

(No Model.)

3 Sheets—Sheet 1.

C. W. WALKER.
TYPE WRITING MACHINE.

No. 568,645.

Patented Sept. 29, 1896.

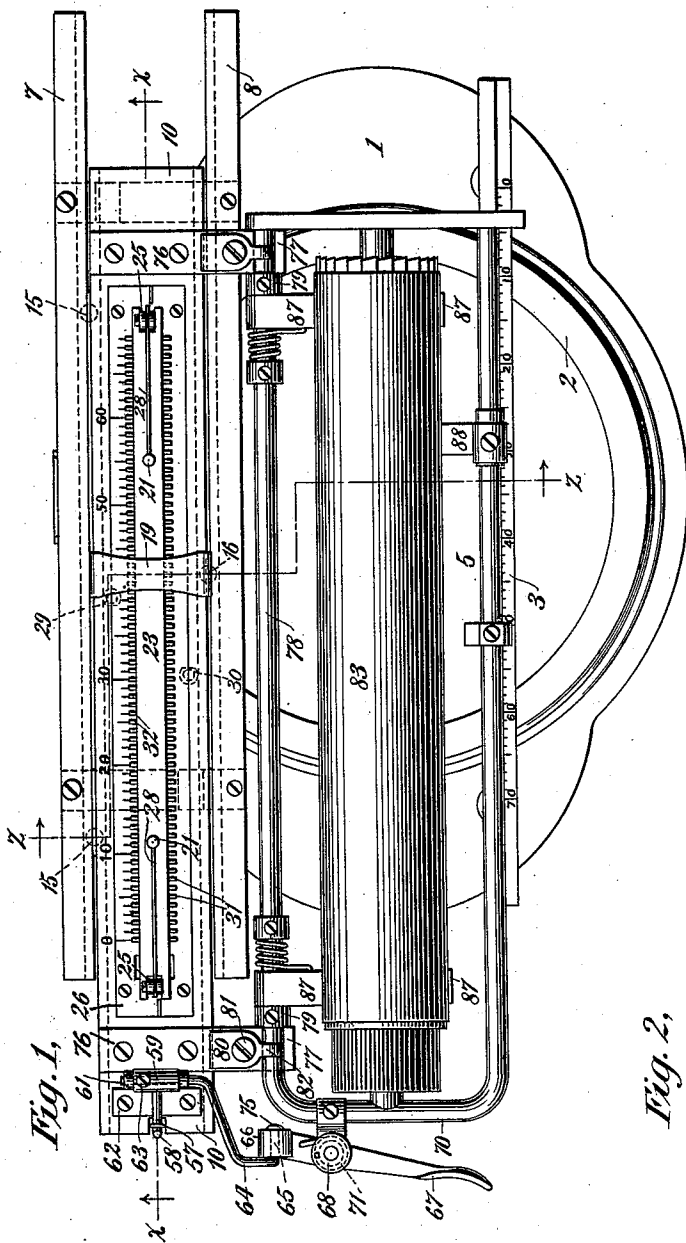
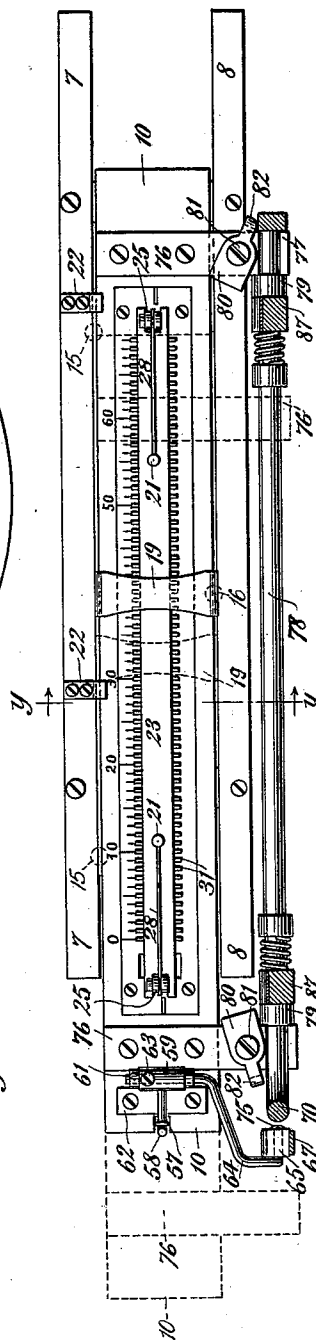


Fig. 1.



