

(No Model.)

2 Sheets—Sheet 1.

G. B. WEBB.
TYPE WRITING MACHINE.

No. 570,523.

Patented Nov. 3, 1896.

Fig. 1,

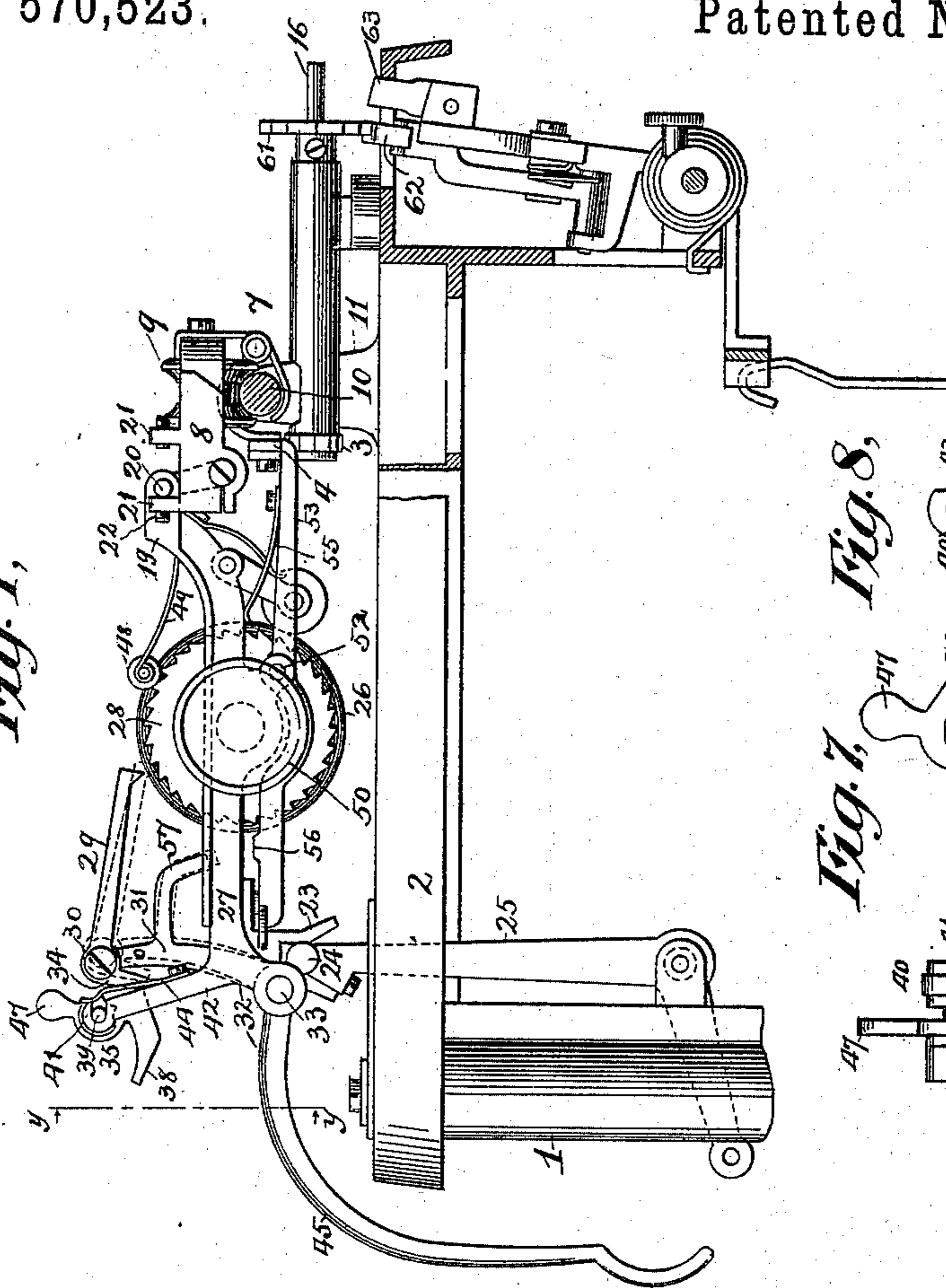


Fig. 2,

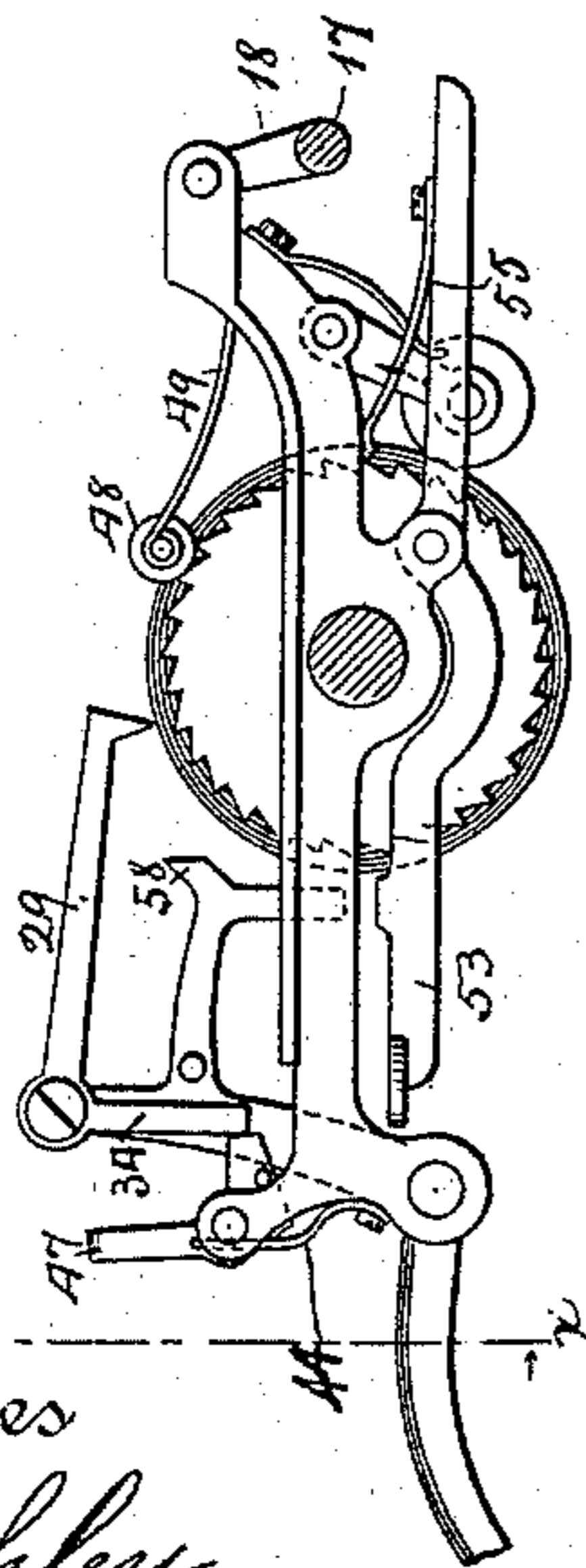


Fig. 3,

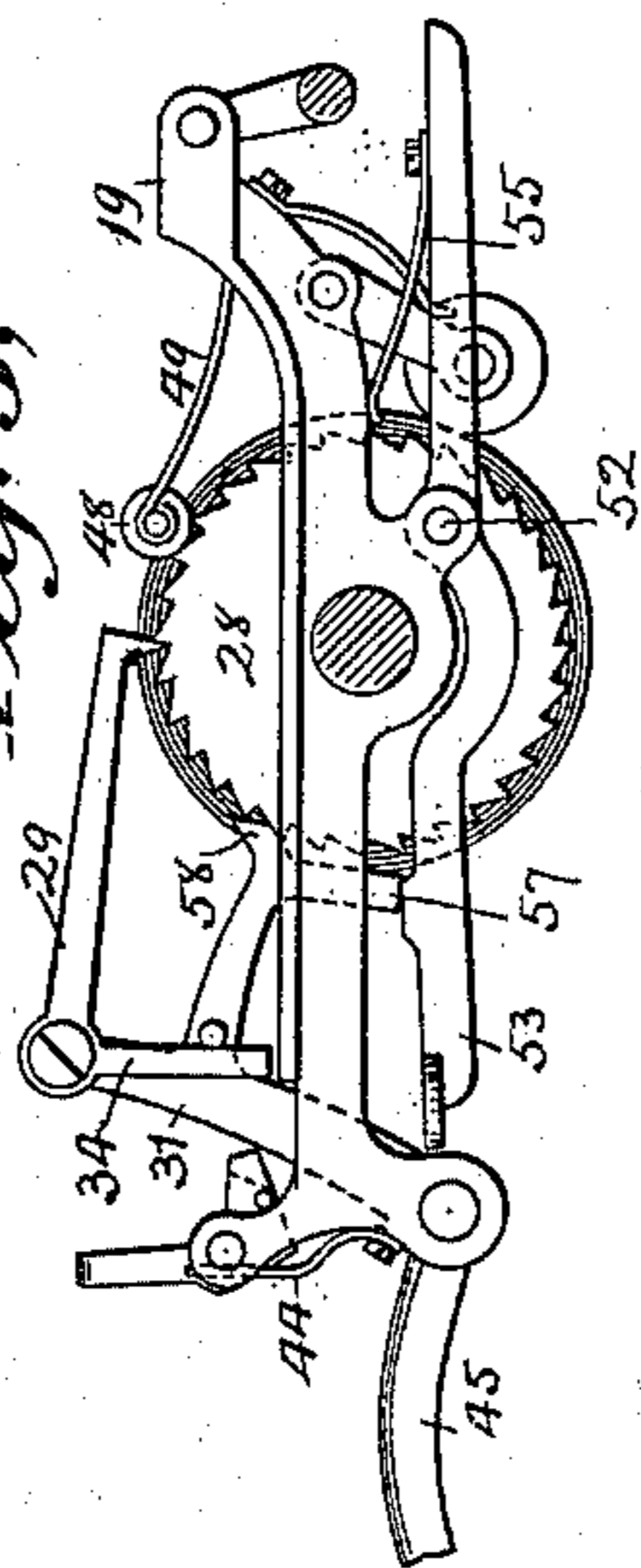


Fig. 4,

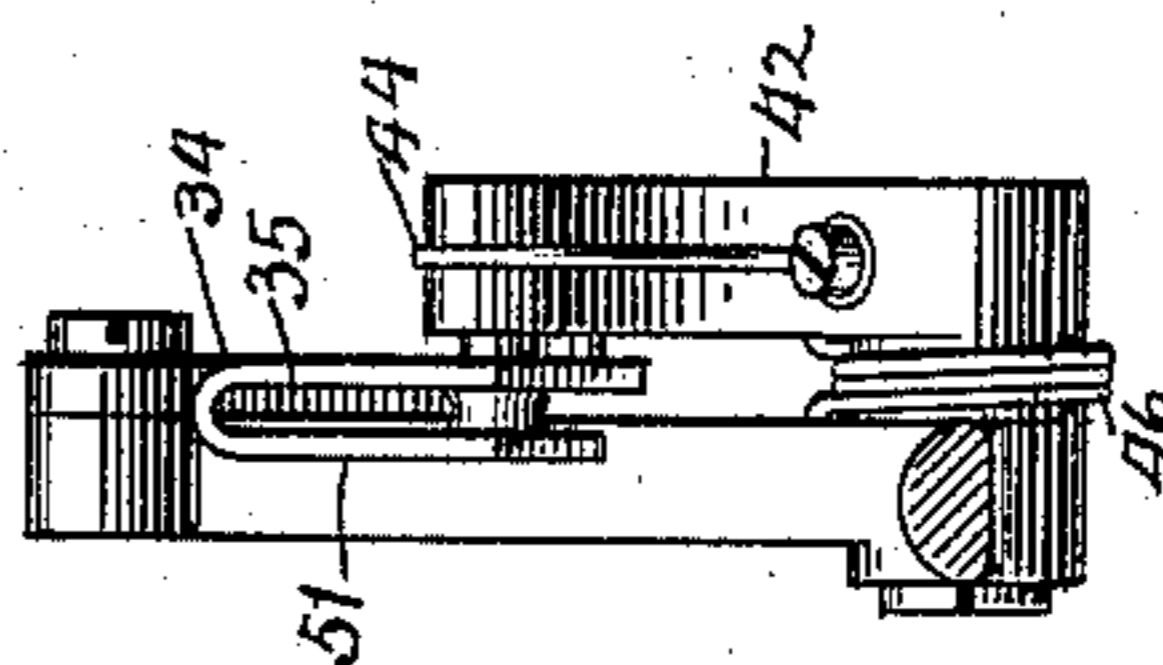


Fig. 5,

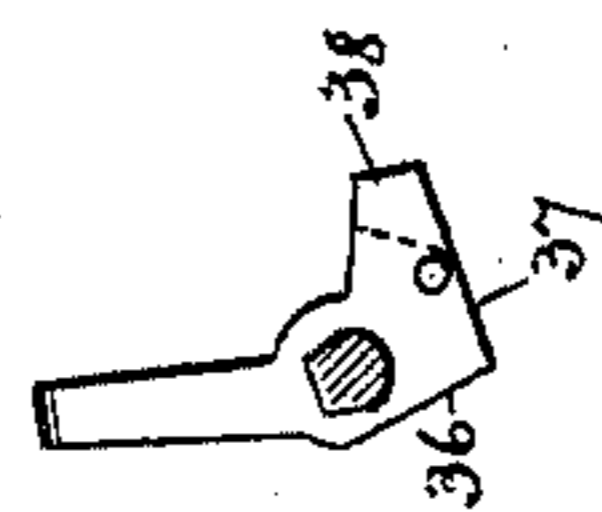


