CREDIT CARD CLEANING SYSTEM

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References Cited

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ABSTRACT

The disclosed machine has a housing with a washing component and a drying compartment. The housing has a credit card receiving slot which opens into the washing compartment. The washing compartment is filled with a cleaning solution to just below the level of the receiving slot. A receiving platform is provided which is inclined downwardly below the surface of the cleaning solution where a pair of feed rollers pass the card through a pair of scrubbing rollers and onto a pair of squeegee rollers and a pair of drying rollers. The scrubbing rollers are below the level of the cleaning solution and so rotate as to wipe the card surfaces in a direction opposite its direction of travel. The squeegee rollers and drying rollers are in the drying compartment separated from the reservoir of cleaning solution and the drying rollers have heating elements which maintain them at a predetermined temperature.

14 Claims, 7 Drawing Figures
CREDIT CARD CLEANING SYSTEM

BACKGROUND OF THE INVENTION

This invention relates generally to cleaning machines and more particularly to machines for cleaning relatively rigid cards of plastic material.

The use of credit cards has now become of such importance that few purchasers are without one or more of them. Frequently the credit cards are carried in pockets, purses, or wallets where they accumulate dirt. Not only does this give an unpleasing appearance to the card, but it also interferes to some extent with the card's effective functioning in imprinting of the name and card number on the printed charge forms.

Although credit cards can be cleaned by hand, this is inconvenient and, therefore, infrequently done. A need, therefore, exists for a simple but effective credit card cleaning machine.

SUMMARY OF THE INVENTION

It is, therefore, a major object of my invention to provide a credit card cleaning machine which rapidly washes and dries a credit card.

It is also an important object of my invention to provide a credit card cleaning machine which will clean a card automatically by merely inserting the card in a receiving slot and pressing a button.

It is another object of my invention to provide a credit card cleaning machine of the type described in which both surfaces of the card are simultaneously scrubbed while it is submerged in cleaning solution and then wipes off the cleaning solution and dries the card.

It is yet another object of my invention to provide a credit card cleaning machine of the type described in which the credit card is carried down into a reservoir of cleaning solution for washing and up out of the reservoir for drying and the drying rollers which are internally heated to a predetermined temperature by thermostatic control.

It is still a further object of my invention to provide a credit card cleaning machine of the type described that is compact, convenient to use, and easy to maintain.

DRAWINGS

These and other objects and advantages of my invention will become more readily apparent from the following detailed description of a preferred embodiment when read together with the accompanying drawings, in which:

FIG. 1 is a plan view of a preferred embodiment of my invention;
FIG. 2 is a sectional side elevational view of the preferred embodiment of my invention taken on line 2—2 in FIG. 1;
FIG. 3 is a sectional plan view taken on line 3—3 in FIG. 2;
FIG. 4 is a sectional side elevational view taken on line 4—4 in FIG. 3;
FIG. 5 is a sectional end elevational view taken on line 5—5 in FIG. 4;
FIG. 6 is a sectional end elevational view taken on line 6—6 in FIG. 4; and
FIG. 7 is a schematic view of the electrical circuitry for heating my drying rollers.

DETAIL DESCRIPTION OF PARTS

Referring now to the drawings, and particularly to FIGS. 3 and 4, the numeral 10 refers generally to my credit card cleaning machine. The machine consists of a housing 12 which is internally divided by a partition 14 into a washing compartment 16 and a drying compartment 18. The partition 14 extends upwardly for a portion of the height of the housing a sufficient distance to form a reservoir 20 of cleaning solution in the washing compartment 16 and screen the drying compartment from solution splash.

A card receiving slot 22 is provided in the receiving end of the housing adjacent the washing compartment 16. The receiving slot 22 is wide enough to receive the width of a credit card and is located in the end wall of the housing 12 just above the level of the cleaning solution in the reservoir 20. A facing plate 23 is provided on the housing wall outside the receiving slot with a tapered throat 24 to assist in insertion of the card into the slot.

