

Feb. 15, 1944.

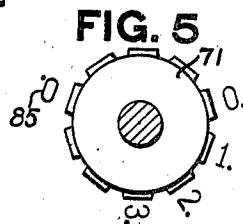
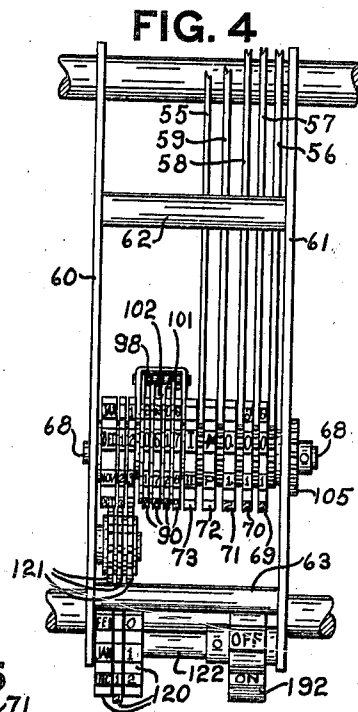
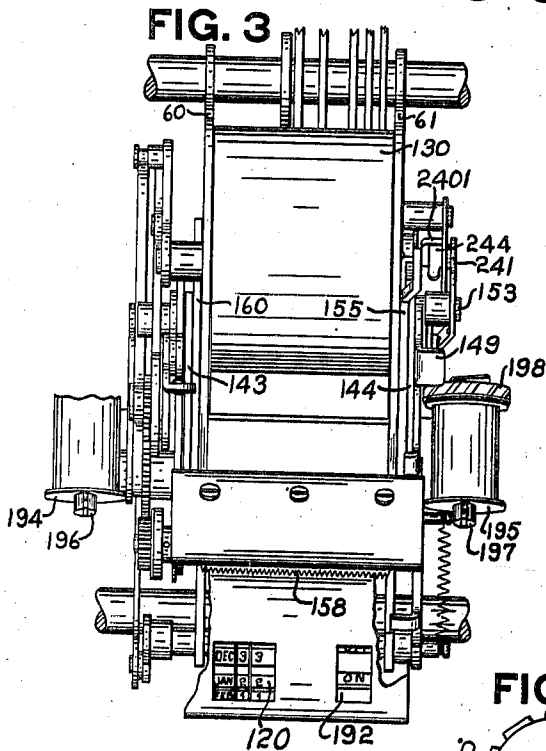
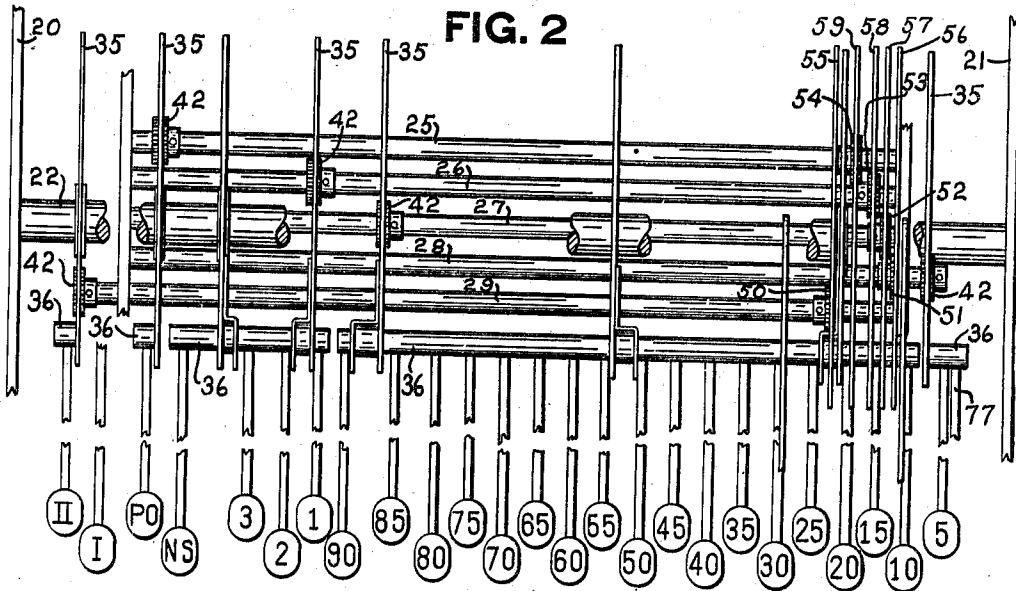
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2,342,082

CASH REGISTER

Filed Sept. 30, 1940

4 Sheets-Sheet 2



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Feb. 15, 1944.

