Oct. 17, 1961 J. F. HERBERT, JR 3,004,487

IMPRINTERS

Filed Dec. 7, 1959 2 Sheets-Sheet 1

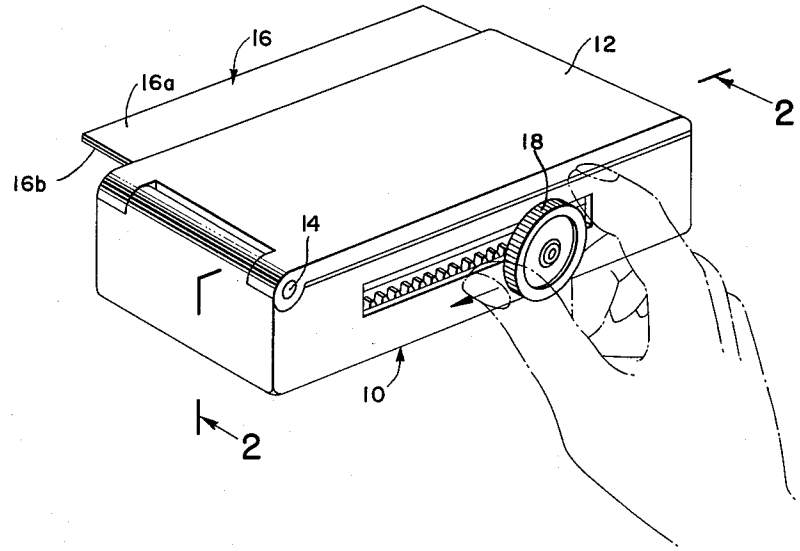


FIG. 1.

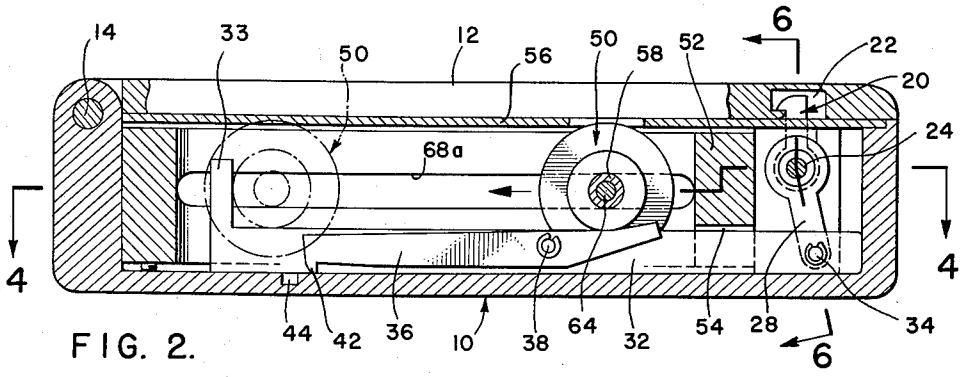


FIG. 2.

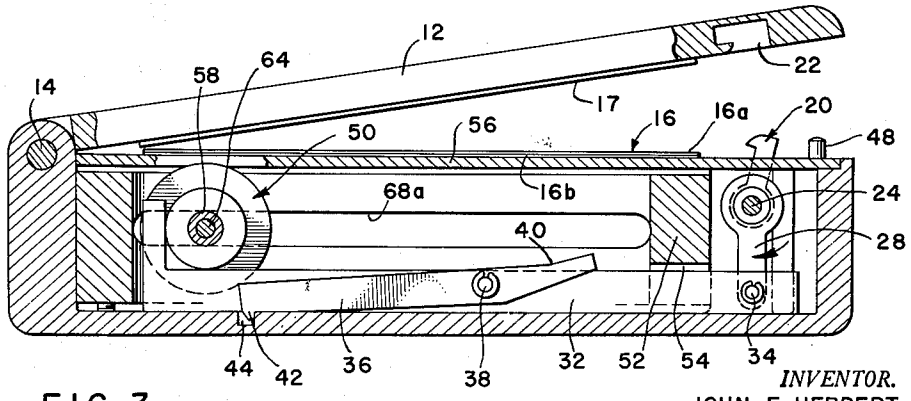


FIG. 3.

