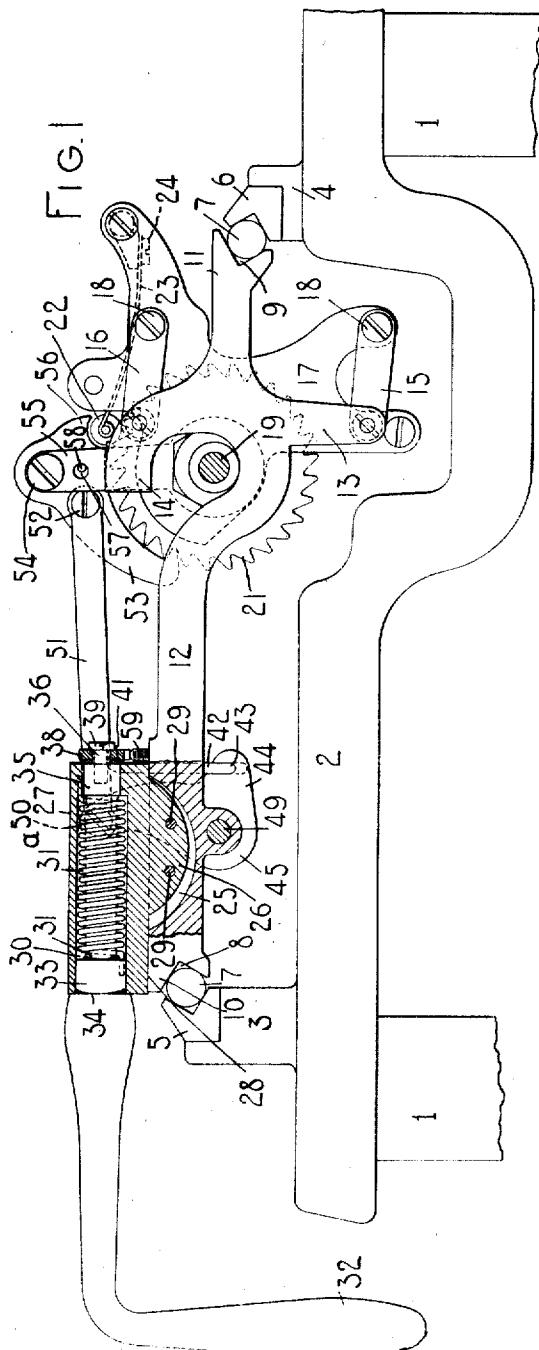


E. H. BERRY.  
TYPE WRITING MACHINE.  
APPLICATION FILED FEB. 21, 1908.

915,541.

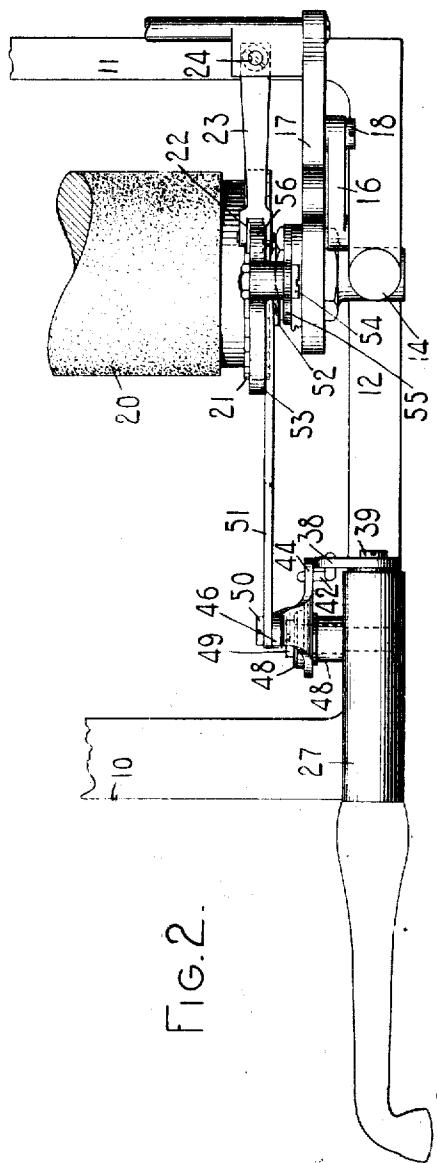
Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.



