

June 2, 1964

A. BRODY

3,135,641

METHOD FOR HANDLING BOOK BORROWING TRANSACTIONS

Filed June 21, 1961

5 Sheets-Sheet 1

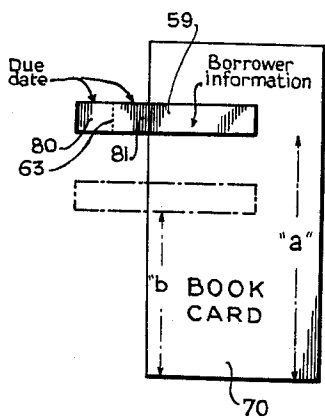


Fig. 1.

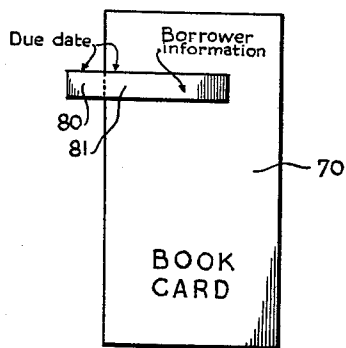


Fig. 2.

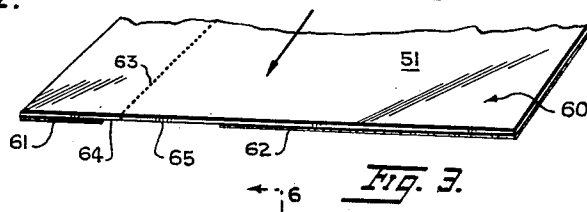


Fig. 3.

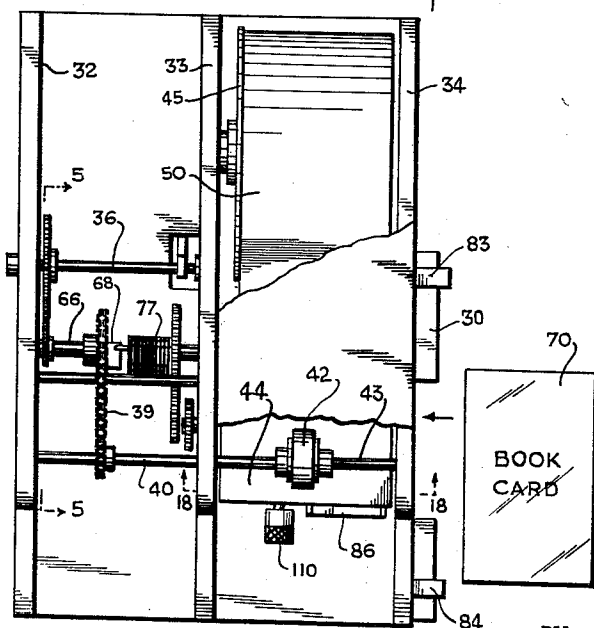


Fig. 4.

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5 Sheets-Sheet 2

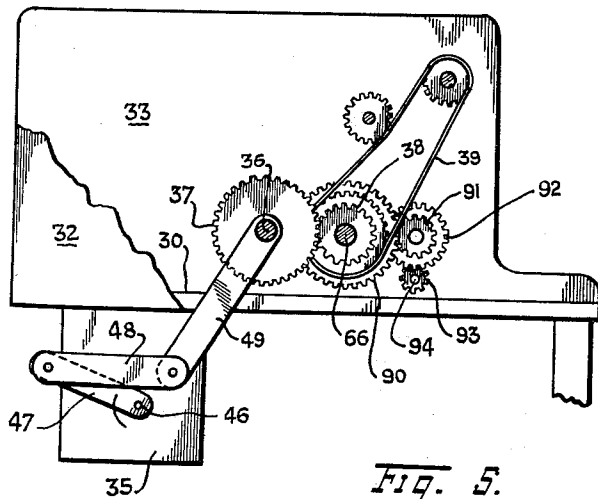


Fig. 5.

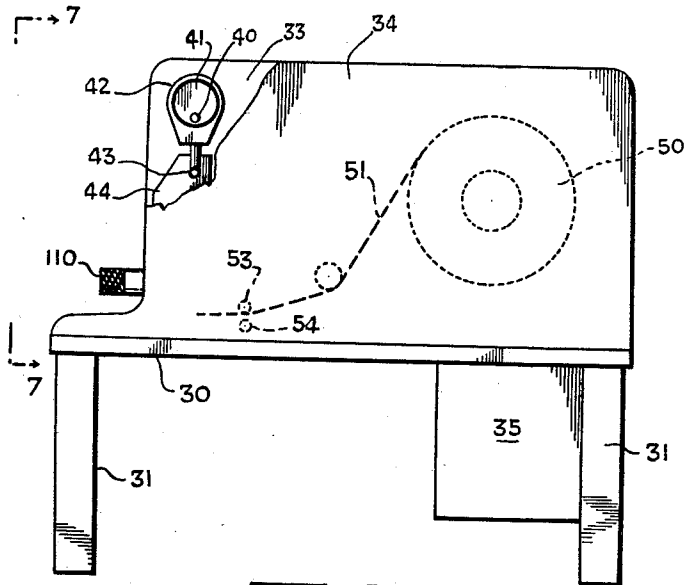


Fig. 6.

