A credit card printing machine has a carriage with a platen movable over a printing bed on which a credit card and a copy sheet or pad of copy sheets, are placed. A printing plate associated with the credit organization which issued the respective credit card, is detachably attached to a seat plate, and can be exchanged so that the used printing plate and credit card are always associated with the same credit organization. The printing plate prints information regarding the name and code number of the store or dealer making the credit sale in the respective credit organization. This information, together with customer information from the credit card, are both imprinted on the used copy sheet. The attachment of the printing plate is effected by pins and a clamping spring so that no tool is required for exchanging printing plates to conform to the credit organization of a respective used credit card. Other printing plates, associated with other credit organizations, are stored in a compartment of the housing of the printing machine.

12 Claims, 8 Drawing Figures
CREDIT CARD PRINTING MACHINE

BACKGROUND OF THE INVENTION

The present invention relates to credit card printing machines of the type in which a platen roller is moved with a carriage across a printing bed for printing information embossed on a credit card on a copy sheet, or pad of copy sheets so that a record is made of a credit scale made by a creditor, such as a department store, to a customer holding a credit card of a specific credit organization. There exists a great number of credit organizations issuing individual credit cards, and since the department store or other firm which extends credit to a customer must be identified by a different code number when different credit cards are used, the crediting firm must have a printing machine for each credit organization. The respective credit card is then inserted into the associated printing machine, and imprinted with information concerning the customer, the sale, and also the name and identity of the crediting firm. Each printing machine has a permanently attached printing plate with printable types representing the name of the crediting firm and the code number in the respective credit organization.

It is a disadvantage of the prior art that a crediting firm, which accepts credit cards issued by different credit organizations, must have a printing machine for each credit organization issuing a credit card, so that the imprinted copy sheet received by the credit organization includes imprints identifying the crediting firm.

The buying and storing of a number of printing machines associated with different credit organizations, increases the operating cost of the crediting firms, and takes up valuable space. It also consumes time of the sales clerk, to find the right printing machine every time a different credit card is presented.

SUMMARY OF THE INVENTION

It is one object of the invention to overcome the disadvantages of the credit card printing machines according to the prior art, and to provide a credit card printing machine which can be used with credit cards issued by different credit organizations.

Another object of the invention is to provide one credit card printing machine with exchangeable and detachable printing plates which are respectively associated with different credit organizations.

Another object of the invention is to attach the printing plates to the credit card printing machines by attaching means which can be quickly and easily operated by an unskilled person exchanging the printing plate.

Another object of the invention is to provide a credit card printing machine with printing plate attaching means which require no tool for removing one printing plate, and attaching another printing plate.

Another object of the invention is to provide manually operable attaching means which hold a printing plate so firmly that it cannot be displaced when a printing platen passes over the printing plate.

With these objects in view, the invention is applied to a credit card printing machine which comprises supporting means including a printing bed, a carriage mounted for movement on the supporting means, and a platen mounted on the carriage for movement with the same along a path on the printing bed.

POSITIONING MEANS

Positioning means are provided for locating in the path at least one copy sheet, and a customer's credit card issued by a predetermined credit organization and having first printable symbols thereon representing information regarding the customer. A plurality of creditor identifying printing plates associated with different organizations is provided. Each printing plate has printable symbols thereon identifying the same creditor, such as a department store making a sale, with different credit organizations.

Manually operable attaching means are secured to the printing bed for detachably attaching to the printing bed one printing plate associated with the credit organization issuing the respective credit card.

The two informations represented by the credit card and by the respective printing plate are both printed on the copy sheet by operation of the carriage with the platen. However, when a credit card of an other credit organization is used, the printing plate is replaced in the printing machine by another printing plate associated with the respective other credit organization.

In the preferred embodiment, the attaching means include resilient clamping means for clamping the printing plate to the printing bed, or to a seat plate.

