B. W. TUCKER.

TYPE WRITING MACHINE.

APPLICATION FILED SEPT. 15, 1917.

1,293,252.

Patented Feb. 4, 1919.

2 SHEETS—SHEET 1.

Fig. 1

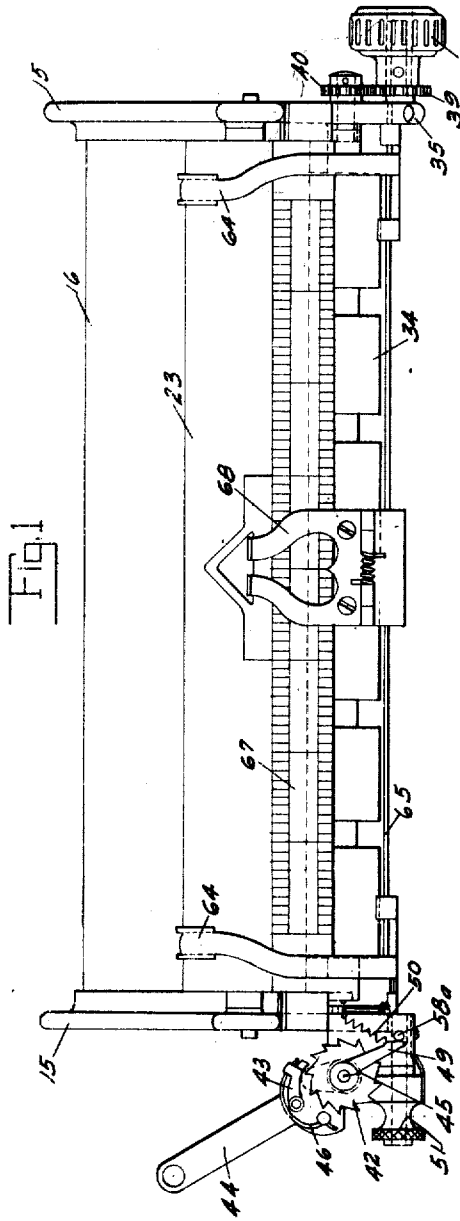


Fig. 3

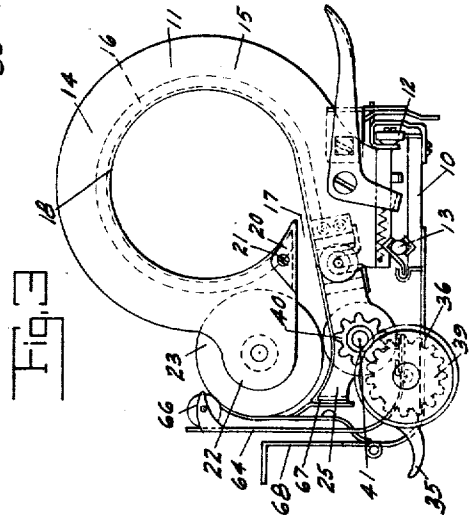
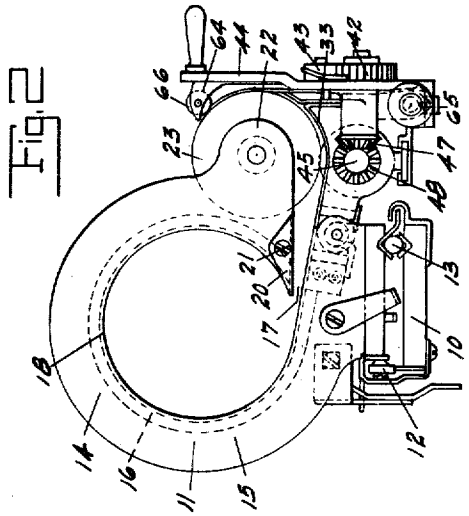


Fig. 2



Inventor

Benjamin W. Tucker

By his Attorneys

Crosby & Gregory

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2 SHEETS—SHEET 2.

