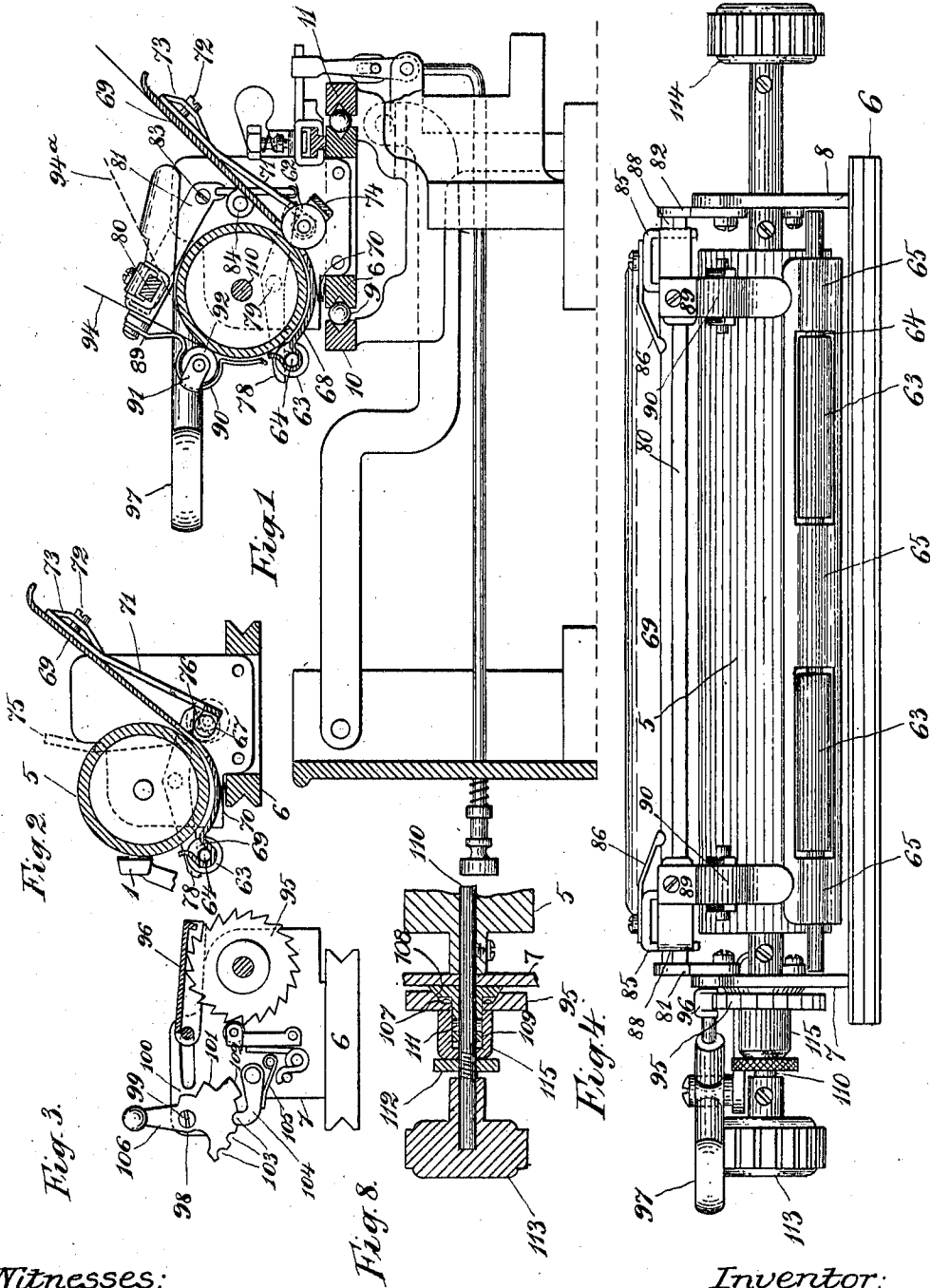


C. W. HOWELL.
TYPE WRITING MACHINE.
APPLICATION FILED NOV. 8, 1908.

974,383.

