

June 14, 1960

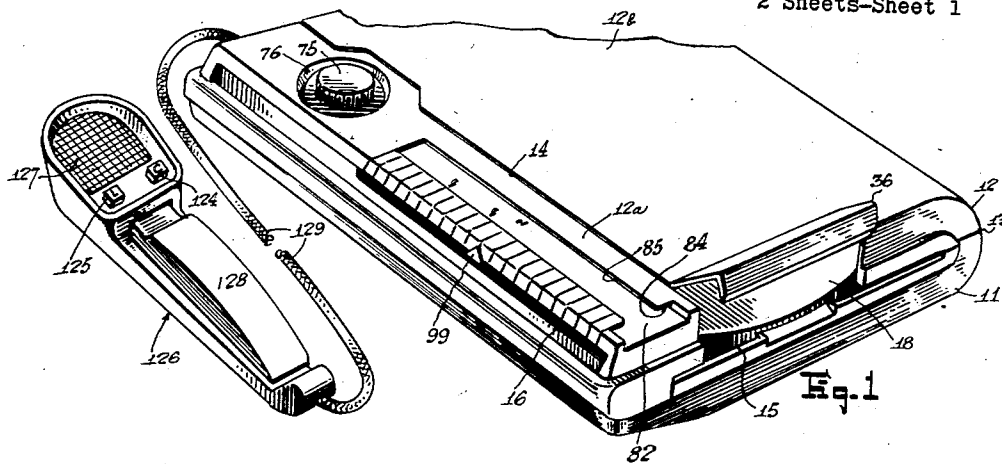
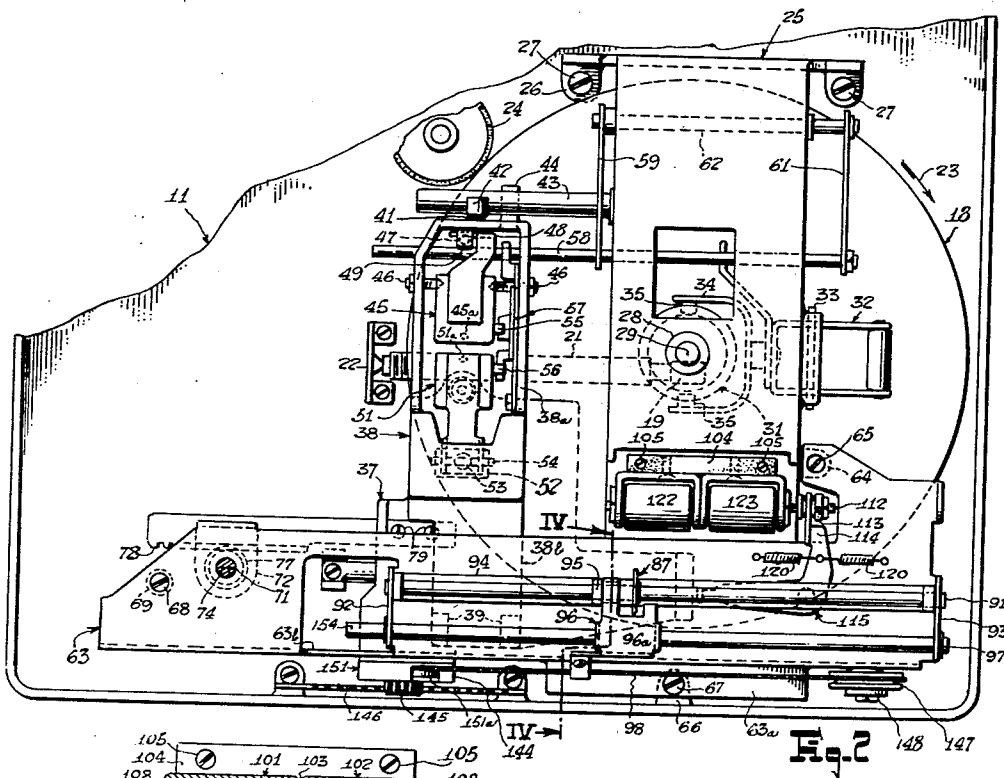
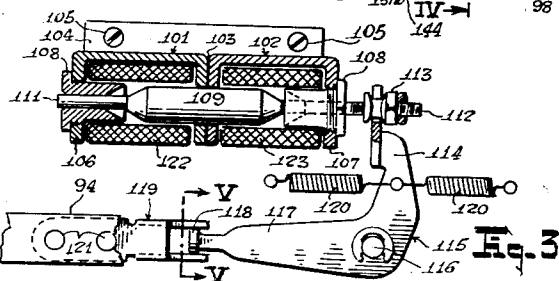
L. Z. LA FOREST

