May 10, 1960 P. H. WILLIAMS ET AL 2,935,934

PRINTING MECHANISMS

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FIG.1

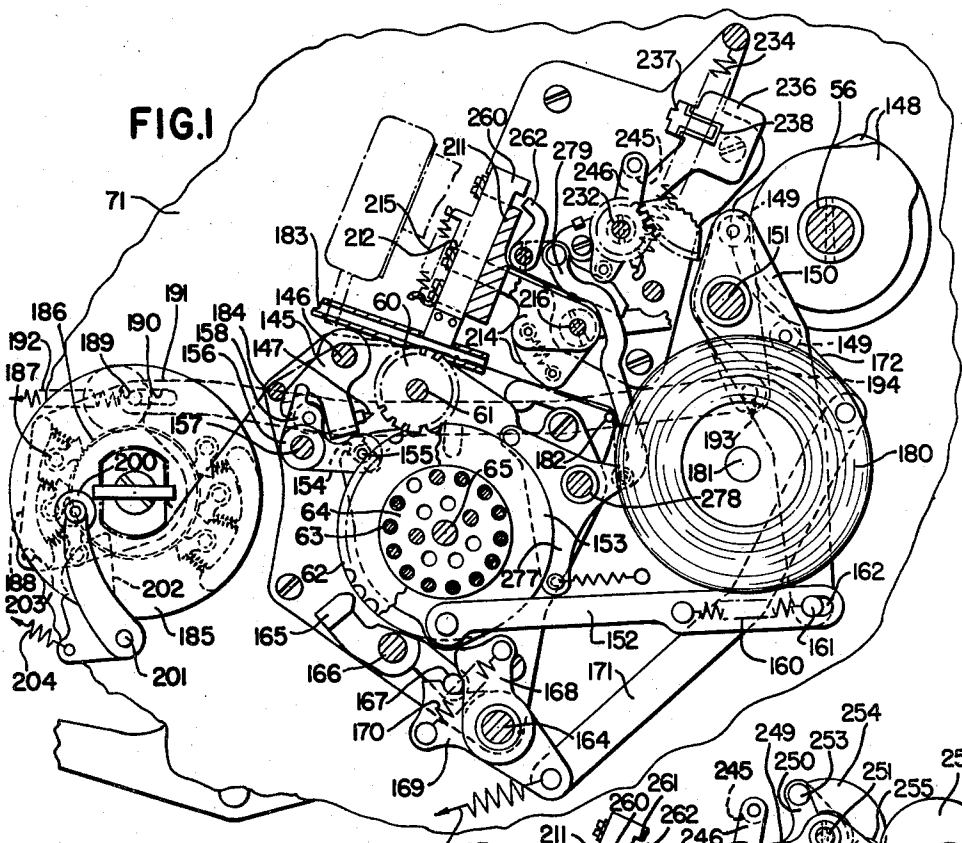



FIG.2

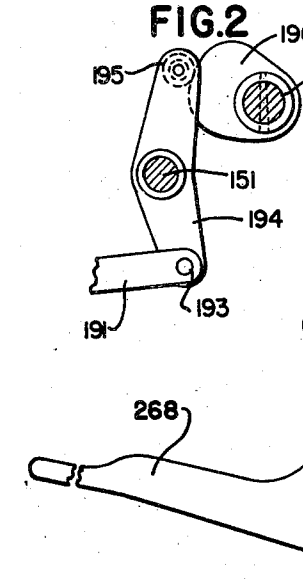
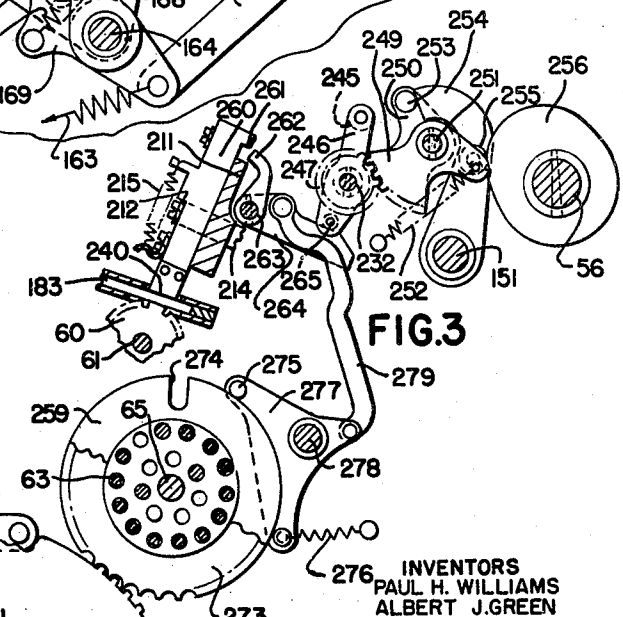