INVENTOR.
JOHN F. HERBERT, JR.

BY

Lyon & Lyon

ATTORNEYS

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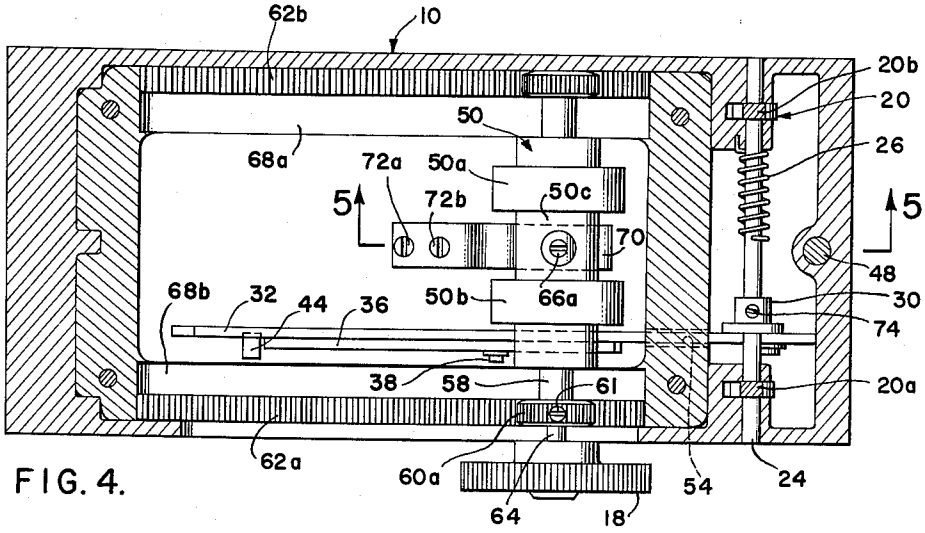


FIG. 4.

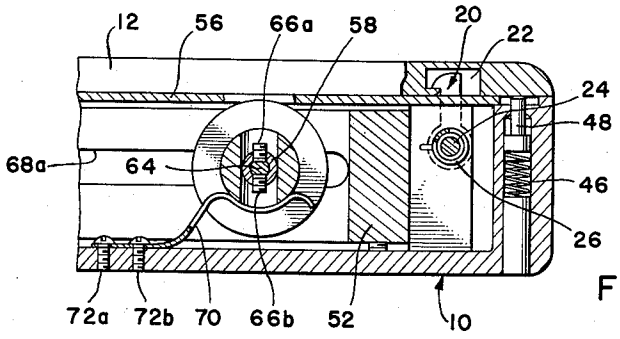
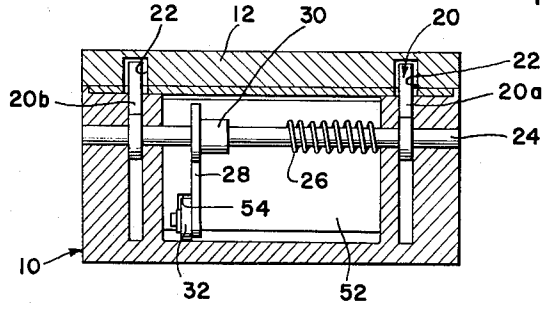


FIG. 5.

FIG. 6.



INVENTOR.
JOHN F. HERBERT, JR.

BY

Lyon & Lyon

ATTORNEYS

United States Patent Office

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IMPRINTERS

John F. Herbert, Jr., Santa Clara, Calif., assignor to Bank of America National Trust and Savings Association, San Francisco, Calif., a national banking association

Filed Dec. 7, 1959, Ser. No. 857,907
7 Claims. (Cl. 101—269)

This invention relates to improvements in apparatus of the type employed for imprinting data on paper, which is in the form of raised lettering on a card.