Patented Nov. 1, 1910.

2 SHEETS—SHEET 1.



Witnesses:
John C. Seifert.
W. J. J. J.

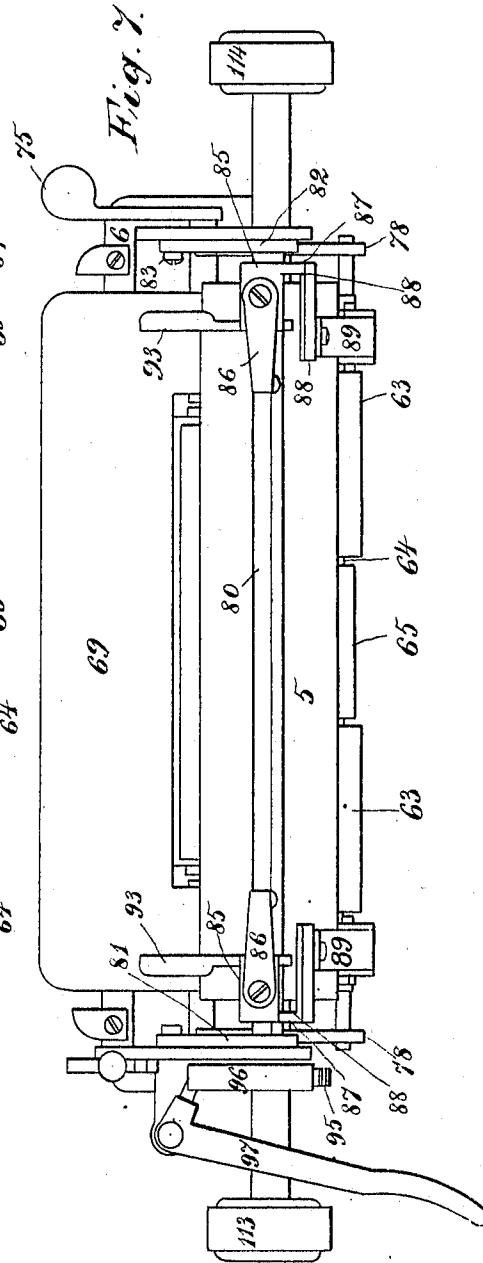
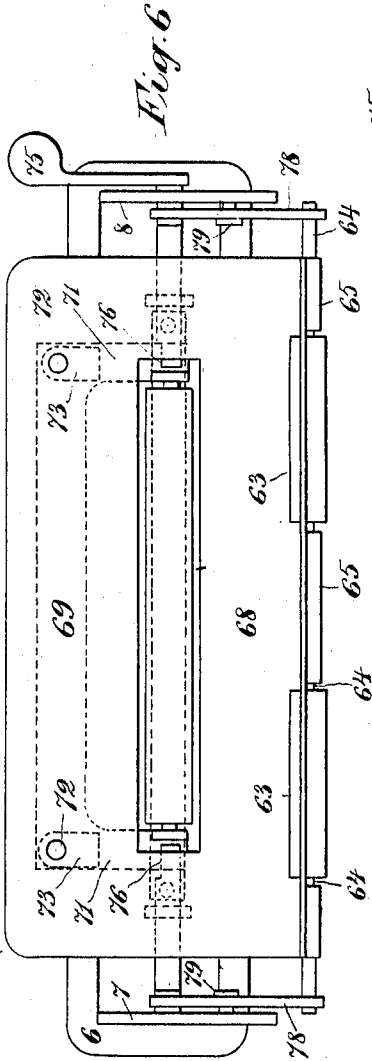
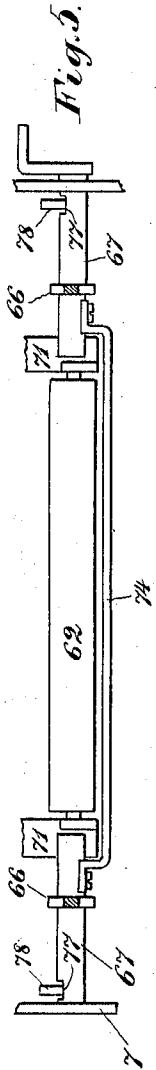
Inventor:
Charles W. Howell

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2 SHEETS—SHEET 2.