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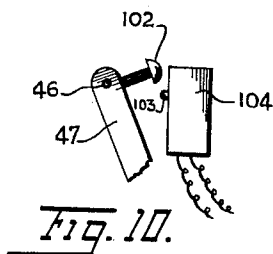
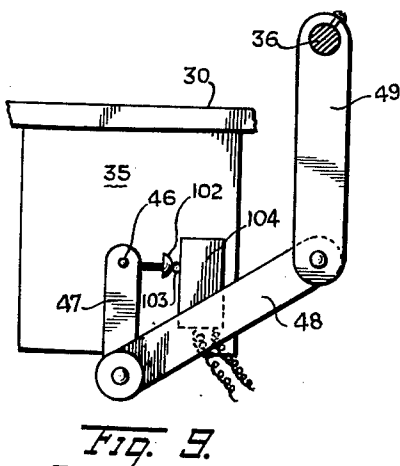
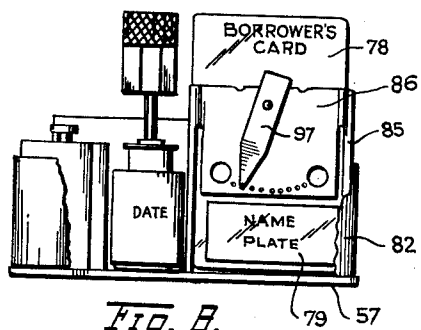
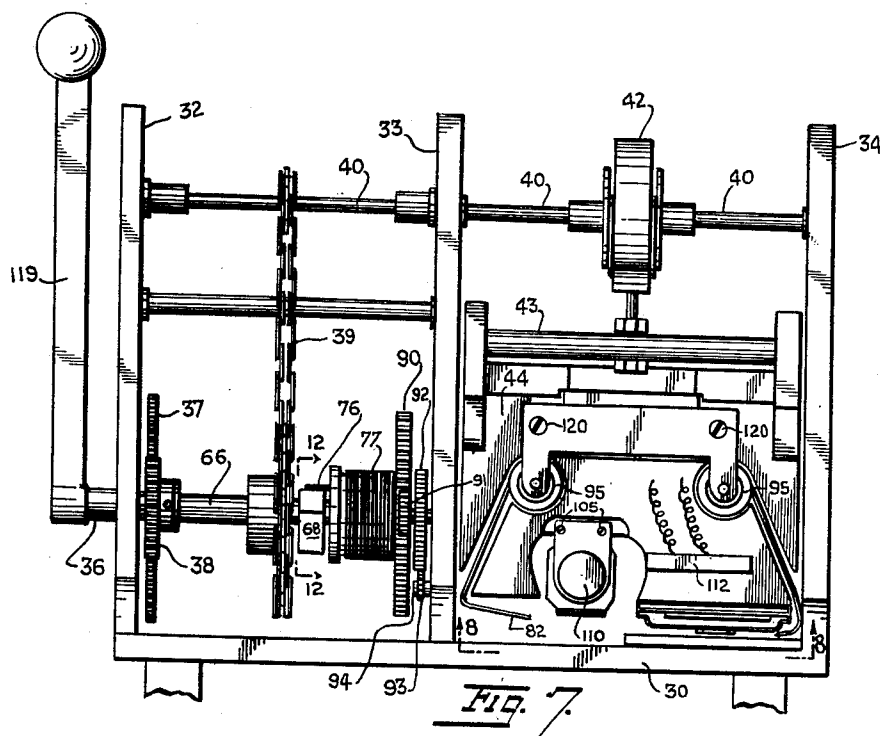
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METHOD FOR HANDLING BOOK BORROWING TRANSACTIONS

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5 Sheets-Sheet 3



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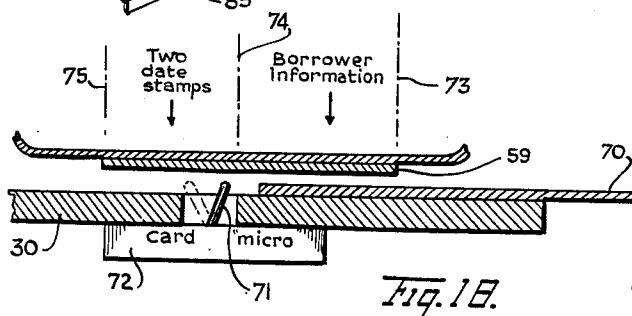
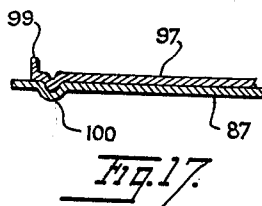
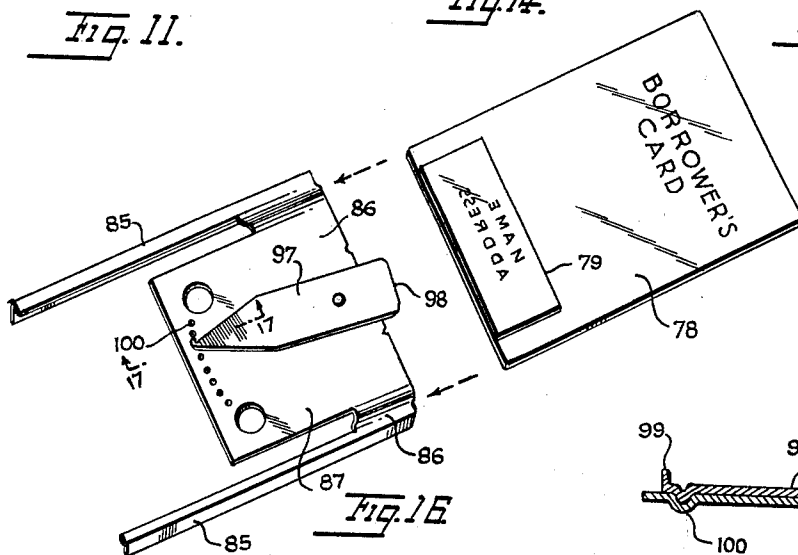
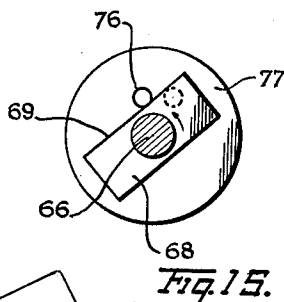
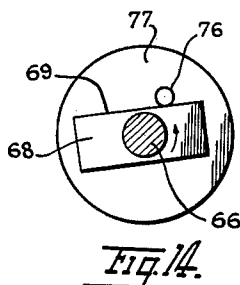
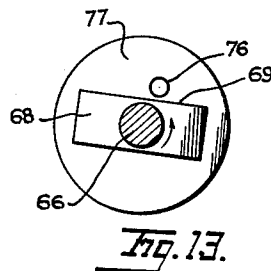
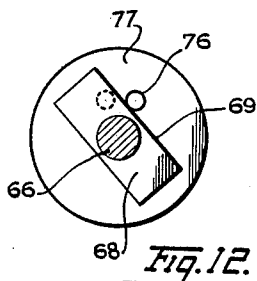
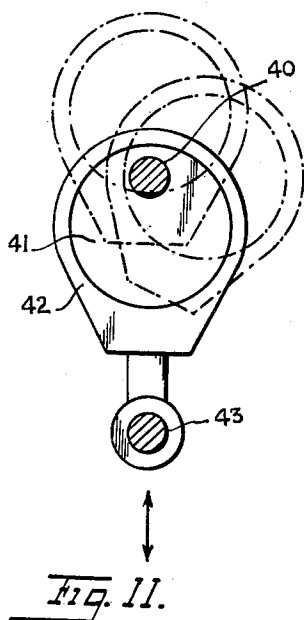
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METHOD FOR HANDLING BOOK BORROWING TRANSACTIONS