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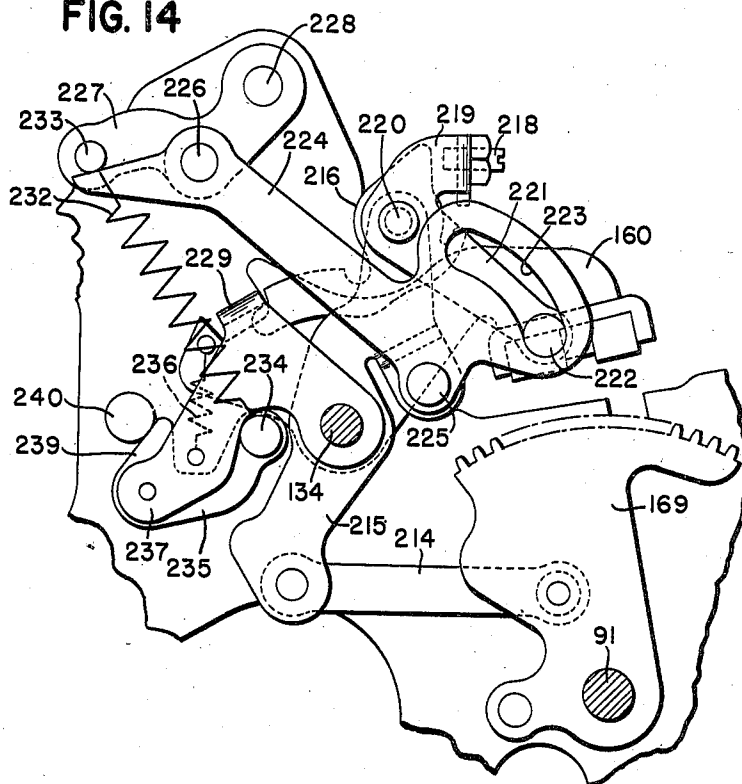
2,342,082

CASH REGISTER

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4 Sheets-Sheet 3

FIG. 14



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2,342,082

CASH REGISTER

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4 Sheets-Sheet 4

FIG. 11

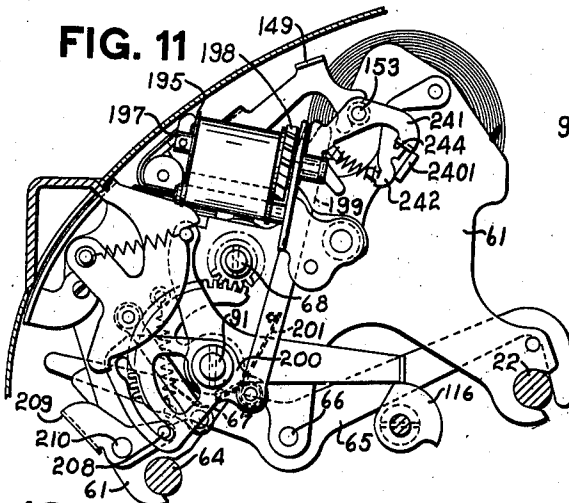


FIG. 12

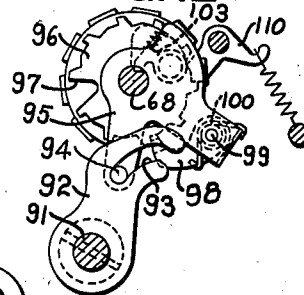


FIG. 13

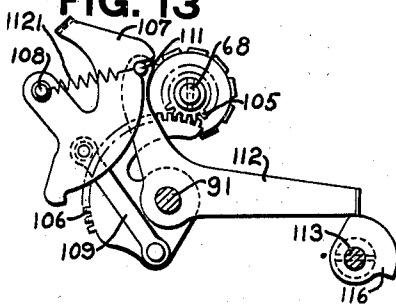


FIG. 15

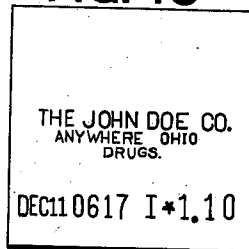


FIG. 17

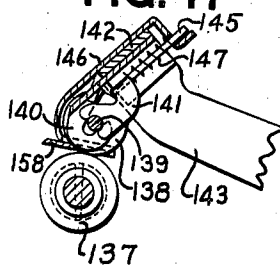


FIG. 18

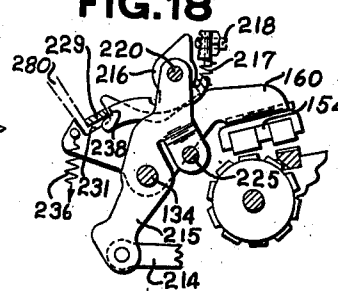
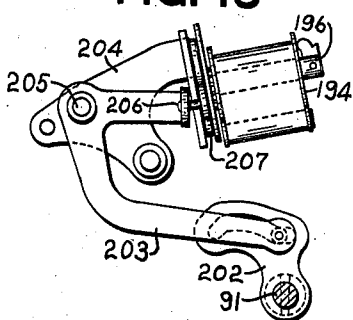


