

July 4, 1944.

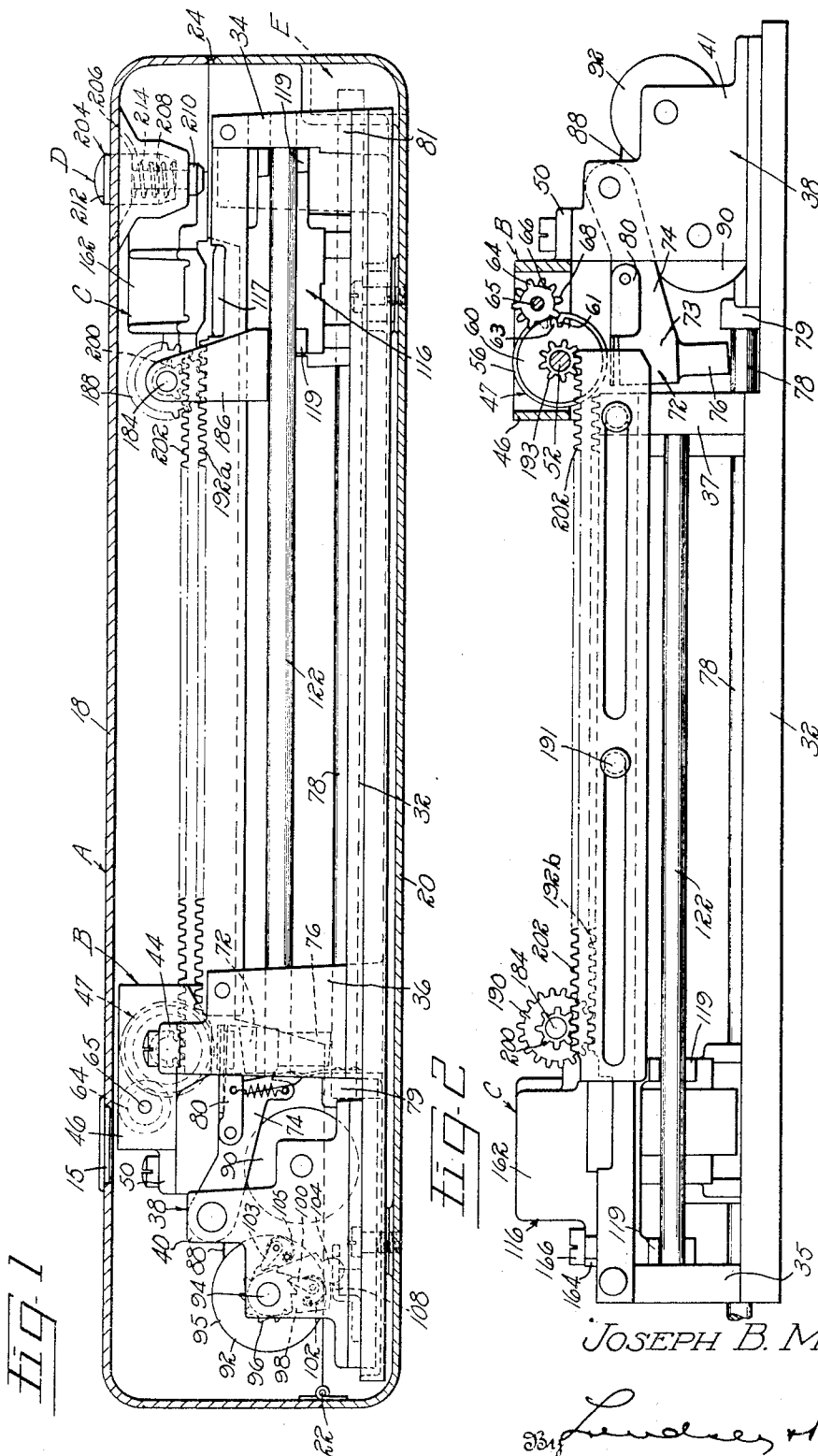
J. B. MANGAN

2,352,907

RECORDER

Filed Sept. 27, 1940

4 Sheets-Sheet 1



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Filed