Fig. 6,

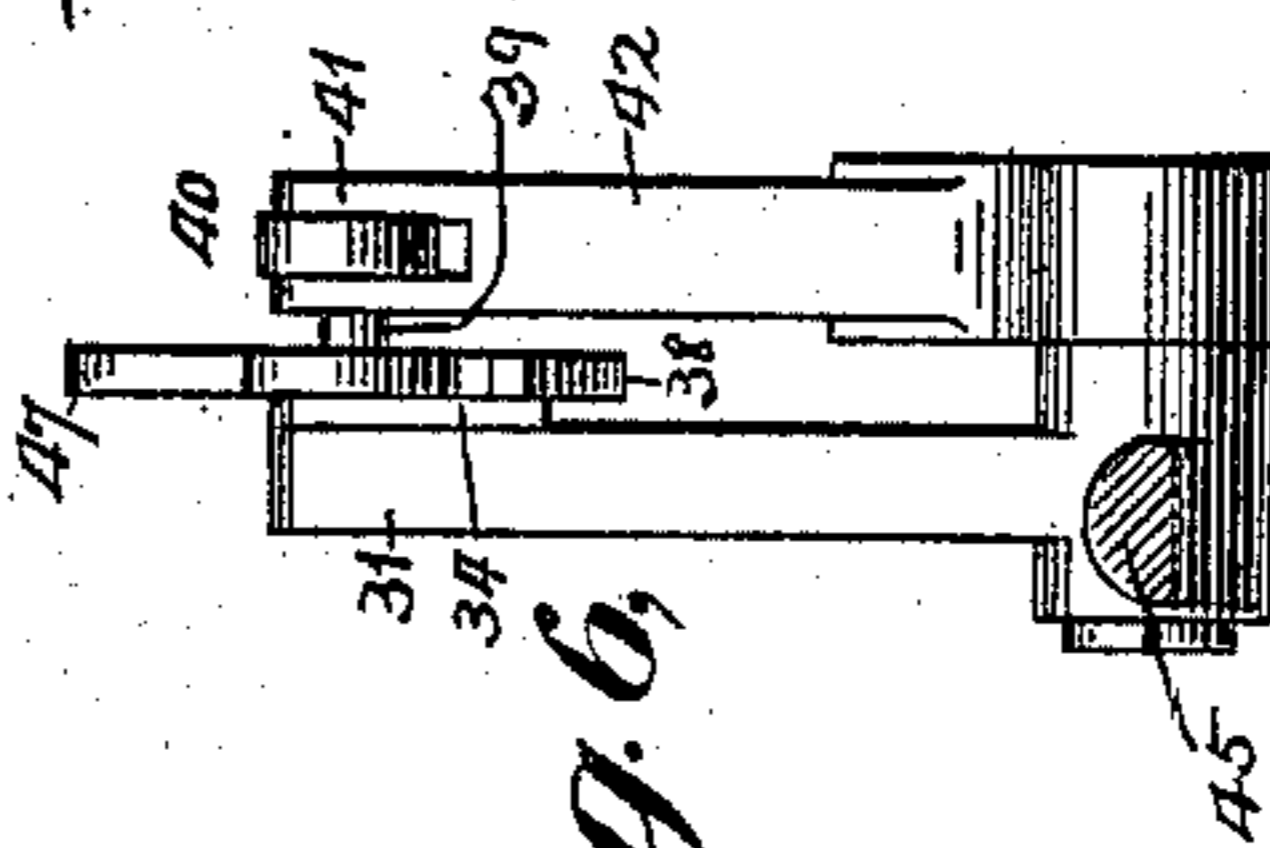


Fig. 7,

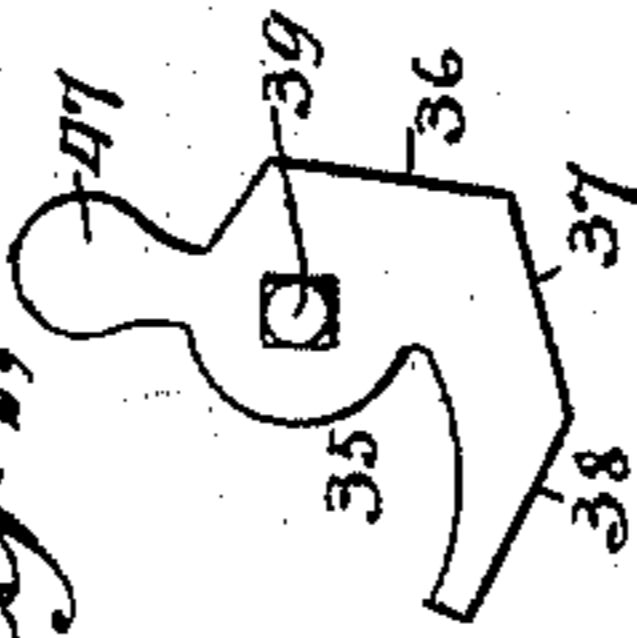


Fig. 8,



Witnesses
C. E. Ashley
J. W. Lloyd.

By his Attorney

Inventor
George B. Webb
Jacob Felbel

(No Model.)

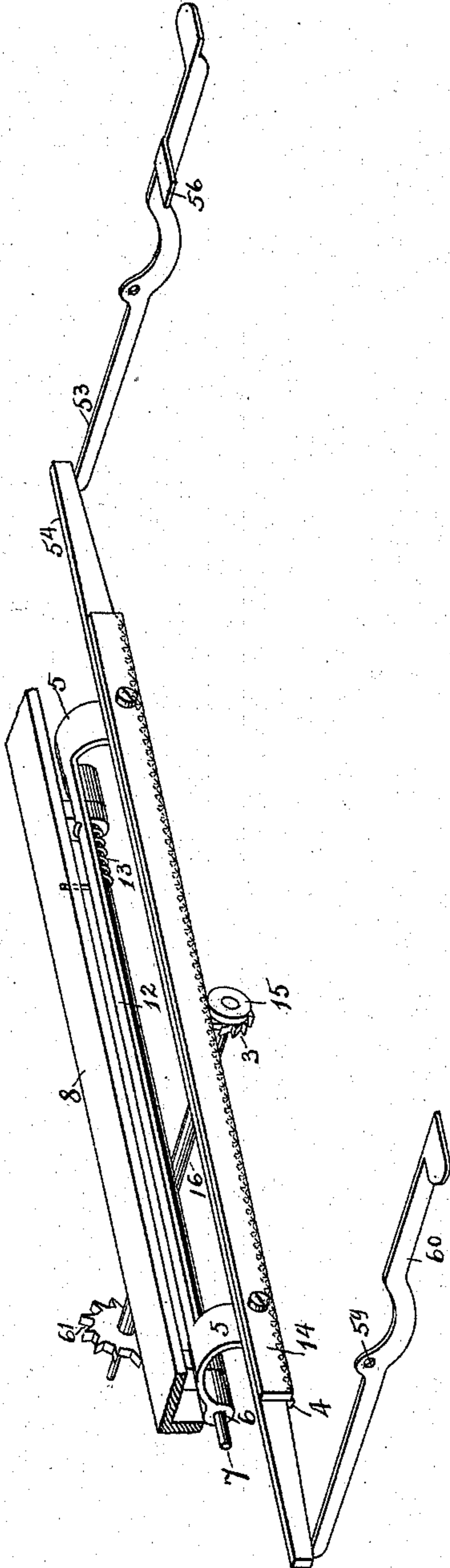
2 Sheets—Sheet 2.

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Fig. 9,



Witnesses
C. E. Ashley
H. W. Lloyd.

Inventor
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UNITED STATES PATENT OFFICE.

GEORGE B. WEBB, OF NEW YORK, N. Y., ASSIGNOR TO THE WYCKOFF,
SEAMANS & BENEDICT, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 570,523, dated November 3, 1896.

Application filed November 6, 1894. Serial No. 528,017. (No model.) Patented in England February 6, 1892, No. 156; in France April 12, 1892, No. 218,600; in Austria-Hungary August 28, 1892, No. 4,144 and No. 16,769, and in Germany April 11, 1893, No. 67,836.

To all whom it may concern:

Be it known that I, GEORGE B. WEBB, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The following improvements are embodied in the British patent No. 156, dated February 6, 1892; French patent No. 218,600, dated April 12, 1892; German patent No. 67,836, dated April 11, 1893, and Austro-Hungarian patent No. 4,144 and No. 16,769, dated August 28, 1892.

Some of my improvements relate more particularly to machines of that construction patented to me March 29, 1892, No. 471,710, while others relate to type-writing machines generally.

