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CARD CONTROLLED PRINTING AND NUMBERING MEANS

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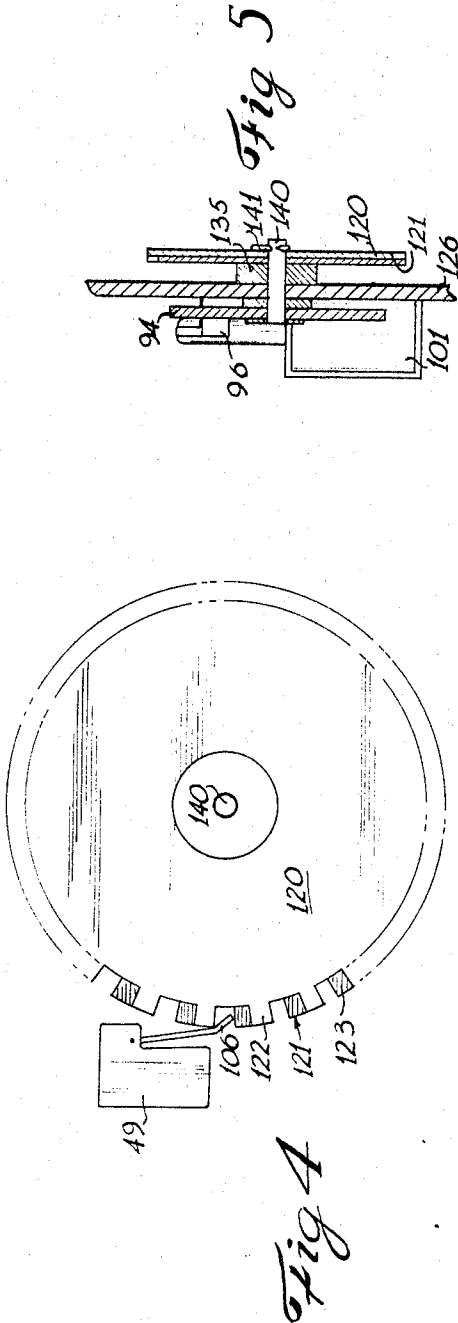
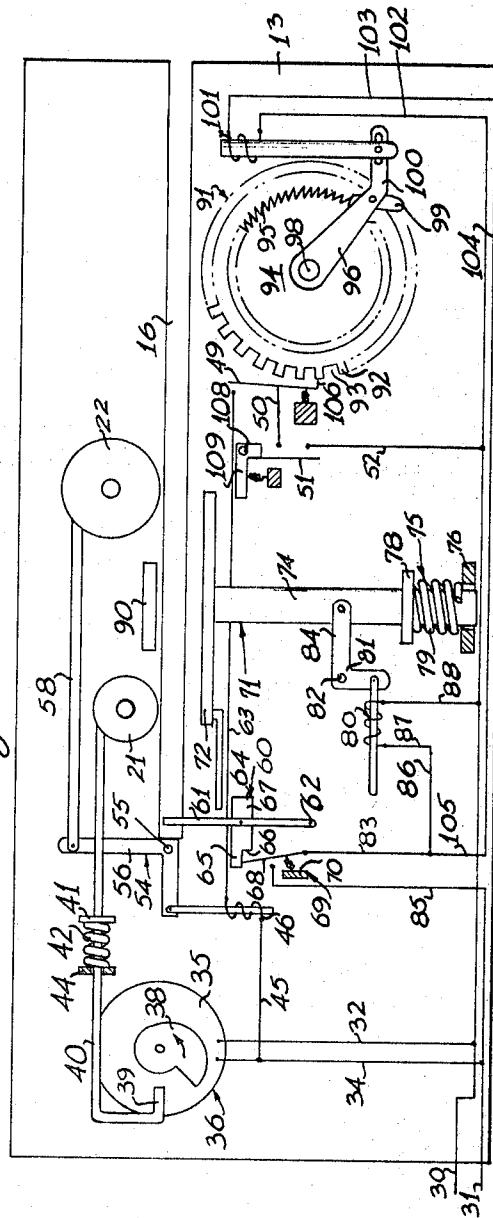