Fig 5

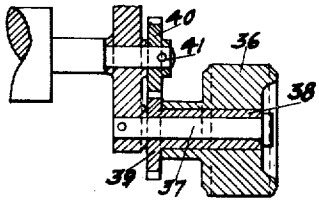


Fig 4

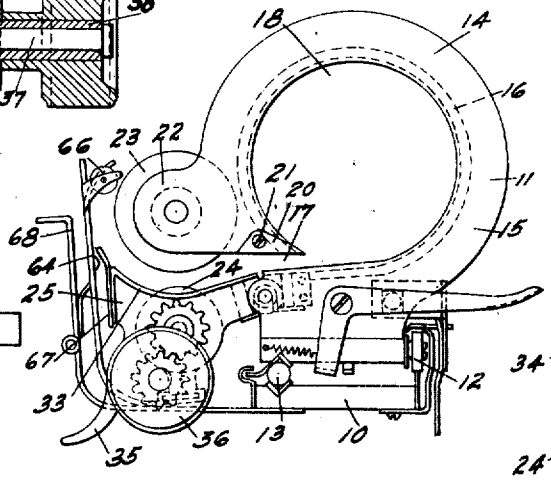


Fig 6

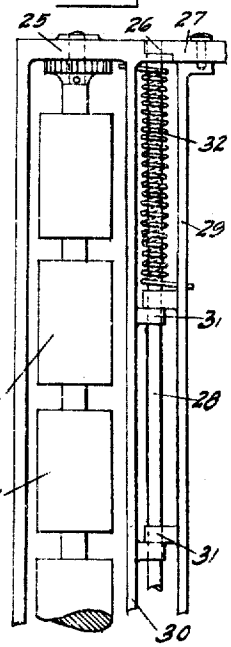


Fig 10

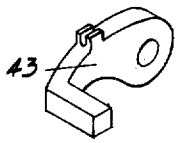


Fig 7

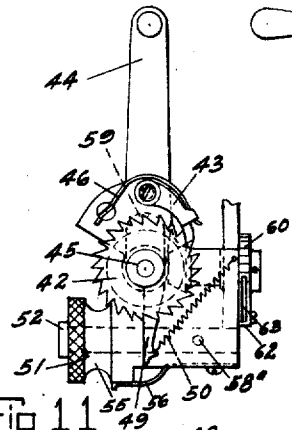


Fig 8

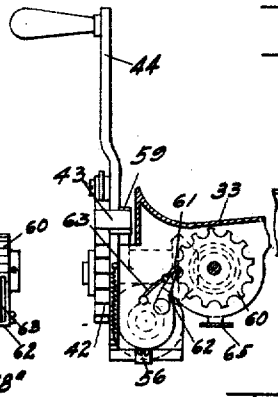


Fig 9

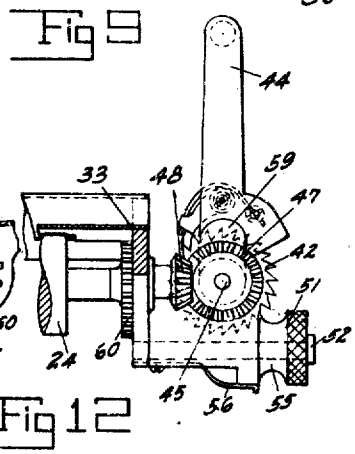


Fig 11

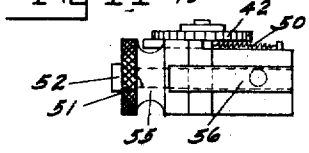
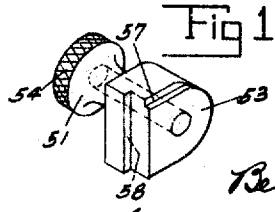


Fig 12



Inventor

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UNITED STATES PATENT OFFICE.