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5 Sheets-Sheet 4



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METHOD FOR HANDLING BOOK BORROWING TRANSACTIONS

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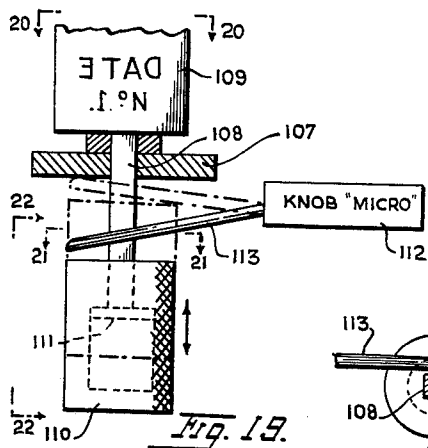


Fig. 19.

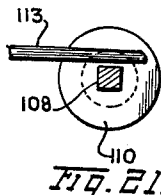


Fig. 21.

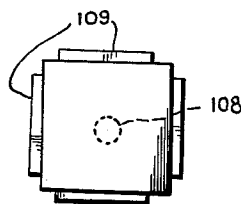


Fig. 20.

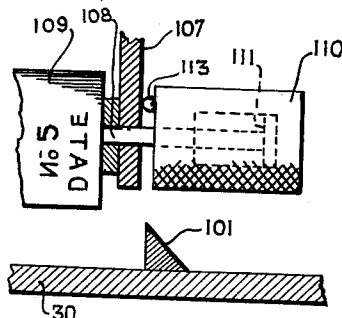


Fig. 22.

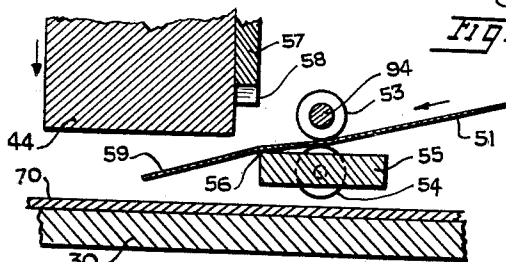


Fig. 23.

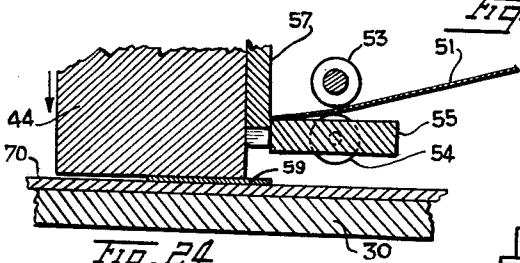


Fig. 24.

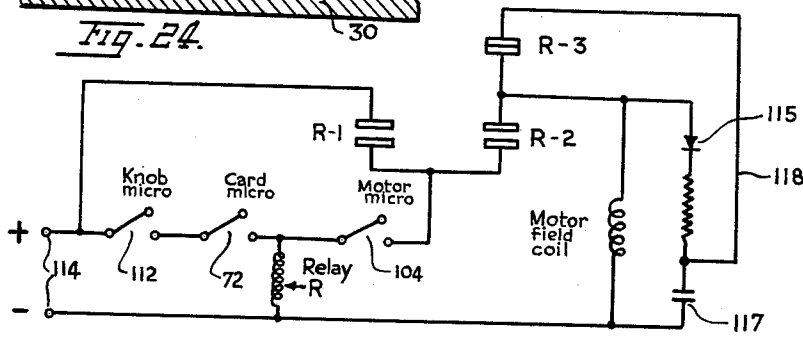


Fig. 25.

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METHOD FOR HANDLING BOOK BORROWING TRANSACTIONS

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11 Claims. (Cl. 156—256)

This invention relates generally to library-book charging systems, and has particular reference to improvements in the procedures and apparatus commonly employed in libraries to record and control book borrowing transactions.

It is a general object of the invention to provide a simple and practical method for handling such transactions in a manner which obviates many of the shortcomings of conventional systems, and affords numerous advantages not heretofore readily attainable.

In the known and widely-practiced "book card" system, there is a card for each book, bearing its title, its class or index number, and similar information. When a book is borrowed, a notation is made upon the card to identify the borrower, and the card is then placed in a "book due" file in an appropriate group depending upon the date when the book is scheduled to be returned. The disadvantages of this system include the following, among others:

(1) There is a limit to the number of notations that can be made on a book card, and in course of time it becomes "consumed" and must be replaced. This involves extra time and additional cost.