FIG.3

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PRINTING MECHANISMS

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FIG.4

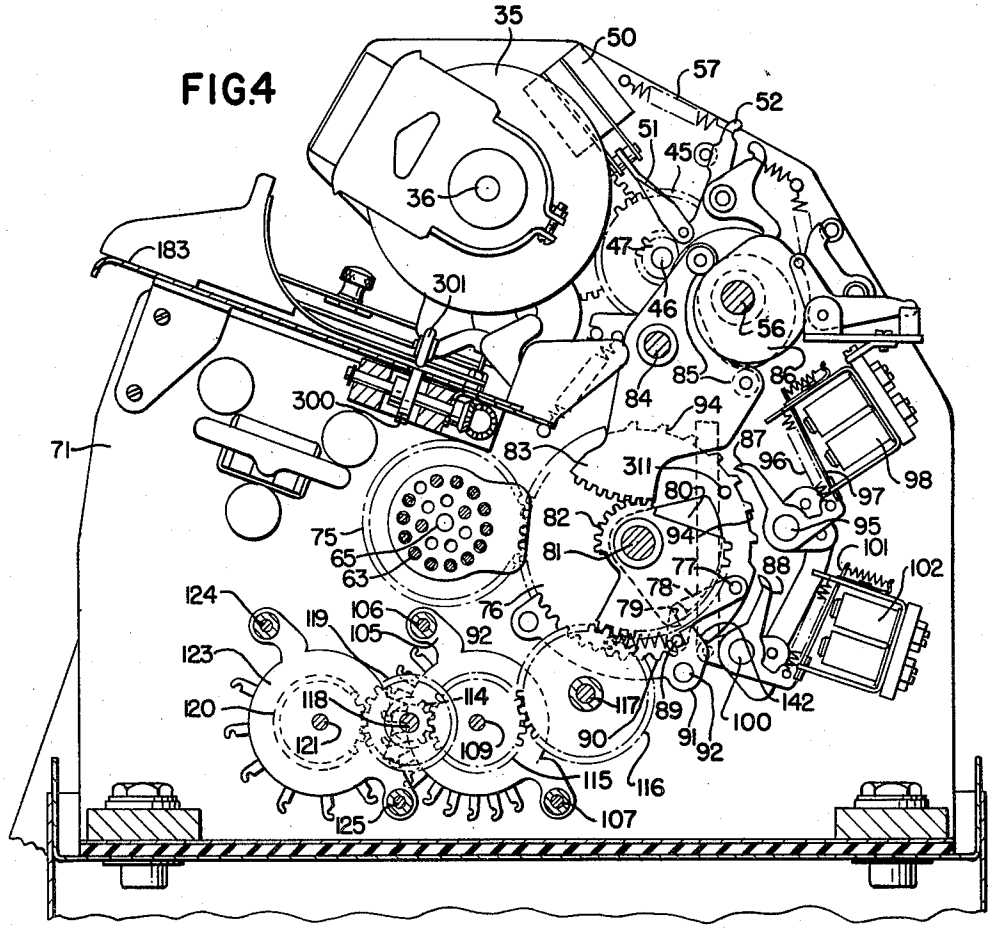
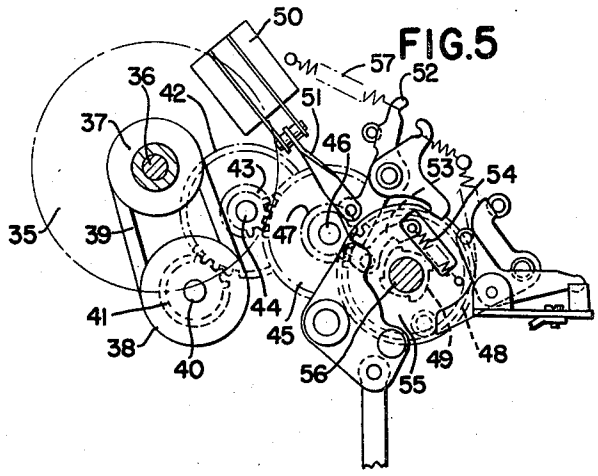



FIG.5

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PRINTING MECHANISMS

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FIG.6

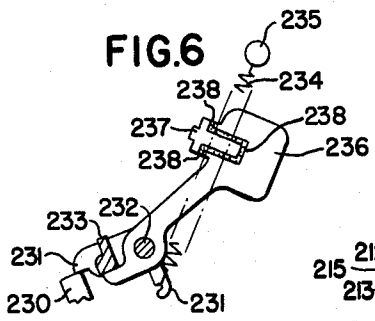



FIG.7

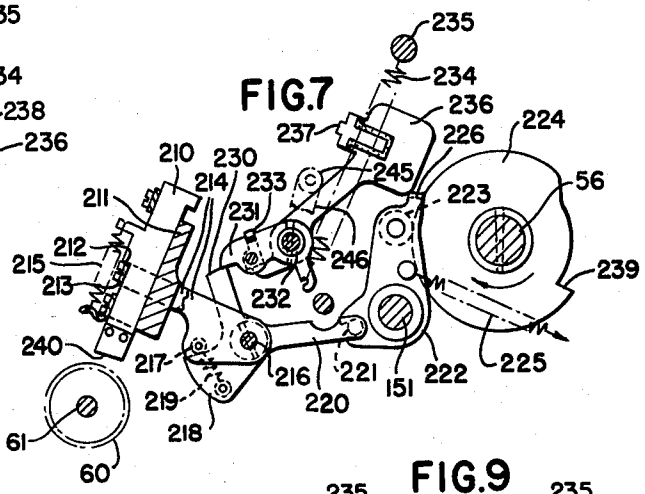



FIG.8

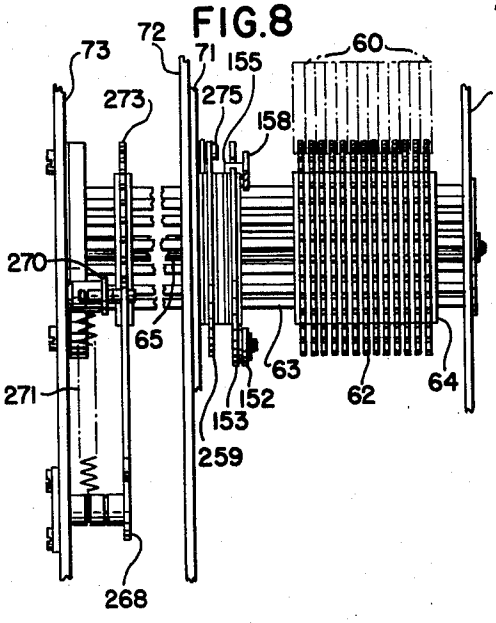
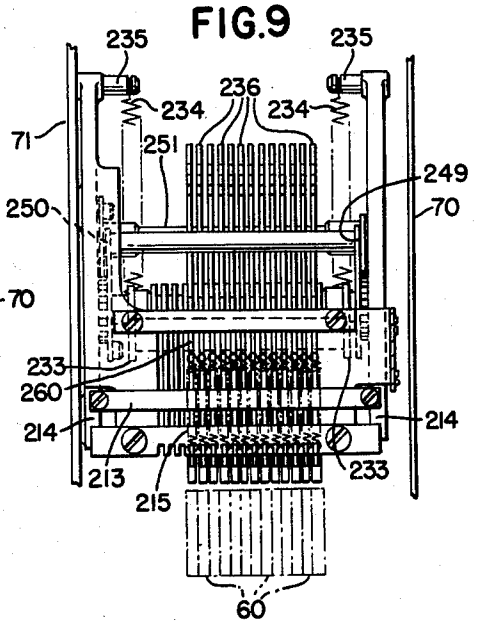



