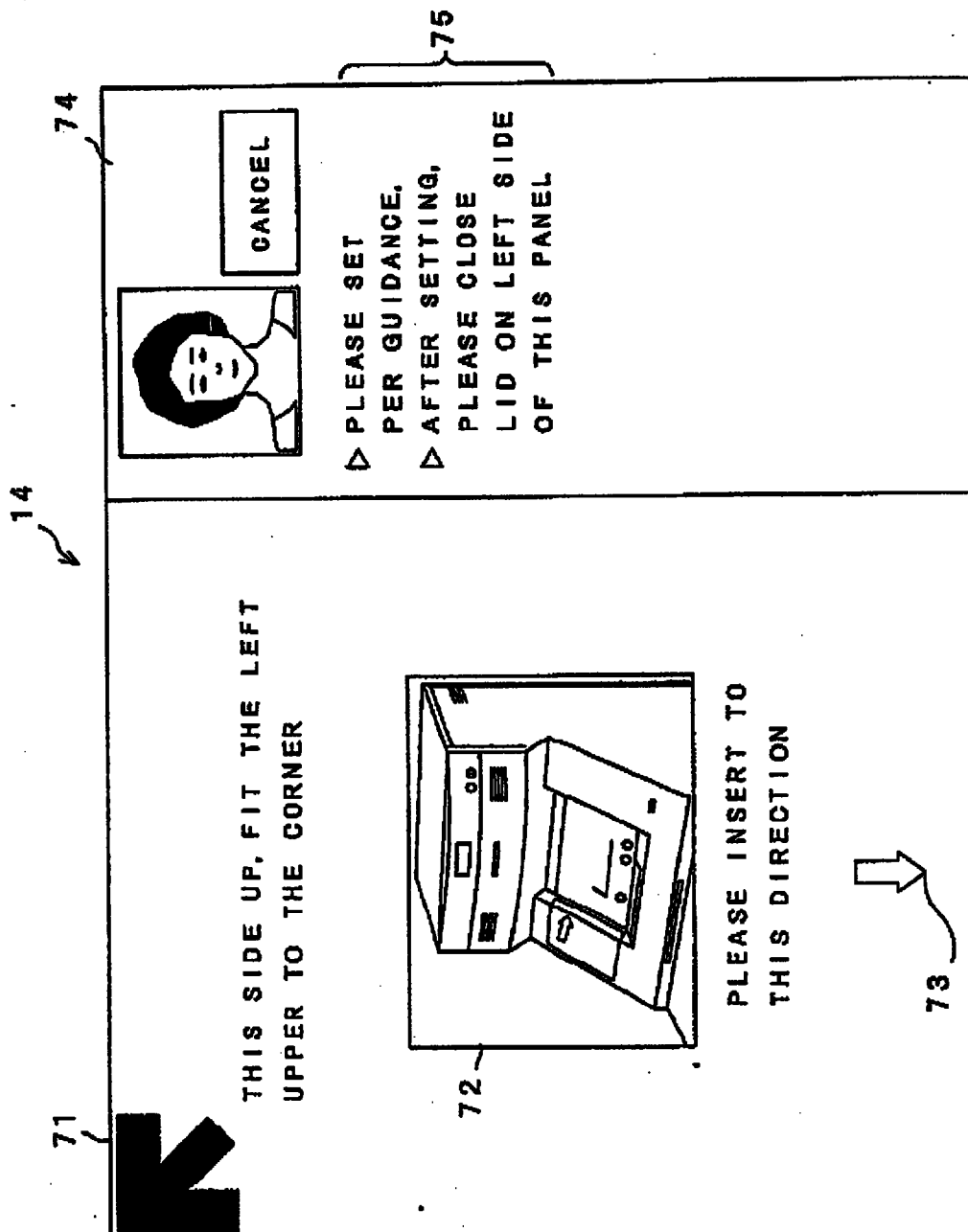
FIG. 6



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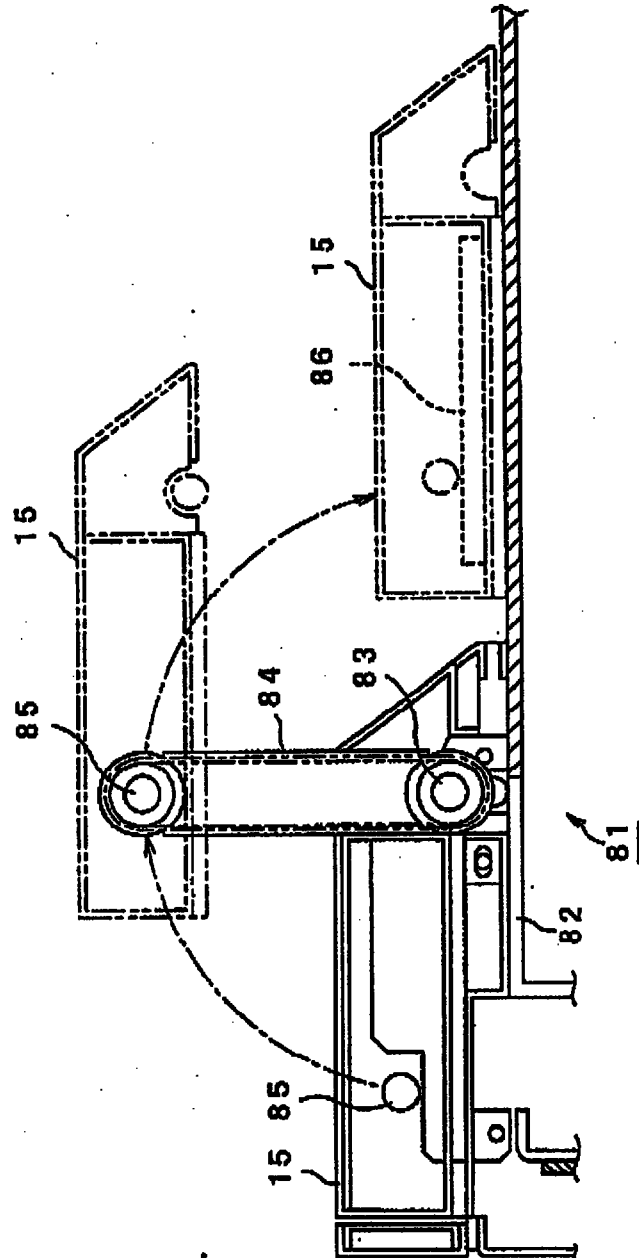
FIG. 7



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FIG. 8



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FIG. 9

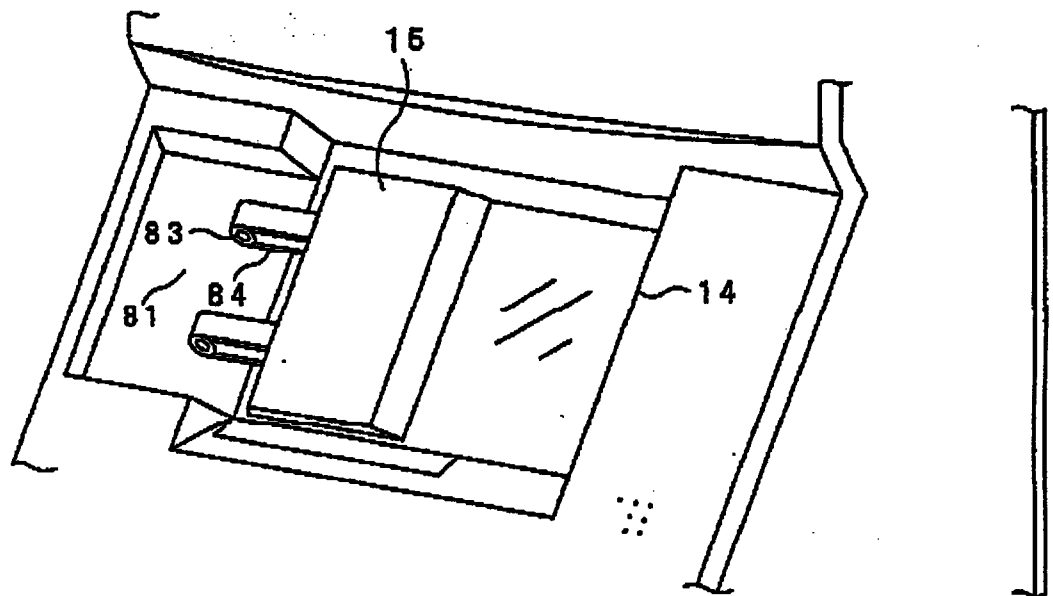
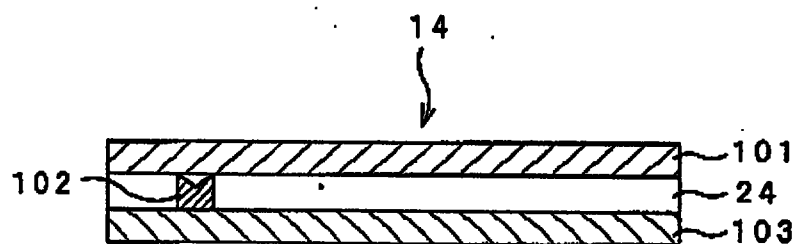


FIG. 10



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FIG. 11

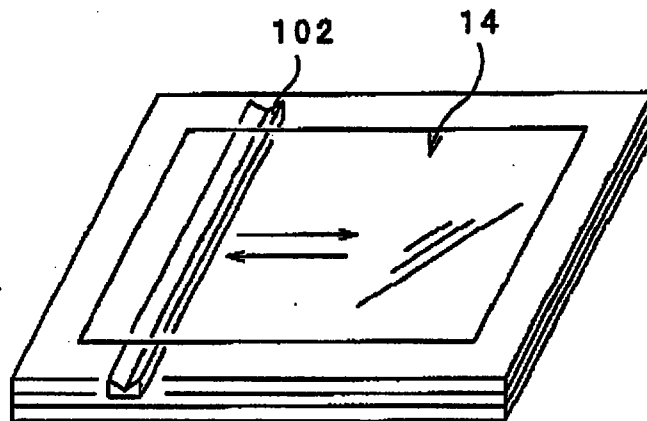
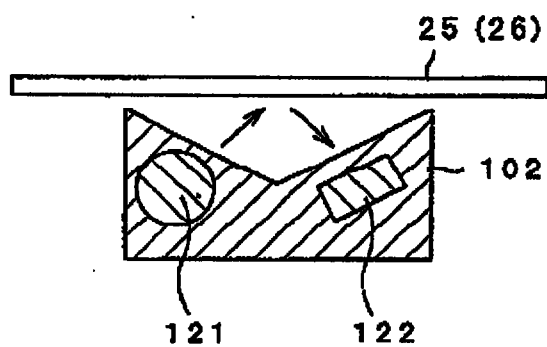


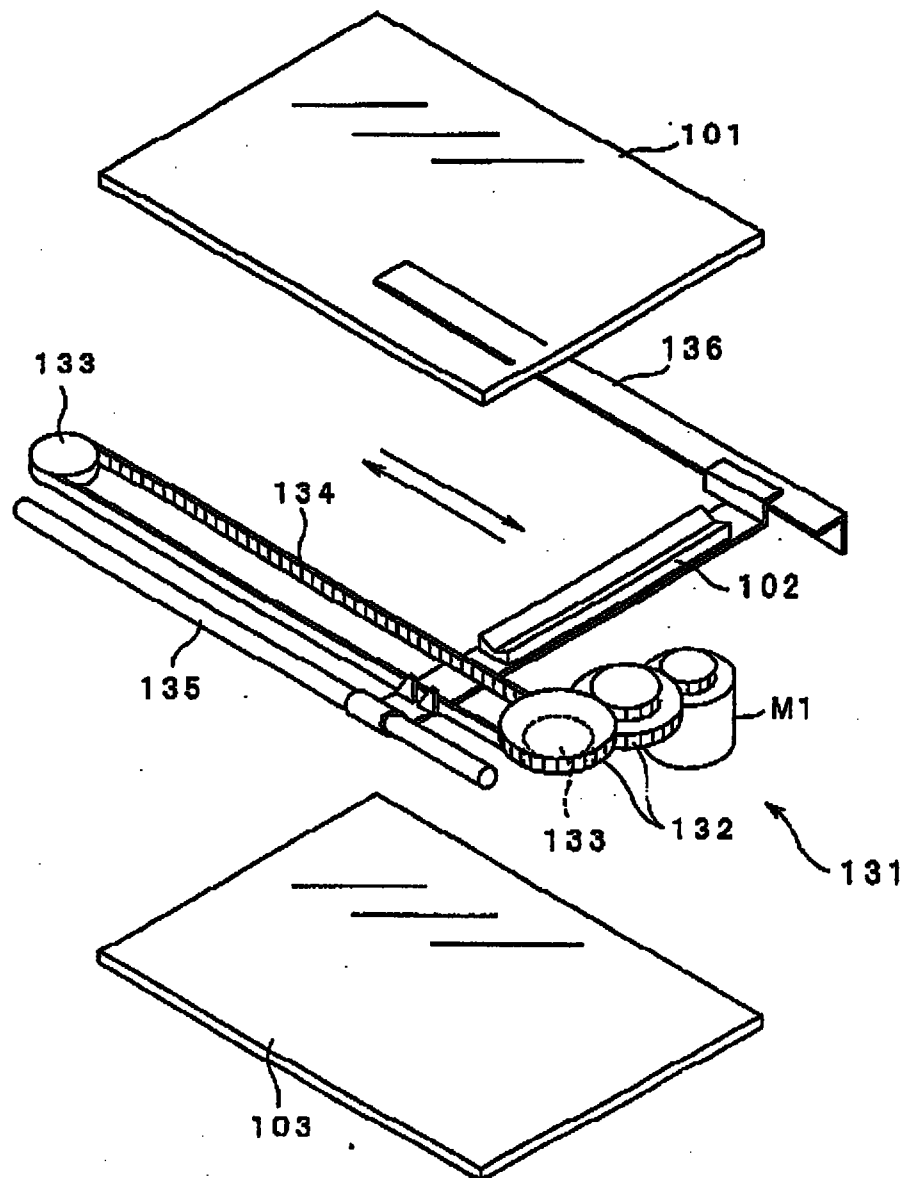
FIG. 12



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FIG. 13



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FIG. 14

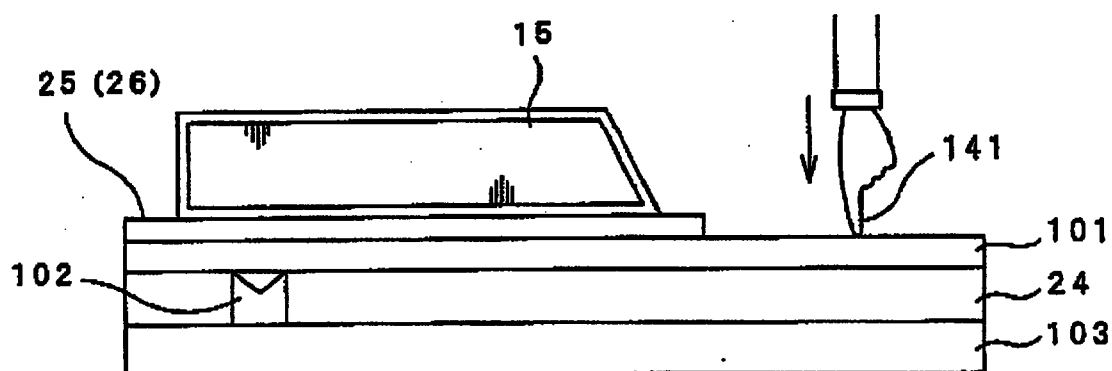
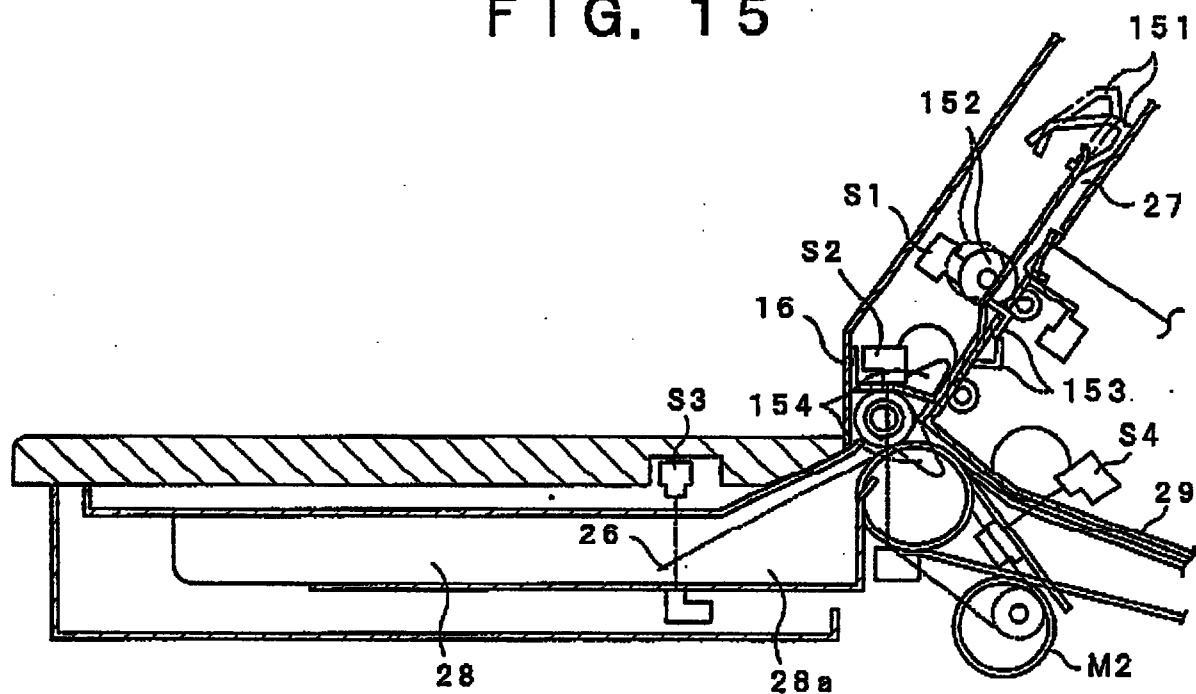