WITNESSES.

J. B. Reeves.  
Walter O. Smith



INVENTOR.

Edgar H. Berry  
By Jacob Goldfarb  
HIS ATTORNEY

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2 SHEETS—SHEET 2.

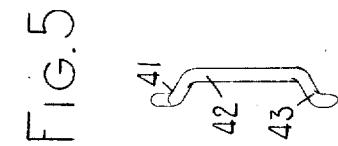
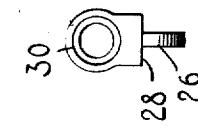
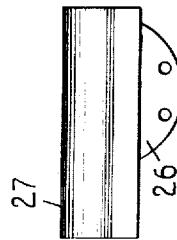


Fig. 4.



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80

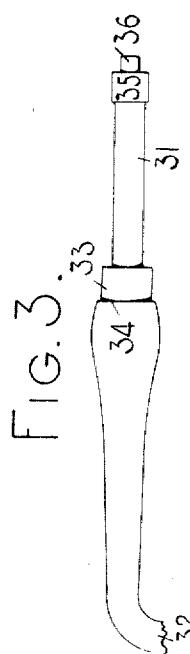


FIG. 3

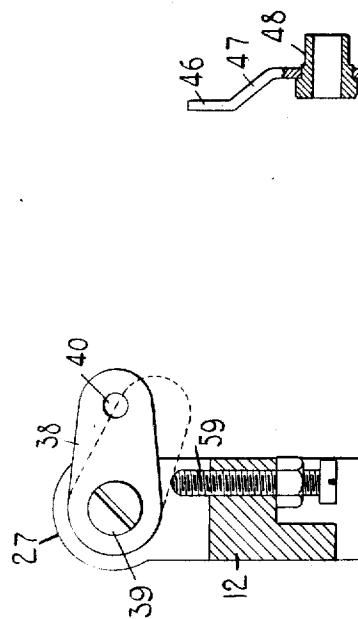


FIG. 7

WITNESSES.

J. B. Deeves  
Charles E. Deeves

INVENTOR:

Edgar H. Berry  
By Jacob Falbel  
HIS ATTORNEY

# UNITED STATES PATENT OFFICE.

EDGAR H. BERRY, OF NEW YORK, N. Y., ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

## TYPE-WRITING MACHINE

No. 915,541.

Specification of Letters Patent. Patented March 16, 1909.

Application filed February 21, 1908. Serial No. 417,181

To all whom it may concern:

Be it known that I, EDGAR H. BERRY, a citizen of the United States, and resident of the borough of Brooklyn, City of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to line spacing mechanism and has for its object to provide improved mechanism of the character specified.

To the above and other ends which will hereinafter appear, my invention consists of the features of construction, arrangement of parts and combinations of devices set forth in the following specification and particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation with parts in section showing the upper portion of a typewriting machine, with the devices of my invention embodied therein. Fig. 2 is a fragmentary plan view of the same. Figs. 3, 4 and 5 are detail views of parts of the structure. Fig. 6 is an enlarged detail sectional view taken through the right-hand end bar of the platen frame and showing the actuating crank arm and the screw stop with which it co-operates. Fig. 7 is a detail edge view, partly in section, of the actuating bell-crank and bearing sleeve to which it is connected. Figs. 8 and 9 are detail side and end views respectively of the bearing for the rock shaft.

In the accompanying drawings I have shown only so much of a typewriting machine as is necessary to illustrate my invention in its embodiment therein.