FIG.9

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PRINTING MECHANISMS

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FIG.11

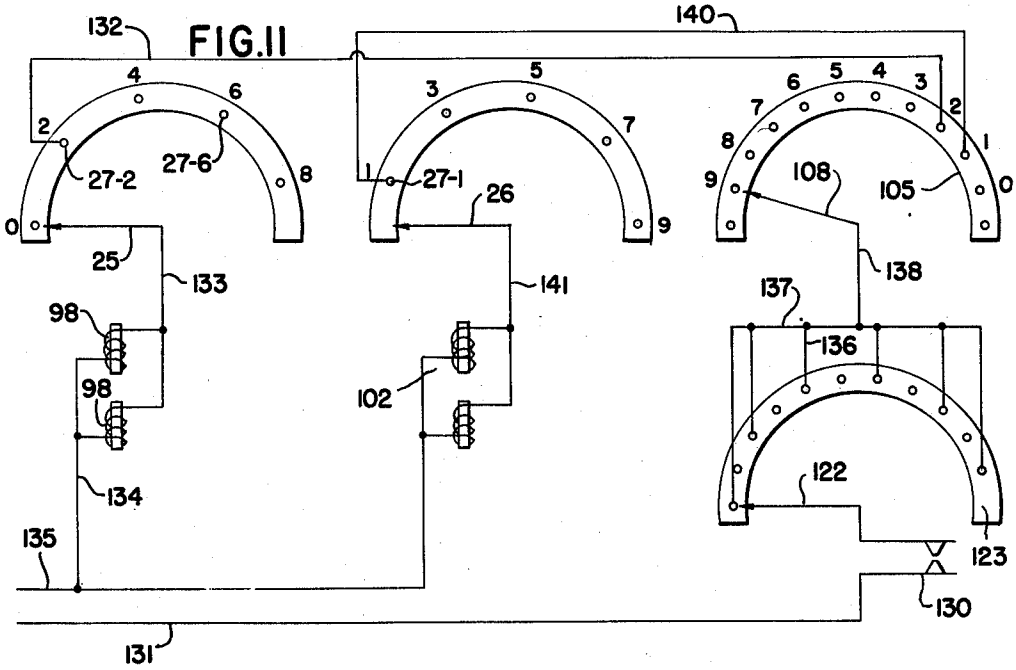
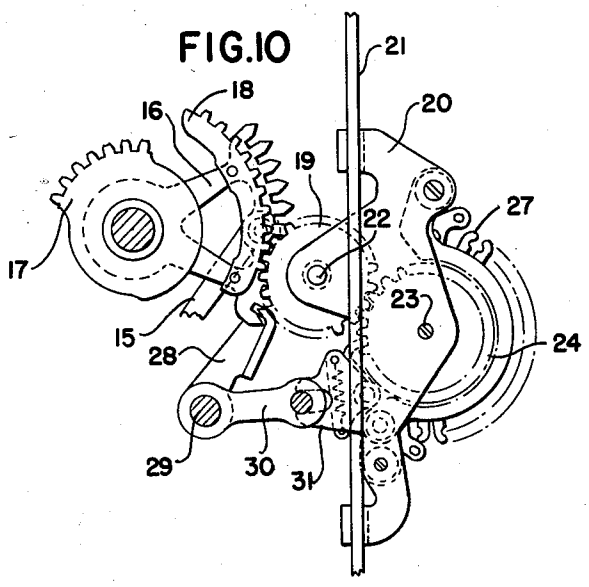



FIG.10

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United States Patent Office 2,935,934
Patented May 10, 1960



2,935,934

# PRINTING MECHANISMS

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Application June 23, 1958, Serial No. 743,842

10 Claims. (Cl. 101—93)

This invention relates to improvements in type-setting and printing mechanisms.

The invention is disclosed, applied to machines of the type shown in United States Patents No. 1,865,147, issued to Bernis M. Shipley on June 28, 1932, and No. 2,625,-322, issued to Frank B. Moser on January 13, 1953.

It is an object of the present invention to provide a printing means for printing off a special ribbon containing magnetic ink, whereby data can be printed on record material which is later adapted to control a magnetic pick-up device to read data from the record material.

Another object of the invention is to provide a self-contained printing mechanism which is controlled from the differential mechanism of a machine of the type shown and described in the above-mentioned patents, and which type is controlled by electric circuits set in the machine of said patents.

A specific object of the invention is to provide a printing means which acts to uniformly transfer the magnetic ink from a ribbon to the record medium.

A specific object of the invention is to provide a printing platen which is not only given a blow to strike the type carrier, but also shifted sidewise as the blow is given to set up a friction action between the ribbon and the type carrier, to obtain uniform prints.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, a preferred form or embodiment of which will be hereinafter described with reference to the drawings which accompany and form a part of this specification.

Of said drawings:

Fig. 1 is a sectional view taken through the printing section of the printing mechanism.

Fig. 2 is a detail view showing the cam for operating the ribbon feed.

Fig. 3 is a detail view of a means for locking out the symbol-printing type carrier during certain operations of the machine.

Fig. 4 is a sectional view taken through the mechanism for controlling the setting of the printing wheels.

Fig. 5 is a detail view of the machine release mechanism.

Fig. 6 is a detail view of a part of the mechanism shown in Fig. 7.

Fig. 7 is a detail view of the printing platen mechanism.

Fig. 8 is a front elevational view, showing the type-setting connections from the electrical controls shown in Fig. 4.

Fig. 9 is a front elevational view of certain of the mechanism shown in Fig. 1.