2,940,761

LENGTH AND CORRECTION MARKER IN DICTATING MACHINE

Filed Oct. 27, 1955

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

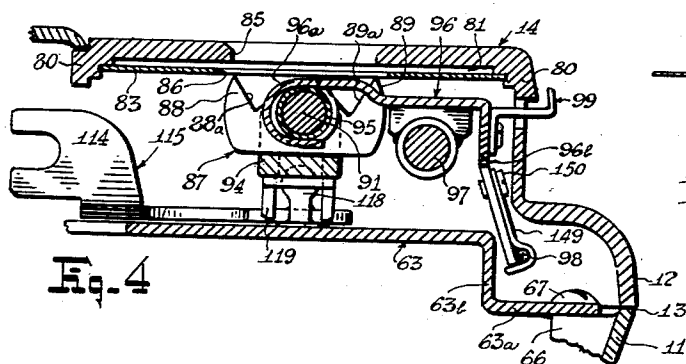


Fig. 4

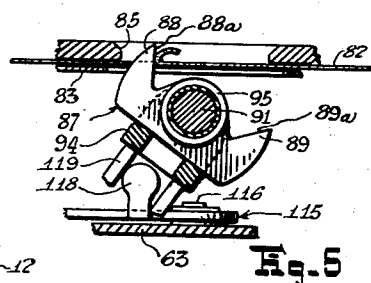


Fig. 5

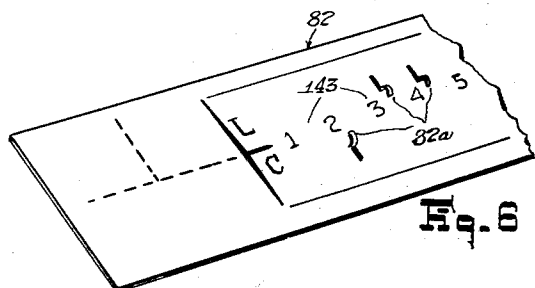


Fig. 6

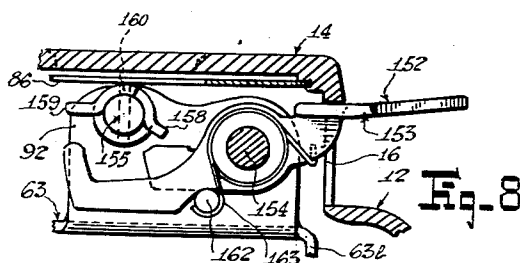


Fig. 8

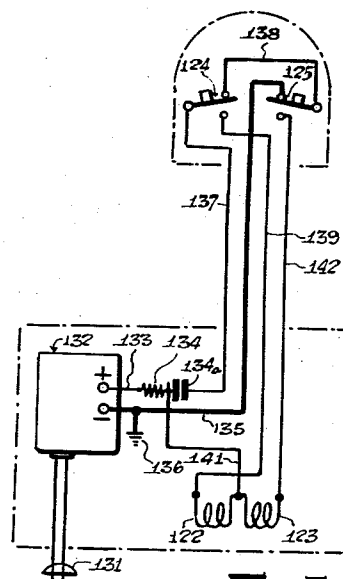


Fig. 7

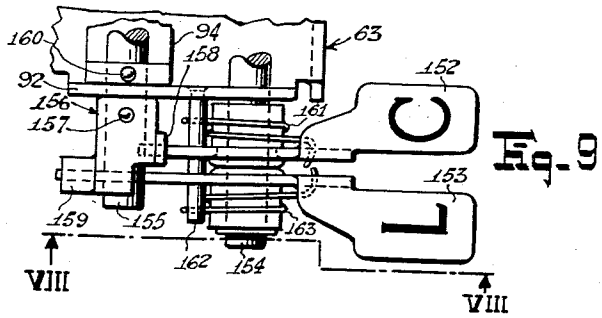


Fig. 9

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LENGTH AND CORRECTION MARKER IN DICTATING MACHINE

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Filed Oct. 27, 1955, Ser. No. 543,210

4 Claims. (Cl. 274—1)

This invention relates to improvements in machines adapted for recording and reproducing dictation and is herein described in connection with such a machine for recording on and reproducing from disc records, but no unnecessary limitation of the invention to disc-record machines is intended.

An object of the invention is to provide for marking the index slips of dictating machines of the character described and claimed in the Somers application, Serial No. 347,875, filed April 10, 1953, now Patent No. 2,866,647, dated December 30, 1958, by means of a single rocking blade instead of two blades, either by hand at the machine or by a solenoidic structure remotely controlled.

Another object of the invention is to provide a single rocking blade in a dictating machine, said blade having slotting points at opposite ends thereof, and means for rocking said blade in one direction to give one indication and in another direction to give another indication on an index slip.

A further object of the invention is to provide a single rocking blade in a machine of the character described, in which rocking in one direction gives a length indication and rocking in the other direction gives a correction indication.

These and other objects and advantages will become apparent from the following detailed description when taken with the accompanying drawings. It will be understood that the drawings are for purposes of illustration and do not define the scope or limits of the invention, reference being had for the latter purpose to the appended claims.

In the drawings, wherein like reference characters denote like parts in the several views:

Figure 1 is a fragmentary view in perspective of a dictating machine embodying my invention.

Figure 2 is an enlarged partial top plan view of the dictating machine mechanism as seen with the top section of the housing removed.

Figure 3 is an enlarged plan of the solenoid-operated mechanism for rocking the blade which marks an index slip in the machine, the solenoid structure itself being shown in horizontal axial section.

Figure 4 is an enlarged vertical sectional view on the line IV—IV of Figure 2, in the direction of the arrows.

Figure 5 is a fragmentary view corresponding generally to Figure 4, but showing the blade in a slotting position, the section otherwise being on the line V—V of Figure 3, in the direction of the arrows.

Figure 6 is a fragmentary view in perspective of an index slip.

Figure 7 is a diagram of the circuit for operating the solenoids of the first embodiment.

Figure 8 is a vertical sectional view on the line VIII—VIII of Figure 9, corresponding generally to Figure 4, but omitting to show the slotting blade, and showing an alternative or additional form including manual blade-operating means.

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Figure 9 is a fragmentary plan of the mechanism shown in Figure 8.

The improvement of the present invention is in a preferred embodiment incorporated in a dictating machine such as generally disclosed in the aforementioned Somers application, Serial No. 347,875, filed April 10, 1953, and having common ownership with the present application. It may thus have a housing or case comprising relatively-flat lower and upper pan-shaped housing sections, 11 and 12, which are generally rectangular as viewed from the top and which meet mainly on a medial plane represented by the line 13 in Figure 1. The lower section is desirably of one piece construction, but the upper section comprises front and rear members, 12a and 12b, the latter section being shown broken away. These sections meet at the break line 14, also shown in Figure 1. The housing sections may be secured together by screws (not shown) to form a structure which is substantially closed except for a long horizontal slot 15 in its right side for insertion and removal of disc records, and a long opening 16 in the forward right hand portion of the machine, constituting a clearance opening for a pointer 99.