In an application for an Imprinter, by this inventor, filed November 3, 1959, Serial No. 850,668, there is described a novel imprinter. This imprinter is in the form of a box having a cover which is hingedly attached thereto, enabling the cover to be closed upon one side of the box. The cover has clips and a recess therein for holding a card of the type commonly referred to as a credit card. The credit card has raised lettering thereon, representing the data which it is desired to print on a paper form. This data identifies the holder of the credit card. The paper form, or document, is placed opposite the credit card on a template within the box which has suitable positioning and holding means. The template has openings therein which are aligned with the portions of the card having the raised lettering. The cover is closed, so that the card and document are in contact with each other. Within the box there are supported rollers which extend through the openings in the template. There is also provided means for moving these rollers to rotate over the areas of the document to which transfer is desired, with sufficient pressure to effectuate such transfer. A releasable latch is provided which holds the cover closed against the pressure of the rollers. By means of an externally projecting knob, the rollers are rotated and translated from one side of the box to the other, causing thereby the desired transfer of data. When the rollers are moved to the latch side of the box, they cause the latch to release the cover, thereby enabling removal of the credit card and the document on which the imprinting has been done.

The imprinter described and claimed in the aforementioned application operates satisfactorily for the purpose intended. However, it is possible to obtain an incomplete transfer of data if the roller is rolled partially along its complete travel path to release the cover latch. Furthermore, it is possible with the aforementioned imprinter to position the rollers just beyond the point at which they release the cover latch. Thereafter, the rollers are first rolled from the release position in the cover latch to the hinged end of the cover and then back in order to release the cover. This results in a waste of time in effectuating a data transfer, as well as a possible smudging of the data which has been transferred.

Accordingly, it is an object of this invention to provide an imprinter of the type described wherein the possibility of a partial data transfer is obviated.

Another object of the present invention is to provide an imprinter of the type described wherein an imprinting operation cannot be caused to occur until the roller is brought to a predetermined starting position.

Yet another object of the present invention is to provide an improved and useful imprinting apparatus wherein the rollers are only made to traverse the imprinting path once.

These and other objects of the present invention are achieved in an imprinter of the type described by providing a latch-control mechanism for the cover, which operates in a manner so that the cover cannot be made to close until the rollers which are employed for applying pressure for the imprinting operation are positioned at a

predetermined starting position. Thereby, the cover latch is operated to enable the cover to close. The imprinting operation, namely, the rolling of the pressure rollers along the defined path for transferring the data from the card to the document, can then take place. The latching mechanism which holds the cover closed cannot release the cover, however, until the rollers have been moved to a predetermined end-of-operation position. At this position, the rollers enable the latching mechanism to release the cover which springs up, signifying the end of the printing operation. The latching mechanism is also thereby placed in a position whereby it will prevent the cover from being closed until such time as the rollers are returned to the initial, or starting, position.

The novel features that are considered characteristic of this invention are set forth with particularity in the appended claims. The invention itself, both as to its organization and method of operation, as well as additional objects and advantages thereof, will best be understood from the following description when read in connection with the accompanying drawings, in which:

FIGURE 1 is an isometric view of an imprinter of the type described which is shown for the purpose of providing an understanding of this invention;

FIGURE 2 is a view in section along the lines 2—2 of FIGURE 1. It illustrates the position of the cover latch control mechanism in accordance with this invention when the cover is closed;

FIGURE 3 is a view similar to that shown in FIGURE 2. It illustrates the position of the latch control mechanism in accordance with this invention when the cover is open;

FIGURE 4 is a plan view in section along the lines 4—4 of FIGURE 2. It illustrates further details of the embodiment of the invention;

FIGURE 5 is a partial sectional view along the lines 5—5 of FIGURE 4. It illustrates the mechanism for retaining the roller to the start of operation position; and

FIGURE 6 is a view in section along the lines 6—6 of FIGURE 2, which comprises a plan view of the latch control mechanism comprising an embodiment of this invention.