Fig. 10 is a detail view showing the switching mechanism, together with a part of the mechanism located in the accounting machine, for controlling the setting of the type wheels.

Fig. 11 is a detail wiring diagram showing the setting of an even and an odd number type at the printing line.



*Accounting machine switch setting mechanism*

As is well known, in machines of the type shown and described in the above-mentioned patents, an indicator link 15 (Fig. 10) is adjusted under control of differential mechanism in the machine. The link 15 positions a segment 16 according to the amount key which has been depressed prior to the machine operation on the accounting machine keyboard. The connection is normally for the purpose of setting indicators through a segment 17, to indicate the amount entered into the machine. The indicator segment 16 has attached thereto a rack 18, which meshes with a pinion 19, carried on a bracket 20, supported by the back frame of the accounting machine. The bracket 20 carries a stud 22, on which the pinion 19 rotates. The bracket 20 also supports a shaft 23, on which a gear 24 is rotatably mounted. The gear 24 is connected to a switch arm 25 (Fig. 11) for even-numbered digits, and to a switch arm 26 for odd-numbered digits. These arms 25 and 26 are shown diagrammatically in Fig. 11. The switch arms 25 and 26 close circuits by means of contacts 27, as is well known in the art.

When an odd-numbered digit, such as the digit 1, is entered, the switch arm 26 is arrested when it comes into contact with the contact 27–1 (Fig. 11). When the digit 2, for example, is entered, the switch arm 25 comes to rest on the contact 27–2 (Fig. 11). These switches control the setting of corresponding data in the printing mechanism in a manner to be described hereinafter.

An aliner 28 (Fig. 10) is pivoted on a shaft 29 and is secured to an arm 30, which is operated by a notched arm 31 during each machine operation to maintain the segment 16 and the switch arm in a set position during the machine operation.

*Printer-operating mechanism*

The printer is operated by a motor 35 (Figs. 4 and 5) independently of the operation of the accounting machine. The motor 35 is provided with an armature 36, on which is mounted a pulley 37 (Fig. 5). The pulley 37 operates a second pulley 38, by a belt 39. Secured to the pulley 38, and mounted on a shaft 40, is a gear 41. The gear 41 meshes with a gear 42 connected to a pinion 43 mounted on a stud 44. The pinion 43 meshes with a gear 45 rotatably mounted on a stud 46, and connected to the gear 45 is a pinion 47. The pinion 47 meshes with a gear 48, to which one member 49 of a clutch is secured.

When during the operation of the machine the motor 35 is released for operation, the clutch member 49 is rotated clockwise (Fig. 5). When it is desired to operate the printer, a solenoid 50 is energized to withdraw a link 51 and rock a clutch control pawl 52 clockwise (Fig. 5). The lower end of the clutch pawl 52 engages a toe on a clutch pawl 53, which is spring-urged, by a spring 54, to engage the clutch member 49. Normally, the clutch pawl 52 prevents the spring 54 from rocking the clutch pawl 53. However, when the solenoid 50 is energized to rock the pawl 52 clockwise, it withdraws the lower end of the pawl 52 from engagement with the toe on the pawl 53, whereupon the spring 54 rocks the pawl 53 clockwise to engage one of the shoulders on the clutch member 49, in the manner well known in the art. The pawl 53 is pivotally mounted on a disk 55, secured to the printer cam shaft 56 (see also Fig. 4). At the end of the cycle of operation, a spring 57 (Figs. 4 and 5) returns the clutch pawl 52 into the path of the toe on the pawl 53, and therefore, when the toe comes into engagement with the lower end of the pawl 52, it is rocked out of engagement with the clutch member 49.

*Type-wheel-setting mechanism*

The machine is provided with a plurality of type wheels **60** carried on a shaft **61** (Figs. 1, 3, 7, 8, and 9). Each type wheel **60** meshes with a gear **62**, having internal teeth meshing with pinions on square shafts **63**, as shown in United States patent to Walter J. Kreider, No. 1,693,279, issued on November 27, 1928. The gears **62** are rotatably mounted on disks **64** carried on a shaft **65**. The square shafts and the shaft **65** are supported between a right side frame **70** and a left frame **71**, and these shafts project through side frame **72** and into a left side frame **73**, as illustrated in Fig. 8. Each ring gear **62** is connected to a ring gear **75** through the square shaft **63**. The ring gears **75** are located between the frames **72** and **73** and mesh with a differentially-settable disk **76** (Fig. 4). The differentially-settable disk **76** is provided with a stud **77**, on which a latch pawl **78** is pivoted. The latch pawl is provided with a stud **79**, which projects into a notch in a driving segment **80**. A driving segment **80** is provided for each type-wheel-setting mechanism, and the driving segments are all pinned to a shaft **81**, on which the differential disks **76** are rotatably mounted. Also secured to the shaft **81** is a segment **82**, meshing with a segment **83** pivoted on a shaft **84** carried between the frames **72** and **73**. The segment **83** is provided with two anti-friction rollers **85**, which engage with cam plates **86** on the cam shaft **56**.

When the cam shaft **56** is rotated, the cam plates **86**, cooperating with the rollers **85**, rock the segment **83** first counter-clockwise (Fig. 4) and then back clockwise to its normal position. Counter-clockwise movement of the segment **83** rocks the segment **82** clockwise, thus rocking the actuators **80** clockwise. Clockwise movement of the actuators **80**, through the stud **79** and the pawl **78**, rocks the differential setting member **76** clockwise until it is arrested by a pawl **87** or **88**, in a manner described hereinafter. The pawls **87** and **88** are moved into the path of movement of shoulders **94** at a proper time, as will be described, and arrest the differential disk **76**, thus causing the latch pawl **78** to rock counter-clockwise on the stud **77** and move a stud **89** thereon into a notch **90** of an alining and locking bar **91**, carried on a pair of rods **92**.