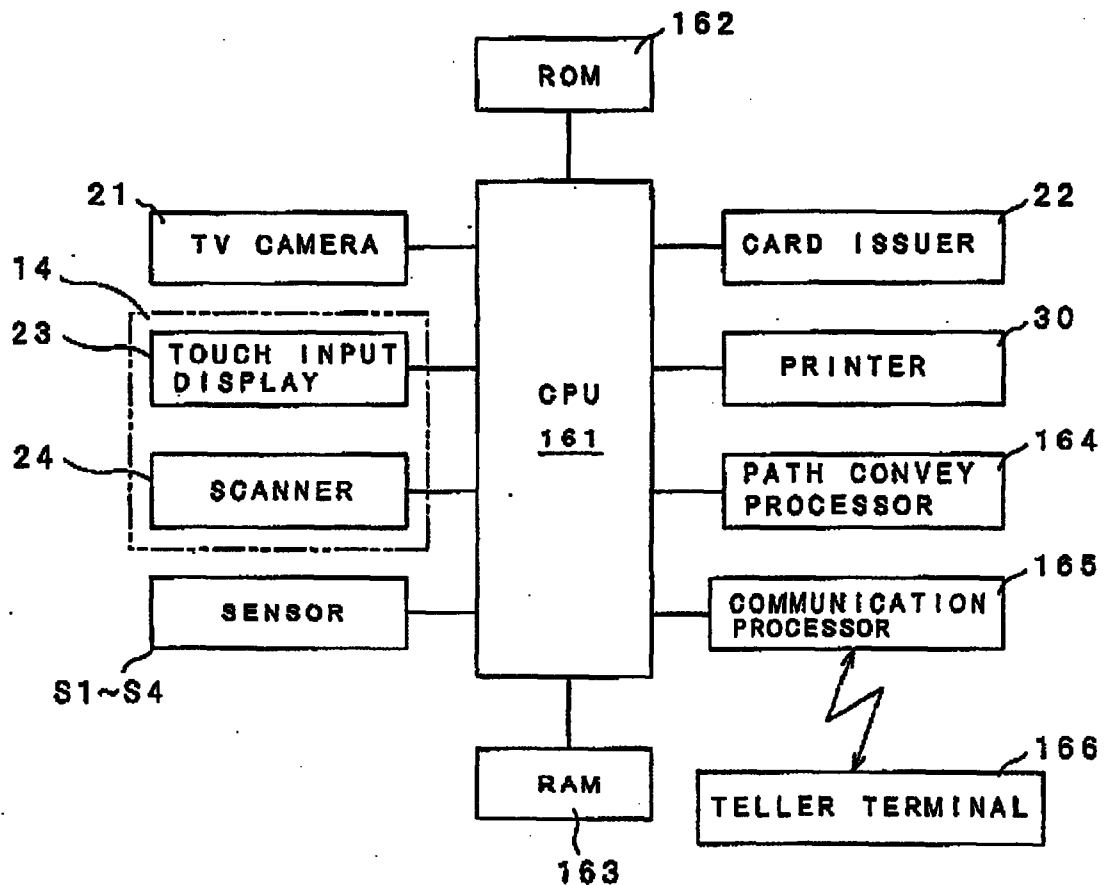
FIG. 15



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FIG. 16



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FIG. 17

171

BORROWER	NAME	○ ○ ○ ○	
	HOME ADDRESS		
			OTHER INFORMATION
OTHER INFORMATION			

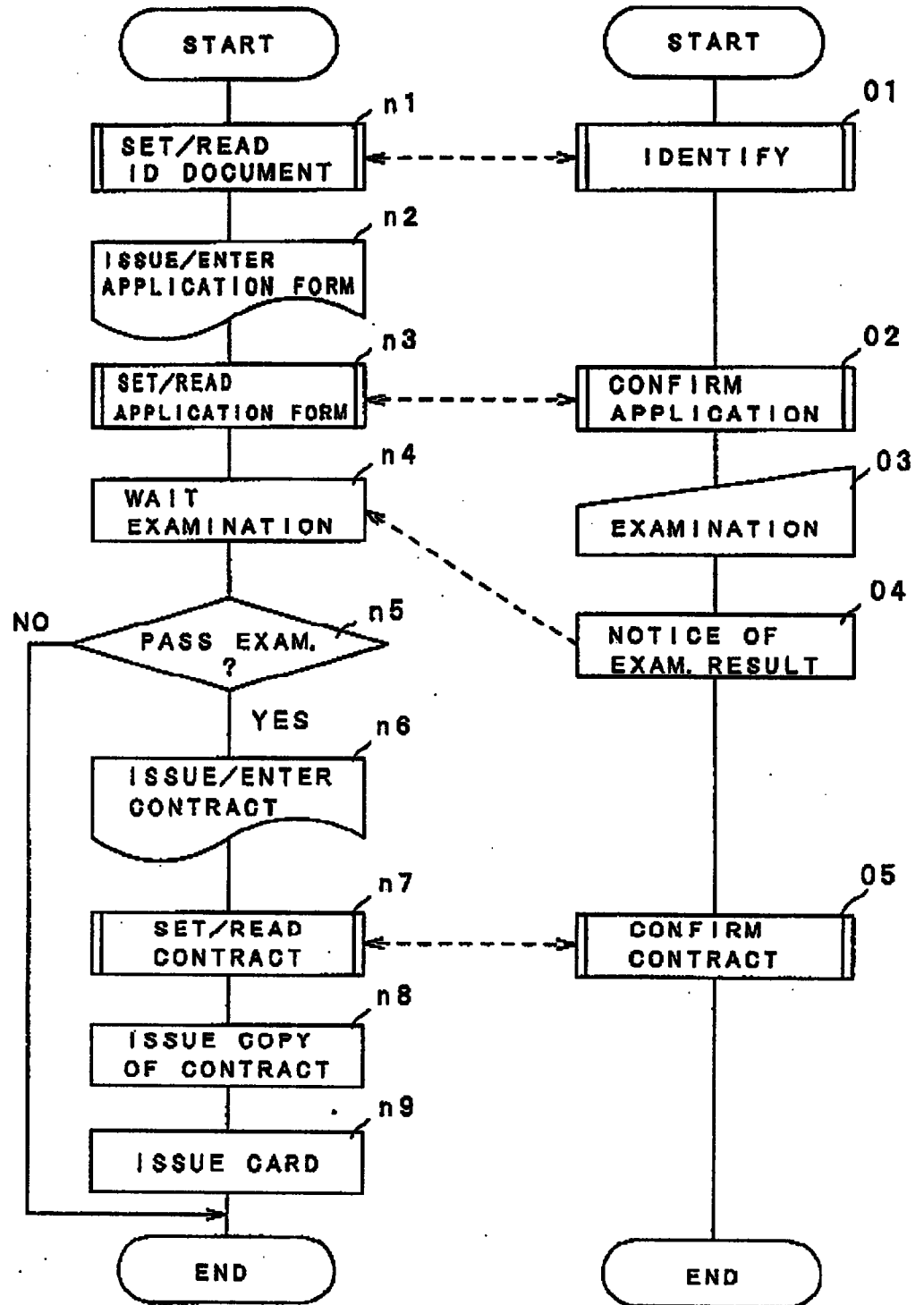
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FIG. 18

AUTOMATIC CONTRACT MACHINE

TELLER TERMINAL

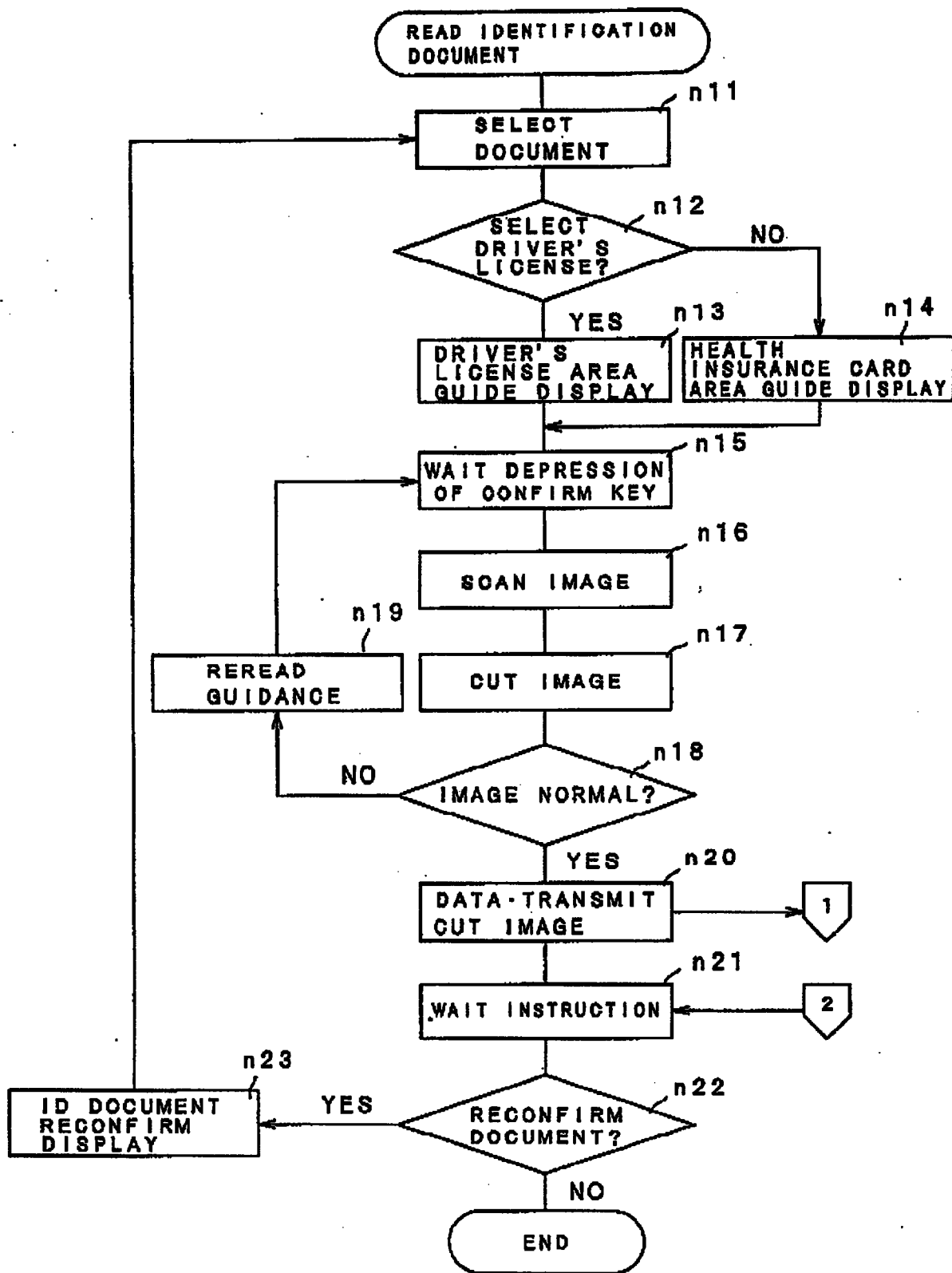


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FIG. 19

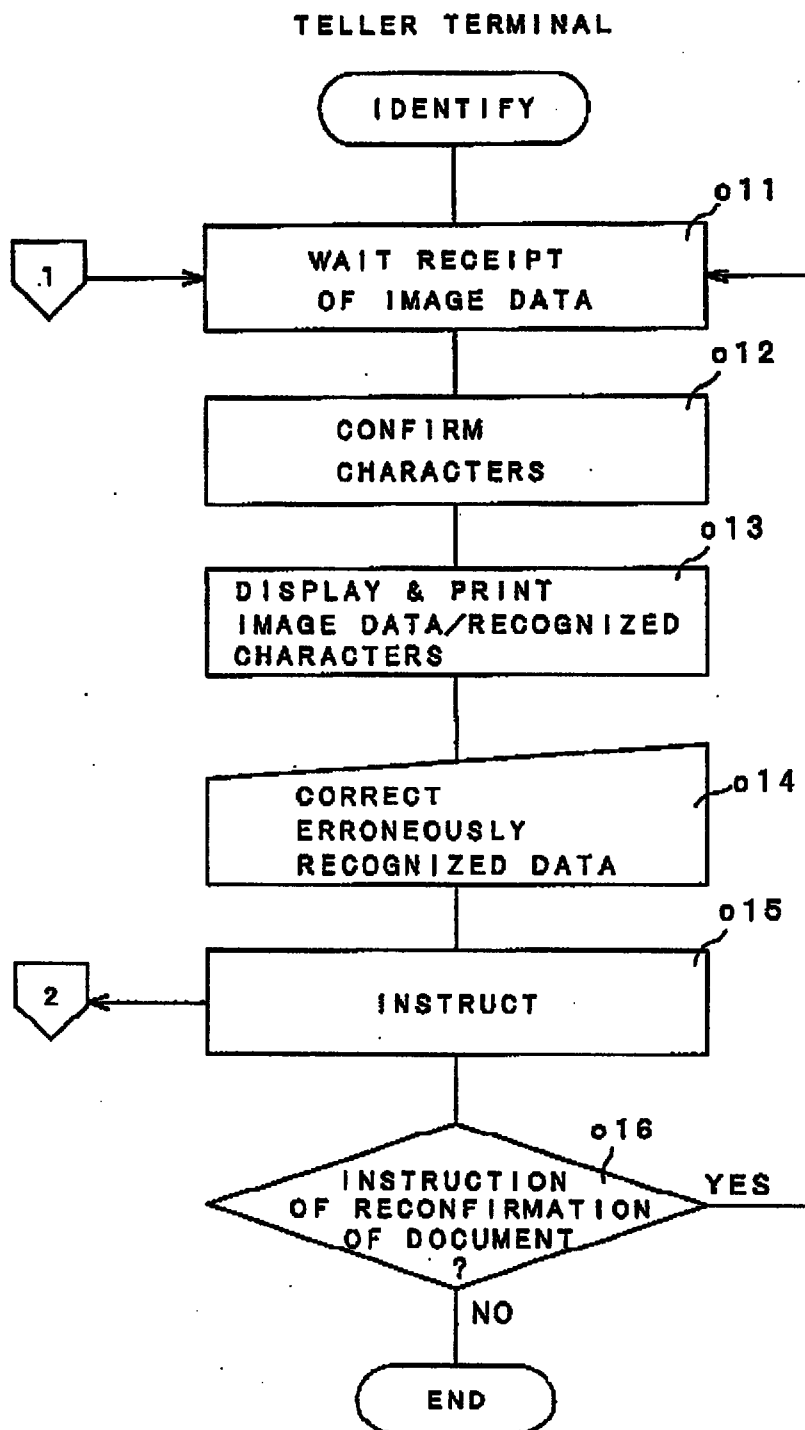
AUTOMATIC CONTRACT MACHINE



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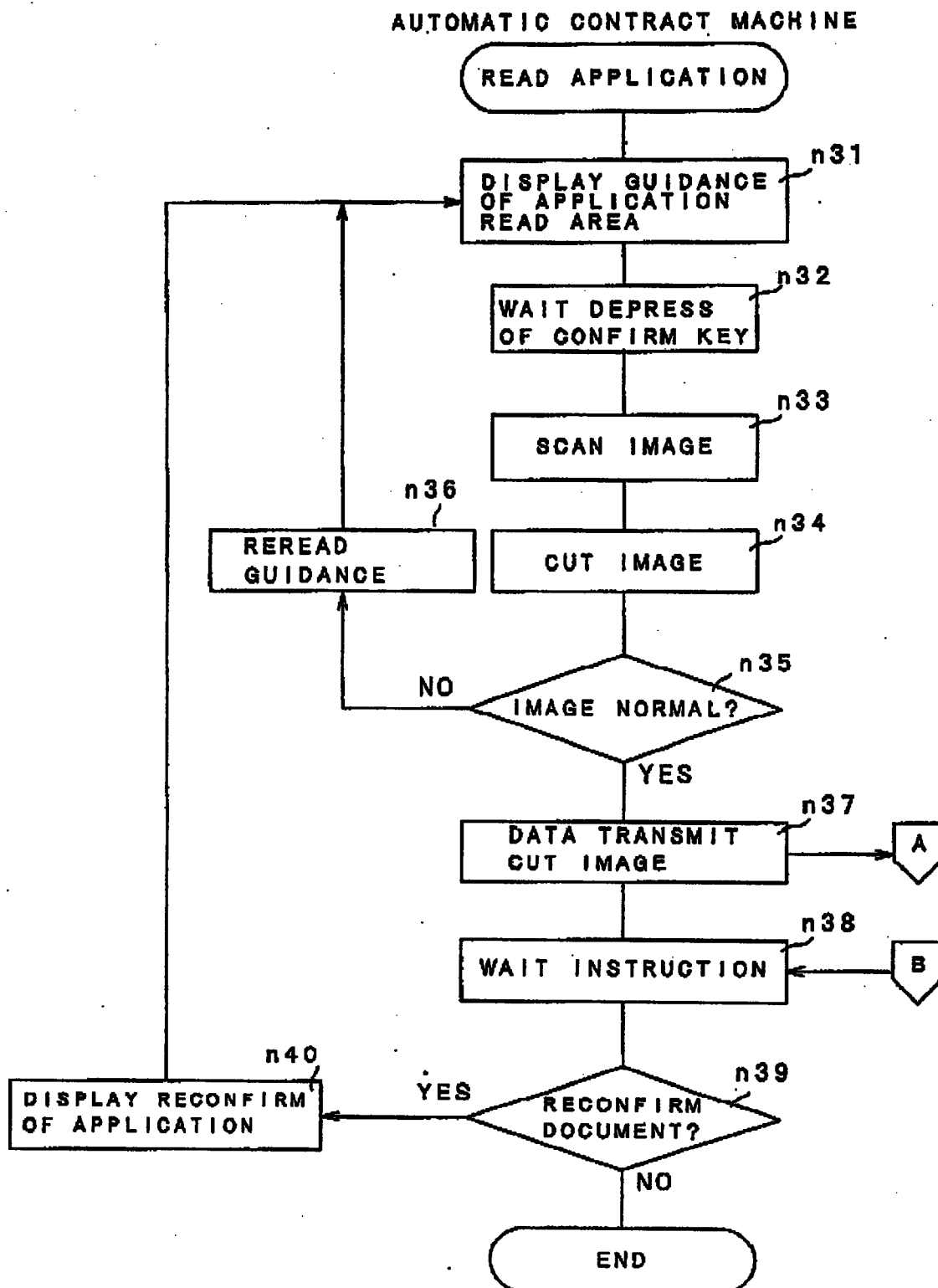
FIG. 20