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By his Attorney
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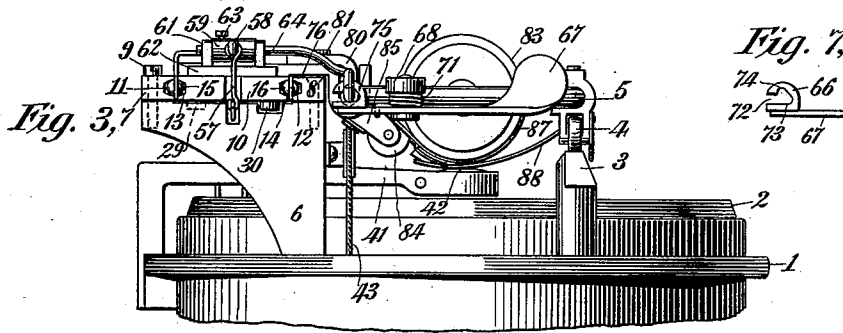


Fig. 7,

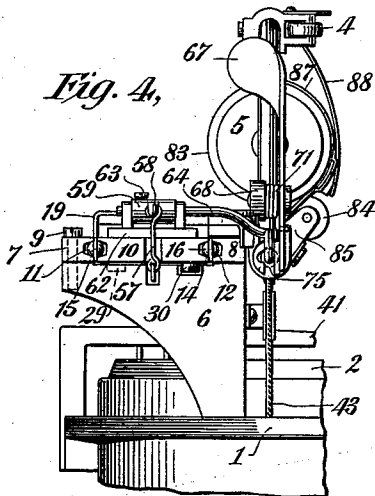
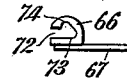


Fig. 8,

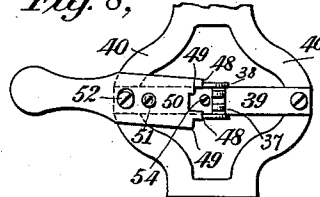


Fig. 9,

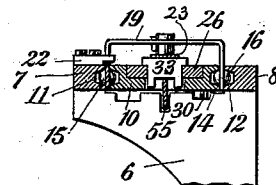


Fig. 5,

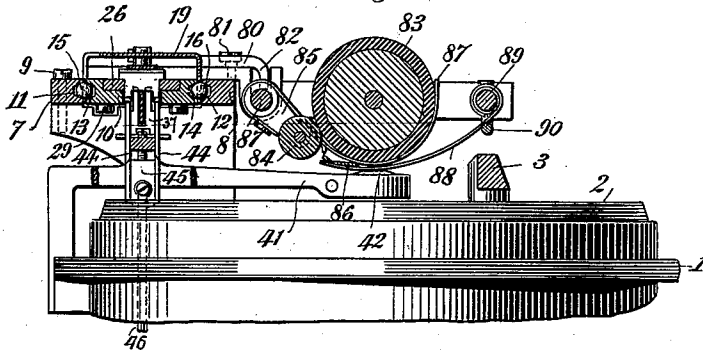
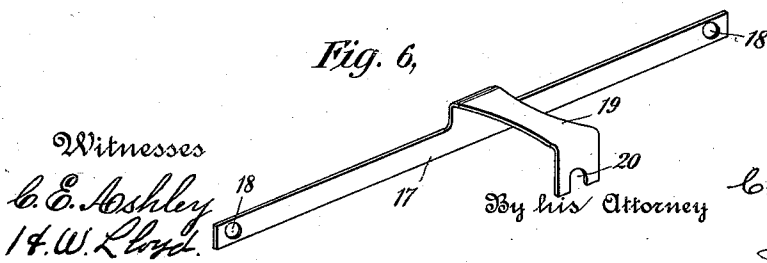