The pawls **87** and **88** are moved into the path of movement of the shoulders **94** on the differentially settable disk **76**, under control of the amount differential switches, shown in Fig. 10, of the accounting machine. When the differentially settable disk **76** is actuated, it will actuate the gear **75** a like extent and, through the square shaft **63** and the ring gear **62**, adjust the type wheel **60** in accordance with the setting of the differentially settable disk **76**. As before mentioned, a differentially settable mechanism is provided for setting each type wheel **60**.

The pawls **87** and **88** are rocked under control of the switch (Fig. 10) when a switch arm **25** or **26** is positioned in accordance with the value of the key depressed on the accounting machine keyboard. The pawl **87** is pivotally mounted on a stud **95** and is spring-urged, by a spring **96**, to urge the free end of the pawl **87** into the path of movement of the shoulders **94** on the differentially settable disk **76**. Normally, the spring **96** cannot rock the pawl **87**, inasmuch as the pawl is restrained by the armature **97** of the solenoid **98**, which engages a shoulder on the pawl **87**. When the solenoid is energized according to the setting of the arm **25** (Fig. 11), the armature **97** is withdrawn, thus releasing the pawl **87** to the action of the spring **96**. Likewise the pawl **88** is mounted on a stud **100** and is controlled by the armature **101** of the solenoid **102**.

The solenoid **98** is energized under control of the even-numbered digit keys of the accounting machine, whereas the solenoid **102** is energized under control of the odd-numbered digit keys. The purpose of providing the two pawls **87** and **88**, for arresting the differentials **76**, is to provide more time for permitting the pawl **87** or **88** to drop into position in the path of movement of the shoulders **94**. By providing separate pawls for the even and odd numbers, a greater spacing of the shoulders **94** on the differentially settable member **76** is possible.



To control the time of energization of the solenoids **98** or **102**, a scanning switch **105** (Figs. 4 and 11) is provided. The scanning switch is mounted on a pair of studs **106** and **107**, carried by the side frame **71**. The rotor **108** of the scanning switch **105** is rotated on a stud **109**. The rotor **108** of the scanning switch **105** is secured to a gear **115**, meshing with a gear **116**, rotatably mounted on a shaft **117**, and the gear **116** meshes with teeth of the segment **82**. Also meshing with the gear **115** is a pinion **114**, rotatably mounted on a shaft **118**, and the pinion **114** is secured to a gear **119** in mesh with a gear **120**. The gear **120** is mounted on a shaft **121** and is also connected to a rotor **122** of a switch **123** supported on rods **124** and **125**.

When the differentially settable member **76** is adjusted according to the value of the key depressed in the accounting machine, the rotors **108** and **122** move to a corresponding position. It will be noted that the rotor **122** moves twice the distance of the rotor **108**. This is to give sufficient time for the rotor **108** to be properly set before the rotor **122** is set. The difference in extent of rotation is effected by gearing down the movement of the rotor **122** by the pinion **114** and the gear **119**.

Referring now to the circuit diagram in Fig. 11, and assuming that a "2" key has been depressed in the amount bank of the accounting machine, the switch arm **25** will be positioned to engage contact "2" (Fig. 11). Now then, when the scanning switch rotor **108** reaches the "2" position, a circuit will be closed between the "2" position of the rotor in the accounting machine and the "2" position in the scanning switch **105**. The rotor **108** is connected to all of the contacts in the switch **123**, and therefore, when the rotor **122** contacts a live contact in the switch **123**, the circuit will be closed through the solenoid **98** after a control switch **130** is closed. The control switch **130** is closed at the proper time during the machine operation. Assuming that the digit "2" has been set up on the accounting machine keyboard, the circuit will be as follows:

From one side of the power line **131**, the circuit is closed through switch **130**, rotor **122** of the scanning switch **123**, to switch contact and lead **136**, bus bar **137**, lead **138**, switch rotor **108**, line **132**, contact **27–2**, switch arm **25**, line **133**, through the solenoid **98**, line **134**, to the other side **135** of the power line.

Fig. 11 also shows a circuit for the odd-numbered digits and is illustrated with the "1" entered in the accounting machine. In this condition, the circuit will be closed through the line **131**, switch **130**, rotor **122**, bus bar **137**, line **138**, rotor **108**, line **140**, contact **27–1**, switch arm **26**, line **141**, solenoids **102**, back to the other side **135** of the power line.

Fig. 11 shows only the two circuits; that is, the circuit for connecting the odd number, or "1," digit, and the circuit for connecting the even number, or "2," digit. Each digit from 1 to 9 is provided with a separate circuit, such as the circuits **132** and **140**. The two circuits shown have been shown as illustrations and have been limited to these two circuits for the sake of simplicity.

When no key is depressed in a key bank, the switch arms **25** and **26** are arrested in zero position by a mechanical means and not through solenoids, as in the case of digits 1 to 9. To effect the zero setting of switch arms **25** and **26**, a stud **311** is provided on each differentially settable disk **76** (Fig. 4) and is located in a position wherein it strikes the surface **142** of the locking bar **91**, when the disk **76** reaches zero position.

*Type wheel aliner*

After the type wheels **60** have been adjusted, an aliner **145** (Fig. 1), mounted on the shaft **146**, is rocked to

engage an alining tooth 147 thereon with the notches in the type wheels 60. The aliner 145 is actuated by a cam 148 (Fig. 1) secured to the cam shaft 56. A pair of rollers 149 are mounted on a cam arm 150, pivoted on a shaft 151. The lower end of the cam arm 150 is connected to a link 152, pivoted to a ring 153, mounted on a disk 64 on the transmission line 65. The ring 153 is provided with a bifurcation 154, engaging a stud 155 on a bell crank 156, pivoted on a shaft 157. The bell crank 156 is provided with a roller 158, which is held in engagement with the back side of the aliner arm 145 by a spring 160 stretched between a stud on the link 152 and a stud 161 on the lower end of the cam arm 150.

When the cam shaft 56 is rotated, the cam arm 150 is rocked counter-clockwise (Fig. 1), thus pulling on the spring 160 and, through the spring 160, moving the link 152 rightwardly and rocking the ring 153 counter-clockwise (Fig. 1) to rock the bell crank 156 clockwise to press the roller 158 against the aliner arm 145, to move the aliner tooth 147 into engagement with a notch in the type wheels 60, and positively lock the type wheels in set position.