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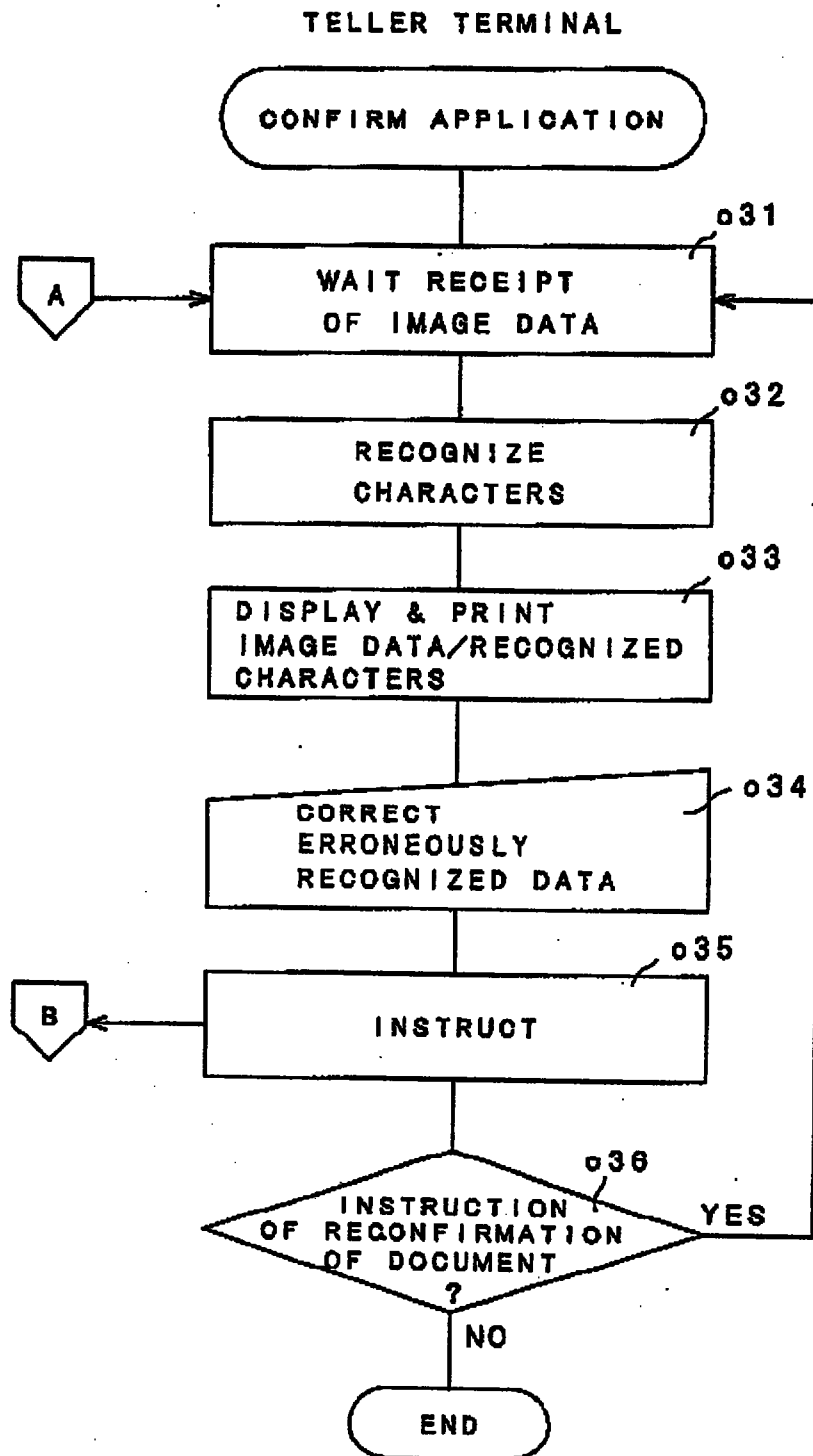
FIG. 21



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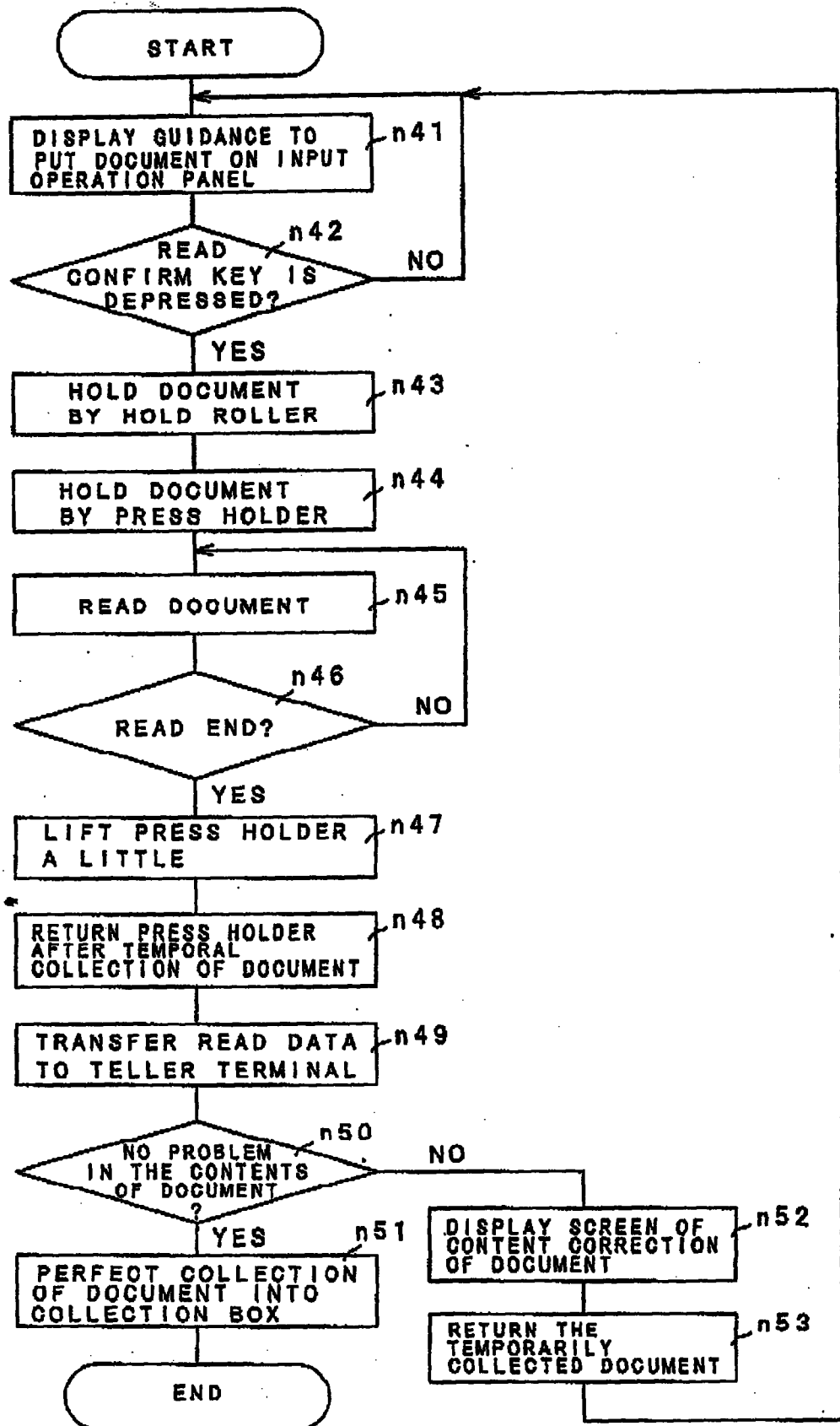
FIG. 22



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FIG. 23



REPLACEMENT SHEETS		SG
☐	Description : paged	to paged
☐	Claim(s) : paged	to paged
☒	Drawing(s) : paged 1	to paged 26
☒	Abstract : paged 28	to paged
DATE OF RECEIPT		9 June 1997

AN ENTRY DEVICE

ABSTRACT OF THE DISCLOSURE

An entry device for receiving data read from a medium and entering the data therein includes an image information display for displaying image information on a display panel, an image information reading means for reading image information of a medium set on the display panel, and a guide display means for displaying a guidance on the display panel to guide an operator about a set position of a medium.