BENJAMIN W. TUCKER, OF SOUTH ORANGE, NEW JERSEY, ASSIGNOR TO CORONA TYPEWRITER COMPANY, INC., OF GROTON, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,293,252. Specification of Letters Patent. Patented Feb. 4, 1919.

Original application filed May 26, 1916, Serial No. 100,037. Divided and this application filed September 15, 1917. Serial No. 191,532.

To all whom it may concern:

Be it known that I, BENJAMIN W. TUCKER, a citizen of the United States, and a resident of South Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description.

This application is a division of my co-pending application Serial No. 100,037, filed May 26, 1916.

This invention relates more particularly to line-spacing mechanism for typewriting machines, and is especially adapted for use in connection with typewriting machines in which work sheets wider than the carrfage may be written upon.

One of the principal objects of the invention is to provide a line-spacing mechanism for a writing machine, so constructed that work sheets, as wide paper, long envelops, and the like may be placed about the platen and the work sheet handled in as ready a manner as in the ordinary machine, without making the carriage extensible and without in any way interfering with the proper working of the parts of the carriage or the parts usually associated therewith.

Another object of the invention is to provide a simple and efficient carriage in which the platen may be supported at its ends and the work sheet so held about the platen that the platen may be independently rotated or moved for line-spacing, notwithstanding the fact that the work sheet may extend on either or both sides beyond the ends of the platen.

In the drawings, Figure 1 is a front elevation of one form of carriage embodying the invention;

Fig. 2 an end elevation of the carriage looking from the left hand side of the machine;

Fig. 3 an end elevation looking from the right hand side of the machine;

Fig. 4 a view similar to Fig. 3, except that the feed roll and certain other parts have been moved to a position to release the work sheet about the platen;

Fig. 5 a sectional view, partly in elevation, showing means for rotating the platen independently of the line-spacing means;

Fig. 6 a fragmentary plan showing how the pressure roll is mounted;

Fig. 7 an enlarged fragmentary elevation showing a part of the line-spacing means;

Fig. 8 a vertical section, partly in elevation, showing the line-spacing means in end elevation;

Fig. 9 a front elevation looking in a direction opposite to that shown in Fig. 7;

Fig. 10 a detail perspective view of the line-spacing pawl;

Fig. 11 a detail plan view of the means forming a stop for the pawl-carrying lever; and

Fig. 12 a detail perspective view of the line-spacing stop for determining the extent of line-spacing movement.

While the invention is shown as applied to carriages constructed to adapt work sheets of the usual or of widths wider than the carriage to be written upon, it will be understood that it may be employed in connection with carriages or writing machines of various kinds and constructions.

The carriage bed 10 may be supported in any desired way and mounted to travel lengthwise of the bed under the force of a spring drum or other motor is a carriage 11. As shown the carriage is provided with rollers 12 along one edge thereof, and ball bearings 13 along the other edge so as to adapt the carriage to move readily along its bed. The carriage is also adapted to be controlled by suitable escapement mechanism, but such mechanism as well as the mounting of the carriage may be of any suitable construction.

The carriage frame 14 has end pieces, brackets or frame members 15 which may be joined together by a member or work sheet receiver 16. The member 16 may be of open work, as wire, or thin plate, either solid or provided with openings to lighten the same, and if made of metal, as aluminum, will add comparatively little weight to the carriage. The end members or brackets 15 are substantially annular in form, having an opening, throat, or channel 17. The member 16 is substantially cylindrical in form, and is arranged to conform to the shape of the opening 18 of the end pieces 15. The ends of the cylindrical member 16 are not joined together but provide a throat or opening corresponding to the channel 17 in order that the work sheet may be caused to pass through the opening 18 into and from the