The present invention is in the nature of an improvement on the construction shown in the application of Oscar Woodward, Serial No. 297,964, and many parts of the construction shown in the accompanying drawings are not of my invention except in so far as they enter into combination with the novel features of the present construction but are the invention of the said Oscar Woodward.

The frame of the machine comprises corner posts 1 and a top plate 2 from which upwardly extending supports 3 and 4 project. Upon these supports are mounted fixed carriage rails 5 and 6 respectively which receive anti-friction balls 7 which co-operate with grooved tracks 8 and 9 on the carriage. The

carriage comprises front and rear cross bars 10 and 11 respectively in which grooved tracks are formed for co-operation with the anti-friction balls 7. These front and rear cross bars are connected by end bars 12 so as to form a rectangular carriage or truck. Each of the end bars of the carriage has a depending arm 13 and an upwardly extending arm 14 to which parallel links 15 and 16 respectively are pivoted, said links being pivoted at their rear ends to end plates 17 of the platen frame, as indicated at 18 to afford an up and down case shift movement of the platen frame. Bearings are formed in the end plates of the platen frame for a platen shaft 19 which supports a cylindrical platen 20, said platen carrying a line space ratchet wheel 21 at the right-hand end thereof. A roller detent 22 is carried by a spring arm 23 fixed at 24 to the platen frame, said roller detent co-operating with the teeth of the line space ratchet wheel 21. Any suitable mechanism (not shown) may be employed for effecting a vertical shift of the platen on its parallel links 15 and 16 to change the "case" position thereof.

The right-hand end bar 12 of the carriage is slotted or recessed in the top thereof as indicated at 25 for the reception of a central depending web, lug or projection 26 on a bearing block 27. The width of the slot or recess 25 corresponds with the thickness of the lug or projection 26 so that the latter will fit snugly within the opening and be prevented from moving or turning laterally. The bottom face 28 of the bearing block rests upon the upper face or side of the end bar 12 so that a firm seat is provided therefor. Pins 29 pass transversely through holes provided in the right-hand end bar 12 of the carriage and through holes provided in the depending lug or projection 26 of the bearing block. A barrel-like or cylindrical opening 30 (Fig. 9) is provided in the bearing block 27 for the reception of a rock shaft 31 having at its forward end an angle arm or finger piece 32 by which the rock shaft may be turned. A coiled restoring spring 31<sup>a</sup> is contained within the opening 30 and surrounds the rock shaft and is connected thereto at one end, the opposite end of said spring being connected to the bearing block 27. An enlarged cylindrical bearing portion 33 is formed on the rock shaft for co-operation with the bearing opening 30 forward of the spring 31<sup>a</sup>.

31, a circumferential shoulder 34 on said shaft abutting the end of the bearing block 27 to prevent a rearward movement of the rock shaft in the bearing. The rear end of 5 the rock shaft has an enlarged cylindrical portion 35 which bears in the reduced rear end of the opening 30 in the bearing block 27 and a projection 36 extends rearwardly from the rock shaft beyond the bearing and 10 is flattened on two sides thereof to correspond to an opening 37 (Fig. 4) formed in a crank arm 38. Said crank arm is secured against displacement from the end of the rock shaft by a headed screw 39, the stem of 15 which takes within a threaded opening in the end of the rock shaft. The crank arm 38 has an opening 40 (Fig. 4) for the reception of a bent end portion 41 of a connecting link 42. The lower end of this connecting 20 link is bent at 43 like its upper end, but at right angles thereto, for engagement in an opening in the rearwardly extending arm 44 of a bell crank lever 45. The bell crank lever has an upwardly extending arm 46, 25 bent at 47 so as to carry the upper end of the arm 46 out of the plane of the lower arm and in substantially the plane of the line spacing ratchet wheel as shown in Fig. 2. The bell crank lever is fixed to a bearing sleeve 48 30 (Fig. 7) which turns on a shouldered and headed screw 49 taking at its threaded end within a tapped opening in a depending lug on the right-hand end bar of the carriage, so as to form a pivotal bearing for the bell crank 35 in order that the latter may move substantially in a vertical plane which extends fore and aft of the machine. The upright arm 46 of the bell crank is pivoted, by a shouldered screw 50, to a rearwardly extending link 51 40 that moves fore and aft of the machine and is pivotally connected at its rear end as indicated at 52 to a line spacing pawl 53. This pawl is pivoted at 54 to a carrier 55 which is mounted to turn around the axis of the 45 platen and to vibrate fore and aft of the machine.

