

C. W. WALKER.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAY 11, 1906.

952,771.

Patented Mar. 22, 1910.  
3 SHEETS—SHEET 1.

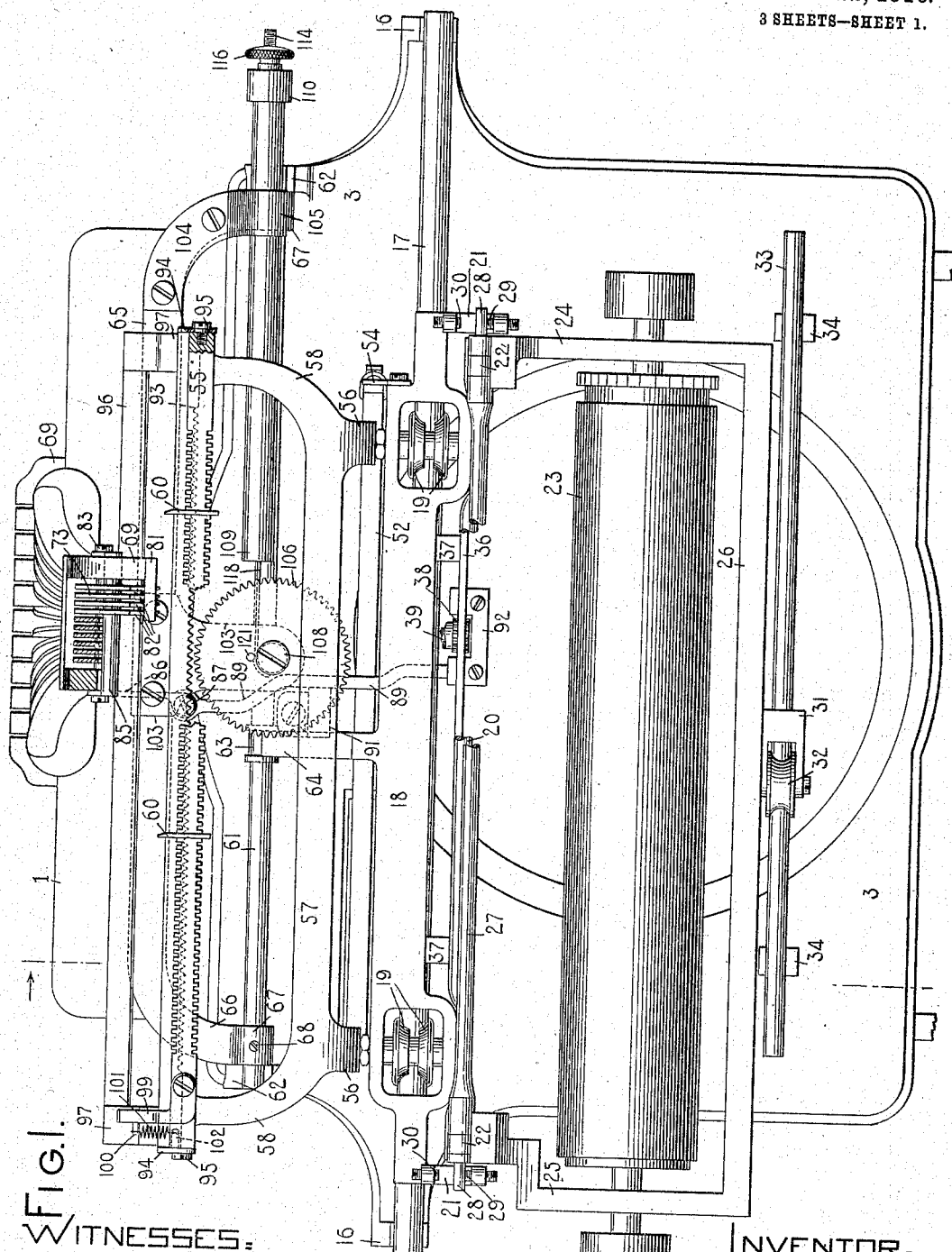


Fig. 1.

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INVENTOR:

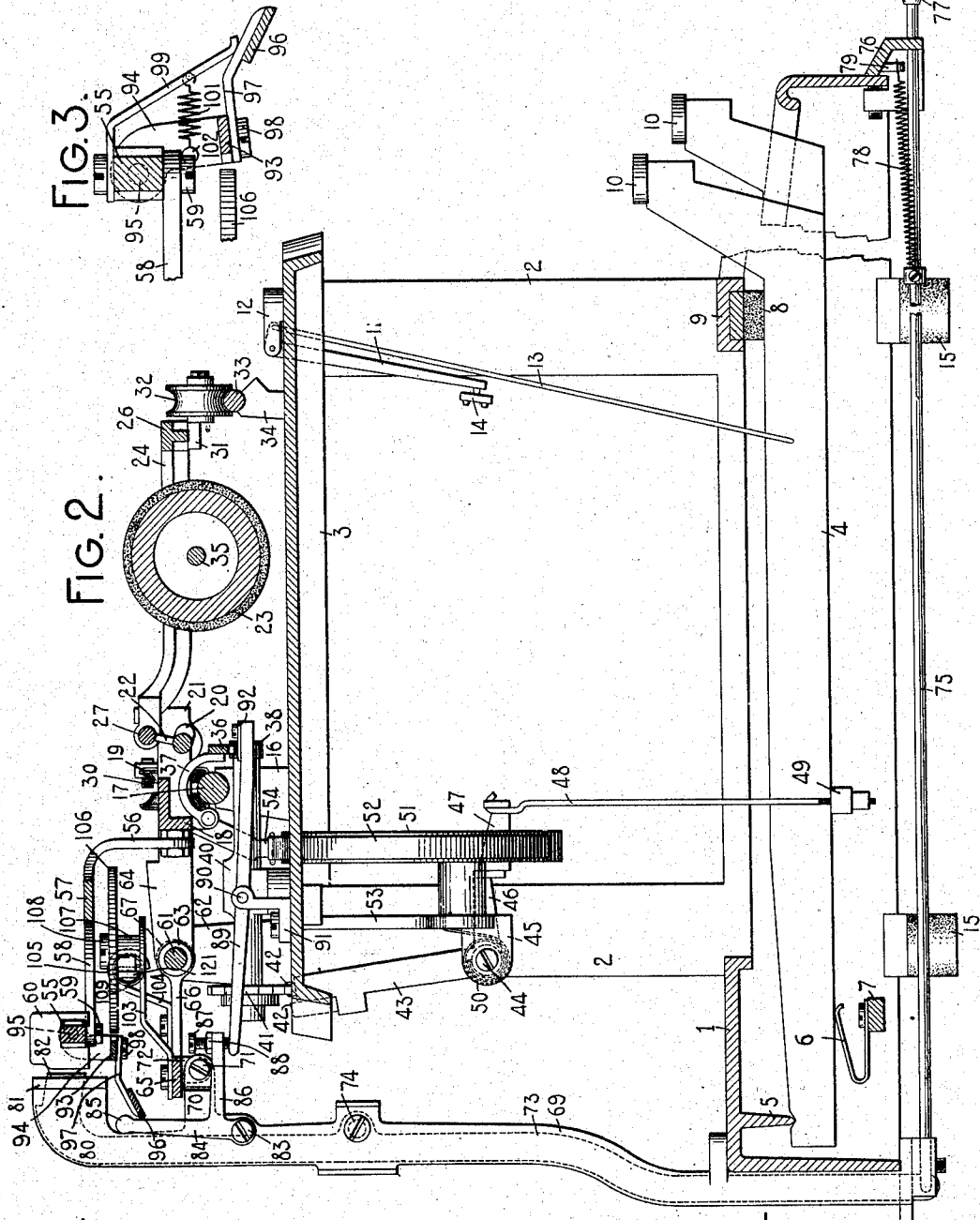
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3 SHEETS—SHEET 2



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3 SHEETS—SHEET 3.

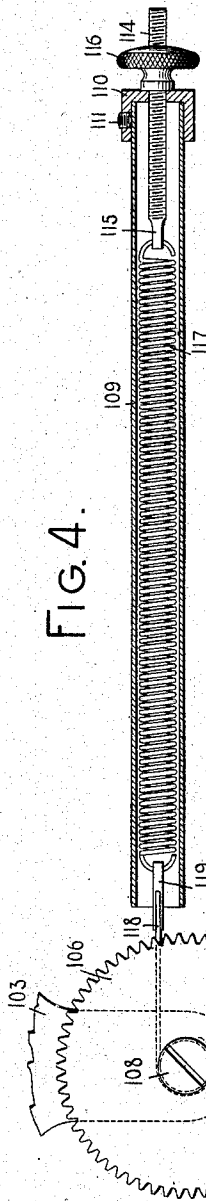


FIG. 4.

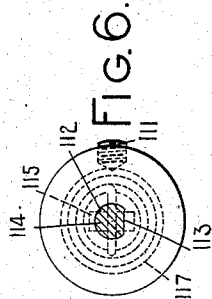


FIG. 6.

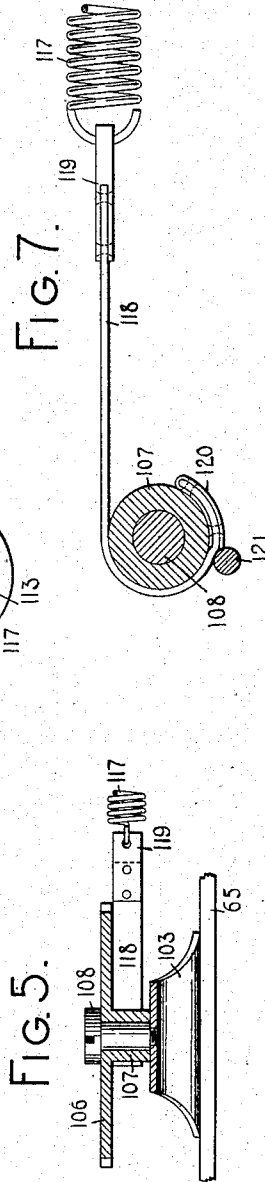


FIG. 7.