The lower housing section, which also serves as a frame for the machine, has an upstanding post on which is journaled a tubular shaft for a turntable 18, as in the application referred to. The shaft carries a worm gear which meshes with a worm wheel 19 on a feed screw 21 supported at its ends by bearings, only one of which is indicated at 22. The turntable is driven in the direction of the arrow 23 from the drive pulley of a motor (not shown), as in the application referred to. The drive pulley may be coupled through a belt to a drive wheel having a driving spindle for engagement with a frictional idler wheel 24, all as in the application referred to. The idler wheel 24 is urged, as by means of a tension spring (not shown), against the peripheral rim of the turntable and against a brake shoe (not shown).

The idler wheel is also journaled, as in the application referred to, so that by turning a control lever it may be moved from the brake shoe along the peripheral rim of the turntable into frictional engagement with the driving spindle. This frictional drive is disclosed and claimed in the pending Dietz application, Serial No. 319,825, filed November 12, 1952, now Patent No. 2,753,026, dated July 3, 1956, to which reference may be had for a description as to details.

Overlying a central portion of the turntable is a front-to-back-extending bridge 25 having footlike end portions 26 seating on the lower housing section and secured thereto as by means of screws 27. On this bridge and axially in line with the turntable is an interior bearing 28 rotatably receiving a plunger rod 29, which carries a record-clamping member 31 at its lower end. The plunger rod is moved upwardly and downwardly by a transversely extending U-shaped lever 32 which is pivoted to the right side of the bridge 25 on a cross pin 33. Secured to the inner end of this U-lever is a fork 34 having diametrically opposite pins 35 which engage a peripherally grooved portion of the record-clamping member 31.

The U-lever 32 is coupled to a door 36, hinged to the top section 12 of the housing. The door, when opened as shown in Figure 1, provides space for the fingers in mounting and removing disc records. There is a coupling between the door and the U-lever 32, so that the record-clamping member 31 is engaged and disengaged with respect to the turntable 18 as the door is closed and opened. For details of the record-clamping means, see the pending Dietz application Serial No. 320,025, filed

November 12, 1952, now Patent No. 2,793,864, dated May 28, 1957.

As in the Somers application previously referred to, there is preferably provided a subcarriage 37 mounted slidably on cross rods (not shown). The subcarriage 37 also desirably has a bracket plate (not shown), to a center portion of which is staked a vertical stud pin (not shown), on which is journaled a feed nut (not shown), which meshes with the feed screw 21, means being provided so that the feed screw is frictionally held sufficiently against rotation to cause the subcarriage 37 to be driven upon rotation of said screw, but insufficiently to prevent the carriage from being moved by hand.

The main carriage 38 overlies the subcarriage 37 and comprises a hollow rectangular casting 38a provided with a forward extension 38b terminating in downwardly extending feet 39 which are apertured for engagement with trunnions (not shown) carried by the subcarriage 37, as in the Somers application referred to. Secured to the rearward end of the main carriage is a stud pin 41 on which is journaled a roller 42, as shown in Figure 2. This roller 42 rides on a horizontal cross rod 43 carried by and projecting leftward from the bridge 25. Thus, the main carriage 38 rides on the rod 43 at its rearward end and is hinged to and propelled by the subcarriage 37 at its forward end. A tab 44 projecting rearwardly from the main carriage below the cross rod 43 serves to prevent any substantial upward displacement of the main carriage.

A recorder 45 is mounted in the rearward portion of the main carriage 38 by a pair of conical pivot pins 46 threaded through the side walls of the carriage. This recorder has a stylus 45a at its forward end for engaging a record mounted on the turntable 18. Biasing force to exert suitable pressure of the stylus against the record may be provided partially by the weight of the recorder and partially by a tension spring 47 connected between the tailpiece 48 of the recorder and an overhanging tab 49 on the main carriage.

A reproducer 51 is mounted in the front portion of the main carriage with universal (lateral and vertical) freedom of movement. The universal mounting for the reproducer may comprise a gimbal ring 52 pivoted to the top wall of the main carriage on a vertical pin 53, and a cross pin 54 carried by the gimbal ring and to which a tailpiece of the reproducer is pivoted. The reproducer has stylus 51a at its rearward end for engaging a record under the influence of its own weight. In a normally centralized position of the reproducer, the stylus thereof engages a record at a short trailing distance behind the recorder, with respect to the direction of advance of the carriage.