The objects of my invention are to improve the carriage feeding, releasing, and line-spacing mechanisms; and the improvements consist 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 side elevation, partly in section, of a type-writing machine embodying my improvements. Fig. 2 is a side elevation of the platen-carrier detached, showing a modified construction of line-spacing regulator and showing the line-spacing mechanism in normal position. Fig. 3 is a similar view showing the line-spacing mechanism as in action. Fig. 4 is a vertical section taken at the line *x x* of Fig. 2. Fig. 5 is a side elevation of the cam piece or device shown at Figs. 2, 3, and 4, for regulating the throw of the driving-pawl and for maintaining it normally out of engagement with the ratchet-wheel of the platen. Fig. 6 is a vertical section taken at the line *y y* of Fig. 1. Fig. 7 is a detail side view of the regulator shown at Figs. 1 and 6. Fig. 8 is a side view of the holding-piece or notched disk for the regulator shown at Fig. 7, and Fig. 9 is a partial perspective view of

the main carriage and its feeding and releasing devices.

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

1 designates the framework, and 2 the top plate, of the machine, which is provided with an escapement mechanism substantially like that shown in the aforesaid patent. The pinion 3 is engaged by a toothed rack 4, which is supported by arms 5, that are hinged at 6 upon a rod 7, suitably supported in the main carriage 8. The said rod is provided with guide-wheels, as 9, which ride upon a guide-rail 10, supported by brackets 11. The arms 5 are curved downwardly and extend forward of the guide-rail 10, and are connected together by a bar 12, upon which bears one end of a coiled spring 13, surrounding the hinge-rod 7, the other end of said spring being secured to or bearing upon the carriage 8. By reason of said spring the feed-rack is kept down and normally in engagement with the pinion 3.

In front of the feed-rack and screwed or otherwise secured thereto is a bar 14, which extends the length of the carriage parallel with the feed-rack and rests and rides upon an antifriction-roll 15, mounted on the free inner end of a shaft 16, to which the pinion 3 is attached. The bar 14 and the roller 15 are provided to prevent undue pressure between the rack and its pinion. The face of the roller is formed with a radius substantially equal to that of the pitch-line of the teeth of the pinion, and hence, together with the bar 14, limits the downward movement of the feed-rack and defines the extent of engagement between said rack and its pinion. As a consequence the points of the teeth of either member cannot bear unduly at the bases of the notches of the other member, and the friction or resistance to movement and the wear of the teeth are largely relieved by the bar and the antifriction-roller.

To each end of the carriage 8 is pivotally connected a rock-shaft 17, provided at each end with an upwardly and forwardly extend-

ing arm 18. The upper free ends of said arms are pivoted or hinged to the rear ends of the platen-carrier 19. The pivot at each end which connects the platen-carrier with the upwardly and forwardly extending arms 18 is prolonged to extend laterally to form a pin 20, which plays between two ears 21 on the upper side of the carriage 8. Each of these ears serves as a stop for said pin, and each ear is provided with a small screw 22, which in the event of the wear of the pin or the face of the ear may be turned forward to also serve as a stop, it being important that the throw or extent of movement of the pin, and hence the platen-carrier, be exact and uniform at all times. The front portion of the carriage 8 is provided with a yoke 23, which straddles a shift-rail 24, mounted on the upper end of a bell-crank 25 at each side of the machine, the said bell-crank being adapted to be worked by a shift-key (not shown) in the usual manner. When in normal position, the pins 20 at the end of the platen-carrier rest against the front ears 21, and the platen or impression-roller 26, mounted to turn in suitable bearings in the side bars 27, is held properly in position to receive the lower-case or small letters on the type-bars. When it may be desired to use the capital or upper-case letters, the shift-rail is moved rearwardly and the platen-carrier is caused to move in the same direction until the pins 20 strike the stops 22 on the rear lugs. Upon releasement of the shift-key the shift-rail and platen-carrier return to their normal positions by means of the usual spring. (Not shown.)

At the right-hand end of the platen is secured a ratchet-wheel 28, with which is adapted to engage a driving-pawl 29, pivoted at 30 upon the vertical upper arm 31 of a line-space lever 32, pivoted at 33 to the forward end of the right-hand side bar 27 of the platen-carrier.

The driving-pawl may be said to be a bent lever, since it is provided with a downwardly-extending arm 34. This arm is adapted to be acted upon by a device one of whose functions is to keep the free operating end of the driving-pawl normally out of engagement with the platen ratchet-wheel 28, in order that said wheel and the platen may be freely rotated in either direction. Two forms of device for effecting this purpose are shown. Referring particularly to Figs. 1, 6, 7, and 8, 35 is a cam having three faces 36, 37, and 38, each a different distance from the center of movement of said cam. The cam is fixed on the end of a stud or arbor 39, which is provided with a disk 40 at or near the other end. This stud or arbor is fitted in open hooks 41 at the upper end of a standard 42, made integral with the right-hand side bar 27. Between said open hooks the standard is slotted out or cut away to admit the disk 40, which is formed or provided with three notches or curved faces 43.