Sept. 27, 1940

4 Sheets-Sheet 2

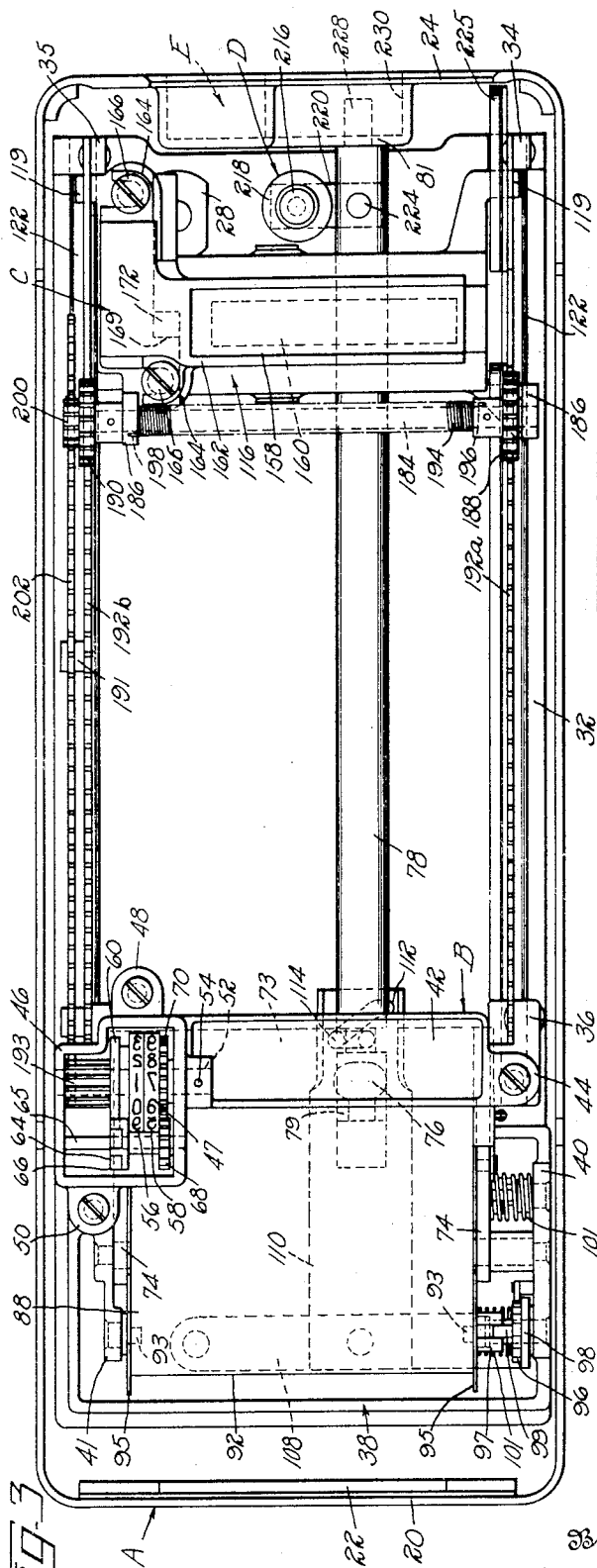


Fig. 10

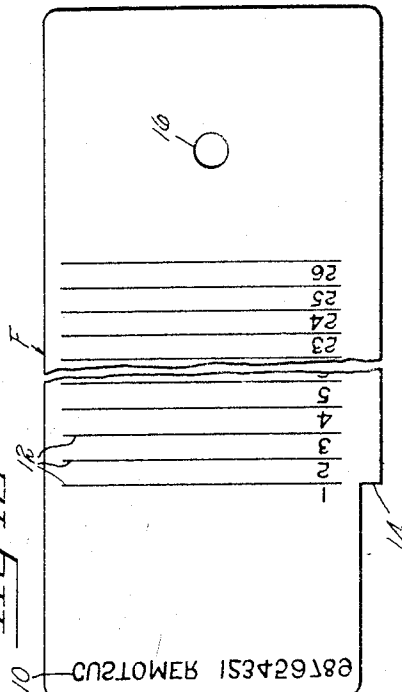
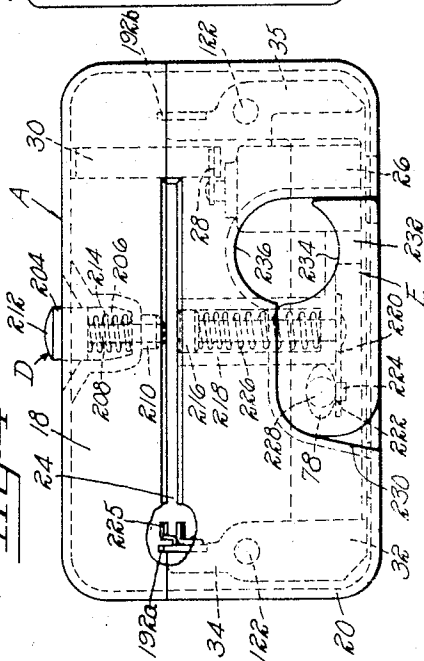