cylinder 16, as will be presently described. One end of the member 16 is fastened to the end brackets 15 by screws or otherwise, and the other end of the cylindrical member 16 may be provided with upturned parts or lugs 20, by which said end may be secured by screws 21 or otherwise to the outer surface of said brackets 15. The end brackets 15 are extended forward to provide lugs 22 and mounted in said lugs to rotate therein is a platen or roll 23. The platen is supported at its ends in the brackets 15 and extends substantially throughout the entire distance between said end brackets 15, and is adapted to take the impact of the type in the usual way. A pressure roll 24 is arranged under the platen 23 and is normally held yieldingly against the platen to grip the work sheet when passed about said platen. The work sheet, if of some length, extends back of the platen and pressure or feed roll 24, and ascends through the throat 17 into the opening 18, formed by the cylinder or body 16 wherein it may be rolled upon itself to occupy as little space as possible, and from which condition the said work sheet is fed forward between the feed roll and platen upwardly above the platen as is usual in visible writing machines.

The pressure or feed roll 24 is held to rotate in a carriage frame member 25. This frame member is hinged at 26 to the forward ends 27 of the carriage end brackets 15. A rod 28 extends lengthwise of the carriage between the end frame brackets 15 forming a hinged connection between the parts 25 and said end brackets. A transversely extending bar 29 is held at its ends between the end brackets 15 and a bar 30 extends between tne ends of the carriage frame member 25 for the pressure roll. The two bars 29 and 30 are arranged in parallel relation and have lugs 31 extending outwardly therefrom so as to provide bearings for the rod 28. At one or both ends of the rod 28 is arranged a spring 32 one end of which spring is held under the bar 29 and the other end under the bar 30, the tension of the spring or springs tending to force the frame 25 with the pressure roll 24 against the platen so that under normal conditions the platen and pressure roll will rotate in unison. The carriage frame part 25 has a plate 33 on its upper surface which forms substantially a continuation of the forward edge of the member 16, and said plate with the plate like cylindrical member 16 provides a proper surface for guiding the work sheet backwardly or forwardly between the platen and pressure roll without offering any obstruction thereto whatever. The plate 33 is cut away to permit the roll 24 to extend through the same, and said roll 24 is also cut away to provide spaced members or parts 34 between which parts a part of the plate 33 extends in order that a substantially continuous table may be provided for the work sheet. A handle 35 may be arranged at either or both sides of the machine on the pressure roll frame 25 to adapt said frame to be moved on its hinge 26 to release the pressure roll from the platen to adapt the work sheet to be adjusted. By this means the work sheets may be properly held and fed between the platen 23 and the pressure roll 24, either into the body or receiver 16 or forwardly for printing purposes, as desired.

A knob 36 is mounted to rotate upon a stud 37. This stud 37 is held to one of the carriage end brackets and may be located adjacent to the handle 35. The knob 36 may be held to a sleeve 38, and on the inner end of said sleeve is a pinion 39 which meshes with another pinion 40. The pinion 40 is held to the axis 41 of the pressure roll so that by rotating the knob the pressure roll may be rotated in either direction for feeding the work sheet.

As a means for line-spacing the platen I provide a ratchet wheel 42 which is engaged by a lever-actuated pawl 43. The pawl 43 is mounted upon a manually operable lever 44. This lever is pivoted to swing about the shaft or stud 45, and during its swinging movement causes the pawl to move the ratchet wheel 42 according to the distance the lever 44 is moved, there being a spring 46 tending normally to force the pawl 43 into engagement with the teeth of said ratchet wheel. The shaft or stud 45 is mounted on one of the carriage end brackets at substantially a right angle to the axis of the pressure roll, and on the inner end of said shaft 45 is a bevel gear or pinion 47 which meshes with a smaller gear or pinion 48 on the axis of the pressure roll, so that when the ratchet wheel 42 is rotated a rotary movement is imparted to said pressure roll. The lever 44 moves in a direction lengthwise of the carriage, and may serve as a means for moving the carriage backward against its letter-spacing movement and with such backward movement simultaneously line-space the platen. The lever 44 has a downwardly projecting part 49 to which is held one end of a spring 50, said spring at its other end being secured to a fixed part of the carriage frame. The part 49 of the lever 44 is adapted to engage a stop 51. This stop is for the purpose of limiting the extent of movement of the lever 44 so that the platen may be moved a single or double space or otherwise, according to the position of said stop 51. This stop 51 is rotatably held on a stud 52. The stop 51 comprises a block portion or part 53, and formed integral with the block portion is a knurled head 54 by which the stop may be rotated, said head 51 being spaced from the block 53 by a reduced por-