The recorder and reproducer each has a laterally extending lift pin, 55 and 56, at the free end portions thereof, by which they may be lifted from the record. Lifting is done through a lever mechanism 57 mounted on the right wall of the main carriage and operable by a lift rod 58 that extends parallel to the path of travel of the carriage. This lift rod is mounted for up-and-down movement on parallel arms 59 and 61 which are secured to a shaft 62 journaled in the bridge 25. The lever mechanism 57 is such that when the lift rod 58 is in a raised position, both the recorder and reproducer are withheld from the record, but when the lift rod is in an intermediate position only the reproducer engages the record. In a lowered position, both the recorder and reproducer engage the record. In the last position of the lift rod, however, the audio circuits are completed only with respect to the recorder. In view of these functions of the lift rod, its uppermost, intermediate and lowered positions are herein termed its "neutral," "reproducing" and "recording" positions respectively. For further details with regard to the lever mechanism 57, reference is made to the pending Dietz application Serial No. 320,025, before mentioned.

The record reproduction control mechanism, not here shown but corresponding with that of the Somers application referred to, is mounted on the left end portion of a long bracket plate 63, extending the full length of the machine at the front end thereof. This bracket plate is secured near its right end to a lug 64 on the bridge 25 as by means of a screw 65. It is supported near its central portion by a foot 63a at the lower end of a flange 63b extending along the front of the bracket plate. The foot 63a is seated on and secured to a ledge 66 as by a screw 67. It is secured at its left end by a screw 68 to a post 69 upstanding from the lower housing section. The bracket plate 63 has a vertical bearing 71 at its left end, and has a right-angle lug 72 depending therefrom and carrying a second vertical bearing (not shown) in line with the first bearing. These bearings support a shaft 74 for rotational and for vertical translational movement. On the upper end of this shaft there is secured a control knob 75. When the shaft is in its downward, or "record" position, the control knob is disposed in a center recess or well 76 of the upper housing member 12a. This well is substantially larger in diameter than the knob to provide easy access to the latter by the hand, so that the knob may be raised into "reproduce" position as desired.

Secured to the lower end of the shaft 74 is a pinion wheel 77 for engagement with a rack 78 secured to the subcarriage 37 as by screws 79. This rack extends laterally from the subcarriage in line with its direction of travel. However, it is only when the control knob 75 is raised into reproduce position that this engagement occurs. When the knob is in record position, the pinion 77 is below the rack and out of engagement therewith. This pinion-rack arrangement enables the subcarriage 37 and the main carriage 38 secured thereto to be moved forwardly and backwardly through their paths of travel by rotation of the control knob 75 when that knob is in its reproduce position. By such rotation, the carriage can be shifted at will to backspaced or advanced positions.

Since the control knob 75 is raised by hand and since the teeth of the pinion 77 are likely to be out of alignment with those of the rack 78 as the knob is manually raised, it is desirable that there be vertical yieldability between the pinion and rack to prevent forcing the pinion against the rack as one endeavors to raise the knob. Such yieldability is desirably provided as disclosed in the pending Somers application previously referred to.

Frequently, the requirement for listening back extends only past the last few words or sentence to enable one to reconstruct the line of thoughts being dictated as after an interruption such as a telephone call. Such limited listening back to one's last portion of recordation is accomplished in the present machine simply by turning the knob 75 clockwise through a fraction of a turn while in record position. In so doing the audio circuits are shifted from the recorder to the reproducer while maintaining both the recorder and reproducer in engagement with the record, but with the reproducer at a trailing distance behind the recorder as hereinbefore mentioned. While maintenance of the recorder on the record during such limited listening back to one's recordation will cause idle grooves to be formed ahead of the recorded area to the extent of the trailing distance between the recorder and the reproducer, it has the advantage of maintaining a progressive uninterrupted groove in the record which is beneficial in maintaining proper tracking during playback.