The connection between the cam arm 150 and the link 152 is flexible, and the spring 160 maintains, normally, a stud 161 in the left-hand end of a slot 162 of the link 152.

*Ring gear aliner*

The ring gear 62 (Fig. 1) is also alined in a set position by an aliner 165 (Fig. 1), pivoted on a stud 166. The aliner 165 is provided with a roller 167, which is impinged between a spring-actuated arm 168 and an arm 169 by a spring 170. Both arms 168 and 169 are pivoted on a shaft 164. The lower end of the arm 169 has pivoted thereto a link 171, which in turn is pivoted to a cam arm 172, on the shaft 151, and which is provided with rollers, similar to the rollers 149, which coact with cam plates (not shown) similar to the cams 148. The link 171 and the cam arm 172 are resiliently held in home position by a spring 163.

When the shaft 56 is rotated, the respective cams rock the arm 172 counter-clockwise (Fig. 1) about the shaft 151, thus raising the link 171 and rocking the arm 169 counter-clockwise against the pull of the spring 163. Counter-clockwise movement of the arm 169, through the spring-actuated arm 168, engages the roller 167 and rocks the aliner 165 into engagement with alining notches in the ring gear 62. As the cam reaches home position, the spring 163 restores the arm 172, the link 171, and the arm 169 to home position to withdraw the aliner 165 from engagement with the ring gears 62.

*Printing mechanism*

After the type wheels 60 have been properly set and alined, the printing mechanism is actuated to impinge a tape against the record, upon which the printing is to take place, and the type wheels. The tape used in the printing mechanism is shown and described in the co-pending application Serial No. 733,141, filed by Theodore Maierson et al. on May 5, 1958. The tape shown in said application is one in which magnetic material in a binder is applied in a stippling manner to a thin backing web made of strong film materal, such as "Mylar," which is a polyethylene terephthalate, of a thickness of approximately .0005", and the coating has a profusion of closely-spaced specks of ink caused by the stippling, which specks are practically invisible to the unaided eye because of their small dimensions and close proximity. The magnetic coating in the binder is called magnetic ink, for the purpose of this disclosure.

The tape is wound from a supply roll 180, carried by a stud 181, and is guided around a stud 182, through a slip table 183, over the type wheels 60, around the aforementioned shaft 146, over a rod 184, onto a rewind spool 185.

The rewind spool 185 is provided with a ratchet disk 186, with which a plurality of feed pawls 187 engage. The feed pawls 187 are mounted on a rocking plate 188 and are spring-urged into engagement with the ratchet disk 186. The plate 188 is rotatable about the center of the rewind spool and has, at its upper end, a stud 189 engaging in a slot 190 of a feed link 191. A spring 192 maintains the stud 189 in the left-hand end of the slot 190 and tends to move the link 191 into its left-hand position. The right-hand end of the link 191 is pivoted on a stud 193 mounted on a cam arm 194, pivoted on the beforementioned shaft 151 (see also Fig. 2). The upper end of the cam arm 194 is provided with a roller 195, which is engaged by a cam plate 196 to move the link 191 toward the left and rock the plate 188 counter-clockwise (Fig. 1), at which time the feed pawls ratchet over the ratchet disk 186. During the return stroke of the cam arm 194, as the cam arm moves to its home position, the cam 196, operating on the roller 195, restores the link 191 rightwardly back to its home position, thus rocking the feed plate 188 clockwise, during which time the feed pawls 187 engage the ratchet disk 186 and rotate the rewind spool one step.

The usual feed control device is provided, which comprises a feeler 200 (Fig. 1) normally lying against the outer diameter of the tape on the rewind spool. As the spool increases in diameter, the feeler 200 is rocked counter-clockwise around the stud 201, whereupon a stop member 202 is moved around the stud 201. The stop member 202 is formed to coact with a stud 203 on the feed plate 188, so that the feed plate 188 is rocked counter-clockwise an extent determined by the position of the stop member 202. As the diameter of the rewind roll increases, the feeler 200 is moved outwardly and moves a higher portion of the plate into the path of the stud 203, thus limiting the extent of rocking movement of the feed plate 188. The outer edge of the stop member 202 is developed to cause the extent of feed of the film to be the same, no matter what the diameter of the rewound film may happen to be. A spring 204 normally holds the feeler 200 against the outer diameter of the rewound film.

*Printing hammer mechanism*

The printing platen is so constructed that, as the platen strikes the ribbon and the type wheel, the platen is given a slight sidewise movement to in effect rub the magnetic ink material onto the record material, by sliding it slightly across the face of the type character. Also, the platen is constructed to dwell on the type at the time of impact. This is necessary, inasmuch as an ordinary blow does not make uniform impressions of the magnetic material on the record material. A separate platen 210 is provided for each type wheel. The platens 210 are slidably mounted in a frame 211 (Fig. 7), and a shoulder 212 thereon is normally held in engagement with a bar 213 carried by a yoke 214. A spring 215 holds the shoulder 212 against the bar 213. The yoke 214 comprises two arms 214 connected by the bar 213. The arms 214 are secured to the rotatable shaft 216 and support a rod 217 between them, and the rod 217 is engaged by plates 218, loose on the shaft 216. A spring 219, connected to each arm 218, normally maintains the arms 218 in engagement with the rod 217. The arms 214 have rearwardly-extending fingers 220, carrying a rod 221 between them. The rod 221 extends into a bifurcated arm of a cam follower arm 222, pivoted on the shaft 151. The upper end of the cam follower arm is provided with a roller 223, normally held in engagement with a cam 224 by a spring 225. The cam 224 is secured to the cam shaft 56. Also formed on the cam follower arm 222 is a flange 226, engaging the outer periphery of the cam 224 at certain times, in the manner presently described.