FIG. 5.

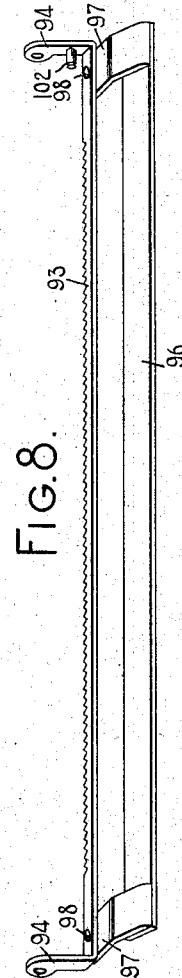


FIG. 8.

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# UNITED STATES PATENT OFFICE.

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## TYPE-WRITING MACHINE.

952,771.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed May 11, 1906. Serial No. 316,354.

*To all whom it may concern:*

Be it known that I, CHARLES W. WALKER, citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements in carriage-retarding apparatus, and consists of the features of construction and combinations and arrangements of parts which will be hereinafter described and specified in the claims.

In the accompanying drawings in which like reference numerals designate the same parts in the different views, Figure 1 is a top view of mechanism embodying the invention applied to a Remington typewriting machine, parts of which are shown; Fig. 2 is a vertical section of the machine shown in Fig. 1, the section being on the plane  $x, x$ , Fig. 1, and being viewed in the direction indicated by the arrow; Fig. 3 is a sectional elevation on an enlarged scale of parts shown in Fig. 1 on the left of the section line  $x, x$ ; Fig. 4 is a top view of a gear and a spring, connecting strap and adjusting screw, included in the carriage retarding apparatus, and a horizontal section of a tubular case containing the spring; Fig. 5 is a vertical section of the gear, a drum formed thereon, and their supporting bracket, and a front view of a fragment of the spring and connecting strap; Fig. 6 is an enlarged end view of the case and cross-section of the screw shown in Fig. 4; Fig. 7 is an enlarged cross-section of the drum and top view of the spring and strap shown in Fig. 5; and Fig. 8 is a perspective of a rack which forms part of the retarding apparatus and of a bar attached to the rack.

Although this invention is shown applied to a Remington typewriting machine, it will be understood that it is also applicable to numerous other machines including such as are called "visible-writing" machines.

The main frame of the machine shown includes a base 1, posts 2 and a top plate 3, there being four posts which are fast on the base and on the upper ends of which the top plate is secured. Within the base are key levers 4 having a fulcrum 5 formed on the rear portion of the base, each key lever resting near its end on a spring 6 which is

attached to a cross-bar 7 and which normally presses the key lever upward against the fulcrum 5 and against a pad 8. This pad is attached to a cross bar 9 extending over the key levers from side to side of the frame and forms with the cross bar 9 a stop to limit the upward movement of the key levers. The key levers extend forward and upward from the pad 8 and each has on it a finger-button 10.

The type-bars are mounted on the top plate at the edge of a circular opening therein, each type bar 11 being pivoted in a hanger 12 secured to the top plate, and a link 13 connects the type bar with one of the key levers 4. An ordinary type block 14 with types formed thereon is attached to the type bar 11. Rubber feet 15 are attached to the sides of the base 1 at its lower edges. On the top plate 3 are two standards 16 to which is fastened at their upper ends a cross rod 17. A truck 18 is mounted on this rod, the truck comprising two pairs of wheels 19 which rest on the cross rod 17 and support the truck. A cross rod or rock-shaft 20 is pivoted at its ends between the ends 21 of the truck 18 and on this cross rod are arms 22 which extend upward therefrom. The platen 23 is mounted in a frame which comprises the end-bars 24 and 25, the front bar 26, and the rod 27 which extends from end to end of the platen frame and with which the arms 22, formed on the rod 20, are pivotally connected. At each end of the rod 27 is a pin or projection 28 which extends between stops 29 and 30 on the ends 21 of the truck 18. To the front bar 26 of the platen frame is attached a supporting block 31 in which is mounted a grooved roller 32. This roller rests on a shift-rod 33 attached to upright supports 34, which are arranged to be rocked from the positions in which they are shown toward the back of the machine by means of mechanism whose construction and operation are well-known. The platen 23 is supported on an axle or platen-shaft 35, which is journaled in the ends 24 and 25 of the platen frame. When the shift rod 33 is moved toward the rear of the machine the platen-frame and platen are forced backward until the pins 28 on the rod 27 meet the stops 30 on the ends 21 of the truck 18. This movement is imparted to the platen when it is desired to write upper case letters or characters, the normal positions of the

platen and platen-frame being those shown in the drawings. The platen frame and the truck 18 constitute a carriage.