A receiving platform 26 is mounted just inside the receiving slot 22 in the washing compartment 16. The receiving platform 26 is pivotally mounted in the housing at its inner end 28 and has a shute 30 for supporting a card delivered through the receiving slot, and a flange 32 for blocking the receiving slot 22. The flange 32 is mounted on the outer end of the receiving platform 26 and swings downward to block the receiving slot 22 when the platform pivots downwardly about its mounting. The receiving platform 26 is disposed with its shute 30 inclined downwardly so that its inner end 28 is below the surface of the cleaning solution in the reservoir 20 of washing compartment 16, and a float 34, preferably of plastic foam, is attached to the bottom of the shute 30 near its outer end 31 which floats on cleaning solution in the washing compartment reservoir 20 to urge the outer end of the receiving platform into its upper position (see FIG. 4). The shute 30 is tapered in height and width to further align the card as it travels through the shute.

Adjacent the inner end 28 of the receiving platform 26, I provide a pair of co-acting feed rollers 38 located one above the other on shafts 39 which are journaled in the wall of the housing 12 and disposed substantially normal to the path of travel of the card through the housing. For each of description, this path of travel of the card will be referred to as starting at the forward end of the housing 12 (where the card receiving slot 22 is located) and proceeding rearwardly to the rear end of the housing (opposite the end having the card receiving slot). Thus, those things which are positioned closer to the forward end of the housing will be referred to as forward, or in front of; those items which are closer the rear, as rearward.

The pair of feed rollers 38 consist of an upper roller 40 and a lower roller 42. The lower roller 42 has a cylindrical firm rubber periphery 44 which extends the full length of the roller and is driven by a drive motor through appropriate gearing, more fully described later. The upper roller 40 also has a periphery 46 formed of hard rubber, and its shaft 39 is bearing mounted in the housing but is free turning. The bearings for the upper shaft are movable and spring loaded toward the lower roller shaft by bearing springs 47. Thus mounted, the shafts 39 of the rollers are sufficiently close that the periphery 46 on the upper roller...
is frictionally engaged by the periphery 44 of the lower roller and so that the upper roller is caused to rotate when the lower roller rotates.

Since the shaft 39 of the upper roller 40 is positioned slightly forward of the lower roller shaft, a plane tangential to the contact between the rollers is inclined upwardly and rearwardly (see FIG. 4). Also, the direction of rotation of the lower roller 42 is counterclockwise (as seen in FIG. 4) so that its periphery 44 travels rearwardly at the top of the roller. The frictional engagement between periphery 44 of the lower roller and the periphery 46 on the upper roller drives the periphery rearwardly at its bottom, thus rotating the upper roller clockwise as seen in FIG. 4. Rotation of the feed rollers 38 in this manner carries a card rearwardly on its path of travel when it is fed between the rollers.

To further guide the card along its path, a feed roller guide 49 is disposed rearward of the feed rollers.

The pivot point 48 for the inner end 28 of the receiving platform 26 is adjacent the periphery 44 of the lower roller 42 and just below the point of engagement between the feed rollers so that the leading edge of a card 50 inserted through the card receiving slot 22 and resting in the chute 30 engages the upper portion of the lower roller periphery 44 and is drawn in between rollers. At this point the trailing edge of the card clears the card receiving slot 22 and is driven downwardly because the feed rollers 38 are so aligned as to direct the card along the path of travel which is inclined upwardly and rearwardly from the feed rollers, as previously explained. Although the card is supported by the chute 30 of the receiving platform 26, force applied to the card by the feed rollers 38 pivots both the card and the receiving platform downwardly to totally submerge the card in the cleaning solution. This downward pivotal movement of the receiving platform 26 draws the blocking flange 32 in front of the receiving slot 20 to prevent another card from being inserted in the slot while the first card is proceeding through the feed rollers.

When the trailing edge of the card 50 reaches the feed rollers 38, the card is clear of the chute 30 of the receiving platform 26 and the float 34 driven the receiving platform upward again moving the blocking flange 32 above the card receiving slot 22 and opening the slot for insertion of another card.

A pair of scrubbing rollers 54 are provided just rearward the feed rollers 38. The scrubbing rollers 54 consist of an upper scrubbing roller 56 and a lower scrubbing roller 58, both of which are identical and have cooperating peripheral surfaces which are juxtaposed along a tangential line of contact in the inclined plane of the path of travel of the card. Each of the rollers has a peripheral surface 60, porous and somewhat roughened, such as a terrycloth or a shaggy synthetic fiber, which retains cleaning solution picked up from the reservoir 20 in the washing compartment 16 and scrubs surfaces placed in contact with it. The scrubbing rollers 54 are mounted on shafts 62 which are, in turn, journaled in the housing 12 and substantially normal to said inclined path of travel. The shafts are also sufficiently close together to bring their surfaces 60 into contact, and the shaft 62 of the upper scrubbing roller 56 is positioned slightly forward of the lower scrubbing roller shaft to align their area of contact with the path of travel as aforesaid. Also, the shafts 62 are so positioned that the area of contact between the scrubbing rollers is at or just below the surface of cleaning solution in the reservoir 20 so the roller surfaces 60 are continuously saturated with the solution.