Fig. 6,



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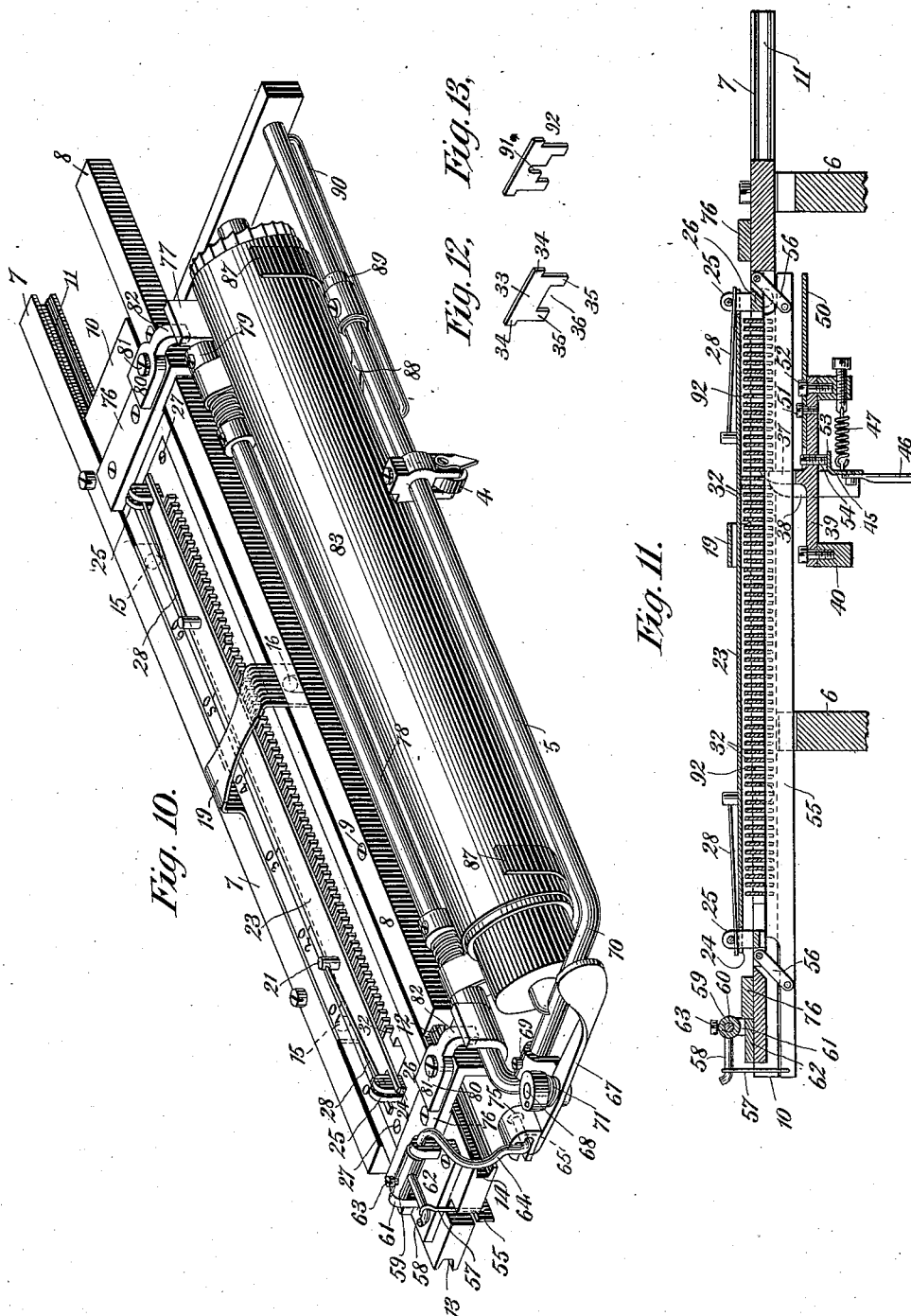
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3 Sheets—Sheet 3.

C. W. WALKER.
TYPE WRITING MACHINE.

No. 568,645.

Patented Sept. 29, 1896.



Witnesses
C. E. Ashley
H. W. Lloyd

Inventor
Chas. W. Walker
By his Attorney Jacob Felbel

UNITED STATES PATENT OFFICE.

CHARLES W. WALKER, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE
YOST WRITING MACHINE COMPANY, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,645, dated September 29, 1896.

Application filed September 25, 1894. Serial No. 524,072. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. WALKER, a citizen of the United States, and a 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.

My present invention has for its objects more particularly to improve the constructions of machines made the subjects of applications filed by me August 2, 1894, Serial No. 519,234, and September 14, 1894, Serial No. 522,976; and it consists in the various features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a partial top plan view of a "Yost" type-writing machine embodying my several improvements, the keyboard and various other parts not essential to show being omitted for the sake of clearness. Fig. 2 is a top plan view of the carriage and its attachments, showing also the rear portion of the platen-carrier partly in section and in its turned-up position, illustrated also at Fig. 4. Fig. 3 is a left-hand side elevation of the machine shown at Fig. 1. Fig. 4 is a similar view with the platen carrier or frame turned up either for inspection of the work or for detachment. Fig. 5 is a vertical section taken at the line *zz* of Fig. 1. Fig. 6 is a perspective view of the antifriction-ball connector. Fig. 7 is a detail side elevation of the inner end of the release-key lever. Fig. 8 is a top plan view of the dog-holder, the dogs, and the switch for obtaining either single or double spacing. Fig. 9 is a vertical section taken at the line *yy* of Fig. 2. Fig. 10 is a perspective view of the carriage and platen-carrier and their accessories. Fig. 11 is a vertical section taken at the line *xx* of Fig. 1. Fig. 12 is a perspective view of one of the feed-teeth, and Fig. 13 is a like view of one of the column-stop teeth.