A rack 36 extends lengthwise of the truck 18 in front of the cross-rod 17, this rack being attached to arms 37 which curve upward and backward from the rack over the cross bar 17 and are pivoted at their rear ends to the truck 18. The rack is movable up and down on the pivotal axis of the arms 37. A pinion 38, with which the rack 36 normally engages, is mounted on a shaft 39 which has a bearing in a bracket 40 attached to the top plate 3, and on the rear end of this shaft is an escapement-wheel 41. Feed dogs 42 which co-act with the escapement wheel to allow the carriage to be fed step-by-step, a letter space distance at a time, are mounted on an arm 43 forming part of a dog-rocker, which is pivotally mounted at 44 in a bracket 45 attached to and extending downward from the top plate 3. On the dog rocker is an arm 46 which extends in front of the pivotal axis of the dog rocker, and to the front end of which is attached a cross-bar 47, with which are connected at its ends rods 48 which extend downward from the cross bar and on which are secured near their lower ends a universal bar 49. This bar extends under the key levers 4 and the spacing levers of the machine (not shown) and rests normally close to their lower edges. A spring 50 coiled around the dog rocker shaft and attached thereto and to the bracket 45 tends to keep the feed dogs, dog rocker and universal bar in the positions in which they are shown in Fig. 3. A spring-drum 51 to which is attached a strap 52, is mounted on a bracket 53 which is fastened to the top plate 3 of the frame, the strap 52 being connected with an arm 54 on the truck 18.

The construction and arrangement of the mechanism described is such that when a type key or the space key is depressed the universal bar 49 is forced downward, and the dogs 42 are rocked forward, and when the key is released the dog rocker and the universal bar 49 are restored to their normal positions by the spring 50, and the carriage is drawn forward a letter space distance by the spring drum. Upon the depression of a type key the link 13, connected with the key lever, is drawn downward and the type bar 11 is swung upward, one of the type on the bar being thus carried to its printing position at the under side of the platen 23.

The machine shown also includes tabulating mechanism whose construction is well known and which is commonly called the Gorin tabulator. This mechanism comprises a column-stop bar on which column-stops are secured, and a set of denominational stops arranged to be actuated by push keys and to co-act with the column stops. The column stop-bar 55 is attached to a

support composed of arms 56, a cross bar 57 and arms 58, the arms 56 of this support being bolted to the truck 18 and the support extending upward and backward from the truck as is shown in Figs. 1 and 2. The column stop bar 55 is attached by screws 59 to the rear ends of the arms 58. This bar is in the form of a double rack, the column stops 60 fitting in the spaces between the teeth of the rack and extending behind the bar.

Behind and a little above the cross rod 17 is another cross rod 61 which is supported by and fastened at its ends to posts 62 formed on the top plate 3 of the frame and on this rod is a guide sleeve 63 having flanges at its ends between which fits an arm 64 which is fast on and projects backward from the truck 18. A bar 65 having curved arms 66 is attached to the rod 61, the arms 66 having eyes 67 through which the rod 61 extends and which fit close to the inner faces of the posts 62 and are fastened to the rod by set screws 68.

A frame 69 is attached to the back of the base 1 and to the bar 65, this frame having on it an arm 70 which extends under the bar 65 and is fastened by a screw 71 to a lug 72 formed on or affixed to the bar. In this frame a set of denominational stop levers 73 is mounted, these levers being pivoted in the frame by a pin or bolt 74 which extends from side to side of the frame and is secured at its ends to the frame. To each of these levers at its lower end a push rod 75 is connected, these rods extending through and having bearings in a support 76 attached to the front part of the base 1, and on the outer end of each of the rods 75 is a push button 77. To each push rod a coiled spring 78 is attached at its rear end, the front end of the spring being connected to a lug 79 on the support 76. The upper portions 80 of the denominational stop levers 73 constitute stop devices which fit loosely in and extend through a slotted guide plate 81 attached at its ends to the sides of the frame 69, the front end portion 82 of each of the denominational stop levers having the form shown in Figs. 1 and 2. To the frame 69 at 83 is pivoted a bail 84, this bail comprising a cross bar 85 which extends in front of the portions 80 of the denominational levers and normally rests close to their front edges. This bail has on it an arm 86 which extends forward under the cross bar 65 and carries at its front end a screw 87 on which is a lock nut 88, the screw 87 extending through the arm 86. A release lever 89 is pivoted by a pin 90 to a bracket 91 attached to the top plate 3, the rear arm of this lever extending under and being in contact with the screw 87. The front arm of the lever 89 has on it a shoe 92 which lies under the rack 36 and is nor-

