

March 13, 1934.

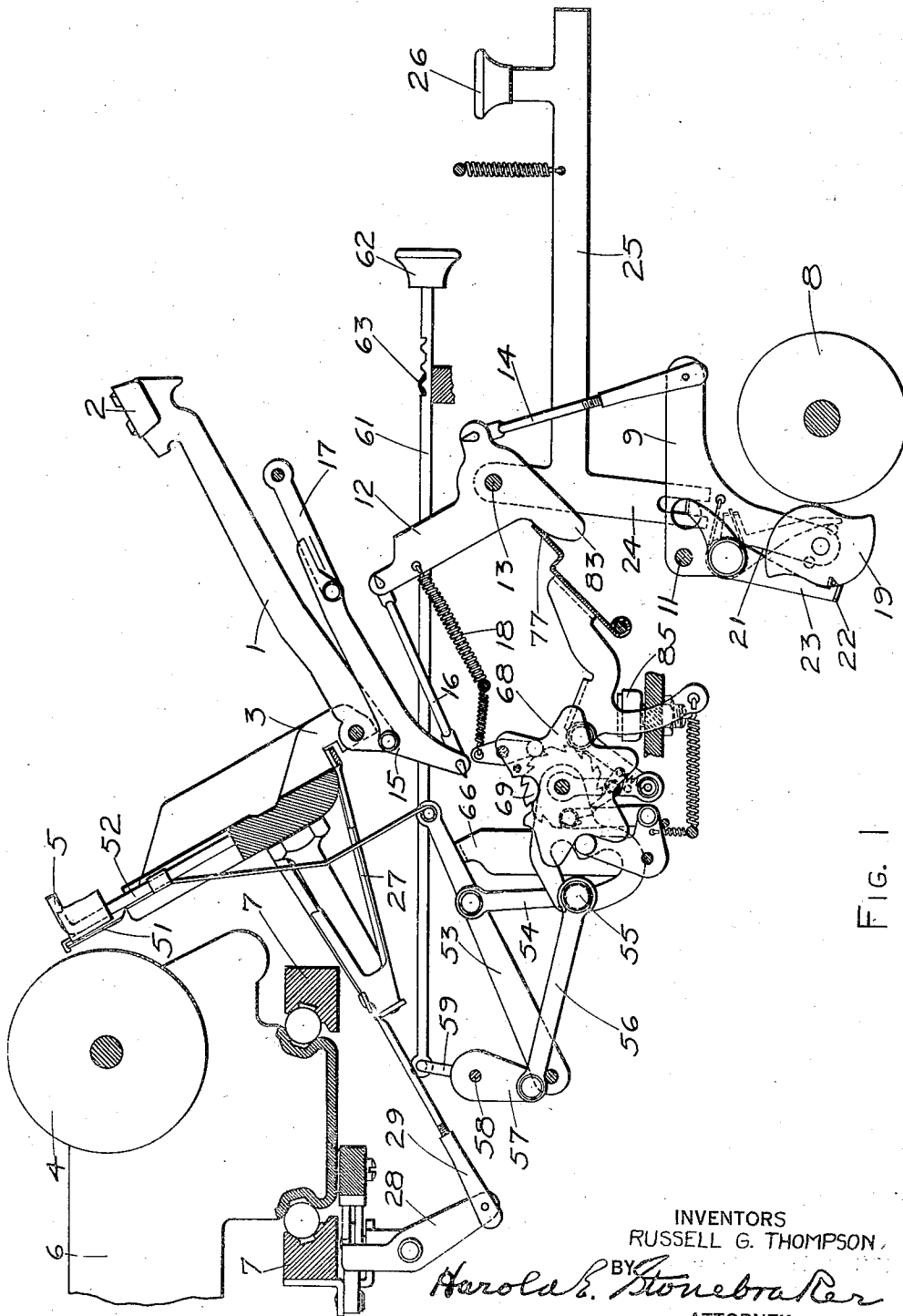
R. G. THOMPSON

TYPEWRITING MACHINE

Filed Aug. 10, 1931

1,950,761

3 Sheets-Sheet 1



6

INVENTORS
RUSSELL G. THOMPSON,

Harold E. Stonebraker BY
ATTORNEY

March 13, 1934.