In the various views the same parts will be found designated by the same numerals of reference.

I have shown my improvements embodied

in the Yost type of machines, but of course they may be employed in other descriptions of machines.

1 designates the top plate of a Yost machine, having thereon, as usual, an ink-pad 2, and supporting at its front, by posts, a track or way 3 for the front roller 4 of the platen-carrier 5. From the top plate at its rear side and near the ends or corners rise two brackets 6, which support, horizontally, two guide-bars 7 and 8, attached to said brackets by screws 9. The said guide-bars are parallel with each other and are separated to accommodate an intermediate bar, frame, or carriage 10. The inner side of the rear guide-bar is provided with a V-groove 11, extending its whole length, and the inner side of the front guide-bar is provided with a V-groove 12, likewise extending the full length of the bar.

The rear side of the frame or carriage is formed or provided with a longitudinal V-groove 13 to associate with the groove 11, and the front side of said frame or carriage is formed with a longitudinal groove 14 to associate with the groove 12. The said grooves 11 and 13 form bearings for two antifriction-balls 15, and the grooves 12 and 14 form bearings for a single antifriction-ball 16. The antifriction-balls 15 are arranged apart several inches and are maintained in this relationship by a thin yoke or coupling-bar 17, having near each end a hole 18, and in which one of said balls is housed in such a manner that the ball protrudes on each side beyond said bar and takes a proper bearing in the V-grooves 11 and 13. The bar 17 is provided with an arm 19, which is bent or shaped to extend over to the antifriction-ball 16 and seize or partially inclose the same by means a notch or cut-away 20, formed at its front end. This arm 19 is located about midway of the bar 17, and, forming a part thereof, operates to hold the single antifriction-ball 16 always in a fixed position relatively to the antifriction-balls 15, thus forming three extended points of bearing for the frame or carriage 10, the said antifriction-ball 16 projecting on each side beyond its housing and bearing properly in the V-grooves 12 and 14, all as clearly shown in the various views. Between the guide-bars and the frame

or carriage are spaces sufficiently wide to accommodate the bar 17 and the vertical portions of the arm 19.

For the purpose of maintaining the anti-friction-balls in proper relationship to the frame or carriage, means are provided to engage at certain times with some part of the ball-holder 17 19 to automatically adjust the same relatively to the carriage. In the excursions of the carriage, by momentum, vibration, or from other cause, the balls may travel slightly faster or slower than the carriage, thus effecting a change in the relative position of the balls and carriage, which should be corrected as soon as possible. To this end lugs or abutments are employed, and these devices may either be connected to the carriage or may be attached to a fixed part of the machine, as, for instance, one of the guide-bars. Both forms of lugs or abutments are shown, the carriage or movable lugs or abutments being designated by 21 and the stationary lugs or abutments by 22. Although I have shown the said two forms of lugs or abutments, it is of course not necessary for both to be employed at the same time; yet they may be so used without detriment to the action of the machine.

The lugs or abutments 21 project upwardly from a horizontal bar 23, whose main function is to maintain in a normally-depressed condition the line or series of individual feed-teeth hereinafter more fully described, and said bar is bifurcated at its ends, as shown at 24, to embrace ears 25, rising from a feed-rack 26, mortised or set into the frame or carriage 10 and secured in place by screws 27, whereby said bar is held laterally and longitudinally in proper position with reference to the feed-rack, while at the same time it is free to rise and fall slightly during the ascent and descent of the independent feed-teeth. The said bar 23 is elastically connected to the said ears at each end by a light wire spring 28, which at one end is attached to the lug or abutment 21 and at its other end to the ear 25, all in a manner such that the said springs tend to keep the bar down and the feed-teeth thereunder in their lowermost or normal positions, whereby they may be successively properly presented to the spacing-dogs during the step-by-step movements of the carriage. The lugs or abutments 21 are of such a height that they may contact with the edges of the horizontal portion of the arm 19 of the ball-holder, and hence if, during a movement of the carriage toward the left, the ball-holder should travel too far in the same direction, the lug or abutment 21 on the left (considered from the front of the machine) will, on the return movement of the carriage for the beginning of a new line, strike against the left-hand edge of the arm 19 and cause the ball-holder to travel with the carriage to the end of its movement, thus restoring the ball-holder to its proper position relatively to the car-

riage. In like manner, should the ball-holder lose its proper position with relation to the carriage during its movement toward the left by reason of a lagging action, the lug 21 on the right-hand side of the carriage will come in contact with the edge of the arm 19 and drive the ball-holder along with the carriage during the remainder of the travel of the latter. The lug 21 on the left-hand side is, however, the more important one, inasmuch as the tendency of the ball-holder is to go too far to the left, and said lug operates to return the ball-holder and the antifriction-balls carried thereby to the right and to their correct positions on the return movement of the carriage for the commencement of a new line; but the right-hand lug 21, like the left-hand lug, performs the important function of preventing the ball-holder from accidentally detaching from the machine, and thus insuring the maintenance of the balls in their grooves or bearings.