mally out of contact with the rack, the shoe being properly formed to act on the rack on opposite sides of the pinion 38. When one of the push rods 75 is pushed inward the denominational lever connected therewith is actuated, the upper portion 80 of the lever being moved forward so that the stop portion 82 is advanced into the path of the column stops 60. The denominational stop lever acting on the cross bar 85 of the bail 84 forces downward the front end of the arm 86 and rear end of the lever 89 so that the shoe 92, acting on the rack 36, raises the rack out of engagement with the pinion 38, and thus releases the carriage from the control of the step-by-step feed mechanism. The carriage is then drawn leftward by the spring drum until it is arrested by the contact of the first column stop on the right of the projected denominational-stop, with said projected stop. As soon as the push rod is released the denominational stop lever returns to its normal position, allowing the shoe 92 and the rack 36 to descend, whereupon the rack reengages with the pinion 38 and again connects the carriage with the escapement mechanism.

The main object of the carriage retarding apparatus to which this invention especially relates is to prevent the carriage, after it is released from its step-by-step feeding mechanism and while it is running or being drawn continuously by the carriage power or spring drum 51, from traveling so fast, as it approaches the position where it is to be arrested by the co-action of the column stop and denominational stop, as to prevent the machine from being damaged and to render the noise slight when the carriage is arrested. This apparatus is arranged to be actuated by the carriage and includes means operative to exert on the carriage a resistance which begins to act before the tabulating stops meet and which increases continuously during the run of the carriage. The preferred form of the apparatus is that shown herein, but it is to be understood that the invention might be embodied in various modifications.

The retarding apparatus shown comprises a rack mounted on the carriage, a united gear and drum mounted on a support affixed to the frame of the machine, and a spring connected with the drum and tending to turn it and the gear in one direction, the rack being movable into engagement with the gear and adapted to rotate the gear in the other direction as the carriage travels when it is released from the escapement mechanism as above described. This rack 93 is mounted on the column stop bar 55, the rack having arms 94 on its ends which are pivoted to the ends of the stop bar by screws 95. To this rack is attached a bar 96 which has at its ends arms 97 through

which screws 98 extend into the rack 93, as shown in Figs. 3 and 8. An arm 99, which extends backward and downward from the stop bar 55 near its left end and which rests on and is attached by a screw to the stop bar, has on it a pin 100 which supports one end of a coiled spring 101, the other end of this spring being secured to a pin 102 fixed in the left arm 94 of the rack 93. This spring normally holds the rack in the position in which it is shown in Figs. 2 and 3, the left arm 97 of the bar 96 being in contact with the lower end of the arm 99, which forms a stop to limit the backward movement of the rack by the spring 101. The bar 96 extends in front of and normally rests close to the bail 84.

On the bar 65 about midway between its ends is fixed a bent plate 103 which forms a support for the gear and drum above mentioned and to this bar 65, near its right end, is attached a support 104 which extends upward from the bar over the rod 61 and is bent at its upper end 105 as shown in Fig. 2. The gear 106 and drum 107 are formed together (Fig. 5), the drum being between the gear and the plate 103, and they are attached to the supporting plate by a shouldered screw 108 which extends through them into the plate 103. In the bent part 105 of the support 104 is secured a tubular case 109, this case being soldered or otherwise firmly affixed to the support. The right end of this case is closed by a cap 110 which is fastened to the case by a set screw 111 (Fig. 4). In the end of the cap 110 is a smooth hole 112 having a flat side 113 (Fig. 6) through which extends a screw 114, the screw being loose in the hole but having a flat side which fits the flat side 113 of the hole so that the screw is prevented from turning on its axis. This screw has at its inner end an eye 115 and on the screw, bearing against the cap 110, is a knurled nut 116 (Fig. 4). The case 109 contains a helical spring 117 which is attached at its right end to the eye 115 of the screw 114 and which is connected at its left end by a strap 118 with the drum 107, the strap having metal tips 119 and 120 at its ends and being held on the drum by means of a pin 121 (shown in Figs. 2 and 7), this pin being fixed in the gear 106. It will be understood that the tension of the spring may be varied by turning the nut 116, causing the screw 114 to travel inward or outward as may be desired.

The rack 93 is movable on its pivotal axis from the position in which it is shown in the drawings into engagement with the gear 106. This movement is imparted to the rack, when a denominational stop-lever is actuated, by the action of the stop-lever on the rack through the bail 84 and the bar 96, for, as the bail 84 is rocked as above described, the bar 96 is pushed forward by it and the

rack is advanced to the gear, the spring 101 being extended as the rack is forced forward. It will be seen therefore that whenever the carriage is released to enable it to travel to the desired denominational position, the rack 93 is engaged with the gear 106, and that as the carriage advances the gear is rotated on its axis in the direction opposite to that in which the spring 117 tends to turn it, the strap 118 being wound on the drum 107 as the carriage travels and the spring 117 being drawn toward the drum throughout the run of the carriage. The spring therefore exerts on the carriage a resistance which begins instantly after the carriage is released from its step-by-step feed mechanism and which continuously increases until the carriage is arrested. When the actuated denominational stop returns to its normal position the rack 93 is disengaged from the gear 106 by the action of the spring 101, which draws the rack backward until the left arm 97 of the bar 96 meets the stop 99, and thereafter the spring 117 contracts and restores the gear 106 and drum 107 to their normal positions. The action of the apparatus, it is obvious, will be essentially the same whether the carriage travels a long or a short distance.