Fig. 4

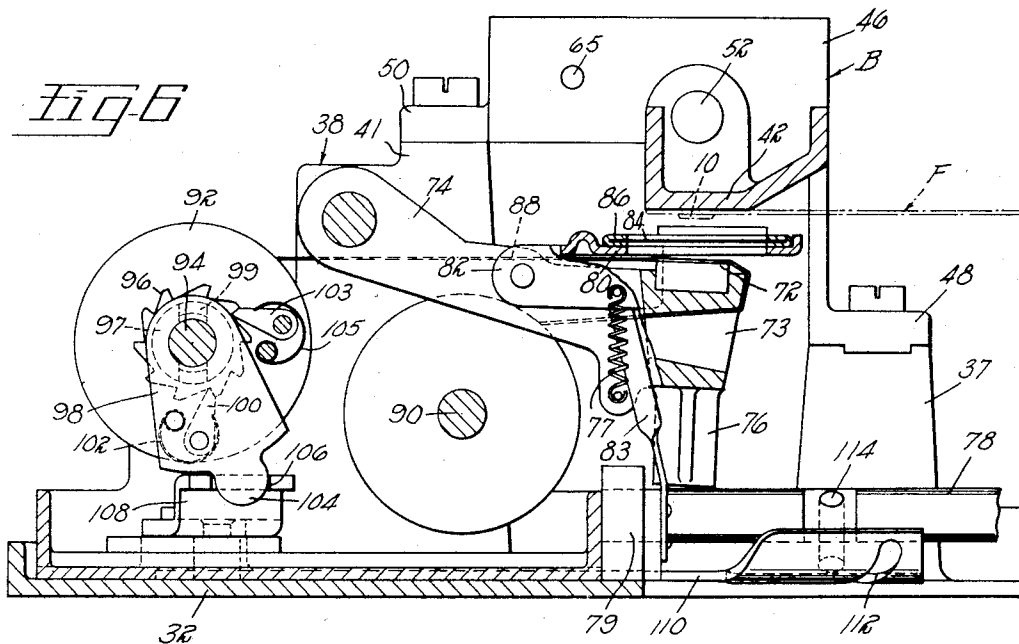


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2,352,907

4 Sheets-Sheet 3



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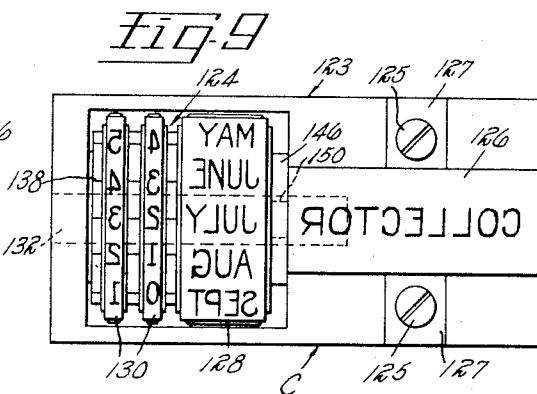
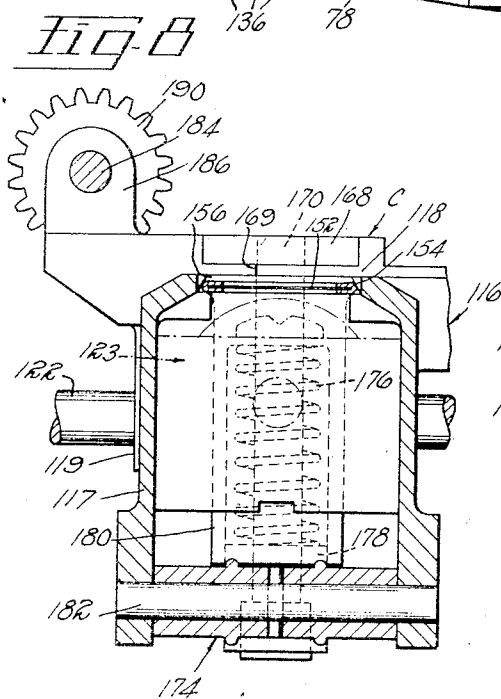
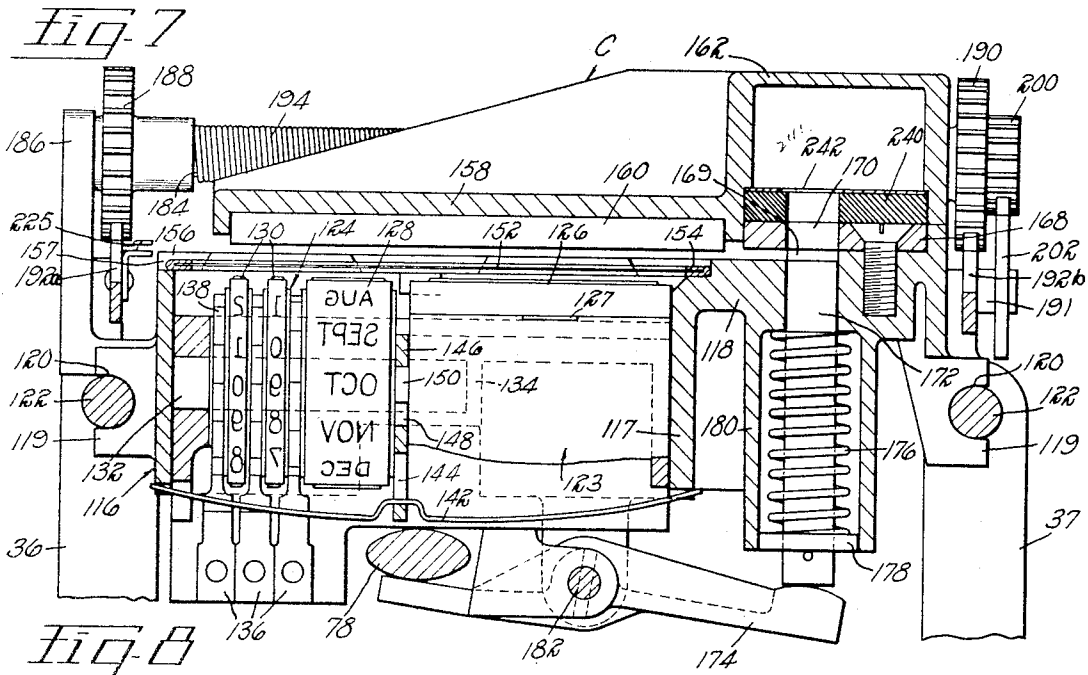
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RECORDER