(2) It is often embarrassing to patrons, and undesirable for other reasons as well, to have a book card retain information on it—after the book has been returned—as to the identity of any person who has previously borrowed the book. This has often been avoided by assigning a number or similar impersonal identification to each patron but this requires costly and time-consuming maintenance of an additional registration file to correlate patrons' names with their respective numbers.

(3) The library is unable to ascertain, at any particular time, what books are out and who has them (which is often of vital importance) without a tedious and impracticable search through all cards in the "books due" file. This has been avoided only by having an additional book card for each book and retaining it alphabetically or other sequential arrangement in a separate "master file," all of which is, again, costly and time-consuming, and involves additional procedures at book-charging and book-returning times.

(4) To remind the borrower, a separate "date due" card is required, bearing the date when the book is returnable, which is inserted into each book when it is borrowed.

It is a general object of this invention to provide equipment, and a system, for accomplishing all the desirable purposes of a book-charging operation without requiring frequent replacements of book cards, without requiring more than one book card for each book, without leaving undesired borrower information on the card after a book has been returned, without requiring any separate registration file, and without requiring separately provided "date due" cards. Additionally, it is an objective of the invention to provide a system which enables the library at all times, and by means of only a single card file, to ascertain readily which particular books are out, who has them, and which are overdue.

The objectives of the invention include, also, the provision of a system which is wholly practical and economical, and by means of which the book-charging and book-returning procedures, and the delinquency procedures relating to overdue books, are greatly simplified and expedited.

The invention is predicated upon the customary provi-

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sion of a "book card" for each book, and a "borrower card" for each patron, bearing his name and address and possibly other relevant data. The improved system involves the provision, for each transaction, of a special label-like band or strip which bears the borrower information and a due-date designation, and which is secured to the book card in a special manner, readily removable at a later date without impairment of the book card. The information-bearing element also comprises a second due-date designation on an area which is readily severable from the body of the strip at the time of the borrowing and applicable, as a reminder, to the book itself in a manner which makes it readily removable at a later date without impairment of the book. A feature of the invention, contributing materially to its usefulness and efficiency, resides in performing, all at one time, the steps of imprinting borrower information on one section of a strip of suitable material, imprinting due-date designations on two other sections thereof, and securing the body of the strip to the book card in a predetermined significant location.

In accordance with this general procedure, book cards appertaining to borrowed books can be accumulated in a single file, each bearing directly on its face a temporary "label" on which is shown relevant data as to the borrower's identity and when the book is due to be returned. Preferably the "label" will have been so applied that a section of it projects laterally beyond the edge of the card. This section is the second of the two sections bearing due-date designations (the other one having been torn off and secured to the book itself). The projecting section is a tab or flag by means of which the book card can be readily identified in terms of its due-date. This beneficial result becomes especially manifest when tabs bearing one due-date are applied to their respective cards at one location along the side edge, while others bearing other due-dates are located at correspondingly different positions. Of course, if desired, the information-bearing strip may be so applied that no projection occurs. In such a case, not all the advantages of the invention will be attained, although in numerous respects the disadvantages of conventional systems will be avoided.

Preferably, the imprinted strip is an end segment of a continuous supply in the form of a tape, and the severance of this segment or band from the supply tape is automatically accomplished as part of the simultaneous performance of steps previously described.

Preferably the material of which the information-bearing strips is made has an obverse face readily receptive to permanent imprints, and a reverse face coated at least in part with a pressure-sensitive adhesive of non-aggressive nature. In this way, the area to be imprinted may be interposed between a printing head and a platen with its obverse face directed toward the printing head; whereupon by causing relative movement toward each other of the printing head and platen the strip may be printed on its obverse face and simultaneously pressed into adhesive contact with a book card properly positioned beneath it. Where a continuous length of such material is employed as a supply source, it is advantageous to provide it in advance with a longitudinal line of weakness, facilitating the separation, after the printing operation, of the due-date section intended to be applied to the book itself. Also, it is preferable, in preparing the continuous supply tape, to leave selected longitudinal areas uncoated with adhesive for purposes hereinafter to be pointed out.

The imprinting of the desired information on the strip can be achieved by the use of a simple inked ribbon, or equivalent means, interposed between the strip to be printed and suitable embossings or printing elements on the printing head. It is contemplated that the latter

will afford means for temporarily accommodating a borrower card on which the desired borrower information is provided by an appropriate embossment.

An objective of the invention is to provide a compact unobtrusive readily-usable apparatus (portable, if desired) by means of which the book-charging system can be carried out in a practical manner. In addition to a printing head and platen of the character described, the apparatus will preferably include a dating mechanism, tape advancing and cutting means, and drive means for actuating the mechanisms in predetermined timed relation. The apparatus is primarily designed for electrical actuation and includes special devices to insure proper operation and to guard against incorrect or undesirable results. A means is also provided to allow for manual operation in the event of failure of electric power.

Another specific object of the invention is to provide an improved means for "spotting" or otherwise marking the book card in a special manner during each charging operation, to record the circumstance that the book had been selected by a borrower and to impart cumulative information as to the timing and duration of demand for that particular book.

Other features of the invention relate to the provision of means for guiding the book card into various selected dispositions beneath the printed strip to be applied to it, means for allowing electrical operation to occur only when the book card is properly located, means for allowing adjustment of dating mechanism on the printing head to imprint a selected one of several due-date designations, and means for preventing electrical operation without preliminary manual setting of the dating mechanism.

In general, the objective is to provide an apparatus which is structurally simple and relatively inexpensive to manufacture, easy to operate, and reliable in fulfilling its functions in the contemplated manner over long periods of use.