Fig 2



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CARD CONTROLLED PRINTING AND NUMBERING MEANS

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7 Claims

ABSTRACT OF THE DISCLOSURE

An improvement for a stamping machine having a slot therein for the insertion of an article therein to be stamped, including a first electrical switch, a platen means constructed and arranged for causing the article to be stamped and for opening the first electrical switch upon movement thereof, trigger means for closing the first electrical switch in response to the insertion of the article in the slot; a sequential indicating mechanism comprising rotatable means constructed and arranged to rotate about its axis, the indicating mechanism defining indicia for selective stamping on said articles, and advancing means operatively connected to the first electrical switch and the rotatable means for rotating the rotatable means a predetermined distance upon each closing of the first electrical switch, the advancing means including a second electrical switch constructed and arranged to open and close in response to the rotation of the rotatable means, and a third electrical switch constructed and arranged to close upon movement of the platen means so that closing both the second and third switches advances the sequential indicating mechanism to change the indicia to be stamped on the article.

This application relates to time recorders of the type utilized to record time, dates, and numbers on articles, and more particularly to a sequence selector for a time recorder for changing the number recorded on an article at predetermined sequences of recordation.

In the normal daily transactions of various businesses, it has become desirable to stamp various correspondence and other articles with an indication of date and time. The stamp is used to indicate when the article or correspondence was received in the office, or when it was dispatched from the office. In some instances, it is also desirable to have a counter included with the stamp so that the particular sequence of articles being received or dispatched from the office can also be recorded. A counter of the type combined with a time stamp is usually the conventional sequential counter that advances one number upon each operation of the time recorder.

In many instances, it is desirable to stamp several articles with identical numerals in counting; that is, the time and number stamped on the article to the identical throughout several operations of the recorder. For instance, in shipping various articles as from an assembly line of a factory, it is sometimes desirable to have the same numeral stamped on the bill of sale, invoice, bill of lading, and various other office memoranda. Of course, when a time recorder is utilized in an assembly line arrangement so that the same number of articles are stamped for each product issued from the assembly line, it would be desirable to have the time recorder stamp the identical numeral the number of times necessary to mark each article with the numeral identifying the product before advancing to the next numeral in sequence. With this arrangement, the various numbers of articles to be stamped with the same numeral could be determined and the time recorder set so that it would advance its stamped numeral only after hav-

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ing been operated the predetermined number of times. Of course, the operator would then coordinate the articles being issued from the assembly line with the time recorder so that each object would have its various accompanying papers marked with identical numerals for identification.

Accordingly, this invention comprises a time recorder of the type for recording the date, time and sequence numeral on articles stamped thereby, the sequence numeral being advanced only after a predetermined number of articles have been stamped.

Thus, it is an object of this invention to provide a method of advancing the numerals of a sequential numbering apparatus on a predetermined schedule.

Another object of this invention is to provide a method of stamping a series of articles with a time and date stamp and a sequential numbering stamp, and advancing the sequential numbering stamp only after a predetermined number of articles have been stamped.

Another object of this invention is to provide apparatus for advancing a sequential numbering stamp of a time recorder after a predetermined number of articles have been stamped.

Another object of this invention is to provide apparatus in combination with a sequential numbering system wherein the apparatus can be selectively modified to actuate the sequential numbering system at predetermined intervals.

Another object of this invention is to provide actuating means for a sequential numbering system of a stamping apparatus wherein the actuating means is simple in design, easily replaced, adaptable to various different sequences, and well designed to meet the economics of manufacture.

Other objects, features and advantages of the present invention will become apparent upon reading the following specification, taken in conjunction with the accompanying drawing, in which:

FIG. 1 is a perspective view, with parts broken away, on the time recorder.

FIG. 2 is a schematic representation of the various parts of the time recorder as they would be seen in a cross sectional elevational view within the housing.

FIG. 3 is an exploded view of the numberer circuit controller.

FIG. 4 is an elevational view of a pair of discs and the switch mechanism of the numberer circuit controller, and

FIG. 5 is a side view of a modified form of the numberer circuit controller.

Referring now more particularly to the drawing, in which like numerals indicate like parts throughout the several views, a recorder 10 is shown with a housing 11 having upper and lower portions 12 and 13, respectively. The upper portion 12 is hinged at 14 to the lower portion 13 so that it can be pivoted about the hinge 14. A lock assembly 15 in the lower portion 13 of the housing normally locks the upper portion 12 to the lower portion 13 in the position as shown in FIG. 1.