R. G. THOMPSON
TYPEWRITING MACHINE

1,950,761

Filed Aug. 10, 1931

3 Sheets-Sheet 2

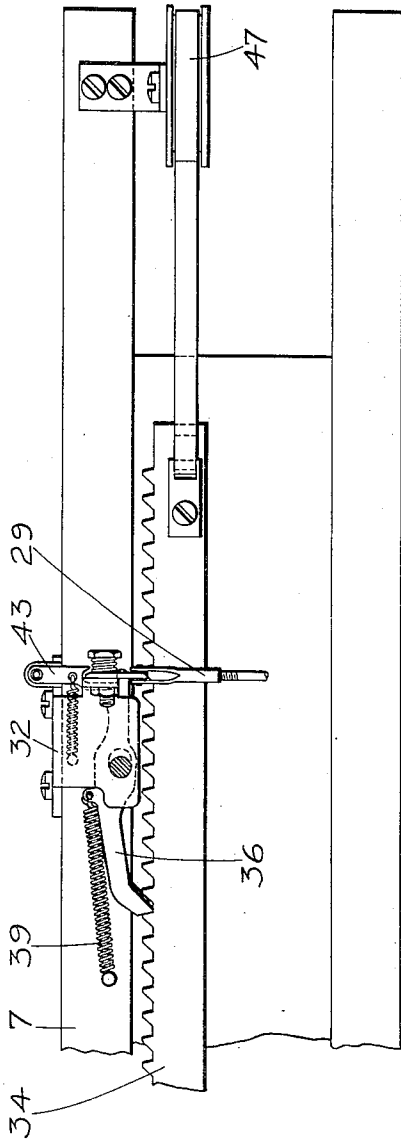


FIG. 2

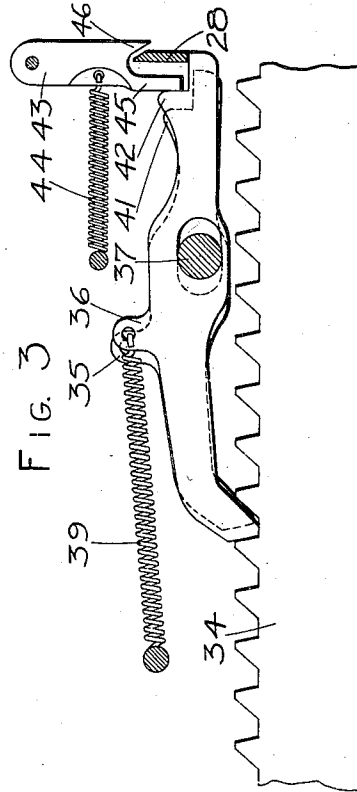


FIG. 3

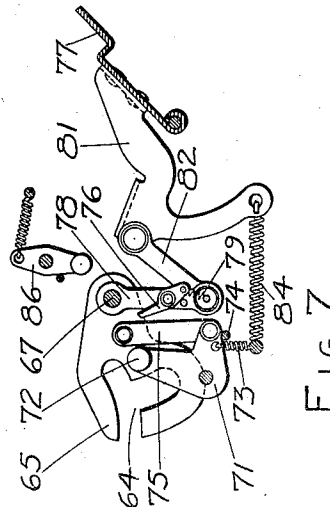


FIG. 7

INVENTORS
RUSSELL G. THOMPSON

By *Harold E. Stonebraker*
ATTORNEY

March 13, 1934.