A preferred way of achieving these general objectives, and practicing the invention, is illustrated in the accompanying drawings in which—

FIGURE 1 is a face view of a book card showing one way in which the informatoin-bearing band may be applied;

FIGURE 2 is a similar view showing an alternative mode of application;

FIGURE 3 is a fragmentary perspective view of a continuous supply tape from which the bands may be cut;

FIGURE 4 is a plan view of an apparatus embodying the features of the invention;

FIGURE 5 is an end view along the line 5—5 of FIGURE 4;

FIGURE 6 is an end view from the other side, as indicated at 6—6 in FIGURE 4;

FIGURE 7 is an enlarged front view, along the line 7—7 of FIGURE 6, with parts of the printing head broken away;

FIGURE 8 is a fragmentary bottom view along the direction 8—8 of FIGURE 7 to reveal the under-side of the printing head;

FIGURE 9 is a fragmentary view, in the same direction as FIGURE 5, showing the driving motor and linkage in its "home" position;

FIGURE 10 is a fragmentary view of parts shown in FIGURE 9, immediately after commencement of a driving cycle;

FIGURE 11 is a detail view of the printing head shaft and the eccentric mounted thereon;

FIGURE 12 is a detail view of one of the driving connections, along the line 12—12 of FIGURE 7;

FIGURES 13—15 are views similar to FIGURE 12 showing successive positions of the parts;

FIGURE 16 is an exploded view of the holder for the borrower card, as seen from its printing side;

FIGURE 17 is an enlarged fragmentary cross-section on the line 17—17 of FIGURE 16;

FIGURE 18 is an exaggerated fragmentary cross-section substantially along the line 18—18 of FIGURE 4, showing the switch controlled by the book card;

FIGURE 19 is an exaggerated fragmentary cross-section substantially along the line 19—19 of FIGURE 6, showing the switch controlled by the dating mechanism knob;

FIGURE 20 is an end view of the dating mechanism, in the direction 20—20 of FIGURE 19;

FIGURE 21 is a detail view along the line 21—21 of FIGURE 19;

FIGURE 22 is a detail view along the line 22—22 of FIGURE 19;

FIGURE 23 is an exaggerated cross-section in the direction of FIGURE 6, showing the tape feed and cutting means and the printing head in a raised position;

FIGURE 24 is a view similar to FIGURE 23 showing the mode of operation when the printing head and cutter descend; and

FIGURE 25 is a diagram of an illustrative electric circuit.

In the apparatus herein chosen for illustration a table 30 is supported on legs 31 and is provided with spaced upstanding supporting walls 32, 33, 34 extending from front to back. A driving motor 35 is supported beneath the table and by means of a linkage mechanism it oscillates drive shaft 36, journaled between walls 32 and 33. Through gears 37, 38 and sprocket chain 39 (FIGURE 5) a similar back-and-forth rotation is imparted to the shaft 40 journaled between walls 33 and 34. Shaft 40 carries an eccentric 41 (FIGURE 11) which is encircled by the follower strap 42 pivotally anchored at 43 to the printing head 44 (FIGURES 4, 6, 7). As the shaft 40 oscillates the printing head moves from a normally elevated position (FIGURE 23) to a lowered printing position (FIGURE 24) and back again. The upper surface of the table 30 beneath the printing head serves as a platen.

Mounted in the space between walls 33 and 34, behind the printing head 44, is a supply roll 50 of sheet material 51 (FIGURE 3). This continuous tape is advanced forwardly in increments toward the printing head 44, as indicated by the arrow 52 of FIGURE 23, by intermittent actuation of the rubber-coated tape feeding roller 53. This roller coacts with knurled idler rollers 54 journaled in a plate 55 whose forward upper edge 56 (FIGURES 23, 24) is a shearing edge. A cutter 57 is secured to the rear face of the printing head 44 and is provided with a shearing edge 58 (preferably angled upward toward the center to define a shallow inverted V). As the printing head 44 descends, the shearing edge 58 cooperates with the fixed shearing edge 56 and severs a transverse band 59 from the end of the tape 51.

Referring to FIGURE 3, the tape 51 (which may be, for example, about 3 or 4 inches in width) is composed of a sheet material having an obverse face 60 receptive to permanent printing impressions, and a reverse face bearing longitudinal areas 61 and 62 of pressure-sensitive adhesive. Parallel to one edge of the tape material it is formed with a line of weakness such as the perforations 63. The section between the edge and the adjacent perforated line 63, may be about $\frac{3}{4}$ of an inch wide; the adhesive layer 61 beneath it is slightly less in width, thus leaving a narrow uncoated area 64. A section on the opposite side of the line 63, having a width of about an inch or slightly less, is similarly left uncoated on its under-side, as indicated at 65.

Whenever the tape is advanced by the roller 53 (during the time the printing head 44 and cutter 57 are in raised position) it brings the next potential band 59 into a position beneath the printing head. This band may be approximately $\frac{7}{8}$ of an inch wide. Prior to the descent of the printing head, a book card 70 will have been moved into position as best indicated in FIGURE 18. Its leading edge encounters and moves the finger 71 of a micro-switch 72 from the full-line to the dotted-line

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position, thus closing the switch (hereinafter referred to as the "card micro"). Then the printing head descends and imprints borrower information on the area between lines 73 and 74 of FIGURE 18, and a duplicate set of due-date designations in the area between the lines 74 and 75. At the same time, the band 59 is severed from the supply roll and pressed into adhesive engagement with the book card 70.