tion 55. The block 53 may be substantially rectangular in cross section and is normally held in different adjusted positions by means of a spring 56, one end of which is held to a fixed part of the carriage and the other end of which is free and is adapted to engage one of the sides of the block 53 to frictionally hold the same in any one of its adjusted positions. The block 53 is cut away to provide an engaging portion 57 on one side thereof, and is cut away at 58 to provide another engaging portion. The engaging portions 57 and 58 are of relatively different distances from the end of the stop and as such engaging portions of the stop are the parts engaged by the projecting end 49 of the line spacing lever 44 the extent of movement of said line-spacing lever is determined by said portions. When the stop is adjusted so that the lever end 49 will engage the plane side or front of the block 53 a single line-space movement may be imparted to the platen, and when the stop is adjusted so that the lever will engage the part 57 two line spaces may be given to the platen at a single movement of the lever 44, and if the stop is adjusted so that the lever end 49 engages the cut away part 58 the platen may be given three line-space movements. The line-spacing lever 44 may have its backward movement limited by a suitable stop 58^a. On the end bracket or a part projecting therefrom adjacent to the ratchet wheel 42 may be an enlarged cam portion 59 which is adapted to be engaged by the pawl 43 during its backward movement so as to release the pawl from engagement with the teeth of the ratchet wheel, when the lever 44 is in its normal position. A toothed wheel 60 is secured to the shaft of the pressure roll and this toothed wheel is adapted to be engaged by a roll 61. The roll 61 is carried upon an arm 62 and this arm is normally forced toward the toothed wheel 60 by a spring 63 and tends normally to hold the pressure roll in any one of its line-spacing movements and permits the said pressure roll to be moved in either direction.

The carriage may be provided with paper fingers 64 which are adjustably held to a bar 65 carried by the pressure roll frame 25. These fingers may be adjusted lengthwise of the platen and at the upper end thereof may have rolls 66 mounted thereon as is usual. The pressure roll frame 25 may be provided with a scale 67 at the forward edge thereof, and there may be also provided type-lining means, as 68, which may be hinged to adapt the same to be moved with the pressure roll away from the platen.

It will be evident from the foregoing that a carriage construction is provided whereby wide or long work sheets may be employed and written upon which are wider than the length of the carriage or the platen: that simple means are provided whereby the work sheet is properly held between pressure means and the platen; that the construction is such that the carriage is adapted for front strike or other writing means; and that simple and efficient means is provided whereby the work sheet may be readily adjusted and line spaced.

What I claim is:—

1. In a typewriting machine, the combination of a carriage, a platen mounted to rotate on said carriage, a roll coöperating with the platen to feed a work sheet, a line-spacing lever pivoted on an axis extending transversely of the carriage, a ratchet wheel journaled on an axis coincident with the pivot of the line spacing lever, means driven from said ratchet wheel for rotating the roll, a pawl carried by the lever and adapted to rotate the ratchet wheel, and a rotary stop for varying the extent of movement of the line-spacing lever.