The shafts 62 of both the upper and lower scrubbing rollers are driven by a drive motor 63 through appropriate gearing, as will be later explained. The upper scrubbing roller 56 turns counter-clockwise, as viewed in FIG. 4, and the lower scrubbing roller turns clockwise, as viewed in FIG. 4, so that the coacting surfaces of the two rollers are moving in a direction opposite the direction of travel of the card at the point where the card passes between them. The shafts 62 of each of the scrubbing rollers each rotates at the same speed, however, this speed is substantially greater than the speed of rotation of the feed rollers 38.

The spaces 60 of the scrubbing rollers thus wipe across both surfaces of the card 50 for many revolutions as it passes between the rollers, thoroughly scrubbing them.

Rearward of the scrubbing rollers 54, a pair of squeegee rollers 64 are provided, and a scrubbing roller guide 65 is disposed between the pairs of rollers. The squeegee rollers 64 are mounted one above the other on shafts 66 journaled journaled in the housing 12, like the feed rollers 38. The squeegee rollers also consist of an upper squeegee roller 68, the shaft of which is mounted above and slightly forward of the shaft of the lower squeegee roller 70. Again, the shafts 66 of the squeegee rollers 64 are substantially normal to the inclined plane containing the path of travel of the card and the rollers' coating surfaces between which the card 50 passes. The coating surfaces travel in the same direction as the card 50 and at approximately the same speed as the feed rollers 38 and are sufficiently close to grip and pass the card therebetween. The peripheries of the squeegee rollers 64 are cylinders formed of a firm rubber material which squeezes the cleaning solution from both sides of the card as the card passes through the rollers.

The squeegee rollers 64 are so positioned with respect to the feed rollers 38 that the leading edge 48 of the card 50 is engaged by the coating surfaces of the squeegee rollers, before the trailing edge 52 of the card has left the feed rollers. Since the scrubbing rollers 54 are positioned between the feed rollers 38 and the squeegee rollers 64 along the path of the travel of the card, the card 50 is held and moved along its path of travel by either the feed rollers 38 or the squeegee rollers 64, or both, at all times when its surfaces are exposed to the scrubbing action of the scrubbing rollers 54.

The upper squeegee roller 68 is driven by a drive motor through appropriate gears, as will be later explained, and the lower squeegee roller 70 is driven by frictional engagement of its peripheral surface with the upper squeegee roller. The frictional engagement is maintained by bearing springs 73 which urge the lower squeegee roller shaft toward the upper squeegee roller shaft in the same manner as in the feed rollers 38.

The squeegee rollers are located in the drying compartment 18 just rearward the partition 14 along the path of travel of the card 50. Since the path of travel is inclined upwardly and rearwardly the coating surfaces of the squeegee rollers are above the level of cleaning solution in the reservoir 20, and a drain pan 74 is provided on the partition 14 which extends rearwardly into the drying compartment 18 under the
squeegee rollers. The drain pan 74 is inclined forwardly downward toward the reservoir 20 of cleaning solution in the washing compartment 16 and any moisture squeeze out of the squeegee rollers is thereby captured and delivered back into the cleaning solution reservoir in the washing compartment.

Just rearward of the squeegee rollers 64 along the path of travel of the card 50 are a pair of drying rollers 74. The drying rollers 74 are mounted on shafts 76 journaled in the walls of housing 12 and substantially normal to the path of travel, similar to the squeegee rollers. The drying rollers 74 consist of an upper drying roller 78 and a lower drying roller 80 mounted with the shaft of the upper drying roller forward of the lower drying roller shaft and sufficiently close to provide an area of contact aligned with the inclined path of travel of the card 50. The drying rollers 74 are larger than the squeegee rollers 64 and have soft, absorbent peripheral surfaces 82. The drying rollers 74 also have hollow bores 84 in which are disposed electric heating elements 86. The heating elements 86 are supported on the housing and connected to an electric power source 88 by means of connectors 90 and electric bases 92. Thermostatic controls 94 are provided in the electric circuitry to maintain the drying rollers at a predetermined temperature. The contacting surfaces of the drying rollers 74 move in the same direction as the travel of the card 50 and, therefore, engage and move the card along its path of travel as the card is moved out of the squeegee rollers 64.