FIG. 16



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UNITED STATES PATENT OFFICE

2,342,082

CASH REGISTER

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Application September 30, 1940, Serial No. 359,047

2 Claims. (Cl. 101—297)

This invention relates to printing mechanism for cash registers and like machines, and more particularly pertains to mechanism for printing checks or receipts.

The invention is disclosed as embodied in the key operated type of machine such as that shown in the United States Letters Patent No. 2,279,805 issued to Frank R. Werner on April 14, 1942, and in the application of Daniel K. Hughes for United States Letters Patent, Serial No. 273,231, filed May 12, 1938, which application issued into Patent No. 2,338,942 on January 11, 1944.

An object of the invention is to provide a printing mechanism of unitary structure that may bodily be placed in or removed from the machine.

Another object of the invention is to provide novel means to connect and disconnect the printer unit driving means with and from the main operating means of the embodying machine.

Another object of the invention is to provide a means for adjusting the timing and strength of the impression means.

Another object of the invention is to provide a novel tripping mechanism for the hammer operating means.

Another object of the invention is to provide means to lock the paper compression rolls in effective or ineffective position.

Another object of the invention is to provide means whereby a single resilient member is used to actuate the hammer driving means and to cushion the hammer driving means.

Another object of the invention is to provide a novel means to lock the printing hammer after an impression has been made to prevent a rebound of the printing hammer, thus preventing more than one impression during an operation of the printing mechanism.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims and a preferred form or embodiment of which is hereinafter described with reference to the drawings which accompany and form a part of this specification.

Of said drawings:

Fig. 1 is a vertical section through the machine, with certain parts omitted, showing the main operating means, the type wheel setting means, and the hammer rebound preventer.

Fig. 2 is a front view of the key operated differential means and lateral transmission means.

The broken off key lever ends are shown in plan view for identification.

Fig. 3 is a plan view of the receipt printer unit with certain parts broken away.

Fig. 4 is a plan view of a portion of the structure shown in Fig. 3 with the paper, paper feed, and impression mechanism removed.

Fig. 5 is a detail of the "dollar" printing wheel.

Fig. 6 is an elevation of the lock-lever and the shaft which it differentially operates.

Fig. 7 is an elevation of a portion of the left side mechanism of the receipt printer unit showing the printer driving means and the disabling means for the driving means.

Fig. 8 is a detail, partly in section, of the paper feed drive shaft and the means for controlling its movement.

Fig. 9 is a detail of the locking mechanism for the paper feed drive shaft.

Fig. 10 is a front view of the paper feed mechanism, partly in section.

Fig. 11 is a right elevation of a portion of the right side mechanism of the receipt printer unit.

Fig. 12 is a detail of the consecutive number counter.

Fig. 13 is a detail of the mechanism for resetting the consecutive number counter.

Fig. 14 is a detail of the hammer operating mechanism.

Fig. 15 is a facsimile of the receipt issued by the machine.

Fig. 16 is a detail of the ink ribbon drive.

Fig. 17 is a detail of the paper compression rolls.

Fig. 18 is a detail of the printing hammer trip pawl and the adjustment therefore.

General description

A brief general description of the embodying machine will first be given to show the method of mounting the check printer therein, the means to differentially set the type wheels in the check printer, the means to operate the impression means, and the various interlocking controls.

The framework of the embodying machine consists of a left vertical frame plate 20 (Fig. 2), a right vertical frame plate 21, joined and supported by rod 22, and a rear vertical frame plate 23 (Fig. 1) having forwardly projecting fins 24 in which are rotatably mounted lateral transmission shafts 25, 26, 27, 28 and 29 (Figs. 1 and 2).

On a key lever support shaft 30 (Fig. 1) journaled between frame plates 20 and 21 (Fig. 2) are mounted a series of key levers, such as key levers 31 and 32 (Fig. 1). These key levers are

rockable on shaft 30 between home position as determined by a stop bar 33 and the full operated position determined by a stop bar, not shown, but which is like the stop bar 58 shown in Fig. 2 of the above-mentioned patent No. 2,279,805.