2. In a typewriting machine, the combination of a carriage, a platen mounted to rotate on said carriage, a pressure roll coöperating with the platen to hold the work sheet, a shaft journaled on the carriage and extending transversely thereof, a line-spacing lever loosely pivoted on said shaft and movable lengthwise of the carriage to adapt the same to move the carriage during the line-spacing movement, a ratchet wheel fixed on said shaft, means driven from said shaft for rotating the roll, a pawl mounted on the lever adapted to rotate the ratchet wheel, a spring tending to force the lever in one direction, a rotary stop for limiting the extent of movement of the line-spacing lever journaled on an axis extending lengthwise of the carriage and having cut-away portions at relatively different distances from the end of said stop adapted to be engaged by said lever, and a spring for yieldingly holding the stop in different rotatably adjusted positions.

3. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll coöperating with the platen, a shaft rotatably mounted on the carriage at an angle to the axis of the platen, a ratchet wheel fixed on said shaft, means driven from said shaft for rotating the pressure roll, an oscillating line-spacing lever loosely mounted on said shaft, a pawl carried by said lever and adapted to rotate the ratchet wheel when the lever is swung in one direction, and a stop rotatably mounted on the carriage and formed with portions adapted to permit the line-spacing lever to be oscillated about said shaft through arcs of different extent in different rotatably adjusted positions of said stop.

4. In a typewriting machine, the combination of a carriage, a platen rotatably

supported on the carriage, a shaft journaled on the carriage at an angle to the axis of the platen, a line-spacing lever loosely pivoted on said shaft, a ratchet wheel fixed on said shaft, means driven from said shaft for rotating the platen, a pawl mounted on said line-spacing lever adapted to rotate the ratchet wheel, a stud held to the carriage at a right angle to the shaft, and a stop rotatably mounted on said stud and formed with abutments adapted to be engaged by the line-spacing lever and permit said lever to be oscillated about the shaft through arcs of different extent in different rotatably adjusted positions of said stop.

5. In a typewriting machine, the combination of a carriage, a platen rotatably supported on the carriage, a shaft journaled on the carriage and extending transversely of the axis of the platen, a line-spacing lever loosely pivoted on said shaft, a ratchet wheel fixed on said shaft, a bevel pinion fixed on said shaft, a feed roll engaging the platen, a bevel pinion rotatable with said feed roll and meshing with the pinion on said shaft, a pawl carried by the line-spacing lever adapted to rotate the ratchet wheel, and a rotary stop block for limiting the extent of the line-spacing movement of said lever, said stop block being journaled on an axis extending transversely to the shaft on which said lever is pivoted and having abutments at different sides thereof at relatively different distances from one end of the stop adapted to be engaged by the lever.

6. In a typewriting machine, the combination of a carriage, a platen rotatably supported on the carriage, a shaft journaled on the carriage, a line-spacing lever loosely pivoted on said shaft intermediate the ends of the lever, a ratchet wheel fixed on said shaft, means driven from said shaft frictionally engaging the platen to rotate the platen, a pawl carried by said lever above its pivotal point adapted to rotate the ratchet wheel, a spring normally forcing the lever in one direction, a fixed stop adapted to be engaged by the lower end of the lever for limiting the movement of the lever under the influence of said spring, a stop rotatably mounted on the carriage below the pivotal point of the lever for limiting the movement of the lever in opposition to said spring, said stop being formed with stepped abutments adapted to be presented in the path of the lower end of said lever in different rotatably adjusted positions of the stop, and means for holding the stop in its rotatably adjusted positions.

7. In a typewriting machine, the combination of a carriage, a platen rotatably supported on the carriage, a pressure roll cooperating with the platen to feed a work sheet, a yieldable support for the pressure roll held to the carriage, a line-spacing lever pivotally mounted on said support to move lengthwise of the carriage in a plane forward of the platen, a ratchet wheel mounted on said support, a rearwardly extending driving connection between said ratchet wheel and the pressure roll, a pawl carried by said lever adapted to rotate the ratchet wheel, and an adjustable stop mounted on the support adapted to control the extent of movement of the line-spacing lever.