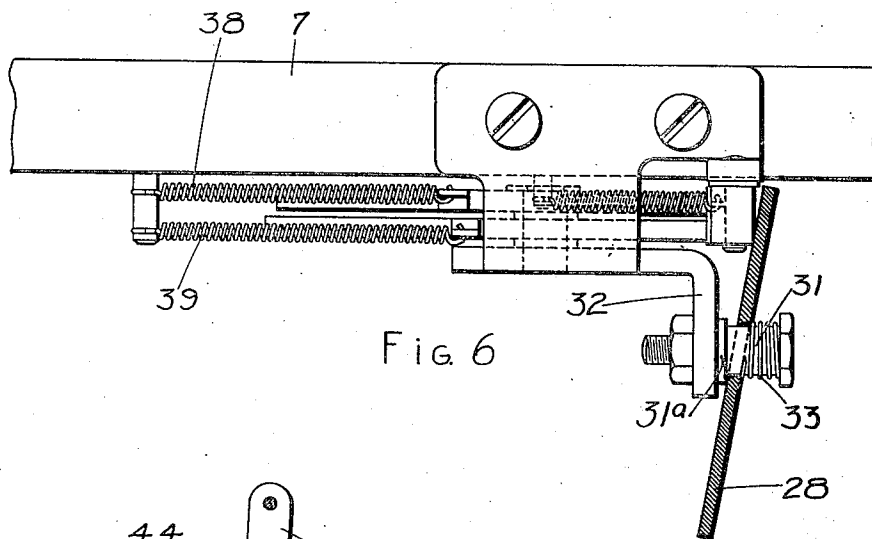
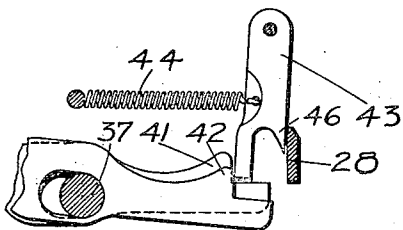
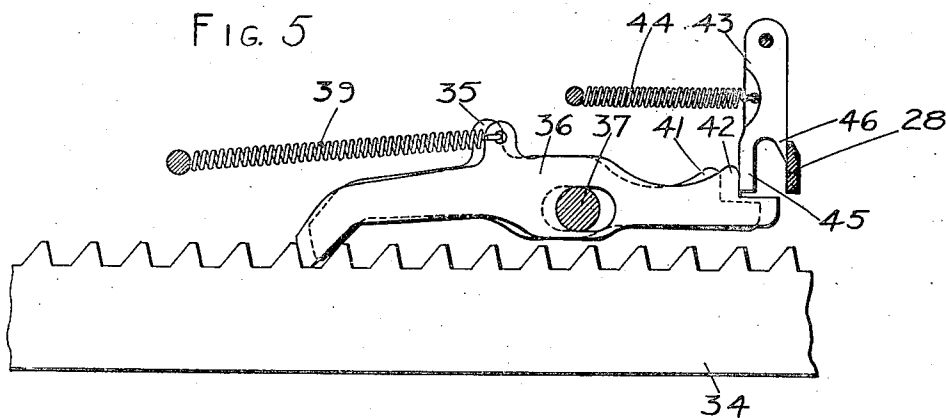
R. G. THOMPSON

1,950,761

TYPEWRITING MACHINE

Filed Aug. 10, 1931

3 Sheets-Sheet 3



INVENTORS
RUSSELL G. THOMPSON

Harold E. Stonebraker
ATTORNEY

UNITED STATES PATENT OFFICE

1,950,761

TYPEWRITING MACHINE

Russell G. Thompson, Rochester, N. Y., assignor
to Electromatic Typewriters, Inc., Rochester,
N. Y., a corporation of New York

Application August 10, 1931, Serial No. 556,095

16 Claims. (Cl. 197—82)

This invention relates to improvements in typewriting machines, and particularly to typewriting or other key controlled machines for filling in the blank spaces in notes, bank checks, or other written instruments, and the principal object of the invention is the provision of a machine of this kind adapted to impress the written characters in a work sheet in such a manner as to prevent alteration or erasure without destroying the sheet.

Another object of the invention is the provision of a machine of this kind in which the escapement devices are operated on alternate strokes of the universal bar or the type bar so that the same types may be operated to engage the work sheet in the same place twice in succession to make two superimposed impressions thereon.

Another object of the invention is the provision of means for actuating the inking ribbon vibrator on alternate strokes of the type bar or the universal bar, so that only one of the two impressions of the type bar is made with the ribbon interposed between it and the work sheet.

A still further object of the invention is the provision of a machine of this kind having escapement and ribbon devices arranged to be operated alternately.

To these and other ends, the invention consists in the construction and arrangement of parts that will appear from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a transverse sectional view of so much of a typewriting machine as may be necessary to illustrate one application of the invention;

Fig. 2 is a fragmentary inverted plan view of the carriage rack and escapement devices cooperating therewith;

Fig. 3 is an enlarged fragmentary view of the rack and cooperating pawls;

Fig. 4 is a view similar to Fig. 3 showing parts in another position;

Fig. 5 is a similar view showing the position of the parts immediately after the operation of the escapement lever, the rack being omitted;

Fig. 6 is a rear elevation partly in section of the devices shown in Fig. 4, and

Fig. 7 is a detail view of ribbon vibrating de-

vices shown in Fig. 1, parts being removed for clearness.