The upper and lower portions of the housing 11 define a slot 16 into which papers and other articles to be stamped with a number and/or date can be inserted. The lower portion 13 of the housing 11 has an opening (not shown) which is covered by a face plate 18.

The upper portion 12 of the housing 11 has rigidly connected thereto, a brace 20 which receives a time and date assembly 21 and a numberer assembly 22. A second brace 24 is connected to the lower portion 13 of the housing 11 and supports a ribbon assembly 25. The ribbon assembly 25 comprises a pair of spools 26 and 27 which have wound thereon a strip of material impregnated with ink. Mechanism (not shown) is provided for advancing the spools 26 and 27 so that different portions of the

material wound thereon will be utilized as the recorder 10 is used.

Referring now to FIG. 2, it can be seen that electrical leads 30 and 31 lead to a source of electric current. Leads 32 and 34 connect the source of electricity to a synchronous motor 35 of a drive assembly 36. The synchronous motor 35 is connected to a cam 38, and the synchronous motor rotates the cam through 360 degrees per minute. The drive assembly 36 further comprises a cam follower 39 adapted to engage the surface of the cam 38. The cam follower 39 is connected to a rod 40 extending toward the time and date assembly 21. The rod 40 has a projection 41 connected thereto, and a spring 42 is positioned between the projection 41 and a flange 44 connected to the upper portion 12 of the housing 11. The spring 42 biases the projection 41 and its rod 40 to the right, as shown in FIG. 2, so that the cam follower 39 will bear against the surface of the cam 38. The rod 40 is connected to the time and date assembly 21 in such a manner that reciprocation of the rod 40 will cause certain elements of the time and date assembly 21 to rotate and advance the time indicator to a new reading. Of course, since the synchronous motor 35 rotates the cam one revolution per minute, the time and date assembly 21 is actuated once every minute so that the time indicated by the time and date assembly is advanced in one minute intervals.

Solenoid 46 is connected to the source of electricity through the leads 31, 34 and 45 on one side, and through the lead 63, switch 49, lead 50, switch 51, lead 52 and lead 30 on the other side. The solenoid 46 is connected to a follower 54, which is L-shaped and pivoted at the juncture of its legs at 55. The leg 56 of the follower 54 reciprocates rod 58 which leads to the numberer assembly 22. Reciprocal movement of the rod 58 causes the number on the numberer assembly 22 to be advanced by one number in sequence so as to provide an advancing means for advancing the number impressed on an article by motion of a platen 71.

A trigger assembly 60 is positioned in the housing 11 so that the upper portion of lever 61 projects into the slot 16. The lever 61 is pivoted at 62, and halfway along its length pivotally supports a switch engaging element 64. The switch engaging element 64 has an elongated portion 65 extending from one end thereof, a stepped down portion 66 positioned immediately therebelow and a rear portion 67 on the opposite side of the pivot from the elongated portion. The elongated portion 65 is arranged to rest on top of the pivotal portion 68 of the switch 69, while the stepped down portion 66 of the switch engaging element 64 is arranged to push the pivotal portion 68 of the switch 69 against the bias of the spring 70 of the switch 69, thereby closing the contacts of the switch. The switch engaging element 64 is pivoted to the right side (as shown in FIG. 2) of its center of gravity, so that it tends to pivot in a counterclockwise direction, thereby normally resting with its elongated portion 65 resting on top of the pivotal portion 68 of the switch 69.

A platen 71 is positioned beneath the time and date assembly 21 and the numberer assembly 22. The platen 71 comprises a head 72 and a shaft 74 depending therefrom. The shaft 74 functions as a part of the platen actuating assembly 75. The platen actuating assembly 75 comprises framework 76 rigidly connected to the lower portion 13 of the housing 11, a projection 78 connected to the shaft 74 and a spring 79 extending between the projection 78 and the framework 76. The platen actuating assembly is constructed so that the shaft 74 is reciprocally received in the framework 76 so that the spring 79 normally supports the platen 71 in the position as shown in FIG. 2. Of course, it can be seen that if the platen 71 were moved downwardly against the bias of the spring 79, the spring 79 would tend to urge the platen upward. A platen solenoid 80 has a L-shaped follower

81 pivotal about a point 82 located at the intersection of its legs. Leg 84 of the follower 81 is connected to the shaft 74 of the platen 71 so that when the solenoid 80 is energized, the follower 81 will pivot in a clockwise direction (as shown in FIG. 2) so that its leg 84 will move the platen 71 downwardly, against the bias of its spring 79.