Witnesses;
John C. Seifert.
W. Fritz.

Inventor;
Charles M. Howell.

UNITED STATES PATENT OFFICE.

CHARLES W. HOWELL, OF NEWARK, NEW JERSEY.

TYPE-WRITING MACHINE.

974,383.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Original application filed December 10, 1906, Serial No. 347,202. Divided and this application filed November 6, 1908. Serial No. 461,276.

To all whom it may concern:

Be it known that I, CHARLES W. HOWELL, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented new and certain useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to the paper feeding devices of typewriting machines, in which a platen is revolubly mounted in a platen frame, and the paper is guided around the platen by means of releasable rollers, and this application is a division of my application filed December 10, 1906, No. 347,202.

The principal object of the invention is to provide improved and simplified mechanism of this character. I provide a plate curving around the under side of the platen and extending upwardly and rearwardly therefrom to form a paper shelf, said plate mounted upon a rock shaft which is journaled in the platen frame ends. A pressure roll is journaled upon the forward portion of said plate, and a spring acting against said plate presses said roller against the platen. A rear pressure roll is mounted upon yielding arms which are attached to the plate, the axis of the rear roll being preferably concentric with said rock-shaft. The rock-shaft is controlled by a finger piece, and has cam faces to force the rear roll away from the platen and detain it there. Levers are mounted upon the ends of the platen frame and operable by cams upon said rock-shaft, and provided with means to throw the forward pressure roll away from the platen.

A further feature of the invention is an improved releasable front paper-guiding finger, comprising a yoke mounted upon and adjustable along a spring-pressed bar extending along the top of the platen, the yoke carrying a roller to run upon the platen, and an arm extending rearwardly from the yoke serving as a finger piece to adjust the yoke along the bar, and also to guide the paper at the side edge.

An additional feature of the invention consists in means for regulating the line spacing movement of the platen, and comprises a plate pivoted to the platen frame, said plate provided with a finger piece and

having serrations at its front edge at graduated distances from its pivot, and notches to correspond with the serrations and engageable by a spring-pressed detent to hold the plate.

The invention also relates to means for releasing the platen from its line-spacing mechanism; and for this purpose I provide a clutch between the line-spacing wheel and the platen axle, and a thumb nut threaded upon the axle to control the clutch.

In the accompanying drawings, Figure 1 is a sectional elevation taken from front to rear of a "Sun" typewriting machine showing details of the paper feeding devices. Fig. 2 is a sectional elevation of the platen frame illustrating the pressure rolls, as thrown off from the platen. Fig. 3 is a sectional elevation of one end of the platen rotating devices, illustrating the improved line-space regulator. Fig. 4 is a front elevation of the platen frame or carriage. Fig. 5 is a front elevation showing the rear pressure roll and a cranked shaft for releasing the rear and front pressure rolls. Fig. 6 is a plan of the devices which guide the paper forwardly around the under side of the platen. Fig. 7 is a plan of the platen frame or carriage and the devices thereon. Fig. 8 is a sectional view of the platen-releasing devices.