The lower drying roller shaft is driven through gearing by the drive motor 63, and the upper drying roller shaft is freely rotatable but positioned sufficiently close to the lower drying roller to grip the card between the rollers.

Aligned with the path of travel of the card 50 and rearward of the drying rollers 74 in the rear wall of the housing 12, a card discharge chute 96 is provided. The card discharge chute 96 extends inside the housing to a point sufficiently close to the rear of the drying rollers that as the card 50 is passed through the drying rollers 74 a major portion of the card 50 adjacent its leading edge passes onto the card discharge chute before the trailing edge of the card has left the drying rollers. Therefore, when the trailing edge of the card is released by the drying rollers, the card will pass onto the card discharge chute where it will remain until manually removed.

To drive the various pairs of rollers in my machine in the required directions, I provide in addition to the electric drive motor 63, drive gearing 100. The drive motor 63 is powered from the 110 volt electric power source 88 through a circuit breaker 102. The drive gearing 100 consists of drive pinion 106 mounted on the shaft of the motor 63 on the left side of the machine 10 looking in the direction of travel of the card 50 (see FIG. 2). The drive pinion 106 rotates clockwise as seen in FIG. 2. The drive pinion 106 is engaged with the upper scrubbing roller pinion 108 which is mounted on the upper squeegee roller shaft 62. The upper scrubbing roller pinion 108 is, in turn, engaged with a lower scrubbing roller pinion 110 mounted on the lower scrubbing roller shaft 62. Since the drive pinion 106 rotates clockwise, the upper scrubbing roller pinion 108 rotates counterclockwise, and the lower scrubbing roller pinion 110 rotates clockwise again, the desired direction of rotation is thus applied to the shafts upon which they are mounted. A feed roller transfer gear 112 is mounted on the lower scrubbing roller shaft 62 adjacent the lower scrubbing roller pinion 110 and is engaged with a lower feed roller pinion 114 mounted on the lower feed roller shaft 39. The engagement between the feed roller transfer gear 112 and the lower feed roller pinion 114 is such that the clockwise rotation of the lower scrubbing roller shaft 62 causes counter-clockwise rotation of the lower feed roller shaft 39.

No drive gear is provided on the upper drive roller since this roller is driven by frictional surface contact with the lower feed roller as previously explained.

A squeegee transfer gear 115 is also provided on the end of the upper scrubbing roller shaft 62 which drives the upper squeegee roller gear 120 on the upper squeegee roller shaft 66 in a clockwise direction. Since the upper squeegee roller 68 has its surface in frictional engagement with the surface of the lower squeegee roller 70, the lower squeegee roller is caused to turn counterclockwise. The upper squeegee roller shaft 66 also has a drive roller transfer gear 122 on its end which engages and drives the lower drying roller shaft 76 through a lower drying roller pinion 124 in a counter-clockwise direction. The surface of the lower drying roller 80 is engaged with the surface of the upper roller gear 78 and it is thus driven in a clockwise direction (all as shown in FIG. 2). Thus, all of the driven rollers in my machine are powered from a single drive motor through the gearing described.

The speed differential between the scrubbing rollers on the other rollers, previously described, is provided by selecting gears of the proper size, as shown in FIG. 2.

OPERATION

Having described the parts of my card cleaning machine, I will now describe its operation. The machine is operated by inserting a credit card into the throat 24 of card receiving slot 22 longwise. The card is manually inserted to the point where its leading or inner edge contacts the feed rollers 38 at the inner end 28 of the receiving platform 26.

At this point the actuating button 104 is operated to start the rollers and the lead edge of the card is gripped by the feed rollers and drawn inwardly. Because of the vertically offset alignment of the feed rollers, the card will be swung pivotally downward to align itself with the upwardly, rearwardly inclined path of travel defined by the co-acting surfaces of the feed rollers. Since the feed rollers are so arranged that the path of travel will be aligned upwardly into the discharge slot, the card is drawn down into the cleaning solution in the washing compartment.