The lugs or abutments 22 are fast on the rear guide-bar and, projecting inwardly in the path of the rear vertical member of the arm 19, limit the movements of the ball-holder in both directions of travel of the carriage, thus insuring the proper relationship of the ball-holder to the carriage and preventing the escape of the balls from their grooves or bearings.

The travel of the carriage in its movements toward the left is limited by a screw 29, projecting from the under side of the carriage, and which contacts with the left-hand standard or bracket 6, while the travel of the carriage toward the right is limited by another screw 30, also projecting from the under side of the carriage and adapted to contact with the right-hand bracket or standard 6.

The teeth 31 of the feed-rack are arranged in guiding-slots 32, cut vertically and transversely in the rack-bar, so that each tooth may slide up and down independently of the remaining teeth. Each feed-tooth comprises a body portion 33, lateral shoulders 34, downward projections 35, and an intermediate space or cut-away 36. The shoulders rest upon uncut portions of the rack-bar and prevent the tooth from falling therethrough, the rack-bar being slotted centrally and longitudinally for nearly its whole length, and the carriage 10 being likewise slotted coincidentally with said rack-bar for the accommodation of the body portions and depending projections of the series of feed-teeth, the holding-dog 37, and the feeding-dog 38. The holding-dog is made integral with a fixed bar 39, which is fastened by screws to the branching members 40 of an arm 41, secured to the back of the top plate and carrying at its inner end a type-guide 42. The upper end of the holding-dog stands always in front of the body 33 of one of the teeth in the normal position of the latter, so as to intercept the same and hold the carriage against the pull of the

usual spring driving-drum, (not shown,) to which the carriage is connected by a cord or chain 43.

The feeding-dog 38 is composed preferably of two side plates 44 and an angular connecting-plate 45, and said side plates embrace the rigid dog and the supporting-bar 39, from which it rises. The feeding-dog has an up-and-down movement and also a lateral movement, the former being effected through a rod 46, which is connected at its lower end to the printing and spacing mechanisms, and the latter (in one direction) through a coiled spring 47 and (in the opposite direction) through the rack-teeth in moving under the influence of the spring-drum. The upper end of the feeding-dog when moving upwardly engages the bottom edges of the projections 35 of the tooth and, lifting said tooth, frees it from the retaining action of the holding-dog 37 by raising the body 33 of the tooth above the point of the holding-dog, whereby said tooth, under the pull of the spring-drum, may pass by the holding-dog, thus enabling the carriage to feed one tooth or letter space. The carriage is prevented from moving farther at this time by reason of the fact that the next succeeding tooth is down and its body portion strikes against the face of the holding-dog. When the feeding-dog is pulled down, the spring 47 pulls it toward the right, (viewed from the front of the machine,) and this lateral movement of the dog is limited by either of two pairs of stops 48 or 49, formed on the inner end of a lever or plate 50, pivoted at 51 upon the bar 39, and having a handle by which either of the stops may be shifted into working position, the vibratory movements of the switch-plate 50 being restricted by a screw and slot, as shown at 52. The upward movement of the feeding-dog is limited by a projection 53, which strikes against a vertical screw 54, extending through the supporting-bar 39.

At Fig. 4 the feeding-dog is shown in its uppermost position, and the parts are drawn in their normal positions or to represent a feeding movement as having just occurred. When the finger-key or space-key is actuated, the feeding-dog is drawn down from in front of the legs or projections 35 of the tooth obstructed by the holding-dog, and as soon as it is carried below the plane of the said legs or projections it is drawn toward the right by the spring 47 against the stops 48, which may now be supposed to be in working position. At this moment there is no feed of the carriage. When, however, the finger-key or space-key is released, the top of the feeding-dog lifts the feeding-tooth now restrained by the holding-dog, so that the cut-away 36 aligns with the top of the holding-dog, and thereby the feed of the carriage takes place. During this feeding movement the legs of the next succeeding tooth strike the face of the feeding-dog and carry it back to its normal position in alinement with the face of the hold-

ing-dog, which, as explained, is struck by the body of said oncoming tooth. In the normal position of the dogs the body of the tooth bears against the face of the holding-dog and the legs of the tooth against the face of the feeding-dog.