Type-bars 1 swing upwardly and rearwardly to strike upon the front side of a platen 5, which is mounted in a platen frame comprising a truck 6 and ends 7, 8 erected thereon; said truck being held by balls 9 upon front and rear tracks 10, 11. The tracks and platen frame are movable up and down bodily to enable different types to be written. The platen frame or carriage is driven by a spring, (not shown). Rear and front rolls 62 and 63 press against the under side of the platen 5. The front rolls are carried upon an axle 64 journaled in a grooved portion 65 of a plate which is loosely hinged by ears 66 upon a rock shaft 67, the latter journaled at its ends in the ends 7, 8 of the platen frame. The plate curves forwardly from said hinge around the under side of the platen, as at 68, the roll or rolls 63 being carried upon the front portion of said curved plate. The plate also extends upwardly and rearwardly from the platen as at 69 to form a paper shelf.

A compression spring 70 beneath the plate 68 presses the same up toward the platen and causes the rolls 63 to bear thereon.

The rear roll 62 is journaled at its ends 5 upon a pair of arms 71 which are suspended from screws 72 threaded into the upper part of the paper shelf 69. Spring washers 73 are caused by the screws to press against the arm 71, whereby the roll 62 is pressed 10 against the platen. The axis of the roll 62 is about coincident with the rock shaft 67 upon which the paper shelf is supported, so that the reaction of the roll or the spring arms 71 upon the paper shelf has little or 15 no tendency to turn the latter upon its hinge. The rock shaft 67 is cranked around the roll 62, as indicated at 74.

Upon the rock shaft 67, which is used for a release shaft, is fixed a releasing arm or finger-piece 75. Flats or cutaways 76 are 20 formed upon the inner ends of the two cylindrical portions of the shaft 67, said flats being adjacent to the arms 71 which carry the roll 62, so that when said shaft is turned 25 by means of the finger-piece 75, said arms are cammed away from the platen, thereby releasing the rolls 62 and the arms then rest upon the cylindrical portions of the shaft 67, being thereby locked away from the platen. 30 Near its extreme ends, said rock shaft is also provided with flats or cutaways 77, and the rear ends of a pair of levers 78 normally occupy said cutaways, as at Fig. 5. When the shaft is rocked, as already described, the levers 78 are cammed upwardly 35 to the Fig. 2 position, and their front ends are forced downwardly against the ends of the axle 64, thereby throwing the front rolls 63 and the front end of the paper-guiding 40 plate away from the platen; the levers 78 of the first order being mounted between their ends at 79 upon the ends of the platen frame. The rock shaft is turned so far that the levers rest upon the cylindrical periphery 45 thereof, and are locked thereby in abnormal positions. The release key 75 will therefore maintain its release position without attention from the operator, who is left at liberty to use both hands to adjust the 50 paper. Upon restoring the release key 75 to normal position, the rolls are returned by the springs 70 and 73.

Extending-along the top of the platen is a rectangular or edged bar 80 which is fixed 55 upon the forward ends of a pair of arms 81, 82 forming a bail which is hinged at 83 upon the platen frame ends in rear of the platen. Double acting compression-springs 84 act upon the arms 81, 82, to press the bar 80 down toward the platen. When the bar 60 is thrown up, the springs 84 are swung forwardly and bear on the other side of the hinge or axis 83, so as to hold the bar up away from the platen. Upon the bar 80 65 are carried front paper guiding devices, each

comprising a yoke 85 whose sides are perforated to fit the bar to prevent turning of the yoke on the bar. From the crown of the yoke extends a spring finger 86 to ride 70 upon the bar, holding the yoke where set along the bar. From the outer side of the sheet metal yoke extends forwardly an arm 87 which is bent at 88, to extend around the platen in front of the yoke; and a spring-finger 89 extends down from the arm 88 75 in front of the platen to guide the paper up and around the same. Each spring finger is formed between its ends with a yoke 90, and from the crown of the yoke extend a pair of ears 91 carrying a roll 92 within 80 the yoke, said roll running upon the front side of the platen. From the other side of the yoke extends rearwardly an arm 93 to guide the side edges of the sheets inserted in the machine, and also to serve as a finger-piece for adjusting the paper along the bar 80. The sheet of paper in emerging from the machine may come up in front of the bar 80, as at 94, or may pass rearwardly beneath the same, as at 94^a, Fig. 1. 90