The key levers (Fig. 2) are divided into groups, the keys of each group representing a denomination of value, a department, or other transaction data grouping, each of the groups of keys being associated with, and differentially operating, one of the lateral transmission shafts 25, 26, 27, 28, and 29. The "5" key operates shaft 28, the group of keys "10," "15," "20," "25," "30," "35," "40," "45," "50," "55," "60," "65," "70," "75," "80," "85," and "90" operate shaft 27, the group of keys "1," "2," "3," and "NS" operate shaft 26; the key "PO" operates shaft 25, and key "II" operates shaft 29.

Associated with each shaft 25 to 29 is a driving segment 35 (Figs. 1 and 2), rotatably mounted on the rod 22 and supporting, on a lower arm thereof a universal rod 36, engageable by cam slots 37 (Fig. 1) cut in the associated keys according to their value. Upon a key of any group being depressed, its driving segment is moved a distance corresponding to the shape of the cam slot, which motion is transmitted to the associated lateral transmission shaft 25 to 29 by a toothed arm 41 of the driving segment. On the lateral transmission shaft, associated with a group of keys and the driving segment differentially actuated thereby in alinement with and meshed with the toothed arm 41, is fastened a driven gear 42 (Fig. 2) which serves to rotate the associated shaft differentially.

Near the right end of each lateral transmission shaft in alinement with the check printer unit to be described is a driven gear for setting the associated type wheel of the check printer. The driven gears 50, 51, 52, 53, and 54 (Fig. 2) are mounted on shafts 29, 28, 27, 26, and 25 respectively and drive the toothed type wheel setting segments 55, 56, 57, 58, and 59 respectively (Figs. 2 and 4), which are rotatably mounted on rod 22 (see also Fig. 1).

The printer frame

The printer is built in a unit that is bodily removable from the machine. A left frame plate 60 (Figs. 1, 3, and 4) and a right frame plate 61 are joined by printer cross rods 62 and 63 (Fig. 4). Each of the frame plates 60 and 61 (Figs. 1 and 11) has two claws which grip cross rods 22 and 64 supported by the main side frames 20 and 21 of the machine. A hook 65 (Fig. 11) pivoted on a cross rod 66 journaled in the printer frames 60 and 61 is adapted to engage the rod 22 to hold the printer unit in place. Counter-clockwise rotation of hook 65 from the position shown in Fig. 11 releases the printer unit for removal from the machine. A spring 67 normally holds the hook 65 in locking position.

The type wheels

The type wheels are mounted on shaft 68 (Figs. 1 and 4) and consist of five type wheels 69, 70, 71, 72, and 73 (Fig. 4) representing respectively the "5¢" key, the tens digit keys from 10¢ to 90¢ inclusive, the dollar and "NS" keys, the "PO" key, and the "II" key. Each of these type wheels has integral therewith a pinion 84 by which it is driven by the segments 55, 56, 57, 58, and 59 in the manner shown in Fig. 1, where, for example, segment 58 is shown having a forwardly extending toothed arm 74 engaging and driving an inter-

mediate gear 75 rotatably mounted on a shaft 76 supported between the printer frame plates. Gear 75 in turn drives the pinion 84 which is integral with the type wheel 71. The type wheels 69, 70, 72, and 73 are driven by their respective differentially set segments in the same manner. Therefore, during an operation of the machine, these differentially set type wheels are moved from their home position to the position determined by the shape of the cam slot of the depressed key.

Type wheel 69 presents a zero to the printing line when in the home position and is moved to present a "5" to the printing line when the "5" key is depressed. Whenever a key in the group from "10" to "90" and ending in a "5" is depressed, it actuates a coupling bar 77 (Figs. 1 and 2) which actuates the "5" key in a manner well known in the art and fully disclosed in the Werner patent to which attention has been directed. Each key in the group from "10" to "90" also positions the type wheel 70 to print the necessary tens digit. The type wheel 70 presents a zero to the printing line when in home position. Type wheel 71 presents a zero to the printing line in home position. When the 1, 2, or 3 key is depressed, it presents the corresponding digit to the printing line (Fig. 5). When the "NS" key, representing a "no-sale" transaction, is depressed, the sixth position of the type wheel which bears a "zero" 85 is presented to the printing line. This type wheel 71 is positioned by segment 58 driven by pinion 53 on shaft 26 which is turned to the sixth position by having the cam slot in the "NS" key the same contour as if it were representing six dollars.