Reference is now made to FIGURE 1, wherein there is shown an imprinter of the type described and claimed in the previously mentioned application by this inventor. This illustrated imprinter may contain the improvement comprising this invention, as will become more clear herein. This imprinter comprises a box 10, for which there is provided a cover 12. One end of the box and the cover are suitably shaped into tubes to receive a hinge pin 14. By means of this hinge pin the cover and box are hingedly connected together. The cover has provision therein (not shown) for holding in position a credit card. The top of the box 10 also has a suitable means (not shown) for holding in position a document upon which it is desired to imprint the credit-card data. The respective card and document-holding means may constitute any well-known arrangements, such as spring clips suitably positioned, which are employed in the embodiment of the invention described in my aforesaid application, Serial No. 850,668. One end of this document is shown extending from the imprinter. As is well known, this document will consist of at least two layers 16A, 16B. The layer 16A is usually the printed form itself, upon which it is desired to transfer the data contained on the raised lettering of a credit card. The layer 16B usually comprises a form of transfer paper which can be easily separated from the layer 16A after the imprinting has occurred.

When the credit card and document are in position, the cover 12 is closed upon the box 10. The knurled knob

18 is then rotated, whereby it is also translated from one end of the box to the other. Rollers actuated by the knurled knob extend through apertures in a template holding the document. The rollers roll over the document, applying pressure thereto as they roll thereover. This results in the transfer of the data on the credit card to the document. When the rollers reach the end of the path described for effectuating the printing operation, the latching mechanism is released and the cover 12 is enabled to be opened.

In the description that follows, reference will be made to FIGURES 2, 3, 4, and 6, which illustrate the embodiment of the invention and how it operates. FIGURE 2 and FIGURE 3 respectively show a sectional view along the lines 2—2 of FIGURE 1 with the positions of the embodiment of the invention when the cover 12 is closed and when the cover is open. A latch 20 is adapted to engage a suitably shaped recess 22 provided in the cover 12 for that purpose. As may be seen in the sectional view taken along the lines 4—4, which comprises FIGURE 4, there are actually two latch members 20A, 20B. Both of these latch members are mounted on a shaft 24 to be pivotable with the shaft. The shaft 24 is pivotably supported in a suitably provided pair of aligned openings in opposite walls at one end of the box. This may be better seen in FIGURE 6, which is a sectional view along the lines 6—6 in FIGURE 2.

A spring 26, as may be seen in FIGURE 4, has one end anchored in the box wall and the other end in the shaft 24. The spring serves the function of biasing the shaft so that the latch members 20A, 20B are in the position shown in FIGURE 2, namely, the one wherein they will engage and hold the cover if it is closed thereupon. A crank 28 is also mounted on the shaft 24 by means of a collar 30 integrally formed therewith. The collar has a set screw 74, which is tightened down upon the shaft in order to rotate the shaft when the crank 28 is moved.

A lever 32 is connected by means of a pivotal connection 34 to one end of the crank 28. This lever is substantially L-shaped. It lies on its side in the box and its base 33 extends away from the bottom of the box. The top end of the L-shaped lever is pivotably connected to the crank. A pawl 36 is connected to the lever by a pivotal connection 38. The pawl 36 has a camming surface 40 at the end nearest the latch portion of the box. The other end 42 of the pawl has a hook shape and is designed as shown in FIGURE 3 to engage the walls of the slot 44, which is cut in the bottom of the box.

It should be noted that the length of the pawl 36 between the pivot location and the hook end is such that due to gravity the hook end tends to rotate in a direction toward the bottom of the box. If desired, a spring bias (not shown) may be added at the pivot to insure this, should it be desired to operate the imprinter under circumstances in which its position prevents positive motion of the hook end of the pawl toward the bottom of the box. The location of the slot 44 relative to the pivot 38 is such that the lever can be moved in a direction toward the hinged end of the box a distance which will enable the hook end 42 of the pawl to drop into and engage the slot 44, at which time the crank 28 has rotated the shaft 24 a distance to insure that the latches 20A, 20B will not engage the cover 12. This position of the first and second levers and the latches is shown in FIGURE 3.

The bias of the spring 26 tends to rotate the shaft in a direction such that the crank exerts a pull on the lever and thereby on the pawl to maintain the hooked end 42 in engagement with the wall of the slot 44. When the latches are in this position, the cover cannot be closed. If the cover was just previously closed (as it is), the cover is released. As may be seen in FIGURE 5, which is a section along the lines 5—5, at that time the cover can be pushed open by means of a spring 46, positioned in a cavity provided therefor, which urges upward a pin 48, which in turn presses against the cover 12 to cause it to open when not engaged by the latches 20A, 20B.