When the tooth is lifted by the feeding-dog, its upper edge bears against the under side of the pressure-bar 23 and lifts it slightly, and when the feeding-dog descends the tooth so lifted will be caused to return simultaneously by the downward pressure of the springs 28 of said pressure-bar. Thus the series of teeth are maintained always in proper working relationship to the spacing-dogs and at the same time are prevented from accidental detachment either in the transportation of the machine or in the use thereof. If it should be desired at any time to remove one or more of the teeth for any purpose, the pressure and confining bar may be readily detached.

For the purpose of releasing the rack from the spacing-dogs for rapid movements of the carriage in either direction, a release-bar 55, supported by obliquely-disposed hangers 56, is arranged with its upper edge to occupy the continuous slot formed by the cut-aways 36 of the series of teeth and in a manner such that when said bar is lifted all of the teeth may be simultaneously raised thereby and to a height such as to carry the legs of all the teeth above the top of the feeding-dog and the bodies of all of said teeth above the top of the holding-dog, which latter is slotted vertically for the accommodation of the release-bar, as shown more particularly at Figs. 5 and 11.

The left-hand end of the release-bar is connected by a vertical link 57 to a horizontal arm 58, projecting outwardly from a sleeve 59, mounted upon a pivot 60, supported in bearings in ears 61, rising from a stand 62, secured to the carriage, the said sleeve being adjustably attached to said pivot by a screw 63, passing therethrough and binding at its point upon the surface of said pivot, which latter is provided with an integral forwardly-extending bent arm 64, terminating at its front end in a pin or pivot 65, arranged at right angles to the pivot 60. The sleeve is made rotatively adjustable upon the pivot 60, in order that the angular position of the arm 58 may be changed if needed and the release-bar adjusted to lift the series of feed-teeth at the proper time and to the required extent.

The pin or pivot 65 passes through a head or block 66 on the rear end of a key-lever 67, pivoted vertically at 68 in a bracket 69, attached to the left-hand end bar 70 of the platen-carrier, and which lever has also a coiled returning-spring 71.

The block is formed at its rear side with a horizontal slot or passage-way 72 and with seats 73 and 74 for the pin or pivot 65, which at its inner free end is formed with a head 75, which bears against the inner side or face

of the block, and which is of such a diameter or size as to prevent it from passing through the openings in said block and thereby cause said head or block to form a shoulder or
 5 means for the block to bear against, whereby, when the finger-lever 71 is released, the arm 64 and the connections back to the release-bar are caused to return with said finger-lever to their normal positions. The purposes
 10 of the slot and seats in the block will presently appear.

Upon the carriage 10, near each end, is screwed an arm 76, which at its forward end is formed or provided with an open hook 77,
 15 the throat of which is vertically disposed. Within these hooks rest the back rod 78 of the platen carrier or frame, thus providing a hinge-joint for the latter whereby it may be turned up to a vertical position for inspection
 20 or correction of the work. Upon said back rod 78 are affixed collars 79 to prevent any independent endwise movement of the platen-carrier, and for the purpose of preventing any accidental detachment of said carrier
 25 from the hooks there are provided two keepers 80, one at each hook, and consisting of a plate, pivoted at 81 upon the arm 76, and a downwardly-projecting finger 82, which enters the throat of the hook and terminates at
 30 about the surface of the hinge-rod 78. When, however, it may be desired for any purpose, as for cleaning the types or repairing the machine, to detach the platen-carrier, this may be readily accomplished by swinging the
 35 keepers about their pivots, as illustrated at Fig. 2, thus removing the obstructing fingers from the hooks, but the platen-carrier cannot be detached until it is turned up to a vertical position on account of the release-key
 40 mechanism, and for the purpose of enabling such detachment to be effected the slot or passage-way 72 is formed in the block of the release-key lever. In the down or working position of the platen-carrier the pin 65 occupies
 45 the seat 73 at the back of the passage-way 72, and is arranged axially of the hinge-rod 78 of the platen-carrier, so that when the platen-carrier is turned up to a vertical position the block turns or pivots about the pin 65, which
 50 remains in its seat. When the platen-carrier is turned up to a vertical position or through an arc of about ninety degrees, the normally horizontal passage-way is turned down to a similar extent or to a vertical position, and
 55 into the plane of the throats of the hooks, as shown at Figs. 2 and 4, and in this position of the parts, the obstructing fingers having been swung aside, the platen-carrier may be readily detached from the machine, the hinge-rod
 60 passing up out of the hooks and the block slipping up past the pin 65. When it may be desired to replace the carriage, the reverse of this operation is of course performed.