Indicating mechanism such as that shown and described in the above-mentioned Werner patent may be used to visibly indicate the items entered into the machine.

The group of type wheels 90 (Fig. 4) comprise a resettable consecutive number counter wherein one is added into the units type wheel each time the printer is operated. This consecutive number device, a detail of which is shown in Fig. 12, is of conventional design and consists of four type wheels representing the units, tens, hundreds, and thousands denominations of the decimal system. Unit entries are made by turning the units wheel one step each time the printer drive shaft 91 (Fig. 12) is rocked, in a manner to be explained, first counterclockwise then clockwise. As shaft 91 rocks, a cam plate 92, secured thereto and having a slot 93 engaging a stud 94 on an arm of yoke 95, pivotally mounted on shaft 68, causes the yoke 95 to rock first clockwise then counterclockwise each time the printer operates. Each of the counter wheels has integral therewith a toothed wheel 96 having a notch for each digit represented on the periphery, one of said notches 97 being deep. On yoke 95 is mounted a differentially timed pawl 98 (Figs. 12 and 4) which is rockable on its supporting shaft 99 (Fig. 12) mounted in the arms of yoke 95 and normally held by a spring 100 so that time 101 (Fig. 4) engages the ratchet of the units wheel, which wheel is thereupon driven one step on the rocking of yoke 95. As time 101 encounters the deep notch, the next shorter time 102 drives the ratchet associated with the tens wheel one step, thus accomplishing a denominational transfer. As this construction is the old and well known deep notch transfer mechanism no further description will be necessary, reference

being made to United States Letters Patent, No. 1,932,621, issued to Charles W. Green, for further details of such a transfer mechanism. As seen in Fig. 12, the motion of the counter wheels is clockwise. Each counter wheel has mounted thereon, by means of a stud, a pawl 103 held in contact with shaft 68 by a spring. A notch in the shaft will be ridden over by the pawls as the counter wheels are turned by cam 92. If shaft 68 is turned clockwise the notch will positively engage the pawl, and the counter wheels, upon further turning of shaft 68, may be picked up and turned back to zero. Referring to Fig. 13, the shaft 68 has pinned to its right end a pinion 105 (also see Fig. 4) engaged by a toothed segment 106 rotatably mounted on shaft 91. Segment 106 is connected to a reset lever 107, rotatably mounted on stud 108 secured to the right frame of the printer, by a link 109, so that as lever 107 is rocked counter-clockwise the shaft 68 will be given its clockwise resetting motion. On return of lever 107 to home position the rotation of shaft 68 has no effect on the counter wheels as they each are held against retrograde movement by a spring positioned pawl, like pawl 110 (Fig. 12), in conventional manner.

Referring again to Fig. 13, the lever 107 may not be moved from home position unless stud 111 on an arm of bell crank lever 112 is out of a notch in lever 107 in which notch it is held by spring 1121. Shaft 113 is differentially rotatable by lever 114 (Fig. 6) which lever is rotatably supported on stud 115. Shaft 113 has fastened thereto a cam 116 (Fig. 13) having a high and a low surface cooperating with the rearwardly extending arm of bell crank lever 112, so that the lever 112 is held counter-clockwise to hold stud 111 in the notch of lever 107 when the cam is positioned as shown, but releases the stud 111 so it can be cammed out of the notch when the low surface of cam 116 is presented to lever 112. This low part of the cam is in the release position when control lever 114 (Fig. 6) is in the "read" or "reset" position as indicated.

Referring to Fig. 4, the left three type wheels on shaft 68 are date wheels and are individually set by manipulative toothed wheels 120 through intermediate gears 121, said gears 121 being rotatably mounted on a stud supported by frame plate 60, and wheels 120 being rotatably supported on shaft 122 extending between printer frame plates 60 and 61.

Paper feed mechanism

Referring to Fig. 7, a paper roll 130 rests on a curved plate 131, the rear end of which is turned over a rod 132 supported between the frame plates 60 and 61, and the front end of which has claws, one claw 133 being shown, gripping rod 134 supported between the frame plates 60 and 61. The front of the plate is formed into a paper chute 135 through which the paper strip 136 is carried over the type wheels and between the paper feed rolls 137 (Fig. 10) and the compression rolls 138. The compression rolls 138 are carried rotatably by a shaft 139 (Figs. 7 and 17) flexibly supported between two stationary claws 140, one of which is shown, and an opposed resiliently mounted claw 141 between the two claws 140. Claws 140 are secured to a yoke 142 carried by arms 143 and 144 (see also Fig. 3) which are pivotally mounted on rod 134 so the yoke and compression rolls may be moved to or away from the paper strip. The resiliently mounted claw 141 has a tongue 145 slidably mounted in a hole in a cover plate