Referring particularly to the drawings, the invention is illustrated embodied in a power driven typewriting machine of well known form comprising pivoted type bars 1, having types 2, and mounted in a type basket 3 for movement to and from operative engagement with a platen 4 or a work sheet arranged thereon. The usual type guide 5 is mounted on the type basket and arranged adjacent the printing point on the platen. The platen 4 is mounted on a carriage 6 movable in transverse guideways 7 on the frame for letter and word spacing.

Power driven means are provided for actuating the type bars to and from the printing point on the platen. Said means comprises a driven roller 8 and a power unit comprising a bell crank lever 9 pivoted on the common pivot rod 11. One arm of the bell crank is connected with an arm of a bell crank lever 12 which is pivoted on the common pivot rod 13 by means of the link 14. The other arm of the lever 12 is connected with a toggle lever 15 by means of a link 16. The lever 15 is pivoted on the type bar and has an arm pivotally connected with a toggle arm 17 pivoted on a fixed part. A spring 18 connects the bell crank 12 with a fixed part and resiliently retains the parts in normal position, shown in Fig. 1. The other arm of the bell crank 9 projects downwardly adjacent the power roller and has a cam 19 pivotally mounted on its lower end. A spring-pressed arm 21 tends to resiliently turn the cam into engagement with the power driven roller or a stop 22 on one arm of a lever 23 pivoted on the bell crank 9. The other arm of the lever 23 is offset laterally and engages the slotted lower end of an arm 24 depending from the key lever 25. The key lever is pivoted on the common pivot rod 13 and is provided with a key 26 whereby it may be manually operated. When the key is depressed, the cam is released and the arm 21 swings it into engagement with the power driven roller, to be actuated thereby to operate the bell crank 12 to swing the type bar into engagement with the platen.

The devices thus far described are or may be of usual or ordinary construction. In the embodiment illustrated, means are provided for operating the escapement devices on the second stroke of the type bar so that the type engages the work piece twice in the same place to fully impress the written character in the body or material of the work piece to prevent its being

altered or erased without destroying the material of the sheet. The usual universal bar 27 is mounted on the type basket and is resiliently projected into the path of the type bars, as usual in the art. The universal bar is operatively connected with an escapement lever 28 by means of a link 29. The escapement lever 28 has a loose bearing on an elongated stud 31 secured in a bracket 32 projecting from the frame of the machine. A spring 33 is coiled about the stud 31 and resiliently retains the lever at one end of its bearing against the shoulder 31a. By this arrangement, the lever is free to swing on its bearing in a plane at right angles thereto, or to a plane inclined with respect to its axis against the resiliency of said spring, as shown in Fig. 6.

The escapement rack 34 is fixed to the carriage and cooperating with said rack are a pair of pawls 35 and 36 having elongated openings or slots whereby they are mounted on the fixed pivot 37. Springs 38 and 39 connect the pawls with a fixed part and resiliently move them forwardly over the teeth of the rack and swing them into engagement therewith. The pawls are provided with shoulders 41 and 42 at or adjacent their free ends for engagement with an interponent 43 pivoted on a fixed part of the frame. The interponent 43 is arranged in the paths of both pawls and engages the free end of that pawl which is in engagement with the rack, and moved thereby in the direction of the carriage feed. A spring 44 connects the interponent with a fixed part and resiliently retains it in engagement with one or the other of the pawls which engages the rack. The interponent is arranged between the ends of the pawls and the escapement lever and is operative to control the engagement of said lever with the pawls. To this end, the interponent has a finger 45 formed by an inverted U-shaped opening or slot in its free end arranged to engage the pawls. The other side of said opening terminates in a short finger 46 having a sharp edge and cooperating with the escapement lever.

Assuming the parts to be in the normal position shown in Fig. 4, the rack 34 engages the pawl 36 under the tension of the carriage spring 47 and moves the pawl to the right, as seen in the drawings, against the tension of the springs 39 and 44 into engagement with its pivot 37. At this time, the interponent engages the escapement lever 28 and swings it to the inclined position shown in Fig. 6, and when actuated at this time, its path of movement is free from the pawls. When, however, the escapement lever is actuated, it swings over the finger 46 under the action of its spring 33 and over the end of the pawls, and on the return stroke enters into the U-shaped slot in the interponent to the position shown in Fig. 3, the escapement lever 28 being then held against the shoulder 31a by spring 33. The position of the pawls with respect to the rack remains unchanged, and no movement is imparted to the carriage; the escapement lever, however, has moved to a position to engage the pawl 36 which engages the carriage rack at its next operation. When the escapement lever is again actuated for the second time, it swings the pawl 36 from engagement with the rack which permits its spring 39 to react and move the pawl to the left, as seen in the drawings, until it engages the pivot 37 as seen in Fig. 5 of the drawings. The interponent 43 also swings to the left with the pawl under the action of its spring 44 from the Fig. 3 to the Fig. 5 position