Figs. 1 and 2 show the parts in their operated positions, that is, in their positions at the end of a line spacing movement, and 50 from an inspection of Fig. 2 it will be seen that the line spacing pawl moves in the plane of the line spacing wheel and fore and aft of the machine and that the rear end 56 of said pawl at the termination of the line spacing 55 movement is over and adjacent to the detent roller 22 so as to lock the detent against outward movement from between the teeth of the line spacing ratchet wheel, thus preventing an overthrow of the platen. The carrier 60 55 has an opening 57 for coöperation with a pin 58 carried by the line spacing pawl, the opening being sufficiently large to afford a slight limited independent movement between the pawl and carrier. The extent 65 of line spacing movement effected at each

actuation of the finger piece 32 may be determined by an adjustment of the carrier 55, the initial position of said carrier determining the extent of such movement. The means for effecting such adjustment may be 70 the same as those shown in the application of Oscar Woodward hereinbefore referred to, and I have not deemed it necessary to illustrate said means as it is unnecessary to an understanding of my present invention. 75

From the foregoing description it will be understood that an actuation of the finger piece 32 is effective to move the carriage to the right and is likewise effective by the same operation to actuate the line spacing 80 mechanism. The operation of the finger piece 32 turns the rock shaft in its bearing 27, thus moving the crank arm at the rear end thereof downwardly from the full to the dotted line position shown in Fig. 6 where it 85 is arrested by engaging an adjustable screw stop 59 received in a tapped opening in the right-hand end bar 12 of the carriage. The arrest of the crank arm by the stop 59 likewise effects an arrest of all the parts controlled thereby. Motion transmitted from the rock shaft to the crank arm is imparted downwardly to the upright link 42 and from the link 42 to the bell crank lever 45, thence rearwardly through the link 51 directly to 95 the line spacing pawl. The first part of the movement imparted to the pawl is to turn it on its pivot 54 independently of the carrier 55 in order to effect an engagement between said pawl and the line spacing wheel. A 100 further movement of the pawl is effective to move it and its carrier together with the line spacing wheel and platen in order to effect a line spacing movement of the latter.

In the present construction I have provided 105 a link connection between the crank arm 38 and the bell crank lever 45 instead of a sliding and turning connection as in the construction of the Woodward application hereinbefore referred to. Moreover the bearing piece 27 is formed separately from the carriage instead of being integral therewith as in the said Woodward construction. 110

From an inspection of Figs. 2 and 5 it will 115 be seen that the pivotal portions of the link 42 which are received in the openings of the crank arm 38 and the arm 44 of the bell crank lever extend at right angles to each other and that motion may be efficiently transmitted from the crank arm to the bell crank 120 lever notwithstanding the fact that these parts move in planes at right angles to each other.

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

1. In a typewriting machine, the combination of a carriage, a rock-shaft carried by the carriage, a crank arm on said rock shaft, a bell crank lever, a link between said crank arm and said bell crank lever, a carrier, a 130

pawl pivoted to said carrier, a link connecting said pawl and said bell crank lever, a platen, and a line spacing wheel connected therewith.

5. 2. In a typewriting machine, the combination of a carriage, a platen, a platen frame, a line spacing wheel, a rock shaft carried by the carriage and extending fore and aft of the machine, a crank arm on said rock shaft, a bell crank lever mounted on the carriage, a link between said crank arm and said bell crank lever, a pivoted carrier carried by the platen frame, a pawl pivoted to said carrier, and a link connected directly to said pawl 15 and to said bell crank lever.