146 attached to the yoke 142. A spring 147 holds the claw 141 against shaft 139, which in turn holds the shaft 139 against claws 140. If the compression rolls are moved toward the paper by rocking the yoke they resiliently meet the paper strip and hold it against the feed rolls. An arm 148 (Fig. 7) is pivotally mounted on yoke arm 144 at one end, and has a finger piece 149 and a locking arm 150 at the other end. Arm 150 has arcuate surfaces 151 and 152 adapted to engage stud 153 supported by frame plate 81. Surface 151 locks the yoke 142 in closed position and, as shown by the broken lines, surface 152 locks the yoke 142 in open position for the free insertion of the paper strip. Fastened to plate 146 (Figs. 3 and 17) is a serrated tear-off knife 158.

Referring to Fig. 1, the printing platen 154 is carried as a yoke by two arms 155 and 160 (see Figs. 3 and 18) rotatably mounted on rod 134, the right arm 155 having projecting therefrom a stud 156. As arm 144 is rocked back on the opening of the paper feed compression rolls the surface 145 thereon strikes stud 156 and carries the printing hammer away from the type to clear the path for paper insertion.

Referring to Figs. 8, 9, and 10, the paper feed rolls 137 are pinned to a shaft 157 journaled in bushings 161 and 162 fastened in the frame plates 60 and 61. Fastened to shaft 157 is a ratchet 163 which cooperates with the pawl 164, pivoted on stud 165 projecting from printer frame 60 and resiliently held by spring 166 against the ratchet to prevent counter-clockwise movement of the shaft 157. A second pawl 167, pivotally mounted on the main drive shaft 91 of the printer, cooperates with the ratchet 163 to prevent clockwise movement of shaft 157. The lower end of spring 166 holds pawl 167 resiliently against ratchet 163, but the pawl 167 is pushed away to ineffective position by stud 168 (Fig. 7), mounted on toothed segment 169 secured to the main drive shaft 91. The segment is rocked clockwise, thus freeing the shaft 157 for clockwise movement, as segment 169 nears the end of its clockwise movement during the first half of the machine operation, as actuated by a link 170 pivoted thereto. The link 170 is given a forward movement, that is, to the right as shown in Fig. 7, as the key coupler 171 (see also Fig. 1) is raised upwardly by depression of any key, and said link is given a backward movement; that is, to the left as shown in Fig. 7, as the key and key coupler are returned to home position. The movement of the key coupler is transmitted to link 170 by means of a plate 172 rotatably mounted on the key coupler shaft 173 and having a claw hooked over the free end of the key coupler which plate carries a stud 174 to which is hooked link 170. Pinion 175 (Fig. 8) loosely mounted on shaft 157 is driven first counterclockwise (Fig. 7) and then clockwise as segment 169 makes its oscillatory movement. On the counter-clockwise movement the pinion rotates freely on the shaft 157, but on the clockwise movement a pawl 176 (Fig. 8) pivoted on a plate 180 integral with pinion 175 engages the broken rim 177 of flanged plate 178 secured to shaft 157, thereby rotating shaft 157 clockwise (Fig. 8) to carry the paper strip forward. The forward movement of the paper strip occurs after mid-cycle, at which point the printing impression is made. This feed mechanism is unidirectional, prevents retrograde motion of the paper strip, and determines the exact amount of paper advance on each machine operation.

Disabling mechanism for the main drive

A slot 181 (Fig. 7) in link 170 accommodates a stud 182 on one arm of a bell crank lever 183 pivotally mounted on the main drive shaft 91. The other arm of lever 183 supports a stud 184 which is accommodated in a cam slot 185 in a link 186 slidably mounted by means of slot 187 and 188 on shafts 91 and 113 respectively. Forward movement of link 186 to the position shown in Fig. 7, causes counter-clockwise rocking of bell crank lever 183 and engagement of link 170 with stud 174, rendering the paper feed drive effective. Rearward movement of link 186, from the position shown in Fig. 7, rocks bell crank lever 183 clockwise and disconnects link 170 from stud 174. Link 186 may be moved forward or backward only when the broken away part 190 of a flange on wheel 189, secured on shaft 113, is presented to stud 191. The opening 190 is arranged to be opposite stud 191 only when the lock lever 114 (Fig. 6) is positioned in the read or reset position, by means heretofore described.