An illustrative result is shown in FIGURE 1. It is to be noted that the body of the band 59, bearing the borrower information, lies directly over the card 70 at a distance "a" from the lower edge. Projecting beyond the lateral edge of the card are two sections 80 and 81 on opposite sides of the weakness line 63. The outer section 80 can be torn off and adhesively applied to the book to which the book card 70 pertains. The inner section 81 (uncoated with adhesive) projects as a tab or flag from the side edge of the card 70. Each of the sections 80 and 81 bears due-date information. Thus all books due on a given day or in a given week can be represented in the master card file by book cards having flags 81 at an elevation "a." By locating the applied strips 59 at other positions (e.g., at the elevation designated "b") cards can be similarly ear-marked as a group. Book cards are customarily of a size which allows the bands 59 to be placed at any of at least four clearly distinguishable locations. The place at which the band is attached is selectively determined by adjustable card guides 83 and 84 projecting from the edge of the platen 30, as best shown in FIGURE 4. Each of the guides may be shifted in a direction toward or away from the other, and either may be employed in any given case, i.e., the top edge of the book card 70 may be held against the guide 83, or the lower edge may be held against the guide 84, during the inward sliding of the card as indicated in FIGURE 18.

In case it is undesirable to end up with a book card bearing a lateral projection, an appropriately narrower supply tape 51 may be employed, and the spool guide 45 (FIGURE 4) shifted slightly to the right. At the same time, the dating mechanism 110 (FIGURE 7) would be similarly shifted. The result would be that the band 59a (narrower than 59) would be applied to the card as shown in FIGURE 2, whereby upon removal of the outer section 80 (for application to the book) there would be no projecting tab. The details of the adjustments to the apparatus needed to accomplish these results have not been illustrated, since it is contemplated that the choice of whether the band 59 is to be applied as shown in FIGURE 1, or the band 59a applied as shown in FIGURE 2, will depend in any given case upon the wishes of the library. Accordingly such adjustments would be made only at the time of installation of the apparatus.

The absence of adhesive from the areas 64 and 65 (FIGURE 3) defines finger-grip areas whereby it is easier to remove the section 80 from the book, and the body of the strip from the book card, when the book is returned. Also, the section 81, if allowed to project as in FIGURE 1, is free of tackiness that might interfere with the handling and grouping of the book cards.

The manner in which the tape supply is advanced intermittently is depicted in FIGURES 5, 7 and 12-15. The shaft 46 driven by the motor 35 carries a crank 47 articulated through connecting rod 48 to the lower end of arm 49, the upper end being secured to drive shaft 36. As the shaft 46 rotates through a single revolution the shaft 36 is oscillated through an arc, and by means of the gears 37, 38 an oscillation (of approximately 90°) is imparted to the shaft 66 on which the gear 38 is mounted. The shaft 66 extends for only part of the distance between supporting walls 32 and 33 and is aligned with a shaft 67 journaled in wall 33 (FIGURE 4). The shaft 66 carries a driving cam 68 having a flat cam face 69 that cooperates with a driven cam follower pin 76 associated with the shaft 67. The pin 76 projects in an eccentric disposition

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from the end face of a one-way clutch mechanism 77. This mechanism is of known character and its internal structure has not been shown. It is adapted to impart movement to the shaft 67 only when the pin 76 is moved from the full-line position of FIGURE 12 to the dotted position shown in the same figure; it transmits no torque to the shaft 67 during its return movement.

As will be noted from FIGURES 12-14, the cam 68 through part of its movement (counter-clockwise in these views) does not actuate the pin 76 at all; but as it completes its swing between the positions shown in FIGURES 14 and 15 it moves the pin 76, and hence the shaft 67, through an arc of travel. The shaft 67 carries a gear 90 which meshes with and drives gear 91 on an adjacent shaft. Gear 92 on the latter shaft drives gear 93 on the shaft 94 of the feed roller 53.

Thus, during the advance stroke of arm 49 (from left to right as viewed in FIGURES 5 and 9) the cam 68 moves from the position of FIGURE 15 to that of FIGURE 12 without effecting any movement of the tape-feed roller 53. During this advance stroke, however, the printing head is moved down through the driving connection afforded by the chain 39. On the return stroke of arm 49, the printing head rises again, and during the latter part of the return stroke the cam 68 moves from the position of FIGURE 14 to that of FIGURE 15 and thus imparts movement to the tape-feed roller 53. The parts are so dimensioned that a desired increment of tape (about 1/8 of an inch, for example) is advanced to the overhanging position shown in FIGURE 23, in readiness for the succeeding descent of the printing head and tape cutter.

The delay in actuating the tape feed roller 53 during the return stroke of the operating cycle allows the printing head and cutter to rise well out of the way of the advancing end of the tape supply.

The lower end of the printing head will now be described, with particular reference to FIGURES 8, 16 and 17, relating to the borrower card holder and the book card spotter, and FIGURES 7, 8, and 19-22, relating to the dating mechanism.

A borrower card and holder, as viewed from underneath, are shown in FIGURE 16. The borrower card 78 is provided with an appropriate embossment or printing area 79 adjacent to one end. The holder into which it may be freely inserted and removed, in endwise direction as indicated by the arrows, is secured to the under face of the printing head 44 in any suitable manner. It consists essentially of a pair of opposed parallel card guides 85 and a narrow connecting web 86 extending between the outer ends of these guides. Projecting rearwardly from this web is a springy laterally-unsupported plate 87. The rear edge 88 of this plate is spaced from the rear or inner ends of the guides 85, thus leaving a space through which the embossment 79 of the card 78 will be exposed, in printing position, after the card 78 has been fully inserted (FIGURE 8). The card holder is secured to the lower face of the printing head with the inner ends of the guides 85 adjacent to the front face of the cutter 57 (see FIGURE 8). Accordingly the insertion of the card 78 into the holder is limited by the fact that the leading edge of the card encounters the front face of the cutter 57. This brings the printing area of the card into proper disposition.