By means of the retarding apparatus described the carriage may be so retarded, whatever distance it may travel free from the control of the escapement mechanism, as to prevent the machine from being injured and to render the shock and noise slight when the carriage is arrested by the tabulator stops or other suitable means. Since this retarding apparatus acts on the carriage through the extra rack 93, which is not a part of the carriage feed mechanism, the use of this apparatus does not subject the feed-rack to such wear as do other retarders, or to strains which render the teeth of the feed-rack or the feed pinion liable to be broken or mutilated.

It is to be understood that the invention claimed herein may be applied to a machine containing column selecting mechanism instead of the particular tabulating mechanism shown herein, or containing other forms of denominational or decimal tabulating mechanism.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination with the carriage, carriage driving-mechanism, and carriage-arresting stops, of carriage retarding apparatus normally disengaged from the carriage, means comprising a key for connecting it with the carriage, and means for disconnecting said apparatus from the carriage after the carriage is arrested by said stops, said apparatus including means operative to exert on the carriage a resistance which begins to act before said

stops meet and which increases continuously whatever the speed of the carriage may be and whatever may be the distance through which it travels, and which acts on the carriage until said apparatus is disengaged from the carriage.

2. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and carriage-arresting stops, of carriage-retarding apparatus normally disengaged from the carriage, means comprising a key for connecting it with the carriage, and means for disconnecting said apparatus from the carriage after the carriage is arrested by said stops, said apparatus including a spring operative to exert on the carriage a resistance which begins to act before said stops meet and which increases continuously whatever the speed of the carriage may be and whatever may be the distance through which it travels, and which acts on the carriage until said apparatus is disengaged from the carriage.

3. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and carriage-arresting stops, of carriage-retarding apparatus normally disengaged from the carriage, means comprising a key for connecting it with the carriage, and means for disconnecting said apparatus from the carriage after the carriage is arrested by said stops, said apparatus including a drum and a spring connected with said drum, the spring being operative on the carriage before said stops meet and until said apparatus is disengaged from the carriage.

4. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism of carriage-retarding apparatus normally disengaged from the carriage, and means comprising a key for connecting it with the carriage, said apparatus including a drum, a helical spring connected at one of its ends with said drum and at its other end with a fixed support, and a device arranged to be actuated by the carriage and to rotate the drum, the spring being operative to exert a resistance on the carriage until the drum is disconnected from the carriage.

5. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism of carriage-retarding apparatus normally disengaged from the carriage, and means comprising a key for connecting it with the carriage, said apparatus including a drum, a helical spring connected at one of its ends with said drum and at its other end with a fixed support, and a gear fast on the drum and arranged to be rotated by the carriage, the spring being operative to exert a resistance on the carriage until the gear is disconnected from the carriage.

6. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and carriage-arresting stops, of carriage-retarding apparatus normally disengaged from the carriage, means comprising a key for connecting it with the carriage, and means for disconnecting said apparatus from the carriage after the carriage is arrested by said stops, said apparatus including a drum and a spring connected with said drum, the spring being operative on the carriage before said stops meet and until said apparatus is disengaged from the carriage.

nation with the carriage, carriage-driving mechanism, and carriage-arresting stops, of carriage-retarding apparatus normally disengaged from the carriage, and means comprising a key for connecting it with the carriage, said apparatus including a spring operative to exert on the carriage a resistance which begins to act before said stops meet and which increases continuously and which acts until said apparatus is disengaged from the carriage, said apparatus also including means for varying the tension of said spring.

7. In a typewriting machine, the combination with the carriage and carriage-driving mechanism of carriage-retarding apparatus normally disengaged from the carriage, and means comprising a key for connecting it with the carriage, said apparatus including a drum, a helical spring connected at one of its ends with said drum and at its other end with a screw mounted in a fixed support and adjustable to vary the tension of said spring, and a device arranged to be actuated by the carriage and to rotate the drum, the spring being operative to exert a resistance on the carriage until the drum is disconnected from the carriage.

8. In a typewriting machine, the combination with the carriage and carriage-driving mechanism of carriage-retarding apparatus normally disengaged from the carriage, said apparatus including a drum, a helical spring inclosed in a tubular case and connected at one of its ends with a screw mounted in a fixed support and adjustable to vary the tension of said spring, and a device operative to rotate the drum, and means comprising a key for connecting this device with the carriage, the spring being operative to exert a resistance on the carriage until the drum is disconnected from the carriage.