Filed Sept. 27, 1940

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,352,907

RECORDER

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Application September 27, 1940, Serial No. 358,679

3 Claims. (Cl. 101—317)

The present invention relates to a recorder and more particularly to one for simultaneously making duplicate records, one upon a tape within the recorder and another upon a card insertable into the recorder and adapted to cooperate with and set the recorder for proper operation.

Although the recorder is adaptable for many purposes, that illustrated is particularly suitable for recording installment payments such as those made to insurance agents and wherein it is necessary to have an office record of the collection and also to provide a receipt for the person making the payment (for example, the policy holder).

The object of the present invention is an improved recorder of the above-indicated type which is constructed in such manner that it may be readily and conveniently carried by the agent and yet is sufficiently rugged that it will remain efficient in operation despite the continuous handling thereof.

Another object is a recorder of the above-indicated type wherein the mechanism of the recorder and the receipt card utilized therewith are so constructed that the recorder will only be operable when a proper receipt card is inserted therein in the proper manner.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings:

Figure 1 is a side elevation of the recorder with the casing partly in section to show the interior structure;

Fig. 2 is a side elevation opposite to Fig. 1 and with the casing completely removed;

Fig. 3 is a plan view with the top of the casing removed;

Fig. 4 is a view from the card receiving end of the recorder;

Fig. 5 is an enlarged view of the recording mechanism;

Fig. 6 is a side view of the recording mechanism;

Fig. 7 is an enlarged view, partly in section, of the receipting mechanism;

Fig. 8 is a sectional view through the receipting mechanism;

Fig. 9 is a top view of the date and stencil

carrying frame of the receipting mechanism shown in Fig. 7; and

Fig. 10 is a view of a receipt card particularly adapted to cooperate with the recorder.

Referring to the drawings, an understanding of the invention may best be obtained from a general description thereof with initial reference to the receipt card F shown in Fig. 10. The card is substantially rectangular and is provided adjacent its top edge with type indicia 10, which may be the name of the policy holder and the number of the policy. Spaced a predetermined distance from the indicia 10 are a plurality of equally spaced lines 12, which lines are consecutively numbered from "1" to "26" to consecutively indicate a transaction wherein a receipt for a payment has been given. The card is further formed to provide a shoulder 14 in alignment with the receipt receiving line "1" and, in addition, has a perforation 16 provided at a predetermined distance from the indicia 10 and adjacent the lower edge of the card; the functions of the foregoing being hereinafter apparent.

With the card so constructed, it is adapted to cooperate with the recorder which comprises generally a casing A in which there is located a recording mechanism B. This recording mechanism includes a tape 20 (see Fig. 6) adapted when the receipting card is properly inserted within the recorder to receive an impression from the card type indicia 10 and thus make a permanent record thereof. In addition, the recording device also includes a transaction numbering device 27 which also records on the tape a number corresponding to the number line 12 of the receipting card F upon which the receipt is printed.