Pivotaly secured at 96 to the outer face of web 86 is a flat finger 97 whose blunt outer end 98 is accessible for manual adjustment of the finger. At its inner end the finger terminates in an attenuated printing part 99 (FIGURE 17) adapted to imprint a dot or similar small spot upon the book card 70 when the printing head 44 descends. The inner end of the finger 97 has a raised nub on its inside face, adapted to snap into and out of a succession of detent depressions 100 in the plate 87. For any selected duration of time (probably measured in terms of weeks) the finger 97 can be set in a selected position, then shifted to another for a similar period. The number of

spots on a book card can thus become an indication of the extent of use of the book to which it relates. Since the book card position is itself shifted longitudinally from time to time, depending upon the height at which the imprinted strip is placed (FIGURE 1), the spotting mechanism is capable of providing a multiplicity of significant markings on any one card.

The dating mechanism is secured to the printing head by screws 105 which may be set as shown in FIG. 7 or shifted (at the time of manufacture or installation) to the dotted positions 106. The fasteners 105 extend through a plate 107 in which a spindle 108 is rotatably mounted (FIGURES 19 and 22). On its inner end, the spindle 108 carries a polygonal, preferably square, printing head bearing dates or equivalent due-date designations 109 on its faces. Each face bears a different indication, and it is in duplicate since a pair of due-date markings are imprinted (on the sections 80 and 81 respectively) during each printing operation. The setting of the dater to proper position is manually controlled by the knob 110 on the outer end of the spindle 108. This knob is secured to the spindle in a non-rotatable but axially shiftable manner. For example, the knob may be hollow and the spindle 108 may be non-circular where it passes through the rear wall of the knob (FIGURE 21). Within the hollow of the knob an enlargement 111 on the spindle end limits the shifting of the knob between the positions shown in FIGURES 19 and 22.

Mounted on the plate 107 is a micro-switch 112 (hereinafter designated the "knob micro") whose switch finger 113 is spring-biased into the full-line position of FIGURE 19, in which condition the switch is open. This finger is interposed between the knob 110 and the plate 107 and the electrical operation of the apparatus cannot take place unless the knob 110 is manually pushed into the switch-closing position shown in FIGURE 22. It is contemplated that the librarian will be reminded, by this necessary handling of the knob 110, that for each transaction the dating mechanism must be set in a particular manner (not necessarily like its previous setting) depending upon the due-date designation to be employed in that particular case.

A cam 101, fixedly secured to the platen 30 (FIGURE 22), restores the knob 110 to its outer position automatically as the printing head descends. Thus the knob must be manipulated prior to each printing operation.

The impressions made by the borrower card indicia 79 and the dating head areas 109 upon the strip 59 beneath the printing head 44 as the latter descends are produced by interposing an inked ribbon 82. This ribbon forms part of a unit of known kind, generally indicated at 89 in FIGURE 7, which includes reels 95 upon which the opposite ends of the ribbon 82 are wound. Automatic ribbon-advancing means (not shown) is also included. The unit 89 is secured to the printing head in any convenient way, as by fasteners 120.

Before describing the electric control circuit, reference is directed to FIGURES 9 and 10. FIGURE 9 depicts the motor-driven shaft 46 and related linkage in its rest position. (This position is shown as being midway through the advance stroke of the arm 49, but this is not essential.) In the rest position, a rounded actuator 102 carried by the shaft 46 (or crank 47) bears against the movable part 103 of a micro-switch 104 (hereinafter referred to as the "motor micro") to maintain the switch in open condition. As soon as the motor 35 is set into motion the actuator 102 releases the part 103 and the switch 104 closes. It remains closed until the part 102 has completed one revolution, at which time the switch is re-opened. The significance of this will become apparent from a consideration of the electric circuit shown in FIGURE 25.

In FIGURE 25, the parts to which reference numerals have already been applied are shown bearing the same designations. The other parts of the circuit (which is shown deenergized) are a source of power 114 (ordinary

110-volt alternating current will do); a control relay R whose armature includes normally-open switches R-1 and R-2 and a normally closed switch R-3; and a motor field coil in parallel with a rectifier 115, a resistance 116, and a condenser 117. A lead 118 connects switch R-3 with the condenser 117 as shown.

As soon as the knob micro 112 has been closed by proper manipulation of the dating knob 110, and the card micro 72 has been closed by proper insertion of a book card 70, the relay coil R becomes energized. This closes switches R-1 and R-2 and opens switch R-3. The closing of switches R-1 and R-2 energizes the motor field coil as a result of which the motor starts to move. This immediately results in closing of the motor micro 104 (FIGURE 10) which, in conjunction with switch R-1, locks in the relay R. Thus the relay R remains energized even though the knob micro 112 or the card micro 72, or both, may re-open. As a result of the motor operation the mechanism hereinbefore described performs its functions, viz., the printing head descends and rises again, and near the end of this operation the end section of tape 51 is advanced into readiness for the next cycle.

During the operation of the motor, the condenser 117 becomes charged, and when the drive shaft 46 reaches its home position (FIGURE 9) the motor micro 104 is opened to break the circuit through relay coil R. This immediately re-opens switches R-1 and R-2 and closes switch R-3. Through connection 118 and switch R-3 the condenser 117 discharges through the motor field coil, as a result of which the motor is instantaneously locked, electrically, against further movement. The effect of this is to limit the motor operation accurately to one complete cycle of operation, without over-ride. The parts are then in readiness for the next transaction. Duration of the complete cycle is less than $\frac{3}{4}$ of a second.

In case of power failure a handle 119 on shaft 36, located on the outside of supporting wall 32, can be manipulated to rock the shaft 36 through a complete cycle. In such a case, a clutch or its equivalent (not shown) is first operated to disconnect the shaft 36 from the linkage normally connecting it to the motor.