9. In a typewriting machine, the combination with the carriage and carriage-driving mechanism, of carriage-retarding apparatus normally disengaged from the carriage, said apparatus including a drum, a helical spring inclosed in a tubular case and connected at one of its ends with a screw mounted in a fixed support and adjustable to vary the tension of said spring, and a gear fast on the drum, and means comprising a key for connecting this gear with the carriage, the spring being operative to exert a resistance on the carriage until the gear is disconnected from the carriage.

10. In a typewriting machine, the combination with the carriage, carriage driving mechanism, and tabulating stops, of carriage-retarding apparatus normally disconnected from the carriage, means comprising a key for connecting it with the carriage, and means for disconnecting it from the carriage, said apparatus including means operative to exert on the carriage a resistance which begins to act when the carriage starts

and which increases continuously as the carriage advances whatever may be the speed of the carriage and whatever may be the distance through which it travels.

11. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and tubulating stops, of carriage-retarding apparatus normally disconnected from the carriage, means comprising a key for connecting it with the carriage, and means for disconnecting it from the carriage, said apparatus including a spring operative to exert on the carriage a resistance which begins to act when the carriage starts and which increases continuously as the carriage advances whatever may be the speed of the carriage and whatever may be the distance through which it travels.

12. In a typewriting machine, the combination with the carriage and carriage-driving mechanism, of carriage-retarding apparatus normally disconnected from the carriage, said apparatus including a drum, a helical spring connected at one of its ends with said drum and at its other end with a fixed support and tending to turn the drum on its axis in one direction, and a device operative to turn the drum in the other direction, and means including a key for connecting the device with the carriage.

13. In a typewriting machine, the combination with the carriage and carriage-driving mechanism, of carriage-retarding apparatus normally disconnected from the carriage, said apparatus including a drum, a spring connected with said drum, means for varying the tension of said spring, and a gear fast on the drum, and means including a key for connecting the gear with the carriage, the spring being operative to exert a resistance on the carriage.

14. In a typewriting machine, the combination with the carriage, carriage driving mechanism, and tabulating stops, of carriage-retarding apparatus normally disconnected from the carriage, said apparatus including a drum, a helical spring connected at one of its ends with said drum and at its other end with a screw mounted in a fixed support, the spring tending to turn the drum on its axis in one direction and the screw being adjustable to vary the tension of the spring, and a device operative to turn the drum in the other direction, and means including a key for connecting this device with the carriage.

15. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and tabulating stops, of carriage-retarding apparatus, means comprising a key for connecting it with the carriage when the carriage is in different positions, and means for disconnecting it from the carriage, said apparatus including a rotary device arranged to be turned in one di-

rection by the action of the carriage, and a spring connected with said device and tending to turn it in the opposite direction.

16. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and tabulating stops, of carriage-retarding apparatus, and means comprising a key for connecting it with the carriage when the carriage is in different positions, said apparatus including a rotary device arranged to be turned in one direction by the action of the carriage, a spring connected with said device and tending to turn it in the opposite direction, and means for varying the tension of said spring.

17. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the gear being supported by the frame of the machine and its axis of rotation being fixed, and the rack being on the carriage and being movable from its normal position into and out of engagement with the gear.

18. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the gear being supported by the frame of the machine and its axis of rotation being fixed and vertical, and the rack being on the carriage and being movable from its normal position into and out of engagement with the gear.

19. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the gear being supported by the frame of the machine and its axis of rotation being fixed, and the rack being pivotally mounted on the carriage on a horizontal axis and being movable on said horizontal axis from its normal position into and out of engagement with the gear.

20. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the gear being supported by the frame of the machine and its axis of rotation being fixed and vertical, and the rack being pivotally mounted on the carriage on a horizontal axis and being movable on said horizontal axis from its normal position into and out of engagement with the gear.

21. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative

rack normally disengaged from each other, the rack being movable from its normal position to the gear and into engagement therewith.

22. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the axis of rotation of the gear being vertical, and the rack being movable from its normal position to the gear and into engagement therewith.

23. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the rack being mounted on a pivotal axis at a fixed distance from the pivotal axis of said gear and being movable on its pivotal axis from its normal position to the gear and into engagement therewith.

24. In a typewriting machine, the combination with the carriage, and carriage-driving mechanism, of carriage-retarding apparatus including a gear and a coöperative rack normally disengaged from each other, the rack being mounted on a pivotal axis at a fixed distance from the pivotal axis of said gear, one of said pivotal axes being fixed, and the rack being movable on its pivotal axis from its normal position to the gear and into engagement therewith.

25. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and a key-actuated tabulator stop-device, of carriage-retarding apparatus including a gear, and a coöperative rack normally disengaged from each other, the rack being movable from its normal position by the action on it of said key-actuated stop-device to and into engagement with the gear.