Fig 1

FIG. 1

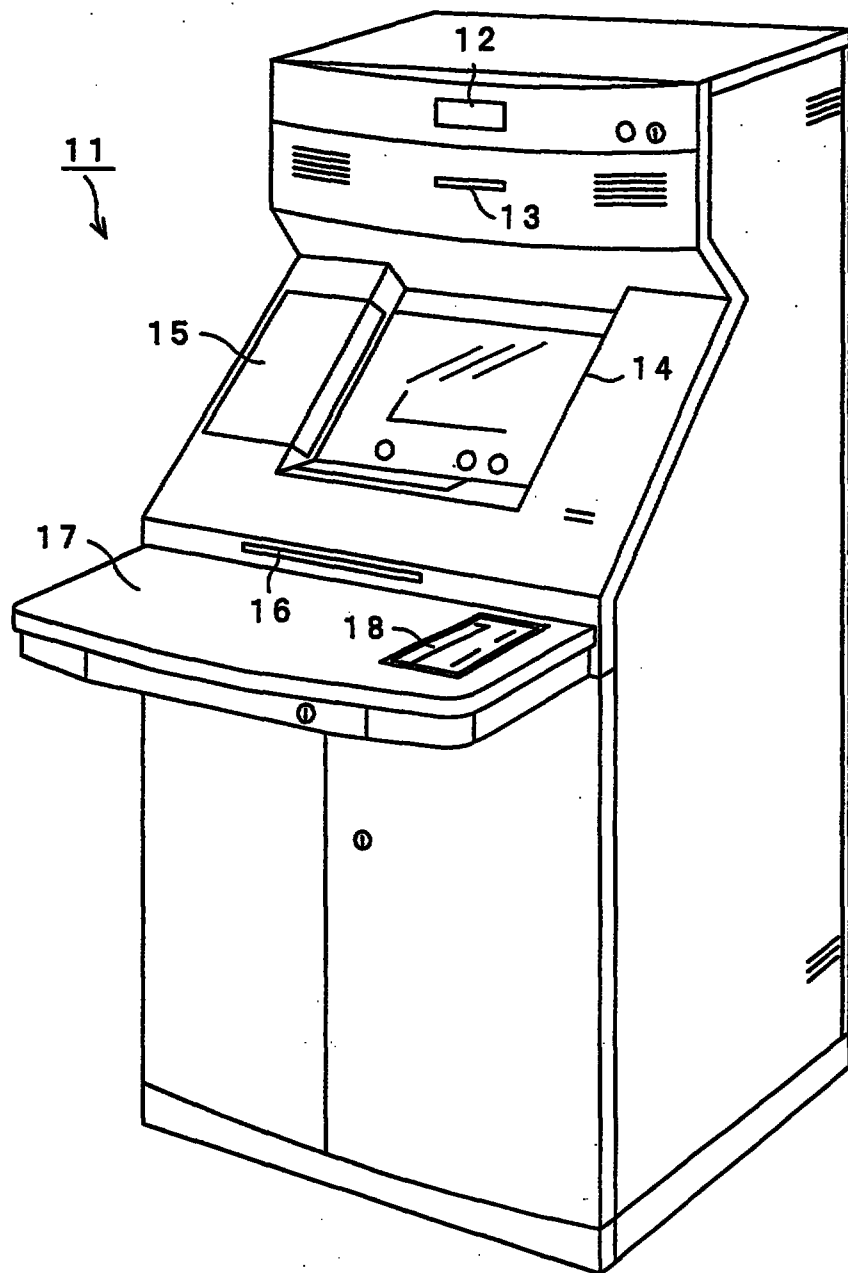


FIG. 2

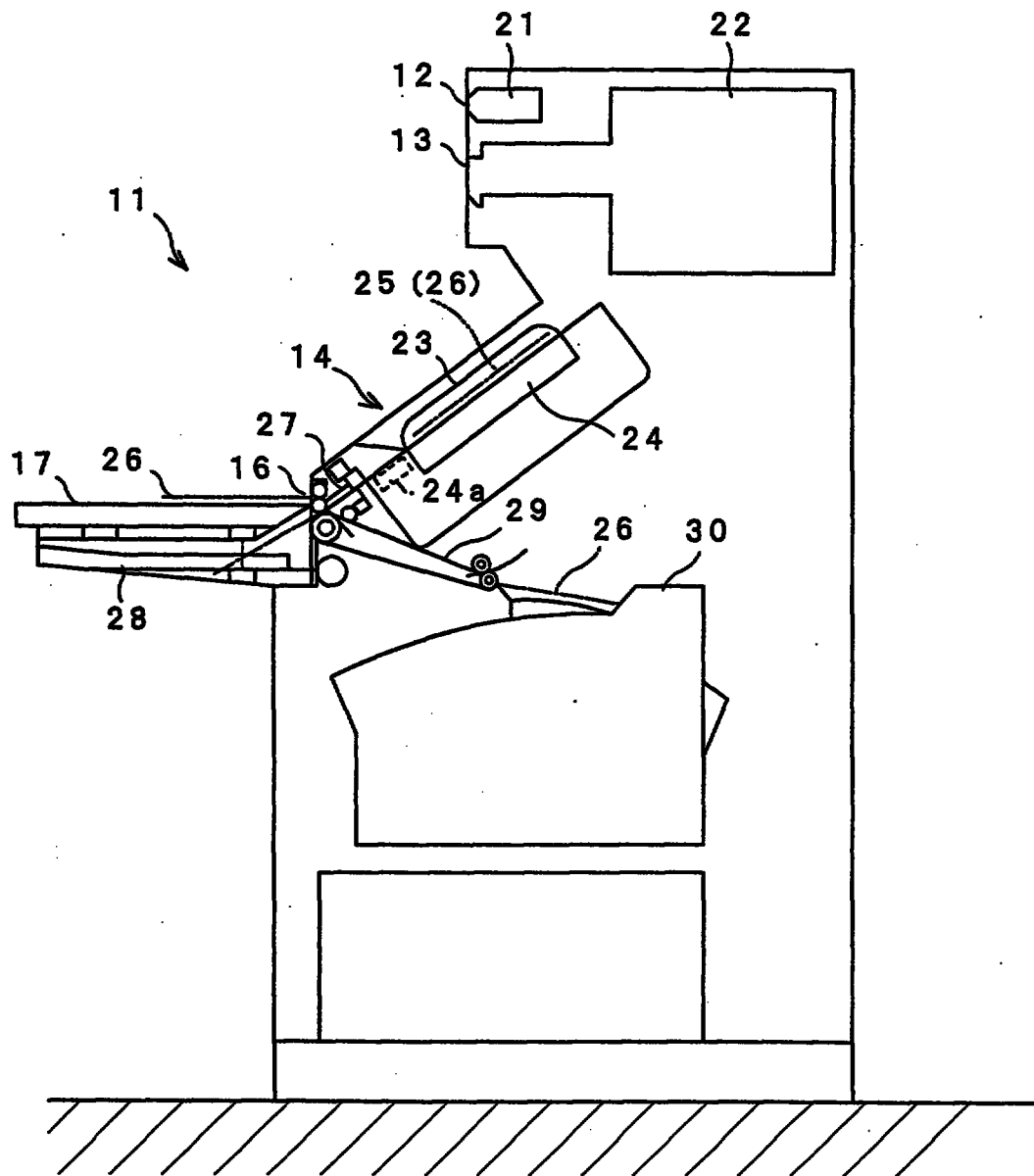


FIG. 3

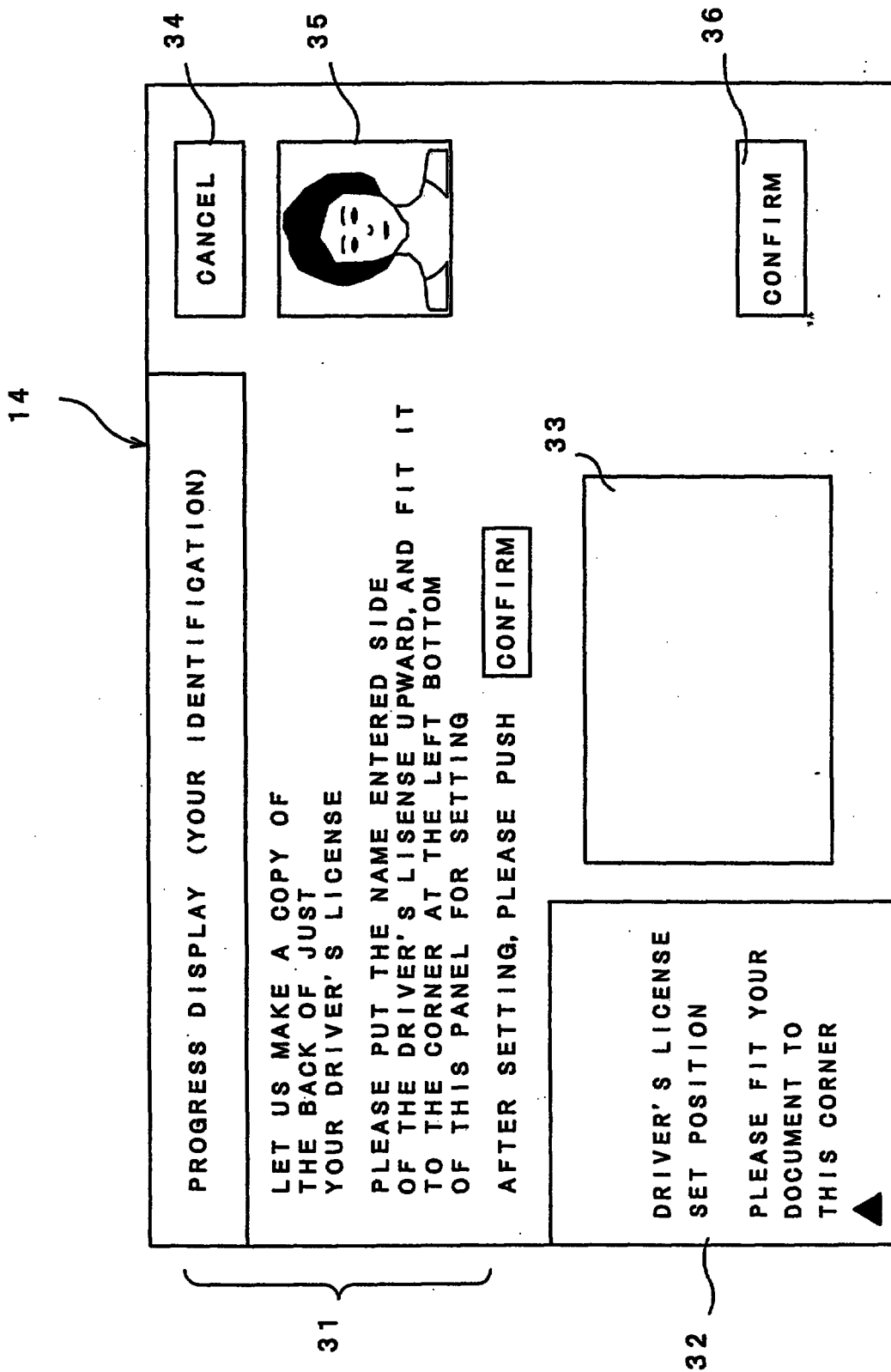


FIG. 4

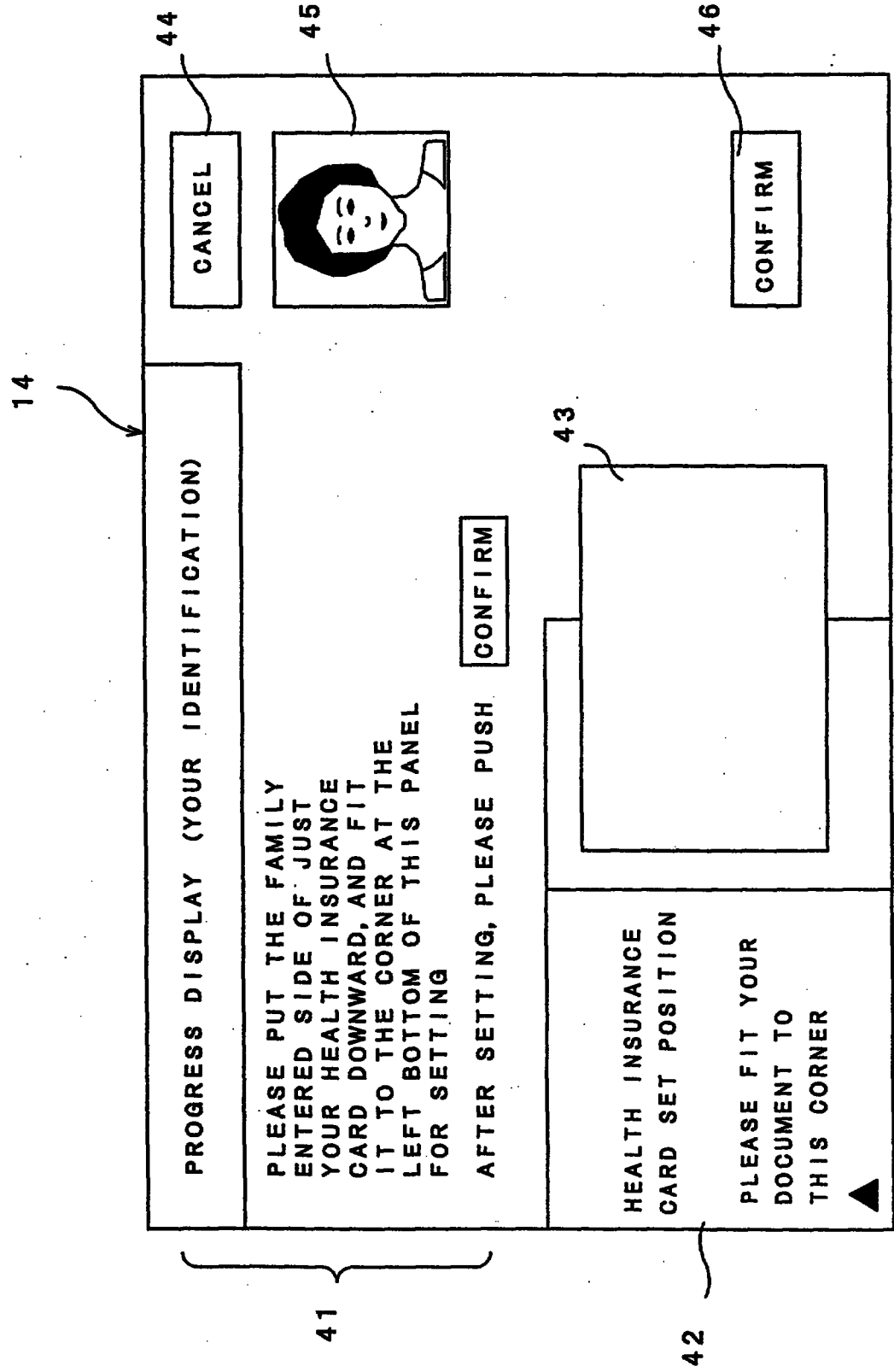


FIG. 5

26a

53

CONTRACT xxx

51 { CONTRACT NUMBER LOAN MAX.

DATE

51

52 BORROWER

TRANSFER

51 BORROWING

The form is titled 'CONTRACT xxx' and is labeled '26a' in the top right corner. On the left side, there is a vertical line with several labels and brackets: '53' at the top left corner, '51' with a bracket spanning the top input fields, '52' next to the 'BORROWER' label, and '51' next to the 'BORROWING' label. The form contains several input fields: 'CONTRACT NUMBER' and 'LOAN MAX.' at the top, followed by a 'DATE' field. Below these are two main sections: 'BORROWER' and 'TRANSFER'. The 'BORROWER' section has four horizontal input lines. The 'TRANSFER' section has four horizontal input lines, each filled with dots. At the bottom is a large 'BORROWING' section with six horizontal input lines, each also filled with dots. A large arrow points from the '53' label towards the top left corner of the form.