Solenoid 80 is connected to the source of electric power by way of leads 31, 85, switch 69, and leads 83, 86 and 87 on one side; and by leads 88 and 30 on the other side. With this arrangement, it can be seen that when the lever 61 is moved to the left (as shown in FIG. 2) the stepped down portion 66 of the switch engaging element 64 will move the pivotal portion 68 of the switch 69 to the left, thereby closing the switch 69 and energizing the platen solenoid 80 to move the platen downwardly against the bias of its spring 79. The rear portion 67 of the switch engaging element 64 is positioned below the head 72 of the platen 71 and will be engaged by the head 72 when the platen moves in its downward direction to pivot the switch engaging element in a clockwise direction so that the stepped down portion 66 of the switch engaging element will be removed from the pivotal portion 68 of the switch 69, and the spring 70 of the switch 69 will open the switch. This function opens the circuit leading to the platen solenoid 80 so that its field is broken and the force tending to compress the spring 79 is suddenly released. Of course, suddenly releasing the force against the spring 79 allows it to thrust the shaft 74 of the platen 71 in an upward direction. This force is of a strength sufficient to cause the head 72 of the platen 71 to engage the time and date assembly 21 and the numberer assembly 22 in the upper portion 12 of the housing 11. Of course, after the platen has been thrust against the time and date assembly and the numberer assembly, it will fall back to its normal position as shown in FIG. 2.

This arrangement causes the platen 71 to be moved against the time and date assembly and the numberer assembly with precisely the same amount of force on each cycle, and any object placed between the platen and the time and date assembly and the numberer assembly will be engaged only instantaneously so that the time and date, number, and any other identifying marks that might be positioned on a stamp 90 positioned between the time and date assembly and numberer assembly will be impressed upon the article.

The numberer assembly 22 is controlled through a numberer circuit controller 91. The numberer circuit controller 91 comprises a disc or plurality of discs 92 having various cut out portions 93 thereon. As is shown in FIGS. 1 and 2 of the drawing, the disc 92 is rotatable about its axis and has another disc 94 rigidly connected thereto with serrations 95 disposed around its periphery. A lever 96 is connected to the axle 98 of the discs 92 and 94 and arranged to pivot therearound. A tooth engaging element 99 is pivotally attached to the lever 96 near the periphery of the disc 94 and arranged to engage the teeth 95 of the disc 94. The tooth engaging element 99 is biased into engagement with the teeth by spring 100. Solenoid 101 is connected to the lever 96 so that when the solenoid is energized, the lever 96 is moved in a counterclockwise direction (as shown in FIGS. 2 and 3) so that its tooth engaging element 99 moves the discs 94 and 92 in the same direction. Of course, means (not shown) is provided to retain the discs in their new position until the solenoid 101 is energized a second time.

Solenoid 101 is connected to the electrical power source through leads 30 and 102 on one side; and through leads 103, 104, 105, 83, switch 69, and leads 85 and 31 on the other side. With this arrangement it can be seen that when the lever 61 of the trigger assembly 60 is moved to close the switch 69, as previously described, the solenoid 101 will be energized to advance the discs 92 and 94.

As the discs 92 and 94 rotate as previously described, a follower 106 connected to the switch 49 follows the periphery of the disc 92. Since the disc 92 has cut out por-

tions 93 along its periphery, the follower 106 will fall into the cut out portions 93 and pivot the switch 49 to close its connections. Of course, further rotation of the disc 92 will move the follower 106 out of the various recesses 93 to open the switch 49.

Switch 51 in the numberer circuit controller 91 is spring biased to a normally open position. The switch 51 is pivoted at 108 and has a projection 109 extending under the head 72 of the platen 71. When the head 72 moves in the downward direction, as previously described, it comes into contact with the projection 109 of the switch 51, thereby closing the switch.