The receipting of the card on one of the number lines 12 is accomplished by a receipting mechanism C which carries a stencil 126 bearing the name of the collector and also a dating mechanism 124. The receipting mechanism is slidable within the recorder upon the engagement of the shoulder 14 of the receipting card F with a cooperating shoulder 169 in the receipting mechanism, thus aligning the stencil with the proper numeral line 12 to record the proper transaction.

In addition, the recorder also includes a releasing mechanism D which is operable only when the opening 18 in the receipt card F is properly aligned therewith, and when this alignment is obtained the releasing mechanism functions to release an actuating means E which is operable from the outside of the casing and is adapted to

simultaneously operate both the recording and the receipting mechanism to perform the functions above indicated.

More specifically, the recorder casing A is a rectangular box having top and bottom mating halves 18 and 20 having their rear end walls hinged at 22 and provided adjacent the mating edges of the front end walls with a slot 24 through which the receipt card F may be inserted into the recorder. The casing may be locked by a tumbler lock 26 secured to the bottom casing member and having a locking pawl 28 engageable with a depending locking finger 30 carried by the upper casing member. With these means, the recorder may be locked at the office from which the collector operates and the key maintained at the office, thus preventing any change by the collector in the record of collections. For convenient reading of tape 88, the top casing member 18 may have a window 16 cut therein to enable the agent to read the tape and know that a proper recording is being made.

To support the various mechanisms within the casing, there is provided a main supporting base 32 having secured to its forward corners vertically extending supporting posts 34 and 35, and to its side edges at approximately one-quarter the distance in from the rear corners opposed vertically extending supporting posts 36 and 37. Also carried by the base frame and positioned rearwardly of the posts 36 and 37 is an auxiliary frame 38 having integral therewith vertically extending side brackets 40 and 41.

Referring now to the recording mechanism B, it includes a transversely arranged pressure plate 42 (see Figs. 5 and 6) carrying at one end a lug 44 secured to the post 36 and at its other end a rectangular frame 46 having a forwardly extending lug 48 secured to the post 37 and a rearwardly extending lug 50 secured to the auxiliary frame member 41. The rectangular frame 46 supports a transaction numbering device 47 including a transversely arranged shaft 42 journaled in the opposite side walls of the frame and secured against rotation by a pin 54.

The shaft 52 has mounted thereon for free rotation a unit wheel 56 and a tens wheel 58. The unit wheel has an associated locking disk 60 of usual construction with a single notch 61 and the usual mutilated driving or two-toothed gear 63 for cooperation with a transfer pinion 64. The pinion 64 is freely rotatable on a shaft 65 paralleling the shaft 52 and carries at one end a six-toothed gear 66 having alternate long and short teeth and at its other end a twelve-toothed gear 68 meshing with a gear 70 carried by the tens wheel 58. With this construction, upon rotation of the unit wheel 56, the periphery of the locking disk normally contacts two of the long teeth of the transfer pinion gear 66, preventing rotation thereof until at the completion of one revolution the notch 61 of the locking disk and gear 63 come into alignment with a long tooth of gear 66, whereupon the pinion is rotated to advance the tens wheel one unit. As seen in Fig. 5, the numbering device is so positioned that the type numerals thereon extend slightly below the pressure plate 42 and align with the indicia 10 of the receipt card F when the latter is inserted within the recorder, whereby they will make a simultaneous imprint therewith.

To obtain a printing operation of the type indicia of the receipt card and the counting device, there is positioned beneath the pressure plate 42 and the counting unit a movable hard rubber

platen 72 supported in a frame 73. The frame 73 has an arm 74 extending rearwardly from each end thereof for pivotally mounting the frame and platen on the auxiliary frame bracket arms 40 and 41. There also extends downwardly from the frame 73 a leg 76 having its lower end resting upon an actuating rod 78 of the operating means E. The rod 78 is of oval shape, and the means for operating it will be subsequently described; it being sufficient to point out here that the rod is pivotally mounted in cross braces 79 and 81 of the supporting frame 32 and is normally positioned with its minor axis in the vertical plane, and, when rotated, its major axis will move to the vertical plane, raising the platen 72 against plate 42.

The platen 72 also has associated therewith a supporting frame 80 having an arm 82 extending rearwardly from each end thereof for pivotally mounting the frame on the supporting arms 74 of the platen frame 73. The frame 80 is normally pivoted in a clockwise direction toward the platen 72 by a spring 77 having one end connected to the frame pivot arm 80 and its other to the frame arm 74. However, the downward movement of frame 80 is limited by a stop 83 extending vertically from cross brace 79 and adapted to engage arm 80 and thus normally space the frame 80 above platen 72. The type ribbon 84 is carried in a reinforcing frame 86 resting in the frame 80 and readily removable to permit renewal thereof.