In the preferred embodiment of the invention, the printing plate has two guide holes and an opening, and stationary pins project into the guide holes, while a clamping spring passes through the opening and presses with a slanted portion against the printing plate so that the guide holes and pins cannot separate.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view illustrating a credit card printing machine embodying the present invention;

FIG. 2 is a perspective view illustrating an exchangeable printing plate having embossed types representing the name and code number of the crediting firm in a particular credit organization;

FIG. 3 is a fragmentary perspective view illustrating a seat plate and attaching means for a printing plate;

FIG. 4 is a sectional view taken on line IV—IV in FIG. 3, and illustrating a printing plate while being attached to the seat plate;

FIG. 5 is a sectional view taken on line V—V in FIG. 3 and illustrating the printing position of the printing plate;

FIG. 6 is a fragmentary perspective view illustrating a clamping spring according to the invention;

FIG. 7 is a fragmentary sectional view illustrating a compartment provided in the housing of the credit card printing machine for holding several printing plates associated with the different credit organizations; and

FIG. 8 is a fragmentary sectional view illustrating an other embodiment of a storing compartment for printing plates.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, a printing bed 2 is formed
by a horizontal top plate of a housing 1. A set of printing wheels 13 is rotatably mounted on the supporting housing parts of the machine, as are provided with peripheral types representing numbers so that the portions of the number wheels 13 projecting through a cut-out 21 in the machine bed 2 can be used for printing the amount of credited money. A set of date wheels 22 also partly projects from the surface of the machine bed 2.

The type wheels 13 each have a gear, not shown, fixedly attached thereto, which mesh with rack bars 16 manually operated by knobs or buttons 14 which project out of the machine housing 1 through slots 15 provided in a cover 11 on the top face of the housing.

Positioning means 24 are provided for engaging the edges and corners of a copy sheet, and positioning portions 24a are provided for positioning a credit card on a seat plate 24b secured to the machine bed 2.

Another seat plate 23 is secured to the machine bed plate 2, and serves or supporting a printing plate 3, as will be explained hereinafter. The two seat plates 23 and 24b are located in the same horizontal plane, and are covered during a printing operation by a copy sheet, not shown, or a pad of copy sheets. A carriage 7 supports a platen roller 8 for rotation, and is mounted on the printing bed 2 for movement between two end positions so that the platen 8 moves along a path over seat plates 23, 24b, and also over number wheels 22 and 13. If a printing plate 3 is placed on seat plate 23, and a credit card is placed on seat plate 24b, and then a copy sheet is placed on top of the printing plate and credit card, the information of the printing plate, credit card, date wheels 22, and number wheels 13 will be printed on the copy sheet whose position is determined by the positioning means 24.

FIG. 2 shows a printing plate 3 having a code number 31, and a name of the firm 32 embossed thereon. The code number 31 identifies the respective firm for a particular credit organization which has issued the credit card used together with the printing plate 3. The embossed digits and characters are located in the upper part of the printing plate 3, while the lower part has two guide holes 33, and an elongated opening 34 bounded on one side by an edge 34a.

Referring now to FIG. 3, the seat plate 23 is fixedly secured by two screws 25 to the printing bed 2, which is formed by the top face of housing 1. Seat plate 23 has a smooth planar top surface, and is provided with two holes 28, and an elongated opening 27 which are arranged in the same pattern as guide holes 33 and opening 34 in the printing plate 3. In the operative position of printing plate 3 shown in FIG. 5, holes 28, and opening 27 register with guide holes 33 and opening 34.

As shown in FIGS. 4 and 5, pins 43 are threaded into threaded bores 2a in bed plate 2, and have smooth portions located in guide holes 28. Small end portions 26 project beyond the printing plate 3 in the printing position shown in FIG. 5. A U-shaped clamping spring 4 has a bent leg forming an attaching portion 42 with two fastening holes 44 through which pins 43 pass. A counter nut 43a with a washer secures the bent leg 42 to the underside of the printing bed 2.

The other leg 41 of the U-shaped spring 4 projects through the aligned openings 2b in bed plate 2; opening 27 in seat plate 23; and 34 opening in printing plate 3, and tends to assume the untensioned position shown in dash and dot lines in FIG. 5, abutting the edge 23a of opening 27 in seat plate 23. The slanted portion 40a of spring 4 is located above the top surface of seat plate 23.