A flat spring 44, curved at its free end, is

attached to the standard 42 and is adapted to engage any of the notches or depressions 43 in the disk and not only hold the same and the cam in place relatively to the hooks but also hold them in any position to which they may be adjusted.

The cam is arranged in front of and directly in line with the arm 34 of the driving-pawl.

The cam 35 serves not only to keep the free end of the driving-pawl out of engagement with the ratchet-wheel but also to regulate or determine the throw of said pawl and hence the extent of revolution of the platen. In the position of the cam at Fig. 1 the face 36 is opposed to the arm 34, and being nearer the arbor 39 than either of the other faces of the cam permits the upper arm 31 of the line-space lever to move outward its greatest distance.

If the handle portion 45 of the line-space lever be now raised, the arm 31 will be thrown rearwardly and the driving-pawl will operate to turn the platen the distance of three teeth of the ratchet-wheel. Upon releasing the line-space lever a spring 46 may return it to its normal position. In returning, the arm 34 of the pawl strikes against the face 36 of the cam just before the line-space lever has completed its returning movement, and by reason of this contact the free or operating end of the driving-pawl is lifted out of engagement with the ratchet-wheel and is held suspended, as illustrated by the full lines at Fig. 1.

If it be desired to have the platen rotated only the distance of two notches, the cam, by its handle or finger-piece 47, is turned so as to bring the face 37 in line with the arm 34. By thus turning the cam the return or outward movement of the arm 31 is reduced to an extent corresponding to the distance between two of the teeth of the ratchet-wheel, and therefore at each line-space operation thereafter the driving-pawl will turn the platen a correspondingly less distance.

If the face 38 of the cam be turned up in line with the arm 34, the driving-pawl at each movement of the spacing-lever will turn the platen a distance of only one notch of the ratchet-wheel.

By means of the notched disk and spring the cam or combined line-spacing regulator and pawl-lifter is firmly held in any of the several positions to which it is capable of being adjusted.

A small roller 48 is mounted on the end of a flat spring 49, attached to the rear portion of the right-hand side bar 27, and, bearing upon the ratchet-wheel, serves to check or restrain the same and the platen from rotating or turning casually at the time of writing, yet permits the platen to be designedly turned in either direction.

By means of a hand-wheel 50 on the right-hand end of the platen shaft or axle the platen may be rotated freely in either direction, that is, backward or forward, for the insertion or

adjustment of the paper without, as heretofore, first removing the driving-pawl and platen-check from engagement with the ratchet-wheel. In this machine, as the driving-pawl normally stands out of engagement with the ratchet-wheel and as the roller 48 affords but little resistance to the turning of the platen, the latter may be readily rotated by applying a comparatively small amount of force to the hand-wheel 50, the roller 48 bobbing freely over the teeth of the ratchet-wheel as the same is turned.

Referring now to Figs. 2, 3, 4, and 5, a modification of the line-space-regulating and pawl-lifting device will be found. In this case, in addition to the cam 35, there is another cam 51, (see Fig. 4,) made integral therewith and having also three faces, the latter being employed to stop the return or outward movement of the arm 31 of the line-space lever, while the faces of the other cam are employed simply to effect the raising of the driving-pawl to keep its operating end normally out of engagement with the ratchet-wheel. The faces 36, 37, and 38 of the cam 35 extend forward of the corresponding faces of the cam 51, so that they may act upon the downwardly-extending arm 34 to raise the driving-pawl just before the arm 31 strikes against and is stopped by the faces of the cam 51. These two cams 35 and 51 are preferably made of one piece of sheet metal, as shown in Fig. 4, and mounted upon a common arbor which is supported in the standard 42 and provided with flat faces, against which the spring 44 may bear to hold the cams in any position in which they may be set.

The carriage 8 in practice is provided with the usual propelling mechanism, such as a spring-drum and flexible band, and by the same the carriage and platen-carrier are propelled or driven from right to left, as heretofore.

The advance of the carriage and platen-carrier in this direction, during the time of writing, takes place with a step-by-step movement, due to the presence of the escapement mechanism shown at Fig. 1 and described in my aforesaid patent.

As it is frequently desirable to have the carriage and platen-carrier move from right to left a considerable distance and quickly, means are provided for releasing the carriage and platen-carrier from engagement with the escapement mechanism, so that the driving power may propel them rapidly toward the left.