Since the card 50 is resting in the chute 30 of the receiving platform, the receiving platform is also pivoted downward into the cleaning solution, about its inner end 28. The flange 32 on the outer end of the receiving platform is thus brought down to block the card receiving slot 22 and prevent further credit cards from being inserted into the slot until the card inside the housing has passed through the feed rollers. As the feed rollers 38 continue to travel the card 50 along the upwardly inclined path toward the card discharge chute 96, the leading edge of the card reaches the co-acting surfaces of the scrubbing rollers 54. At this point the body of the card is still firmly engaged by and being moved between the feed rollers 38. The co-acting surfaces 60 of
the scrubbing rollers 54 are traveling in a direction opposite to the direction of travel of the card 50 and are rotating at a greater speed than the feed rollers 38. Therefore, a substantial scrubbing action occurs between the peripheral surfaces of the scrubbing rollers and the upper and lower surfaces of the card.

As the leading edge of the card passes on through the scrubbing rollers it passes through the partition 14 and into the drying compartment 18 where it is engaged by the coacting surfaces 72 of the squeezee rollers 64. The leading edge of the card is engaged by the co-acting surfaces of the squeezee rollers before the trailing edge of the card has left the feed rollers, so the reverse scrubbing action of the scrubbing rollers does not effect the travel of the card.

The surfaces 72 of the squeezee rollers wipe moisture from the surfaces of the card and continue to move the card along its path of travel until the leading edge passes between the co-acting surfaces of the drying rollers 74. The drying rollers dry the surfaces of the card while the squeezee rollers continue to travel the card toward the card discharge shuttle 96. When the leading edge of the card is substantially over the discharge shuttle, the trailing edge 52 of the card completes its passage through the squeezee rollers. At this point the drying rollers 74 have enough friction and drive power to move the card on through for deposit on the card discharge shuttle into a position where it will rest until manually removed.

The operating button is spring biased to its open position so the machine 10 only operates while the operator holds down the button 104. Any time the operator's finger is removed from the button, the machine stops, leaving the card in its particular position on the path of travel. Therefore, the machine is operated by inserting the card and maintaining a finger on the drive button until the card comes out of the discharge slot and can be retrieved.

The surfaces 72 of the squeezee rollers wipe moisture from the surfaces of the card and continue to move the card along its path of travel until the leading edge passes between the co-acting surfaces of the drying rollers 74. The drying rollers dry the surfaces of the card while the squeezee rollers continue to travel the card toward the card discharge shuttle 96. When the leading edge of the card is substantially over the discharge shuttle, the trailing edge 52 of the card completes its passage through the squeezee rollers. At this point the drying rollers 74 have enough friction and drive power to move the card on through for deposit on the card discharge shuttle into a position where it will rest until manually removed.

To give visual notice that the machine is in operation a signal light 104 is provided at the forward end of the housing 12. Signal light 104 is connected into the electric circuit as shown in FIG. 7 so that it is lighted whenever the operating switch 102 in the "on" position. From this description of the parts and operation of my machine it will be understood that rapid but thorough cleaning of the card will occur. The speed and contradirection of the scrubbing rollers together with the submersion of the card at this point in the path of travel assures adequate scrubbing of both surfaces of the card, while the squeezee rollers and heated drying rollers provide the necessary drying.

The machine is compact, simple to operate, and comparatively inexpensive to construct, particularly because of the single drive motor and gearing which power all rollers.

It should, therefore, be understood that my card cleaning machine is fully capable of achieving the objects and attaining the advantages heretofore attributed to it.