With this arrangement, it can be seen that when an article is thrust into the slot 16 of the housing 11 against the lever 61, switch 69 of the trigger assembly 60 closes to energize platen solenoid 80 and thrust the platen 71 in a downward direction. The solenoid 101 of the numberer circuit controller 91 is also energized to advance the disc 92 in a counterclockwise direction. If the follower 106 of the switch 49 falls into a recess 33, the switch 49 will close. When the platen 71 is thrust downwardly, head 72 will abut the projection 109 of the switch 51 to pivot the switch to its closed position. This closes the circuit to the solenoid 46 of the numberer assembly to advance the numberer assembly 22 to the next number in sequence. Of course, if it happens that the follower 106 of the switch 49 did not fall into a recess 93 of the disc 92, the circuit will remain open and the movement of the platen 71 in its downward direction to close switch 51 would be ineffective to energize solenoid 46 and advance the numberer assembly 22.

Referring now to FIGS. 3-5, the numberer circuit controller 91 comprises a disc 93 or a pair of discs 120 and 121. If a pair of discs are utilized, they are formed with an equal number of teeth 122 and 123, respectively. The teeth of the pair of discs 120 and 121 are separated by gaps 124 and 125, respectively, the gaps being approximately equal in dimension to the teeth. With this construction it can be seen that if the discs 120 and 121 are disposed in side-by-side relationship so that the teeth of one disc are offset from the teeth of its adjacent disc so that they project into the gaps of the adjacent disc, the two discs together will form a continuous perimeter so that a follower, such as follower 106 of switch 49 will continuously ride over the periphery of the two adjacent discs. Of course, if one tooth of one of the discs were broken away, a gap would appear in the periphery of the two adjacent discs so that the follower 106 would fall into the gap as the gap passed by the follower. Furthermore, it can be seen that by proper removal of various ones of the teeth of the two discs, almost any sequence of teeth and gaps can be attained.

In one form of the invention, discs having thirty teeth and thirty gaps therebetween are positioned in side-by-side relationship, as previously described, so that it would be possible to break away as many as sixty teeth around the periphery of the two discs. Since the number sixty is divisible by one, two, three, four, five, six, ten, fifteen, twenty, and thirty, it can be seen that sequences of any of these numbers around the periphery of the discs can be attained by proper breakage of the teeth from the discs. For instance, if it were desired to have a sequence of three, that is two teeth and one gap, around the periphery of the discs, as is shown in FIG. 4, every third tooth of each of the discs would be broken away and the discs arranged so that a tooth of one disc would be disposed adjacent the gap formerly between a tooth of the opposite disc and the tooth removed from the opposite disc. Of course, this arrangement would present two teeth and a gap sequentially around the peripheries of the adjacent discs so that the follower 106 would fall into a gap after passing over two teeth. With this example it can be seen that various other arrangements can be attained by proper breakage of teeth from one or both of the adjacent discs. For instance, if it is desired to have a sequence of four;

that is, three teeth and one gap in sequence, all that would be required is to break away every other tooth of one of the discs and arrange the discs as previously described. Also, if it is desired to have a sequence of two; that is, have a tooth and a gap in succession, the use of merely one disc is required, or breaking away all the teeth of an adjacent disc. Of course, while identical sequences have been described, it would be possible to attain alternating sequences so that a sequence of two, three, etc., could be attained on one revolution of a pair of discs.

As is shown in FIG. 3, discs 120 and 121 are supported by a support plate 126 which is connected to the lower portion 13 of the housing 11. The support plate 126 is apertured at 128 and an axle 98 extends therethrough. The axle 98 has an enlarged portion 130 thereon and a flange 131. The flange 131 bears against the back side of the support plate 126 while the enlargement 130 extends through the aperture 128 and through the aperture 132 of the lever 96. Of course, the lever 96 pivots about the enlargement 130. The remaining portion of the axle 98 extends through the aperture 134 of the disc 94, aperture 136 of the spacer 135, apertures 138 and 139 of the discs 121 and 120, respectively. The axle 98 has a groove 140 around its end and a washer 141 is received therein when the discs are assembled on the axle. The discs 120, 121, spacer 136, and disc 94 are rigidly connected to each other by means of the pins 142 extending through aligned apertures 144 of each of these elements. This insures that the discs and spacer all rotate in unison.