In the carriage-releasing operation, when
 65 the forward finger end of the key-lever 67 is pushed toward the end bar 70 of the platen-carrier to raise the release-bar, the outer side

of the block bears against the vertical portion of the arm 64 and causes it to rock, turn the pivot 60, lift the arm 58, and, through the
 70 link 57, elevate the release-bar, and in order to permit this rocking and rising action of the depending crank-arm 64 the block is cut away or slotted obliquely from the seat 73 to the
 75 seat 74, so that the pin may pass from the seat or slot 73 to 74, and when the finger-lever is released the pin passes down again to its seat 73 as the remaining parts return to their normal positions.

The platen 83 is mounted to rotate as usual
 80 in the frame or carrier 5 and is provided with a pressure-roller 84, which is supported by the usual spring-pressed hangers 85, mounted on the back rod 78, the forward ends of the hangers supporting a longitudinal scale or
 85 pressure bar 86 and also circumferential paper-guides 87, one near each end of the platen.

On the front round rod of the platen-carrier is mounted a supplemental adjustable
 90 paper or envelop guide 88, which is preferably attached by a screw to a sleeve 89, adapted to slide on said rod. In order to prevent said paper or envelop guide from dropping or
 95 turning down independently, a rod 90 is attached to and arranged beneath the front rod of the platen-carrier for the guide 88 to bear upon.

For the performance of column or tabular work any one or more of the feed-teeth may
 100 be formed or provided with a slot 91 about centrally of the body portion, as shown at Fig. 13, so that when the release-bar is lifted it will pass up into said slot and fail to raise such tooth, whereby when the tooth reaches
 105 the holding-dog it will contact therewith and arrest the movement of the carriage. For example, one such column-tooth 92 may occupy the fifteenth position and another the sixtieth place on the rack. In doing billwork, for in-
 110 stance, the date may first be written and then the release-key operated and the carriage caused to move quickly until the fifteenth tooth strikes against the holding-dog. Then the item may be written and the release-key
 115 operated again to enable the carriage to run swiftly until the sixtieth tooth is arrested by the holding-dog, after which the amount may be written in. Thus in all succeeding lines of the bill the writing of the items will com-
 120 mence at "15" and the writing of the amounts at "60." Of course there may be as many such teeth 92 as may be desired, and they may be variously positioned, in accordance with the
 125 character of the work to be performed. For the purpose of facilitating the setting of the column-stop teeth the carriage is preferably graduated and numbered to correspond with the machine-scales and with the letter-spacing of the carriage, as illustrated at Figs. 1,
 130 2, and 10. By combining the ball-bearing carriage and the independently-movable feed-teeth a light, easy-running, and noiseless carriage is produced. To facilitate the return

movements of the carriage, the holding and feeding dogs are beveled or inclined on their tops.

When the stops 49 are thrown into operative position the carriage may be fed two spaces at a time.

Various improvements herein shown, but not claimed, are claimed in my aforesaid prior applications.

Without departing from the spirit of my present invention numerous changes may be made, and I desire to be understood as not limiting myself altogether to a machine containing all of my various improvements, as some of them may be used without others and in a machine widely different in plan and design from that herein shown.

In my aforesaid other applications I have shown and described and made other and broader claims for various features set forth in this application relating to the escapement mechanism and the carriage mounting, and hence I do not wish to be considered as dedicating or abandoning any features of invention disclosed herein and which are made the subjects-matter of my said other applications. The claims in this case are limited to features not shown in said other cases.

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

1. In a type-writing machine, the combination of guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls arranged on opposite sides of said carriage, and a ball-holder connecting all of the antifriction-balls together.

2. In a type-writing machine, the combination of guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls arranged on opposite sides of said carriage, a ball-holder connecting all of the antifriction-balls together, and a platen-carrier connected to said carriage.

3. In a type-writing machine, the combination of guide-bars having ball-bearings, an intermediate carriage having ball-bearings, two antifriction-balls arranged on one side of said carriage and one antifriction-ball arranged on the opposite side thereof, and a ball-holder consisting of a longitudinal bar constructed to embrace the two antifriction-balls on one side and a transverse arm constructed to embrace the single antifriction-ball on the opposite side of said carriage.

4. In a type-writing machine, the combination of guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls, a ball-holder, and means for cooperating with said ball-holder to maintain it and the antifriction-balls in proper relationship to the carriage.

5. In a type-writing machine, the combination of fixed guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls, a ball-holder for maintaining all of said antifriction-balls in a fixed position relatively to one another, and lugs

adapted to cooperate with said ball-holder to maintain it and the antifriction-balls in proper relationship to the carriage.