On the right-hand side bar of the platen-carrier is pivoted at 52 a release-key lever 53, the rear end of which extends back beneath an arm 54, which may be either on the feed-rack 4 or on the bar 14, and whose front end extends forward to about opposite the front bar of the platen-carrier, and is there fashioned into a finger-piece. By depressing the outer end of this lever against the tension of a returning-spring 55 its rear end operates

to lift the bar and the feed-rack from engagement or contact, respectively, with the anti-friction-roller 15 and the pinion 3, so as to permit the driving power to propel the carriage and platen-carrier rapidly toward the left.

Upon removing the pressure of the finger from said lever the feed-rack and bar return to their first positions, and the carriage and platen-carrier are thereby arrested. This lever 53 is provided near its front end with an offset 56, which extends inwardly under the right-hand side bar of the platen-carrier to a point beneath a depending arm 57, formed integral with the arm 31 of the line-spacing lever. The arrangement is such that when the carriage has traveled its full distance to the left and it is desired to commence a new line the operation of the line-space lever to rotate the platen will simultaneously actuate the release-key lever 5 and cause it to disengage the feed-rack from its pinion, so that the carriage may be returned to the right to the starting-point without moving the pinion, the ratchet-wheel, or the dogs.

It will be understood of course that if on returning the carriage to the right for the beginning of a new line the rack is not lifted from engagement with its pinion said pinion and ratchet-wheel will be rotated, causing thereby needless wear upon the pinion and rack as well as upon the escapement ratchet-wheel and yielding dog.

At the upper end of the arm 57 is a tooth 58, which, when the line-spacing lever is operated, strikes against one of the teeth of the platen ratchet-wheel 28 and prevents any overthrow of the platen by momentum in case the line-space lever happens to be violently actuated.

At the left-hand side of the machine is pivoted at 59 to the side bar 27 another release-key lever 60, which at its rear end also extends beneath an arm of the feed rack or bar 14 and which at its front end is provided with a finger-piece. This release-key lever is more particularly employed in releasing the carriage from the escapement mechanism to permit the driving power to move the platen-carrier rapidly toward the left, and its mode of operation upon the feed-rack is substantially the same as that described of the release-key at the right-hand side of the machine. When the front finger end of the release-key 60 is depressed, the rack is lifted out of engagement with the pinion, and the carriage and platen-carrier are enabled to move quickly toward the left, being thus disconnected from the escapement devices comprising the ratchet-wheel 61 on the shaft 16 and the dogs 62 and 63, which latter are of the usual "Remington" construction and operation.

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

1. In a type-writing machine, the combination of a platen having a ratchet-wheel, a

platen-check, a line-space lever, a driving-pawl pivoted thereto and having a downwardly-projecting arm, and a cam having a series of faces arranged at different distances 5 from its pivot or arbor, adapted to regulate the throw of the line-space lever and also to hold the driving-pawl normally out of engagement with the ratchet-wheel.

2. In a type-writing machine, the combination of a platen having a ratchet-wheel, a 10 platen-check, a line-space lever, a driving-pawl pivoted thereto and provided with an arm, and a combined line-space regulator and driving-pawl lifter.

15 3. In a type-writing machine, the combination of a platen having a ratchet-wheel, a platen-check, a line-space lever carrying a pivoted driving-pawl provided with an arm, a cam having a plurality of faces and mounted 20 on a shaft or arbor, a disk having a plurality of faces also mounted on said arbor, and a spring-catch for engaging the disk-faces.

4. In a type-writing machine, the combination of a platen having a ratchet-wheel, a 25 platen-check, a line-space lever carrying a pivoted driving-pawl provided with an arm,

a standard projecting upwardly from the side bar of the paper-carriage, a shaft or arbor mounted to turn in said standard, a cam and a disk having each a plurality of faces mounted 30 on said shaft or arbor, and a spring-catch for engaging the faces of the disk.

5. In a type-writing machine, the combination of a platen-carrier, an escapement mechanism, a pinion connected therewith, a lifting 35 feed-rack, a platen provided with a ratchet-wheel, a line-space lever provided with a driving-pawl, and a release-key lever pivoted to an end bar of the platen-carrier having one free arm extended rearwardly and to raise 40 said feed-rack and having its other free arm extended forwardly to the front of the platen-carrier and adapted to be engaged by a depending arm of the line-space lever.

Signed at New York city, in the county of 45 New York and State of New York, this 2d day of November, A. D. 1894.

GEORGE B. WEBB.

Witnesses:

JACOB FELBEL,
I. MACDONALD.