As an alternate arrangement to that shown in FIG. 3, FIG. 5 shows the discs 120 and 121 being positioned on the side of the support element 126 opposite from the solenoid 101 and disc 94. With this arrangement, the numberer circuit controller 91 can be positioned near the opening (not shown) of the lower portion of the housing 11, immediately behind the face plate 18 with the discs 120 and 121 accessible through the opening. The operator then merely must remove the face plate 18 and the washer 141 from the axle 140 to remove the discs 120 and 121 from the axle. Of course, this arrangement is convenient when it is desired to replace the discs 120 and 121 so that the sequence of the recorder can be changed. In other words, when the discs have had their teeth arranged so that they count in a particular series, all that is necessary to change the series is to replace the discs with another pair of discs having a different series of teeth and gaps thereon. The fact that the support 126 projects between the discs 120 and 121 and the remaining elements of the numberer circuit controller 91 helps to prevent the remaining elements from becoming damaged when the discs are being changed.

It will be obvious to those skilled in the art that many variations may be made in the embodiments chosen for the purpose of illustrating the present invention without departing from the scope thereof as defined by the appended claims.

I claim:

1. In an automatic stamping machine of the type having a slot wherein an article is inserted and automatically stamped, the combination of a trigger means extending into said slot for engagement with the article to be stamped, a sequential indicating mechanism disposed on one side of said slot having indicia thereon selectively positionable in registration over said slot, platen means disposed on the side of said slot opposite from said mechanism and being responsive to said trigger means to move across said slot to cause said article to engage the indicia in registration over said slot, and means for changing the indicia of said sequential indicating mechanism in registration over said slot upon a predetermined number of movements of said platen means across said slot, said means including first switch means actuated in response to each movement of said platen means across said slot, a second switch means, and means for activating said second switch

means independently of said first switch mean in response to said predetermined number of movements of said platen means.

2. The invention of claim 1 including a rotatable means constructed and arranged to rotate about its axis through a predetermined arc upon movement of said platen means, actuating means carried by said rotatable means at its periphery, means juxtaposed with the actuating means, and responsive to said actuating means carried by rotatable means for operating said second switch means.

3. The invention of claim 2 wherein said rotatable means comprises a pair of juxtaposed coaxially aligned discs and said actuating means includes a series of teeth and spaces disposed about each disc with the teeth of one disc being adjacent at least some of the spaces of the other disc.

4. In an automatic stamping machine having a slot therein for the insertion of an article therein to be stamped:

- a first electrical switch;
- a platen means constructed and arranged for causing said article to be stamped and for opening said first electrical switch upon movement thereof;
- trigger means for closing said first electrical switch in response to the insertion of said article in said slot;
- a sequential indicating mechanism comprising rotatable means constructed and arranged to rotate about its axis, said indicating mechanism defining indicia for selective stamping on said article;
- advancing means operatively connected to said first electrical switch and said rotatable means for rotating said rotatable means a predetermined distance upon each closing of said first electrical switch, said advancing means including a second electrical switch constructed and arranged to open and close in response to the rotation of said rotatable means, and a third electrical switch means constructed and arranged to close upon movement of said platen means so that closing both said second and third switches advances said sequential indicating mechanism to change the indicia to be stamped on said article.

5. In a stamping machine defining a slot therein for the insertion of an article to be stamped and having a reciprocating platen, a numberer assembly defining a plurality of numbers thereon, said assembly selectively actu-

ated to present any selected one of said numbers to be stamped on the article, and means for reciprocating the assembly and stamp the article with the number presented by the numberer assembly;

a sequence selector for selectively changing the number presented by the numberer assembly, including:

a first switch means operatively connected to the platen for activation of said first switch means upon each reciprocation of the platen;

sequence means operatively connected to the platen for activation thereof upon each reciprocation of said platen;

a second switch means operatively connected to said sequence means for activation thereof in response to a predetermined number of activations of said sequence means; and

advancing means operatively connected to said first and second switch means and the numberer assembly for advancing the numberer assembly in response to the simultaneous activation of said first and second switch means.

6. The invention of claim 5 wherein said sequence means includes a disc having a plurality of indentations around its periphery and means for rotating said disc in response to each motion of said platen.

7. The invention of claim 2 wherein said disc is a pair of coaxially disposed rotatable discs, each rotatable disc having a series of teeth with spaces interposed therebetween disposed about its periphery, at least some of the teeth of one rotatable disc being adjacent at least some of the spaces of the other rotatable disc.

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