The upper housing member 12a has a long horizontal channel 81 (Figure 4) open at the right end thereof and extending nearly to the well 76 for receiving an index slip 82, such as shown in Figure 6. The channel 81 is defined by the top wall of the housing member and a bottom plate 83, positioned in spaced relationship thereto against two shouldered flanges 80 as shown in Figure 4. The top wall has a recess 84 extending through the

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width of the channel at the open end thereof, as shown in Figure 1, to expose the right end portion of a mounted slip 82 so that the slip may be grasped readily when it is to be removed. Also, the top wall has a slot 85 extending from the recess 84 throughout the operative length of the slip 82 to expose a central band portion thereof. Similarly the bottom plate has a slot 86 to provide access to the lower surface of the central band portion of the slip for index punching means 87 to be next described.

The index punching means 87 is in the form of a blade having two slotting points 88 and 89. It is mounted for sliding movement on a rod 91 which is journaled in ears 92 and 93 upstanding from the plate 63. Pivoted on and depending from the rod 91 is a bail 94. The lower horizontal edge of the blade 87 is in proximity to the bail 94, as seen in Figures 4 and 5. From this arrangement, it will be evident that a rocking of the bail will impart a rocking movement to the blade 87 to cause its points 88 and 89 to alternatively rise and fall. The blade 87 underlies the index slip 82, after being inserted in the slot 81, so that either of the points 88 and 89 will cut through and slot the slip 82 as they are selectively rocked upwardly by movement of the bail 94.

The blade 87 has a spool-shaped bushing or collar 95 engaged by a small carriage 96 sliding on a support rod 97, the ends of which rod are respectively received in the ears 92 and 93. This carriage 96 desirably has a rearward extension of the top wall portion 96a bent around the waist of the bushing 95, so that it effects the desired travel of the blade 87. The portion 96a also has a downward extension 96b at its front which carries the pointer 99, shown in Figures 1 and 4. To this extension 96b is also attached an operating cord 98, as by means of a clip 149 held on the extension 96b as by means of a screw 150. The rocking of the bail 94 and associated blade 87 may be effected by hand in accordance with the embodiment of Figures 8 and 9. It is, however, desirably effected by means of a novel solenoid structure now to be described.

The actuating solenoid structure desirably comprises two U-shaped members 101 and 102 (Figures 2 and 3) secured together in any desired manner as by welding at 103. These members are shown provided with a base flange 104 which serves to secure them to the bridge 25, as by means of screws 105. Threaded through each of the legs 106 and 107 of the members 101 and 102 is a stationary pole element 108 adapted to cooperate with a magnetizable armature 109 disposed therebetween. The armature has end extensions 111 and 112, like a shaft therethrough, slidable in appropriate apertures in the pole elements 108. The extension 112 is longer than the extension 111 and onto it is threaded a cradle-like element 113. Engaging this element is the arm 114 of a bell-crank lever 115.

This bell-crank lever 115 is biased to neutral position by centering tension springs 120, and oscillates about a vertical pivot member 116 which may be carried by the plate 63, as shown in Figure 5. The other arm 117 of the bell-crank lever 115 is provided with actuating finger 118 which fits a cradle-like element 119 depending from and secured to the bail 94 as by means of rivets 121, as shown in Figures 3, 4 and 5. Two solenoid coils, 122 and 123, are respectively supported by the pole elements 108 and have connections to respective switch buttons, 124 and 125, for closing an electric circuit to energize one coil or the other. When a coil is energized, the plunger or armature 109 will move in its direction, and vice versa with respect to the other coil, so that the bell-crank 115 will be rocked about its shaft 116 in a direction determined by the coil that is energized.

Referring now to Figure 1 and the wiring diagram of Figure 7, we see that the combination microphone-trans-

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mitter and switch device 126, connected to the machine by an electric cord 129, and which may be held in the operator's hand, is provided with a microphone 127, carries switch buttons 124 and 125, and also has the master switch 128 for stopping and starting the machine. This device 126 is connected to the machine 12 as shown in Figure 7 except that the wiring for the switch 128 is not shown. The plug 131 which connects to a source of power, such as 115 volt, 60 cycle, may be of conventional type. This power goes to a rectifier 132 from which line 133 passes from the plus side through a current-limiting resistor 134 to a condenser 134a. The negative side of the rectifier, from which line 135 extends, may be grounded as indicated at 136.