The platen is provided with a ratchet wheel 95 operated by a pawl 96 carried upon a lever 97. The stroke of the lever is regulated by a metal plate 98 pivoted at 99 upon the end 7 of the platen frame, and having 95 upon its front edge serrations 100, 101, and 102 in the path of the rear end of the pawl 96, said serrations at graduated distances from the pivot 98 to vary the throw of the pawl, and hence regulate the line-spacing. 100 Upon its bottom edge, the plate 98 is provided with notches 103 to correspond with the serrations, and a detent 104 is pressed by a spring 105 into said notches. The plate is also provided with an upstanding operating arm 106. 105

The means for releasing the platen from the control of the line-space wheel 95 will now be described.

The right hand face of ratchet wheel 95, 110 Fig. 9, is hollowed out to form an internal cone 107 to cooperate with a cone 108, which is provided with a hub 109 and fixed to the platen axle 110 by a pin 111. A thumb nut 112 is threaded upon the axle, and a finger 115 wheel 113 is fixed upon the axle outside of said thumb nut; a corresponding thumb wheel 114 being fixed upon the opposite end of the platen axle. A collar or cap 115 slides loosely in axial direction along the 120 hub 109, so that when the thumb nut is tightened, it presses the cap 115 against the ratchet wheel 95, forcing the latter against the cone 108, thereby locking the cones, so that the ratchet wheel is positively connected to the axle 110. The platen may be released by turning back the nut 112. 125

Having thus described my invention, I claim:

1. In a typewriting machine having a 130

revoluble platen and a platen frame, the combination of a metal plate curving around the under side of the platen and extending upwardly and rearwardly therefrom to form a paper shelf, a rock-shaft journaled upon the ends of the platen frame said plate having ears whereby it is loosely mounted upon said rock shaft, a spring pressing said plate up toward the platen, a pressure roll journaled upon the forward portion of said plate and pressed by said spring against the platen, a rear pressure roll mounted upon yielding arms which are attached to said plate, the axis of said rear roll being about coincident with the axis of said shaft, and the latter being cranked to clear said rear roll, a release arm or handle upon said rock-shaft, cam faces formed upon said rock-shaft to force said rear roll away from the platen and detain it there, and levers mounted upon the ends of the platen frame and operable by cams provided upon said rock-shaft and having means to throw the forward pressure roll away from the platen.

2. In a typewriting machine having a revoluble platen and a platen frame, the combination of a paper-guiding plate hinged in rear of the platen and curving around under the platen and carrying at its forward portion a roll to press against the platen, a spring to press said plate toward the platen, levers at the ends of the platen frame, and a finger piece, cams operable by said finger-piece to vibrate said levers to swing the forward portion of said plate away from the platen, and hold it there.

3. In a typewriting machine having a revoluble platen and a platen frame, the combination of a paper-guiding plate hinged in rear of the platen and curving around under the platen and carrying at its forward portion a roll to press against the platen, a spring to press said plate toward the platen, levers at the ends of the platen frame, a finger piece, cams operable by said finger-piece to vibrate said levers to swing the forward portion of said plate away from the platen, and hold it there, a roll spring-pressed against the rear side of the platen, and cams controlled by said finger-piece for moving said rear roll away from the platen and holding it there.

4. In a typewriting machine having a revoluble platen and a platen frame, the combination of a paper-guiding plate curving around the under side of the platen, a rock-shaft journaled upon the ends of the platen frame, said plate having ears whereby it is loosely mounted upon said rock-shaft, a spring pressing said plate up toward the platen, a pressure roll journaled upon the forward portion of said plate and pressed by said spring against the platen, a release arm or handle upon said rock-shaft,

cams provided upon said rock-shaft, and levers mounted upon the ends of the platen frame and operable by said cams to throw the forward pressure roll away from the platen.