Each arm 218 is provided with an upstanding finger 230, each of which is engaged by an arm 231, pivoted on a shaft 232. The arms 231 are connected by a bail 233 (see Fig. 6). A spring 234, connected to each one of the

arms 231 and to a stud 235 in the framework of the machine, maintains the arms 231 in engagement with the end of the fingers 231. Loosely mounted on the shaft 232 is a hammer 236, one for each printing wheel. The hammers 236 are arranged side by side, as shown in Fig. 9. The upper end of the hammer 236 is enlarged to provide extra weight to give the hammer a needed mass, as hereinafter described. The hammer 236 is provided with an insert 237, which is set in resilient material 238, such as rubber. The purpose of the rubber insert 238 is to provide an increase in contact time against the ribbon; that is, to increase the time during which pressure is exerted against the ribbon to obtain a better imprint from the magnetic ink. Tests have shown that a quick blow by the hammer does not transfer sufficient magnetic ink to obtain usable impressions.

There are four factors contributing to the successful printing for use by a pick-up device when the records are fed through an analyzing machine, which are as follows:

(1) The mass of the hammer, which is obtained by properly weighting the head of the hammer 236;

(2) The force applied by the spring 234;

(3) The velocity of the hammer 236; and

(4) The resilience of the rubber insert 238.

When these four factors are properly balanced, a certain dwell and pressure is applied at the point of impact.

When the cam shaft 56 rotates clockwise, the periphery of the cam plate 224 acts on the roller 223. Just prior to the time that the printing is to be effected, the roller 223 moves from contact with the periphery of the cam plate 224 and rides over a notched section 239 (Fig. 7). At this time, the flange 226 rides on the periphery of the cam plate 224, and, as the notched section 239 moves out from under the flange 226, the spring 225 whips the cam arm 222 clockwise, thus rocking the yoke 214, including the two fingers 220, the rod 221, and the arms 214, counter-clockwise (Fig. 7) to lower the bar 213 attached to the arms 214 to free the platen 210, and at the same time withdraw the ends 230 of the arms 218 from beneath the finger 231 of the hammer-operating yoke. At this time, the strong springs 234, acting through the bail 233, whip the hammer 236 counter-clockwise, impelling the insert 237 against the top of the platen 210, and driving said platen down against the type 60. The lower end of the platen 210 is slightly beveled, as at 240, and therefore, as the platen is engaged with the type as above described, the lower end of the platen is cammed sidewise a slight extent, due to the action of the bevel 240 on the type carriers and the sliding fit of the platen 210 in the frame 211. This sidewise shifting causes a rubbing action on the printing film, to rub the magnetic material onto the record material, which, taken with the dwell at the time of impact, causes a good print to be made on the record material.

After the impression has been made, the hammers 236 are restored to their normal position by a rod 245 (Figs. 1, 3, and 7), carried on the upper end of a pair of arms 246, secured to a shaft 232. Also secured to the shaft 232 is a pinion 247, meshing with a segment 249 on a shaft 251. A similar pinion, which meshes with the teeth of a segment 250, is mounted on the opposite end of the shaft 232. The segments 249 and 250 are pinned to the shaft 251. A spring 252 normally tends to rotate the segments 249 and 250 clockwise, but is limited in its movement by the engagement of a roller 253 on the segment 250 with the upper end of a cam arm 254. Secured to the cam arm 254 is a roller 255, which is held in engagement with a cam 256, on the cam shaft 56, by the spring 252. The cam arm 254 is pivoted on the shaft 151. Action of the spring 252 against the upper end of the arm 254 maintains the roller 255 in engagement with the cam 256. Rotation of the cam 256 when the cam shaft 56 is operated permits the cam arm 254 to rock clockwise, thus permitting the segments 249 and 250 to rock clockwise, to rock the pinions 247 counter-clockwise to move the rod 245 counter-clockwise, thus permitting the hammers to operate in the manner above described. After the hammers have completed their printing operation, the cam 256 reverses movement of the cam arm 254. thus rocking the segments 249 and 250 counter-clockwise, and rotating the arms 246 and the rod 245 clockwise back to their home positions, during which time the rod 245 engages the hammer arms 236 and restores them against the action of the strong springs 234. At this time, the ends 230 of the arms 218 again move beneath the arms 231 to maintain the hammers 236 in the restored, or cocked, position.

The printing mechanism also includes a platen 260 (Fig. 3), for printing a special symbol. During certain operations, it is desired to suppress the printing of this symbol. The symbol-printing platen 260 is provided with a shoulder 261, which may be engaged by a finger 262. The finger 262 is secured to a shaft 263, to which an arm 264 is also secured. The finger 262 and the am 264 are normally depressed by a roller 265 on the lower end of the arm 246, above described, but in the normal position the roller 265 engages the upper end of the arm 264 to maintain the finger 262 in the position shown. However, when the rod 245 is moved to release the printing hammer, the roller 265 is removed from contact with the arm 264. If at this time the platen 260 is still in its upper position, the finger 262 can move beneath the shoulder 261 and prevent operation thereof by its respective hammer 236. Movement of the finger 262 is controlled by a manually-set lever 268 pivoted on a shaft 269. An aliner 270 is spring-urged to maintain a stud 271 in engagement with the alining notch on the segment 268 by a spring 271. The segment 268 is provided with teeth meshing with a ring gear 273. The ring gear 273 is connected to a disk 259 by a square shaft 63 and pinions thereon. The disk 259 has a notch 274 in its periphery. A stud 275 lies adjacent the periphery of the ring 273 and is held in such contact position by a spring 276. The stud 275 is carried on a lever 277 pivoted on a shaft 278 and is connected to the arm 264 by a link 279.

As before described, the roller 265 normally holds the arm 264 depressed and, through the link 279, holds the lever 277 in a position wherein the stud 275 cannot enter the notch 274. As soon as the machine begins its operation, the roller 265 is rocked away from above the arm 264, thus freeing the arm 264 to the action of the spring 276.