In order to disengage the hook end of the pawl to enable the cover to be closed, it is necessary to press down on the cam surface 40 of the pawl, whereby it pivots the hook end 42 out of engagement with the slot wall. At this time the spring 26, which is placed under tension when the first lever is moved toward the hinged end of the box, rotates the shaft 24 in a direction to pull the first lever toward the latch end of the box, thereby moving the hooked end of the second lever away from the slot 44. The lever, pawl, and latch members assume the position at this time which is shown in FIGURE 2.

Operation of the lever to lock the latch members in a position to prevent the closing of the cover and the pivoting of the pawl to release the locked latch members is caused by a roller assembly 50. In the previously mentioned application by this inventor, such roller assembly 50 was described as being carried in a shell 52, which effectively constituted a hollow, box-like structure which fitted within the box 10. The only difference between the shell described in the previous application and the one shown herein is that the present shell 52 either has its bottom omitted or opened sufficiently to enable the lever and pawl to extend into the shell when the shell is placed within the box. Also, a slot 54 is cut in the wall of the shell adjacent the latch end thereof to enable the first lever to extend therethrough. A template 56 covers both the shell and the remaining open portions of the box. This template is opposite the cover 12 and has openings therein through which the latch members extend, as well as through which the peripheries of the pressure-applying portions 50A, 50B of the roller assembly 50 may extend to bear upon any document placed upon the template.

The roller assembly 50 may be formed out of a single piece of material which is preferably nylon or Teflon. It will include the pressure-applying rollers 50A, 50B previously mentioned, which extend from a hollow shaft portion 50C. Extending completely through the hollow roller shaft portion 50C is a roller axle 58. Two gears 60A, 60B are mounted upon the ends of the axle 58 by means of set screws 62. These gears 60A, 60B are positioned to engage rack gears 62A, 62B, which are located, as may be seen in FIGURE 1, at the bottom of slots provided therefor in the shell walls. These slots are also big enough to enable the gears 60A, 60B to be rolled therealong. The axle 58 is also hollowed out to receive a roller subshaft 64, which extends at least beyond the center thereof. As may be seen in FIGURES 4 and 5, the subshaft 64 is held in position by two opposing set screws 66A, 66B, which may be tightened down upon the subshaft through the roller shaft portion 50C and the roller axle 58. The slots on either side of the walls of the shell wherein the gears may be moved are narrowed on the inside portions of these opposed walls to provide ledges 68A, 68B, upon which the portions of the axle 58 may roll, which extend between the roller assembly 50 and the gears 60A, 60B. The knurled knob 18 is attached to the end of the roller subshaft 64, which extends outside of the box 10.

The operation of the improved imprinter which has been described thus far is as follows. The document 16, including the transfer paper, is positioned in a suitably provided recess on the template 56. A credit card 17 is also mounted in a suitably provided recess in the cover 12. The cover is then closed upon the box 10. If the latch members 20 are in the locked position shown in FIGURE 3, then the cover cannot be latched. It is accordingly necessary to release the latch. This is effectuated by rotating the knurled knob 18 toward the latch end of the box. Thereby, the roller shaft portion 50C engages the cam face 40 of the pawl 36. This pivots the pawl so that its hook end 42 is moved out of engagement

with the slot wall. The spring **26** thereupon restores the latch to the position shown in FIGURE 2, whereby the cover **12** may be fully closed upon the box and will be held closed by the latch members.

The knurled knob **18** may then be rotated toward the hinged end of the box. In doing this, pressure is applied by the pressure-applying rollers **50A**, **50B** of the roller assembly **50** upon the document through the slots in the template **56**. Since the cover **12** is held closed by the latch, there will be a transfer of data from the credit card **17** by means of the transfer paper **16B** to the form **16A**. When the pressure-applying portions of the roller assembly have traversed the data-transfer areas of the document, it reaches an end-of-operation position at which the roller shaft portion **50C** pushes the L-shaped end of the lever. This causes the lever to move toward the hinged end of the box, moving the pawl. Such motion continues until both the hook end of the lever **42** can engage the slot wall and the crank **28** pivots the latch members so that they disengage the cover **12**. The spring **46** can then push the cover **12** away from the box. The latches are held in the nonlocking position. The cover **12** can then be fully opened to remove both the credit card and document.