When both of the switches 124 and 125 are in open position, as shown in Figure 7, the condenser 134a is continually in charging connection with the rectifier through line 133, resistor 134, line 137, switch 124, line 138, switch 125, and line 135 to the negative pole of the rectifier. When the operator desires to rock the blade 87 to slot the index slip 82 with a correction mark, he pushes the button switch 124 carrying the letter "C" in Figure 1. He thereby establishes a circuit from the condenser 134a, through line 137, switch 124, line 139, solenoid coil 122 and line 141 to the other side of the condenser, thereby operating the solenoid by discharge of the condenser. This rocks the bell-crank lever 115 counter-clockwise as viewed in Figure 3, rocking the blade 87 also counter-clockwise, as viewed in Figure 4, to bring the point 89 thereof up through the index slip 82, thereby making a corresponding correction mark.

When, however, it is desired to apply a length mark to the index slip 82, the button switch 125 is depressed, energizing the solenoid 123 from the condenser 134a, through line 137, switch 124 in upper position, line 138, switch 125 in lower position, line 142, solenoid coil 123, and line 141 to the other side of the condenser. The position after rocking of the blade 87 for the cutting of the length mark by means of the slotting point 88 is illustrated in Figure 5.

The blade 87 is made of sheet-like material—i.e., material of uniform thickness—so that it will have double inside edges 88a and 89a leading from the pointed ends thereof. These inside edges are made sharp, as by grinding, so that the blade will have a cutting-out rather than a piercing action. Since the blade sweeps sidewise through the index slip at an oblique angle thereto, it cuts out tabs 82a of the index material to provide the index slip with marking slots without raising any mounds at the edges of the slots and without blanking out any punchings since the tabs remain attached at their ends as indicated in Figure 6. In view of these features the index slip is provided with clean-cut slots which form clearly-defined length and correction marks.

The small indexing carriage 96 is moved throughout the length of scale 143 on the index slip 82 in direct proportion with the travel of the carriage 38 for the translating devices, by a coupling comprising a drum 144 journaled on a horizontal pivot extending forwardly from the sub-carriage 37, as shown in Figure 2. The drum has a pinion gear 145 secured thereto which meshes with a rack 146 that is mounted on the lower housing section 11 and extends in a direction parallel with the direction of travel of said subcarriage. At the right end of the machine is another drum 147 journaled on a fixed horizontal pivot 148 secured to the flange 63b of the plate 63. The cord 98, previously referred to, is secured to and trained about each of these drums and leads from the top edge of one drum to that of the other. It is constantly held under tension by a torsion spring (not shown) but acting on the drum 147.

As the translating devices are advanced across the record, the cord 98 is unrolled progressively from the drum 144 and taken up by the drum 147 under the influence of the torsion spring, to cause the index carriage 96 to be advanced rightwardly in amplified progressional

relationship to the movement of the translating devices. In order to retain the cord on the drum 144, should the cord become slack, a cylindrical housing 151 is formed on the subcarriage in surrounding relationship to the drum except for the recess 151a where the cord leaves the drum.

In the embodiment of Figures 8 and 9, I have provided for the rocking of the blade 87 by alternative means comprising indexing keys 152 and 153. These keys are formed as levers pivoted on an extension 154 of the support rod corresponding with that designated 97 to the previous embodiment. The blade-carrying rod, designated 91 in the preceding embodiment, is also extended as indicated at 155 and carries a driving or crank member 156 adapted to be alternatively operated by the keys 152 and 153.

This member 156 is fixed on the rod extension 155 by suitable means, such as a rivet 157, and includes oppositely extending arms 158 and 159 overlying the portions of the keys 152 and 153 to the left of the support rod extension 154, as viewed in Figures 8 and 9, and adapted to be respectively engaged by said key portions. These keys are biased counter-clockwise by means of torsion springs 161 and 163. The former acts at one end of the key 152 and at its other end on a stud 162 projecting from the mounting ear 92 of the plate 63. The torsion spring 163 likewise has one end engaging the key 153 and the other engaging the stud 162.