3. In a typewriting machine, the combination of a carriage, a rock shaft carried by the carriage, a crank arm on said rock shaft, a bell crank lever movable in a vertical plane fore and aft of the machine, a link between said crank arm and said bell crank lever, a carrier pivoted to vibrate fore and aft of the machine, a line spacing pawl pivoted to said carrier and a link connecting said pawl and 25 said bell crank lever.

4. In a typewriting machine, the combination of a carriage, a platen, a platen frame, a rock shaft carried by the carriage and extending fore and aft of the machine, a crank 30 arm on said rock shaft, a bell crank lever mounted on the carriage and movable in a vertical plane fore and aft of the machine, a link between said crank arm and said bell crank lever, a pivoted carrier carried by the 35 platen frame to vibrate fore and aft of the machine, a pawl pivoted to said carrier, and a link connected directly to said pawl and to said bell crank lever.

5. In a typewriting machine, the combination of a carriage, a platen, a line spacing 40 wheel therefor, a platen frame, a rock shaft carried by the carriage and extending fore and aft of the machine, a crank arm on said rock shaft, a bell crank lever mounted on the 45 carriage and movable in a vertical plane fore and aft of the machine, a link between said crank arm and said bell crank lever, a carrier carried by the platen frame and pivoted co-axially with the platen to vibrate fore and 50 aft of the machine, a pawl pivoted to said carrier to move in the plane of the line spacing wheel, and a link connected directly to said pawl and to said bell crank lever.

6. In a typewriting machine, the combination of a carriage; a platen; a line spacing 55 wheel; a pawl which moves in the plane of the line spacing wheel; means for actuating said pawl, said means comprising a rock shaft that extends fore and aft of the machine, a crank arm on said rock shaft and 60 connections between said crank arm and pawl; and a screw stop on the carriage with

which said crank arm co-operates for limiting the line spacing movement of said crank arm and the parts controlled thereby, an adjustment of said screw stop determining the extent of movement of the crank arm. 65

7. In a typewriting machine, the combination of a platen; a line spacing wheel; a pawl which moves in the plane of the line spacing wheel; means for actuating said pawl, said means comprising a rock shaft that extends fore and aft of the machine, a crank arm on said rock shaft, a bell crank lever operatively connected with said pawl, 70 and a link between said crank arm and bell crank lever; and a screw stop for limiting the line spacing movement of said crank arm and the parts controlled thereby. 75

8. In a typewriting machine, the combination of a platen; a line spacing wheel; a pawl which moves in the plane of the line spacing wheel; means for actuating said pawl, said means comprising a rock shaft that extends fore and aft of the machine, a 85 crank arm on said rock shaft, a link connected to said crank arm, a bell crank lever movable in a vertical plane extending fore and aft of the machine and connected to said link, a second link movable fore and aft 90 of the machine and connected to said bell crank, a pawl carrier pivoted on the axis of the platen for movement fore and aft of the machine, and a pawl pivoted to said carrier and to said second link; and a screw stop for 95 limiting the line spacing movement of said crank arm and the parts controlled thereby.

9. In a typewriting machine, the combination of a platen, a platen frame, a line spacing wheel, a hand actuated rock shaft, a 100 line spacing pawl, connections between said pawl and rock shaft, and a bearing for said rock shaft, said bearing being separate from but secured to the platen frame.

10. In a typewriting machine, the combination of a platen, a platen frame, a line spacing wheel, a hand actuated rock shaft, a line spacing pawl, connections between said pawl and rock shaft, and a bearing for said rock shaft, said bearing being separate from 105 but secured to the platen frame and having a depending flange or projection seated in a recess in the platen frame and connected thereto by pins which extend through the platen frame and through said projection. 110 115

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 20th day of Feb. A. D. 1908.

EDGAR H. BERRY.

Witnesses:

FRANCIS E. VAN BUSKIRK,  
CHARLES E. SMITH.