If the lever 268, together with the segment formed thereon, is moved far enough to move the notch 274 into the path of movement of the stud 275, the spring 276 moves the stud 275 into the notch, thus raising the link 279, rocking the arm 264 and the finger 262 to move the finger 262 underneath the shoulder 261. Thereupon, after the hammer 264 for the symbol-printing platen is released, the platen cannot move, since the finger 262 locks it against such movement. In this case, no symbol will be printed.

When the check or other record-receiving material is placed on the slip table 183, feed rollers 300 and 301, together with other feeding mechanism, move the record material into proper position to receive the impression. This mechanism is not described herein, inasmuch as it forms a part of a separate application, where it is fully described.

While the form of mechanism shown and described herein is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the form or embodiment disclosed herein, for it is susceptible of embodiment in various other forms.

What is claimed is:

1. In a machine of the class described, the combination of a type carrier, a platen engageable with the type carrier to cause printed impressions to be made, a hammer to strike the platen to force the platen against the

type carrier, a guide to guide the platen into engagement with the type carrier, the engaging surface of the platen being beveled at an angle to the direction of movement of the platen, said bevel causing the platen to shift sidewise to set up a rubbing action against the type carrier, and power means to drive the hammer against the platen.

2. In a machine of the class described, the combination of a type carrier, a platen engageable with the type carrier to cause printed impressions to be made, a hammer to strike the platen to force the platen against the type carrier, a guide to guide the platen into engagement with the type carrier, the engaging surface of the platen being beveled at an angle to the movement of the platen, said bevel causing the platen to be shifted sidewise to set up a rubbing action against the type carrier, and power means to drive the hammer against the end of the platen opposite the beveled end thereof.

3. In a machine of the class described, the combination of a type carrier, a tape coated with magnetic ink, a platen engageable with the tape and the type carrier to cause printed impressions to be made, a hammer to strike the platen to force the platen against the tape and the type carrier, a guide to guide the platen into engagement with the tape and the type carrier, the engaging surface of the platen being beveled at an angle to the movement of the platen, said bevel causing the platen to be shifted sidewise to set up a rubbing action against the tape and the type carrier, and power means to drive the hammer against the platen.

4. In a machine of the class described, the combination of a type carrier, a tape coated with magnetic ink, a platen engageable with the tape and the type carrier to cause magnetic printing impressions to be made on record material, a hammer to strike the platen to force the platen against the tape, the record material, and the type carrier, a guide to guide the platen into engagement with the tape, the record material, and the type carrier, the engaging surface of the platen being beveled at an angle to the movement of the platen, said bevel causing the platen to be shifted sidewise to set up a rubbing action against the tape to thereby rub the magnetic ink onto the record material, and power means to drive the hammer against the platen.

5. In a machine of the class described, the combination of indicator setting mechanism, a type carrier, differential means to control the positioning of the type carrier, connections between the indicator setting means and the said control means to control the extent of movement of the type carrier, a tape covered with magnetic ink, a platen engageable with the tape and the type carrier to cause magnetic impressions to be made on record material, a hammer to strike the platen to force the platen against the tape and the type carrier, a guide to guide the platen into engagement with the tape and the type carrier, the engaging surface of the platen being beveled at an angle to the movement of the platen, said bevel causing the platen to move sidewise to set up a rubbing action against the tape, the record material, and the type carrier, to cause a magnetic print to be made upon the record material, and power means to drive the hammer against the platen.

6. In a machine of the class described, the combination of a rotatable type wheel, a platen engageable with the type wheel to cause printed impressions to be made, a hammer to strike the platen to force the platen against the type wheel, a guide to guide the platen into engagement with the type wheel, the engaging surface of the platen being beveled at an angle to the direction of movement of the platen, said bevel causing the type wheel to receive a slight rotary movement to thereby set up a rubbing action against the type wheel, and power means to drive the hammer against the platen.

7. In a machine of the class described, the combination of a rotatable type wheel, a platen engageable with the type wheel to cause printed impressions to be made, a hammer to strike the platen to force the platen against the type wheel, a guide to guide the platen into engagement with the type wheel, the engaging surface of the platen being beveled at an angle to the direction of movement of the platen, said bevel causing the type wheel to receive a slight rotating movement to thereby set up a rubbing action against the type wheel, and power means to drive the hammer against the end of the platen opposite the beveled end thereof.

8. In a machine of the class described, the combination of a type wheel, a tape coated with magnetic ink, a platen engageable with the tape and the type wheel to cause printed impressions to be made, a hammer to strike the platen to force the platen against the tape and the type wheel, a guide to guide the platen into engagement with the tape and the type wheel, the engaging surface of the platen being beveled at an angle to the movement of the platen, said bevel causing the type wheel to receive a slight rotating movement to thereby set up a rubbing action against the tape and the type wheel, and power means to drive the hammer against the platen.

9. In a machine of the class described, the combination of a rotatable type carrier, a tape coated with magnetic ink, a platen engageable with the tape and the type carrier to cause magnetic printing impressions to be made on record material, a hammer to strike the platen to force the platen against the tape, the record material, and the type carrier, a guide to guide the platen into engagement with the tape, the record material, and the type carrier, the engaging surface of the platen being beveled at an angle to the direction of movement of the platen, said bevel causing the platen engaging and rotating the type wheel to set up a rubbing action against the tape to thereby rub the magnetic ink onto the record material, and power means to drive the hammer against the platen.

10. In a machine of the class described, the combination of indicator setting mechanism, a type carrier, differential means to control the positioning of the type carrier, connections between the indicator setting means and the said control means to control the extent of movement of the type carrier, a tape covered with magnetic ink, a platen engageable with the tape and the type carrier to cause magnetic impressions to be made on record material, a hammer to strike the platen to force the platen against the tape and the type carrier, a guide to guide the platen into engagement with the tape and the type carrier, the engaging surface of the platen being beveled at an angle to the movement of the platen, the high point of the bevel engaging the type carrier first, and thereafter causing the type carrier to rotate to cause the platen to set up a rubbing action against the tape, the record material, and the type carrier, to cause a magnetic print to be made upon the record material, and power means to drive the hammer against the platen.

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