In order to attach a printing plate 3 to the seat plate 23, the printing plate 3 is placed in a position in which the clamping portion 40a, 40 passes through opening 34, while the clamping portion 40a, 40 is in the position shown in chain lines in FIG. 5. In this position, not shown, of the printing plate 3, the guide holes 33 in the printing plate 3 are staggered to the ends of the pins 43, 26. Thereupon, printing plate 3 is pushed to the right as viewed in FIG. 4 to resiliently displace leg 41 of spring 4 until the guide holes 33 are aligned with the end portions 26 of the pins 43. The printing plate 3 can now be pushed down from the position of FIG. 4 to the printing position of FIG. 5 in which the slanted portion 40a engages the edge 34a of opening 34 and presses printing plate 3 down onto the top surface of the seat plate 23 so that the end portions 26 of the pins 43 are reliably engaged by the guide holes 33 in the printing plate 3.

A number of printing plates 3 is provided, each printing plate 3 being associated with a different credit organization, and carrying information identifying the user of the printing plate to the respective credit organization. When a credit card associated with a different credit organization is presented by the customer and placed on the seat plate 24b shown in FIG. 1, the previously used printing plate 3 is removed from the seat plate 23 by first lifting the left end of the printing plate 3, and then retracting the printing plate, whereupon another printing plate 3 associated with the credit organization to which the newly presented credit card belongs, is placed on the seating plate 23, and attached by clamping spring 4 while being non-slidably held on the seat plate 23 by the pins 43, 26 projecting into guide holes 33.

Since only one printing plate can be used at a time in the credit card printing machine, a compartment 17, open on top, is provided in the housing 1 of the machine rearwardly of the printing bed 2 and on one side of the cover 11 which closes an opening in the housing 1 under which the setting rack bars 16 are located, as shown in FIG. 8.

Compartment 17 is provided with a wall 17a having pairs of upright wall portions 19, 19a, 19b which are respectively connected by bottom portions 18, 18a, 18b, so that grooves are formed for supporting the lower parts of several printing plates 3 in spaced positions, and at different levels, the upper portions of the rearwardly located printing plates 3 being higher than the upper portions of the printing plates 3 stored in the front of the compartment, so that the required printing plate 3 can be easily selected.

In the modification of FIG. 8, the wall portion 19c is secured to the rear wall of the cover 11 and forms a groove into which printing cards 3 can be inserted.

Since only the lower portions of stored printing plates 3 are covered, the operator can observe the upper portions of the printing plates 3 where legible information identifying the credit organization may be provided.

Referring again to FIG. 5, in the printing position of printing plate 3, the edge 43a of opening 34 of printing plate 3 holds the spring 4, 40a, 40 in a tensioned position shown in solid lines, displaced a distance a from the normal untensioned position of spring 4 shown in
chain lines. The distance of the guide holes 33 from the end of printing plate 3 is selected so that one marginal edge portion at the end of printing plate 3 projects from the seat plate 23, as shown at the right side of FIG. 5. By pushing down the projecting end portion of printing plate 3 in the direction of the arrow, the guide holes 33 are lifted above the pin end portions 26, while the clamping portion 40a, 40 of spring 4 is displaced. Spring 4 then shifts printing plate 3 to the left until assuming the untensioned position shown in chain lines, so that the left end of printing plate 3 is located above the seat plate 23, and can be easily manually grasped and lifted off the clamping portion 40a, 40 of spring 4.

From the foregoing description it will become apparent that the printing plates 3 can be easily attached to, and removed from the printing bed 2 of the credit card printing machine, as required for credit cards associated with different credit organizations and presented by the customers. Instead of storing credit card printing machines, only printing plates 3 associated with different credit organizations need be stored, for which purpose the compartment 17 of the single credit card printing machine may be used.

The specific construction of the attaching means including pins 43, 26 and a clamping spring 4, reliably holds the printing plate in the printing position without being displaced by the force exerted thereon by the platen 8 of the manually operated carriage 7.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of printing machines, differing from the types described above.