FIG. 6

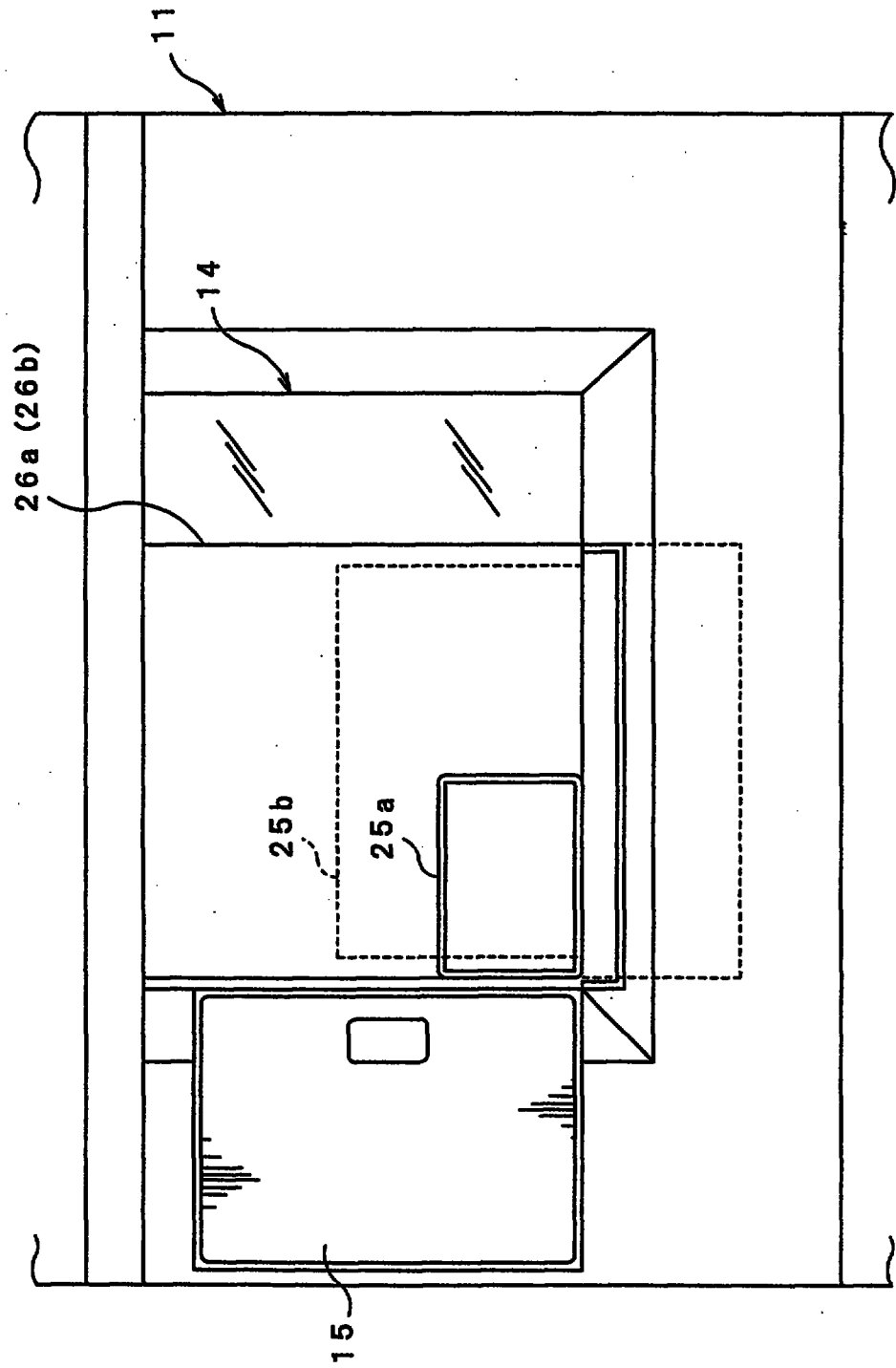


FIG. 7

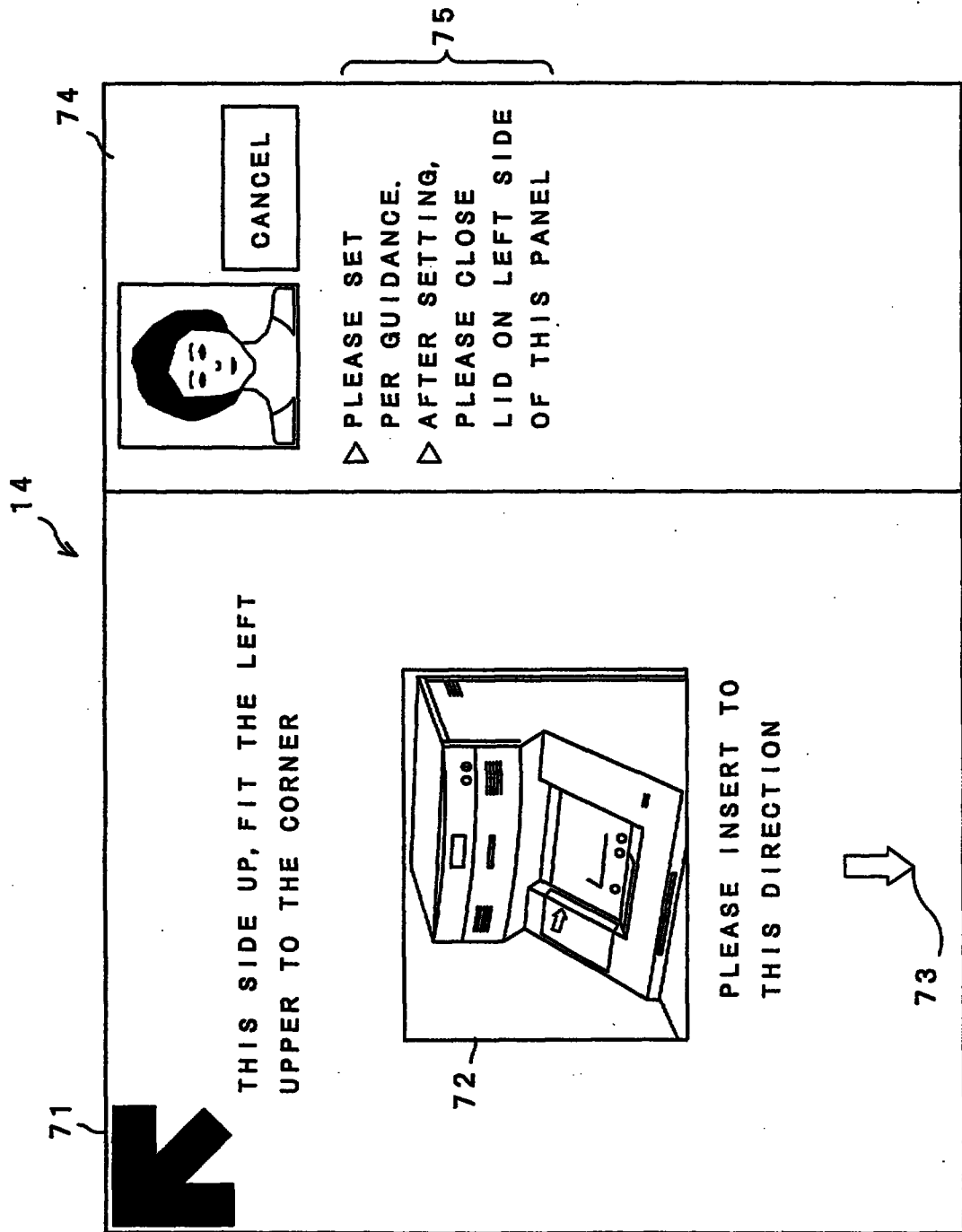


FIG. 8

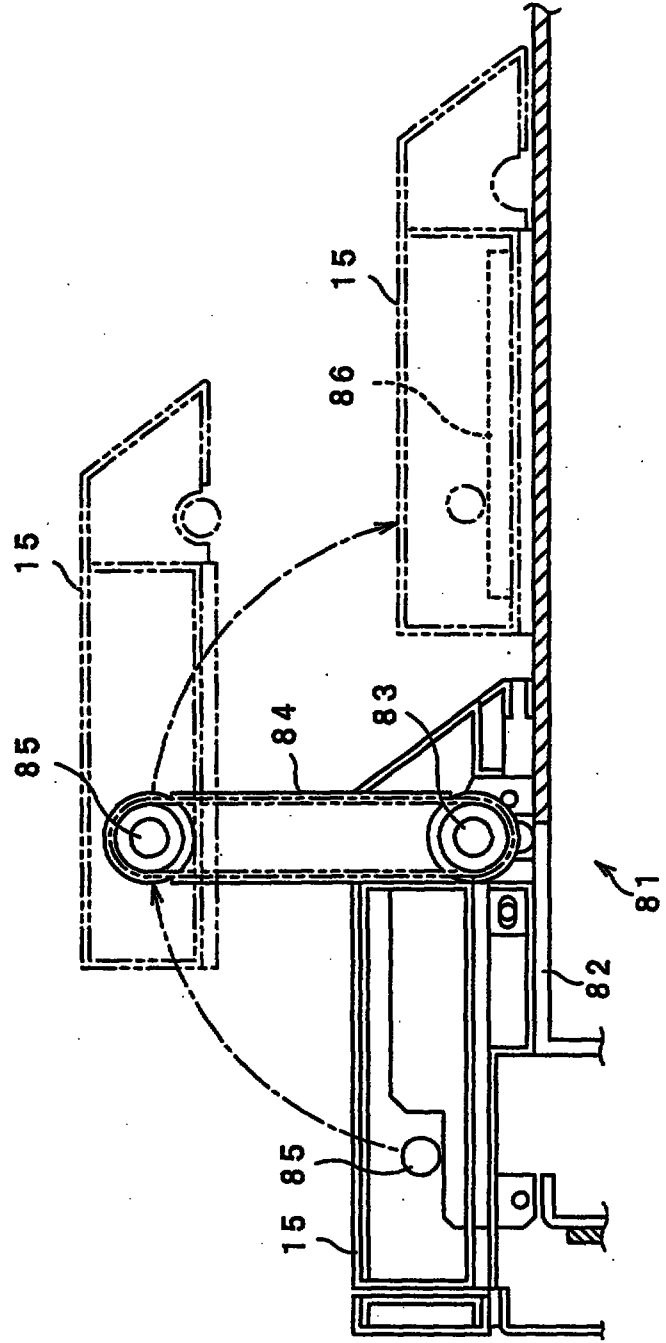


FIG. 9

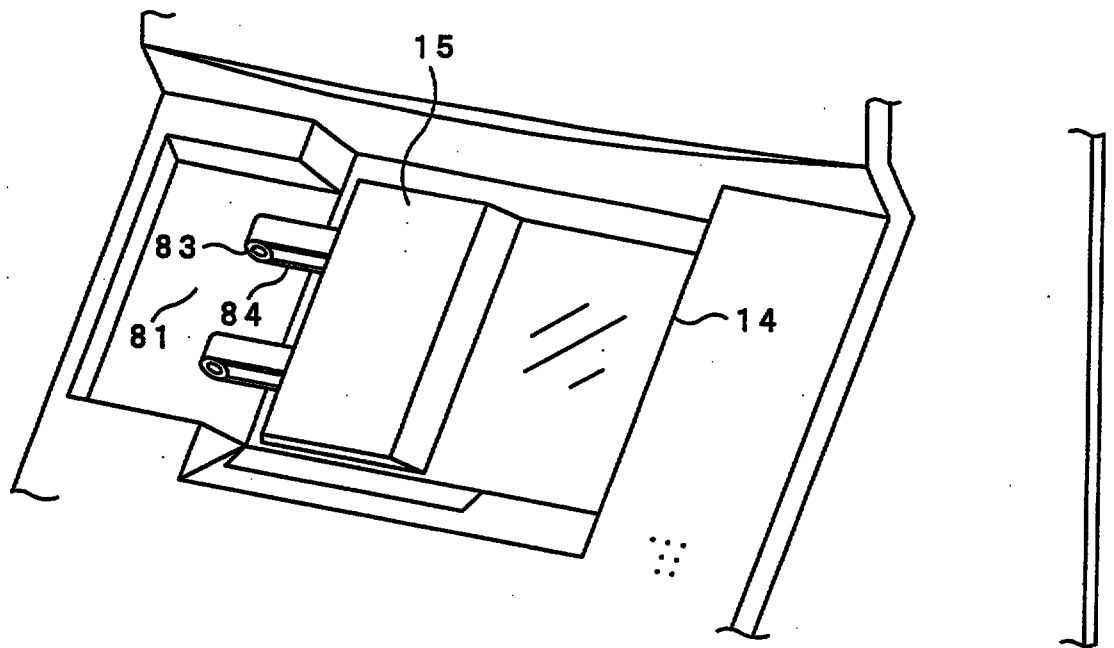


FIG. 10

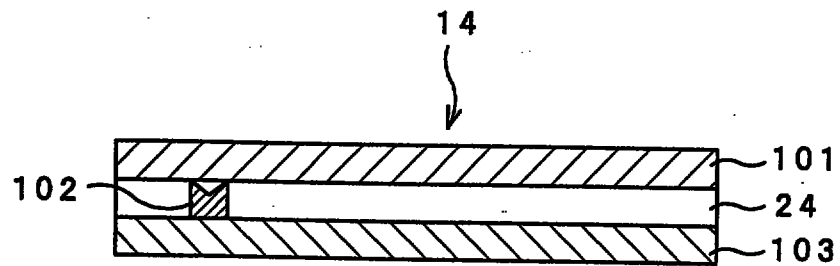


FIG. 11

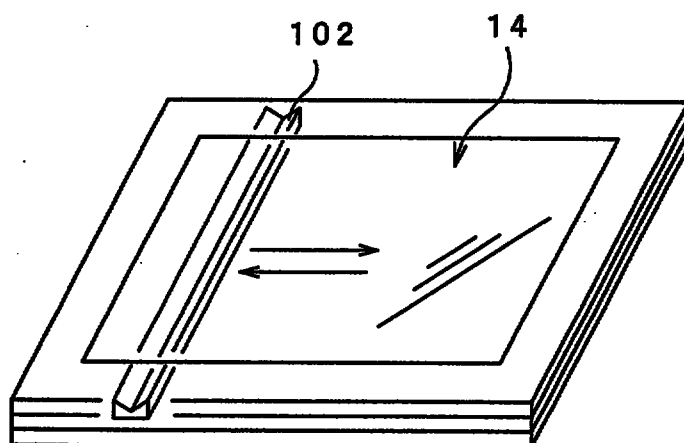


FIG. 12

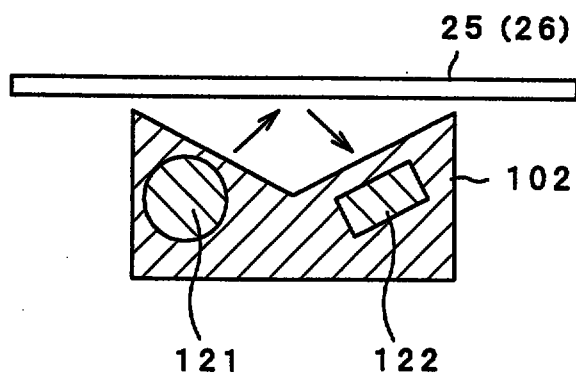


FIG. 13

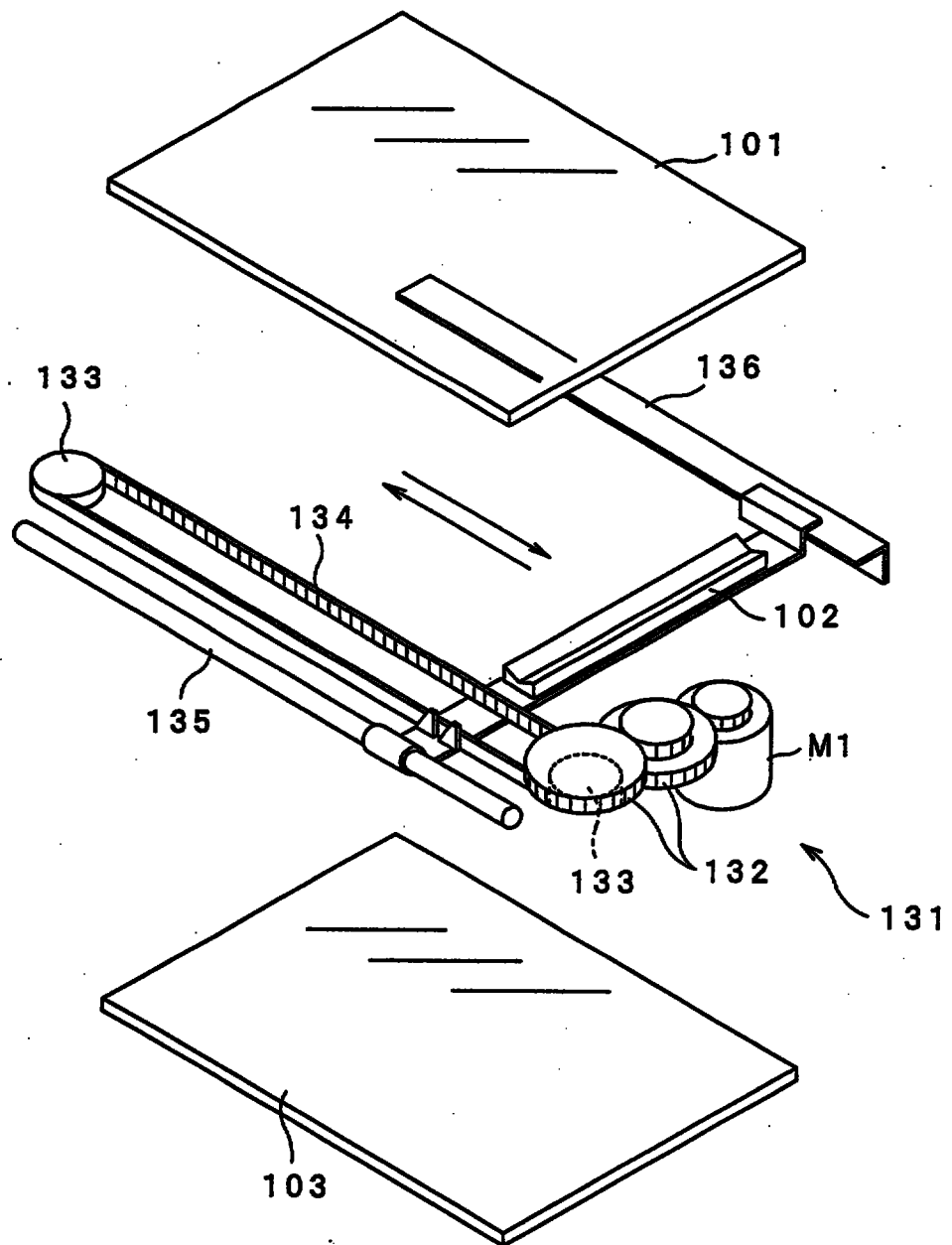


FIG. 14

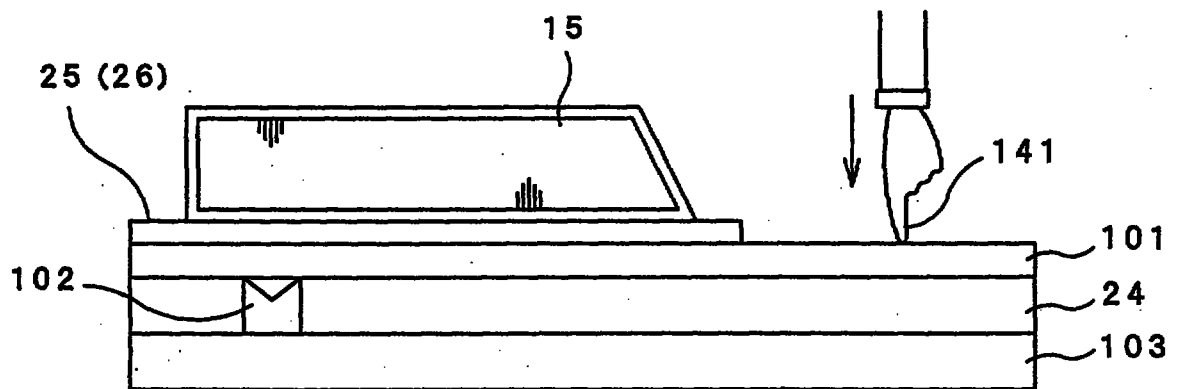


FIG. 15

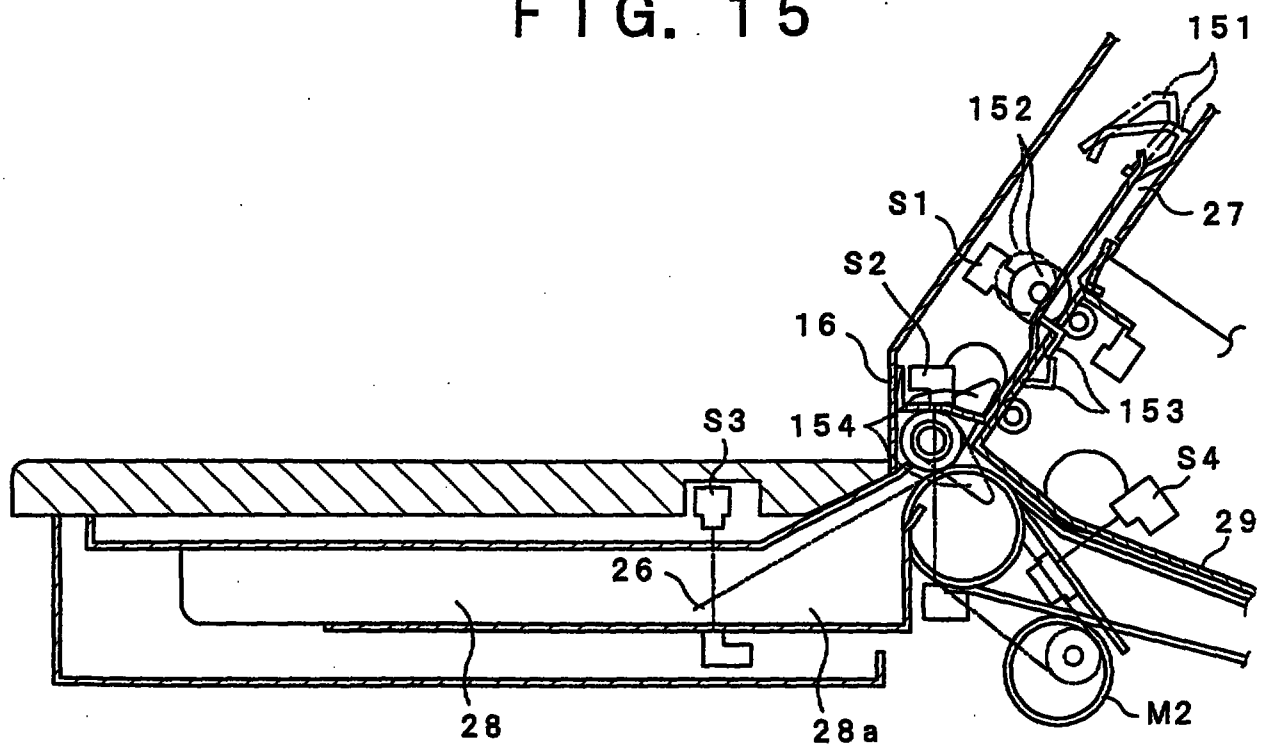


FIG. 16

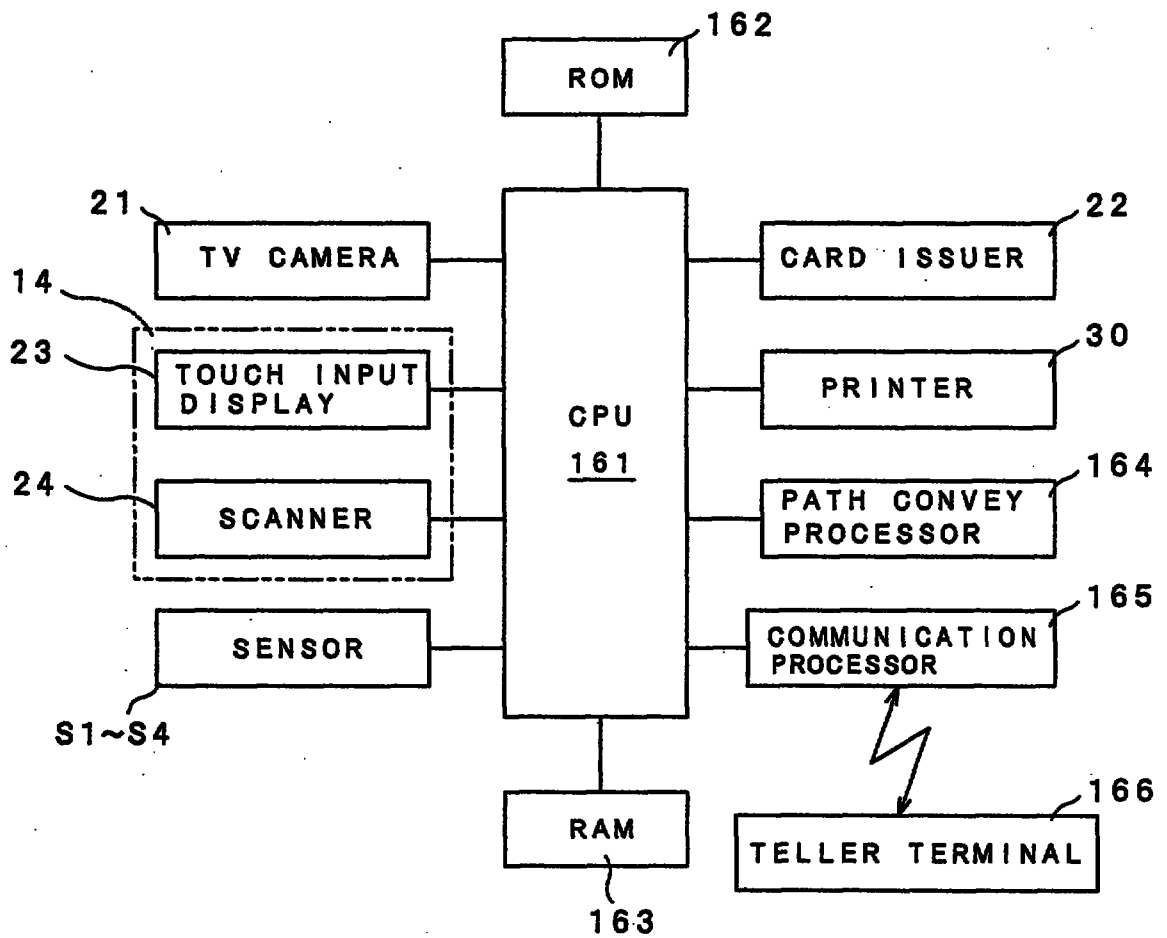


FIG. 17

171

BORROWER	NAME	○ ○ ○ ○
	HOME ADDRESS	

OTHER INFORMATION

OTHER INFORMATION

FIG. 18

AUTOMATIC CONTRACT MACHINE

TELLER TERMINAL

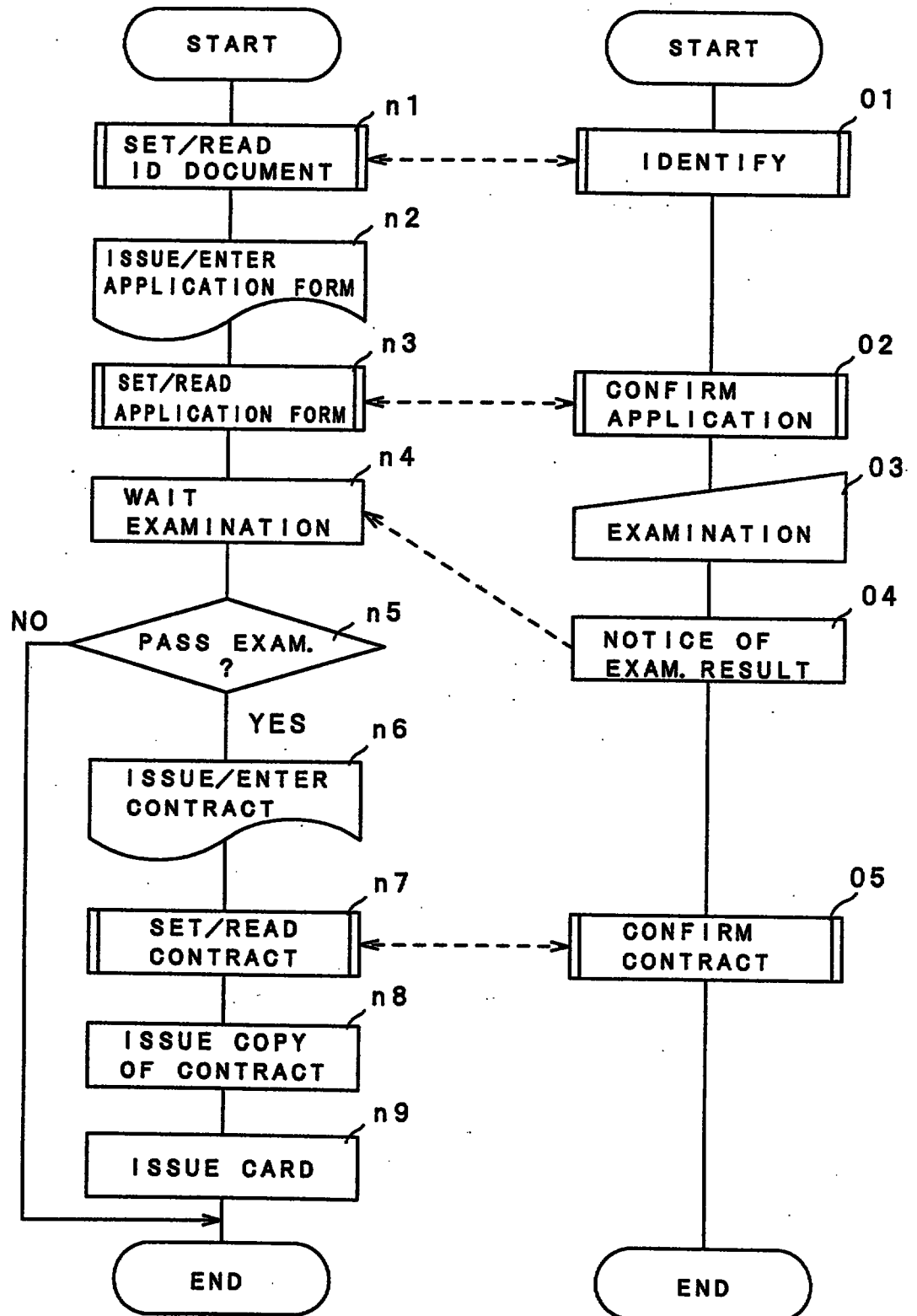


FIG. 19

AUTOMATIC CONTRACT MACHINE

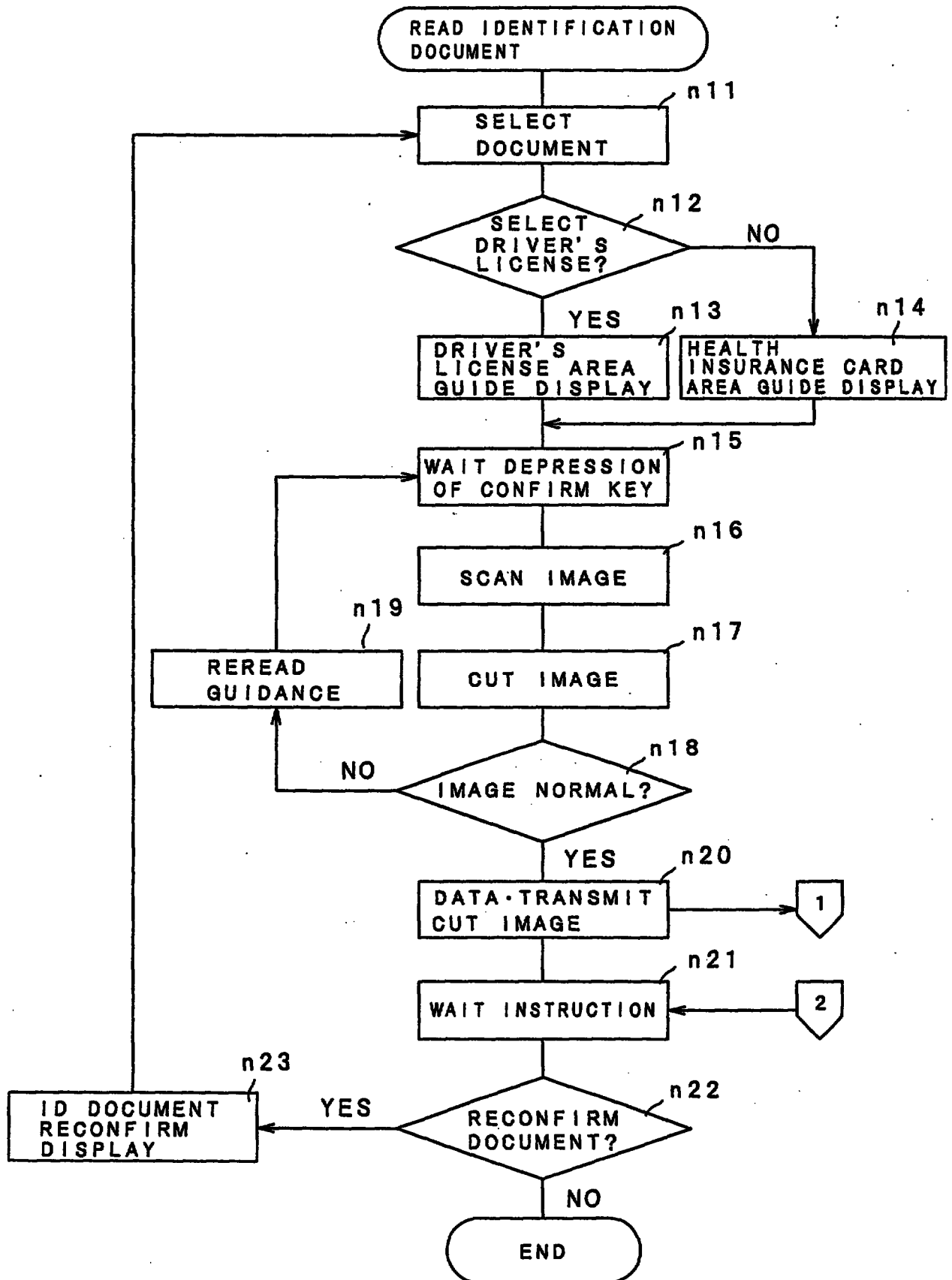


FIG. 20

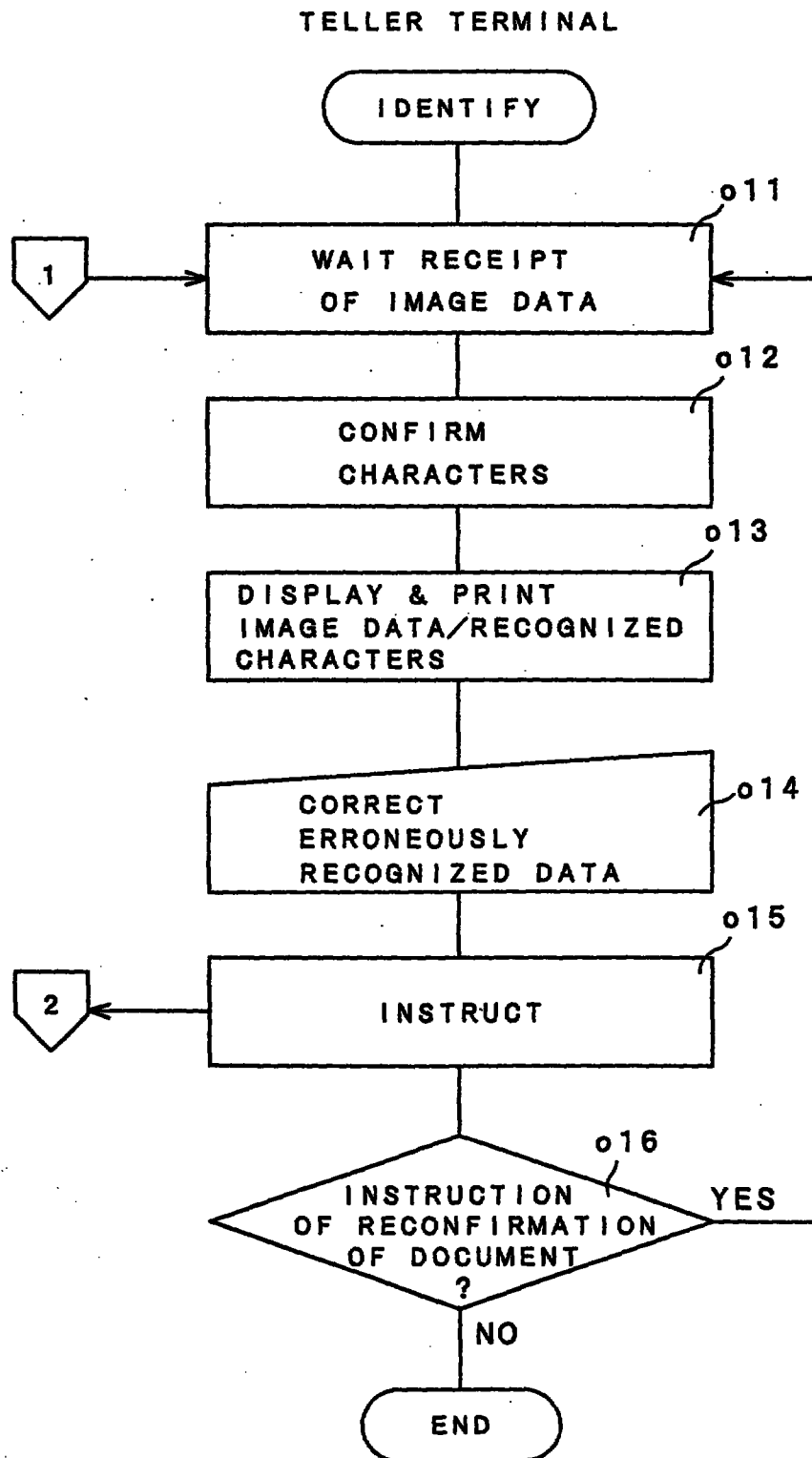


FIG. 21

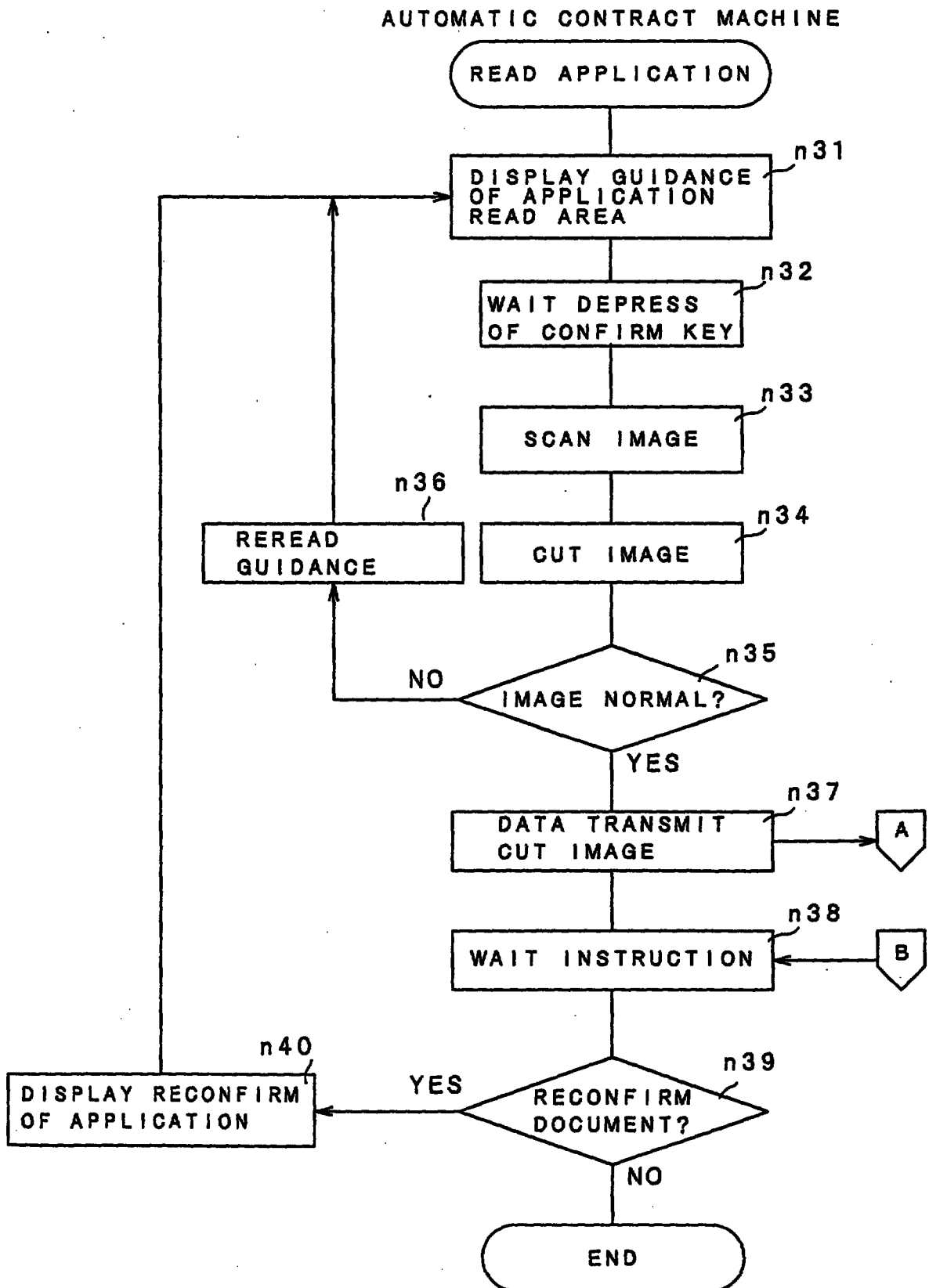


FIG. 22

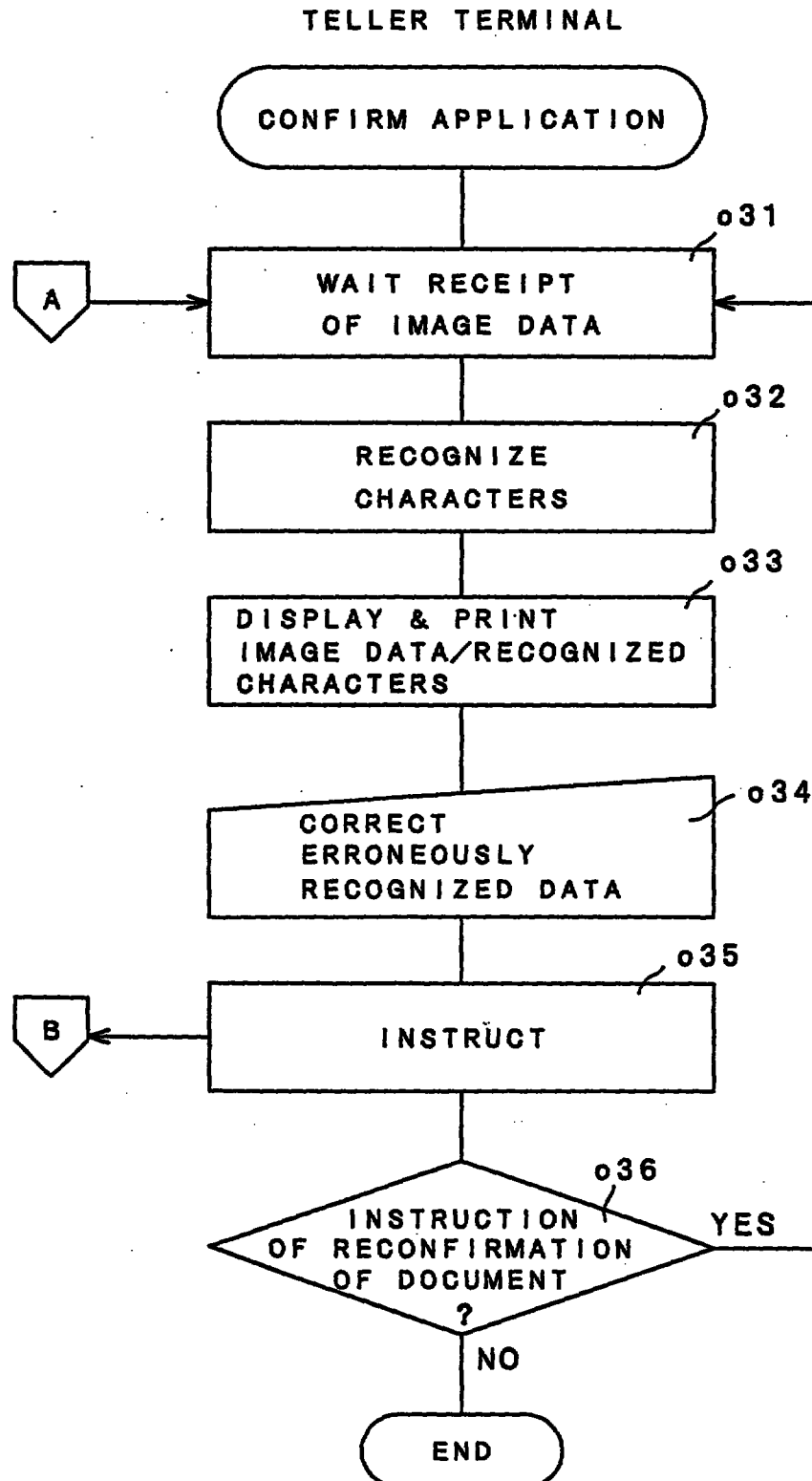
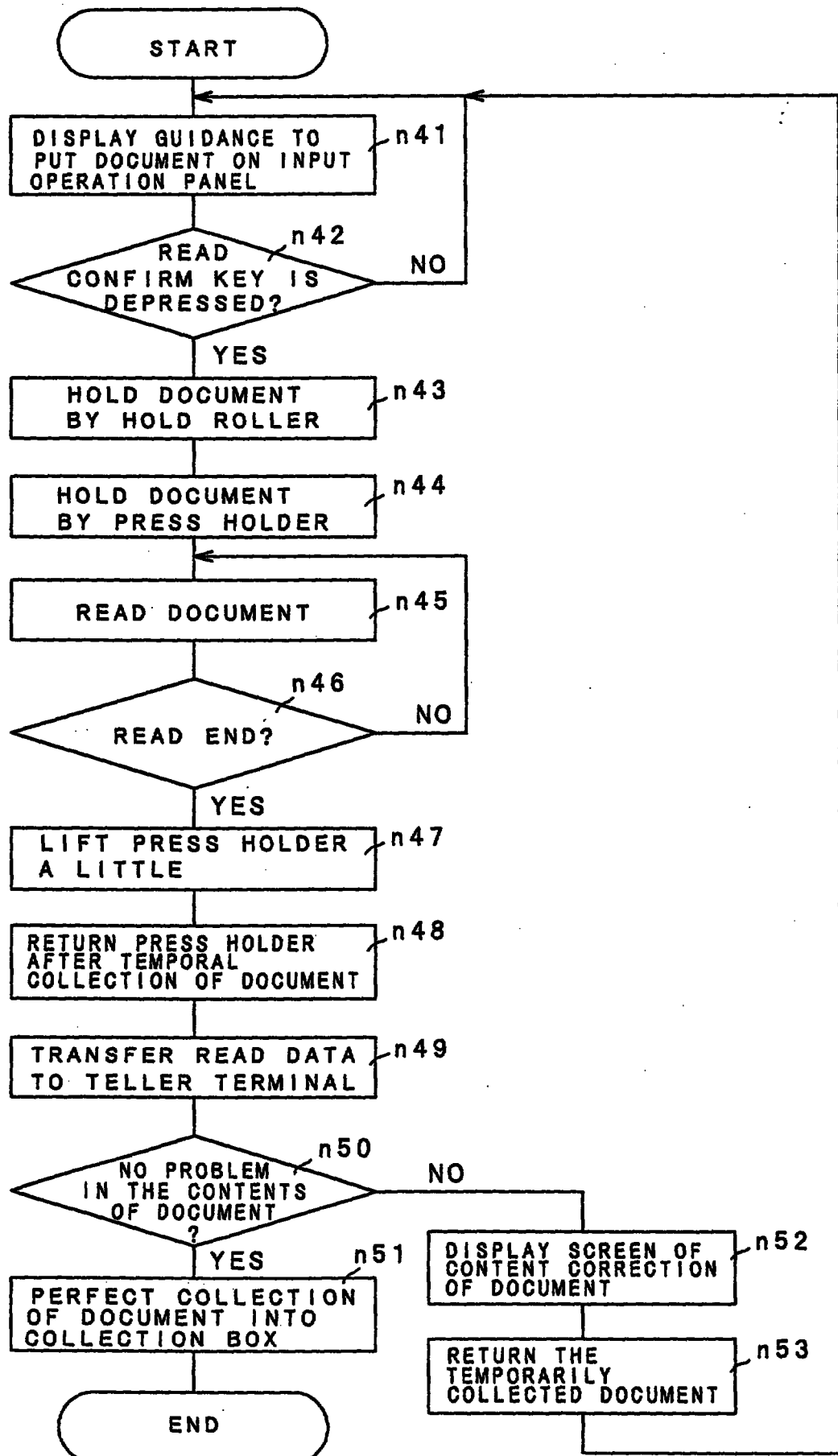


FIG. 23



REPLACEMENT SHEETS		SG
☒	Description : paged 1 to paged 25	
☒	Claim(s) : paged 26 to paged 29	
☐	Drawing(s) : paged to paged	
☐	Abstract : paged to paged	
DATE OF RECEIPT		22 August 1997

1

AN ENTRY DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a terminal such as an automatic contract machine for issuing a contract card requested by a customer, and more particularly to an improved entry device to be used in the terminal.

2. Discussion of the Related Art

Heretofore, there has been proposed an automatic contract machine, in which, when a customer sets an identification medium such as a driver's license or a health insurance card and an application form at a predetermined position to prove the customer's identity, the medium is automatically received by the machine to be read for judgement and issues a contract card requested by the customer if its validity is confirmed and a contract is made. Thus, a contract card requested by a customer is automatically issued by an unmanned machine, so that the customer oneself can complete his or her operation, a window service of a teller be saved and the service for customers be improved.

In the proposed automatic contract machine, however, a scanner for reading an identification medium and an application form is separately disposed from a main body of the machine. Accordingly, a whole construction of the machine

is bulky and takes a large space for its installation. Moreover, the machine has the disadvantages that a customer is confused by the order of the machine and its operation due to the separate operation of both separate devices and erroneously sets the identification medium or the application form to be read with a troublesome operation.

SUMMARY OF THE INVENTION

It is, therefore, a primary object of this invention to provide an improved entry device in which a reading unit is efficiently installed into a main body of the device as a single unit without employing a separate construction so as to decrease the size of the device and simplify its operation.

According to a first aspect of this invention, there is provided an entry device including an image information display means for displaying image information on a display panel, an image information reading means for reading image information of a medium set on the display panel, and a guide display means for displaying a guidance on the display panel to guide an operator about a set position of a medium. As a customer puts a medium on the display panel so that data of the medium presented by the customer may be received and entered in the device, the data stored in the medium is read by the image information reading means to be entered therein.

According to a second aspect of this invention, there is provided an entry device further including a press means

for pressing the medium set on the display panel. To read the data of the medium, the medium put on the display panel is pressed and held by the press means to read the held medium.

According to a third aspect of this invention, there is provided an entry device further including an entry means for entering the kind of the medium therein to change the guidance by the guide display means in accordance with the kind of the entered medium. Upon entering the kind of the medium to be read, the guidance display is changed.

According to a fourth aspect of this invention, there is provided an entry device further including a reading area display means for displaying a reading area of the image information reading means on the display panel, whereby the position where the medium to be read should be set is easy to be found.

According to a fifth aspect of this invention, there is provided an entry device further including a reading area changing means for changing a reading area in accordance with the kind of the entered medium. Upon entering the kind of the medium, the reading area is changed corresponding to the kind.