8. In a typewriting machine, the combination of a carriage, a platen rotatably supported on the carriage, a pressure roll frictionally engaging the platen, a yieldable support for the pressure roll mounted on the carriage, a shaft journaled in said support at an angle to the axis of the pressure roll, a ratchet wheel fixed on said shaft, a driving connection between said shaft and the pressure roll, a line-spacing lever loosely pivoted on the forward end of said shaft, a pawl carried by said lever and adapted to rotate the ratchet wheel when the lever is moved in one direction, a spring normally forcing the lever in the opposite direction, and a rotary stop mounted on the support adapted to limit the extent of movement of the lever in opposition to said spring, said stop being provided with stepped abutments to permit the lever to be moved relatively different distances in different rotatably adjusted positions of the stop.

9. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll rotatably supported on the carriage and frictionally engaging the platen, a line-spacing lever pivotally mounted on said carriage to move lengthwise of the carriage, a ratchet wheel, means driven from said ratchet wheel for rotating the pressure roll, a pawl carried by said lever and adapted to rotate the ratchet wheel, a spring normally tending to force the lever in one direction, a rotary stop for limiting the extent of movement of the line-spacing lever in opposition to said spring, said stop being journaled on an axis extending lengthwise of the carriage and having cut-away portions at relatively different distances from the end of said stop adapted to be engaged by said lever, and means for holding the stop in its different rotatably adjusted positions.

10. In a typewriting machine, the combination of a carriage, a platen rotatably supmeans for normally forcing the said frame pivotally held to said carriage, a pressure roll rotatably journaled in said frame, yieldable means for normally forcing the said frame toward the platen to hold the pressure roll in frictional engagement with the platen, a line-spacing lever movable lengthwise of the carriage to adapt the same to move the carriage during the line-spacing movement, a

ratchet wheel rotatably mounted on said frame, means driven from said ratchet wheel for rotating the roll, a pawl carried by said lever and adapted to rotate the ratchet wheel, a rotary stop for limiting the extent of the line-spacing movement of said lever, said stop being journaled on the swinging frame on an axis extending lengthwise of the carriage and having cut-away portions at relatively different distances from the end of the stop adapted to be engaged by said lever, and means for holding the stop in its rotatably adjusted position.

11. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a swinging frame pivotally held to the carriage, a pressure roll journaled in said frame, yieldable means for normally holding the pressure roll in frictional engagement with the platen, a shaft journaled on said frame on an axis extending transversely of the carriage, a line-spacing lever loosely pivoted on said shaft and movable lengthwise of the carriage, a ratchet wheel fixed on said shaft, operative connections between said shaft and the pressure roll for rotating the pressure roll, a pawl carried by said lever and adapted to rotate the ratchet wheel, a spring for normally forcing the line-spacing lever in one direction, a rotary stop for limiting the extent of movement of the line-spacing lever in opposition to said spring, said stop being journaled on an axis extending lengthwise of the carriage and formed with shoulders at different distances from the end of the stop, and a depending arm fixed to said line-spacing lever and adapted to engage one of said shoulders in each of the rotatably adjusted positions of said stop.

12. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a swinging frame pivotally held to the carriage, a pressure roll journaled in said frame, yieldable means for normally holding the pressure roll in frictional engagement with the platen, a shaft journaled on said frame on an axis extending transversely of the carriage, a line spacing lever loosely pivoted on said shaft and movable lengthwise of the carriage, a ratchet wheel fixed on said shaft, operative connections between said shaft and the pressure roll for rotating the pressure roll, a pawl carried by said lever and adapted to rotate the ratchet wheel, a spring for normally forcing the line-spacing lever in one direction, a rotary stop for limiting the extent of movement of the line-spacing lever in opposition to said spring, said stop being journaled on an axis extending lengthwise of the carriage and formed with shoulders at different distances from the end of the stop, a depending arm fixed to said line-spacing lever and adapted to engage one of said shoulders in each of the rotatably adjusted positions of said stop, and a spring for yieldably holding the stop in its rotatably adjusted position.

13. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll mounted on the carriage and adapted to frictionally engage the platen to rotate the same, a shaft rotatably mounted on the carriage, a ratchet wheel fixed on said shaft, a line-spacing lever loosely pivoted on said shaft, means driven from said shaft for rotating the pressure roll, a spring-pressed pawl carried by said lever and adapted to rotate the ratchet wheel, a stop rotatably mounted on the carriage and adapted to permit the line-spacing lever to be moved different distances in different rotatably adjusted positions of said stop, and a cam held to the carriage and adapted to hold said spring-pressed pawl out of engagement with said ratchet wheel when the line-spacing lever is in normal position.

14. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll mounted on the carriage and adapted to frictionally engage the platen, a shaft rotatably mounted on the carriage, a ratchet wheel fixed on said shaft, a line-spacing lever loosely pivoted on said shaft, means driven from said shaft for rotating the pressure roll and platen in unison, a spring-pressed pawl carried by said lever and adapted to rotate the ratchet wheel, a stop rotatably mounted on the carriage and adapted to permit the line-spacing lever to be moved different distances in different rotatably adjusted positions of said stop, a cam held to the carriage and adapted to hold said spring-pressed pawl out of engagement with said ratchet wheel when the line-spacing lever is in normal position, and yieldable locking means for normally holding the pressure roll and platen against rotation.

15. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll adapted to frictionally engage the platen, a shaft rotatably mounted on the carriage, a ratchet wheel fixed on said shaft, means driven from said shaft for rotating the pressure roll, an oscillating line-space lever loosely mounted on said shaft, a spring-pressed pawl carried by said lever and adapted to rotate the ratchet wheel when the lever is swung in one direction, a cam rigidly held to the carriage and adapted to lift said pawl out of engagement with the ratchet wheel when the lever is swung in the opposite direction, a stop rotatably mounted on the carriage and formed with portions adapted to be engaged by the line-spacing lever and to per-

mit said lever to be oscillated about said shaft through arcs of different extent in different rotatably adjusted positions of said stop, and yieldable means for normally holding the pressure roll against rotation.

16. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll shaft rotatably journaled on said carriage, a pressure roll fixed to said shaft to rotate therewith, a stub shaft extending at right angles to said pressure roll shaft, a beveled gear fixed to said pressure roll shaft, a beveled gear fixed to said stub shaft and meshing with the beveled gear on the pressure roll shaft, a ratchet wheel fixed to said stub shaft, a line-spacing lever loosely pivoted on said stub shaft, a pawl carried by said lever and adapted to rotate the ratchet wheel, and a rotary stop mounted on the carriage and adapted to permit the line-spacing lever to be moved different distances in different rotatably adjusted positions of said stop.

17. In a typewriting machine, the combination of a carriage, a platen rotatably supported on said carriage, a pressure roll shaft rotatably journaled on said carriage, a pressure roll fixed to said shaft to rotate therewith, a stub shaft extending at right angles to said pressure roll shaft, a beveled gear fixed to said pressure roll shaft, a beveled gear fixed to said stub shaft and meshing with the beveled gear on the pressure roll shaft, a ratchet wheel fixed to said stub shaft, a line-spacing lever loosely pivoted on said stub shaft, a pawl carried by said lever and adapted to rotate the ratchet wheel, a spring for normally forcing the line-spacing lever in one direction, a rotary stop mounted on the carriage and adapted to limit the extent of the movement of said lever in opposition to said spring, said stop being formed with portions adapted to permit the lever to be moved relatively different distances in different rotatably adjusted positions of said stop, means for holding the stop in its rotatably adjusted position, and yieldable means for normally holding the pressure roll against rotation.

This specification signed this 13th day of September, A. D. 1917.

BENJAMIN W. TUCKER.