In order to insure that the roller assembly **50** is kept from rolling away from the starting position or position at which it operates the latch mechanism to enable the cover to be closed, as may be seen in FIGURES 4 and 5, there is provided a leaf spring **70**. This leaf spring is fastened by two screws **72A**, **72B** to the base of the box **10**. One end of the leaf spring **70** is shaped to conform to the curve of the roller shaft portion **50C**. Thus, when the roller assembly is brought to the starting position in order to enable the cover to be closed, the leaf spring will hold it in that position. If the leaf spring is made of a material such as Phosphor bronze, very little additional force is required to move the roller assembly away from the starting position in the course of an imprinting operation.

There has been accordingly described and shown herein a novel and useful, improved imprinting apparatus wherein by providing a novel control for the latch mechanism it is possible to insure that a proper imprinting operation takes place each time the imprinter is used. The roller assembly or portion of the apparatus which provides the pressures required for the data transfer always commences at the same starting position and always ends at the same finishing position, to enable the removal of the credit card and document.

I claim:

1. The improvement in an imprinter of the type employed for transferring data from a credit card to a document, said imprinter having a cover hingeably attached to a box, said card being held by said cover against said document when said cover is closed upon said box, said box having four walls and a bottom, said box including roller means for applying pressure to said document and card for effectuating a data transfer while being rolled from one end to the other of said box, said improvement comprising movable latch means for engaging said cover for holding it closed, means actuated by said roller means when at one end of said box for moving said latch means to a position at which it will not engage said cover for holding it closed, and means actuated by said roller means when at the other end of said box for restoring said latch means to said position at which it will engage said cover for holding it closed.

2. The improvement in an imprinter of the type employed for transferring data from a credit card to a document, said imprinter having a cover hingeably attached to a box, said card being held by said cover against said document when said cover is closed upon said box, said box having four walls and a bottom, said box including roller means for applying pressure to said document and card for effectuating a data transfer while being rolled from one end to the other of said box, said improvement comprising movable latch means having a first position for engaging said cover for holding it closed and a second position for preventing the latching of said cover, means actuated by said roller means when at one end of said box for moving said latch means to said second position, means for holding said latch means in said second position, spring means attached to said latch means for yieldably biasing it to said first position, and means actuated by said roller means when at the other end of said box for inactivating said means for holding said latch means in said second position whereby said spring means restores it to said first position.

3. The improvement in an imprinter of the type employed for transferring data from a credit card to a document, said imprinter having a cover hingeably attached to a box, said card being held by said cover against said document when said cover is closed upon said box, said box having four walls and a bottom, said box including roller means for applying pressure to said document and card for effectuating a data transfer while being rolled from one end to the other of said box, said improvement comprising latch means for engaging said cover for holding it closed, means for supporting said latch means to be pivotal between a first position for engaging said cover for holding it closed and a second position for preventing the latching of said cover, spring means for biasing said latch means to said first position, means for moving said latch means to its second position including a lever, means for connecting one end of said lever to said latch means for pivoting it from said first to said second position, and said lever having means at its other end for engaging said roller means when at one end of said box for being moved thereby to pivot said latch means to its second position, pawl means pivotably attached to said lever to be movable therewith, a slot positioned in said box, means on said pawl for engaging said slot when said lever pivots said latch to said second position to hold said lever against the bias of said spring means, and cam surface means on said pawl means positioned for engagement by said roller means when at the other end of said box for pivoting said pawl means out of engagement with said slot means whereby said spring means can return said latch means to said first position.

4. The improvement in an imprinter as recited in claim 3 wherein said means for supporting said latch means to be pivotable between a first position and a second position includes a shaft upon which said latch means is mounted, aligned apertures in opposite walls of said box in which said shaft is inserted for support; said means for connecting one end of said lever to said latch means for pivoting it from said first to said second position includes a crank arm connected to said shaft to be movable therewith and pivotably connected to said one end of said lever.