In accordance with the present embodiment, when it is desired to make a correction mark on an index slip 82, the key 152 is depressed or turned clockwise against the action of the spring 161, to thereby rock counter-clockwise the rod 91 and the associated bail 94, in this instance at least fixed thereto by suitable means such as rivet 160, as viewed in Figure 8, to correspondingly by means of said bail rock the blade 87 and make a correction mark on the index slip 82 by perforating the latter with its slotting point 89. When, however, it is desired to make a length mark, the key 153 is depressed or turned clockwise, rocking the rod 91 to the position of Figure 5 to slot the index slip 82 by the point 88 and make a corresponding length mark.

It will, of course, be understood that these keys 152 and 153 may be carried as alternative to the solenoid-actuating structure, previously described, or in addition thereto. If the latter, then the actuation of the blade 87 may be either electrical or manual.

The embodiments herein particularly shown and described are intended to be illustrative and not limitative since the embodiments are subject to changes and modifications without departure from the scope of my invention, which I endeavor to define in the following claims.

I claim:

1. An index punching means for a dictating machine comprising an index carriage, means for supporting an index slip unbacked at both sides of its central portion along its length, a blade of sheet-like material carried with said carriage in transverse relation to the central portion of said slip, said blade having pointed ends of the width of said sheet-like material confronting said slip and having sharp inner edges leading from each pointed end and outer edges leading from each pointed end within a contour including said pointed ends and arcuate about a center point spaced equally from said pointed ends at a distance greater than the distance of said center point from said slip, means pivotally supporting said blade for rocking movement about said center point, and means for

rocking said blade in either direction about said center point, to cause either pointed end to cut through said slip in an oblique direction thereto whereby to cut a slot in the slip without severing any punchings therefrom.

2. The index punching means set forth in claim 1 comprising a rod along the path of said index carriage on which said blade is rockably and slidably mounted, a bail pivoted at its ends on end portions of said rod beyond the path of traveling movement of the blade, the portion of said bail along said rod being in coupled relation with said blade about said rod while providing for movement of the blade along the rod, and means connected to said bail for rocking the blade in either direction.

3. Apparatus for indexing the movement of a carriage along a stationary frame by providing a plurality of differentiating marks for any given position of said carriage, comprising a blade mounted for traveling movement and for pivotal movement about its central portion in a plane transverse to its direction of traveling movement, said blade being of a sheet-like material having pointed ends and having sharp inside edges leading from each pointed end and outer edges leading from each pointed end within a contour including said pointed ends and arcuate about said central portion, an index slip mounted on said frame with one of its faces closely adjacent the ends of said blade and at a lesser distance from said central portion of the blade than is the distance of said pointed ends from said central portion of the blade, means for moving said blade in correspondence with said carriage, and means selectively operable to rock said blade about its pivot in either direction to cause one end of the blade to cut through the slip in an oblique direction thereto and curl outwardly a narrow tab of the slip material whereby to cut a narrow slot in the slip without severing any of the material therefrom.

4. An index punching means for a dictating machine comprising a movably mounted index carriage, means for supporting an index slip along the path of said carriage and unbacked at both sides of its central portion along the major portion of the length thereof, a blade on said carriage overlying one side of said index slip in transverse relation thereto, said blade having a sheet-like cutting portion provided with pointed cutting edges at its opposite ends confronting said side of said index slip, means pivoting said blade to said carriage at a point between said pointed ends for rocking movement of the blade in either direction to cause either pointed end of the blade to cut through the index slip in an oblique direction thereto and curl outwardly a narrow tab of the index slip material whereby to cut a narrow slot in the index slip without cutting free any of the material therefrom, and operable means slidably connected to said blade throughout the traveling movement of the latter along said index slip for rocking said blade selectively in either direction to cut a narrow slot in said index slip near one edge or the other according to the direction in which the blade is rocked.

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