The details of the operation may be altered in various ways without affecting the basic nature of the steps which the apparatus performs. For example, while the tape advance has been described as occurring during the final period of a printing cycle, it might with equal effectiveness be caused to take place in the initial period of an operating cycle, i.e., just before the printing action. In the former case, as herein described, the rest position of the parts is reached after the printing head has risen to its full extent, or has been begun its descent. In the alternative case, the rest position would be assumed prior to the time the printing head has risen to its fullest extent. Thus, at the commencement of each cycle of operation the tape advance would occur as a first step, while the printing head is completing its rise. These alternatives are readily achieved by merely shifting the location of the actuator 102 on the motor-driven shaft 46, thus correspondingly shifting the position at which the parts are halted at the conclusion of each operation. Similarly, the circuitry may be altered without effecting any basic change, by arranging parts in various ways so that, for example, switches herein described as being normally open or normally closed would operate in reverse fashion.

So far as the relative movements of the printing head and platen are concerned, the important operation consists, of course, in bringing them together, with the strip to be printed lying between them, and in separating them after the printing and pressure application have been completed. This can be achieved as shown in the apparatus herein chosen for illustration, by moving the printing head toward and away from the platen, but under certain circumstances both of these elements may move, or the head may remain stationary while the platen moves toward and away from it. Moreover, while electrical or other power

is preferred, an operation of the apparatus by hand-applied power (or by foot) can be resorted to if desired.

The advantages of the invention, in addition to those previously mentioned, are as follows: It is unnecessary to have a number of "date due" files, hence locating a book card in the single master file is greatly simplified. Book cards are never consumed, and therefore the task of preparing replacement cards is minimized. It is unnecessary to check registration files when sending out overdue notices, since complete information is on the book card. It is not even necessary to type the overdue notices since the book cards lend themselves to inexpensive copying procedures. Moreover, because of the "date due" tabs applied to the books when they are charged out, it is not necessary to provide special "date due" cards, and the task of dating such cards is eliminated. Coupled with these economies and simplifications is the basic advantage that the library knows at all times exactly which borrower has a given title.

In general, it is to be understood that many of the mechanical and electrical details herein disclosed may be modified by those skilled in the art without necessarily departing from the spirit and scope of the invention as expressed in the appended claims.

What is claimed is:

1. A method of handling book-borrowing transactions which consists in providing a data-bearing borrower card for each borrower and a book card for each book, providing a supply of bands of imprintable material, and upon each book-borrowing occasion (a) transferring data from the borrower card to a section of one of said bands, (b) imprinting a due-date upon each of two other sections of said band, (c) adhesively applying the borrower data section and one of the due-date sections to the book card, and (d) separating the other due-date section and adhesively applying it to the book itself.

2. A method of handling book-borrowing transactions which consists in providing a data-bearing borrower card for each borrower and a book card for each book, providing a supply of bands of imprintable material, and upon each book-borrowing occasion (a) transferring data from the borrower card to a section of one of said bands, (b) imprinting a due-date upon each of two other sections of said band, (c) adhesively applying the borrower data section and one of the due-date sections to the book card in a position in which the due-date section projects beyond an edge of the book card, and (d) separating the other due-date section and adhesively applying it to the book itself.

3. A method of handling book-borrowing transactions which consists in providing a data-bearing borrower card for each borrower and a book card for each book, providing a supply of bands of imprintable material, and upon each book-borrowing occasion (a) transferring data from the borrower card to a section of one of said bands, (b) imprinting a due-date upon each of two other sections of said band, (c) applying the borrower data section and one of the due-date sections to the book card by peelable adhesive covering all but a marginal finger-grip area, and (d) separating the other due-date section and applying it to the book itself by similar peelable adhesive covering all but a marginal finger-grip area.

4. A method of handling book-borrowing transactions which consists in providing a data-bearing borrower card for each borrower and a book card for each book, providing a supply of continuous tape of imprintable material, and upon each book-borrowing occasion (a) transferring data from the borrower card to one of three adjacent sections of said tape, (b) imprinting a due-date upon each of the other two of said tape sections, (c) severing said three sections as a unit from the tape supply, (d) adhesively applying the borrower data section and one of the due-date sections to the book card, and (e) separating the other due-date section and adhesively applying it to the book itself.

5. The procedure set forth in claim 4, in which steps (a) to (d) inclusive are performed simultaneously.

6. The procedure set forth in claim 5, in which one of the due-date sections is directly adjacent to the borrower data section and the latter is applied to the book card in a position in which said due-date section projects beyond an edge of the card.

7. A method of handling book-borrowing transactions which consists in providing a data-bearing borrower card for each borrower and a book card for each book, providing a supply of continuous tape of imprintable material, advancing the tape intermittently in a longitudinal direction to bring transverse bands successively to a treatment station, and upon each book-borrowing occasion (a) transferring data from the borrower card to a section of the band at said station, (b) imprinting a due-date upon each of two other sections of said band, (c) severing said band from the tape supply, (d) removably securing the borrower data section and one of the due-date sections to the book card, and (e) separating the other due-date section and removably securing it to the book itself.

8. The procedure set forth in claim 7, wherein steps (a) to (d) inclusive are performed simultaneously.

9. The procedure set forth in claim 7, in which the securement referred to in steps (d) and (e) is by peelable adhesive on one surface of the tape supply.

10. The procedure set forth in claim 7, in which step (d) is performed in such a way that the due-date section projects beyond an edge of the book card.

11. A method of handling book-borrowing transactions which consists in providing a data-bearing borrower card for each borrower and a book card for each book, providing a supply of bands of imprintable material, and upon each book-borrowing occasion (a) transferring data from the borrower card to a section of one of said bands, (b) imprinting a due-date upon another section of said band, and (c) adhesively applying said band to the book card by peelable pressure-sensitive adhesive and in a position in which a part of said band projects beyond an edge of the card.

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