An "on" and "off" manipulative member 192 (Figs. 4 and 7) secured to shaft 122 rocks said shaft clockwise as seen in Fig. 7 when in the "off" position and counter-clockwise when in the "on" position, which rocking movement, through arm 193 secured to shaft 122 and through stud 123, accommodated in slot 124 in link 186, moves said link to disconnect or connect the paper feed mechanism from or to the key coupler 171.

Ribbon mechanism

A conventional ink ribbon, ink ribbon supporting and driving means are supplied, so that the ribbon may be positioned and fed between the type wheels and the paper strip. The ink ribbon spools 194 and 195 (Figs. 3 and 11) are mounted on rotatable spindles 196 and 197 supported by auxiliary plates fastened to the frame plates. Spindle 197 is constantly driven step by step in one direction by means of gear 198 and a driving link 199, which has a tooth for engaging the teeth on gear 198, which link is given a reciprocating motion by being pivoted to an arm of a cam plate 200 pinned to drive shaft 91. Spring 201 holds the driving tooth of link 199 against the gear 198, and as plate 200 oscillates first counter-clockwise then clockwise (Fig. 11), the gear 198 is driven one step counter-clockwise as viewed from the front of the machine. The take-up spool 195 is frictionally driven by spindle 197 and unless the ink ribbon is pulled in an unwinding direction by the other spool 194, take-up spool 195 will impositively tend to wind the ribbon on itself, keeping it taut. The other spindle 196 is positively driven first in one direction and then in the other direction by ribbon reversing mechanism like that shown in United States Letters Patent, No. 1,628,164, issued to W. E. Lippert, to which reference is hereby made. The drive for the spindle 196 is taken from printer drive shaft 91 (Fig. 16) to which is attached a slotted cam plate 202 which, on oscillation of shaft 91, rocks bell crank lever 203, pivoted to stud 205 on auxiliary frame plate 204, first counter-clockwise, then clockwise, which in turn by slot connection to stud 206 rocks drive plate 207 first clockwise, then counter-clockwise as viewed from the front.

Thus the ribbon is wound and unwound by spool 194 (Fig. 3), the tension of the ribbon being maintained accurately by the friction of spool 195 on spindle 197, which is constantly turning

in one direction with an excess of angular velocity.

Type alining mechanism

Referring to Fig. 11, the plate 200, which is rocked first counter-clockwise and then clockwise each machine operation, has a cam slot which cooperates with a stud 208 on the right arm of a rockable yoke 209 mounted on shaft 210 supported between frame plates 60 and 61. As seen in Fig. 1 the shaft 210 also has rockably mounted thereon alining pawls 211, which are resiliently mounted, relative to yoke 209, each being limited in movement clockwise, relative to yoke 209, by a shoulder 212 engaging yoke 209 and being rockable counter-clockwise against the tension of spring 213. As yoke 209 is rocked toward the type setting gears 75, the alining pawls are resiliently forced in the same direction to accurately position the type by engaging alining teeth 255. This alining action is imparted to the yoke by cam plate 200 at the middle of the machine operation just prior to the time the hammer impression is made.

Printing hammer drive

As the segment 169 (Fig. 14) is driven first clockwise and then counter-clockwise, its motion is transmitted by link 214 (see also Fig. 18) to lever 215 loose on rod 134. A bell crank trigger lever 216, having loosely journaled in it a stud 220 and pivoted to the top of lever 215, is normally held by spring 217 against set screw 218 mounted on a second bell crank lever 219 secured to stud 220. The forwardly extending arm 221 of bell crank lever 219 has a roller stud 222 which is guided by cam slot 223 in a link 224 pivoted to lever 215 by stud 225 at one end and pivoted at the other end to a stud 226 on a lever 227 pivotally mounted on stud 228 in the left printer frame 60. The cam slot 223 is so shaped that, as lever 215 is rocked counter-clockwise, levers 219 and 216 are rocked slightly counter-clockwise in relation to lever 215. The hammer yoke arms 160 and 155 (see also Fig. 3), lever 215, and a hammer drive lever 237 are all mounted on rod 134. As lever 215 is rocked counter-clockwise, a shoulder 238 on the rearwardly extending arm of bell crank trigger lever 216, which shoulder engages a bent over portion 229 of lever 237 and rests in notch 231 of printing hammer arm 160, forces the printing hammer to rock counter-clockwise around rod 134 against the increased tension of a spring 232 fastened to stud 233 on lever 227 at one end and to stud 234 pivoted on lever 235 at the other end. Spring 236 always holds the printing hammer arm rocked counter-clockwise against the bent over portion 229 of lever 237 until the inertia of the printing movement of the hammer on its release, after being cocked, overcomes the strength of spring 236, whereupon the hammer is allowed to overthrow, by the distance 280 (Fig. 18), against the paper. To continue with the cocking of the printing hammer, as lever 216 moves relatively to lever 215 due to the action of cam slot 223, the shoulder 238 slips off the bent over portion 229 and spring 232 rocks the hammer forcefully in a clockwise manner, which movement continues until the end of the overthrow, as explained. Shoulder 239 on lever 235 strikes stud 240 on the overthrow of the hammer and cushions the shock as the hammer hits the paper by stretching spring 232. At the end of the hammer blow, spring 236 rocks the hammer