I claim:
1. A credit card cleaning device comprising:
   a frame;
   means defining a path of travel for a credit card, said means being disposed in said frame and having a card receiving end and a card discharge end;
   a scrubbing chamber mounted in said frame and having a reservoir operatively associated with said path of travel defining means disposed to contain a cleaning solution to a level sufficient to cover a portion of said path of travel defining means adjacent the card receiving end thereof;
   a drying chamber mounted in said frame and separated from said scrubbing chamber, said drying chamber being operatively associated with said path of travel defining means disposed adjacent the card discharge end thereof;
   propelling means operatively associated with said path of travel defining means and disposed to engage and propel a credit card therealong;
   card delivery means operatively associated with said frame and disposed adjacent the card receiving end of said path of travel defining means, said card delivery means being operable to receive a credit card outside said cleaning solution contained in said scrubbing chamber reservoir and deliver said card into said reservoir cleaning solution and the receiving end of said path of travel defining means;
   and drive means drivingly interconnected with said propelling means, scrubber and dryer.
2. A credit card cleaning device as described in claim 1 in which:
   said scrubbing chamber includes scrubbing means operatively associated with said path of travel defining means, said scrubbing means being disposed to engage and scrub surfaces of a credit card propelled along said path of travel.
3. A credit card cleaning device as described in claim 1 in which:
   said drying chamber includes drying means operatively associated with said path of travel defining means, said drying means being disposed to engage and dry surfaces of a credit card propelled along said path of travel.
4. A credit card cleaning device as described in claim 2 in which:
   said drying chamber includes a pair of rollers having their shafts disposed parallel and their peripheries tangentially juxtaposed on said path of travel, each of said rollers having a moisture absorbent outer surface and an internal heating element.
5. A credit card cleaning device as described in claim 3 in which:
   said scrubbing means includes a pair of scrubbing rollers having their shafts disposed parallel and their peripheries tangentially juxtaposed on said path of travel, each of said rollers having a moisture retaining outer surface, said rollers being in liquid communication with said reservoir of cleaning fluid and disposed to engage surfaces of a credit card propelled along said path of travel and scrub said sur-
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6. A credit card cleaning device as described in claim 1 in which:
said scrubbing chamber includes a pair of scrubbing rollers having their shafts disposed parallel and their peripheries tangentially juxtaposed on said path of travel, each of said rollers having a moisture retaining outer surface, said rollers being in liquid communication with said reservoir of cleaning fluid and disposed to engage surfaces of a credit card propelled along said path of travel and scrub said surfaces in a direction opposite the direction of travel of said card;
said drying chamber includes a pair of rollers having their shafts disposed parallel and their peripheries tangentially juxtaposed on said path of travel, each of said rollers having a moisture absorbent outer surface and an internal heating element;
said propelling means includes a pair of feed rollers disposed ahead of said scrubbing rollers along said path of travel, said feed rollers having parallel shafts and tangentially juxtaposed peripheries disposed to engage a credit card therebetween and propel it along said path of travel and between said scrubbing rollers, and further includes a pair of squeegee rollers disposed after said scrubbing rollers and before said drying rollers along said path of travel, said squeegee rollers having parallel shafts and tangentially juxtaposed peripheries disposed to engage a credit card therebetween and propel it along said path of travel, and said squeegee rollers being separated from liquid communication with said reservoir of cleaning solution and having surfaces which squeegee said cleaning solution from the surfaces of said credit card; and
said drive means are drivingly interconnected with said scrubbing rollers, drying rollers, feed rollers and squeegee rollers and includes a motor and drive gears.

7. A credit card cleaning device as described in claim 1 in which:
said path of travel is linear and inclined upwardly in a rearward direction.

8. A credit card cleaning device as described in claim 7 in which:
said card delivery means includes a chute pivotally mounted at its inner end adjacent the card receiving end of said path of travel defining means and in said cleaning solution of said reservoir, and extending upwardly and forwardly therefrom with its outermost end disposed above the level of said cleaning solution in said reservoir.

9. A credit card cleaning device as described in claim 7 in which:
said card delivery means includes a chute pivotally mounted at its inner end adjacent the card receiving end of said path of travel defining means and in said cleaning solution of said reservoir, and extending upwardly and forwardly therefrom with its outermost end disposed above the level of said cleaning solution in said reservoir, said chute having a float disposed in said cleaning solution and buoyed up thereby to normally maintain said chute in its upper position, and being pivotal downward against the buoyancy into alignment with said path of travel when a credit card disposed in said chute is urged into alignment with said path of travel by engagement of its leading edge with said propelling means.

10. A credit card cleaning device as described in claim 7 in which:
said scrubbing chamber includes scrubbing means operatively associated with said path of travel defining means, said scrubbing means being disposed to engage and scrub surfaces of a credit card propelled along said path of travel.

11. A credit card cleaning device as described in claim 7, in which:
said drying chamber includes drying means operatively associated with said path of travel defining means, said drying means being disposed to engage and dry surfaces of a credit card propelled along said path of travel.