According to a sixth aspect of this invention, there is provided an entry device in which the reading area is displayed by indication of a rough picture of the medium. By displaying the rough picture of the medium, the kind of the medium to be set is made clear.

According to a seventh aspect of this invention, there is provided an entry device further including a judging means for judging whether or not the position of the medium set in the reading area is proper, whereby erroneous reading can be avoided.

According to an eighth aspect of this invention, there is provided an entry device in which the guidance is displayed within the reading area.

According to a ninth aspect of this invention, there is provided an entry device further including a reading direction display means for displaying a reading direction.

According to a tenth aspect of this invention, there is provided an entry device in which the display panel is represented by a touch panel which can be used as a touch input. Thus, the guidance display panel on the display is constituted with the touch panel to allow touch entry.

According to an eleventh aspect of this invention, there is provided an entry device further including an ultrasonic reading means for reading touch input by its ultrasonic signal. The position information is read by sensing the position entered by a touch operation with the ultrasonic signal.

Thus, according to this invention, the medium reading function, the entry function and the display function are represented by a single entry device to integrate customer

service operations, whereby the entry operation is improved. Moreover, the position for setting the medium to be read, the input position and the display position to guide the customer are disposed in the same position, whereby the whole size of the device is decreased and its arrangement space is minimized.

The customer sets the medium for reading and executes an input operation by watching the displayed guidance at the same position, so that the customer can smoothly operate with receiving a proper operation guidance and the confusion by the customer about the operation be resolved. Thus, the operation time is shortened and the customer service is improved.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objectives and advantages of this invention will be more readily apparent from the following detailed description provided in conjunction with the following figures, of which:

Fig. 1 is a perspective view of an automatic contract machine as a first embodiment of this invention;

Fig. 2 is a side view showing an internal construction of the machine of Fig. 1:

Fig. 3 shows a guidance of a setting state of a reverse side of a driver's license:

Fig. 4 shows a guidance of a setting state of a health insurance card;

Fig. 5 shows one example of a contract employed in this

machine;

Fig. 6 is a top plan view of an operation panel of the machine showing a setting state of a variety of mediums;

Fig. 7 shows a guidance to guide an initial setting of a document;

Fig. 8 is a side view of a press holder showing its press operation;

Fig. 9 is a schematic perspective view of the press holder at a press position showing its press state;

Fig. 10 is a partial sectional enlarged view of a layered construction of the input operation panel of the machine;

Fig. 11 is a partial perspective view of a scanner employed in the input operation panel showing its scanning state;

Fig. 12 a longitudinal sectional view of an image sensor employed in the input operation panel to explain a reading principle thereof;

Fig. 13 is a partial perspective disassembled view of a scanning mechanism of the image sensor;

Fig. 14 shows a sectional view of the input operation panel to explain common operations of reading and entering at left-and-right hand side positions;

Fig. 15 is a partial side sectional view showing a document collecting path employed in this machine;

Fig. 16 is a schematic block diagram of a control circuit

employed in the machine;

Fig. 17 shows a monitored picture displayed by way of an example on a display of a teller terminal associated with the automatic contract machine;

Fig. 18 is a flow chart of a whole processing operation in the automatic contract machine;

Fig. 19 is a flow chart of an operation to process an identification card employed in the machine;

Fig. 20 is a flow chart continuing to the flow chart of Fig. 19;

Fig. 21 is a flow chart to process an application form in the machine;

Fig. 22 is a flow chart continuing to the chart of Fig. 21 and;

Fig. 23 is a flow chart showing a collecting operation for a document.

DETAILED DESCRIPTION OF THE INVENTION