With the above construction, there is fed between platen 72 and ribbon 84 a paper tape 88 which is drawn forwardly from a roll 90 back over the forward edge of platen 72, then rearwardly to a winding roll 92. The rolls 90 and 92 are mounted in like manner (see Fig. 3); this being accomplished by providing a recess in each end of the roll for receiving a pin 93 carried by a flange 95. The flange 95 for supporting the right-hand end of the roll is pivotally mounted in the auxiliary frame bracket 41; whereas the flange 95 of the left-hand end of the roll is provided with a split collar 97 for receiving a key 99 rotatably mounted in the auxiliary frame bracket 40. The split collar and key arrangement allows the flanges 95 to be moved outwardly from the roll to permit the removal thereof; the flanges normally being held in position by a coiled spring 101 spring pressed between the flange and an adjoining member.

To automatically wind the tape and thus present an unprinted section over the platen for each successive operation, there is pinned to the key 99 of the roll 92 a ratchet 96 (see Figs. 3 and 6), and journaled thereon is a pawl carrying lever 98. The lever 98 carries a pawl 100 which is normally urged into engagement behind one of the teeth of the ratchet 96 by a spring 102, whereupon rotation of the pawl carrying lever 98 in a counterclockwise direction about the shaft 94 will rotate the ratchet to take up the tape 88. To obtain this rotation of the lever 98, it is provided that a depending tongue 104 receivable in a slot 106 of a lever 108 carried by a rod 110 slidably mounted in the base of the auxiliary frame 38. Sliding motion of the rod 110 is obtained by providing near its forward end a cam slot 112 into which there extends a camming pin 114 carried by the actuating rod 78. With this arrangement, upon rotation of rod 78 in a clockwise direction, platen 72 and tape 88 will be raised first against the type ribbon 84 and then against the indica 10

of the receipt card and the type numerals of the transaction numbering device to make a recording on the tape 88. Simultaneously, rod 110 will be moved rearwardly to rotate pawl carrying lever 98 in a clockwise direction and move pawl 100 behind the next succeeding tooth of ratchet 96. Upon reverse rotation of rod 78, platen 72 and the type ribbon frame 80 will return to the position shown in Fig. 6, and lever 98 will be moved counterclockwise to rotate shaft 94, winding the tape sufficiently to place a clean area on platen 72. It will be noted that inasmuch as the tape has been moved out of contact with the type ribbon, no smearing will result as the tape is being drawn or wound to present a clean area over the platen.

To prevent backing up of the roll 92, the ratchet 98 also has associated therewith a pawl 103 pivoted on the auxiliary frame bracket 40 (see Figs. 3 and 6) and normally spring pressed into engagement with the ratchet by a spring 105.

Referring now to the receipting mechanism C (Figs. 7 to 9), it comprises a carriage 116 including a substantially rectangular housing 117 and a plate 118 extending laterally from the upper right edge of the housing 117. To support the carriage, the left side wall of housing 117 is provided with spaced lugs 119, and depending from the plate 118 are similar lugs 120; said lugs having half rounded bearing portions 120 for mounting the carriage on the spaced circular runners 122 extending longitudinally between and supported in the front and rear main frame posts.

The housing 117 of the carriage has arranged therein a removable rectangular frame 123 carrying a dating mechanism 124 and a stencil 126, which stencil would carry the name of the agent (see Fig. 9). The dating mechanism 124 includes a month wheel 128 and number wheels 130 rotatably mounted on a shaft 132 having one end mounted in the left side wall of the frame 123 and its other end in a boss 134 provided in an intermediate wall of the frame 123.

To hold the month and dating wheels in proper position, there is mounted on the forward wall of the frame 123 a plurality of spring fingers 136 adapted to engage within cooperating notches 138 provided on the month and dating wheel hub. To support the stencil 126, the latter is provided with outwardly extending ears 127 secured to the front and rear walls of frame 123, as by screws 125. To maintain the frame 123 within housing 117, its lower edge rests upon the actuating rod 78 and is normally urged to this position by a spring 142 having its outer ends positioned beneath the lower edges of the side walls of housing 117 and extends intermediate of its ends through a slot 144 provided in a latching member 146. The latching member 146 also functions to retain the dating mechanism in proper position, and to do this it is provided with an opening 148 through which the end of the shaft 132 may extend; the shaft then being provided with a groove 150 alignable with the opening 148, whereupon the latching member 146 will be urged downwardly to position the upper end thereof in the groove of the shaft.