12. A credit card cleaning device as described in claim 7 in which:
said card delivery means includes a chute pivotally mounted at its inner end adjacent the card receiving end of said path of travel defining means and in said cleaning solution of said reservoir, and extending upwardly and forwardly therefrom with its outermost end disposed above the level of said cleaning solution in said reservoir;
said scrubbing chamber includes a pair of scrubbing rollers having their shafts disposed parallel and their peripheries tangentially juxtaposed on said path of travel, each of said rollers having a moisture retaining outer surface, said rollers being in liquid communication with said reservoir of cleaning fluid and disposed to engage surfaces of a credit card propelled along said path of travel and scrub said surfaces in a direction opposite the direction of travel of said card;
said drying chamber includes a pair of rollers having their shafts disposed parallel and their peripheries tangentially juxtaposed on said path of travel, each of said rollers having a moisture absorbent outer surface and an internal heating element;
said propelling means includes a pair of feed rollers disposed ahead of said scrubbing rollers along said path of travel, said feed rollers having parallel shafts and tangentially juxtaposed peripheries disposed to engage a credit card therebetween and propel it along said path of travel and between said scrubbing rollers, and further includes a pair of squeegee rollers disposed after said scrubbing rollers and before said drying rollers along said path of travel, said squeegee rollers having parallel shafts and tangentially juxtaposed peripheries disposed to engage a credit card therebetween and propel it along said path of travel and between said scrubbing rollers, and further includes a pair of squeegee rollers disposed after said scrubbing rollers and before said drying rollers along said path of travel, said squeegee rollers having parallel shafts and tangentially juxtaposed peripheries disposed to engage a credit card therebetween and propel it along said path of travel, and said squeegee rollers being separated from liquid communication with said reservoir of cleaning fluid and disposed to engage surfaces of a credit card propelled along said path of travel and scrub said surfaces in a direction opposite the direction of travel of said card;
said drive means are drivingly interconnected with said scrubbing rollers, drying rollers, feed rollers and squeegee rollers and includes a motor and drive gears.

13. A credit card cleaning device comprising:
an elongated housing having a forward end and a rearward end;
a substantially vertical partition mounted in said housing and disposed to divide said housing into a
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11 scrubbing compartment adjacent said forward end and a drying compartment adjacent said rearward end;
a card receiving slot in the forward end of said housing opening through said housing wall and into said scrubbing chamber;
a reservoir in said scrubbing compartment containing cleaning liquid to a level below that of said card receiving slot;
a pair of feed rollers mounted in said scrubbing compartment on parallel shafts disposed normal to said card receiving slot, said rollers having their peripheries tangentially juxtaposed in a plane inclined upwardly in a rearwardly direction and positioned below the level of the cleaning liquid in said reservoir;
a pair of scrubbing rollers mounted in said scrubbing compartment rearward of said feed rollers a distance less than the length of said card on parallel shafts disposed parallel to said feed roller shafts, said rollers having their peripheries tangentially juxtaposed in said inclined plane with said line of juxtaposition below the level of the cleaning liquid in said reservoir;
a pair of squeegee rollers mounted in said drying compartment adjacent said scrubbing compartment and rearward of said scrubbing rollers a distance less than the length of said credit card on parallel shafts disposed parallel to said feed roller shafts, said rollers having their peripheries tangentially juxtaposed in said inclined plane with said line of juxtaposition above the level of the cleaning liquid in said reservoir;
a pair of drying rollers mounted in said drying compartment rearward of said squeegee rollers a distance less than the length of said credit card on parallel shafts disposed parallel to said feed roller shafts, said rollers having their peripheries tangentially juxtaposed in said inclined plane, and having heating means operatively associated therewith;
a card discharge member mounted in said housing rearward of said drying rollers a distance less than the length of said credit card and adjacent said inclined plane, said card discharge member being disposed to receive and retain a credit card passed through said drying rollers;
a card delivery chute in said scrubbing chamber with its rearward end pivotally mounted adjacent said feed rollers and its forward end extending upwardly and forwardly into alignment with said card receiving slot, said chute having its forward end normally supported adjacent said slot by a float disposed in said cleaning liquid in said reservoir, and being pivotally movable downwardly into alignment with said inclined plane by forced alignment of a credit card disposed in said slot upon engagement of its leading edge with said feed rollers; and
a drive motor mounted in said housing; drive interconnection means drivingly interconnecting said drive motor with at least one roller of each of said pairs of rollers, said drive interconnection means being disposed to rotate said pair of scrubbing rollers in an opposite direction to the direction of rotation of said other pairs of rollers.

12 A credit card cleaning device as described in claim 13 in which:
said scrubbing rollers each have liquid retaining surface;
said drying rollers each have a liquid absorbent surface and internal heating elements; and
said drive interconnection means is disposed to drive said scrubbing rollers at a greater peripheral speed than said other rollers.

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