Referring, now, to Fig. 1, there is shown a perspective view of an automatic contract machine 11 as a first embodiment of this invention which automatically issues a contract card. The machine 11 includes a camera window 12 at an upper front of the machine, a card issuing aperture 13, an input operation panel 14, a press holder 15, an application form/contract issuing aperture 16, a customer service table 17, and a writing instrument tray 18.

Fig. 2 shows an internal construction of the machine 11 of this embodiment, which enclose a television camera 21 at an internal position corresponding to the camera window 12 to take a picture of a customer and a card issuing device 22 at an internal position corresponding to the card issuing aperture 13 to dispense an issued card.

The input operation panel 14 is disposed at an angle of inclination suitable for an input operation and a view angle and has a wide rectangular shape to allow display/input/read operations through the panel 14. Inside of the panel 14 there are enclosed a display 23 serving as a touch input and a scanner 24. The display 23 is disposed to guide a touch input operation, a setting operation, and the contents of the operations. The scanner 24 is disposed to read recorded data of an identification card 25 such as a driver's license or a health insurance card, or a document 26 such as an application form or a contract, which is set on the input operation panel 14. On reading, the press holder 15 presses and holds the identification card 25 and the document 26 set on the input operation panel 14.

At a lower side of the input operation panel 14, there is disposed a document collection path 27 to take in the read document 26 downward for collection. The path 27 at a lower internal end thereof is connected with a collection box 28 located below the customer service table 17 to collect the

document 26.

An inside of the application form/contract aperture 16 is connected through a document exhausting path 29 with a printer 30 having a document enclosure which prints contents of the contract and issues an application form or a contract from the document enclosure when a customer executes a contract operation.

The table 17 is of a flat type suitable for writing thereon, and horizontally projects from a front of the machine. Along the lower wall of the table 17 there is disposed the collection box 28 having a similar configuration thereto so that it can be independently opened and closed by a clerk or teller to easily take out the collected documents.

The collection box 28 is also disposed near the lower side of the input operation panel 14 to decrease a distance between the input operation panel 14 and the collection box 28, whereby the path length of the document collection path 27 connecting therebetween is shortened to decrease a collection time from the input operation panel 14 to the collection box 28 or a return time from the collection box 28 to the input operation panel 14.

Fig. 3 shows a guidance by way of an example to set an identification card 25 on the input operation panel 14, in which a driver's license is employed as the identification card and the guidance is a display guidance for a setting

position to read a reverse side of the driver's license continuing to reading a front side thereof.

The display guidance on the input operation panel 14 includes a character guidance display section 31 to guide the setting position of the reverse side of the driver's license and its confirmation operation, a set position designating guidance display section 32 to designate and guide the position for setting the license, a graphic guidance display 33 section to dynamically guide a setting operation of the reverse side of the license by animation, an application cancel key section 34, a picture section 35 displaying a teller's face, and a confirmation key section 36. In conjunction with these display sections a voice guidance is generated to confirm the guidance of the setting operation of the reversed side of the driver's license.

Fig. 4 shows a display guidance of a setting position a health insurance card, and includes a character guidance display section 41 to guide the setting position of an entered side of the insurance card and its confirmation operation, a set position designating guidance display section 42 to designate and guide the position for setting the card, a graphic guidance display 43 section to dynamically guide a setting operation of the reverse side of the card by animation, an application cancel key section 44, a picture section 45 displaying a teller's face, and a confirmation key

section 46. In conjunction with these display sections a voice guidance is generated to confirm the guidance of the setting operation of the reversed side of the health insurance card.