5. The improvement in an imprinter of the type employed for transferring data from a credit card to a document, said imprinter having a cover hingeably attached to a box, said card being held by said cover against said document when said cover is closed upon said box, said box having four walls and a bottom, said box including roller means for applying pressure to said document and card for effectuating a data transfer while being rolled from one end to the other of said box, said improvement comprising latch means for engaging said cover for holding it closed, a shaft upon which said latch means is mounted, aligned apertures in opposite walls of said box in which said shaft ends are inserted to be rotatably supported thereby, spring means on said shaft for biasing it and thereby said latch means to a position for engaging said cover for holding it closed, a crank mounted on said shaft to be movable therewith, an L-shaped lever positioned in said box on its side underneath said roller means with the base of the L extending away from the base of said box and positioned adjacent

to the other end of said box to be engaged by and movable with said roller means when rolled toward said other end of said box, the top end of said L-shaped lever being pivotably connected to said crank, a pawl having a hook formed at one end and a cam face at the other end, said pawl being pivotably connected to said lever at a point on said pawl which is nearer to the end having said cam face whereby said hook end will rest on the bottom of said box and said cam face will extend upward away from said bottom, said face being positioned adjacent said one end of said box to be engaged by said roller means when rolled toward said one end and moved toward the bottom of said box whereby said hook end is pivoted away from said bottom of said box, a slot in the bottom of said box, said slot being placed at a location at which said hook end of said pawl can enter said slot when said L-shaped lever is moved by said roller means whereby said latch means which is also moved in response to said L-shaped lever is held in a position at which it cannot engage said cover until said roller means is rolled to engage the cam face of said pawl.

6. An improved imprinter of the type used for transferring data from a credit card to a document, said imprinter having a box including four walls and a base, a cover hingeably attached to one box wall, latch means at positions at the opposite box wall, slot means in said cover positioned for being engaged by said latch means for holding said cover closed, means for moving said latch means from a first position at which it engages said slot means to a second position at which it prevents said cover from being latched including roller means, means for supporting said roller means within said box for being rolled from said latch end to said hinged end of said box, a lever member extending along the path of said roller means and having an end positioned in the path of said roller means near the hinged end of said box to be moved therewith as it is rolled toward said hinged end, means coupling the other end of said lever member to said latch means for moving it from said first to said second position, spring means attached to said latch means for biasing it toward said first position, means actuated by said lever member for holding said latch means in said second position against the bias of said spring means, and means actuated by said roller means when rolled near the latch end of said box for inactivating said means for holding said latch means in said second position whereby it is restored by said spring means to said first position.

7. An improved imprinter of the type used for transferring data from a credit card to a document, said imprinter having a box including four walls and a base, a cover hingeably attached to one wall of said box, latch means, slot means positioned in said cover for being engaged by said latch means for holding said cover closed, roller means, means for supporting said roller means for being rolled within said box from the latch end to the hinged end thereof, a shaft upon which said latch means is mounted, aligned apertures positioned in opposite walls of said box adjacent the wall opposite that on which said cover is hingedly attached, said shaft ends being inserted in said aligned apertures to be rotatably supported thereby, a crank mounted on said shaft to be movable therewith, an L-shaped lever positioned in said box on its side underneath said roller means with the base of the L extending away from the base of said box and positioned adjacent to the other end of said box to be engaged by and movable with said roller means when rolled toward said other end of said box, the top end of said L-shaped lever being pivotably connected to said crank, a pawl having a hook formed at one end and a cam face at the other end, said pawl being pivotably connected to said lever at a point on said pawl which is nearer to the end having said cam face whereby said hook end will rest on the bottom of said box and said cam face will extend upward away from said bottom, said face being positioned adjacent said one end of said box to be engaged by said roller means when rolled toward said one end and moved toward the bottom of said box whereby said hook end is pivoted away from said bottom of said box, a slot in the bottom of said box, said slot being placed at a location at which said hook end of said pawl can enter said slot when said L-shaped lever is moved by said roller means whereby said latch means which is also moved in response to said L-shaped lever is held in a position at which it cannot engage said cover until said roller means is rolled to engage the cam face of said pawl.

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