While the invention has been illustrated and described as embodied in a credit card printing machine with exchangeable printing plates secured by attaching means which require no tool, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

We claim:

1. Clamping arrangement for a printing plate, comprising a supporting plate having two threaded bores and a first opening; a seat plate fixedly secured to said supporting plate and having two holes registering with said threaded bores, and a second opening registering with said first opening; a printing plate having two guide holes and a third opening; a clamping spring secured to the underside of said supporting plate and passing through said first, second and third openings, said clamping spring having an untensioned position in which said two guide holes in said printing plate are staggered to said two holes in said seating plate when said printing plate engages said clamping spring; and two guide pins threaded into said threaded bores and having pin heads engaged by said guide holes in a tensioned position of said clamping spring in which said printing plate is clamped by said spring to said seat plate.

2. Clamping arrangement as claimed in claim 1 wherein said clamping spring has a slanted end portion engaging in said tensioned position one edge of said printing plate bounding said third opening and projecting over a portion of said printing plate.

3. Credit card printing machine comprising, in combination, supporting means including a printing bed, said printing bed including a top plate, and a seat plate secured to said top plate, and having an opening and a plurality of holes; a carriage movable on said supporting means; a platen mounted on said carriage for movement with the same along a path on said printing bed; positioning means for locating in said path on said printing machine at least one copy sheet, and a customer's credit card issued by a predetermined credit organization and having first printable symbols thereon representing information regarding the customer; a creditor identifying printing plate associated with said credit organization, and having second printable symbols thereon identifying a creditor with said credit organization, said printing plate being located on said seat plate and having guide holes; and manually operable attaching means secured to said printing bed for detachably attaching to said printing bed the printing plate associated with said credit organization in a position located in said path so that said first and second symbols are printed on said copy sheet when said platen moves along said path, said attaching means including pins secured to said printing bed and projecting through said holes in said seat plate into said guide holes of said printing plate, and a clamping spring secured to said printing bed and pressing said printing plate onto said pins, said printing plate having another opening; said clamping spring passing through said openings and having a bent end portion resiliently abutting said printing plate for the clamping the same to said seat plate in a position in which said openings are aligned.

4. Printing machine as claimed in claim 3 wherein said bent end portion of said clamping spring has a clamping portion slanted to said one printing plate and resiliently abutting one edge of said other opening.

5. Printing machine as claimed in claim 4 wherein said clamping spring has an end portion bent away from said slanted clamping portion.

6. Printing machine as claimed in claim 4 wherein said clamping spring has a U-shaped main portion, one leg of which passes through said registering openings, and through a corresponding opening formed in said printing bed, and the other leg of which is bent and secured to the underside of said printing bed.

7. Printing machine as claimed in claim 6 wherein said guide pins have pin heads located in said guide holes of said one printing plate, threaded portions threaded into said printing bed, threaded portions threaded into said printing bed, and head portions clamping said bent other leg to said printing bed.

8. Printing machine as claimed in claim 7 wherein said bent other leg has fastening holes through which said threaded portions of said pins pass into said printing bed.

9. A printing machine arrangement as claimed in claim 3 wherein said supporting means include a housing forming a storing compartment open on top, and a
plurality of parallel holding means for storing at least some of the other printing plates in said compartment.

10. A printing machine as claimed in claim 9 wherein each holding means has upright wall portions and a bottom wall portion forming a groove for receiving the lower end portion of one of said other printing plates.

11. A printing machine as claimed in claim 10 wherein said plurality of holding means has a common wall upward inclined to a horizontal plane and including said wall portions and grooves at different levels so that the upper ends of said printing plates are located at a high level in the rear, and at a low level in front of said compartment.

12. A printing machine arrangement as claimed in claim 3 comprising at least one set of printing wheels rotatably mounted on said supporting means and having printing portions located in said path; setting means for said printing wheels; a cover for at least partly covering said setting means; and storage compartment means open on top and secured to the rear portion of said cover for storing at least some of the other printing plates.