Fig. 5 shows one example of a contract 26a. Contents of the contract 26a are entered on a column 51 thereof, and approval items of name and address are written on an approval column 52 of the contract 26a by a borrower after approving the contents. A setting direction designation mark 53 is clearly marked on an upper left corner of the contract to designate a direction and front-and-reverse sides thereof at a predetermined position, whereby a setting operation of the contract 26a to the input operation panel 14 is simplified. Not only this contract 26a, such a mark for designating a setting direction is also marked on an application form for easier setting operation. Such marking may be replaced by a cut portion at a corner of such document to designate the direction and its front and reverse.

Fig. 6 shows a setting state of different size of identification cards 25 (25a and 25b) and document 26 (26a and 26b). In case of identification card 25 such as driver's license 25a and health insurance card 25b, the base of the setting position is defined at the left bottom corner of the input operation panel 14. In case of document 26 such as application form 26b and contract 26a, a lower edge thereof is

a little inserted into the document collection path 27 and a left edge thereof is set to a datum line for fixing its position, whereby the document is longitudinally set and pressed and held by the press holder 15 to initiate a reading operation.

As pressed by the holder, a right-hand portion of the input operation panel 14 is exposed with a predetermined width, and the exposed portion can be used to display an operation guidance to guide a setting position.

For instance, Fig. 7 shows the input operation panel 14 divided into a pair of sections. On a left section of the panel 14, there are displayed a document setting operation guides having a set position designation guidance 71, a graphical guidance 72 dynamically displaying a document setting operation by animation and an insertion set direction 73, and on a right section thereof there are displayed an application cancel key 74 and a character guidance 75 to guide a document set operation. Thus, the left hand side of the input operation panel 14 plays a display panel serving also as a reading unit, and the right hand side thereof plays a display panel serving also as an input unit.

Figs. 8 and 9 show an press operation of the press holder 15. This press holder waits at a side standby position neighboring on the input operation panel 14, and is movably and freely supported between the standby position and the

input operation panel 14 by a manual horizontal hold mechanism 81 in which a connecting arm 84 at a lower end thereof is rotatably supported on a holder supporting shaft 83 fixed on a base plate 82 and at an upper end thereof is connected with a pivot shaft 85 of the press holder 15, whereby the press holder 15 is manually moved in a semicircular locus in right and left directions around the holder supporting shaft 83 serving as a swingable support point, retaining a generally horizontal direction.

As a scanner 86 for reading is housed within the press holder 15, it can read an opposite side to the input operation panel 14. Thus, in case the scanner 86 is separately disposed from the input operation panel 14, display/input/read operations may be executed at the same position on the panel 14. At an entrance portion of the document collection path 27 there may be disposed a confirmation scanner 24a (see Fig. 2) to confirm setting documents and read the same on taking in, whereby detection of an illegal act such as replacement on setting a document is improved.

Fig. 10 shows a layered construction of the input operation panel 14 which includes a transparent touch panel 101 as an upper layer, a scanner 24 provided with a movable image sensor 102 as a middle layer, and a TFT display (color liquid crystal display) 103 as a lower layer.

The touch panel 101 senses a position of a touch input by

an ultrasonic signal, the image sensor 102 having a length of a complete width of the panel 14 scans a whole area of the panel 14 for reading as also shown in Fig. 11, and the TFT display 103 subsequently displays the operation contents.

As shown in Fig. 12, the image sensor 102 has a V-shaped section. A LED array 121 is disposed inside of one slope of the V-shaped section and a sensor array 122 is disposed inside of another slope to receive a reflected signal from the LED array 121 for reading the entered data on the identification card 25 and the document 26. An outline of an object to be measured thereby may be detected by the absence or existence of the reflected light, whereby an external recognition of documents may be executed, and erroneous set and positional shift may be easily detected.

Fig. 13 shows a scanning mechanism 131 of the image sensor 102, in which a driving transmitting force from a scanning driving motor M1 rotatably drives through gears 132 and pulleys 133 a timing belt 134. The belt 134 is applied in a detecting direction, and fixed by one end of the image sensor 102. The image sensor 102 at both ends thereof is supported by left-and-right guide rails 135 and 136 in parallel with the timing belt 134.

The touch panel 101 generates an ultrasonic wave signal along a panel flat direction thereof to sense a position of a touch input on the panel 14. As shown in Fig. 14, the left-

hand side of the panel 14 represents a reading area held by the press holder 15, and the right-hand side thereof represents an exposed display panel to also serve as a touch input by a finger 141 of a customer, wherein the position entered by the touch input is precisely defined by the ultrasonic signal utilizing ultrasonic characteristics irrelevant to a press force by the press holder 15, so that such an input operation can be executed with reading data on the same display panel and the input operation panel 14 can be processed with a high efficiency. In this embodiment, the press holder 15 is composed of ultrasonic non-interference materials such as hard materials to avoid any inconvenience by using ultrasonic signals.

Fig. 15 shows the document collecting path 27 along which there are arranged a shutter 151, a document hold roller 152, a stopper 153, and a flapper 154 in an inward direction from the entrance to connect the inward collection box 28.

On the document collecting path 27 there are disposed first thorough third sensors S1 through S3 to detect and confirm a conveyance state of a document 26. On the document exhausting path 29 crossing the path 27 at the flapper 154, there is provided a fourth sensor S4 to detect and confirm the conveyance state of the document 26. The paths 27 and 29 are driven by a path driving motor M2.

For example, when the document is received, the shutter

151 and the document hold roller 152 at the entrance side of the document collecting path 27 are opened but the stopper 153 is closed to be standby for receipt, whereby a lower end of the document inserted on setting is restricted at the stopper 153 to complete the receipt setting on the input operation panel 14. After completion of the receipt setting, the entered data on the document 26 is read, and when an examination passes the read data, the process moves to a collecting operation for the document to take the same inward for temporal waiting at a temporal collecting portion 28a disposed at an entrance of the collection box 28. If any correction or cancellation is necessary in the contents of the document, the document is reversely conveyed to be returned to the customer.

When an application form or a contract is issued, the flapper 154 is switched at the cross position of the paths 27 and 29 to release the document exhausting path 29.

Fig. 16 is a schematic block diagram of a control circuit employed in the automatic contract machine 11 employing a CPU 161 which controls respective circuit devices according to a program stored in a ROM 162 and stores control data in a RAM 163 to be read therefrom.

A path convey processor 164 is disposed to turn on/off the path driving motor M2, the shutter 151, the document hold roller 152, the stopper 153 and the flapper 154 in order to

drive the document collection path 27 and the document exhausting path 29 so that the document 26 may be taken into or returned from the collection box 28 by the document collection path 27 and the application form or the contract may be dispensed from the machine by the document exhausting path 29.

A communication processor 165 is disposed to communicate a running state of the automatic contract machine 11 with a remote teller terminal 166 to be monitored by a teller. The terminal 166 receives the data produced when a customer makes a contract through the contract machine 11 so as to be monitored by the teller at a remote location for advancing the unmanned automatic contract operation by the customer oneself.

Other components shown in Fig. 16 which are also shown in Figs. 2 and 15 are associated with the CPU 161 to be controlled thereby.

In Fig. 17 there is exemplarily shown a monitored picture displayed on a display 171 of the teller terminal 166, in which the contents entered by the customer on contracting are partially cut and displayed. For example, the entry of the address and the name of the customer is cut out to be confirmed by the teller whether or not it is satisfactory. Such confirmation may be printed out by a printer to resolve any trouble of reading by the scanner and establish a stable input operation.

Referring to a flow chart of Fig. 18, a whole processing operation of thus constructed automatic contract machine 11 will be described hereinafter, in which steps n1 through n9 are executed by the automatic contract machine 11 operated by a customer, and steps o1 through o5 are executed by the teller terminal 166 operated by a teller.

When a customer requests issue of a contract card by the automatic contract machine 11 located at an unmanned service corner, the customer is requested to set his or her identification card (ID document) 25 on the input operation panel 14 to be read thereby for confirmation of the identification (step n1).

If the identification is confirmed by the teller based on the displayed data in the teller terminal 166 (step o1), the contract machine 11 issues an application form and the customer is requested to write contents of a regulated contract on the form (step n2). As the customer sets the entered application form at the predetermined position after such writing, the contents of the application are read out (step n3).

The read data is transmitted to the terminal 166 to be confirmed by the teller (step o2) and to be examined after confirmation of the applied contents (step o3), and a result of the examination is notified to the customer who waits the examination through the machine 11 (step o4 and step n4).

If the examination result is acceptable to the teller, the contract transaction should be established and a contract 26a is issued to be filled with the contract contents requested by the customer (steps n5 and n6).

As the customer sets the filled contract at the reading position of the input operation panel 14 to be read thereby (step n7), the contents of the contract is confirmed by the teller in the teller machine (step o5). If the contents is proper, contract items are printed out by the printer 30 and a copy of the contract and the contract card are issued, thus one contract operation is completed (steps n8 and n9).

Referring to Figs. 19 and 20 an identification process operation of the identification card 25 will be described hereinafter.

Now, if the input operation panel 14 displays selection of document to be used to identify that an operator of the machine is a customer oneself prior to the execution of automatic contract (step n11) and the customer chooses a driver's license 25a as an identification (step n12), the input operation panel 14 displays the driver's license read area guide for positioning a customer's driver's license 25a (step n13). If the customer chooses a health insurance card, the panel 14 displays the health insurance card read area guide for positioning a customer's health insurance card 25b (step n14).

If according to the display guide, the identification card 25 is set to the predetermined position and a confirmation input is entered by the depression of the confirmation key to initiate reading the data (step n15), the data on the identification card 25 is read by scanning its image (step n16).

It is enquired if the card is properly set and the image is normal. In case of the driver's license 25a, a ruled line characterized by the license is extracted to judge if the setting position is proper (steps n17 and n18). Unless proper, a rereading operation is executed (step n19). If proper, specifically cut out data is transmitted to the teller terminal 166 to request customer's identification (steps n20 and n21).

If an affirmed answer confirming the identification is applied from the teller terminal 166, the identification confirming operation by the identification card 25 is completed (steps n20 and n21). Unless such an affirmed answer is applied from the teller terminal 166, a reconfirm guide is displayed to request a re-operation for identification (steps n22 and n23).

As the teller terminal 166 receives the image data of the identification card 25 cut out by the automatic contract machine 11 (step o11), the data is displayed on the display 171 of the teller terminal to be reviewed by the teller, and

if necessary, printed out for a visual confirmation (steps o12 and o13).

Based on this process, the teller judges if the identification is proper. If proper, the sequence moves to the process in which the identification is accepted and the application form is issued. Unless proper, the rereading operation is executed. (steps o14 to o16)

Next, referring to a flow chart of Figs. 21 and 22, the process operation when the application form 26b is received will be described hereinafter.

Based on the above-mentioned confirmation of the identification about the identification card 25, the automatic contract machine 11 issues the application form 26b and the customer writes his or her requesting contract contents into an entry column of the form 26b. The input operation panel 14 displays a guidance of the application read area to set the entered application form 26b into the reading position thereof (step n31).

Following to the guidance the customer depresses the confirmation key after he or she sets the application form 26b into the predetermined position (step n32), and data on the set application form 26b is read out by scanning the image of the form (step n33), wherein it is confirmed if the form is properly set without any positional shift or if the image is normal (steps n34 and n35).

If the setting is judged to be improper, a rereading operation is executed (step n36). If proper, the cut out data as shown in Fig. 17 is transmitted to the teller terminal 166 to confirm the contents of the application form 26b (step n37 to n38).

As an approval answer is applied the machine 11 from the teller terminal 166, the application form receipt operation is completed. Unless such an approval answer is applied to the machine 11 or if the application is rejected, the panel 14 displays a reconfirm operation guidance of the application form by showing the major reasons of such rejection such as non-entry of letter, an erroneous letter, an omitted letter and so forth (steps n39 and n40).

When the teller terminal 166 receives image data of the application form 26b cut out in the automatic contract machine 11 in the step n37 of Fig. 21 (step o31 of Fig. 22), the data is displayed by the display 171 of the teller terminal 166 to be reviewed by the teller and, if necessary, printed out for a visual inspection (steps o32 and o33).

If the teller judges the form to be acceptable, he or she approves it and the sequence moves to the following step for issuing a contract. Unless acceptable, the rereading operation is executed (steps o34 and o36).

Upon completion of receipt of the application form 26b, the automatic contract machine 11 issues the contract 26a to

be written with the contract contents requested by the customer. The written or entered contract 26a is set in the same operation as that of the application form 26b to be read for examination about the entered contents. If the examination passes the contract, a copy of the contract which is printed with the contract contents is issued and a contract card requested by the customer is issued. Thus, the contract card is issued by customer's self input operation.

The application forms 26b and contracts 26a which have been used in the contract operation are collected into the collection box 28 to be stored therein, and are adapted to be ready to be returned in case the documents 26 are necessary to be corrected or canceled during the contract executing operation. The collection operation for the documents 26 will be described referring to a flow chart shown in Fig. 23 hereinafter.

Now, the input display panel 14 displays a document waiting picture after completing the identification operation, which shows a guidance to put the document 26 on the input operation panel 14 to guide the document toward the set position (step n41). If the customer depresses the confirmation key after setting the document (step n42), a lower end of the document 26 is held in a fixed position by the document hold roller 152 and an upper end of the document is pressed to be held by the press holder 15 so as to retain

the fixedly holding state suitable for reading the document (steps n43 and n44).

As the scanner 24 starts to read the document 26 held in a fixed position and finishes such reading (steps n45 and n46), the document is released from being fixedly held and taken inward for temporal waiting at the temporal collecting portion 28a (steps n47 and n48).

In this waiting state, the read data of the document 26 is transferred to the teller terminal 166. Unless there is any abnormal detection such as modification in the answered information from the teller terminal 166, the document 26a temporarily stored in the temporal collecting portion 28a is perfectly taken into a predetermined position within the collection box 28 for completion (steps n49 through n51).

If the terminal 166 sends a correction request in the answer information such as no-entry, an erroneous letter or an omitted letter, the document 26 waited in the temporal collecting portion 28a is reversely sent to its original position on the input operation panel 14 to be returned to the customer and the panel displays a screen for rewriting the document and setting the same again (steps n52 and n53).

Thus, according to this embodiment, the entry device is represented by the automatic teller machine 11, the medium is represented by the identification card 25 such as the driver's license 25a and the document 26 such as the health insurance

card 26a and the application form 26b. The input operation panel 14 is associated with the display, the reading portion, the reading area, the reading display, the reader, and the medium setting position. The reading means is represented by the scanner 24 housed in the image sensor 102. The reading means disposed outside the display area of the display is represented by the set confirmation scanner 24a. The reading means at the press portion is represented by the scanner 86 of the press holder 15. The CPU 161 represents the switching means, the set position judging means, the reading area designating means, and the data editing means. The display designating means and the guidance display means correspond to the graphical guide display 33, 43 and 72. The printing means is represented by the printer 30. The display 171 of the teller terminal 166 represents the character display means, the confirming means and the modification allowing means. The setting direction of the medium corresponds to the setting direction designation arrow mark 53.

While the invention has been described and illustrated with respect to certain embodiments which give satisfactory results, it will be understood by those skilled in the art that various other changes and modifications may be made without departing from the spirit and scope of the invention, and it is, therefore, intended in the appended claims to cover all such changes and modifications.

What is claimed is:

1. An entry device (11) for receiving data read from a medium (25 and 26) and entering the data therein comprising
image information display means (14) for displaying image information on a display panel,
image information reading means (24) for reading image information of the medium (25 and 26) set on the display panel, and
guide display means (14, 32 and 41) for displaying a guidance on the display panel to guide an operator about a set position of a medium.
2. An entry device (11) as set forth in Claim 1 further comprising press means (15) for pressing the medium set on the display panel.
3. An entry device (11) as set forth in Claim 1 further comprising entry means (14 and n11) for entering the kind of the medium therein to change the guidance by the guide display means in accordance with the kind of the entered medium.
4. An entry device (11) as set forth in Claim 1 further comprising reading area display means (14 and n31) for displaying a reading area of the image information reading means on the display panel.
5. An entry device (11) as set forth in Claim 4 further comprising entry means (14) for entering the kind of the medium therein, and reading area changing means (n13 and n14)



for changing a reading area in accordance with the kind of the entered medium.

6. An entry device (11) as set forth in Claim 4 in which the reading area (14) is displayed by indication of a rough picture of the medium.

7. An entry device (11) as set forth in Claim 4 further comprising judgement means (161) for judging whether or not the position of the medium set in the reading area is proper.

8. An entry device (11) as set forth in Claim 4 in which the guidance is displayed within the reading area (14).

9. An entry device as set forth in Claim 4 further comprising reading direction display means (73) for displaying a reading direction.

10. An entry device (11) as set forth in Claim 1 in which the display panel is represented by a touch panel (101) which can be used as a touch input.

11. An entry device (11) as set forth in Claim 10 further comprising ultrasonic reading means (101) for reading touch input by its ultrasonic signal.



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