6. In a type-writing machine, the combination of fixed guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls, a ball-holder, and a lug on said carriage adapted to move said ball-holder toward the right during the return movement of the carriage in case the said ball-holder should lose its proper relative position to the carriage during the movement of the latter toward the left.

7. In a type-writing machine, the combination of fixed guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls, a ball-holder, and a lug on said carriage adapted to move the ball-holder toward the left to adjust it to proper position relatively to the carriage.

8. In a type-writing machine, the combination of fixed guide-bars having ball-bearings, an intermediate carriage having ball-bearings, antifriction-balls, a ball-holder composed of a longitudinal bar and a transverse arm, and lugs arranged on said carriage to contact with said arm and move the ball-holder toward the right and the left.

9. In a type-writing machine, the combination with a feed-rack comprising a series of independently-movable feed-teeth, and suitable dogs to cooperate therewith, of a pressure and confining bar extending the entire length of said series of teeth and adapted to maintain them always in proper working relation to the dogs and to also prevent their accidental detachment.

10. In a type-writing machine, the combination with a feed-rack comprising a series of independently-movable teeth, and suitable dogs to cooperate therewith, of a spring-pressed bar covering the entire series of teeth.

11. In a type-writing machine, the combination with a feed-rack having a series of independently-movable teeth, and suitable dogs to cooperate therewith, of an overlying bar forked at its ends to embrace ears rising from the feed-rack, and springs connected at their ends to said bar and to said ears.

12. In a type-writing machine, the combination of a carriage having open hooks, a platen-carrier hinged thereto, and movable keepers operating to prevent accidental detachment of said platen-carrier.

13. In a type-writing machine, the combination of a carriage having open hooks, a platen-carrier hinged at its back rod to said hooks, and keepers consisting of pivoted plates and depending fingers.

14. In a type-writing machine, the combination of a carriage having a series of independently-movable feed-teeth, suitable dogs to cooperate therewith, a release-bar for simultaneously raising all of said teeth, to free them from said dogs, the link 57, the pivoted arm 58, the rocking crank-arm, 64, a platen-

carrier connected to said carriage, and a key-lever attached to said platen-carrier and connected at its rear end to the depending free end of the rocking crank-arm 64.

5 15. In a type-writing machine, the combination with a feed-rack having a series of independently-movable teeth, and suitable dogs to coöperate therewith, of a release-bar arranged in notches in said teeth and adapted
10 to simultaneously lift them all, the link 57, the arm 58, the sleeve 59, the pivot 60, the crank-arm 64 made as a continuation of said pivot and connected at its free depending end to the inner end of a key-lever attached to a
15 platen-carrier.

16. In a type-writing machine, the combination with a feed-rack having a series of independently-movable teeth, and suitable dogs to coöperate therewith, of a release-bar arranged in notches in said teeth and adapted
20 to simultaneously lift them all, the link 57, the arm 58, the sleeve 59, the pivot 60, the depending crank-arm 64 having a pin 65 and a head 76, and a key-lever attached to a detachable platen-carrier and provided at its
25 inner end with a block having a passage-way 72 and the seats 73 and 74, arranged substantially as shown.

17. In a type-writing machine, the combination with a carriage having open hooks, a
30 platen-carrier hinged thereto, a release-key attached to said platen-carrier and having a block at its rear end formed with the passage-way 72, and the seats 73 and 74, the depending crank-arm 64, a release-bar connected
35 thereto, and an overlying series of independ-

ently-movable feed-teeth mounted upon said carriage.

18. In a type-writing machine, the combination of a carriage, a platen-carrier detachably hinged thereto, a release-key mechanism connected to said carriage and to said
40 platen-carrier and separable on the hinge-line of the platen-carrier.

19. In a type-writing machine, the combination of a carriage having a series of independently-movable teeth having each a body,
45 lateral shoulders, depending legs and a notch or cut-away, and one or more of said teeth having also a vertical slot as 91, and a bar
50 adapted to lift all of said teeth excepting the tooth or teeth having said slot 91.

20. In a type-writing machine, a column-stop tooth consisting of a body, lateral shoulders, depending legs, an intermediate notch
55 or space, and a slot as 91.

21. In a type-writing machine, the combination of a platen, a platen-carrier, an envelop-guide supported upon and adapted to
60 slide longitudinally of the round front rod of said platen-carrier, and a supplemental rod attached to the said platen-rod and underlying the said envelop-guide to prevent any rotation thereof.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 24th day
65 of September, A. D. 1894.

CHARLES W. WALKER.

Witnesses:

H. M. ROBINSON,
FANNY McLAREN.