back to home position so the platen is slightly off the paper. By turning set screw 218, the timing of the hammer blow may be varied so as to coincide exactly with the completion of the setting of the type.

It will be apparent that spring 232 is energized by being stretched by moving forces applied at either end, one of which forces is utilized in effecting the hammer blow and the other of which feeds the paper and returns the parts to normal.

It is to be noted also, that spring 232 furnishes the means for effecting the hammer blow and for cushioning the hammer blow as shoulder 239 strikes stud 240.

Hammer rebound preventer

Means is provided to prevent a rebound of the hammer after once striking the impression blow, thus eliminating the possibility of a double impression.

The right printing hammer arm 155 (Figs. 1 and 11) has a bent over portion 2401 (see also Fig. 3), on a rear extension thereof, which cooperates with pawls 241 and 242. Pawl 241 (Fig. 1) is pivoted to stud 153 extending from the right printer frame plate 61 and has a bent over portion 244 the right-hand edge of which is adapted to block the path of bent over portion 2401, when in the position shown in Figs. 1 and 11, preventing the printing overthrow movement of the printing hammer. By rocking pawl 241 counter-clockwise slightly, the bent over portion 244 is removed from the path of the bent over portion 2401 freeing the hammer for overthrow movement. As the printing hammer is rocked back toward cocked position, stud 156 strikes extension 245, thus rocking the pawl 241 counter-clockwise to ineffective position. The pawl 241 is locked in said ineffective position by step 246 on pawl 242 engaging the lower side of portion 244. The pawl 242 is urged counter-clockwise into its locking position by spring 247 extending between pawls 241 and 242. As the hammer is tripped, the bent over portion 2401 strikes the surface 248 of pawl 242, thus rocking pawl 242 clockwise to withdraw shoulder 246 from engagement with bent over portion 244 on pawl 241 and unlatching pawl 241. Before pawl 241 can become effective, by reason of its inertia, bent over portion 2401 has passed forward under the bent over portion 244 and the platen strikes the paper. As the hammer retracts by reason of spring 236 (Fig. 18) the pawl 241 is forced counter-clockwise to effective position, wherein the bent over portion thereof is in the path of portion 2401, and prevents a rebound of the hammer to impression position by blocking it as shown in Fig. 1.

Fig. 1 shows the printer unit mounted within the machine cabinet 249. A lid 250, hinged by bracket 251 to a cabinet supported stud 252, is provided for access to the printer unit for manipulating the "on" and "off" lock, the date wheels, and the counter reset lever, and for removing and inserting paper rolls. A lock 253 is provided to prevent the lid from being opened by any one not in possession of a key. An aperture 254 is provided in the lid for the issuance of the paper strip.

While the form of mechanism herein shown and described 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 one form or embodiment herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What is claimed is:

1. In a printer for a machine of the class described, the combination of a main operating means; a printing hammer; a resilient means to urge the printing hammer to impression position; means operated by the main operating means to cock the hammer against the urge of the resilient means; means actuated by the main operating means to release the hammer to the action of the resilient means, said cocking means being returned to home position by the resilient means simultaneously with the movement of the hammer to impression position and the releasing means returned to home position by the operating means; means intermediate the cocking means and resilient means; and a stud against which the intermediate means strikes as the cocking means nears home position, the shock of the cocking means being returned to home position being absorbed by an increased tension in the resilient means, said increased tension developed by the intermediate means striking the stud.

2. In a printing mechanism, the combination of a hammer; a main operating means; means intermediate the operating means and the hammer and movable with the hammer to cock and release the hammer; resilient means to actuate the hammer upon release thereof; a flexible coupling between said resilient means and the intermediate means, said resilient means being tensioned by the main operating means through the intermediate means and the flexible coupling means; and a stop member against which the flexible coupling means strikes, causing the resilient means to be tensioned as the intermediate member returns to home position with the hammer, thus cushioning the intermediate means against shock.

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