26. In a typewriting machine, the combination with the carriage, carriage driving mechanism, and a set of key-actuated tabulator stop-devices, of carriage-retarding apparatus including a gear, and a coöperative rack normally disengaged from each other, the rack being movable from its normal position by the action on it of any of said key-actuated stop devices to and into engagement with the gear.

27. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and a key-actuated tabulator stop-device, of carriage-retarding apparatus including a gear, a rack mounted on a pivotal axis and normally disengaged from said gear, and a bar attached to said rack, the rack being movable on its pivotal axis from its normal position to and into engagement with said gear by the action of said stop-device on said bar.

28. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, and a set of key-actuated tabulator stop-devices, of carriage-retarding apparatus including a gear, a rack mounted on a pivotal axis and normally disengaged from said gear, and a bar attached to said rack, the rack being movable on its pivotal axis from its normal position to and into engagement with said gear by the action of any of said stop-devices on said bar.

29. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, a column-stop bar with a column-stop thereon, and a key-actuated stop device coöperative with said column-stop, of carriage-retarding apparatus including a gear, and a rack pivotally attached to said column-stop bar at its ends and normally disengaged from said gear, the rack being movable from its normal position by the action on it of said key actuated stop device to and into engagement with the gear.

30. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, a column-stop bar with a column-stop thereon, and a set of key-actuated stop-devices coöperative with said column-stop, of carriage-retarding apparatus including a gear, and a rack pivotally attached to said column-stop bar at its ends and normally disengaged from said gear, the rack being movable from its normal position by the action on it of any of said key actuated stop-devices to and into engagement with the gear.

31. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, a column-stop bar with a column-stop thereon, and a key-actuated stop-device coöperative with said column-stop, of carriage-retarding apparatus including a gear, a rack pivotally attached to said column-stop bar at its ends and normally disengaged from said gear, and a bar attached to said rack, the rack being movable on its pivotal axis from its normal position to and into engagement with said gear by the action of said stop device on said last mentioned bar.

32. In a typewriting machine, the combination with the carriage, carriage-driving mechanism, a column-stop bar with a column-stop thereon, and a set of key-actuated stop-devices coöperative with said column stop, of carriage-retarding apparatus including a gear, a rack pivotally attached to said column-stop bar at its ends and normally disengaged from said gear, and a bar attached to said rack, the rack being movable on its pivotal axis from its normal position to and into engagement with said gear by the action of any of said stop devices on said last mentioned bar.

33. In a typewriting machine, the combination of a carriage, carriage feeding devices, a carriage retarder, a special retarder-actuating rack on said carriage, said rack being independent of the carriage feeding devices and the retarder being normally out of working connection with said rack, and means to render said rack operative to drive the retarder when the carriage is released from the control of said feeding devices.

34. In a typewriting machine, the combination of a carriage, carriage feeding devices, a carriage retarder, a special rack for actuating said retarder, said rack being normally out of working connection with the retarder, and means to render said rack operative to drive the retarder when the carriage is released from the control of said feeding devices.

35. In a typewriting machine, the combination of a carriage, carriage feeding devices comprising a rack and a pinion, a carriage retarder, an independent rack for actuating said retarder, said rack being normally out of working connection with the retarder, and means to render the last mentioned rack operative to drive the retarder when the carriage is released from the control of said feeding devices.

36. In a typewriting machine, the combination of a carriage, carriage feeding devices, a carriage retarder, an independent rack for driving said retarder, and key-actuated mechanism operative both to release the carriage from the control of said feeding devices and to establish a working connection between the retarder and independent rack.

37. In a typewriting machine, the combination of a carriage carrying a feed rack and carrying also an independent driving rack, an escapement pinion which normally engages with the feed rack, a normally inactive carriage retarder, and means to render said independent rack operative to drive the retarder when said feed rack and pinion are disengaged from each other.

38. In a typewriting machine, the combination of a carriage, carriage-feeding devices, a carriage retarder, a special rack for driving said retarder, said rack being independent of the carriage feeding devices and movable simultaneously with the carriage and normally inoperative to drive the retarder, and means to render said rack operative to drive the retarder when the carriage is released from the control of said feeding devices.

39. In a typewriting machine, the combination of a carriage, a pivoted feed rack thereon, escapement mechanism comprising a feed pinion for engagement with said pivoted rack, a carriage retarder, an independent rack on said carriage for driving

said retarder, and means for separating said pivoted rack and said pinion and for simultaneously engaging said carriage retarder and said driving rack.

- 5 40. In a typewriting machine, the combination with a carriage, a retarder and an escapement mechanism comprising a pinion, of two racks on the carriage, one of which is controlled by the said escapement pinion  
10 and the other of which drives the said retarder, means for releasing the carriage

from its escapement mechanism, and means for putting the retarder into coöperative relation with its driving rack.

Signed at the borough of Manhattan, city 15 of New York, in the county of New York, and State of New York, this 10th day of May, A. D. 1906.

CHARLES W. WALKER.

Witnesses:

E. M. WELLS,

M. F. HANMOCHER.