As in the recording mechanism, a type ribbon 152 carried in a supporting frame 154 overlies the dating mechanism and stencil; the ribbon being carried in a recess 156 provided in the upper surface of the carriage 116, and slidable

therein through the left open end 157 of the recess. To cooperate with the dating and stenciling means, there is also supported on carriage 116 a recessed plate 158 carrying a platen 160 (see Fig. 7). The plate 158 extends outwardly from a substantially rectangular housing 162, which housing is provided with extending slotted lugs 164 receivable beneath securing screws 166 for removably securing the plate in position.

The housing 162 overlies a die 168 secured to and spaced slightly above the top face of the plate 118. The die 168 has a rectangular opening 170 therethrough having its rear edge in alignment with a raised stop shoulder 169 on plate 118. Cooperating with die 168 is a rectangular cutting punch 172 carried by the carriage and arranged with its upper end flush with the face of plate 118 and its lower end resting upon an actuating lever 174. To normally urge the punch to this position, there is mounted thereon a spring 176 compressed between the lower face of the plate 118 and a washer 178 pinned to the punch and guided in a sleeve 180 depending from the plate 118. To operate the cutting punch, the lever 174 extends from beneath the actuating rod 78 and is pivoted intermediate of its ends on a pin 182 supported in brackets depending from the front and rear walls of the carriage housing 117.

As previously indicated, the carriage 116 is slidably mounted on runners or tracks 122, and means are provided for maintaining the carriage in proper transverse alignment and for preventing cramping or jamming during longitudinal movement on the runners. To accomplish the foregoing, there is provided a transverse shaft 184 (see Figs. 3, 7 and 8) journaled in brackets 186 extending upwardly from the rear lugs 119 of the carriage, and pinned adjacent either end of the shaft are gears 188 and 190. The gears 188 and 190 mesh with racks 192a and 192b extending longitudinally between and secured to the front and rear main frame posts 34 and 36 (see Figs. 1 and 2) above the runners 122.

There is further mounted on the shaft 184 intermediate of the gears a spiral spring 194 having one end 196 secured in the hub of the gear 188 and its other end 198 secured to the bracket 186 (see Fig. 3), whereby when the carriage is pushed inwardly or forwardly the spring will be wound to increase the tension thereof and, upon being released, will automatically return the carriage to its forwardmost position.

The movement of the carriage is obtained upon the insertion of the receipting card F therein, whereupon the shoulder 14 of the card will abut against the carriage shoulder 169 just forwardly of the cutting plunger 172, and thereafter further pushing of the card will move the carriage forwardly until the card type indicia 10 is properly positioned beneath the recording mechanism. Thereafter, upon actuation of the rod 78, both the receipting and recording mechanisms will be operated and the card will be receipted on the line 12 adjacent the shoulder 14.

To imprint upon the recording mechanism tape 88 the numeral corresponding to the numeral opposite the line 12 of the receipting card, there is also secured to the gear 190 of the carriage a gear 200 meshing with a rack 202 (see Fig. 2) slidably mounted on the main supporting frame post 37 and a pin 191 extending from rack 192b.

As the carriage is moved forwardly, the rack 202 will simultaneously be moved forwardly to operate a gear 193 carried by the unit wheel 56 of the recording mechanism counter and thus operate the counting unit. It will be noted that the gear 200 is but half the size of the carriage gear 190, and thus the rack 202 will only be moved half the distance the carriage is moved, thereby permitting the length of the recorder being materially reduced. As the numeral "1" is to be imprinted upon forwardmost movement of the card, the indicia on type wheels 56 and 58 is arranged as shown whereby upon rotation of gear 193 the numeral wheels will be rotated to bring the proper numeral into position for the registering operation.

Referring now to the releasing mechanism D (see Figs. 3 to 5), this includes a plunger 204 positioned in a recess 206 provided in the top member 18 adjacent the forward end thereof. The plunger has a stem 208 extending through an opening at the bottom of the recess and provided on its lower end with a collar 210 and on its upper end with a pushbutton 212. Intermediate of the button 212 and the bottom of the recess is a spring 214 for normally holding the plunger in its outermost position. As seen in Fig. 4, the plunger is offset relative to the center of the card-receiving slot 24, and the perforation 16 is likewise offset, thus requiring the proper insertion of the card within the recorder before the plunger can be moved downwardly.

When moved to its lowermost position, the lower end of the plunger will project through the perforation 16 of the receipt card and engage the upper end of a second plunger 216. The plunger 216 is mounted in a sleeve 218, and its lower end extends through the sleeve and carries a transverse plate 220 provided with an opening 222 alignable with a lug 224 depending from the actuating rod 78. The plunger 216 is normally maintained in its upper position by a spring 226, and when in such position the locking lug 224 of the actuating rod will be positioned in the opening 222 of the locking plate, and thus the rod cannot be operated. However, when the card and plunger 204 are properly aligned, upon depressing the former the plunger 216 will be lowered to release the locking lug 224 from the locking plate 220 to release the actuating means E. To further assure proper location of the receipt card F, there is arranged on the rack 192a a U-shaped guide 225 aligned with the casing opening 24 and extending therefrom to adjacent the recording means B.