and moves its finger 46 over the escapement lever 28 which returns to the outer surface of the interponent and is held against shoulder 31a by spring 33, the same as in Fig. 3. Due to the weight of the carriage and the effect of inertia, the spring 47 is ineffective to start the carriage immediately when released by the pawl, during which interval of time the lighter parts, viz, the pawl and interponent, are operated. When the spring 47 does move the carriage and with it the pawl 35 to the right, as seen in the drawings, the pawl engages the interponent and swings it and the escapement lever from the Fig. 5 position back to the position shown in Fig. 4. By this arrangement, the letter space movement of the carriage takes place only after a second actuation of the universal bar, or a type bar, so that the same type may be actuated into engagement with the same point on the work sheet a second time before letter space movement is imparted to the carriage.

In writing notes, checks, etc., it is desirable to print the characters in color and then impress the printed character into and through the body or material of the work sheet. In the ordinary operation of the machine, the interposed ribbon supports the type bar on the surface of the work sheet so that the character is not impressed into and through the body thereof. Means are therefore provided for actuating the ribbon vibrator to interpose the ribbon between the type bar and the work sheet on one actuation thereof, and silencing the ribbon vibrator on the other actuation so that the type impresses the character written into and through the work sheet. The ribbon is carried by or threaded in a vibrator 51 slidably mounted on a guide 52 on the type basket, the upper end of which guide may also carry the type guide. Normally the ribbon vibrator occupies a position with the ribbon out of the path of the type bar but is movable on its guide to and from a position to interpose the ribbon between the printing point on the platen and the type. The ribbon vibrator has a downwardly projecting arm pivotally connected to the forward end of an arm 53 pivoted on the frame of the machine. A link 54 connects the arm 53 with a pivot stud 55 on the forward end of a link 56 pivotally connected with an arm 57 secured to a rock shaft 58. An arm 59 is secured to the rock shaft and at its free end is pivoted to the inner end of a push rod 61. The push rod 61 is slidably mounted in the frame and has a button 62 at its forward end whereby it may be manually operated. A resilient detent 63 engages one or another of a plurality of depressions in the push rod for retaining it in adjusted position, in a well known manner.

The stud 55 is arranged in and adjacent the open end of a slot 64 in a slotted actuator or control member 65 pivoted on a fixed part of the machine. Normally, when the vibrator is retracted, as shown in the drawings, the arm 53 rests upon and engages a fixed stop 66. When the actuator is turned in a clockwise direction, it swings the arm 53 and projects the ribbon vibrator to carry the ribbon to and over the printing point on the platen. Means controlled by a universal bar are provided for swinging the actuator to move the vibrator to the printing point upon an actuation of the universal bar but which are ineffective to operate the vibrator to the printing point on the next succeeding actuation of the universal bar. The actuator is piv-