5. In a typewriting machine having a revoluble platen and a platen frame, the combination of a paper-guiding plate hinged in rear of the platen and curved forwardly around the platen, a pressure roll carried by said plate at its forward portion, a spring pressing said roll against the platen, a spring-pressed roll running upon the rear side of the platen, and a finger-piece having means to release said rolls simultaneously.

6. In a typewriting machine having a revoluble platen and a platen frame, the combination of a paper-guiding plate hinged in rear of the platen and curved forwardly around the platen, a pressure roll carried by said plate at its forward portion, a spring pressing said roll against the platen, a spring-pressed roll running upon the rear side of the platen, and a cam mechanism controlled by a single finger-piece, and having means to move and lock both rolls away from the platen.

7. In a typewriting machine having a revoluble platen and a platen frame, the combination of a rear paper-shelf inclining downwardly and forwardly to the platen and curving forwardly around the under side of the platen and connected by a hinge to the platen frame, a spring pressing the curved portion of the plate up toward the platen, a roll mounted upon the paper shelf, a spring upon said paper shelf pressing the roll against the rear lower side of the platen, the axis of said roll being about coincident with the axis of said hinge, and a finger-piece having means to press said roll away from the platen.

8. In a typewriting machine having a revoluble platen and a platen frame, the combination of a plate connected by a hinge to the ends of the platen frame, said hinge comprising a rock-shaft journaled in the ends of the platen frame, and ears upon the plate to engage said rock-shaft loosely, said plate curving forwardly around the under side of the platen from said hinge, and inclining upwardly and rearwardly from said hinge to form a paper shelf, a spring pressing said plate toward the under side of the platen, a pair of spring arms upon said paper shelf, a roll carried upon said arms and pressed thereby against the rear under side of the platen, the axis of said roll being about coincident with the axis of said hinge, and said rock-shaft being cranked to clear said roll, means for adjusting the tension of said spring arms independently of each other, and cams formed upon said rock-shaft to force said roll away from the platen.

9. In a typewriting machine having a rev-

1 oluble platen and platen frame, the combination of a rock-shaft journaled in the ends of the platen frame, a plate having means whereby it is loosely journaled upon said
 5 rock-shaft, said plate extending upwardly and rearwardly from said rock-shaft to form a paper shelf, and also curving forwardly from said rock-shaft around the under side of the platen, a spring pressing said
 10 curved plate up toward the platen, a roll mounted upon said paper-shelf, springs upon the paper shelf pressing said roll against the platen, the axis of said roll being about coincident with the axis of said
 15 rock-shaft, and the latter being cranked around said roll, cams upon said rock-shaft to force said roll away from the platen, and means also operated by said rock-shaft to swing said curved plate away from the
 20 platen; a finger-piece being provided for turning said rock-shaft.

10. In a typewriting machine having a revoluble platen and platen frame, the combination of forward and rear rolls to press
 25 against the under side of the platen, a hinged member whereon the forward roll is mount-

ed, yielding means upon said hinged member for pressing the rear roll against the platen, and a finger-piece mounted on the platen frame and having means both to lock the
 30 front roll and the hinged member away from the platen, and to lock the rear roll away from the platen.

11. In a typewriting machine having a revoluble platen and platen frame, the combination of forward and rear rolls to press
 35 against the under side of the platen, a member hinged upon the platen frame and carrying the forward roll, yielding means upon the hinged member for pressing the rear roll
 40 against the platen, a rock-shaft mounted upon the platen frame and controlled by a finger-piece, levers mounted upon the platen frame and engaged by cams upon said rock-shaft to swing and lock said hinged member
 45 away from the platen, and cams upon said rock-shaft and acting upon means to lock the rear roll away from the platen.

CHARLES W. HOWELL.

Witnesses:

JOHN O. SEIFERT,
 K. FRANKFORT.