To operate the actuating means E, the outer end of rod 78 is provided with a reduced end 228 extending into a recess 230 provided in the front wall of the casing. Mounted on the end 228 is a lever 232 which is positioned within the recess and has a semi-circular portion 235 cut therefrom to cooperate with a semi-circular portion 236 of the recess to permit the gripping of the lever and allow the operation of same.

The complete operation of the device may readily be understood by assuming that a new card F is to be initially receipted on the line 12 opposite the numeral "1." It will be seen that the shoulder 14 of the card is cut in alignment with the line "1." Upon inserting the card into the recorder, the shoulder 14 will engage behind the carriage shoulder 169 of the receipting mechanism and push the receipting mechanism forwardly until the card aperture 16 is aligned with the releasing plunger 204. When this occurs, the

indicia 10 will overlie the platen 72 of the recording mechanism; it being apparent that platen 72 and releasing plunger 204 are spaced apart the same distance as the indicia 10 and the aperture 16. Likewise, due to the forward movement of the carriage, the rack 202 will have been operated to properly set the transaction numbering device of the recording mechanism to the numeral "1" corresponding to the numeral "1" on the card, upon which line the receipt is to be printed.

With the card so inserted and the releasing plunger 204 pressed downwardly, the actuating mechanism may be operated, and upon the pivoting of the lever 232 the rod 78 will be operated in a clockwise direction to raise the platen 72 of the recording mechanism and the frame 123 of the receipting mechanism, thus simultaneously printing on the tape 88 the permanent record on the card and printing on the card the permanent record within the recorder.

In like manner, the actuating means will simultaneously operate the cutting plunger 172 to cut a section from the left-hand edge of the card F, as viewed in Fig. 10, to provide a new shoulder 14 aligned with the numeral "2." With this section cut away, when the card is inserted for the second receipting operation the shoulder 14 will not engage the carriage shoulder until it is aligned with the line 12 opposite the numeral "2," and thus the forward movement of the receipting mechanism will be reduced a corresponding amount and the transaction numbering device of the recording mechanism operated to set up the proper numeral for the second receipting mechanism.

In order to prevent the cut-off sections of the card from dropping down into the receipting mechanism, there is provided on the upper face of the die 168 a rubber block 240 having an opening 241 aligned with the die opening 170, whereupon the cut-off section will be frictionally held by engaging the edges of the rubber block. The block 240 may be held in position by a thin plate 242 forced into the housing 162 and having an opening aligned with the rubber block opening 241.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. In a device of the character described, a casing having at one end a slot adapted to receive a card having an opening therein, impression means within said casing, guide means within said casing for locating said card with a predetermined portion thereof in proper relation to said impression means, means for operating said impression means, means for locking said impression means against operation until a card is properly positioned within said casing, and means for releasing said locking means and including a manually operable plunger carried by said casing and normally located above the plane of the

card when inserted within the casing, said locking means being aligned with said plunger and located beneath said plane whereby when said card is properly positioned in said casing with the opening therein aligned with said plunger said plunger may be depressed to release said locking means.

2. In a device of the character described, a casing having at one end a slot adapted to receive a card having an opening therein, impression means within said casing, guide means within said casing for locating said card with a predetermined portion thereof in proper relation to said impression means, means for locking said impression means against operation until a card is properly positioned within said casing, and means for releasing said locking means and including a manually operable plunger carried by said casing and normally located above the plane of the card when inserted within the casing, said locking means being aligned with said plunger and located beneath said plane whereby when said card is properly positioned in said casing with the opening therein aligned with said plunger said plunger may be depressed to release said locking means, the opening in said card and said plunger being offset relative to the center of the card receiving slot.

3. In a recorder for making a double record one on a tape and the other on a receipt card having printing indicia and a preformed stop shoulder in one edge thereof; a combination of a casing having an opening for the insertion of a receipt card, means for supporting the tape, recording means for transferring the printing indicia of the card to said tape and including an upper member and a vertically movable lower member, receipting means for making entries on the card and including an upper member and a vertically movable lower member, stop means for engaging the stop shoulder of an inserted card to properly position the card with respect to said receipting means, a cutting punch for preforming a new stop shoulder on the receipt card upon each recording operation, a pivoted lever for operating said punch, and actuating means for moving said vertically movable members and for operating said punch and comprising a rod of oval cross section and upon which said lower members rest and with which said lever engages and means for rotating the rod about its axis.

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