oted on a rod 67 and revolubly mounted on the same rod adjacent thereto is a control member comprising a cam device 68 having a plurality of lobes and a ratchet wheel 69 secured to or
 5 formed integral therewith. A bell crank lever 71 is pivoted on a fixed part and has a stud or wiper 72 on one arm. A spring 73 resiliently urges the bell crank in a direction to engage its wiper with the periphery of the cam wheel or
 10 against a fixed stop 74 arranged in its path. The other arm of the bell crank is operatively connected with the actuator by means of the link 75. By this arrangement, rotation of the cam wheel to swing the bell crank is operative
 15 to swing the actuator to move the vibrator to and from the printing point on the platen. A pawl 76 operatively connected with the universal bar 77 engages the ratchet wheel 69 to turn it and the cam device. The pawl 76 is pivoted on
 20 an arm 78 pivoted on the rod 67. A spring 79 resiliently engages the pawl with the ratchet wheel 68 or a stop provided therefor on the arm 78. The arm 78 is operatively connected with the universal bar 77 or an arm 81 thereon
 25 by means of a link 82. The universal bar is pivoted on a fixed part and resiliently engaged with the arms 83 on the bell cranks 12 by means of a spring 84. When one of the bell cranks 12 is actuated to swing a type bar into engage-
 30 ment with the platen, it swings the universal bar and with it the arm 78 in a direction to turn the ratchet and the cam device. When the universal bar moves in a reverse direction under the action of its spring, the pawl moves idly
 35 over the teeth of the ratchet wheel which is held stationary by means of the spring-pressed detent 86. By reference to Fig. 1 of the drawings, it will be noted that during rotation of the cam device one ratchet tooth distance, the wiper
 40 on the bell crank 71 rides over a lobe thereof and operates the actuator to swing the arm 53 to project the vibrator to the printing point on the platen. On the next movement of the cam device, the wiper rides between two lobes thereof,
 45 and any movement imparted thereby to the actuator at this time is ineffective to move the ribbon vibrator to the printing point. An adjustable stop 85 may be provided for limiting the movement of the universal bar.
 50 It will be noted that in the embodiment illustrated, the cams 19 have but a single stop cooperating with the stop levers 23 so that the cams make a complete rotation upon each operation to swing the type bar to make two successive
 55 strokes into engagement with the platen upon each depression of a key lever.

Although only one embodiment of the invention is shown and described herein, it will be understood that this application is intended to cover such changes or modifications as come within the spirit of the invention or scope of the following claims.

I claim:

60 1. In a machine of the class described, the combination of a carriage, a platen thereon, a type bar movable into printing engagement with the platen, a ribbon vibrator for moving the ribbon to and from the printing point on the
 70 platen, escapement devices for moving the carriage for letter spacing, means operable to move the ribbon vibrator to the printing point on alternate strokes of a type bar, and means for actuating the escapement devices on alternate
 75 strokes of a type bar, the arrangement being

such that the ribbon vibrator is operative when the escapement devices are inoperative.

2. In a machine of the class described, the combination of a carriage, escapement devices for moving the carriage for letter spacing, a
 80 platen on the carriage, a type bar, means for moving the type bar into printing engagement with the platen, a ribbon vibrator for moving a ribbon to and from the printing point on the
 85 platen, means operable on alternate strokes of the type bar for operating the escapement devices to move the carriage, a universal bar, and means connecting said universal bar with the ribbon vibrator effective to move the ribbon
 90 vibrator to the printing point on the platen on alternate operations of the universal bar.

3. In a machine of the class described, the combination of a carriage, a platen thereon, a type bar movable to and from printing engage-
 95 ment with the platen, a universal bar actuated each time the type bar is operated, escapement devices for controlling the movement of the carriage for letter spacing, said devices comprising pawl and ratchet devices, an escapement lever
 100 operatively connected with said universal bar, and means for rendering said escapement lever ineffective to actuate said pawl and ratchet devices on alternate strokes of said lever.

4. In a machine of the class described, the combination of a carriage, a platen thereon, a
 105 type bar movable to and from printing engagement with the platen, a universal bar actuated each time the type bar is operated, escapement devices for controlling the movement of the carriage for letter spacing, said devices
 110 comprising a rack on the carriage, a pawl engaging said rack, an escapement lever operatively connected with said universal bar for releasing said pawl from the rack, means for swinging said lever to ineffective position, and
 115 means controlled by the movement of the lever for swinging it to effective position.

5. In a machine of the class described, the combination of a carriage, a platen thereon, a
 120 type bar movable to and from printing engagement with the platen, escapement devices for controlling the movement of the carriage for letter spacing, said devices comprising a rack on the carriage, a pawl engaging said rack, an es-
 125 capement lever for releasing said pawl from the rack, an interponent arranged between said escapement lever and pawl and operative to swing the lever out of the path of the pawl, and means for swinging the lever into the path of the pawl
 130 when operated to disengage it from the interponent.

6. In a machine of the class described, the combination of a carriage, a platen thereon, a
 135 type bar movable to and from printing engagement with the platen, escapement devices for controlling the movement of the carriage for letter spacing, said devices comprising a rack on the carriage, a pawl engaging said rack, an es-
 140 capement lever for releasing said pawl from the rack and movable to two positions, the first, out of the path of the pawl and a second arranged to engage the pawl and release it from the rack, an interponent having an arm for swinging the lever to its first position, and
 145 means for swinging the lever to the second position when operated to disengage it from said arm.

7. In a machine of the class described, the combination of a carriage, a platen thereon, a
 150 type bar movable to and from printing engage-

ment with the platen, escapement devices for controlling the movement of the carriage for letter spacing, said devices comprising a rack on the carriage, a pawl engaging said rack and arranged to swing into and out of engagement with said rack and having a bodily movement with the rack, an escapement lever for releasing the pawl from the rack, an interponent arranged between the pawl and escapement lever and arranged to be actuated by the pawl to swing the lever out of the path of the pawl, and means for swinging the lever into the path of the pawl when operated to disengage the interponent.

8. In a machine of the class described, the combination of a carriage, a platen thereon, a type bar movable to and from printing engagement with the platen, escapement devices for controlling the movement of the carriage for letter spacing, said devices comprising a rack on the carriage, a pawl engaging said rack, an escapement lever for disengaging the pawl from the rack, an interponent having a U-shaped opening therein and arranged to swing the lever out of the path of the pawl, and means for swinging said lever into said U-shaped opening and the path of the pawl when actuated from engagement with the interponent.

9. In a machine of the class described, the combination of a platen, a type bar movable to and from printing engagement therewith, means for operating the type bar, a ribbon vibrator movable to and from the printing point on the platen, means for moving the ribbon vibrator to the printing point on the platen to interpose a ribbon between it and the type bar, and devices for rendering said means effective to move the ribbon vibrator to the printing point on the platen on alternate actuations of the type bar.

10. In a machine of the class described, the combination of a platen, a type bar movable to and from printing engagement therewith, means for operating the type bar, a ribbon vibrator movable to and from the printing point on the platen, means for moving the ribbon vibrator to the printing point on the platen to interpose a ribbon between it and the type bar, said means comprising an actuator operatively connected with the ribbon vibrator, a swinging device for operating said actuator, and means for swinging said device once during two successive actuations of a type bar.

11. In a machine of the class described, the combination of a platen, a type bar movable to and from printing engagement therewith, means for operating the type bar, a ribbon vibrator movable to and from the printing point on the platen, means for moving the ribbon vibrator to the printing point on the platen to interpose a ribbon between it and the type bar, said means comprising an actuator operatively connected with the ribbon vibrator, a swinging device for operating said actuator, a cam for swinging

said device in one direction to move the ribbon vibrator to the printing point, and intermittently operated means for moving said cam on alternate actuations thereof to move the vibrator to the printing point.

12. In a machine of the class described, the combination of a platen, a type bar movable to and from printing engagement therewith, means for operating the type bar, a ribbon vibrator movable to and from the printing point on the platen, means for moving the ribbon vibrator to the printing point on the platen to interpose a ribbon between it and the type bar, said means comprising an actuator, a cam device having a plurality of lobes, means actuated by the lobes of said cam for operating the actuator to move the ribbon vibrator to the printing point, and means for moving said cam through a distance of one lobe during two successive actuations of a type bar.

13. In a machine of the class described, the combination of a platen, a type bar, means for moving the type bar to and from operative engagement with the platen, a ribbon vibrator movable to and from operative engagement with the platen, means for moving the ribbon vibrator to the printing point on the platen, said means comprising an actuator operatively connected with the ribbon vibrator, a universal bar actuated by the type bar moving means, and means controlled by said universal bar for operating the actuator to move the ribbon vibrator to the printing point on alternate operations thereof.

14. In a typewriter, the combination with a carriage, of a platen thereon, a type bar movable into printing engagement with the platen, escapement devices for moving the carriage for letter spacing, and means for actuating the escapement devices on alternate strokes of a type bar.

15. In a typewriter, the combination with a carriage, of a platen thereon, a type bar movable into printing engagement with the platen, a ribbon vibrator for moving the ribbon to and from the printing point on the platen, escapement devices for moving the carriage for letter spacing, means operable to move the ribbon vibrator to the printing point on alternate strokes of a type bar, and means for actuating the escapement devices on alternate strokes of a type bar.

16. In a typewriter, the combination with a carriage, of a platen thereon, a printing instrumentality movable into printing engagement with the platen, and means operable for automatically interposing ink between the platen and printing instrumentality on alternate operations of the latter whereby the printing instrumentality will respectively print on and perforate the paper during alternate operations.

RUSSELL G. THOMPSON.